WORKING PAPER

RECONSIDERING THE BENEFITS AND COSTS OF TRADE PROTECTION:

The Case of Textiles and Apparel

Robert E. Scott[1] and Thea M. Lee[2]

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Reconsidering the Benefits and Costs of Trade Protection: The Case of Textiles and Apparel

Introduction

The current round of General Agreement on Tariffs and Trade (GATT) negotiations in Brussels and Geneva is proceeding towards agreement on a plan to phase out the Multi-Fiber Arrangement (MFA), which regulates textile and apparel imports into the United States and other developed countries. The debate over the MFA has been shaped by recent studies concluding that the current import quota system imposes huge costs on U.S. consumers without yielding comparable benefits to the domestic industry.

These results, however, depend on three critical assumptions:

1. Apparel retail markets are perfectly competitive, so that the benefits of trade liberalization are passed on to the consumer.

2. The rate of technological change is independent of trade protection, i.e., that a more secure market would not induce more investment in textiles.

3. Labor markets are also competitively structured, and thus adjustment costs for displaced workers are small and temporary.

This paper demonstrates that these assumptions do not hold, and therefore, earlier studies have vastly over-estimated the consumer costs of protection.

Retail Markets

William Cline of the Institute for International Economics and analysts at the International Business and Economic Research Corporation (IBERC), among others, have argued that the domestic retail market in apparel is perfectly competitive. This assumption means that apparel retailers lack the ability to mark up prices significantly over costs, and that any excess profits are bid away by competition.

Although the absolute number of apparel retailers appears large, our data show that changes in market structure, especially in women's clothing, appear to have substantially increased the market Rower of domestic apparel retailers in the last decade. The eight largest women's clothing stores, for example, doubled their share of the market between 1972 and 1987. In fact, concentration ratios rose in every distribution channel of apparel retailing during that period. Similarly, rising barriers to entry in the retail business have given some monopsony power (market power in buying) to retailers, especially vis-a-vis foreign suppliers.

The increase in concentration in apparel retailing has evidently increased the spread between retail and wholesale apparel prices. A contributing factor is the growing stratification in apparel retailing, as department stores and general apparel retailers are displaced by firms that specialize in one customer class (children, women, teens, etc.) or in high volume discount sales,

The presence of substantial monopoly or monopsony power in apparel retailing profoundly alters the expected impact of trade liberalization and thus the estimated costs of protection. Under this assumption, retailers would not fully pass through a fall in import prices to the final consumer. Depending on the degree of competition they face, retailers could respond to import liberalization by keeping prices high and limiting quantity sold, thereby increasing their markup and profit level. If this is the case, then apparel retailers and importers could be the main beneficiaries of trade liberalization -- probably receiving a much larger share of the benefits than consumers. Furthermore, much of the commonly estimated "cost of protection" may in fact be measuring inflated retail markups.

Our research shows that incorporating more realistic assumptions about retail competition into Cline's (1990) model reduces the consumer cost of protection in apparel to less than one-fourth of his estimate ($3.65 billion per year, rather than $17.6 billion). The biggest transfer of income that would result from trade liberalization, however, would go to domestic apparel retailers and importers, who stand to gain up to $8.7 billion if the MFA is eliminated.

Productivity

The next section of the paper evaluates evidence and arguments about the effects of protection on productivity in the textile industry. Most previous studies have ignored the dynamic effects of trade protection on an industry's ability to take advantage of scale economies and learning curves. We show that, to the extent that past productivity improvements in textiles were induced or facilitated by protection, production costs and thus prices may have fallen below levels that would have prevailed in an unprotected market. When this price-lowering effect of protection is taken into **account, consumers** (and the nation as a whole) may even have received net benefits from protection of the domestic textile industry. And since textiles are a major input into apparel production, lower textile prices also contribute to lower production costs in apparel.

Labor Adiustment Costs

The final issue considered here is the social cost of phasing out trade protection for the textile and apparel industries in the 1990s, as proposed in the GATT talks. Previous studies have argued that adjustment costs for displaced workers are small and transitory, and are thus outweighed by the benefits of the lower domestic prices for textile and apparel products that would result from

elimination of the MFA. These studies, however, have understated the duration of unemployment spells that follow displacement and have failed to account adequately for the permanent losses suffered by those who drop out of the labor force or who are reemployed at lower wages. Since textile and apparel workers are significantly more likely to drop out of the labor force when displaced than the average worker, our analysis provides a more accurate estimate of the social costs of displacement than earlier studies. Our results, based on an analysis of Labor Department data, show that the full costs to the national economy of displacement total $852 million annually -- $603 million in apparel and $249 million in textiles.

Since the focus of our study was not on job loss, but rather on the impact of market power in apparel retailing and induced innovation in textiles, we did not make independent estimates of job loss. Rather, we used Cline's (1990) figures as a baseline. This should not be construed as an endorsement of his figures -- only a conservative choice for the purposes of comparison between his model and ours. A recent study, by Trade Research & Analysis in Bethesda, Maryland, shows that direct job loss in apparel and textiles could be as high as 1.1 million by the year 2002, if the MFA is eliminated, with another 372,000 jobs lost in supplier industries (TRA, 1991). Thus our estimates of labor adjustment costs are probably too conservative.

Policy Implications

These conclusions challenge the widespread perception that trade protection under all circumstances results in net costs to the protecting economy. At the very least, they suggest that U.S. policies that ignore the real costs of trade liberalization and how those costs are distributed will be counterproductive.

Because the proposed elimination of the MFA contains no measures for providing adjustment assistance or retraining for displaced workers, we argue that extension of the fast-track negotiating authority for the current round of GATT and for the U.S.-Mexico Free Trade Agreement should be withheld. Without a substantial positive adjustment program for this sector, the GATT agreements will result in a redistribution of income from predominantly rural, minority, and female workers to apparel retailers and -- to a much lesser extent -- to consumers.

The paper concludes with a discussion of new trade and industrial policies that could increase the competitiveness of the domestic industry, provide long-term adjustment assistance to displaced workers, and allow for the phased elimination of protection in the future. Given the magnitude of social and individual costs associated with trade-related job loss, as discussed in Section III of this paper, we advocate an overhaul of the present "adjustment assistance" program. Compensation should go beyond temporary income subsidies; it should include a serious commitment on the part

of the government to replace lost jobs with new employment at comparable wages and to provide income support to those unable to find new jobs.

Finally, we recommend replacing the MFA with a global auctioned quota system. This system would allow for the orderly adjustment of the industry to increased international competition. Quota revenues could be used to provide income maintenance for individuals who are displaced by imports and to provide technical assistance to help the domestic industry restructure to meet the challenge of foreign competition.

I. Market Power in Apparel Retailing: Implications for the Cost of Protection

Estimates of the cost of protection such as those developed by Cline (1990, Chapter 8 and Appendix B) depend critically on assumptions about the nature of competition in the apparel retailing industry. Recent changes in information technologies and marketing strategies, as well as in consumer incomes and tastes appear to have substantially increased market power in the retail apparel market. Very high profit levels have been sustained in some segments of the industry, where price-cost margins have also been increasing. The data reviewed here suggest that the structure and conduct of the apparel retailing industry has fundamentally altered in recent decades, with changes concentrated in the 1980s.

Theoretical and empirical analyses in this section will suggest that apparel retailing has become an oligopsony, an industry where a few firms have substantial monopoly power in the purchase of apparel from suppliers in the apparel-producing sectors. Oligopsony power allows apparel retailers to price discriminate between imported and domestic suppliers, paying them different prices for comparable products. Since labor costs in most apparel-exporting countries are well below U.S. labor costs, the price of imported apparel tends to be lower than that of domestically produced garments.

We will also show that the apparel retail industry appears to have increased its oligopopoly power over retail customers in the 1980s. This is reflected in both increasing margins (markups) in some segments of the industry and in rapidly growing market shares for those segments of the industry that have the highest markup rates of prices over costs.

The combination of oligopsony and oligopoly power has a substantial impact on the measurement of the costs of protection. Even if the MEA system is dismantled and present tariffs are reduced, apparel retailers may continue to restrict sales of both imported and domestic products (to keep prices and profits high). The oligopsony would in this case capture a substantial share of the benefits that resulted from lower (wholesale) import apparel prices. Eliminating the MFA would then result in a transfer of income to domestic retailers -- both from the U.S. government (in lost tariff revenues) and from those foreign producers who are currently earning quota rents.

Elimination of protection would thus have a smaller effect on consumer apparel prices than is predicted by models assuming perfect competition. These results suggest that further analysis of apparel retail market structure is required before any drastic changes in the current level of protection are carried out.

The following section will discuss changes in the structure of the retail apparel market. We will then examine evidence on me performance of the domestic apparel industry in the 1980s. The implications of oligopsony for the costs of protection will be considered in Part C. The implications of this analysis for future research are considered in the final section.

A. Structural Change in the Retail Apparel Market

The development of the microcomputer and the rise of the information age have revolutionized the structure of the retail apparel industry and its relationships with suppliers. The widespread adoption of the electronic cash register, connected to centralized data processing networks, has produced a tremendous flow of real-time data on sales at the product level. This has resulted in an acceleration in the pace of the production process (reflected in a reduction of the time it takes a garment to move from the fiber stage to final sale to consumers) and reduction in batch sizes in many segments in the apparel industry. These changes have given a productivity edge to chain stores, which are best able to take advantage of these new technologies (Friedman, 1988, p. 19).

These same computer technologies, combined with the development of international data communications networks, have allowed offshore producers to participate to some extent in this revolution in the production process. Relatively new firms such as Benetton, The Limited, and Liz Claibome have experienced extraordinary rates of growth in sales, profits and rates of return in the 1980s by building direct links between specialized retail apparel stores and offshore production facilities.'

During this same time period changing tastes and rising levels of consumer income have resulted in an increase in the diversity of the apparel industry and an increased reliance on niche-based -- as opposed to mass-based -- production strategies. The increasing importance of product diversification as a marketing strategy is reflected in the rising share of clothing sold through specialized family and women's clothing stores, as discussed below.

While some segments of the industry have been specializing in high-margin niches, a major off-price distribution channel has also developed in the 1980s. This evolution reflects the increasing polarization in the U.S. income distribution in the last decade. The upper-income quintiles have enjoyed tremendous income growth while living standards for the poorest consumers have fallen in real terms (Mishel and Frankel, 1991). Sales in the off-price market increased at a rate of 20 percent per year in the early 1980s.

Some analysts have suggested that the growth of off-price retailers reflects an increase in competition in the retail industry. However, off-price stores constitute a somewhat separate market

from full-service stores. They can be said to be selling a different product even though the same garment may at times appear in both kinds of stores. Off-price stores tend to offer less personal service and a more limited selection of clothing than full-price stores, and sometimes to carry fashion lines that are out of date. Nonetheless, these stores have sales volumes that are twice as high per square foot as conventional department and discount stores, and their average gross margin return on investment is 360 percent ($2.60 per dollar invested).'

Thus, the off-price retailers have created a new, highly profitable market niche that appears segregated from other retail channels and does not appear to have increased overall price competition in apparel retailing. As shown below, average retail prices have grown faster than wholesale product costs in the 1980s, despite the growing market share of the off-price retailers. If apparel retailing had in fact become more competitive, we would not expect to see this higher growth in retail prices.

In addition to low-cost locations, these stores minimize cost by specializing in closeouts, canceled orders, and irregulars. They tend to use non-traditional purchasing methods, such as buying current fashion items in large volume; buying outdated merchandise (pack-aways); and program buying, which involves placing orders 9 to 11 months in advance, in exchange for discounts of up to 40 percent. Program buying is especially well suited for direct importing of items from offshore locations.

The increasing diversification and specialization of retail distribution channels may also have increased market power at the retail level. The retail business has become increasingly sophisticated and concentrated, while no similar changes have taken place in apparel production. If anything, the move toward niche-based strategies has encouraged smaller scale production of apparel, while retailers have continued to grow. This imbalance of power between the retail and wholesale stages may make it difficult for manufacturers to receive full market value for their products.

There are significant and growing barriers to entry in the retail business. Development of a distribution channel requires Large amounts of managerial expertise and capital for retail and warehouse space, inventory, advertising, and market research. As shopping malls have come to replace central business districts, developers increasingly look to nationally known store names to attract customers. This disadvantages small and independent retailers relative to large department stores and national retail chains.

Recent news reports confirm that small retailers in all fields have experienced an increased rate of bankruptcies in the last year. “Large retailers now use technology to tailor their

merchandise to individual markets," a recent *Wall Sneer Journal* article reported, "thereby undercutting the small retailer" (Marsh, 1991).

Given the low level of technology and small scale of production that characterize most segments of the apparel production industry, it would appear that retail distribution represents a crucial bottleneck between the supplier and his or her ultimate customer. Just as grain elevator operators monopolized a critical segment of the agricultural sector in the 1870s, thereby depressing farm prices and capturing monopoly rents, the retail apparel sector may have captured a critical distribution channel in the 1980s.' The retail business appears poised to capture a substantial increase in rents if protection is eliminated. This hypothesis may be further explored by examining changes in the structure of the industry.

Apparel Distribution Channels and Concentration Patterns

Tables 1 and 2 show the market shares of the 8 and 50 largest firms, respectively, in various categories of retail outlets. These tables demonstrate a remarkably consistent pattern of steadily growing concentration levels since 1972 across all five major apparel distribution channels, at both the 8-firm and 50-firm levels. Concentration was particularly high in the subsegments of the department store sector in 1987, where the top eight firms controlled two-thirds of sales in conventional stores, over 80 percent of sales in discount/mass merchandise stores and 100 percent of national chain sales (there are only three firms in this category). It is worth noting that the highest levels of concentration occur in the department store segments, which also sell more clothing than any of the other categories (46 percent of men's and boys' wear and 43 percent of women's and girls' wear in 1987, according to the 1987 Census ***of Retailing).***

If anything, the data in Tables 1 and 2 tend to understate the effects of concentration, since apparel markets are regional and these tables report national levels of concentration. Concentration levels in regional markets are likely to exceed aggregate national figures because all firms are not equally strong in all markets.

B. The Performance of the Retail Apparel Industry

The increase in concentration noted in Section A appears to have resulted in a significant shift in the pricing power of domestic apparel retailers beginning in roughly 1982. Figure 1 shows that in the 1970s the wholesale price of (domestically produced) apparel was rising faster than overall retail prices, putting downward pressure on retail profits. Apparel imports were probably not growing fast enough in the 1970s to offset higher wholesale domestic prices, thus the rise in producer prices did create a cost squeeze in the retail industry.

TABLE 1
Industry Concentration Ratios (8-firm)

Year	Dept. Stores	(Store Type) Men's and Boys' Wear stores	Women's Clothing Stores	Family Clothing stores	Shoe stores
1987	66.0	18.2	30.0	43.7	44.2
1982	57.8	13.4	28.2	32.3	37.6
1977	56.8	12.5	16.2	29.3	30.4
1972	51.4	13.6	15.7	24.6	27.6

Addendum: Subcategories of Dept. Stores in 1987:

Conventional	67.9
Discount/mass merch.	81.2
National Chain	100.0

Source: ***Census of*** Retail ***Trade: Subject Series,*** 1972, 1977, 1982, 1987.

TABLE 2
Industry Concentration Ratios (SO-firm)

Year	Dept. stores	(Store Type) Men's and Boys' Wear Sores	Women's Clothing stores	Family Clothing stores	Shoe stores
1987	95.5	**35.2**	50.4	67.4	63.8
1982	91.8	26.0	47.8	52.5	56.3
1977	86.5	24.2	34.5	45.9	48.6
1972	82.1	23.2	31.6	39.5	44.5

Addendum: **Subcategories** of Department Stores in 1987:

Conventional	96.7
Discount/mass merch.	98.8
National Chain	100.0

Source: Census of Retail ***Trade: Subject Series,*** 1972, 1977, 1982, 1987.

A significant change in relative pricing behavior occurred in the early 1980s, as shown in Table 3. During the earlier period wholesale prices were rising faster than retail prices. However, in 1982 retail prices began growing at a faster rate than wholesale prices: This is particularly surprising because the import share of the domestic market rose rapidly in the 1980s, putting downward pressure on average wholesale costs for retailers?

These two trends suggest that price-cost margins in retailing were increasing in the 1980s. It appears that changes in marketing practices (such as product diversification) and increases in concentration reached a critical mass in this time period. Policy decisions to relax import limits, together with declining import prices, increased the availability of imported apparel. This in turn facilitated growth in price-cost margins.

FIGURE **1**
Comparative Trends in **Wholesale and Retail Apparel Prices**

(1982=100)

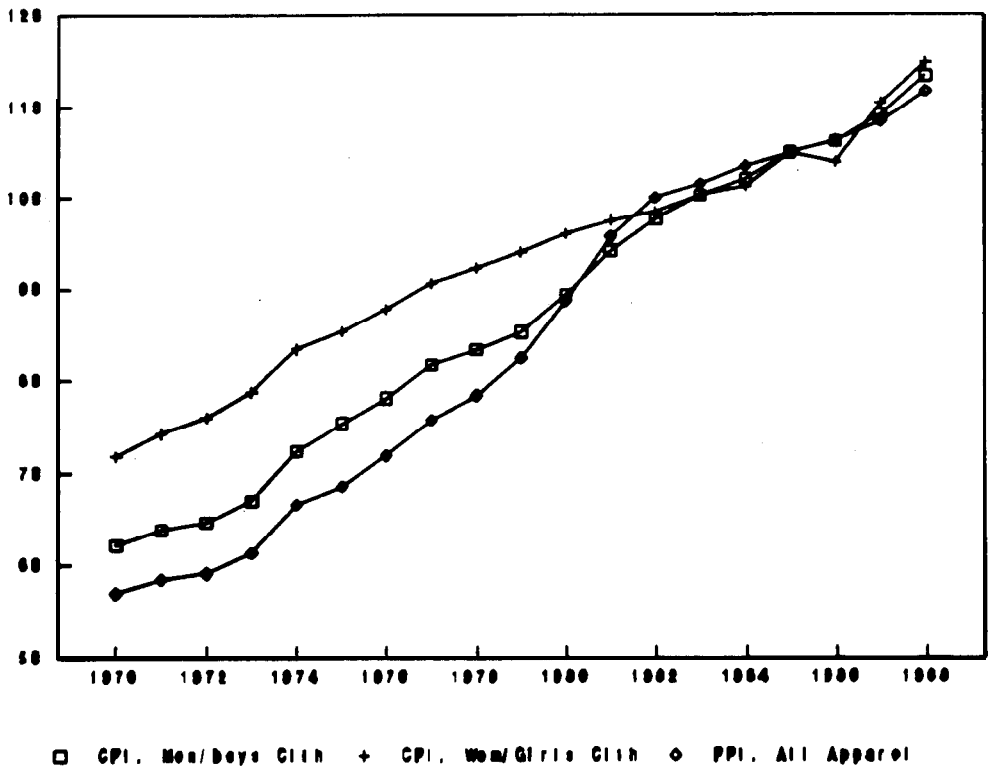


TABLE 3
Percent Change in Price Indexes

	Men's and Boys' Clothes CPI	Women's and Girls' Clothes CPI	PPI For all Apparel
1971	2.8%	3.5%	2.6%
1972	1.3	2.4	1.1
1973	3.7	3.5	3.7
1974	7.9	6.0	8.8
1975	4.2	2.3	2.9
1976	3.6	2.8	4.9
average, 1971-1976	3.9	3.4	4.0
1977	4.6%	3.2%	5.4%
1978	2.2	1.9	3.4
1979	2.2	1.8	5.2
1980	4.8	2.1	7.5
1981	5.4	1.5	7.9
1982	3.6	1.0	4.5
average, 1977-1982	3.8	1.9	5.6
1983	2.7%	1.8%	1.6%
1984	1.8	1.1	2.0
1985	2.9	3.6	1.4
1986	1.1	-0.9	1.2
1987	2.8	6.2	2.0
1988	3.9	4.1	3.0
average, 1983-1988	2.5	2.6	1.9

Trends in Price-Cost Margins

In order to obtain a more precise estimate of price-cost margins we obtained revenue and cost data for 42 of the largest publicly traded firms in the retail apparel industry.[6] We then calculated the following price-cost ratio:

$$\text{P/C ratio} = \frac{\text{Total Revenue}}{\text{Cost of Goods Sold}}$$

where Total Revenue refers to all revenues received by the firm and Cost of Goods Sold refers to variable costs only (not including profits or interest payments). This ratio is equivalent to the ratio of price to average cost.' Table 4 shows price-cost ratios for all 42 firms, and for five subgroups of firms specializing in different retail segments for the years 1970 to 1988.

TABLE 4
Price-Cost Margins in Apparel Retailing

Year	ALL APPAREL RETAILING # of firms	P/C Ratio	DEPT. STORES (SIC 5311) # of firms	P/C Ratio	VARIETY STORES (SIC 5331) # of firms	P/C Ratio
1970	42	1.522	13	1.581	12	1.404
1971		1.497		1.546		1.399
1972		1.486		1.543		1.379
1973		1.483		1.540		1.376
1974		1.460		1.515		1.363
1975		1.477		1.528		1.390
1976		1.419		1.444		1.349
1977		1.413		1.434		1.352
1978		1.439		1.446		1.408
1979		1.367		1.336		1.409
1980		1.257		1.180		1.404
1981		1.271		1.198		1.385
1982		1.283		1.205		1.407
1983		1.310		1.232		1.410
1984		1.315		1.239		1.400
1985		1.313		1.233		1.390
1986		1.318		1.244		1.386
1987		1.309		1.233		1.372
1988		1.287		1.185		1.360
1989		1.287		1.184		1.351

Year	APPAREL & ACCESSORIES (SIC 5600) #of firms	P/C tio	WOMEN'S CLOTHING (SIC 5621) # of firms	P/C Ratio	FAMILY CLOTHING (SIC 5651) # of firms	P/C tio
1970	4	1.739	6	1.482	7	1.280
1971		1.764		1.506		1.299
1972		1.713		1.517		1.295
1973		1.715		1.512		1.303
1974		1.683		1.509		1.295
1975		1.747		1.523		1.315
1976		1.703		1.548		1.358
1977		1.705		1.544		1.355
1978		1.706		1.537		1.390
1979		1.688		1.511		1.390
1980		**1.686**		1.544		**1.409**
1981		1.680		1.555		1.413
1982		1.675		1.546		1.424
1983		1.680		1.573		1.424
1984		1.660		**1.546**		1.416
1985		1.680		1.561		1.412
1986		1.689		1.560		1.390
1987		1.683		1.538		1.358
1988		1.686		1.571		1.479
1989		1.686		1.607		**1.474**

Given the trends in apparel prices it was surprising to find that price-cost ratios were falling in the retail sector as a whole over this period. However, this overall ratio combines three distinct groups of firms. Of these three groups, only the department store sector experienced a substantial decline in the price-cost ratio. This may reflect the effects of overbuilding in this sector and the heavy debt burdens that many of these firms experienced in the 1980s as a result of leveraged buyouts. Despite the relatively high level of investment activity, department stores' total sales grew at only eight percent per year in the 1980s, in nominal terms, as opposed to an average of 15 percent per year for all retail apparel firms in this survey.

Variety stores, including firms such as K-Mart, Wal-Mart, Jamesway and F.W. Woolworth, form a second group. This group, which specializes in high-volume standardized merchandise, experienced essentially no change in gross price-cost margins. However, it did enjoy very rapid sales growth of 27 percent per year in the 1980s.

The accessory, women's, and family clothing stores enjoyed either very high or steadily increasing price-cost ratios throughout the 1970s and 1980s. These firms appear to be enjoying the benefits of following a niche-based product diversification strategy. The accessory, women's, and family clothing groups have also experienced much higher than average rates of growth (20 percent per year in family clothing, 23 percent in accessories, and 42 percent in women's clothing). It is interesting to note that the family clothing group includes the off-price Burlington Coat Factory Warehouse chain, which enjoyed an above average price-cost ratio of about 1.5 in the 1980s. The Burlington results provide confirmation for the hypothesis that off-price stores can earn supra-normal returns.*

In summary, the data in Table 4 suggest that two mutually reinforcing trends are at work. First, margins (markups) are increasing in those segments of the industry that have benefitted from the technological revolution in apparel design and distribution. Second, market shares for those segments of the industry that have the highest markup rates of prices over costs have been growing rapidly in the 1980s. Both trends tend to increase average industry profit rates and are consistent with the changes in market structure discussed in Section A.

Industry cost *Structure*

Examination of Census of Retail Trade cost data for broadly defined sectors (at the two-digit level of detail) confirms these general relationships and suggests one new element in the analysis. Table 5 reports ratios of various types of costs to sales. These ratios are the inverses of those calculated in Table 4. We examine cost/price ratios here in order to consider the proponions of various types of costs in total output. The relatively high pricecost margins in apparel retailing

are reflected in the ratio of total cost to sales, which is somewhat lower in apparel retailing than in general merchandise stores.[9] The ratio of merchandise costs to sales in apparel retailing is also lower than the ratio for all retail trade or for general merchandise stores.

The new insight revealed in Table 5 is that lease and rental expenses in apparel retailing am 'more than twice as high a proportion of sales (and total costs) as in all retail trade. This fact suggests that the critical barrier to entry in apparel retailing may be the access to retail space and that owners of such space may be capturing some of the rents available in this industry, especially from the smaller, independent stores.

TABLE 5
Costs to Sales Ratios, by Type of Business, 1982

Sector	Total Cost/ Sales	Merch. Cost/ Sales	Operat. Exp/ Sales	Lease+Rent/ Sales
All Retail Trade	96.7%	69.3%	27.4%	2.0%
General Merchandise Stores (SIC 53--including Dept. Stores)	98.2%	66.1%	32.2%	2.1%
Apparel and Accessory Stores (SIC 56)	96.9%	60.2%	36.7%	5.3%

Source: U.S. Dept. of Commerce, Census of *Retail Trade*, "Industry Series, Measures of Value Produced, Capital Expenditures, Depreciable Assets, and Operating Expenses," 1982.

Profit Rates

Rates of return have been extraordinarily high, especially in the women's apparel sector. In the 1980s firms in this sector earned an average after-tax rate of return on stockholders' equity of 19 percent. The Limited, in particular, has enjoyed phenomenal growth and profitability. Its average after-tax return was over 29 percent for the entire decade. Its sales grew at an average rate of 100 percent per year over the same period. However, its price-cost ratio did fall steadily over this period, suggesting that these levels of performance may be difficult to sustain in the future. Liz Claibome, a product design firm which specializes in offshore production, has experienced similar success. However, its returns are not included in this group because it has not been traded on the major exchanges until this year. Both the Limited and Liz Claibome reported substantial gains in earnings during the last quarter of 1990, when the recession was generally

dampening returns. Liz Claibome stock jumped over 12.5 percent in value in one day on reports of these earnings gains and the announcement that its stock would begin trading on the New York Stock Exchange (it had previously been traded over the counter). These rates of return are far in excess of averages for most other industries. For example, publicly traded firms in the textile industry earned an average of 8.5 percent on stockholders' equity in the 1980s.[10]

The Limited and Liz Claibome have achieved their successes by combining marketing of high-fashion lines with low-cost production mainly in the Far East. These strategies have been made possible by the computer and telecommunications revolutions discussed above. These firms employ relatively small staffs of designers and marketing personnel and nearly all production activities take place in offshore contractor shops."

Price Discrimination at the Wholesale Level

Most studies of apparel protection assume that imports are cheaper than domestic products (excluding the costs of protection). It is then assumed that foreign producers capture the benefits of the MFA system of import quotas, and that an implicit tariff (tariff-equivalent) can be estimated by studying import markets. This implicit tariff is then used to estimate the market adjustments that may be expected if the MFA is changed or eliminated.

Such studies implicitly assume that the wholesale apparel market is competitively structured -- for both buyers and sellers, However, substantial anecdotal evidence suggests that apparel retailers apply different markups to imported and domestically produced goods.'* The latter could reflect the effects of monopsony power on the wholesale market.

The data in Table 6 provide one measure of the relative cost of imports and domestically produced goods, at the product line level. The first column in Table 6 reports the ratio of imports to apparent consumption, in volume terms (i.e., dozens of shirts). The second column reports the value share of imports in total consumption. The third column compares these two ratios, resulting in a measure of the **cost of imports** relative to domestically produced goods. The data in column three imply that, for this selection of products, the cost of imports is, on average, 58 percent of the wholesale cost of the domestically produced substitute.[13] This is a huge cost difference, which probably exceeds both quality and delivery/inventory cost **differences associated with imported goods in many product lines. This is particularly true of women's wear products, where import costs range from** 29 percent to 51 percent of the apparent cost of domestically produced goods.

TABLE 6
Comparisons of Import Shares on Volume and Value Bases for Selected Product Categories:
(1987)

Product:	VOLUME (in dozens) Ratio of Imports to Apparent Consumption (1)	VALUE ($) Ratio of Imports to Apparent Consumption (2)	Ratio of Value to Volume (2)/(1)
Men's and Boys' Wear			
suits/coats	53.6%	27.3%	50.9%
shirts	47.7	61.5	128.9
trousers	33.6	20.7	61.6
Women's outerwear			
dresses	28.0	11.0	39.3
suits and coats	65.7	33.6	51.1
Women's and Children's underwear	23.7	12.1	51.1
brassieres & allied garments	65.2	18.7	28.7
averages:	453	26.4	*58.3*

Sources: *Import Volumes:* The Textile and Apparel Industries, Fairchild Fact File. New York: Fairchild Publication, 1989, p. 52.
Import Values: U.S. Industrial Outlook, 1990, pp. 35-2, 35-3.[14]

If retailers held no monopsony power in the wholesale purchase of apparel, then we would not expect to observe cost differences of this magnitude. If apparel manufacturers held countervailing market power, then the holders of quota rights would collect rents on each good such that the wholesale prices of equivalent imported and domestic goods obeyed the "law of one price," in which case the prices would be the same for both goods.

It is interesting to note for comparison Cline's estimate that in the late 1970s imported goods prices at the retail level were only 11.6 percent lower "than domestic apparel of comparable quality" (Cline, 1979, pp. 3-24). In the last decade the quality level of imports has no doubt increased as a result of the upgrading incentives inherent in a quota-type system and it is likely

that retail prices are even closer than they were in the late 1970s. Because consumers lack market power vis-a-vis retailers, the law of one price appears to have more influence in retail than in wholesale apparel markets.

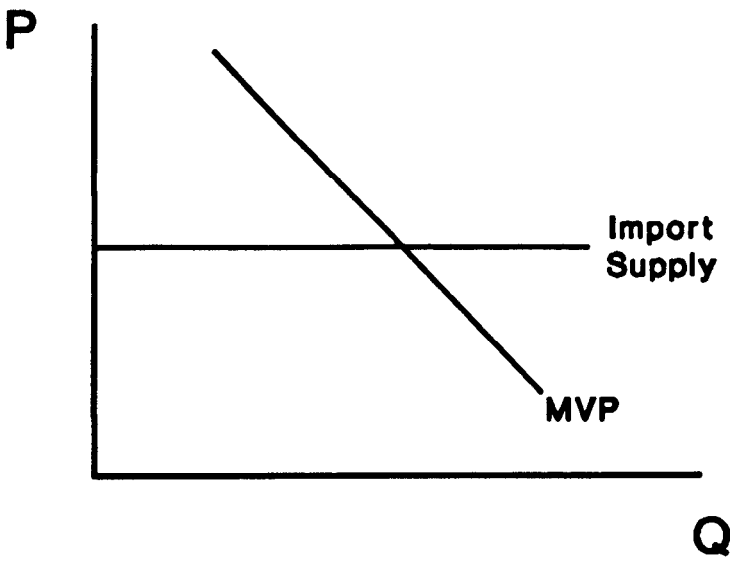
C. The Effects of Retail Concentration on Apparel Production and Trade

This section will present the basic monopsony model and discuss its implications for the apparel industries. This model differs from the standard competitive model of trade in perfectly competitive products in two ways. First, it recognizes that apparel goods are inputs into a retail "production process," and hence that the imported (and domestic) commodities are factors of production, in that way similar to the labor and capital used in the production process. Second, it provides a framework for analyzing the behavior of a pricediscriminating oligopsonist. The standard trade model, as applied to the apparel industry, assumes (implicitly) that retailing is a costless activity and that consumer demand thus directly determines the prices of both imported and domestic products. Table 5 shows that inputs other than clothing (operating expenses) represent over one-third of the total value purchased by the final consumer.

Figures 2 through 4 illustrate a simplified model of the choice of clothing inputs for a perfectly competitive retail store. Initially we assume that all clothing is identical and that input markets are competitively structured. Figure 2 shows that the firm's demand for clothing is its marginal value product (MVP) curve, which is the firm's marginal physical product (MPP) curve (the number of shirts sold per shirt stocked, at the margin) multiplied by the retail price of the product (which is the revenue received for each item sold, at the margin, for the price-taking firm). The firm's marginal value product curve is assumed to slope downward only because marginal physical product declines as stock is added to inventory, for a store of a given size and staff level. Note that this phenomenon (the downward slope of the MPP) is completely unrelated to the slope of the market demand curve. Thus the slope of the firm's MVP curve (and hence the wholesale demand for apparel products) may be unrelated to the elasticity of final consumer demand for clothing. This point is ignored in other studies, which assume that the appropriate framework for analysis of the effects of protection is the retail demand curve.

FIGURE 2

Demand for Clothing by the Perfectly Competitive **Retail Firm**

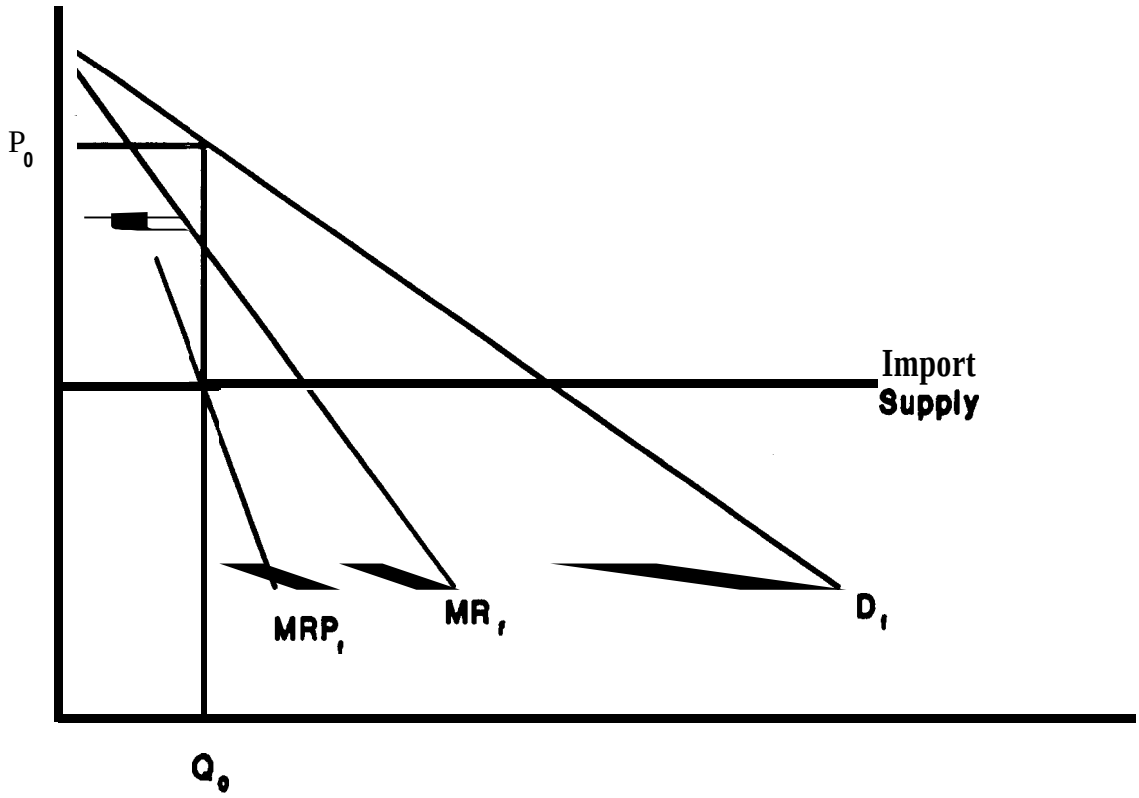


MVP • MPP • P, where P is given, market determined

Consumer demand enters into the firm's input decision making **only** if the firm has some market power and can perceive that its (retail) product demand curve is downward sloping. In this case the firm will use its marginal revenue curve to calculate its marginal value product. Thus, for the firm with market power the input demand curve is the firm's marginal revenue product (MRP) function (MPP times marginal revenue), as shown in Figure 3. The MRP curve for a firm with monopoly power will be steeper than the MVP curve of a similar firm in a competitive retail market. Furthermore, as shown in Figure 3, the MRP curve will be steeper than the MR curve for each firm, because the MPP curve is also negatively sloped.

FIGURE 3

Demand for Clothing by a Firm with Retail Market Power



The firm with market power will determine its purchases of clothing by equating MRP with the wholesale price of clothing, which is assumed to be constant in this model. The retail price of that clothing is then determined from the firm's retail demand curve, D_f.

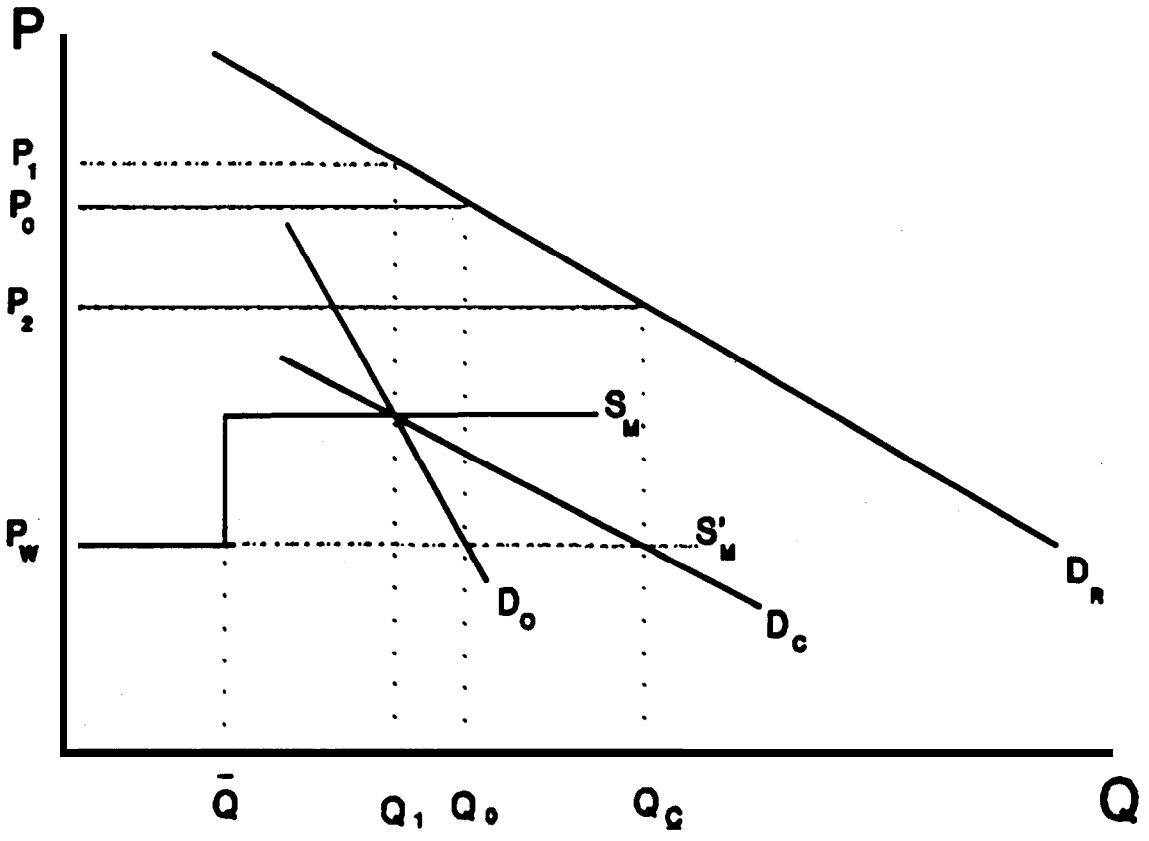
The effects of a quota, such as the MFA, are determined by examining the interaction of supply and demand at the market level, as illustrated in Figure 4. This figure combines the retail demand for import and domestic clothing in one function, D_R. Wholesale demand is the (horizontal) sum of the individual firm-level input demand curves from Figures 2 and 3. Market supply, S_M in Figure 4, is the sum of import and domestic apparel supplies, under the assumption that imports are cheaper than domestically produced goods. Initially, it is assumed that imports are

restricted at the level $\bar{Q}$. Total demand with the quota is Q_1 and the initial retail price is P,. With the quota in place domestic production is equal to Q_1 less the quota-restrained level of imports.

If the quota is eliminated then all domestic production is eliminated in this simple model and the supply curve becomes S_M' in Figure 4 (assuming that the world supply curve is horizontal, or infinitely elastic, at the level of the world price). If the retail market is competitively structured then clothing purchases increase to Q_C and the retail price falls to P_C. If the retail market is an oligopoly then clothing purchases increase only to Q_O and the fall in price is smaller, going from P, to P_O.

FIGURE 4

Quota Effects in a Wholesale Market under Competition and Oligopoly



The real apparel market differs from this theoretical abstraction in a number of important ways. First, there are a number of substantially separate wholesale apparel markets. The United States is more competitive in markets for some complex products, such as men's and boy's suits and coats than in others, such as women's dresses. In markets where the U.S. is competitive, imports are not universally cheaper than domestic products. Complete elimination of domestic production, in the absence of quotas, is not likely to occur in such markets.

Furthermore, retailers do not have equal market power. Some market segments, such as the national chains, are highly concentrated and can best be described as oligopolies. At the other end of the spectrum, independent clothing stores can probably be better described as monopolistic competitors. The data discussed in Section A suggest simply that retail market power has been increasing in the 1980s. Further study of the nature of the imperfections in this market is needed.

Oligopsony power is expressed in the model in Figure 4 only if retailers are able to discriminate between domestic and imported sources of supply, under the quota. In this case, suppliers of imported goods would earn no quota rents. There is some evidence that this is occurring. According to the MIT Commission on Industrial Productivity (Dertouzos et al., 1989), "Strong firms in the U.S. have used their market power to demand price concessions from their suppliers." Friedman (1988) notes in the *Monthly Labor Review that,* "By their great size, the large [department store] chains can take advantage of economies of scale in distribution systems, buying practices, and the utilization of advertising and computer technology" (emphasis added).

Differences in import and domestic prices are also clearly implied by the data reported in Table 6, as noted above. Oligopoly and oligopsony are connected by the observation that barriers to entry in retailing limit the number of potential purchasers of imported products, thus enhancing the power of established retailers in wholesale markets.

If the import supply curve is upward sloping, rather than horizontal (infinitely elastic), then further opportunities would exist for retailer exploitation of the import-producing sector. In this case we would add marginal factor cost curves to Figures 24 and apparel purchases would be further reduced through the expression of oligopsony power.

Domestic- versus Trade-Related Market Distortions

This analysis suggests that prior studies may have overestimated the cost of protection in the apparel industry for at least two reasons. First, if retailers have market power, then elimination of the MFA will bring about smaller than expected increases in imports because retailers will restrict purchases in order to keep prices at profit-maximizing levels. As a result, the elimination of the MFA will have a smaller than expected effect on retail prices.

Second, if domestic retailers have oligopsony power then these firms are currently capturing some of the quota rents that import suppliers are assumed to earn. The elimination of the quota will result in a transfer of those remaining rents currently earned by import suppliers to retailers, with a much smaller effect on consumer and welfare than previously estimated. Tariff equivalent parameters which have been estimated assuming perfect competition may include both a trade-related component and an element which results from imperfections in the wholesale apparel market.

Estimating The Cost of Protection With Imperfect Competition in the Retail Sector

The net effects of these refinements to the standard trade model are illustrated in Table 7. Here we assume that demand is linear and hence that the marginal revenue curve is twice as steep as the final product demand curve, as shown in Figure 3. The structural assumptions of the model used to develop these results are described in Appendix A.

We also assume here, following Cline (1990) that imported and domestic products are imperfect substitutes. We assume further that retailers possess monopsony and monopoly power in the retailing of imported goods, but not domestically produced substitutes. This assumption allows retailers to pay import suppliers prices lower than those received by domestic manufacturers, on the assumption that there are barriers to direct access to retail markets for import suppliers.

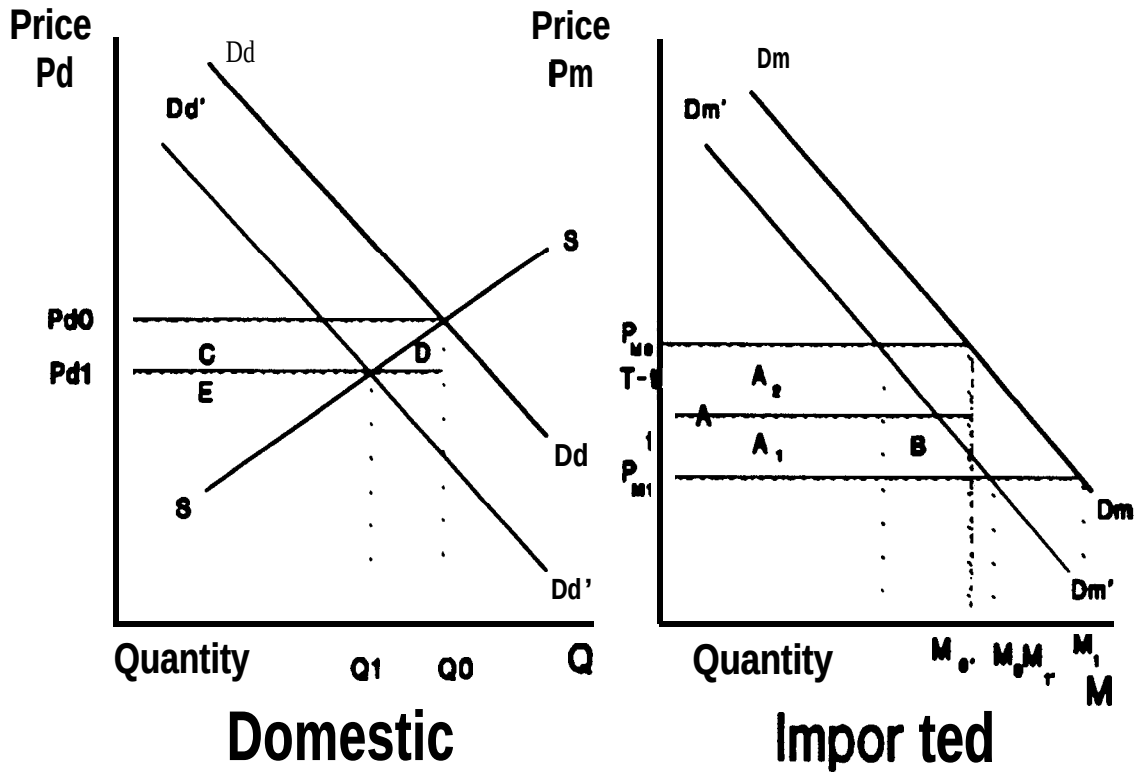
The costs of eliminating protection are estimated using the basic framework developed by Cline (1990) and the International Trade Commission for markets with differentiated products. The major innovation introduced here is the analysis of the effects of monopoly on the welfare effects of eliminating protection. The basic components of welfare analysis in the Cline model will be reviewed and then the derivation of another set of estimates using the alternative assumptions will be presented.

The Costs of Protection

Cline's model is illustrated in Figure 5. This model assumes that imports are restricted by both tariffs (t) and quotas. Cline estimates the effective rate of protection provided by both (T). The domestic price of imports (P_{mo}) is initially equal to the world price (P_{m1}) + T. The model assumes that when all import protection is eliminated, import prices fall from P_{mo} to P_{m1}. As a result of the fall in the price of (substitute) imported goods, domestic demand falls from D_d to D_d'. Assuming that the domestic supply curve is upward sloping, then domestic prices fall from P_{d0} to P_{d1}, and domestic production falls from Q_0 to Q_1. A secondary shift in import demand from D_m to D_m' then results from the drop in domestic product prices. Import consumption then rises from M_0 to M,'.

FIGURE 5

Supply and Demand for Domestic and Imported Goods



Consumer gains from the elimination of protection are composed of two components. First, consumer surplus in the import market rises, since consumers are able to buy more imports, at a lower price. This change is, in turn, made up of two parts: area A (import market), which is the change in import price ('I') times the output level under protection (the sum of areas A, and A, in Figure 5); and area B, which is the consumer surplus associated with increased import sales (one-half times the change in import price times the change in import quantity). Note that areas A and B are estimated using the new import demand curve, D_m', to avoid overestimating benefits. This is necessary because the fall in import price resulting from the elimination of protection causes a decline in the demand for domestically produced clothes, and hence a decline in the retail price of domestic goods. This in turn causes import demand to shift in.

Thus consumer gains on the import side equal the sum of areas A and B. The final

element of consumer gain is the change in consumer surplus realized in the domestic market, which results from the decline in domestic product prices. This gain is area C (in the domestic market), which is the change in domestic price times the new quantity demanded.

Thus the change in consumer welfare (W_c) is:

$$W_c = A + B + C .$$

This consumer welfare estimate is the basis for Cline's widely discussed estimates of the cost per job saved in these industries. However, in order to calculate the net effects of protection on national welfare it is also necessary to take into account transfers from consumers to producers, efficiency gains from resource reallocation, and government tariff revenue loss. Incorporating these later effects reduces the welfare costs of trade protection. Thus Cline's estimates of the cost per job saved are higher than the net national costs of protection (per job), a subtle difference that tends to be overlooked in the trade policy debates.

The Effects of Protection on National Welfare

The gain in consumer surplus in the domestic market that results from the fall of domestic prices (area C, above) is a transfer from domestic producer surplus, and does not change national welfare. Hence area C must be subtracted to obtain an estimate of the net effects of protection on national welfare.

Under protection it is assumed that some resources are being inefficiently used by domestic producers to supply goods in excess of the free-trade level of output. Area D is this deadweight loss on the domestic supply side resulting from protection (one-half times the change in domestic prices times the change in domestic output).

If protection is eliminated, the government's tariff revenues will decline. The government's direct revenue losses would be the actual tariff times the free on board import price times the import quantity (from the new import demand curve). This is equal to area A, in Figure 5. It is assumed that the rents associated with the quotas (area A_2) are transfers to foreign producers. Since these rents would vanish if protection were eliminated, Cline's analysis assumes that their elimination contributes to national welfare.

Cline calculates the net welfare gain (W) to the economy as consumer gains minus the transfer from domestic producer surplus, plus the deadweight loss on domestic production, less the government's tariff revenue losses:

$$W = [A + B + C] - C + D - A, \quad = \quad A + B + D - A, .$$

Calculation of the net welfare gain for the economy that would result from eliminating protection is revised in three ways in the oligopsony model. First, government tariff revenues are no longer lost to the economy. The fall in the cost of imported clothing greatly exceeds the

decline in its retail price, with purchasers of imported goods (the retail industry) capturing the benefits. Thus the tariff revenues are transferred from the government to domestic clothing retailers. This transfer appears as A,' in Table 7. There is no need to deduct A,', the government's loss of tariff revenues, from W_c to estimate the net welfare gain for the economy in the oligopsony model.

Second, the change in the import price, A, is much smaller than is predicted by Cline, and is estimated directly from the demand curve/marginal revenue relationships, as explained in Appendix A. Figure 4, above, provides a better perspective on this smaller price change. This explains why A is so much smaller with oligopsony in Table 7.

Third, with the elimination of protection, a net gain accrues to the economy as the value of quota rents (T-t) disappears on the international market. In the competitive model the quota rents are eliminated and consumers capture all the resulting benefits of lower import prices. However, in the oligopsony model the purchasers of imported goods capture most of these benefits. Thus retailers capture an additional benefit equal to the difference between the new import price and the world price of apparel plus the tariff. A, in Table 7 is the value of this transfer from producers of imported clothing to domestic retailers. A_2 must be added to the consumer cost of protection in estimating the net national cost of protection under oligopsony. This results in the net welfare cost being higher than the consumer cost, though both figures are substantially smaller than Cline's estimates.

The new formula for the net welfare cost of protection is:

$$W_b = A + B + D + A_2.$$

Cline's estimate of the net welfare cost is labeled W_a in Table 7. This analysis also suggests that the cost of protection for both consumers and the national economy as a whole is much less than the cost to domestic retailers. Retailers gain substantial benefits by capturing both implicit and explicit tariffs (A,' and A_2 in Table 7). Thus potential benefits to retailers from the elimination of protection equal $8.706 billion under the oligopsony assumptions, while the consumer and net national costs of protection are only $3.65 and $4.355 billion, respectively in this model. Transfers of this magnitude create powerful incentives for retailers to support the elimination of protection, no matter what other effects liberalization would have on the domestic economy.

Madding Market Imperfections in Retailing

A model of monopoly and monopsony in apparel retailing is developed in Appendix A. The model assumes that demand is linear in the import market and that retailers have market power both in the selling and in the buying of imported commodities. The monopsony/monopoly model predicts that elimination of the MFA will lower the retail prices of imports by only about

10 percent and domestic retail prices by about 2.5 percent (as compared with 35 percent and 22 percent, respectively, in the Cline model). As a result, the estimated costs of protection are much lower than estimates that assume perfect competition, as shown in Table 7. This is a result of three features in the monopoly model.

First, we assume that protection raises the wholesale cost of imports (which are only 37.5 percent of retail prices, initially). Thus the absolute decline in wholesale costs from removing protection is small, relative to domestic demand. This explains about half of the difference between our approach and Cline's. Because the demand curve is assumed to be linear here, the market power of retailers (as measured by their markup of price over cost) is increased by the elimination of the MFA, and they are thus able to absorb a substantial share of the benefits of eliminating protection.

Second, because the marginal revenue curve is twice as steep as the demand curve, eliminating the MFA and tariffs has a much smaller effect on the quantity demanded of imports than in the competitive model.

Third, it is assumed that the marginal physical product of purchasing another unit of apparel is less than one (.9 in this example), which makes the MVP curve steeper than the MR curve. We assume that for a given store, purchasing one more unit at the margin will result, on average, in less than one final retail sale. This assumption reflects the law of diminishing returns, which implies that no store could sell an infinite number of shirts. This further reduces the effect of eliminating protection on import volume and price.

These results are preliminary, as noted in the Appendix. They are intended to provide a lower bound on the estimated costs of protection and to stress the danger of ignoring the structural features of actual markets when estimating the costs of protection and formulating policy. As the figures in Table 7 illustrate, estimates of the costs of protection are highly sensitive to assumptions about the structure of both input and product markets. These results imply that further study of the effects of structural factors on the costs of protection should be undertaken before introducing any major changes to the system of protection now in place, with the exception of tariff-forquota types of policies.

TABLE 7
Costs of Protection in The Apparel Industry in 1986 Under Alternative Structural Assumptions
(Percentage and Millions of Dollars)

		(Competitive) (Cline)	(Oligopsony) (This report)
ΔP_m	Percent change in import price	-34.6%	-10.1%
ΔP_d	Percent change in domestic price	-18.9%	-2.6%
AM	Percent change in the volume of imports	56.7%	8.3%
ΔQ	Percent change in the volume of domestic output	-18.9%	-8.6%
W_c	Consumer cost of protection	$17,556	$3,650
	From:		
	A Change in import price	6,421	2,332
	B Consumer surplus on change in imports	3,130	97
	C Change in price on domestic good	8,005	1,221
D	Cost from resource misallocation	933	57
A_1	Government tariff revenue losses	3,167	–
A,'	Transfer from government to retailers	–	6,837
A_2	Net quota rents transferred to retailers	–	1,869
	Total transfer to retailers (A, ' + A,)	–	8,706
W_a	Net welfare cost of protection	7,317	--
W_b	Net welfare cost of protection (olig)	–	4,355

Sources: Cline (1987, p. 191) and author's calculations.

D. Implications for Research

There are at least three critical factors which influence the estimated costs and benefits of protection which have heretofore been insufficiently researched. The first issue concerns the shape of the final product demand function. If the demand curve has constant elasticity, as assumed by Cline, then there will be a smaller difference in the estimated costs of protection between the cases of competition and oligopoly than shown in our model. The determination of the shape of the product demand curve is therefore an important policy research issue.[15]

The second critical factor for policy analysis is the nature of the oligopolistic interaction, if any, which best characterizes this market. Dixit (1988) has developed a conjectural-variations based calibration model that could be used to estimate important behavioral parameters needed in order to identify the type(s) of behavior(s) that characterize(s) these sectors.

The third factor is the degree of substitutability between imported and domestically produced goods. Cline assumes, as do we in this model, that import and domestic markets are separated, and that cross-price elasticities are relatively low. If, in fact, imports are highly substitutable with domestically produced goods, then eliminating protection will have a much larger effect on domestic output and employment than we suggest in Table 7. However, the estimated retail price effects of eliminating protection would not change significantly because we assume here that retailers restrict sales to keep prices high. Thus further research is required to determine more precisely the interaction between the supply of domestic and imported apparel.

Finally, the preceding analysis suggests that it is also important to reexamine the estimates of the implicit rates of protection in the import apparel markets. The estimates used by Cline and others may be biased upwards by the assumption of perfect competition in the apparel retail market, as implied by the "law of one price."

II. Trade Restrictions and Induced Innovation in the Textile Industry

In calculating the consumer costs of protection, many economists use an essentially static framework, in which technological change is either assumed not to occur, or to be caused by factors irrelevant to the analysis. Although this may be justifiable in the very short term, most of the policy debates to which the analysis is applied treat long-term issues such as the ultimate survival of an industry or the competitiveness of U.S. industries in global markets.

In the case of the U.S. textile industry, technological change and modernization of plant and equipment spurred substantial productivity increases during the last few decades. If even some portion of this rapid productivity growth can be attributed to trade protection, then it may be necessary for trade economists to drastically rethink the ways in which the consumer costs of protection are calculated. Our research shows that the reduction in consumer prices caused by faster productivity growth can outweigh the increase in consumer prices caused by higher import prices in as little as four years, depending on the specific parameters used. Our review of the specific historical circumstances in the textile industry indicates that, although there is no inevitable causal connection between protection and technological improvement, in several instances the existence of a partial degree of trade protection in this industry did facilitate innovation and investment in modem plant and equipment.

In theoretical terms, it is possible to argue that trade protection could have two separate -- and contradictory -- effects on technological innovation in an industry. On the one hand, by reducing competition, protection could remove the incentive to innovate. This is especially relevant in the case where the domestic industry is oligopolistic or monopolistic, since in that case the displaced foreign competition would not be replaced by domestic competition. On the other hand, by shielding the domestic industry from severe price-based competition, protection **could also** provide the profit margin **or** liquidity necessary to allow investment in new machinery.

There is an extensive body of theoretical and empirical literature on the impact of domestic competition on research and development activity. Some, in the Schumpeterian tradition, argue that heavily concentrated industries are most likely to engage in technological innovation, since an "accumulated surplus from past earnings above the competitive level is necessary for firms to react to **incentives."**[16] Others stress the role of competitive **firms** in spurring innovative activity.

Despite the difficulty of capturing meaningful technological innovation with readily available numerical measures, some tentative consensus has emerged from this literature. Most empirical studies have found that up to a certain point, higher concentration ratios are associated

with higher levels of research activity. Beyond that point, however, increases in R&D fall or level off as concentration rises.[17] These results are consistent with both of the above arguments: firms in the most competitive industries lack the resources to invest heavily in technological innovation, while those in the least competitive industries lack the incentive.

This argument can be extended to international competition as well. Kuttner (1989, p. 26) has argued that in the case of textiles, both protection and import competition played roles in spurring productivity growth. He writes that the Multi-Fiber Arrangement (MFA), which limited the volume of textile and apparel imports in specified categories "struck a good balance between providing a partially protected market (which made it rational to invest) and allowing some import penetration (which maintained competitive pressure to invest)." This indicates that the exact nature and level of protection may determine its impact on technological change.

We argue here that in the textile industry, past protection -- in the form of both tariffs and quotas -- was a significant contributing factor that made possible the industry's rapid productivity gains during the 1960s, 1970s, and 1980s. In this case, protection would have two opposing price effects: **induced innovation would reduce prices to consumers, while limited access to cheaper foreign goods** would raise consumer prices. Most previous analyses of the costs of protection focus only on the second price effect.

In the following sections, we will first review the history of technological change in the textile industry, and then outline Scott's (1990) estimates of potential consumer gains from induced innovation. Finally, we will discuss the future prospects of the textile and apparel **industries, and how those prospects are likely to be affected by trade policies.**

A. The History of Technological Change in the Textile Industry

Since 1961, the United States has enacted a series of import-restrictive measures concerning the textile and apparel sectors -- the Short-Term Arrangement, the Long-Term Arrangement, and four separate phases of the MFA. Each of these measures has included different categories of goods and different countries. Within the term of each agreement, separate bilateral arrangements were made with each covered country. The result is a system of tariffs and quotas whose effectiveness is much disputed.

Some observers, like William Cline (1990, p. 1), see textiles and apparel as having received "more comprehensive and persistent protection than any other industrial sector." Others, like the Congressional Office of Technology Assessment (OTA) (U.S. Congress,. 1987, p. 3), describe the U.S. textile and apparel market as "largely open to foreign sales." Virtually all observers, including Cline, agree that other countries have found numerous ways to circumvent

the very specific limitations imposed by the MBA. The result is that it is not possible to designate years or periods as being with or without protection. Although it is possible to use import penetration as a proxy for the level of protection, this does not separate the level of protection from other factors affecting imports, such as exchange rate fluctuations or changes in demand. What remains is to examine the U.S. experience in some detail and to use evidence from other countries where appropriate.

B. Evidence of Causality

Cline (1990) attributes the push toward mechanization in textiles to the innovations introduced by foreign textile machinery manufacturers, especially in Germany, Japan, and Switzerland (pp. 85-87). The U.S. textile machinery industry has declined dramatically since the mid-1960s. About half the textile machinery used in the United States is currently imported, while as recently as 1963, domestic producers controlled 93 percent of the market (Dertouzos et al., 1989, p. 291). Of the machinery still produced here, much is spare parts rather than integrated series of machines.

The fact that much of the new textile machinery technology originated abroad is not in dispute. This does not contradict the argument we are making, however. If protection allowed textile manufacturers to commit financial resources to modernizing their plant and equipment, then it can be said to have spurred innovation -- even if the technical breakthroughs occurred abroad.

The most recent innovation involved a change in managerial organization and was made possible by U.S. leadership in the application of dispersed computing power to link textile and apparel production to the retail sector. Technically, we are suggesting that the marginal productivity of new technology is higher in the United States than elsewhere because of the existence of complementary factors of production such as information management systems.

Cline does not rule out the possibility that protection was responsible for some of the mechanization that took place in textiles, however. "If protection prompts sharp employment reduction through mechanization," he writes, "it ends up saving firms and profits, but not jobs" (Cline, 1990, p. 87). Although Cline identifies the apparent paradox here, he does not draw any conclusions from the observation, except that it undermines the political justification for protection. He concludes that "calls for protection on grounds of job displacement by imports" are unwarranted (Cline, 1990, p. 96).

Many analysts have noted, however, that jobs lost through automation do not have the same effect on overall employment as jobs lost through import competition. The most important reason is that automated production retains linked jobs in the United States, even though it might

displace the workers immediately involved in the production process (Parsons, 1988, p. 128). Furthermore, the jobs that remain in the industry after modernization tend to require higher skill levels and often offer higher pay. In contrast, import competition tends to drive down wages of the remaining workers, as the surviving firms struggle to remain competitive. This is evidenced by falling relative wages in the apparel industry, which experienced less technological change and more import competition in recent decades than did textiles.

In many instances, automation may actually improve the quality of the remaining jobs. OTA (U.S. Congress, 1987, p. 7) notes in regard to cotton textiles, for example, that "many of the jobs eliminated by automation were dangerous and unpleasant." The mechanization of cotton processing significantly reduced the threat to workers of brown lung disease.

In some cases, technological change has reduced employment in the short run, but not in the long run. The *1990* U.S. *Industrial Outlook* finds, for example, that recently, "the negative employment effects of automation [in the textile industry] have turned positive, now providing new opportunities for a more technically trained work force" (1990 U.S. ***Industrial Outlook.*** p. 9-2). OTA writes that where "new plant and equipment can be used to expand markets," job loss need not occur (U.S. Congress, 1987, p. 97). OTA cites several instances where labor-saving technology was implemented without layoffs.

Although the tradeoff between technological change and jobs is a real one, it may not, ultimately, be one over which the industry has much control. If the industry were to choose not to modernize, simply in order to save jobs, it would likely be destroyed by foreign competition, even with current levels of protection. And in the long run, a modernized industry will provide higher-quality and higher-paying jobs to 'those workers who remain employed. Radical trade liberalization, on the other hand, provides few long-term or short-term benefits to the industry.

Many close observers of the textile industry attribute a significant part of recent productivity gains in cotton textiles to tighter Occupational Safety and Health Administration (OSHA) regulations that took effect in the early 1980s. Rothstein (1989, p. 25), for example, says OSHA standards to reduce employee exposure to cotton dust were the "most important stimulus" to productivity gains in textiles, although these standards applied only to that segment of the industry that processed cotton fibers. The industry fought these regulations bitterly, but lost its appeal to the Supreme Court in 1980. OSHA required automatic equipment to enclose the cotton-handling process, removing cotton fibers from the air workers breathed. Toyne et. al. (1984, p. 44) also call OSHA standards "the strongest motivating force" behind technological change in the cotton opening and cleaning process. Although productivity data do not allow for the isolation of

cotton textiles, figures available at the fourdigit Standard Industrial Classification (SIC) level support this argument. Productivity in nonwool yarn mills, which include cotton, silk, and synthetic yams, increased more than three times as fast from 1980 to 1989 as it did in the 1960s and the 1970s (7.3 percent annually compared to 2 percent).**

Although the OSHA standards themselves were not related to levels of import protection, the existence of trade barriers allowed firms to invest in newer, conforming machinery rather than go out of business or move production offshore.

Others have argued that import competition -- not protection -- spurs innovation. Martin and Evans (1981) write that productivity growth may be "a function of actual or threatened import competition." Parsons (1988, p. 114) writes that it is incorrect to separate productivity and trade effects on employment since "imports increase and domestic firms attempt to reduce the labor content of their products in order to compete with their low-wage developing country competitors."

In reality, the causality probably runs in both directions. Future research could explore ways to capture this relationship accurately. The Office of Technology Assessment (U.S. Congress, 1987, p. 7) notes the interaction: "While trade clearly stimulated technological change in the domestic industry, for example, both trade and technology stimulated price reductions that increased domestic demand."

Ghadar, Davidson, and Feigenoff argue in favor of the MFA's positive impact on adjustment:

> The stability and moderation imposed by the MFA were significant factors in the ability of the textile and apparel industries to sustain their adjustment effort during the 1970s. In providing a forum for large-scale negotiations among parties of sharply conflicting interests, these conditions gave the textile industry time to revitalize itself (1987, p. 5).

The 1970s was a good decade for the textile and apparel industries -- modernization and productivity improvements were taking place. But, Ghadar, Davidson, and Feigenoff argue, the import surge that began in 1983 undermined that progress and "created a sense of crisis." In the broadwoven fabric sectors, productivity did in fact grow more slowly after 1982 than it had in the 1970s.[19]

From 1982 to 1983, the value of textile imports rose 15 percent, and the value of apparel imports rose 17 percent. The next year, textile imports were up 47 percent, and apparel imports increased by 45 percent. Like Cline, Ghadar, Davidson, and Feigenoff (1987, pp. 6-7) attribute the sudden rise in imports to an over-valued dollar. Unlike Cline, however, they see a role for the

government in preventing "sudden surges in imports resulting from inappropriate currency values or trade policies of other nations."

A 1986 Congressional Budget Office (CBO) report specifically addresses the question of whether protection has "revitalized" the U.S. textile industry. It concludes that protection:

> was probably not a significant factor in either the increased investment that took place during the 1960s or the decline in the 1970s. . . . Since most of the protection during this period was for cotton textiles, whereas most of the new investment was in synthetics, it seems implausible to attribute much of the investment boom to protection.
> (CBO, 1986, p. 35).

The evidence introduced to support this position does not, however, completely make the case. First, it addresses only one short period, by no means the only time during which investment and productivity were increasing in the textile industry. Second, the report notes later that productivity gains in textiles, relative to all manufacturing, did in fact improve after the trade restraints were extended to include synthetic goods in the early 1970s (CBO, 1986, p. 35).

On a theoretical level, the CBO report argues that protection is unlikely to lower prices even if it spurs technological change. If protection lowers costs, the argument goes, a firm "might be able to secure market power and charge prices in excess of its long-run costs" (CBO, 1986, p. 11).

Although some segments of the textile industry are becoming more highly concentrated, market power is limited by several factors. The homogeneity of each type of fabric, as well as the substitutability between fabrics channels most competition into price-cutting. It is also relatively difficult to capture monopoly rents in a producer goods industry, since industrial consumers are more sophisticated and can afford to invest more time in the search for low-cost inputs than retail consumers. And despite the increase in mechanization in recent years, capital per worker in textiles is still low relative to other manufacturing industries. This means there are relatively low barriers to entry.

C. Trade, Protection, and the Gains from Innovation

Scott (1990) argues that protection can increase national welfare when it stimulates research and development that might not otherwise occur. For example, if research benefits not only the firms immediately involved, but also others in the industry or in related industries, firms will tend to invest too little, since they cannot ensure that they will reap all the rewards from their research.

Since textiles, like steel, are in many cases used as an intermediate input, policies that lower the price of textiles will also benefit downstream users, in this case apparel and industrial or

home furnishing manufacturers. Paul Krugman named this effect a "linkage externality" (Tyson, 1988, p. 115).

Protection can also contribute to productivity increases by raising prices and thus cash flow. This can enable firms to invest in modem machinery that they couldn't otherwise afford to finance out of internal funds. This will occur, however, only when capital markets are imperfect, in the sense of being reluctant to lend money for potentially viable investment projects, possibly due to incomplete or asymmetric information on the part of lenders.

As Fazzari, Hubbard, and Petersen (1988, p. 142) have argued, asymmetric information can "make it very costly, even impossible, for providers of external finance to evaluate the quality of firms' investment opportunities." In this case, there may be a cost advantage to firms to finance investment out of cash flow or retained earnings. "To the extent that a firm seeks debt finance at the margin," they write, "greater internal cash flow enhances its balance sheet and net worth positions, lowering the cost of new debt" (1988, p. 157). In the case of textiles, protection could provide both the extra cushion of cash for the firm to spend, and the relative certainty that the firm will not be exposed to unlimited import competition from low-wage countries. In fact, textile executives have noted a direct link between current negotiations over the MFA and the willingness of bankers to provide long-term investment funds.

In order to measure the potential impact on prices of productivity increases induced by trade protection, Scott (1990) modifies Cline's (1987, 1990) model of the costs and benefits of protection. Scott allows for the possibility that protection, by spurring productivity improvements and thus lowering costs, would shift the domestic supply curve out and to the right. He finds that such a shift could result in the protected domestic textile price falling below the unprotected 1986 price in as few as four years.

Table 8 shows Scott's estimates of the consumer and net national costs of protection, when protection-induced productivity increases are taken into account. These revised estimates are more consistent with the historical pattern of falling real prices of textiles during the protectionist regime than are Cline's estimates of very high consumer costs of protection.

According to Cline's calculations, productivity growth in the textile sector exceeded the manufacturing average by 1.37 percentage points in the 1961-1972 period and by .81 percentage points from 1973 to 1985. Scott uses those figures to gauge the potential future gains from productivity increases above and beyond the manufacturing norm, assuming that the supply curve shifts outward at the rate of induced productivity growth. This implies that only the proportion of productivity growth which is in excess of national manufacturing averages will result in lower prices.

Table 8
Costs of Protection in the Textile Industry with Induced Innovation Effects: 1993
(millions of dollars)

	Induced Innovation Effect:	low (0.81%)	high (1.37%)
W_c	Consumer cost of protection	1,096	-27
	From:		
	A Change in import price	1,072	1,072
	B Consumer surplus on change in imports	203	203
	C Change in price on domestic good	0	0
	E Benefits of induced price change	179	1,302
D	Cost from resource misallocation	24	24
A_1	Transfers to tariff revenue	488	488
W	Net welfare cost of protection	632	-491

Sources: Cline (1987, p. 191) and Scott (1990).

He finds that, even using the lower estimate of .81 (assuming, in other words that productivity in textiles continues to exceed the manufacturing average by the same margin as it did between 1973 and 1985), Cline's estimated consumer cost of protection of $2.778 billion may be well over twice the actual cost. And applying the higher estimate of textile productivity growth (from the 1961-1972 period) yields positive net benefits from protection for the nation as a whole after only four years, rather than the huge net national costs estimated by Cline. This finding results from the dynamic gains associated with steady technical progress and is generally ignored in the standard analysis of the effects of protection.

D. International Evidence and the Future of the Industry

It seems clear that if the U.S. textile and apparel industry is to survive, let alone flourish, it will do so only by aggressively pursuing those market niches in which it has some hope of retaining comparative advantage in the long run. One way of identifying those niches is to assess the reasons for success of some other high-wage countries. Italy and West Germany, in particular, have become the first and second largest exporters of textile goods in the world, although most of their exports go to other countries in the European Community. Hong Kong is the third.

West Germany's textile industry was "reborn" in the 1980s after suffering serious declines in the 1970s. The European Community significantly tightened its MFA quotas and reduced some of them in 1982 in several key categories. This substantially slowed imports from the less developed countries and gave Germany's high-wage textile industry a chance to retool.

Although Japan has low tariffs and no MFA quotas, "a web of custom and business practice, quality standards, and informal import limits, negotiated between the governments of Japan and major competitors ... at times of import surges, have buffered the Japanese industry against the full force of low-wage competition" (U.S. Congress, 1988, appendix, p. 10). Japanese firms have also taken advantage of their proximity to the low-wage producers in Southeast Asia by moving some production there.

It seems unlikely that price-based competition from low-wage countries would spur innovation in the direction of higher quality, shorter response time, and more innovative design -- the direction that most industry analysts have identified as the best prospect for the U.S. industry.

There seems to be a high correlation between output growth and productivity growth rates in the textile industry, possibly indicating the presence of economies of scale. During the 1961-72 period, when textile productivity was growing much faster than in the average manufacturing industry, real textile output was growing by almost 10 percent per year. In the 1973-86 period, real textile output grew by less than one percent annually, and textile productivity growth slowed relative to the earlier period (Cline, 1990, p. 27). These data suggest that complete liberalization of textile and apparel imports, which would likely result in a substantial decline in domestic textile output, would have a deleterious effect on productivity-enhancing investment in the U.S. textile industry.

Furthermore, given the structure of the textile, fiber, and apparel industries, and the nature of the research likely to improve competitiveness in the future, it seems likely that there could be significant positive externalities available from continued protection. The OTA (1987, p. 110) finds, for example, that "much research within the industry complex could be systemwide, not just

centered around automating a small part of the activity." Existing efforts, such as the privately funded Textile Research Institute in Princeton, New Jersey, and the joint public/private Textile/Clothing Technology Corporation (TC^2) have been moderately successful. The U.S. government is also funding several defense-related textile research projects.

Since most industry analysts see U.S. future competitiveness in the textile and apparel industries as dependent on more coordination between the different phases of production, either more vertical integration will need to take place, or some mechanism to facilitate communication and supply lines will be needed. It is clear, however, that the level and type of international trade, as well as trade protection, will have a significant impact on the direction the industry takes.

III. Labor Adjustment Costs Due to Trade Liberalization[20]

Greater imports (or reduced exports) lead to plant closings and job loss. So, whatever the benefits of trade might be, one must also examine the "adjustment costs," the economic loss suffered by the workforce when forced to make a transition to a new employment situation. This section examines the adjustment costs of the workers that would be displaced if we abolished the MFA. Although we limit our analysis to employment adjustment, it should be noted that a complete analysis of adjustment costs would include "capital adjustment costs," the lowered value of capital assets (e.g., machinery) in a declining market, and "community adjustment costs," the effect of job loss on community services, real estate values and so on. Plus, we only focus on labor adjustment costs that are easily translatable into dollar values, ignoring the social traumas (divorce, suicide, mental health problems) that frequently accompany major economic shocks.

Our analysis, however, does make several innovations over previous analyses. For instance, we are able to draw on a set of Bureau of Labor Statistics (BLS) surveys of displaced workers to be able to accurately measure the length of joblessness following displacement, we take into account the loss of fringe benefits as well as wages, and we estimate the loss to the economy due to displaced workers dropping out of the labor force.

Most analysts have pointed to the particular difficulties that displaced apparel and textile workers face. Rothstein (1989, p. 18) notes that,

> In view of apparel's disproportionate employment of women (whose family commitments make them less mobile in looking for new work), rural workers in one-factory towns, and black, Hispanic, immigrant, and poorly educated workers, it is not surprising that apparel workers change jobs less frequently, are unemployed longer than other workers when they do lose a job, and ultimately give up a search for work (thus dropping off the unemployment rolls) at a greater rate than other workers.

Similarly, Cline (1990, pp. 105-107) notes that "labor adjustment in textiles and apparel is complicated by geographic and demographic factors. ... Geographical concentration raises labor adjustment costs by reducing the likelihood that the worker will find alternative employment without relocating, perhaps at great distance." The complicating demographic factors are that textile and apparel workers are disproportionately female ("less mobile and less able to relocate") and disproportionately minority workers (who have unemployment rates twice the national average).

These characterizations of labor adjustment in these industries are confirmed by our analysis of three BLS surveys. We limited our sample to adult workers displaced from a full-time nonagricultural wage and salary job due to a plant shutdown or permanent layoff, excluding

students. We examined workers displaced from textile and apparel jobs and, for comparative purposes, workers displaced from manufacturing jobs and displaced workers as a whole."

Table 9 shows the percentage of reemployed workers who suffered various levels of earnings losses (the percentage by which the weekly wage on the new job is less than that on the lost job). Most displaced workers earn less on their new jobs, although the losses are lessened in later stages of the recovery. Nearly a third of displaced workers are reemployed in jobs paying less than 75 percent of their wage on the lost job. The large wage losses in textile may seem surprising given the industry's characterization as being "low wage." From 20 to 40 percent of reemployed displaced textile workers took pay cuts of at least 25 percent. In fact, the pattern of earnings losses among displaced textile workers mirrors that of **all** displaced manufacturing workers. Workers displaced from apparel jobs experienced less severe pay cuts; nevertheless, the majority did take jobs with less pay and a significant minority suffered pay cuts exceeding 25 **percent.**[22]

The difficulties faced by apparel workers in finding new jobs are apparent in Table 10. Apparel workers are less likely to be reemployed than workers displaced from other jobs. Yet, this does not show up as higher unemployment; rather, apparel workers drop out of the labor force at a significantly higher rate. The low reemployment and high dropout rates of apparel workers presumably reflect their geographic and demographic disadvantages discussed **earlier.**[23] This is futther confirmed by Table 11 which shows that apparel workers are more likely to experience long spells of joblessness following displacement. The fact that displaced **apparel** workers are far less likely to relocate supports the claims of Rothstein and Cline that apparel workers face geographic and other barriers to nemployment and motivates our examination of the economic losses due to labor force dropout below (see Table 12).

TABLE 9
Percentage Earnings Loss of Re-employed Displaced Workers

Percent Earnings Loss	*-50% or more*	*-25 to 50%*	*-0 to 25%*	*No Los*
Apparel				
1979-83	6.3%	28.6%	43.1%	22.0%
1981-85	8.8	17.4	33.2	40.6
1983-87	6.9	19.3	30.7	53.1
Textile				
1979-83	9.2%	12.8%	42.1%	35.9%
1981-85	24.0	17.4	25.1	33.5
1983-87	10.4	30.1	13.9	45.6
Mfg				
1979-83	17.0%	17.7%	30.3%	34.9%
1981-85	13.4	19.8	29.7	37.1
1983-87	12.7	14.3	29.0	44.0
Total				
1979-83	16.1%	18.7%	31.1%	34.1%
1981-85	14.6	18.5	28.3	38.6
1983-87	13.1	18.0	28.6	40.3

Source: Based on unpublished **BLS** data. Calculations by Michael **Podgursky, as described in** Appendix B.

TABLE 10
Labor Force Status of Displaced Workers

	Reemployed	**Unemployed**	Not in Labor Force
Apparel			
1979-83	54.5%	23.1%	22.4%
1981-85	53.1	20.3	26.6
1983-87	68.4	11.0	20.7
Textile			
1979-83	59.2%	25.7%	15.1%
1981-85	68.0	14.0	18.0
1983-87	70.4	15.7	13.9
Mfg			
1979-83	60.1%	25.4%	14.5%
1981-85	67.5	19.8	12.7
1983-87	71.4	16.8	11.8
Total			
1979-83	62.4%	25.1%	12.5%
1981-85	67.7	19.9	12.4
1983-87	71.0	17.3	11.7

Source: See Table 9.

TABLE 11
Joblessness After Displacement

	Weeks of Joblessness[1]			
	0	**1-14**	**15-26**	**27+**
Apparel				
1979-83	5.5%	38.9%	12.0%	43.6%
1981-85	6.2	30.6	22.5	40.8
Textile				
1979-83	14.3%	35.6%	14.6%	35.5%
1981-85	7.4	26.4	19.8	46.4
All Mfg				
1979-83	9.3%	35.2%	14.6%	40.9%
1981-85	12.1	36.4	16.8	34.8
Total				
1979-83	9.5%	36.9%	15.1%	38.5%
1981-85	11.6	40.5	16.1	31.8

[1] The survey for 1983-87 is not included because of a change in survey question.

Source: See Table 9.

TABLE 12
Mobility Patterns

	Percent of Displaced Workers Who Relocated		
	1979-83	**1981-85**	**1983-87**
Industry			
Apparel	9.4%	8.7%	10.0%
Textile	12.7	11.9	10.3
All Mfg.	18.4	16.9	23.0
Total	17.4	17.3	19.1

Source: See Table 9.

The reemployment experience of displaced textile workers seems comparable to that of other displaced manufacturing workers, except for a somewhat higher rate of dropping out of the labor force when not reemployed (see Tables 10 and 11). As with apparel workers, textile workers are less likely to relocate than the average manufacturing worker. This may explain the somewhat higher dropout rate and the fact that despite having wages below the manufacturing average, many displaced textile workers suffered proportionately large earnings losses.

We now turn to computing the potential labor adjustment costs due to a removal of textile and apparel trade protection. Specifically, we estimate three types of labor adjustment costs: the earnings lost during a spell of joblessness following displacement; the earnings lost when workers are reemployed at lower pay; and the earnings foregone when workers previously committed to working drop out of the labor force because they are unable to find work (see Table 13).

In apparel, we estimated job loss due to trade liberalization using the model described in Section I, which assumes market power at the retail level. This model yields somewhat smaller estimates of job loss than do models assuming perfectly competitive retail markets, since the quantity adjustment is smaller under monopoly than it would be under competition. We find that the volume of domestic output would fall by 8.6 percent if trade protection were eliminated, and that 97,400 jobs in apparel would be eliminated. Another 76,000 indirect jobs would also be lost."

Since the focus of our study was not on job loss, but rather on the impact of market power in apparel retailing and induced innovation in textiles, we did not make independent estimates of job loss. Rather, we used Cline's (1990) figures as a baseline. This should not be construed as an endorsement of his figures -- only a conservative choice for the purposes of comparison between his model and ours. A recent study, by Trade Research & Analysis in Bethesda, Maryland, shows that direct and indirect job loss in apparel and textiles could be as high as 1.4 million by the year 2002 if the MFA is eliminated (TRA, 1991).

For the textile sector, we used Cline's (1990) estimates of job losses. Cline finds that trade would reduce domestic employment by about three percent, leading to a direct loss of 20,700 jobs, and an indirect loss of 32,700 jobs. Although the productivity gains induced by trade protection (as described in Section II) will offset the direct job losses somewhat, indirect job losses would not be affected. Therefore, the overall impact on employment of increased productivity would not be significant in a single year.

We use an analysis of the two most recent BLS Displaced Worker Surveys to construct estimates for each dimension of adjustment costs. The basic data and their description are presented in Appendix B (written by Michael Podgursky).

TABLE 13
Labor Adjustment Costs

	Apparel	Textile
A. Change in Employment (thousands)		
Direct	97.4	*20.7*
Indirect	76.0	*32.7*
Total	173.0	*53.4*
B. Transition/Unemployment Adjustment Costs ($ millions)'		
Direct	617	*150*
Indirect	836	*360*
Total	1,453	*510*
C. *Permanent Wage Loss - Reemployed ($ millions)*[2]		
Direct	22	**48**
Indirect	193	**83**
Total	215	**131**
D. Permanent Wage Loss - Dropouts ($ millions)[3]		
Direct	145	**25**
Indirect	98	**42**
Total	243	**67**
E. Grand Total Labor Adjustment Costs - Annualized ($ millions)		
1. Transition/Unemployment [4]	145	**51**
2. Permanent Wage Loss - Reemployed	215	**131**
3. Permanent Wage Loss - Dropout	243	**67**
4. Total Loss		
a. 1990 dollars	603	**249**
b. 1986 dollars	506	**209**

Source: See Table 9.

[1] Mean Joblessness at predisplacement wage from Appendix B.

[2] Change in weekly compensation (from Appendix B) for fifty-two weeks for reemployed workers. The number of reemployed workers is computed from the employment loss times the percent reemployed. The percentage of displaced workers who become reemployed is derived as follows, the Appendix B shows what percent of the workers displaced in the first four years found at least one job by the end of the fifth year. Those not reemployed are either labor force dropouts or unemployed. The proportion which are dropouts is based on the share of the nonreemployed that were dropouts in the three surveys shown in Table 10. The unemployed are assumed to eventually become reemployed. So, the percent reemployed is equal to the actual percent reemployed as shown in the Appendix B plus the portion who were unemployed. The percent reemployed was 95.4 percent for manufacturing, 94.0 percent for textile and 91.5 percent for apparel.

[3] The number of dropouts are those not reemployed, as defined above. The dropout annual wage loss is computed as the prior weekly compensation for fifty-two weeks.

[4] Equal to 10 percent of total for panel A, above, which represents the annual income equivalent of the capitalized value of transition/unemployment adjustment costs as in Cline's calculations.

Panel B of Table 13 presents the costs of the spell of joblessness that follows displacement. This is estimated by evaluating the mean length of joblessness following displacement (averaging the experience of those immediately reemployed and those jobless and then reemployed). Following Cline's methodology, we directly measure the experiences of textile and apparel workers and use the experiences of the average displaced manufacturing worker to compute the adjustment costs for indirect job loss outside of textile and apparel. These weeks of joblessness are translated into dollar values by valuing them at the weekly compensation on the job. As seen in Panel B, these "transition" costs total $1.5 billion for apparel and $0.5 billion for textiles.

These estimates of the transition costs are likely to be severe understatements for several reasons. The first is that the surveys used to estimate the length of joblessness primarily cover the final years of the recent recovery (1986-1990), years of relatively low unemployment. Of course, the length of joblessness following displacement depends on the general state of the economy. Had we focused on the displacement experiences of the mid 1980s, as Cline did, our transition costs would probably be about twice as much.[25] Another reason these estimates are conservative is that they ignore the fact that displaced workers are likely to have multiple spells of joblessness before making a transition to a new, permanent job. Yet, the survey data only tell us the length of joblessness before the worker finds his/her first, perhaps short-term, job.

Data in Appendix B show that displaced textile workers are reemployed at pay levels 12.2 percent less than on their prior job, even larger than the 9.5 percent average pay loss for displaced manufacturing workers. Apparel workers, on the other hand, experienced modest pay losses. Panel C presents estimates, based on these pay losses, of the permanent wage loss (annualized) that occurs when displaced workers find new work at lower pay. These pay losses are calculated for the portion of the displaced workforce that is reemployed (leaving out dropouts) and reflect the weekly wage and benefit loss shown in Appendix B for fifty-two weeks.

It has been questioned whether these wage losses should be considered "personal" losses rather than economic losses.[26] This type of theorizing, however, presumes that wages are purely set by an individual's human capital, irrespective of the industry or type of employer." However, a long history of economic analysis and the new "labor rents" literature (see Dickens and Lang, 1988; Katz and Summers, 1989) show that there are significant and sustained industry pay differentials, i.e., some industries pay more than others for comparable workers. This being the case, a change in the distribution of employment across industries can and does lead to large economic losses. This is especially true in the 1980s, a period when jobs shifted rapidly from

higher paying to lower paying industries (Mishel and Frankel, 1991). Moreover, there was a general shift towards lower paying jobs in the 1980s resulting from a deterioration in the earnings opportunities of the three-fourths of the workforce without a college degree. It seems odd to consider the losses of workers that result from these larger trends to be "personal."

Again, there are reasons to believe our estimates are understated. The data we draw on ate from the later recovery years when earnings losses were substantially less than in the mid-1980s.[28] Plus, we only assume that fringe benefit losses were proportionate to the average wage loss, even though the loss of fringe benefits is likely to be substantially larger.

The last dimension of adjustment cost we estimate is the loss due to workers leaving the labor force. As we have discussed, many displaced workers are unable to find new jobs. The resulting losses to the economy are large even though only a small percentage of displaced workers are "dropouts." This is because the economic losses per dropout are large, reflecting their full annual compensation rather than, as for the reemployed, a fraction of their former pay.

We have very conservatively estimated the proportion of the total job loss that results in labor force withdrawal. First, we looked at the percentage of workers displaced during the first four years of the two recent BLS surveys who were reemployed -- at any job -- by the end of the fifth year. This leaves roughly 15 percent who were not reemployed. We then apportioned the nonreemployed to either unemployment or dropout status (according to the data in Table 10), assuming that the unemployed all become reemployed. The resulting number of dropouts, based on the percent dropout times total lost employment, were then considered to lose their full pay each year, as shown in Panel D.

The total adjustment costs are presented in Panel E, amounting to-$603 million for apparel and $249 million for textile or a total of $852 million. Since these figures are based on Cline's estimates of job loss, as noted earlier, they should be considered a lower bound of the actual adjustment costs. For comparison to the results in other sections it is necessary to use these dollar values deflated to 1986 dollars, as shown in the last line in Panel E.

Conclusions

This report has examined the implications of imperfect competition for estimates of the costs of protection in the textile and apparel industries. Substantial evidence suggests that these sectors do not function in the same manner as the classic perfectly competitive market seen in economics textbooks.

These markets diverge from perfect competition in three distinct ways. Fit, the retail apparel industry has grown increasingly concentrated in the 1970s and 1980s. This has provided opportunities for retailers to exploit both consumers (by behaving in an oligopolistic manner) and manufacturers of apparel (by behaving in an oligopsonistic manner). Second, technological innovations in the textile industry have apparently generated substantial positive externalities, which have resulted in lower prices for textile consumers. Trade restrictions may have facilitated these innovations. Third, due in some part to special features of these markets, adjustment costs associated with rising imports are much higher in both the apparel and textile industries than one would predict if labor markets were perfectly competitive. This reduces the expected benefits of eliminating protection.

In the first section of our paper, we present data showing that U.S. apparel retailers enjoy considerable market power and are therefore able to extract significant rents, not only from consumers, but also from apparel manufacturers. High and rising concentration ratios and price-cost margins in apparel retailing support this line of argument. We also discuss factors that might contribute to barriers to entry in the industry.

We develop a model to measure the costs and benefits of protection, using Cline (1990) as a baseline. We find that the consumer costs of protection assuming monopoly power in retailing are only $3.6 billion a year, less than one-fourth of Cline's comparable consumer cost estimate.

However, the windfall gains to retailers that would result from eliminating protection dwarf the consumer benefits. Under monopoly assumptions, retailers gain $8.7 billion per year because of lower import costs. This presents a striking contrast to the model assuming perfect competition, which finds that **all** such gains are passed on to consumers. The retailers potential gains from the elimination of protection help explain the resources they are currently expending to lobby for this end.

Eliminating protection would also be associated with labor adjustment costs of at least $600 million in the apparel sector alone, as shown in Section III, above. If the supply elasticity of imports is higher. than assumed here (or, equivalently, if imports are highly substitutable for

domestically produced goods), domestic output would fall more sharply in the event of radical trade liberalization. In this case the labor adjustment costs would be much higher while consumer benefits would not change significantly, since retailers would still face incentives to restrain total sales in order to maintain high prices.

In addition, as shown in Section III, 20.7 percent to 26.6 percent of apparel workers and 13.9 percent to 18 percent of textile workers drop out of the labor force altogether when whey are displaced by trade. The potential earnings of these workers are then permanently lost to the economy.

Estimates of labor displacement resulting from eliminating protection are, in some senses, the most conservative figures in the preceding analysis. Since our model of market power in the retail sector assumes smaller quantity adjustments than the competitive model, we actually predict smaller job loss due to trade than does Cline, among others. Similarly, in the textile industry, productivity gains induced by trade protection will also lead to some job loss. As noted above, however, the supply elasticities assumed in our model are probably too low. Potential job loss due to trade liberalization is very sensitive to any change in this particular assumption.

The case for maintaining protection in textiles is even stronger than for the apparel sector. The analysis in Table 8 suggests that protection could generate *positive* benefits for the United States of up to half a billion dollars in only four years, because it results in falling textile prices which benefit consumers in the long run.

It is important to note that protection of the apparel market, which increases domestic apparel production and hence supports demand for domestically produced textile products, is probably the most important form of protection for textiles. If protection of both textiles and apparel were eliminated, then these benefits would be lost, and the economy would incur additional losses in the range of $250 million per year associated with displacement of workers in the textile-related industries. In textiles the indirect employment/wage losses would exceed direct losses because textiles are an important source of demand for other intermediate products.

Policy Implications

This paper demonstrates that small differences in assumptions about the structure of markets can generate large changes in the estimated costs of protection. The estimates developed here are ***not*** predictions of how the market will respond if protection is eliminated. Rather, they are illustrations of how the market would respond if *it were structured as* described in the text.

While the precise effects of eliminating protection could be larger or smaller than is estimated here, our analysis does lead to the conclusion that the complete elimination of quota

protection and the partial reduction of import tariffs for these industries is inadvisable at the present time for at least two reasons. First, the market imperfections discussed here all tend to reduce the costs of protection, and protection may have even increased national welfare in the case of textiles. Until we know more about how these markets are actually structured, it is unwise to completely eliminate protection. Second, there is great uncertainty about the number of workers who would be displaced by trade liberalization. It is clear that displaced workers in these industries suffer permanent income losses and have higher than average tendencies to drop out of the labor force altogether in the wake of job loss. Since the costs of protection may be much smaller than those estimated by Cline, and the benefits much greater, it would be prudent for the Congress to reject the Administration's request for Fast Track approval for the GATT negotiations and for the U.S.-Mexico Free Trade Agreement. GATT is likely to eliminate the MFA, while the Free Trade Agreement would undermine its effectiveness. Both agreements would thus reduce protection for these industries.

There is at least one step, however, that would improve our understanding of how trade affects these sectors while providing increased resources to sustain and increase their competitiveness. The MFA, which is set to expire later this year, could be replaced with a global U.S. import quota,[29] to be auctioned annually. The quota limit could be gradually relaxed to provide for controlled import growth. This system would eliminate the wasteful quota-evasion incentives and eliminate quota-related production inefficiencies (e.g., production of parts in several locations for final assembly in a non-constrained country). The quota auctions would provide much clearer estimates of the effective rate of protection on apparel, by product class, which could be an important guide to future policy development. The new system would provide a temporary constraint on quota-related upgrading incentives because low-cost assemblers could obtain somewhat greater access to the U.S. market.

An auction quota has the additional advantage of increasing U.S. government resources by capturing some or all of the rents earned by import suppliers and by retailers on the importation of apparel products. This would reduce the cost of protection to the nation (but not to consumers). It would also provide revenue to aid in restructuring the industry, which could improve its ability to compete on international markets.

Appendix A

Estimates of the Cost of Protection Assuming Monopoly in the Retail Apparel Market

We will assume here, for purposes of illustration, that the demand for imported clothing is a linear equation of the following form:

(1) $M = a_0 + a_1 P_M + a_2 P_D$.

Assume further that Cline's estimates of point elasticities for import clothing demand are correct at the initial price and quantity levels. The implied coefficients of the linear demand equation can then be imputed as follows:

$$(2) \qquad \xi_M = a_1 \frac{P_M}{M},$$

$$(3) \qquad \xi_D = a_2 \frac{P_D}{M}.$$

Given estimates of a, and a_2 we can then calculate the intercept:

(4) $a_0 = M - a_1 - a_2$,

assuming that $P_{M0} = P_{D0} = 1$. Given equations (1) to (4) and initial values for M, ξ_M, and ξ_D, then the values for a_0, a, and a_2 can be calculated. These parameter values are reported in Table Al.

Table Al
Parameter Values for the Linear Apparel Import Demand Equation

Parameter	Description	Value
a_0	Intercept of Import Demand Equation	35,050.5
a_1	Slope of Import Demand Equation	-37,387.2
a2	Sensitivity of Import Demand to Domestic Apparel Prices	25,703.7

Given the parameters in Table Al a model of the effects of eliminating trade protection was developed, building on the basic framework and data developed by Cline (1990). The basic structure of the model will be outlined. A spreadsheet containing the basic results, which are summarized in the text, is available from the authors upon request.

The model is developed in three phases. Stage 1 describes the monopolistic aspects of the retail apparel industry. Stage 2 derives the marginal value product relationship for this

industry. Stage 3 estimates the effects of lower import prices on the market for domestically produced apparel and the feedback effect of domestic prices on import market equilibrium.

In Stage 1, an inverse demand curve for imports is derived from equation 1, which is then used to construct a marginal revenue equation. It is assumed here that the industry is cartelized in such a way as to behave as a classic monopolist, in the import market only. Such a market structure implies that at the initial equilibrium (with protection) the cost of imports is only 37.5 percent of the retail price of imported apparel, reflecting the high degree of market power implied in this model.

It is then assumed that protection applies only to the wholesale cost of imports, and that demand is linear, not of constant elasticity, as Cline postulates. Thus the wholesale cost of imports falls by approximately 35 percent if tariffs and the MFA are eliminated, using Cline's figures for the effective rates of protection. These assumptions generate the most important differences from the Cline results, in the final analysis.

After protection is eliminated, the wholesale price of imports is assumed to decline to 24.5 percent of the initial retail price of imported clothing. Assuming that the firm sets marginal revenue equal to marginal cost, the new level of cartel import purchases is then calculated. This results in a new import price.

In Stage 2 the MVP curve is derived. It is assumed that the marginal physical product has a constant value of 0.9, which is conservative since the MPP is usually assumed to decline with increased input consumption. The figure of 0.9 is chosen simply for illustration. Any MPP of less than one will increase the slope of the MVP curve, relative to the firm's MR curve. The MVP curve is then used to recalculate the effects of eliminating protection on import market price and volume levels.

In Stage 3 the effects of lower import prices on the market for domestically produced apparel and the feedback effects of domestic prices on import market equilibrium are estimated. The MVP analysis is then repeated, using the new values for domestic prices in equation 1 and the other equations in the model to calculate the final estimates of the effects of eliminating protection on import market price and volume levels. The welfare effects of quota elimination are then estimated using the formula developed by Cline (1990) and adapted by Scott (1990).

This model provides a lower bound on the cost of protection in the apparel sector (ignoring the costs of labor displacement, which are considered separately in Section III). It is somewhat conservative, in the sense that no concentration-related distortions are assumed to exist in the market for domestically produced apparel. However, it is unlikely that the retail apparel

industry functions as a perfect cartel. Further research on the nature of oligopolistic interactions in this sector is required. In addition, the model highlights the significance of the unresolved question of which functional form can best be used to characterize final demand in this sector. The effects of monopoly power would be smaller in a model with constant elasticity of demand. The assumption of linear demand implies that market power increases (elasticity decreases, in absolute value terms) with the elimination of protection, leading to an increase in price-cost markups.

If we had made the less conservative assumptions that retailers also possess market power (in both buying and selling) in the market for domestically produced apparel, and that domestic goods are highly substitutable with imports, then the costs of protection would be much smaller. The assumption of substitutability would dramatically increase the flow of imports (and hence domestic displacement) resulting from trade liberalization with few, if any, effects on final equilibrium prices. This would lead to significantly larger estimates of adjustment costs in Section III.

Finally, the feedback loop described in Stage 2 is incomplete. Lower domestic prices will result in lower import prices, etc. One solution is to assume that retailers know that reducing prices on imported goods will have an impact on domestic prices, and that they have market power in the latter market as well. This change would further reduce the estimated impacts of eliminating protection.[30]

Appendix B

Estimated Economic Losses Due to Job Displacement: Evidence from the Displaced Worker Surveys[31]

The following table presents tabulations from a sample of displaced workers constructed by pooling the January 1988 and January 1990 Displaced Worker Surveys (DWS). Both of these were retrospective surveys conducted by the Census Bureau as a supplement to the Current Population Survey in that month. They thus provide data on a large nationally-representative sample of displaced workers and are the major source of data on job displacement in the United States. In this report I use these data to estimate the economic losses for displaced manufacturing workers.

In the DWS workers are asked whether they lost a job due to a plant shutdown or related factors during the previous five years. Thus the time interval covered by the January 1988 and January 1990 DWS is 1983-1989.[32] For this study, however, I exclude workers who were laid off in the year prior to the survey. I do this for two reasons. First, workers displaced in the year prior to the survey have a much lower reemployment rate than workers displaced in earlier years. Excluding the former workers thus allows for a better estimate of the number of weeks of joblessness workers experience following displacement. Second, since at least one (and up to five) years have expired since displacement, we can get a better estimate of the longer-term reduction in a worker's earnings capacity as a result of displacement. Other details regarding sample construction are described in the first footnote of the attached Table B1.

Table B1 provides estimates of economic losses for an average manufacturing worker, and for several manufacturing industries. These losses are both short and longer-term. Short-term losses result from weeks of joblessness until a new job is located. If this new job has lower wages and benefits than the former job, the worker incurs longer-term losses as well.

Before examining these data, a caveat is necessary. While I have pooled data from two DWS surveys, the sample sizes for the disaggregated manufacturing industries still remain rather small (see footnote 1 of the table). This means that loss estimates for the disaggregated industries are less reliable than for all manufacturing. It is particularly important to keep this in mind when examining the per worker displacement losses. Rather than focusing on, for example, the exact estimated dollar loss in an industry, it would be better to treat the estimate as indicating the magnitude of loss relative to the average for manufacturing.

Row 1 of Table B1 shows that most displaced workers (after a one to four year search) had found new jobs prior to the survey date. A non-negligible fraction ranging from 10 to 20

percent, however, had not. Many of the latter group are women and older workers. Workers who had not found new jobs are excluded from the calculation of economic losses in the tables.

Rows 2 and 3 of the table focus on the duration of joblessness following displacement. Two conventional measures of central tendency in statistics are the mean and median. In our case these two measures give very different answers: the mean weeks of joblessness is much longer than the median. This is due to the fact that there are a small group of workers who experience very long jobless spells. If we wish to estimate the total or average losses due to displacement in an industry the more appropriate measure, however, is the mean rather than the median.

Row 4 presents the percentage change in predisplacement and current weekly earnings for workers who are employed at the survey date. In making this comparison we have adjusted former earnings by an index of wage growth between the year of displacement and the survey date (i.e., either January 1988 or January 1990) in the worker's former occupation. This index of earnings growth is constructed using the Employment Cost Index, published by the Bureau of Labor Statistics in various issues of Employment and Eamines. This calculation excludes workers not reemployed at the survey date.[33] Whether these nonemployed workers would have had higher or lower earnings losses than workers employed at the survey date is difficult to determine.

Row 5 presents the predisplacement weekly wage adjusted to reflect fringe benefits. The next five rows, 6a to 6e compute particular types of economic losses. Rows 6a and 6b report the losses due to unemployment caused by displacement. Even the most conservative estimates of the economic costs of trade liberalization include these costs. There are, however, two ways to compute these costs, depending on how one "values" these weeks. Row 6a uses the method employed by Cline (1990, p. 195) and values the jobless weeks at the post-displacement wage. In this view, the social cost of the unemployment spell is appropriately measured by the post-displacement wage. Row 6b makes the same calculation using predisplacement wages to value the idle weeks. This approach is more consistent with current models of non-market clearing or "efficiency" wages (Dickens and Lang, 1988; Katz and Summers, 1989). Obviously, the difference in losses between rows 6a and 6b will simply reflect the difference in pre and post-displacement earnings in row 4.

Row 6c reports the dollar value of weekly earnings loss (in 1990 dollars). It is calculated by multiplying the percentage losses in row 4 by inflation-adjusted former earnings. This measure likely understates compensation loss since it does not include as measure of the dollar value of the loss of fringe benefits. Unfortunately, such data is not collected in the DWS. Row 6d provides a rough correction for this omission of fringe benefits. Here we assume that displaced workers had

the same ratio of nonwage to wage costs in total compensation as the industry average and suffered the same proportionate loss in fringe benefits as wages.

Row 6e multiplies the weekly losses in Row 6d by 52 weeks. This estimate will be biased upwards to the extent that post-displacement earnings catch up with the trend of pre-displacement earnings (i.e., what displaced workers would have been earning had they not been displaced). The evidence for such catch up, however, is weak. Studies by Podgursky and Swaim (1987) and Ruhm (1991) find no evidence of such a catch-up in the first several years following displacement. On the other hand, this estimate is biased downward if workers who have dropped out of the workforce or are not reemployed at the survey date have larger losses than those who are employed.

Whether one treats the estimates in 6d and 6e as economic (as compared to personal) losses is a matter of dispute. Cline (1990) takes these as personal, but not economic losses. From the viewpoint of efficiency wage theory these might be taken as economic losses if the marginal workers displaced had a higher productivity in their predisplacement industry as compared to their best labor market alternative (Dickens and Lang, 1988; Katz and Summers, 1989).

TABLE B1
Estimated Losses Due to **Job Displacement'**

	Manuf.	Textile	Apparel
1. Percent Reemployed'	8 . 2 %	87.3%	85.1%
2. Mean Weeks Jobless **Duration**[3]	20.2	18.9	19.9
3. Median Weeks Jobless Duration[4]	12.5	8.5	12.5
4. Percentage Earnings **Loss**[5]	-9.5%	-12.2%	-1.4%
5. Pre-displacement Weekly Compensation[6]	$540	$387	$337
6. Per Worker Displacement Cost Data (1990 dollars)			
a. Unemployment Cost'	$10,249	$6,032	$5,990
b. Unemployment Cost **(alt.)**[8]	11,002	7,243	6,335
c. Change in Weekly Earnings for Reemployed[9]	-42	-40	-4
d. Estimated Change in Weekly **Compensation**[10]	-51	-47	-5
e. Annual Compensation Loss (line 6d x 52 weeks)	2,652	2,444	260

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1 Weighted tabulations using data from the January 1988 and January 1990 Displaced Worker Surveys. Sample: private-sector manufacturing wage and salary workers displaced from **full-**time jobs due to plant shutdown or permanent layoffs at least one year prior to the survey dates (i.e., 1983-86 for January 1988 DWS and 1985-88 for the January 1990 DWS). Unweighted sample sizes: manufacturing (2149); **textiles(69);** and apparel(163).

2 Percent of workers displaced at least one year prior to survey date who were reemployed in at least one new job following displacement.

3 Excludes workers who were never reemployed.

4 Excludes workers who were never reemployed.

5 Computed as average former weekly earnings (adjusted for the trend growth in earnings from displacement date to survey date) minus weekly earnings at the survey date (for workers reemployed at the survey date) as a percent of average former weekly earnings.

6 **Pre-displacement** weekly wage adjusted for the industry ratio of total compensation to wages and salaries. Averages by industry are: Manufacturing (1.222); Textiles (1.179); Apparel (1.179). **These are** based **on NIPA** Tables **6.4B** and **6.5B** from Survey of Current Business (July 1989).

7 Mean Weeks Jobless Duration x Current Weekly Earnings adjusted for fringes (as in row 5).

8 Mean Weeks Jobless x Former Weekly Earnings (inflation adjusted) adjusted for fringes (as in row 5).

9 From 1990 DWS.

10 Row 6c x adjusted for fringes as in row 5.

Endnotes

1. Source: Interviews with Dr. Herman Starobin, Director of Research, International Ladies Garment Workers Union and Art Gundersheim, Assistant to the President and Director International Affairs, Amalgamated Clothing and Textile Workers Union, See also Braithwaite (1990) and Lardner (1988a and 1988b).

2. Data on off price stores in this section is from Kirby (1985, pp. 17- 18).

3. See Munn v. Illinois, 94 U.S. 113 (1877).

4. This trend accelerated in 1990, when the Consumer Price Index (CPI) for apparel grew almost twice as fast as the Producer Price Index (PPI) for apparel, **according** to recently released figures.

5. Cline (1990, p. 188) notes that retail prices were growing at a slower rate than wholesale prices in the 1978-85 period. However, these years reflect the highest rates of growth in the PPI and the lowest rates of growth in the CPI in the 1970-1988 period, as shown in Figure 1.

Examination of the trends in the data shown in Table 3 clearly suggests a shift in the relationship between these two series beginning in 1982. This shift occurred at a time when massive appreciation in the dollar was reducing the prices of all imports, putting competitive pressure on apparel producers.

6. Source: Standard and Poors Compustat Service, a machine readable database.

7. Average costs are equal to marginal costs only if the production technology exhibits constant returns to scale. Most microeconomic studies of price-cost margins attempt to measure marginal costs, but such data was not available for the firms considered here.

8. Other well known firms in the family clothing group include the Gap Inc. and Nordstrom Inc.

9. The category of General Merchandise Stores includes department stores in this measure.

10. Rate of return data from this paragraph were obtained from Standard and Poor's Compustat Service.

11. This description was provided by Starobin and Gundersheim (see note 2). See also Lardner (1988a and 1988b).

12. For **a summary of Congressional testimony on this subject, see** U.S. House of Representatives (1977).

13. The single anomalous figure in column three of Table 6--a 129 percent ratio of value to volume for men's shirts--probably indicates that in this category, foreign producers have been upgrading their products more rapidly and now produce higher-priced goods than their domestic counterparts.

14. Please note that these figures, especially the import value numbers from the U.S. Industrial Outlook, are meant to provide only a rough estimate of value/volume ratios. It has been pointed out that the Industrial Outlook figures are not consistent with other U.S. Commerce Department data.

15. A related empirical question concerns the shape and slope of the MPP curve. This can and should be the subject of further research, as well.

16. See, for example, Markham (1974, p. 250).

17. See, for example, Scherer (1980) and Kamien and Schwartz (1982).

18. Data provided by the Bureau of Labor Statistics, for Standard Industrial Classification 2281.

19. Data from the Bureau of Labor Statistics, SIC 2211 and 2221, cotton and synthetic broadwoven fabrics.

20. We thank Lawrence Mishel of EPI for his assistance in compiling and writing this section.

21. We thank Michael Podgursky of the University of Massachusetts, Amherst for preparing the data analysis.

22. Cline (1990, p. 195) cites BLS data that suggests that displaced textile workers suffered no wage loss and apparel workers a modest pay loss. This is misguided because the published BLS data does not take inflation or wage growth into account. For instance, a worker laid off in 1979 and reemployed in 1983 at the same wage is said to have no wage loss.

23. Note that the improvement in the reemployment rates in successive surveys reflects the drop in unemployment as a whole during the recovery

24. Like Cline, we used Bureau of Labor Statistics figures to calculate the secondary jobs associated with each textile and apparel job.

25. Swaim (1989, Table 6) shows that median weeks jobless for blue collar displaced workers fell from 30 weeks during the 1979-82 period, to 25 weeks during the 1981-84 period to just 12 weeks during the 1983-86 period (although some of the drop may be due to a change in the survey question).

26. See Cline (1990, p. 195) who presents an intellectual catch-22. Displaced workers' earnings losses are "not a cost to the society at large because the new and lower wage obtained by the reemployed worker represents the new opportunity cost of the worker to economy."

27. That is, other than compensating differentials for poor working conditions.

28. Swaim (1989, Table 8) shows that the median earnings loss of bluecollar displaced workers fell from 14 percent during the 1979-82 period, to 12 percent during the 1981-84 period, to just 7 percent during the 1983-86 period. This trend may reflect differences in hours worked per week in the sub-periods.

29. The United States Trade Representative proposed a global quota in Geneva in February 1990, then withdrew the proposal in October of that year.

30. However, demand overall is inelastic, according to Cline's estimates (Equation 8, p. 359 and table B.1), which would require further examination of model parameters.

31. Michael Podgursky, Department of Economics, Thompson Hall, University of Massachusetts, Amherst, MA 01007.

32. It as not possible to use data from earlier Displaced Worker Survey in these tabulations since the survey question regarding jobless duration following displacement in the January 1984 and January 1986 surveys is not comparable to that used in the later surveys.

33. This is approximately 28 and 26 percent in the 1988 and 1990 surveys, respectively. These percentages also include a small number of workers who were self-employed (earnings for self-employed are not reported in the Current Population Survey) and nonrespondents.

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