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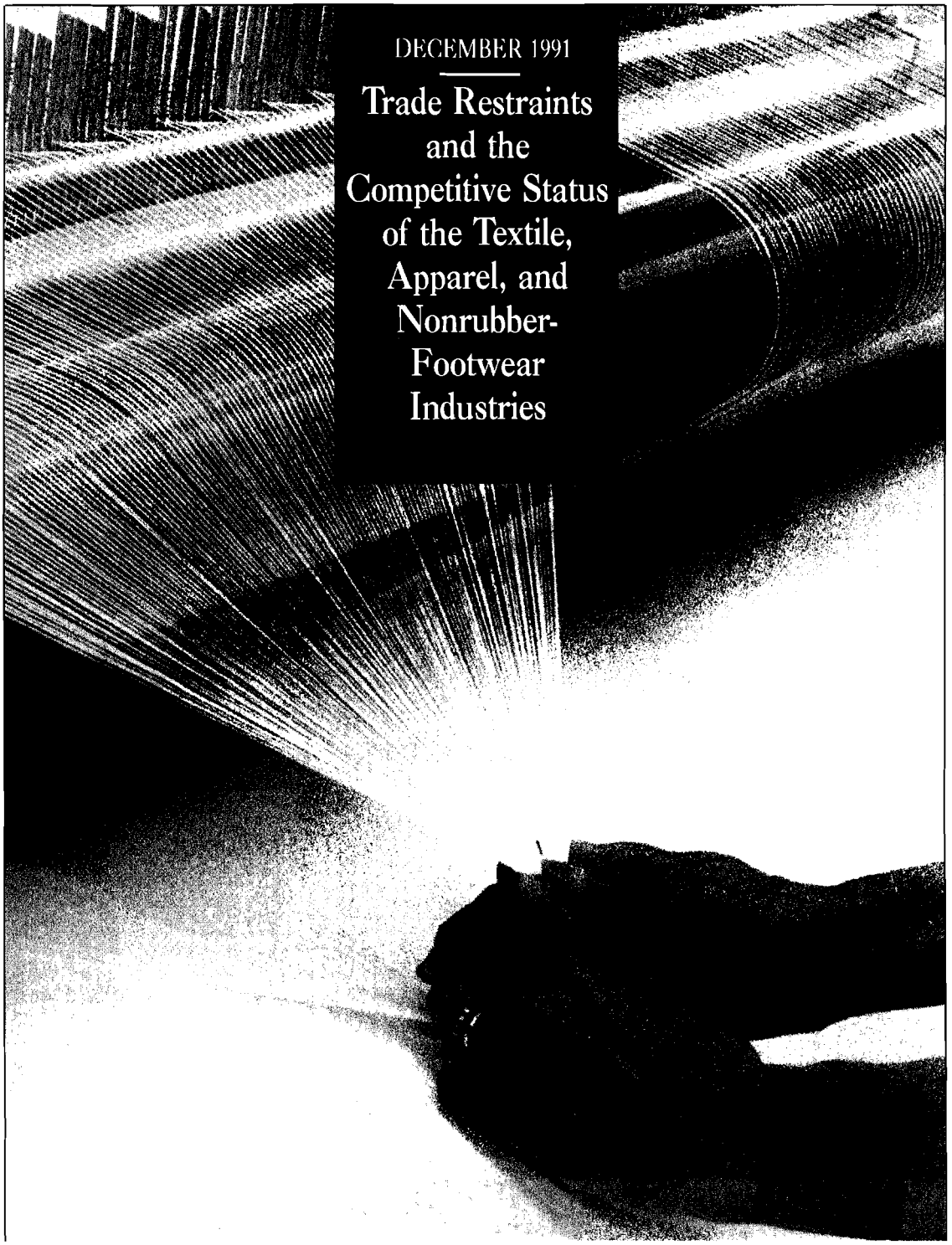

DECEMBER 1991

Trade Restraints and the Competitive Status of the Textile, Apparel, and Nonrubber-Footwear Industries

TRADE RESTRAINTS AND THE COMPETITIVE STATUS OF THE TEXTILE, APPAREL, AND NONRUBBER-FOOTWEAR INDUSTRIES

The Congress of the United States
Congressional Budget Office

NOTES

Numbers may not add up to totals because of rounding.

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PREFACE

Trade protection for the textile, apparel, and nonrubber-footwear industries has been a topic of discussion within the Congress for many years. In anticipation of further debate prompted by the expiration of the Multifiber Arrangement, the Uruguay Round of trade negotiations, and possibly a bill to impose new quotas, this study was requested by the Subcommittee on Trade of the House Committee on Ways and Means. In keeping with the mandate of the Congressional Budget Office (CBO) to provide objective analysis, the study makes no recommendations.

This study was written by Bruce Arnold of CBO's Natural Resources and Commerce Division, under the supervision of Jan Paul Acton and Elliot Schwartz. Many helpful comments and suggestions were made within CBO by Thomas Lutton, Christopher Williams, Eric Toder, Frank Sammartino, Linda Radey, and Michael Crider. Valuable comments were also provided by Joseph Pelzman, Janet Nuzum, Caroyl Miller, and Edward B. Rappaport. The paper was edited by Sherwood Kohn; Chris Spoor provided editorial assistance. Gwen Coleman typed the numerous drafts and Martina Wojak prepared the report for publication.

Robert D. Reischauer
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CONTENTS

APPENDIXES

TABLES

FIGURES

SUMMARY

Restrictions on imports of textiles, apparel, and nonrubber footwear have been a recurring and nagging issue over the past decade. During that time, the Congress has come close several times to overriding Presidential vetoes of bills aimed at tightening existing quotas or imposing new ones on these imports. Running counter to those efforts, the Uruguay Round of negotiations to expand the General Agreement on Tariffs and Trade (GATT) has focused on, in addition to other issues, proposals to phase out the Multifiber Arrangement (MFA). This arrangement exempts textile and apparel trade from the standard GATT prohibitions on import quotas. Also, the proposed North American Free-Trade Area will probably reduce or eliminate tariffs and other restrictions on textile and apparel trade between the United States and Mexico.

The Congressional Budget Office (CBO) has studied the history of the economic health of the three industries and the economic effects of the major proposals for changes in protection and concluded that tariffs and import quotas are a costly and inefficient means of preserving jobs in these industries. Estimates of the annual costs to consumers of current and proposed restrictions are generally in the range of $39,000 to $74,000 for each job they retain in the textile and apparel industries and higher for jobs retained in the nonrubber-footwear industry. Most estimates of the annual net welfare costs of these restrictions to the economy (that is, the amount by which the costs to consumers and the government exceed the benefits to U.S. firms, workers, and the government) are in the range of $9,000 to 38,000 for each job retained in the textile and apparel industries. Estimates of costs in the nonrubber-footwear industry are higher.

Indeed, the estimated consumer costs are all higher than the average annual earnings of the workers who hold the jobs, and most of the estimated net welfare costs are also. Consequently, it would generally be more efficient for the government to allow the jobs to disappear and

compensate any displaced workers who cannot find equivalent work. Most of the net welfare costs take the form of higher prices paid to foreign exporters and (in the case of quotas) lower tariff revenues collected.

PROTECTION AND COMPETITIVENESS OF THE THREE INDUSTRIES

The textile and apparel industries benefit from some of the most substantial and long-lived trade protection that the United States has granted in recent times. High tariffs on textile and apparel imports date back at least to 1930. Quotas were imposed on imports from Japan in 1936 and again in 1956. (The term "quota" refers throughout this study to any kind of numerical limit on imports imposed by or as a result of pressure from the United States. In addition to standard quotas, these limits include those sometimes referred to as voluntary restraint agreements, voluntary export restraints, gentlemen's agreements, or designated consultation levels.) By September 11, 1991, the United States had extended such restraints to 41 countries that collectively accounted for 69 percent of U.S. textile imports and 88 percent of U.S. apparel imports in 1990. The quotas are aimed at developing countries. Although 4 of the 10 largest suppliers of U.S. textile imports and 1 of the 10 largest suppliers of apparel imports are industrialized countries, 40 of the 41 countries covered by quotas or restraint agreements are developing countries, and the one that is not--Japan--was a developing country when it first became subject to restraints.

The nonrubber-footwear industry is not as protected as the textile and apparel industries, but is more protected than most other industries. Except for one temporary set of restrictions from 1977 to 1981 on imports from Taiwan and Korea, the United States has not used import quotas to protect this industry. Import tariffs, however, have averaged two or more times the average tariff rate for all merchandise imports.

Although the three industries are frequently grouped together in discussions and legislation relating to trade, they have actually fared quite differently against foreign competition over the past 30 years.

Domestic textile production is relatively competitive. The ratio of the value of domestically produced textile shipments to the value of domestic textile consumption has remained near 100 percent, which means that the textile trade deficit has never been very substantial. The apparel industry is less competitive. Its ratio has declined from near 100 percent to slightly less than 70 percent; equivalently, the apparel trade deficit has risen to slightly more than 30 percent of the domestic market. The nonrubber-footwear industry is even less competitive. Its ratio has declined from nearly 100 percent to less than 30 percent.

Corporations in the apparel, leather, and leather products industries taken together, and also those in the textile industry, have been as profitable as, if not more profitable than, the average for all manufacturing corporations in the United States since 1978, and have been reasonably competitive for an even longer time. They have consistently had, however, a significantly lower ratio of dividends to equity. The protection that the industries have received from imports has undoubtedly influenced their profitability.

SIGNIFICANCE OF THE INDUSTRIES TO THE U.S. ECONOMY

Historically, the textile and apparel industries have been large and significant elements of the U.S. economy, but they have declined substantially over the past few decades. The nonrubber-footwear industry was much smaller to begin with, and has declined even more.

The textile industry's share of total nonagricultural employment in the United States declined from 1.71 percent in 1960 to 0.63 percent in 1990; the apparel industry's share declined from 2.28 percent to 0.93 percent; and the nonrubber-footwear industry's share declined from 0.45 percent to 0.06 percent. These declines continue trends that date back at least 50 years. Shares of the three industries in total assets of manufacturing corporations and shares in the value added by manufacture tell the same general story. Of course, the industries are not spread evenly throughout the country. They are more important to the economies of several Southeastern states, where they employ larger shares of the labor force than they do nationwide. Apparel workers in

California, New York, Pennsylvania, and Texas are numerous, but their shares of the large labor forces of those states are not far out of line with the national average.

Pay in the three industries is generally low. In 1990, average hourly earnings of production workers in the textile industry were only 80 percent of the average for all private nonagricultural industries, and the average for the apparel and nonrubber-footwear industries was only 66 percent. Thus, most workers in these industries would be better off financially if they were trained for and employed in higher-paying work and these low-paying jobs were allowed to go overseas. (Some workers in small towns might be worse off, however, if they had to move to obtain new jobs and were forced, as a result, to sell their homes at a loss.)

CAUSES OF THE INDUSTRIES' PROBLEMS

U.S. apparel and nonrubber-footwear production have been unable to maintain market share because the industries are labor intensive, which causes them to be more heavily burdened than other industries by the relatively high cost of labor in the United States compared with that in developing countries. In conjunction with the competition from foreign production that uses low-cost labor, the high labor intensity helps explain why pay in these industries is so low in comparison with that in other industries in the United States. (Another part of the explanation is the relatively low levels of skill required by these jobs.)

The textile industry is approximately as labor intensive as the rest of U.S. manufacturing. Consequently, it has had little trouble maintaining its international competitiveness and market share. The inroads of foreign competition have not caused its declining employment. Rather, the cause has been rapid rates of growth in labor productivity. Labor productivity has grown faster in the textile industry than it has in the U.S. manufacturing sector as a whole. This growth has benefited the industry by improving its competitiveness. It has also benefited the consumers of textiles, who see the lower prices and higher quality that have resulted from it. Productivity has grown faster than the domestic demand for textiles, however. Thus, the industry needs

fewer workers to fill that demand. Trade deficits and surpluses in this industry have never been substantial. Therefore, competition from imports cannot have seriously affected employment other than perhaps by forcing the domestic industry to improve productivity.

PROPOSALS FOR CHANGES IN PROTECTION

Three recent proposals for changes in the protection accorded the three industries merit analysis. The first, a significant element of the Uruguay Round of negotiations, would gradually phase out the Multifiber Arrangement, which provides the legal basis under the GATT for the current quotas on imports of textiles and apparel. The second, currently under negotiation with Mexico and Canada, would set up a North American Free-Trade Area encompassing the United States, Canada, and Mexico. The third, proposed in several bills passed by the Congress and vetoed by the President over the past few years, would impose new global quotas on imports of textiles, apparel, and nonrubber footwear.

Elimination of the Multifiber Arrangement

Eliminating the MFA would probably benefit consumers substantially and harm domestic textile and apparel production to a somewhat lesser extent in absolute dollar terms. Since the textile industry is fairly competitive, eliminating the quotas on apparel would have a greater effect than eliminating the textile quotas.

According to estimates from a study by the International Trade Commission, in 1987 the U.S. quotas on textile imports were equivalent to an average tariff of 21.8 percent and the quotas on apparel imports were equivalent to an average tariff of 28.3 percent. The study presented further estimates showing that eliminating all U.S. quotas and tariffs would cause a net welfare gain to the United States of $2.4 billion to $2.6 billion per year and reduce employment in the textile and apparel industries by 233,000 to 291,000 jobs. These numbers constituted 13 percent to 16 percent of all employment in these industries at that time. By these estimates, the annual cost of all current U.S.

textile and apparel import restrictions is roughly $9,000 to $10,000 for each job that the restrictions retain in the industries. Eliminating all U.S. trade restraints, however, would have greater effects than would the mere elimination of the MFA and the modest tariff cuts that are being negotiated.

The term "retained" is used here rather than "saved" because no jobs are actually saved in the economy at large. Trade restrictions have no permanent effect on the level of total employment in the economy. Rather, they affect the distribution of employment among industries. Trade restrictions on textile and apparel reduce the number of forced job changes from those industries to other industries, and thus can be said to retain jobs in the textile and apparel industries.

Estimates from other studies put the annual net welfare cost of these restrictions in the range of $13,000 to $19,200 for each job they retain in the apparel industry and $3,600 to $15,300 for each job they retain in the textile industry. Consumer costs, which are the net welfare cost plus transfers of wealth from consumers to domestic producers as a result of higher prices, are much higher. Estimates range from $39,000 to $46,000 for each job retained in the apparel industry and from $50,000 to $52,000 for each job retained in the textile industry.

The Uruguay Round will most likely result in a modest reduction, not complete elimination, of tariffs to accompany the elimination of the MFA. This combination of changes would result in smaller total dollar gains and smaller job losses in the industries, but the ratio of dollar gains to job losses (or, equivalently, the cost per job retained by the restrictions) should not be any lower. Similarly, the fact that other countries will also be getting rid of their import quotas at the same time that the United States does will reduce the dollar gains and job losses but should not have much effect on the ratio.

The North American Free-Trade Area

Because the United States already has a free-trade agreement with Canada, the effect of eliminating trade barriers between the United States and Canada is not an issue. The main issues are (1) the extent to which Mexican imports will replace U.S. products in the United States and Canada if the two countries drop their barriers to Mexican goods; (2) the extent to which U.S. exports to Mexico will increase if Mexico drops its barriers to imports from the United States; and (3) the extent to which increased Mexican production of apparel for export to the United States and Canada will increase Mexican demand for U.S. textiles.

Eliminating U.S. barriers to textile imports from Mexico is not likely to have much effect on the U.S. textile industry or consumers. To date, U.S. production has been competitive enough to keep textile imports from the rest of the world small, and Mexico supplies only a very small fraction of those textiles that the United States does import.

Eliminating barriers to imports of apparel could have a more substantial effect. The production of apparel in the United States is less competitive than textile production, and Mexico is the fifth largest supplier of U.S. apparel imports. The quotas on these imports are currently going unfilled, but the tariffs are clearly an impediment. Thus, eliminating the quotas and tariffs could increase imports, thereby hurting U.S. apparel production, having a mixed and possibly helpful effect on U.S. textile production, and aiding the U.S. consumer by promoting greater variety at lower prices.

The negative effect on U.S. apparel production would hurt U.S. textile production because it would lower demand for textiles by the U.S. apparel industry. That effect, however, would be offset--possibly more than offset--by increased demand for U.S. textiles by the Mexican apparel industry, a result of Mexico's increased production for the U.S. apparel market and its lower barriers to textile imports. Mexico is currently the second largest foreign market for U.S. textile producers.

New Global Quotas on Imports

CBO has developed models of the textile, apparel, and nonrubber-footwear markets in order to estimate the effects of new global quotas on imports of these products. (A global quota is a quota on the total imports of a product from all countries. Current textile and apparel quotas apply to individual countries rather than all countries.) The quotas were assumed to be identical, except for a delay of one year, to the quotas mandated by the Textile, Apparel, and Footwear Trade Bill of 1990, which the Congress passed but the President vetoed. Thus, the textile and apparel quotas were assumed to be set at 101 percent of 1990 imports in 1991 and allowed to increase by 1 percent annually; the nonrubber-footwear quotas were assumed to be fixed permanently at 100 percent of 1990 imports. The revenues from the trial quota auctions specified in the bill were not factored into the cost calculations. Factoring them in would reduce the estimated cost of the quotas, provided the auctions did not lead the countries to retaliate.

The models indicate that such quotas would become increasingly restrictive. They would increase the price of apparel by 2.0 percent above baseline in 1991 and by increasing amounts thereafter, reaching 4.7 percent above baseline in 1995 and 9.8 percent above in 2000. They would increase the price of textiles by 0.5 percent above baseline in 1991, 2.0 percent above baseline in 1995, and 5.2 percent above in 2000. Finally, they would increase the price of nonrubber footwear by 3.3 percent above baseline in 1991, 15.6 percent in 1995, and 27.0 percent in 2000.

These price increases would burden consumers with costs that would rise over time, but they would retain in the industries increasing numbers of jobs that would otherwise shift to other parts of the economy. Estimates based on the model place the cost to consumers of textiles and apparel in 1991 at $1.7 billion, the net welfare cost to the United States at $0.8 billion, and the number of jobs retained in the textile and apparel industries at 18,000. For 1995, the respective numbers are $4.6 billion, $2.4 billion, and 65,000 jobs retained. For the year 2000, the numbers are $10.4 billion, $5.4 billion, and 141,000 jobs retained. After an initial high value caused by the slowness of domestic producers to respond, the consumer cost per job retained settles

into a range of $59,000 to $74,000 per year. The annual net welfare cost per job retained settles into a range of $31,000 to $38,000.

The estimate of the cost to consumers of nonrubber footwear in 1991 is $470 million, the estimate of the net welfare cost is $350 million, and the estimate of the number of jobs retained in the industry is 3,200. For 1995, the respective numbers are $2.3 billion, $1.8 billion, and 23,000 jobs retained. After initial high values caused by slowness of domestic producers to respond, the consumer cost per job retained settles into a range of $97,000 to $113,000 per year, and the net welfare cost per job retained settles into a range of $74,000 to $86,000 per year.

CHAPTER I

PROTECTION AND COMPETITIVENESS OF THE THREE INDUSTRIES: AN OVERVIEW

The issue of restrictions on imports of textiles, apparel, and nonrubber footwear arose repeatedly in the 1980s. The Congress passed several bills aimed at tightening existing quotas on textile and apparel imports from specific countries or at imposing new global quotas. The President vetoed the bills, and the Congress came close each time to overriding his veto.[1] Some of the measures included new quotas on imports of nonrubber footwear. If a new bill to tighten restrictions were introduced, it would undoubtedly receive strong support. In the opposite direction, an important feature of the Uruguay Round of negotiations to expand the General Agreement on Tariffs and Trade (GATT) has been efforts to phase out the Multifiber Arrangement (MFA) and thereby bring textile and apparel trade under the same GATT disciplines that apply to any other goods trade.[2] Also in the Uruguay Round, the United States has proposed reducing tariffs on textile and apparel imports. Further, the proposed North American Free-Trade Area (NAFTA), encompassing the United States, Canada, and Mexico, will probably eliminate (or at least reduce) restrictions on U.S.-Mexican textile and apparel trade.

This study reviews the past and present economic health of the three industries in the United States, the factors affecting that health, proposals for changing the industries' protection from imports, and the effects and costs of those proposals. Whenever possible, for the sake of

1. The Textile and Apparel Trade Enforcement Act of 1985 (H.R. 1562) completed passage through the Congress on December 3, 1985; the President vetoed it on December 17, 1985; and the House of Representatives sustained the veto on August 6, 1986. The Textile, Apparel, and Footwear Trade Act of 1988 (H.R. 1154) completed passage through the Congress on September 23, 1988; the President vetoed it on September 28, 1988; and the House of Representatives sustained the veto on October 4, 1988. The Textile, Apparel, and Footwear Trade Act of 1990 (H.R. 4328/S. 2411) completed passage through the Congress on September 18, 1990; the President vetoed it on October 5, 1990; and the House of Representatives sustained the veto on October 10, 1990.

2. The Multifiber Arrangement is an exception to the standard strictures of the General Agreement on Tariffs and Trade against quotas and country-specific trade barriers (tariff or quota). Without it, the current textile and apparel quotas would be illegal.

historical perspective, the study examines the issues in the context of the period since 1960. In a few cases, numbers were not available for most of the 1960s. In those cases the study looks at the period since 1970. Except where otherwise indicated, the terms "textile industry," "apparel industry," and "nonrubber-footwear industry" will refer throughout this study to the industries defined by Standard Industrial Classification (SIC) numbers 22 (textile mill products), 23 (apparel and other finished textile products made from fabrics and similar materials), and 314 (footwear, except rubber), respectively.

Use of these classifications is fairly common in studies of these industries and is generally necessary because several important sources of data employ them. They are not perfect, however. In addition to the textile industry, SIC 22 includes several industries that produce apparel and other finished products directly from thread or yarn rather than from textiles (for example, hosiery, underwear and other knit products, and carpets and rugs). Further, in addition to the apparel industry, SIC 23 includes industries that produce house and automotive furnishings made of textiles (for example, draperies, bedsheets, and upholstery) and other finished textile products. U.S. trade restrictions generally protect these industries in addition to the textile and apparel industries, however, so it is proper to include them.

A BRIEF HISTORY OF WAYS IN WHICH THE INDUSTRIES HAVE BEEN PROTECTED

The trade protection that the United States accords the textile and apparel industries is among the most substantial and long-lived that it has granted any industry in recent times. Protection of the nonrubber-footwear industry is less substantial than that of the textile and apparel industries, but more substantial than that of most other enterprises.

Substantial and Long-Lived Protection of the Textile and Apparel Industries

Substantial tariffs on textile and apparel imports date from 1930 or earlier and continue to the present. In 1930, the average tariff rate for cotton goods was 46 percent of product value and the average for woolen goods was 60 percent.[3] In 1970, the average for textile imports was 18.3 percent and for clothing and accessories imports 28.5 percent, whereas the average for all merchandise imports was only 6.5 percent (see Figure 1). In 1988 (the last year of available data), the average tariff rate for textiles was 10.1 percent and for clothing and accessories imports 18.4 percent, whereas the average rate for all U.S. merchandise imports was only 3.4 percent.[4]

Since 1988, most tariffs on textile and apparel imports from Canada have declined by roughly 30 percent, and those on textile and apparel imports from Israel have also declined. Neither Canada nor Israel is a major supplier of textiles or apparel to the United States, however, so the average tariff rates should not have changed much.[5]

Quotas on textile and apparel imports also have a long history.[6] In 1936, the United States negotiated a "gentlemen's agreement" with Japan to limit Japanese exports. In 1956, authorized by Section 204 of the Agricultural Act of that year, the President negotiated so-called voluntary export restraints with Japan to limit exports of cotton tex-

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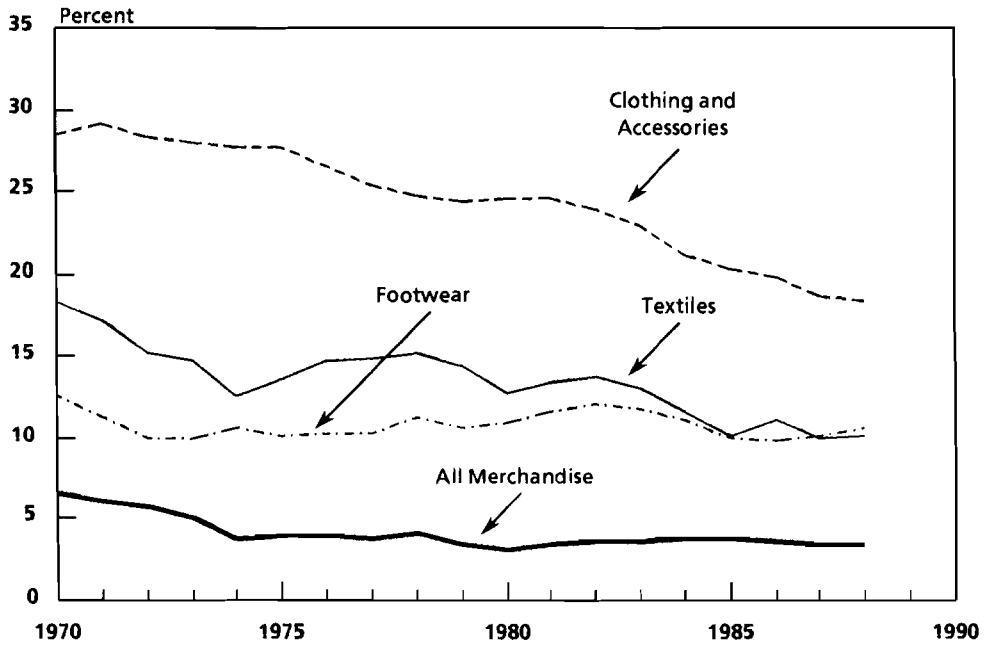
3. William R. Cline, *The Future of World Trade in Textiles and Apparel* (Washington, D.C.: Institute for International Economics, 1987), p. 146.

4. The category "clothing and accessories" is not the same as Standard Industrial Classification 23, which is used for apparel elsewhere in this report. See the note below Figure 1.

5. The averages could change slightly, even with no changes in rates on specific items, as a result of changes in the composition of imports among various textile and apparel categories with different tariff rates. Further, the switch in classification systems from that in the Tariff Schedules of the United States Annotated to the Harmonized System could have had some minor effects on the averages by changing the tariffs on a few narrowly defined products.

6. The term "quota" refers throughout this report to any kind of numerical limit on imports imposed by or as a result of pressure from the United States, including those that are sometimes referred to by other terms such as voluntary restraint agreements, voluntary export restraints, gentlemen's agreements, or designated consultation levels.

Figure 1.
Average Tariff Rates on Imports



SOURCE: CBO calculations based on data from *Highlights of U.S. Export and Import Trade*, Report No. FT990, U.S. Bureau of the Census, various issues.

NOTE: Average rates were calculated by dividing total tariff revenue collected by customs value of imports. Products are classified according to Schedule A, SITC-Based Statistical Classification of Commodities Imported into the United States (where SITC refers to the Standard International Trade Classification developed by the United Nations), which is not the same as the SIC classification used elsewhere in this report. In particular, the average rates shown for footwear are for *all* footwear, not just nonrubber footwear. Average rates for the latter were not available for much of the period shown. See the main text for the average rate in 1988.

tiles to the United States.[7] These restraints greatly reduced Japan's share of U.S. cotton textile imports, but producers in Hong Kong, Taiwan, and South Korea soon increased their exports to the United States to fill the vacuum. As a result, the United States called a conference of textile importers and exporters under the auspices of GATT.

7. Cline, *The Future of World Trade in Textiles and Apparel*, p. 146.

The conference resulted in the adoption in 1961 of the Short-Term Arrangement Regarding International Trade in Cotton Textiles, which authorized one-year restrictions on 64 categories of cotton textiles while a more permanent agreement was negotiated. The more permanent agreement--the Long-Term Arrangement Regarding Cotton Textiles (LTA)--was adopted in 1962 and lasted (with subsequent renewals) through 1973. It continued the authorization of restraint agreements and required that the level of imports allowed under each agreement automatically increase by 5 percent annually in all but certain exceptional cases.

The restraining effect of the LTA on textile and apparel imports was somewhat less than might be expected because it contained no provision for restraints on products made of synthetic fibers. Therefore, to further stem rising imports, in 1971 and 1972 the President negotiated restraint agreements outside of the LTA with Japan, Hong Kong, South Korea, and Taiwan to restrict imports of products containing wool or synthetic fibers.

Subsequently, the United States and other countries negotiated the Multifiber Arrangement (MFA-I), which made these agreements legitimate after the fact by authorizing limits on textiles and apparel made of cotton, wool, or synthetic fibers. MFA-I required that quotas automatically increase by 6 percent annually (rather than the 5 percent annually specified in the LTA) in all but exceptional circumstances, and provided for limited transfer of quotas between adjacent years and among product categories. Thus, an exporting country might be allowed to exceed a quota for a particular textile or apparel product one year if it agreed to a correspondingly lower quota for the same product in the following year or for a different product in the same year.

When MFA-I expired in 1977, the signatory countries renewed it with modifications allowing for tighter restrictions on imports. The modified agreement (MFA-II) allowed more flexibility to depart from the 6 percent growth rate and also to depart from the provisions for transferring quotas among categories. Over the next few years, the United States renegotiated its agreements with Hong Kong, Taiwan, and Korea to reduce growth rates and the transferring of quotas. The

Multifiber Arrangement was renewed again with some further modification in 1981 (MFA-III) and again in 1986 (MFA-IV), when coverage was extended to products made of silk blends and noncotton vegetable fibers. MFA-IV was scheduled to expire on July 31, 1991, but on that date the textiles committee of the GATT announced that member countries of the MFA had agreed to extend it to the end of 1992. The hope was and is that by then the Uruguay Round will have produced an agreement that includes language phasing out the MFA.

The number of countries covered by quotas or agreements limiting exports to the United States has increased substantially over time. In late 1977, 18 countries were covered. As of September 11, 1991, 41 countries were covered. The 41 included the three largest suppliers of U.S. textile imports in 1990 and 6 of the 10 largest, as well as the 6 largest suppliers of U.S. apparel imports and nine of the 10 largest. Together, the 41 countries supplied 69 percent of all U.S. textile imports and 88 percent of all U.S. apparel imports in 1990.[8]

The quotas and agreements are not aimed at restricting competition from all significant foreign producers; they are aimed at competition from producers in developing countries. Although 4 of the 10 largest suppliers of U.S. textile imports and 1 of the 10 largest suppliers of apparel imports are industrialized countries, 40 of the 41 countries covered by quotas or restraint agreements are developing countries. Even the one exception, Japan, was a developing country when it first became subject to restraints. The 41 countries include all of the developing countries that rank among the 25 largest suppliers of U.S. textile and apparel imports in 1990.

Many of the countries covered by the quotas are extremely small suppliers whose current levels of exports to the United States pose virtually no threat to the U.S. textile and apparel industries. Twenty-two of the countries each supplied less than 1 percent of U.S. textile and apparel imports in 1990 and substantially less than 0.5 percent of total U.S. consumption of these goods. Twelve of the countries each supplied less than 0.25 percent of U.S. imports and less than 0.1 percent of total

8. See Appendix A for a list of the countries covered by U.S. textile and apparel import restrictions.

U.S. consumption.[9] Collectively, the 22 supplied 6 percent of U.S. imports and the 12 supplied less than 1.5 percent. The percentages of certain narrow product lines within the textile and apparel industries were higher. Therefore, some small specialized U.S. firms might have been harmed or threatened. To the U.S. industries as a whole, however, the countries are insignificant individually and of small significance collectively.

The Nonrubber-Footwear Industry: Few Quantitative Restraints, But Higher-Than-Average Tariffs

The U.S. nonrubber-footwear industry has received less protection from imports than has either the textile or the apparel industry. Still, it is more protected than most other industries. Both the nonrubber-footwear and apparel industries are labor intensive, benefit little from economies of scale, and have suffered significantly from import competition. Nevertheless, unlike the case for apparel, the use of quotas on imports of nonrubber footwear has been limited to one four-year episode of restraints on products from Taiwan and Korea lasting from 1977 to 1981.

The average tariff rate on all footwear (not just nonrubber footwear) over the past two decades has been substantially lower than the average for clothing and accessories, equal to or slightly less than the average for textiles, and significantly higher than the average for all merchandise imports (see Figure 1). In 1970, the average tariff rate for footwear was 12.6 percent, which is 5.7 percentage points below that for textiles and 6.1 percentage points above that for all merchandise imports. In 1988, the average for all footwear (not just nonrubber footwear) was 10.6 percent, which is 0.4 percentage points above that for textiles and 7.1 percentage points above that for all merchandise imports. Averages for nonrubber footwear were not available for the entire 1970-1988 period, but the average for 1988 was 8.8, which is 1.4 percentage points below that for textiles and 5.3 percentage points above that for all merchandise imports.

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9. See Appendix A for the import shares of countries covered by U.S. textile and apparel import restrictions.

CONDITIONS IN THE PRODUCT AND LABOR MARKETS

Since the three industries are related and frequently grouped in discussions and legislation relating to trade, one might assume that they are similar and have suffered similarly from international competition. Actually, they are quite dissimilar, and they have fared differently against foreign competition over the past 30 years.

How Have the Industries Fared Against Foreign Competitors?

U.S. domestic textile production is relatively competitive and has held its own in the international market; domestic apparel production is less competitive and has ceded substantial market share to foreign production, and domestic nonrubber-footwear production has been reduced to a small portion of the U.S. market (and, of course, a much smaller portion of the world market).

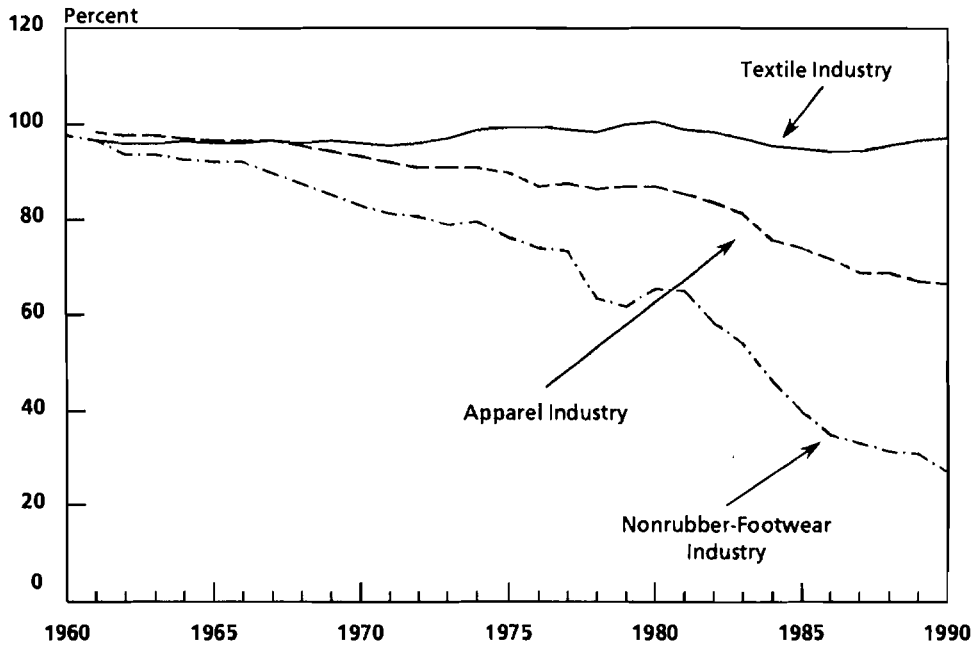
A good measure of the competitiveness of U.S. production in the three industries is the ratio of the dollar value of domestically produced shipments (whether purchased by domestic customers or exported abroad) to the dollar value of domestic consumption.[10] For industries in which U.S. production is more competitive than foreign production, exports will be larger than imports. Therefore, this ratio will be larger than 100 percent. Conversely, for industries in which U.S. production is less competitive than foreign production, exports will be smaller than imports and the ratio will be less than 100 percent.

Over the past 30 years, the ratio for the textile industry has remained close to 100 percent, indicating that U.S. textile production has maintained approximate competitive equality with foreign production (see Figure 2). For the apparel industry, however, the ratio declined from 98 percent in 1961 to 66 percent in 1990, indicating a significant deterioration in U.S. competitiveness. U.S. production is undoubtedly

10. This measure is better than another commonly used measure: the share of imports in the domestic market. As the world economy has become more integrated, both imports and exports in given industries have increased. Since the share of imports in the domestic market does not account for increased exports, it imparts an overly pessimistic view of the competitiveness of domestic production.

even less competitive than the ratio indicates, since quotas and high tariffs have artificially restrained imports. The ratio for the nonrubber-footwear industry has declined much more--from 96 percent in 1961 to 27 percent in 1990--indicating that U.S. domestic production now has only a small presence in the nonrubber-footwear market.

Figure 2.
Ratios of Shipments of Domestically Made Products to U.S. Market Size



SOURCE: CBO calculations based on data from the *Census of Manufactures* and the *Annual Survey of Manufactures*, Bureau of the Census.

NOTE: Shipments and market size are measured in terms of dollar value at U.S. prices. Market size equals apparent consumption, which is shipments by U.S. firms plus imports minus exports. To obtain the values of imports at U.S. prices, CIF values were increased by the actual or estimated average tariff rate. Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

The Major U.S. Trading Partners

Most of the major suppliers of U.S. imports of textiles, apparel, and nonrubber footwear are developing countries (see Tables 1 through 3). This characterization is especially true of apparel and nonrubber footwear; 9 of the 10 largest suppliers of each of these imports in 1990 were developing countries. It is also true, but to a lesser degree, of textiles, for which the 3 largest suppliers and 5 of the 10 largest were developing countries.

Most of the major recipients of U.S. exports of textiles and (especially) nonrubber footwear in 1990 were industrialized countries. In the case of nonrubber footwear, 9 of the 10 largest recipients of U.S. exports were industrialized countries. Among textile export recipients, 4 of the 5 largest and 6 of the 10 largest were industrialized countries.

Asian and Pacific island countries hold a commanding position among U.S. import suppliers. Among textile suppliers, the 3 largest and 6 of the 10 largest in 1990 were Asian countries. Among apparel suppliers, the 4 largest and 7 of the 10 largest were Asian or Pacific island countries. Among suppliers of nonrubber footwear, the first largest and 6 of the 10 largest were Asian or Pacific island countries. South Korea alone supplied almost one-third of U.S. imports of nonrubber footwear. China, South Korea, and Hong Kong were the three largest suppliers of textiles and apparel.

As one might expect, geographic neighbors loom large among U.S. trading partners. Canada is the largest recipient of U.S. textile exports and the second largest recipient of U.S. apparel and nonrubber-footwear exports. Mexico is the largest recipient of U.S. apparel exports, the second largest recipient of U.S. textile exports, and the third largest recipient of U.S. exports of nonrubber footwear. Mexico is also the fifth largest supplier of U.S. apparel imports and the ninth largest supplier of U.S. imports of nonrubber footwear. Finally, 6 of the 10 largest recipients of U.S. apparel exports are located in North America or the West Indies.

TABLE 1. LARGEST U.S. TEXTILE TRADING PARTNERS IN 1990

Country	Covered by Agreement Restraining Exports to the United States as of September 11, 1991	Value of U.S. Imports (CIF)[a] or Exports (FAS)[b] (Thousands of dollars)
U.S. Import Suppliers		
China	yes	1,044,919
South Korea	yes	753,141
Hong Kong	yes	713,672
Italy	no	589,155
Japan	yes	522,414
Taiwan	yes	485,940
Canada	no	290,829
United Kingdom	no	273,848
India	yes	272,544
West Germany	no	240,994
All Others	c	2,003,721
Total		7,191,177
U.S. Export Recipients		
Canada	n.a.	932,279
Mexico	n.a.	416,661
United Kingdom	n.a.	232,742
Japan	n.a.	218,824
Belgium	n.a.	141,000
Hong Kong	n.a.	122,606
West Germany	n.a.	122,310
Italy	n.a.	94,763
Saudi Arabia	n.a.	83,001
Dominican Republic	n.a.	77,586
All Others	n.a.	1,193,195
Total		3,634,967

SOURCES: U.S. Bureau of the Census (trade data) and U.S. International Trade Commission and Office of the U.S. Trade Representative (list of countries covered by quotas or restraint agreements).

NOTE: n.a. = not applicable.

a. CIF stands for "charges, insurance, and freight." The CIF import value is the customs value (which is generally the purchase price in the exporting country) plus all freight, insurance, and other charges, except U.S. import duties, incurred in shipping the product to the United States from the exporting country.

b. FAS stands for "free alongside ship." The FAS export value is the value at the U.S. port of export, which is the original transaction price plus all inland freight, insurance, and other charges incurred shipping the product to the U.S. port of export.

c. The balance of exporting countries constitute a mix of those that are covered by restraint agreements and those that are not.

TABLE 2. LARGEST U.S. APPAREL TRADING PARTNERS IN 1990

Country	Covered by Agreement Restraining Exports to the United States as of September 11, 1991	Value of U.S. Imports (CIF)[a] or Exports (FAS)[b] (Thousands of dollars)
U.S. Import Suppliers		
Hong Kong	yes	3,695,923
China	yes	3,244,731
South Korea	yes	3,111,065
Taiwan	yes	2,607,621
Mexico	yes	1,206,803
Philippines	yes	1,087,232
Italy	no	792,415
India	yes	756,370
Dominican Republic	yes	734,351
Singapore	yes	648,366
All Others	c	8,117,919
Total		26,002,796
U.S. Export Recipients		
Mexico	n.a.	517,986
Canada	n.a.	338,194
Dominican Republic	n.a.	333,631
Japan	n.a.	299,301
Costa Rica	n.a.	156,288
Jamaica	n.a.	104,057
Belgium	n.a.	95,309
United Kingdom	n.a.	86,632
Haiti	n.a.	78,727
France	n.a.	66,812
All Others	n.a.	794,803
Total		2,871,740

SOURCES: U.S. Bureau of the Census (trade data) and U.S. International Trade Commission and Office of the U.S. Trade Representative (list of countries covered by quotas or restraint agreements).

NOTE: n.a. = not applicable.

a. CIF stands for "charges, insurance, and freight." The CIF import value is the customs value (which is generally the purchase price in the exporting country) plus all freight, insurance, and other charges, except U.S. import duties, incurred shipping the product to the United States from the exporting country.

b. FAS stands for "free alongside ship." The FAS export value is the value at the U.S. port of export, which is the original transaction price plus all inland freight, insurance, and other charges incurred shipping the product to the U.S. port of export.

c. The balance of exporting countries constitute a mix of those that are covered by restraint agreements and those that are not.

TABLE 3. LARGEST U.S. NONRUBBER-FOOTWEAR TRADING PARTNERS IN 1990

Country	Value of U.S. Imports (CIF)[a] or Exports (FAS)[b] (Thousands of dollars)
U.S. Import Suppliers	
South Korea	2,488,423
Brazil	1,059,399
Taiwan	932,045
Italy	914,343
China	788,367
Spain	372,656
Thailand	246,148
Indonesia	157,086
Mexico	111,853
Hong Kong	91,425
All Others	565,487
Total	7,727,232
U.S. Export Recipients	
Japan	43,900
Canada	43,026
Mexico	22,666
Italy	22,444
France	21,421
West Germany	19,323
United Kingdom	16,046
Switzerland	14,214
Netherlands	11,429
Spain	10,001
All Other	93,235
Total	317,705

SOURCE: U.S. Bureau of the Census.

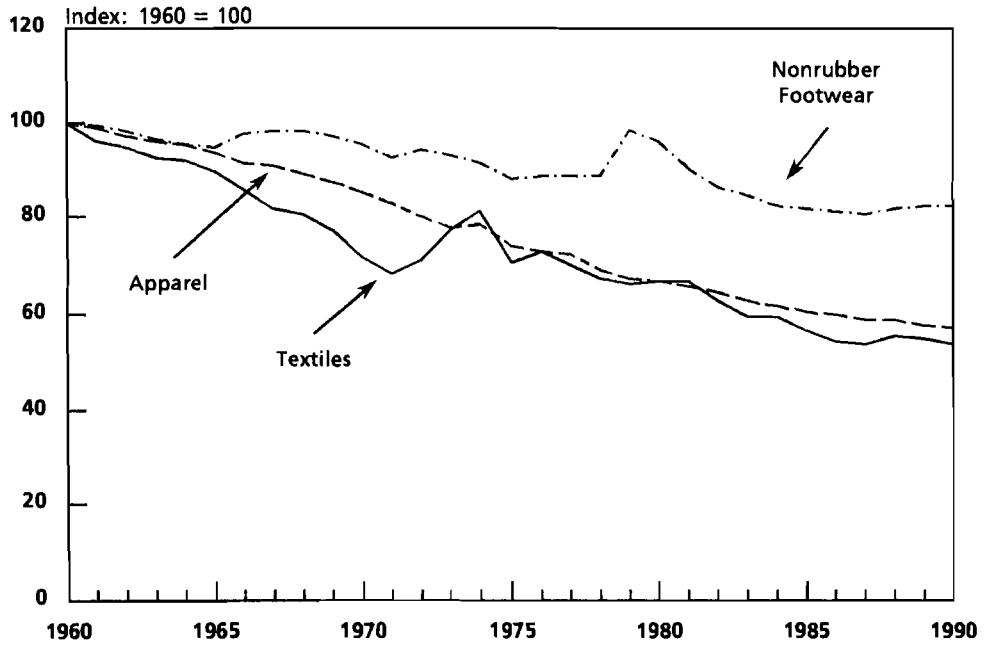
a. CIF stands for "charges, insurance, and freight." The CIF import value is the customs value (which is generally the purchase price in the exporting country) plus all freight, insurance, and other charges, except U.S. import duties, incurred shipping the product to the United States from the exporting country.

b. FAS stands for "free alongside ship." The FAS export value is the value at the U.S. port of export, which is the original transaction price plus all inland freight, insurance, and other charges incurred shipping the product to the U.S. port of export.

How Have Prices and Wages in the Industries Fared?

With the exception of a temporary rise in textile prices in the early 1970s, the prices of both textiles and apparel have declined fairly steadily and substantially over the past 30 years, while prices of nonrubber footwear have declined only slightly (see Figure 3). In real

Figure 3.
Output Prices After Adjustment for Inflation



SOURCE: CBO calculations based on producer price indices from the Bureau of Labor Statistics, the GNP deflator published by the Bureau of Economic Analysis, and product quantities from the *Census of Manufactures* and the *Annual Survey of Manufactures*, Bureau of the Census.

NOTE: The effects of inflation were removed by dividing the indices by the GNP deflator. The price indices measure producer prices, which are the prices charged for sales in large quantities. Approximate product definitions: textiles, SIC 22; apparel, SIC 23; nonrubber footwear, SIC 314.

terms (that is, after adjustment to remove the effects of inflation), prices in both the textile and apparel industries declined by over 40 percent between 1960 and 1990. The decline in nonrubber-footwear prices over the same period was only about 10 percent.

Consumers benefited greatly from these declines. One might expect the decreases to have also put severe pressure on domestic textile and apparel production. Any such pressures, however, were ameliorated by coincident substantial declines in the prices of raw materials used by domestic producers. (The declines in output prices may have been caused in part by the declines in the prices of raw materials.) The average real price of the cotton, wool, synthetic, and other fibers that are the primary raw material for textiles declined by a factor of two and one-quarter between 1960 and 1990 (see Figure 4). Textiles, the primary raw material for apparel, declined in price by more than 40 percent, as already noted.

The price of leather, the primary raw material for nonrubber footwear, increased by about 30 percent between 1960 and 1990. Assuming no offsetting changes in the domestic industry's productivity or other significant factors, the combination of this rise with the 10 percent decline in nonrubber-footwear prices indicates increasing pressure on domestic producers and is consistent with the declining market share of U.S. production.[11]

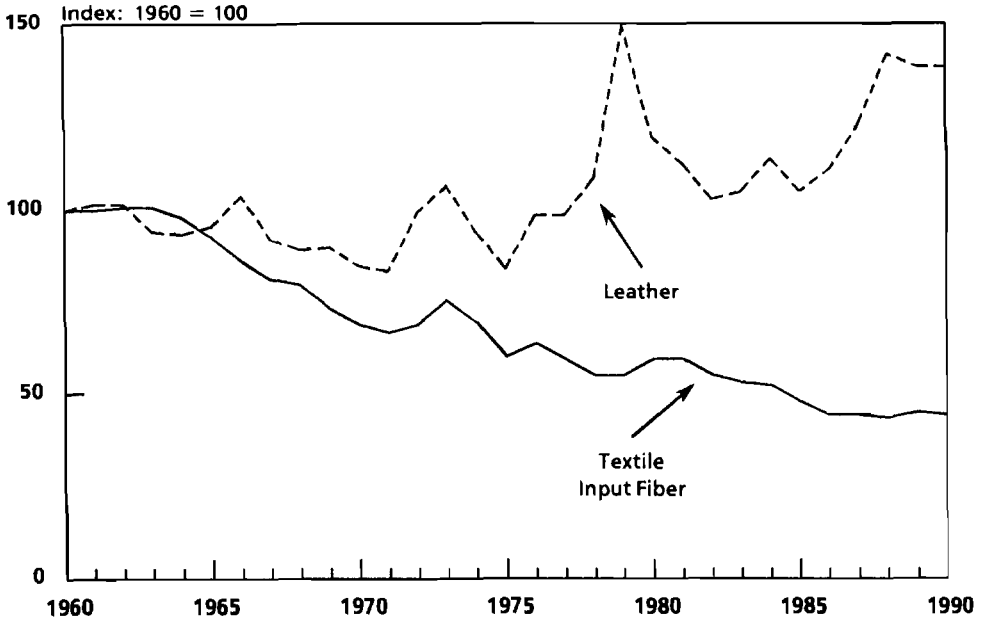
Growth in the price of the other major input to these industries--labor--has lagged significantly behind that of labor in other industries in the United States over the years; in the apparel and nonrubber-footwear industries, average hourly earnings have actually fallen after adjustment for inflation. In relation to the average for all private nonagricultural industries, average hourly earnings in all three industries fell substantially between 1948 and the early 1960s. In 1948, the average hourly earnings of workers in the apparel industry were roughly equal to the average for workers in all private nonagricultural industries, and workers in the textile and nonrubber-footwear industries earned an average roughly equal to 90 percent of that. By 1960, hourly

11. Productivity changes in the three industries are discussed later in this study.

earnings in all three industries had declined to approximately 76 percent of the average for private nonagricultural industries.

During most of the 1960s, average hourly earnings in the three industries were roughly equal to one another, and they grew at roughly the same rate as the average for all private nonagricultural industries (see Figure 5). In the early 1970s, however, the three industries parted ways. Average hourly earnings in the textile industry began increasing slightly in relation to the average for all private nonagricultural industries, whereas hourly earnings in the other two industries re-

Figure 4.
Input Prices After Adjustment for Inflation



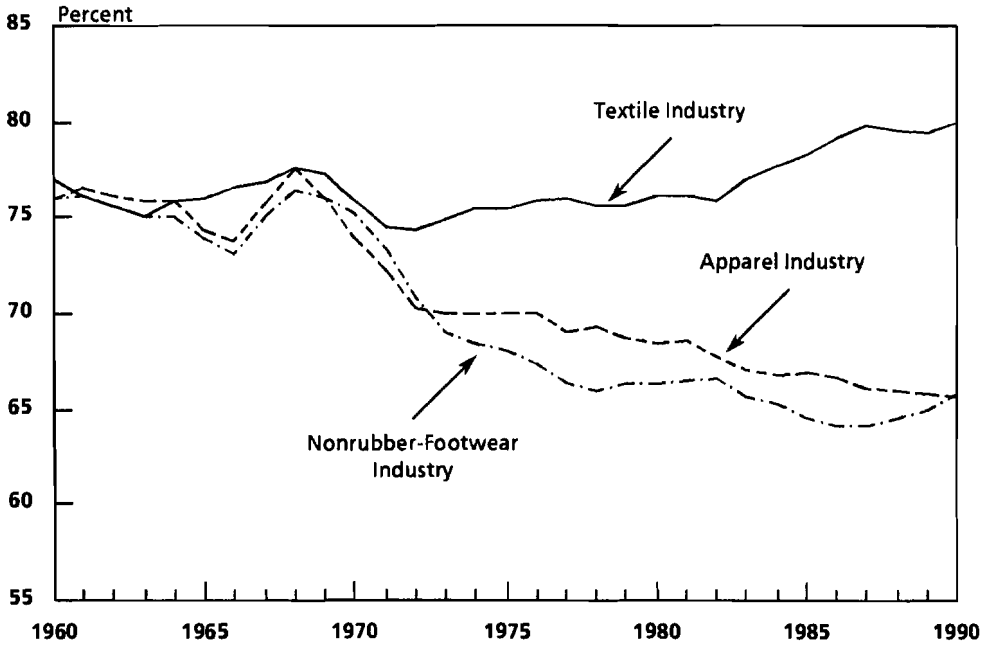
SOURCE: CBO calculations based on producer price indices from the Bureau of Labor Statistics, the GNP deflator published by the Bureau of Economic Analysis, and product quantities from the *Census of Manufactures* and the *Annual Survey of Manufactures*, Bureau of the Census.

NOTE: The effects of inflation were removed by dividing the indices by the GNP deflator. The price indices measure producer prices, which are the prices charged for sales in large quantities.

sumed their decline. In 1990, average hourly earnings in the textile industry were 80 percent of the average for all private nonagricultural industries. Averages for the other two industries were only 66 percent.

Although they lagged behind the average for the economy as a whole, average hourly earnings in the three industries did grow in real terms during the 1960s (and they did in the nonrubber-footwear industry in the 1950s as well), but then growth virtually stopped in the tex-

Figure 5.
Ratios of Average Hourly Earnings of Production Workers in the Three Industries to the Average for All Private Nonagricultural Industries



SOURCE: CBO calculations based on data from *Employment, Hours, and Earnings, United States, 1909-1990*, Bulletin 2370, Bureau of Labor Statistics (March 1991), and *Supplement to Employment and Earnings*, Bureau of Labor Statistics (July 1991).

NOTE: Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

tile industry and decline set in in the other two industries. Between 1969 and 1990, average hourly earnings increased by only 3.25 percent in the textile industry and fell by 13.7 percent in the apparel industry and 13.5 percent in the nonrubber-footwear industry.

The Significance of the Industries to the U.S. Economy

Historically, the textile and apparel industries have played a large role in the U.S. economy, but that role has declined substantially over the past few decades. The nonrubber-footwear industry, which was much smaller to begin with, has diminished even more substantially.

In 1960, domestic apparel production accounted for 4.0 percent of the value added by manufacturing in the United States. Textile production in the same year accounted for 3.4 percent, and nonrubber-footwear production accounted for 0.7 percent (see Figure 6). The textile and apparel industries declined only slightly by this measure until the early 1970s, when they began a substantial decline that continued at least through 1988, the most recent year of available data. By 1988, the apparel industry was down to 2.6 percent of all value added by manufacturing and the textile industry was down to 2.1 percent. The share of domestic nonrubber-footwear production in all value added by manufacturing in the United States, unlike that of textile and apparel production, dropped fairly steadily from 1960 on, declining to 0.2 percent by 1988.

In evaluating these numbers it is important to note that value added by manufacturing is only one part of the gross national product (GNP) and that manufacturing's share of GNP has declined over the years.[12] In 1960, manufacturing constituted 28 percent of U.S. GNP. By 1985 (the most recent year of available data), it was just under 20 percent. Thus, the shares in value added by manufacturing exaggerate the shares of these industries in total U.S. economic activity and understate decline.

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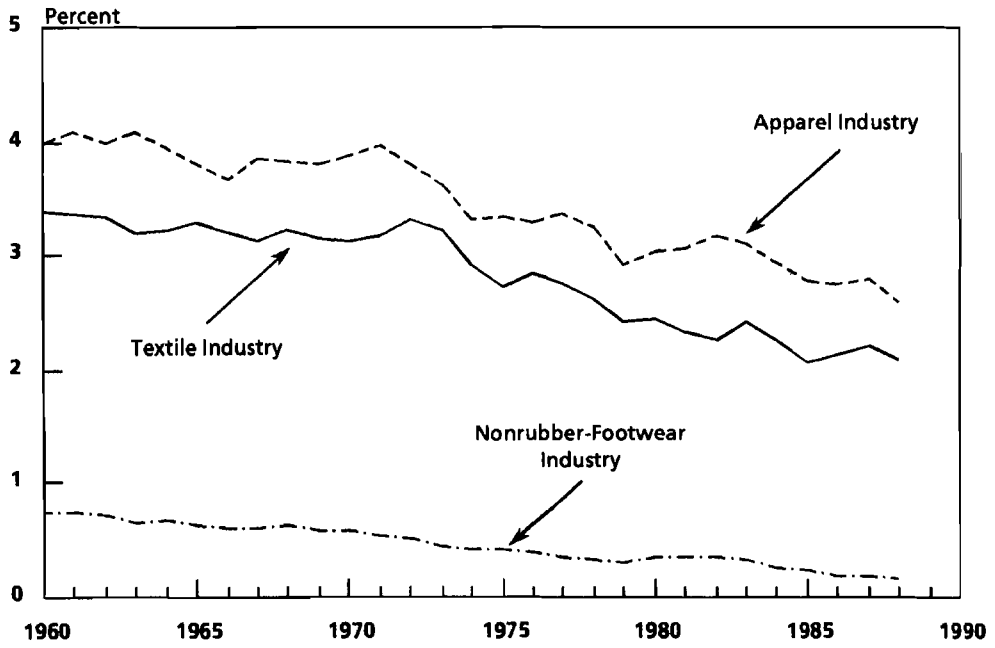
12. Other parts of GNP include agriculture, services, construction, mining, finance, insurance, real estate, wholesale and retail trade, transportation, and government.

Employment numbers for the three industries, which are available over a much longer period of time than most other indicators, paint a picture of even longer-term decline. Over the two decades before the 1960-1990 period, which is the focus of this report, the shares of all three industries in total nonagricultural employment in the United States declined substantially. Between 1940 and 1960, the textile industry's share dropped from 3.63 percent to 1.71 percent, the apparel industry's decreased from 2.87 percent to 2.28 percent, and the non-

Figure 6.
Shares of the Three Industries in Value Added by Manufacturing in the United States



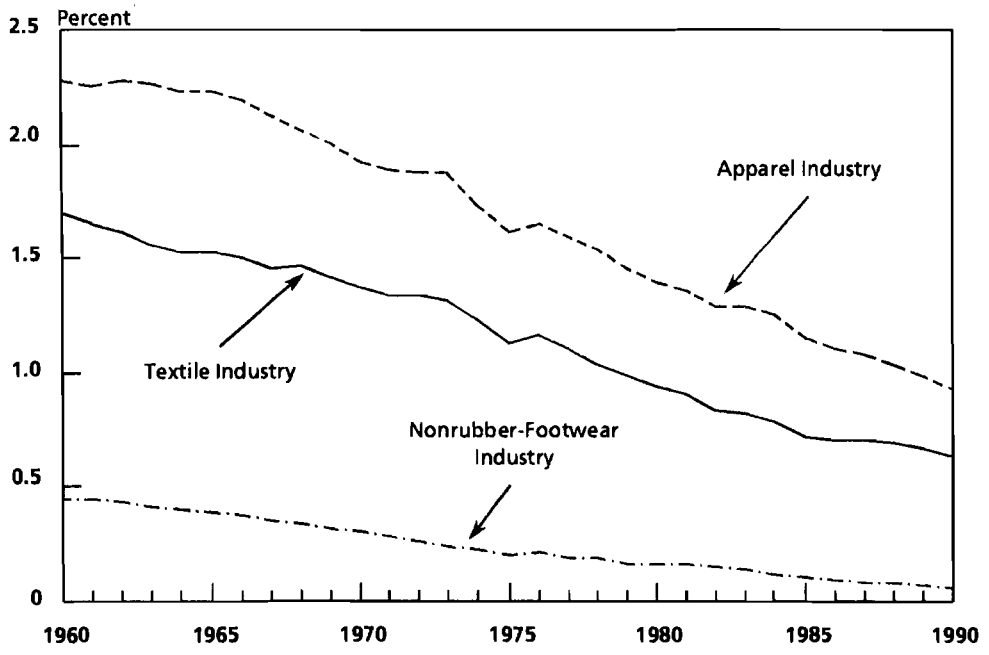
SOURCE: CBO calculations based on data from the *Census of Manufactures* and the *Annual Survey of Manufactures*, Bureau of the Census.

NOTE: Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

rubber-footwear industry's declined from 0.74 percent to 0.44 percent. Since 1960, the declines have continued in all three industries (see Figure 7), and in the mid-1960s the decline in the apparel industry accelerated. By 1990, the textile industry's share in nonagricultural employment was down to 0.63 percent, the apparel industry's share was down to 0.93 percent, and the nonrubber-footwear industry's was down to 0.06 percent.

The only sector excluded from these employment numbers is agriculture, so the numbers do not exaggerate the role of the three industries nearly as much as the value-added numbers do. Because the

Figure 7.
Shares of the Three Industries in Total Nonagricultural Employment



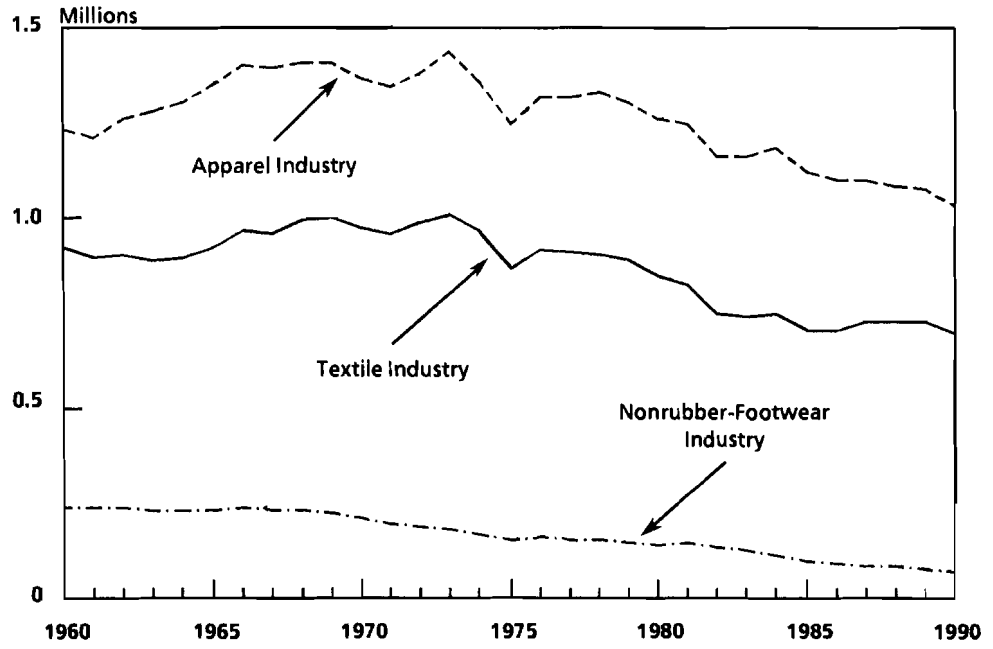
SOURCE: CBO calculations based on data from *Employment, Hours, and Earnings, United States, 1909-1990*, Bulletin 2370, Bureau of Labor Statistics (March 1991), and *Supplement to Employment and Earnings*, Bureau of Labor Statistics (July 1991).

NOTE: Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

share of the agricultural sector in total employment has declined over the years, however, the employment numbers slightly exaggerate the decline in share of the textile, apparel, and nonrubber-footwear industries.

In absolute numbers rather than shares, textile industry employment rose from 890,000 in 1963 to a peak of 1.01 million in 1973, and has since declined, reaching a new low of 700,000 in 1990 (see Figure 8). Apparel industry employment peaked at 1.44 million in 1973 and

Figure 8.
Total Employment in the Three Industries



SOURCE: *Employment, Hours, and Earnings, United States, 1909-1990,* Bulletin 2370, Bureau of Labor Statistics (March 1991), and *Supplement to Employment and Earnings,* Bureau of Labor Statistics (July 1991).

NOTE: Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

declined to 1.03 million by 1990. While the employment trends of the two industries appear similar over the past 30 years, they appear different when compared over the past 50 years. From that perspective, the 1963-1973 period for the textile industry appears as an aberration of a much longer downward trend. Even the 1973 peak of 1.01 million represents a sizable drop from the 1942 peak of 1.34 million. In the apparel industry, however, employment rose during the two decades before 1960. Thus, 1973 represents not only a temporary peak, but a permanent change in direction.

Employment in the nonrubber-footwear industry declined very slowly for about two decades to 242,000 in 1966, but has dropped dramatically since then, reaching a new low of 71,000 in 1990.

In assessing the importance of the remaining jobs in these industries, it is important to remember that they are generally low-paying positions. The United States might need these jobs to employ low-skilled workers who are not capable of performing higher-paying work, but most of these workers and the United States in general would be better off financially if the workers were trained for and employed in higher-paying work and the low-paying jobs in these industries were allowed to go overseas.

A few workers might be worse off if they were forced to sell their homes at a loss and move to a new location to find a new job. Also, for some older workers with only a few years left before retirement, retraining might not be cost-effective. Saving the jobs of these workers by means of trade restrictions is also not cost-effective, however, as will become clear later in this study when the cost of such restrictions is discussed. It is generally less costly to the economy to let jobs (in any industry) disappear and compensate workers for their losses from the federal treasury than it is to keep the workers employed by means of trade restrictions.

Shares of the three industries in total manufacturing assets tell the same general story of long-term decline. Although nominal total assets (that is, total assets not corrected for inflation) of U.S. corporations both in the textile industry (SIC 22) and in the apparel, leather, and leather products industries taken together (SICs 23 and 31) have

moved upward, the industries' shares in the total assets of all U.S. manufacturing corporations have declined significantly over the years. The share of textile corporations declined from 3.4 percent in 1966 to 1.6 percent in 1990. The share of apparel, leather, and leather products corporations declined from 2.3 percent in 1973 to 1.2 percent in 1990.[13]

Of course, the industries are not spread evenly throughout the country. The textile and apparel industries are concentrated in Southeastern states and a few others, and in some of these states they are much more significant than the economy-wide numbers would indicate. The states that have the largest numbers of textile workers are North Carolina, Georgia, and South Carolina, in that order. The states with the largest numbers of apparel workers are California, New York, North Carolina, Pennsylvania, Tennessee, Georgia, Texas, and Alabama, in that order.

Although they appear sizable when considered alone, the numbers of apparel workers in California and Texas are not out of line with the large labor forces of those states, and the numbers in New York and Pennsylvania are only slightly out of line with their large labor forces. That leaves the Southeast, and perhaps certain localized areas in the latter states, as the main regions in which the textile and apparel industries are significantly more important to the local economy than they are to the U.S. economy as a whole.

The long-term decline indicated by the numbers above is not unique to the textile, apparel, and nonrubber-footwear industries. It tends to happen in many mature industries--that is, industries that have been around for a long time, and have consequently reached market saturation for their products or seen their production technology spread to other countries (or both)--and in labor intensive industries. From 1965 to 1990, the number of employees in the steel industry declined from 580,200 to 207,700. From 1965 to 1988 (the last year of available data), that industry's share of total value added by manufacturing in the economy dropped from 4.1 percent to 1.5 percent. Most

13. These numbers on total assets are obtained from the *Quarterly Financial Report for Manufacturing Corporations*, currently published by the Bureau of the Census. This publication does not give separate numbers for the apparel and nonrubber-footwear industries.

of the decline in this industry occurred between 1979 and 1985. The shares of the agricultural sector in GNP and employment in the United States have been declining for many decades.

FINANCIAL CONDITIONS OF THE INDUSTRIES

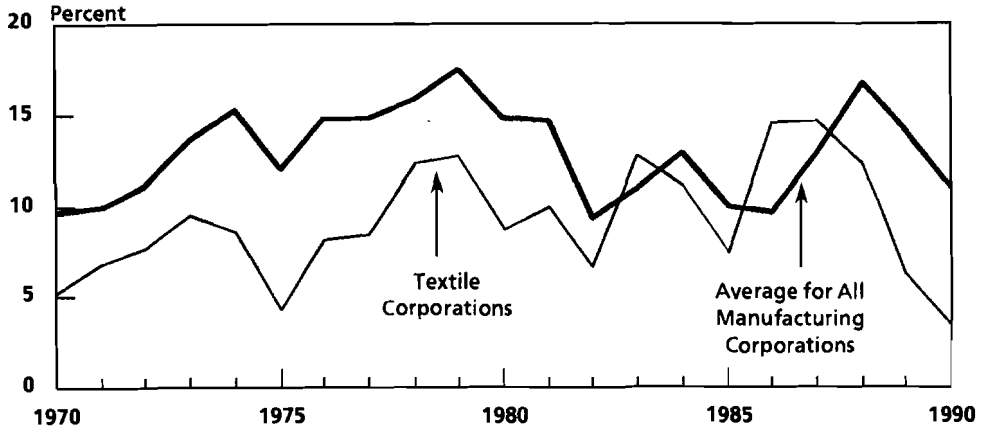
In terms of average profitability, corporations in the three industries have performed as well as, if not better than, the average for all manufacturing corporations in the United States over the past decade, but their average ratios of dividends to equity have been lower. Financial numbers were not available for most of the 1960s, so this section concentrates on the 1970-1990 period. Unfortunately, the finest detail of available financial numbers combines the apparel (SIC 23), nonrubber-footwear (SIC 314), and leather and other leather products (the rest of SIC 31) industries to form a total called "other nondurable manufacturing industries" (SICs 23 and 31). Thus, the findings in this section are subject to the caveat that either the apparel industry or the nonrubber-footwear industry may have performed somewhat better or worse than the aggregate. SIC 23 encompasses most of the economic activity of the total sector, so the statistics are undoubtedly more representative of the apparel industry than of the nonrubber-footwear industry.[14] For the rest of this study, this aggregate will be referred to as "apparel and leather products."

The after-tax rate of return on equity of corporations in the apparel and leather products industries has been competitive with the average for all manufacturing corporations over the past two decades (see Figure 9). For textile corporations, the rate of return was lower than the average for all manufacturing corporations from 1970 through 1982, but was competitive in the mid-1980s.

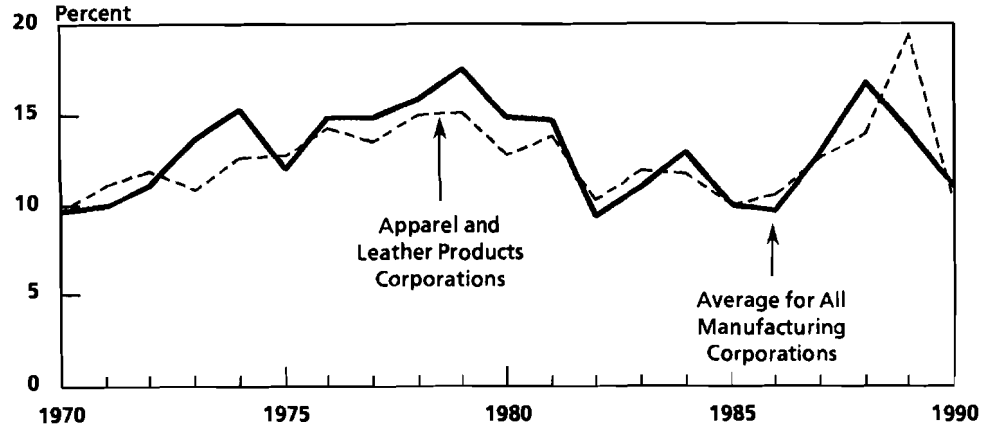
14. Separate numbers for SICs 23 and 31 are available for 1970 to 1973, and they show that by several major measures (assets, stockholders' equity, sales, income from operations, and after-tax net income) SIC 23 constituted 70 percent to 80 percent of the total economic activity of the two SICs together in these years. SIC 314, being a subset of SIC 31, constitutes only a portion of the remaining economic activity.

Figure 9.
After-Tax Rates of Return on Equity

Textile Corporations and Average for All Manufacturing Corporations



Apparel and Leather Products Corporations and Average for All Manufacturing Corporations



SOURCE: CBO calculations based on data from the *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations*, currently published by the Bureau of the Census.

NOTE: Industry definitions: textile industry, SIC 22; apparel and leather products industries, SICs 23 and 31.

The return for textile corporations dropped off dramatically in the late 1980s and 1990, but this decline is misleading and does not indicate a corresponding dramatic deterioration in the economic performance of the industry. A substantial part of the falloff resulted from a wave of takeovers and buyouts in the industry in the late 1980s, leaving many firms with large debt loads. From 1986 to 1990, the ratio of equity to debt for textile corporations fell from near equality to roughly half the average value for all manufacturing corporations.

The interest paid on all of that debt must be subtracted when calculating after-tax net income, but it has nothing to do with the economic performance of the industry. Since the debt must also be subtracted from total assets to calculate equity, this interest should not affect the average rate of return on equity over time, provided that the interest rate on the debt is roughly the same as the average rate of return on total assets. If the interest rate is higher, however (which is likely for a highly leveraged buyout), it will lower the return on equity. Further, the leverage serves to exaggerate the swings in return on equity that result from fluctuations in sales and prices.

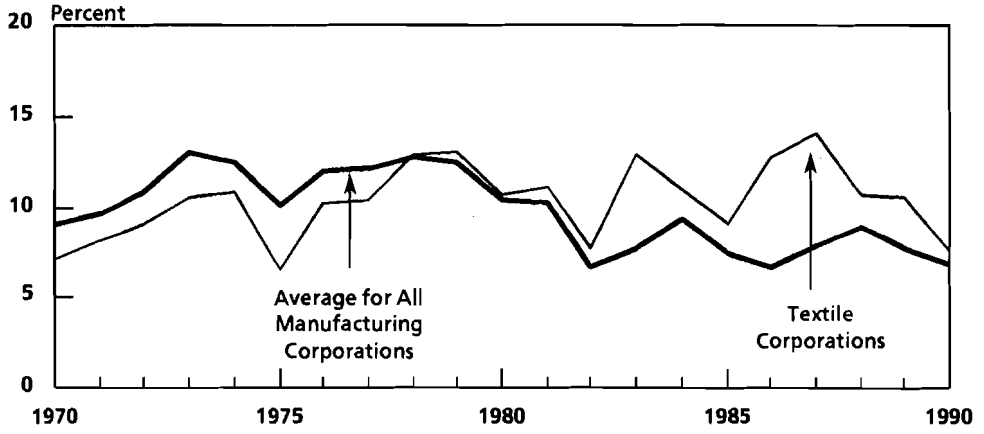
The rate of operating return on total assets does not suffer from this problem (see Figure 10).[15] The operating return of a corporation is the net income before taxes and nonoperating expenses, such as interest payments, are subtracted. The rates of operating return for both textile corporations and apparel and leather products corporations have been as high as or higher than the average for all manufacturing corporations since 1978 (again, see Figure 10). For corporations manufacturing apparel and leather products, the superior performance dates back to 1974 and competitive performance extends at least to 1970.

Oddly, the profit performance of corporations in the industries is not matched by the dividends they pay on their stock. With the excep-

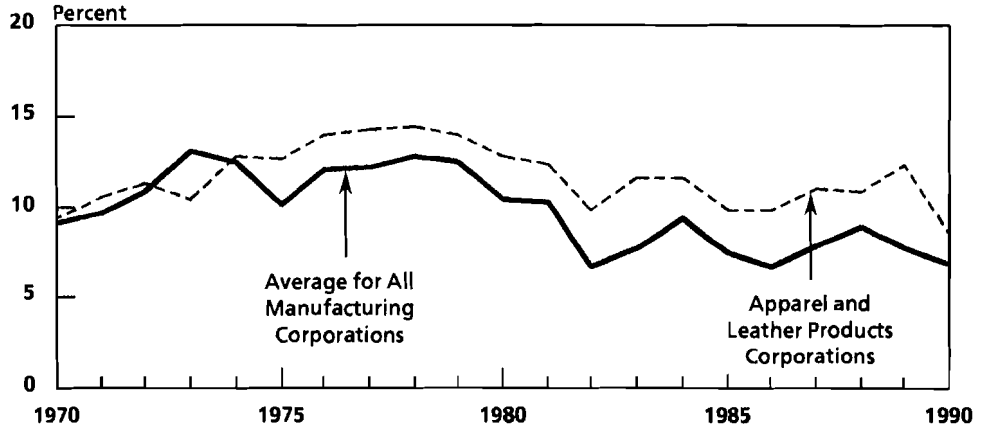
15. Unfortunately, the rate of operating return on total assets itself is not completely free of defects. The data source used here (1) counts the equity in (not the total assets of) a foreign affiliate as assets of the domestic parent corporation, and (2) counts dividends from a foreign affiliate as nonoperating income of the domestic parent and treats the affiliate as showing no effect on the operating income of the parent. Thus, there is a downward bias in the operating return on total assets, and the bias is largest for industries with relatively large amounts of activity by foreign affiliates.

Figure 10.
Rates of Operating Return on Total Assets

Textile Corporations and Average for All Manufacturing Corporations



Apparel and Leather Products Corporations and Average for All Manufacturing Corporations

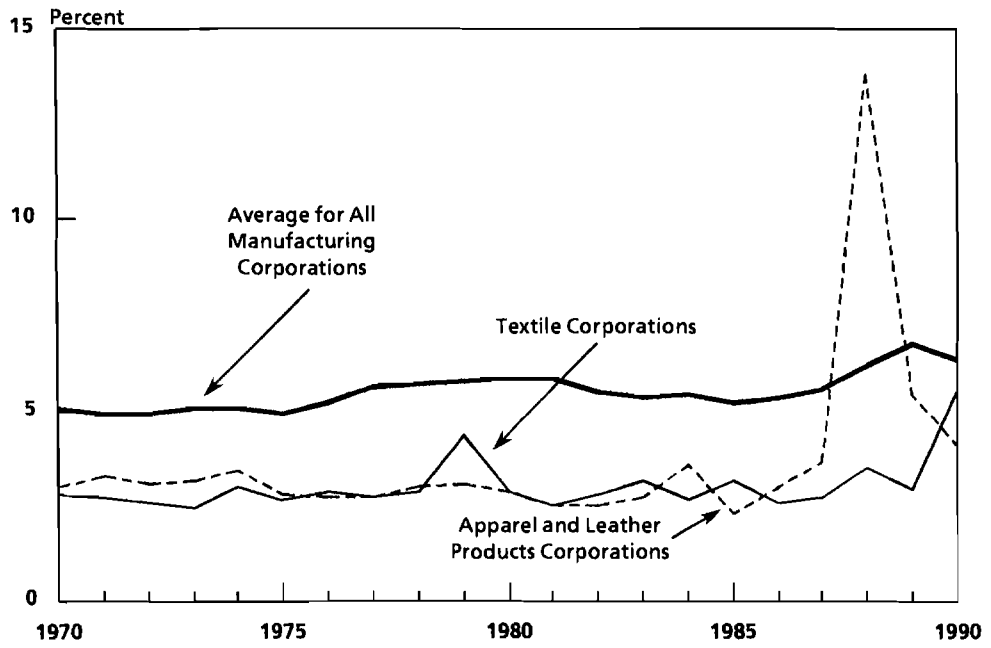


SOURCE: CBO calculations based on data from the *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations*, currently published by the Bureau of the Census.

NOTE: Industry definitions: textile industry, SIC 22; apparel and leather products industries, SICs 23 and 31.

tion of 1988, when an abnormally large dividend payout occurred in the apparel and leather products sector, the ratios of dividends to equity for both textile corporations and apparel and leather products corporations was consistently and significantly lower than the average for all manufacturing corporations from 1970 through 1990 (see Figure 11).

Figure 11.
Ratios of Dividends to Equity



SOURCE: CBO calculations based on data from the *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations*, currently published by the Bureau of the Census.

NOTE: Industry definitions: textile industry, SIC 22; apparel and leather products industries, SICs 23 and 31.

CONCLUSIONS

U.S. protection of its textile and apparel industries is substantial and long-lived. Protection of its nonrubber-footwear industry, while less substantial, is still significant. High tariffs on textile and apparel imports date back at least 50 years, and the current array of import quotas had its genesis in quotas imposed on imports from Japan 35 years ago. The nonrubber-footwear industry has had little quota protection, but its tariff protection is higher than the average for other industries.

The textile industry is competitive and has maintained sales roughly equal to the U.S. market size over the past 30 years. The apparel industry is less competitive: the apparel trade deficit has risen to 34 percent of the U.S. market. The nonrubber-footwear industry is even less competitive, its trade deficit having risen to 73 percent of the U.S. market.

The textile and apparel industries have played significant roles in the U.S. economy, but those roles have declined substantially for several decades. The nonrubber-footwear industry was initially much smaller and has declined even more than the other two industries have. In 1990, the textile industry's share of total nonagricultural employment in the United States was 0.63 percent, the apparel industry's share was 0.93 percent, and the nonrubber-footwear industry's share was 0.06 percent. The jobs in these industries pay substantially less than the average for jobs in other industries.

CHAPTER II

REASONS FOR THE INDUSTRIES' PROBLEMS

The foregoing analysis of the textile, apparel, and nonrubber-footwear industries suggests two questions:

- What accounts for the different competitive performances of the three industries in international trade?
- Why, despite these different competitive performances, has employment in all three industries declined substantially?

The answers to these questions lie ultimately in the relative labor intensities of the industries, the relatively high cost of labor in the United States compared with that in developing countries, and the different rates of growth in labor productivity of the three industries.

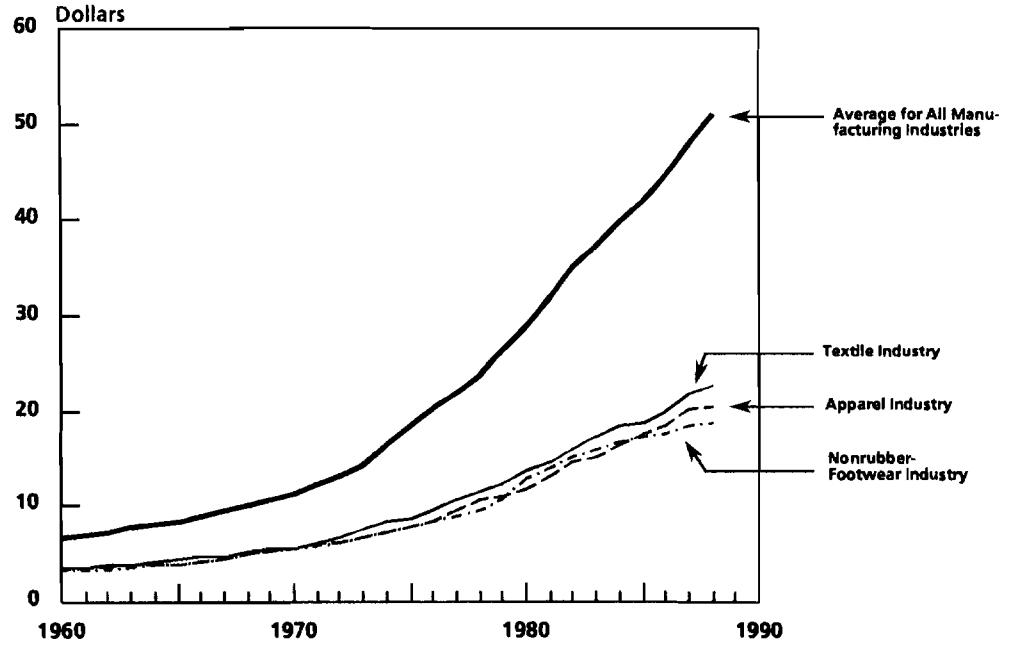
The immediate reason for the long-term decline in employment in the three industries is that their value added per unit of labor has been lower than that of the rest of manufacturing. Figure 12 shows that the value added per production-worker hour in the three industries has been about half the average for the manufacturing sector as a whole in the United States since at least 1960 (see Figure 12). Because the value added is so low, firms cannot afford to pay their workers very much. Thus, the low value added per production-worker hour is part of the reason that average hourly earnings in the industries are so low compared with those in other sectors of the economy. (Another reason for the low pay is that the labor is relatively unskilled.)

The low pay causes workers to leave for better-paying lines of work, thereby reducing employment in the three industries. Because many workers can do this, it limits the ability of firms in the three industries to lower wages and make themselves profitable. As a result, some U.S. firms cannot turn a profit on their domestic production and therefore close it down, reducing employment still further.

Why, then, is the value added per unit of labor so low in the three industries? For the apparel and nonrubber-footwear industries, the answer lies in their relative labor intensity. For the textile industry, the answer lies in the rapid growth of productivity, which has caused the price of textiles to decline.

The apparel and nonrubber-footwear industries are relatively labor-intensive in comparison with the rest of U.S. manufacturing; the textile industry is not. Labor intensity is the ratio of labor to capital,

Figure 12.
Values Added per Production-Worker Hour

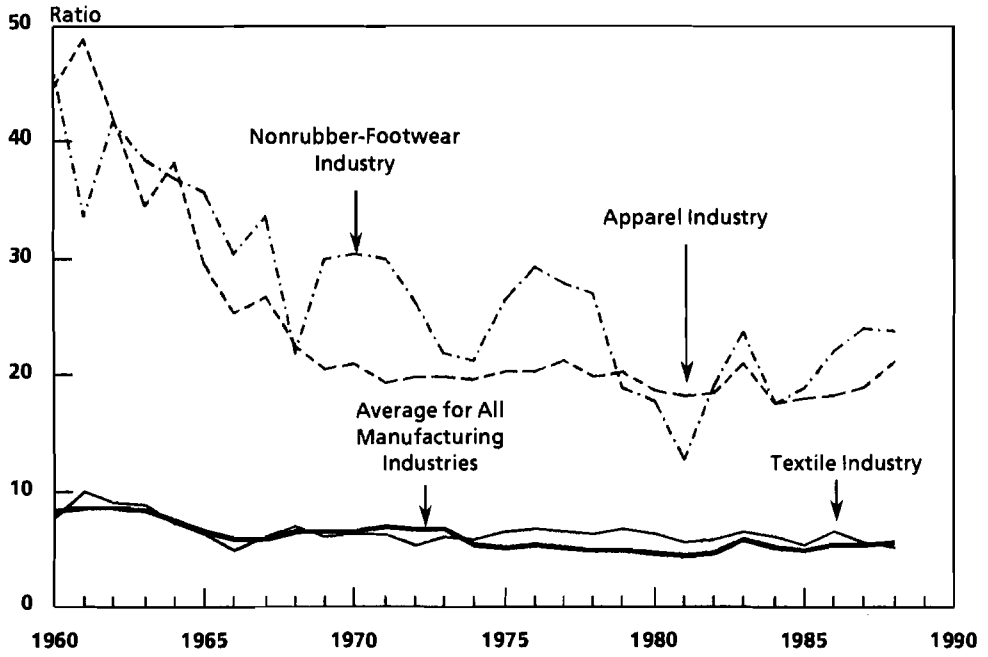


SOURCE: CBO calculations based on data from the *Census of Manufactures* and the *Annual Survey of Manufactures*, Bureau of the Census.

NOTE: Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

land, and other factors of production used by an industry to produce a given amount of output. The ratio of payroll to new capital expenditures is a rough measure of labor intensity (see Figure 13). It indicates that the apparel and nonrubber-footwear industries have been significantly more labor-intensive than the manufacturing sector as a whole over the past three decades, and that the textile industry has been roughly equal in labor intensity to the manufacturing sector as a whole.

Figure 13.
Ratios of Payroll to New Capital Expenditures



SOURCE: CBO calculations based on data from the *Census of Manufactures* and the *Annual Survey of Manufactures*, Bureau of the Census.

NOTES: Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

Unlike other figures in this study, this figure plots straight ratios, not ratios expressed as percentages.

Labor-intensive industries are more sensitive than others to the cost of labor. The prevailing wages in other industries limit the ability of U.S. apparel and nonrubber-footwear firms to lower pay in order to maintain profitability. In developing countries, where lack of capital and modern technology makes workers relatively unproductive and hence poorly paid in all industries, apparel and nonrubber-footwear industries are under no such constraint. They can pay wages that are very low by U.S. standards but high by the standards of their own countries and workers will remain content. Therefore, these firms can undercut U.S. manufacturers, taking away market share (as shown in Figure 2 on page 9) and driving the price down, which in turn drives down the value added per production-worker hour (see Figure 12).

For industries that are not labor-intensive, the labor-cost advantage of developing countries is more than offset by these countries' disadvantages (in particular, their relatively high cost of capital). These disadvantages explain how the U.S. textile industry has been able to maintain its market share (see Figure 2). They also mean that there must be another reason for the textile industry's low value added per unit of labor and its declining employment. That reason is rapid growth of labor productivity, which has caused textile prices to fall.

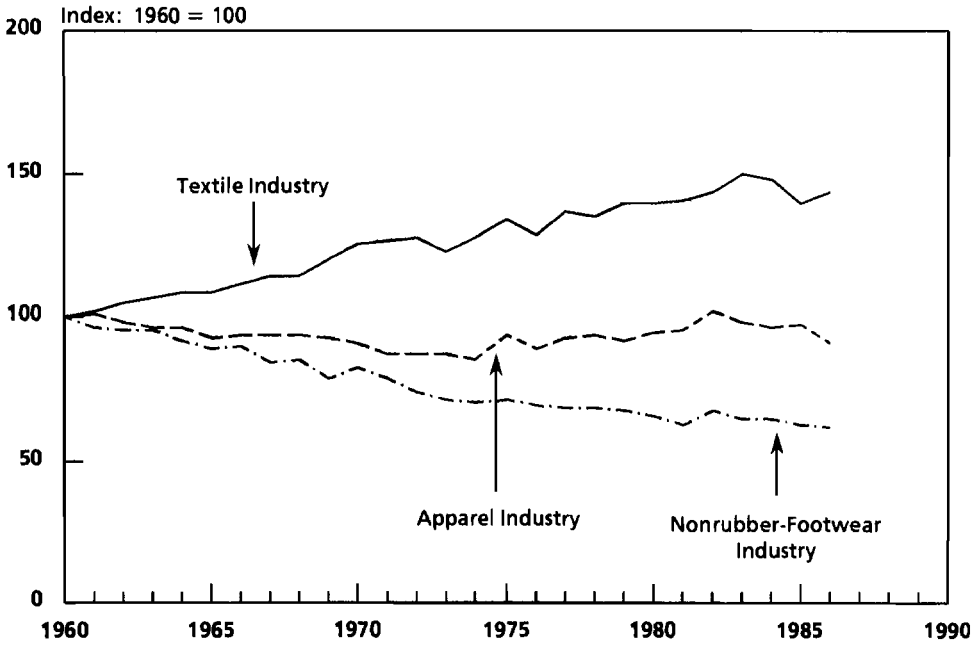
Value added per production-worker hour measures not only labor productivity but also the price of output. Thus, if the productivity of labor in an industry were to increase significantly, it could cause physical output to increase so much that the price of the product is driven down. Since value is equal to quantity multiplied by price, this decline in price could, in principle, be sufficient to cause the value added per production-worker hour to decline even though productivity (and quantity of output) increased. The increased productivity of labor would help the industry to compete with foreign firms, as the textile industry has done. If productivity increases more than output, the industry then operates with a smaller labor force, as the textile industry does. Finally, increased productivity would mean that for a given decrease in price, wages in the industry would not have to decrease as much as if foreign competition caused the price decrease.

Such a scenario could apply to the textile industry. The ratio of labor productivity in the textile industry to labor productivity in the

manufacturing sector as a whole has increased fairly steadily over the past three decades, which means that labor productivity has grown faster in the textile industry than in the manufacturing sector as a whole (see Figure 14). Given that productivity has grown rapidly and the U.S. textile industry has maintained its market share as indicated by Figure 2, it is clear that growth in productivity rather than imports has caused the employment declines in the textile industry.

On the basis of this analysis, one would expect that most of the major suppliers of U.S. apparel and nonrubber-footwear imports would be either low-wage countries or geographic neighbors and that the same

Figure 14.
Ratios of Industry Labor Productivities to the Average Labor Productivity for All Manufacturing Industries



SOURCE: CBO calculations based on data from the Bureau of Labor Statistics.

NOTE: Industry definitions: textile industry, SIC 22; apparel industry, SIC 23; nonrubber-footwear industry, SIC 314.

might be true for textile imports, but to a lesser extent. One would also expect that the major recipients of U.S. exports would be high-wage countries, developing countries that are major apparel suppliers (since those countries' apparel industries consume large quantities of textiles), and geographic neighbors.

One would expect geographic neighbors to be major trading partners in these industries for several reasons. Among these is that transportation costs are lower for these countries. Another reason is that geographic neighbors are more likely to be affected by U.S. fashion trends. Finally, the United States shares production with some of these countries. Firms in the United States ship parts to the countries, which then assemble the parts into finished garments and ship them back. Both the parts shipments and finished-garment shipments appear in U.S. trade statistics as apparel trade.

These expectations are largely borne out (see Tables 4, 5, and 6). Among the 10 largest suppliers of U.S. apparel imports, only Italy has a higher hourly labor compensation cost. Six of the 10 have compensation costs that are less than half of those in the United States. The remaining three, for which numbers are not available, are developing countries that most likely also have hourly labor compensation costs less than half of those in the United States. Similarly, among the 10 largest suppliers of nonrubber-footwear imports, only Italy and Spain have hourly labor compensation costs close to those of the United States. Among the 10 largest textile import suppliers, however, three have hourly costs higher than those in the United States, and another two have costs comparable to those of the United States. In five, including the three largest suppliers, costs are substantially below those of the United States.

Expectations concerning U.S. export recipients are also borne out. Among the 10 largest recipients of U.S. apparel exports, five have hourly labor costs comparable to those of the United States (three are higher), and the remaining five are all geographic neighbors. Among the 10 largest recipients of U.S. nonrubber-footwear exports, six have hourly labor costs higher than those in the United States, three others have costs that are comparable, and only Mexico, a geographic

TABLE 4. HOURLY LABOR COMPENSATION COSTS IN 1989 FOR TEXTILE MILL PRODUCTION WORKERS IN THE UNITED STATES AND THE LARGEST U.S. TEXTILE TRADING PARTNERS

Country	1990 Import/Export Ranking	Compensation Cost (Dollars)[a]
U.S. Import Suppliers		
West Germany	10	13.42
Canada	7	11.23
Italy	4	11.23
United States	n.a.	9.74
Japan	5	9.35
United Kingdom	8	7.97
Taiwan	6	3.24
Hong Kong	3	2.81
South Korea	2	2.81
India	9	0.44[b]
China	1	N.A.
U.S. Export Recipients		
West Germany	7	13.42
Belgium	5	12.62[b]
Canada	1	11.23
Italy	8	11.23
United States	n.a.	9.74
Japan	4	9.35
United Kingdom	3	7.97
Hong Kong	6	2.81
Mexico	2	1.45[b]
Saudi Arabia	9	N.A.
Dominican Republic	10	N.A.

SOURCE: Compensation costs are from the Bureau of Labor Statistics. Import and export rankings are based on U.S. trade data from the Bureau of the Census.

NOTES: N.A. = not available; n.a. = not applicable.

a. Compensation cost includes wages and expenditures by employers for benefits, insurance, and other labor taxes. Costs expressed in foreign currencies are converted to dollars using average commercial exchange rates for 1990.

b. The value given for India is for 1984. The value given for Belgium is for 1988. The value given for Mexico is for 1987. The 1989 values for these countries were not available.

TABLE 5. HOURLY LABOR COMPENSATION COSTS IN 1989 FOR APPAREL PRODUCTION WORKERS IN THE UNITED STATES AND THE LARGEST U.S. APPAREL TRADING PARTNERS

Country	1990 Import/Export Ranking	Compensation Cost (Dollars)[a]
U.S. Import Suppliers		
Italy	7	10.16
United States	n.a.	8.05
Hong Kong	1	2.69
Taiwan	4	2.66
Singapore	10	2.31
South Korea	3	2.19
Mexico	5	1.18[c]
India	8	0.35[b]
Philippines	6	N.A.
Dominican Republic	9	N.A.
China	2	N.A.
U.S. Export Recipients		
Belgium	7	10.88[b]
France	10	9.65
Canada	2	8.05
United States	n.a.	8.05
United Kingdom	8	6.43
Japan	4	6.35
Mexico	1	1.18[c]
Jamaica	6	N.A.
Costa Rica	5	N.A.
Dominican Republic	3	N.A.
Haiti	9	N.A.

SOURCE: Compensation costs are from the Bureau of Labor Statistics. Import and export rankings are based on U.S. trade data from the Bureau of the Census.

NOTES: N.A. = not available; n.a. = not applicable.

a. Compensation cost includes wages and expenditures by employers for benefits, insurance, and other labor taxes. Costs expressed in foreign currencies are converted to dollars using average commercial exchange rates for 1990.

b. The value given for India is for 1984. The value given for Belgium is for 1988. The 1989 values for these countries were not available.

c. The true value for Mexico was not available. The value given is 81.37 percent of the 1987 value for the textile industry. That percentage is the average ratio of compensation in the apparel industry to compensation in the textile industry for all countries for which CBO had data. The highest ratio among all countries was 95.73 percent, and the lowest ratio was 63.74 percent. The 1987 value for textiles was the most recent value available.

TABLE 6. HOURLY LABOR COMPENSATION COSTS IN 1989 FOR NONRUBBER-FOOTWEAR PRODUCTION WORKERS IN THE UNITED STATES AND THE LARGEST U.S. NONRUBBER-FOOTWEAR TRADING PARTNERS

Country	1990 Import/Export Ranking	Compensation Cost (Dollars)[a]
U.S. Import Suppliers		
Italy	4	9.94
United States	n.a.	8.20
Spain	6	6.19[c]
Hong Kong	10	2.87
Taiwan	3	2.84[b]
South Korea	1	2.40
Mexico	9	1.26[d]
Brazil	2	0.65[e]
Thailand	7	N.A.
Indonesia	8	N.A.
China	5	N.A.
U.S. Export Recipients		
West Germany	6	12.06
Netherlands	9	11.63[b]
Switzerland	8	11.49[b]
France	5	10.37
Italy	4	9.94
Canada	2	8.38
United States	n.a.	8.20
United Kingdom	7	7.96
Japan	1	6.78[b]
Spain	10	6.19[c]
Mexico	3	1.26[d]

SOURCE: Compensation costs are from the Bureau of Labor Statistics. Import and export rankings are based on U.S. trade data from the Bureau of the Census.

NOTES: N.A. = not available; n.a. = not applicable.

a. Compensation cost includes wages and expenditures by employers for benefits, insurance, and other labor taxes. Costs expressed in foreign currencies are converted to dollars using average commercial exchange rates for 1990.

b. The true values for these countries were not available. The values given are 106.80 percent of the respective values for the apparel industry. That percentage is the average ratio of compensation in the nonrubber-footwear industry to compensation in the apparel industry for all countries for which CBO had data. The highest ratio among all countries was 123.79 percent, and the lowest ratio was 91.34 percent. In the case of the Netherlands, the 1987 value for the apparel industry was used in the calculation because the 1989 value was not available.

c. The value for Spain is the average for clothing, footwear, and leather industries. A separate value for the nonrubber-footwear industry was not available.

d. The true value for Mexico was not available, nor was the true value for the apparel industry in Mexico. The value given is 106.80 percent of the proxy value for apparel given in Table 5. See note b for the origin of the number 106.80.

e. The value given for Brazil is for 1985. The value for 1989 was not available.

neighbor, has costs substantially below those of the United States. Among the 10 largest recipients of U.S. textile exports, four have labor costs higher than those of the United States, and two others have costs that are comparable. The remaining four include Hong Kong, which is a major apparel supplier, Mexico and the Dominican Republic, which are geographic neighbors, and Saudi Arabia, which is the only exception.

CONCLUSIONS

The immediate reason for the long-term declines in the three industries is that their value added per unit of labor has been only about one-half of that for the manufacturing sector as a whole. Because of the low value added, firms cannot afford to pay their workers much, and the workers leave for other industries. Some firms cannot afford to continue their U.S. operations, and they close them down.

The low value added in the apparel and nonrubber-footwear industries results from competition with imports produced by countries with lower prevailing wage rates. These industries are labor-intensive, which causes them to be more sensitive than other industries to the cost of labor.

Imports are not the cause of the low value added and declining employment in the textile industry. Rather, low prices brought on by rapid growth of productivity are the cause. Productivity and, consequently, output have grown faster than the demand for textiles. This difference in growth rates has driven the price of textiles down, and the lower prices have reduced the value added per unit of labor. Viewed another way, because productivity has grown faster than demand, fewer workers are needed and employment has declined.

CHAPTER III

HOW PROPOSED CHANGES IN PROTECTION WOULD AFFECT THE INDUSTRIES

Three proposals affecting the textile, apparel, and nonrubber-footwear industries have received sufficiently serious attention by policymakers to merit analysis of their economic effects. The first proposal is gradually to phase out the Multifiber Arrangement and thus bring textile and apparel trade under the strictures of the General Agreement on Tariffs and Trade, just like any other international goods trade. Negotiations over such a phaseout have been a major concern in the Uruguay Round, and some form of discontinuance will almost certainly be part of any new GATT agreement. The precise details have not been completely determined, but talks have focused on proposals to phase out all quantitative restrictions gradually over a period of about 10 years.

The second proposal is to establish a North American Free-Trade Area encompassing the United States, Canada, and Mexico. Provisions affecting the textile, apparel, and nonrubber-footwear industries have not yet been decided or proposed, but all or most of the tariffs and quantitative restrictions on trade in the products of these industries between the United States and Mexico are likely to be phased out.

Under the third proposal, the United States would impose new global quotas on imports of the products of all three industries.[1] This proposal was the basis of two virtually identical bills that the Congress passed and the President vetoed in 1988 and 1990.[2] The bills would have imposed global import quotas on each textile and apparel category in the MFA and on nonrubber footwear. Each bill would have set quotas for the year of the bill's passage at 101 percent of textile and apparel imports in the previous year and 100 percent of nonrubber-

1. A global quota is a quota on the total imports of a product from all countries. Current quotas limit imports of textile and apparel products from individual countries.

2. See footnote at the beginning of Chapter I for bill numbers and details of passage.

footwear imports. The bills would then have allowed textile and apparel quotas to grow by 1 percent annually and would have held the quotas for nonrubber footwear constant.

ELIMINATING THE MULTIFIBER ARRANGEMENT

Eliminating the MFA would harm the U.S. textile industry somewhat and harm the U.S. apparel industry somewhat more. The benefit to the U.S. consumer, however, would be great enough to overshadow the harm to either industry. Most of these effects would stem from eliminating the apparel quotas. Because the textile industry is fairly competitive, it should not have much trouble fending off imports without quotas. Eliminating the apparel quotas, however, would hurt the textile industry since that would injure its major customer, the domestic apparel industry. To some extent this harm would be offset by increased exports of textiles to apparel-exporting countries. Those nations' apparel industries would need textiles as they increase apparel exports to developed countries, including the United States, that lift their MFA restrictions.

Significantly, eliminating the MFA does not mean eliminating all barriers to U.S. imports of textiles and apparel. Tariffs, section 201 safeguards (which provide temporary protection from imports to threatened industries in certain circumstances), and antidumping and countervailing-duty laws all will remain. Further, the United States has argued in the Uruguay Round that textile and apparel liberalization should be limited to GATT members. If that argument prevails, the United States could choose not to eliminate its quotas on imports from China and Taiwan, neither of which is currently a GATT member. China is the largest supplier of U.S. textile imports and the second largest supplier of U.S. apparel imports. Taiwan is the sixth largest supplier of textile imports and the fourth largest supplier of apparel imports.

For several reasons, it is extremely difficult if not impossible to estimate precisely the extent to which U.S. prices and imports of textiles and apparel would change if the Multifiber Arrangement were eliminated. Most important, to make such an estimate would require

estimating how much the major exporters could supply at different prices in the absence of quotas. Quotas have so severely restricted imports from these countries for so long, however, that any past records of what they could supply without quotas are at best outdated and at worst nonexistent. Some countries have been subject to restraints for two or more decades. Many variables affecting cost--wages, technology, raw-materials prices, transportation costs--have undoubtedly changed substantially over that period of time. Therefore, any statistical estimates from historical data would be inaccurate.

Further, if the MFA is eliminated, not only the United States but the European Community and other industrialized countries will have to remove restraints on imports. Therefore, in order to predict accurately the increased supply of foreign textiles and apparel to the United States, one must estimate the increased demand of other industrialized countries and subtract that from the estimated increased production of exporting countries. The final estimate of the increased supply of exports to the United States is thus the difference between two large numbers that cannot be estimated accurately, and taking the difference between two imprecisely known numbers usually produces a result that is even less precise.

Because of these and other problems (not the least of which is the complexity of the array of agreements and quotas the United States has imposed under the MFA and the simplifying and approximating assumptions they make necessary), any estimates of the effects of the MFA or its removal must be viewed as very rough approximations at best. Provided this limitation is kept in mind, however, estimates arrived at carefully, using well-reasoned methodology, can be useful.

The results of one attempt to measure the restraining effect of the MFA on U.S. imports of textiles and apparel were published by the International Trade Commission (ITC) in 1989.[3] That study found the quotas on textile and apparel imports in 1987 to be significantly more important than the tariffs. For most countries and most categories of

3. *The Economic Effects of Significant U.S. Import Restraints, Phase I: Manufacturing* (USITC Publication 2222, October 1989), pp. 4-1 through 4-25, F-1 through F-8, and G-1 through G-9. The work described on these pages was done primarily by Professor Joseph Pelzman of George Washington University.

imports under the MFA, the quotas were binding, which means that the tariffs had no restraining effect on imports and served only to redistribute import sales revenues from foreign exporters to the U.S. government. The average tariff on textiles in 1987 was 14.1 percent, whereas the quotas were estimated to be equivalent to an average tariff of 21.8 percent. For apparel, the average tariff was 19.0 percent whereas the quotas were estimated to be equivalent to an average tariff of 28.3 percent.[4]

The ITC report also gave estimates of the effects on the U.S. economy in 1987 if both the MFA and all tariffs were eliminated. The estimated absolute costs and benefits are almost certainly larger than those that will result from the phaseout being discussed in the Uruguay Round. There are several reasons for this.

First, the study examined the effects of the MFA and U.S. tariffs on the United States in 1987, given the then-current status of protection in other countries. It did not account for proposals in the current Uruguay Round that other industrialized countries remove their trade restrictions at the same time as the United States. Second, the study assumed that restrictions on imports from all countries, including those that are not members of the GATT, such as Taiwan and China, would be removed. Finally, the discussions in the Uruguay Round center on phasing out the MFA, not both the MFA and all tariffs, as was assumed in the study. The United States has proposed some modest tariff reductions. In particular, it has proposed that all participants reduce tariffs on man-made fibers to a maximum of 7.5 percent, those on yarns to a maximum of 15 percent, and those on fabrics, madeups, and apparel to a maximum of 32 percent. These reductions are substantially less than a complete elimination of all tariffs on textiles and apparel, however.

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4. The reader may notice that these figures for average tariff rates differ slightly from those discussed earlier in relation to Figure 1 (though not sufficiently different to vitiate any of the conclusions or implications of this study). The differences could result from slightly different industry/product definitions (since the ITC used the MFA classification system and the numbers given earlier are based on Schedule A, SITC-Based Classification of Commodities Imported into the United States) or perhaps from a different method of averaging (the ITC report does not say what method of averaging its authors used).

The ITC study found that eliminating the quotas and tariffs would result in an annual net welfare gain to the United States of approximately $2.4 billion to $2.6 billion. The net welfare effect of a quota or tariff is the gain to domestic producers minus the loss to domestic consumers plus the gain (or minus the loss) to the government from any change in tariff revenues. In this case, as is true of most trade restrictions, the losses are larger than the gains. Therefore, eliminating the quotas and tariffs results in a net welfare gain.

This gain would result mostly from a reduction in the prices paid to foreigners for imported goods, with some additional gain resulting from more efficient allocation of resources and end products. In addition, eliminating the MFA and all tariffs would cause a transfer of wealth within the United States from domestic producers to domestic consumers by lowering prices for domestically produced textiles and apparel.

The study estimates that approximately 233,000 to 291,000 jobs would be lost in the textile and apparel industries, a figure that amounts to 13 percent to 16 percent of the employment in those industries at that time (1987). Thus, the MFA and tariffs effectively cost the U.S. economy about $9,000 to $10,000 annually for each job that they retain in the textile and apparel industries. Adding in the transfer of wealth to domestic textile and apparel producers and workers results in a much higher cost to the consumer for each job retained.

The estimate for jobs retained in the textile and apparel industries does not mean that eliminating the MFA and all tariffs would reduce total employment in the United States by that amount. All told, trade barriers have no significant effect on overall employment in the economy in the long run; they affect only the distribution of employment among industries. That is why the word "retained" is used rather than "saved." In addition to saving jobs in the textile and apparel industries, trade barriers save jobs in industries that supply natural and synthetic fibers to the textile industry. They also cost jobs in ports and shipping firms that would otherwise handle the imports and in the wholesaling and retailing industries because the resulting higher prices for apparel reduce the amount of clothing sold. Further, they cost jobs in completely unrelated industries because the reduction in textile and apparel imports causes the exchange rate to appreciate and thereby reduces exports and increases imports in other industries.

TABLE 7. EARLIER ESTIMATES OF THE COSTS AND BENEFITS TO THE UNITED STATES OF THE MULTIFIBER ARRANGEMENT AND TARIFFS

	Cline 1985[a,c]	Hufbauer, Berliner, and Elliot 1984[b,c]
Apparel		
Percent Increase in Import Price	53	39
Consumer Cost (Dollars)	17,556	18,000
Net Welfare Cost (Dollars)[d]	7,317	6,000
Jobs Retained in Apparel Industry (Thousands)	381.2	460
Consumer Cost per Job Retained (Dollars)	46,052	39,000
Net Welfare Cost per Job Retained (Dollars)	19,195	13,043
Textiles		
Percent Increase in Import Price	28	21
Consumer Cost (Dollars)	2,788	9,000
Net Welfare Cost (Dollars)[d]	811	650
Jobs Retained in Textile Industry (Thousands)	53	180
Consumer Cost per Job Retained (Dollars)	52,204	50,000
Net Welfare Cost per Job Retained (Dollars)	15,301	3,611

SOURCE: William R. Cline, *The Future of World Trade in Textiles and Apparel* (Washington, D.C.: Institute for International Economics, 1987), p. 198.

a. Study referenced in "SOURCE" above.

b. Gary Clyde Hufbauer, Diane Berliner, and Kimberly Ann Elliot, *Trade Protection in the United States: 31 Case Studies* (Washington, D.C.: Institute for International Economics, 1986), pp. 146-149.

c. Base year of study.

d. The net welfare cost is the consumer cost after netting out the domestic producer gain and any changes in tariff revenue collected by the federal government.

Roughly 94 percent of the net welfare cost of the quotas and tariffs as estimated in the study are in the apparel sector. This fact is not surprising given the greater competitiveness of the textile industry.

Older studies of the effects of the MFA and tariffs the United States imposed have also found high costs (see Table 7). As can be expected, considering the severe problems involved in producing such estimates, the various estimates differ somewhat, but they are all of the same order of magnitude.

THE NORTH AMERICAN FREE-TRADE AREA

Since no details have been determined yet, a precise analysis of the effects of a North American Free-Trade Area on the U.S. textile, apparel, and nonrubber-footwear industries is not possible. One can make a few general statements, however, about the likely effects of removing barriers to trade in these products. The U.S. apparel industry would probably be hurt somewhat, effects on the U.S. textile industry would be mixed and possibly beneficial, and consumers of apparel would probably benefit.

Eliminating barriers to textile imports from Mexico is not likely to affect the U.S. textile industry or consumers to any great degree. The competitiveness of the U.S. textile industry has prevented textile imports from any country from making significant inroads into the U.S. textile market, and Mexico supplies only a small portion of the textiles that the United States does import. Mexico is the sixteenth largest foreign supplier of textiles to the United States and supplies only 1.5 percent of all such imports.

Eliminating barriers to apparel imports from Mexico, however, could significantly affect the apparel industry, which would be hurt; the textile industry, which would be helped; and the U.S. apparel consumer, who would also be helped. The apparel industry is less competitive than the textile industry and has been less successful in fending off imports. Mexico is the fifth largest supplier of U.S. apparel imports and provides 4.6 percent of all such imports. Thus, it is in a position to

expand exports to the United States if quotas are removed and tariffs are reduced.

Most quotas on textile and apparel imports from Mexico have gone unfilled in recent years. They may still be depressing imports, however, and the tariffs certainly depress imports. Most of the quotas are of a sort referred to as "designated consultation levels." Such quotas do not automatically increase by a specified percentage each year. Rather, when imports of a product approach the product's designated consultation level, the United States and Mexico hold talks, after which the United States may or may not choose to raise the level and let in more imports.

The United States has decided to raise the level frequently in recent years, which is one reason that many of the quotas have gone unfilled. Nevertheless, anyone considering investing in the making of apparel in Mexico cannot know whether such quota increases will continue in the future, and therefore cannot know with any certainty whether it will be possible to export apparel to the United States. The result may be some depression of investment in Mexican production of apparel for export, even though many of the quotas have gone unfilled.

Expanding apparel imports from Mexico as a result of the NAFTA would hurt the U.S. apparel industry and help the U.S. consumer. Further, the resulting reduced output of the domestic apparel industry would reduce demand for U.S. textiles. At the same time, however, the expansion of the Mexican apparel industry would increase Mexican demand for U.S. textile exports. Mexico is already the second largest foreign market for U.S. textile producers, buying 11.5 percent of all U.S. textile exports.

Eliminating or reducing Mexican tariffs on imports from the United States would probably further help the U.S. textile industry. Mexico has removed most quotas and other nontariff barriers on imports of textiles and apparel in recent years, but its tariffs on these goods are higher on average than those the United States imposes. Eliminating or reducing these tariffs might help the U.S. apparel industry somewhat, but it would help the more competitive textile industry much more.

Since a U.S.-Canadian free-trade agreement already exists and is being carried out, the NAFTA should not significantly affect barriers to trade between the United States and Canada. The reduction of Canadian barriers to trade with Mexico, however, might affect U.S.-Canadian trade indirectly. Canada is the second-largest recipient of U.S. apparel exports, and reductions in Canadian barriers to imports from Mexico could cause some Mexican exports to displace U.S. exports to Canada. Should this occur, it would hurt the U.S. apparel industry and have a mixed effect on the textile industry, since the reduction in demand for U.S. textiles by the U.S. apparel industry would probably be at least partially offset by increased demand for U.S. textiles by the Mexican apparel industry.

Increased U.S. and Canadian imports of apparel from Mexico may replace such imports from Asian and Pacific Island countries to a greater extent than they would replace U.S. domestic production. If so, the U.S. apparel industry would be hurt less and the textile industry might even be helped by the NAFTA.

There are two reasons why these other imports rather than U.S. production might be displaced. First, economic pressures have pushed the U.S. industry toward the less labor-intensive products of the industry, and Mexico and the Asian and Pacific Island countries have been pushed toward the more labor-intensive products. Thus, the products of Mexico are more like those from the Asian and Pacific Island countries than they are like those produced in the United States.

Second, some U.S. firms have entered into coproduction agreements with firms in Mexico and other geographic neighbors. Under these agreements, U.S. firms perform the less labor-intensive processes on certain products, and firms in the neighboring countries perform the more labor-intensive processes. This arrangement improves the ability of U.S. production to compete with that in Asian and Pacific Island countries. The NAFTA could increase this kind of cooperation between U.S. and Mexican firms.

There are no quotas on nonrubber footwear from Mexico--only tariffs--and eliminating the tariffs is not likely to affect the United States to any great degree. Even when it was competitive and supply-

ing the entire U.S. market, the nonrubber-footwear industry in the United States was small in comparison with the textile and apparel industries, and foreign competition has since reduced it to a small fraction of its former share of the U.S. economy. The remainder is a very small element of the U.S. economy. Further, Mexico is only the ninth largest supplier of U.S. imports of nonrubber footwear, furnishing just 1.4 percent of such imports.

NEW GLOBAL QUOTAS ON IMPORTS

CBO has developed models of the textile, apparel, and nonrubber-footwear markets in order to predict the effects of imposing global quotas, such as those proposed in the vetoed bills of 1988 and 1990. Although estimating the effects of new quotas does not present problems as severe as those encountered when estimating the effects of the MFA, it does nevertheless present significant problems, and one must view the results as very rough approximations.[5]

Using the models, CBO has projected the effects of passage in early 1991 of a quota bill that, aside from a delay of one year, is identical to the Textile, Apparel, and Footwear Trade Bill of 1990 (see Tables 8 through 11). Thus, CBO assumed that global quotas would be placed on textile and apparel imports in 1991, which would be equal to 101 percent of imports in 1990, and thereafter the quotas would increase by 1 percent annually. Moreover, quotas equal to 100 percent of nonrubber-footwear imports in 1990 would be placed on those imports in 1991 and every year thereafter. There would be no allowance for growth. CBO did not consider the possibility that other countries would retaliate by prohibiting imports of textiles and apparel from the United States. The provision in the bill for auctioning some of the quotas was also not considered.

CBO estimated the effects of the textile and apparel quotas together. It is not possible to isolate the effects of each set of quotas. Because the two industries interact, the effects of the textile quotas depend on

5. Appendix B describes the model and assumptions used to produce the results given in this section.

whether or not the apparel quotas are in place and vice versa. For example, the imposition of quotas on textile imports raises the price of textiles in the United States and therefore imposes costs on textile consumers. These costs can be measured. The U.S. apparel industry accounts for two-thirds of textile consumption in the United States, how-

TABLE 8. COMBINED EFFECTS OF NEW GLOBAL IMPORT QUOTAS ON THE U.S. TEXTILE AND APPAREL MARKETS (Percentage deviations from baseline)

Year	Value of Imports	Value of Shipments by Domestic Producers at 1990 Textile/Apparel Prices	Price
		Apparel Market	
1991	-5.3	1.6	2.0
1992	-8.4	2.7	2.5
1993	-10.3	3.2	2.7
1994	-12.3	3.8	3.2
1995	-16.5	5.3	4.7
1996	-18.8	6.1	5.2
1997	-22.0	7.2	6.4
1998	-24.0	8.4	7.5
1999	-27.9	9.7	8.6
2000	-30.7	11.0	9.8
		Textile Market	
1991	1.9	0.5	0.5
1992	3.1	0.9	0.9
1993	3.8	1.1	1.1
1994	4.5	1.3	1.3
1995	0.6	2.0	2.0
1996	-1.6	2.4	2.4
1997	-6.6	3.0	3.0
1998	-11.2	3.7	3.7
1999	-15.5	4.4	4.4
2000	-19.6	5.2	5.2

SOURCE: CBO calculations using CBO model of the U.S. textile and apparel markets.

ever. Therefore, the increased price of textiles would force U.S. apparel manufacturers to raise prices of their own products, resulting in increased imports of apparel from competing foreign suppliers.

The increased imports would moderate the increase in the average apparel price. If apparel quotas are in place, however, imports cannot increase and therefore cannot moderate the rise in the average price of

TABLE 9. COMBINED ANNUAL COSTS AND BENEFITS OF NEW GLOBAL QUOTAS ON TEXTILE AND APPAREL IMPORTS

Year	Total Costs and Gains (Billions of dollars)				Thousands of Textile Jobs Retained	Thousands of Apparel Jobs Retained	Costs per Job Retained (Thousands of dollars)	
	Consumer Cost	Tariff Revenue Loss	Producer Gain	Net Welfare Cost			Consumer Cost	Net Welfare Cost
1991	1.7	0.14	1.0	0.8	3.2	15	94	44
1992	2.3	0.26	1.4	1.1	5.6	26	72	36
1993	2.5	0.35	1.6	1.3	7.4	34	62	32
1994	3.1	0.44	1.9	1.6	9.9	42	59	31
1995	4.6	0.62	2.9	2.4	12.7	52	71	37
1996	5.2	0.75	3.2	2.7	16.6	63	65	34
1997	6.5	0.92	4.0	3.4	20.3	74	69	36
1998	7.7	1.10	4.8	4.0	24.6	85	71	37
1999	9.0	1.29	5.6	4.7	28.9	96	72	37
2000	10.4	1.48	6.5	5.4	33.2	108	74	38

SOURCE: CBO calculations using the CBO model of the U.S. textile and apparel markets.

NOTES: Dollar values are in terms of 1990 prices as indexed by the GNP deflator. Including the effects of inflation would increase the values.

The net welfare cost is equal to the consumer cost plus the tariff revenue loss minus the producer gain.

apparel in the United States. The resulting higher price imposes additional costs on consumers. Since these costs are a result of the textile and apparel quotas together, they cannot be attributed to either set of quotas alone or even allocated between the two.

During their first five years, the quotas cause a greater reduction in apparel imports than in textile imports, and in fact textile imports show an increase (see Table 8). The reason is that the increased domestic production of apparel caused by the quotas increases the demand for textiles, both domestically produced and imported. The model predicts that in the absence of any quotas, textile imports would decline or grow more slowly over the first five years than the 1 percent annually the quotas allowed. Hence, the increased demand for textiles that results

TABLE 10. EFFECTS OF NEW GLOBAL IMPORT QUOTAS ON THE U.S. NONRUBBER-FOOTWEAR MARKET
(Percentage deviations from baseline)

Year	Value of Imports	Value of Shipments by Domestic Producers at 1990 Nonrubber-Footwear Prices	Price
1991	-3.9	4.4	3.3
1992	-7.7	10.6	6.2
1993	-11.7	18.2	9.1
1994	-17.1	29.3	13.8
1995	-20.3	38.5	15.6
1996	-23.5	47.3	17.8
1997	-26.5	56.0	20.1
1998	-29.3	64.8	22.4
1999	-32.1	73.9	24.6
2000	-34.7	83.3	27.0

SOURCE: CBO calculations using the CBO model of the U.S. nonrubber-footwear market.

from the quotas on apparel can and does increase textile imports. The increased demand, however, also causes an increase in shipments of textiles by domestic producers. Therefore, domestic textile producers are helped by the quotas even while textile imports increase.

The quotas cause increases in the prices of textiles and apparel. These increases benefit U.S. producers and are costly to U.S. consumers. The cost to U.S. consumers is greater than the benefit to pro-

TABLE 11. ANNUAL COSTS AND BENEFITS OF NEW GLOBAL QUOTAS ON NONRUBBER-FOOTWEAR IMPORTS

Year	Total Costs and Gains (Millions of dollars)				Thousands of Nonrubber-Footwear Jobs Retained	Costs per Job Retained (Thousands of dollars)	
	Consumer Cost	Tariff Revenue Loss	Producer Gain	Net Welfare Cost		Consumer Cost	Net Welfare Cost
1991	470	5	120	350	3.2	146	109
1992	880	16	230	670	7.1	124	94
1993	1,320	30	360	1,000	12.0	110	83
1994	2,000	49	540	1,500	17.7	113	86
1995	2,320	70	630	1,770	22.9	102	77
1996	2,710	92	740	2,060	27.6	98	75
1997	3,120	114	860	2,370	32.0	97	74
1998	3,540	137	990	2,690	36.3	98	74
1999	3,990	161	1,120	3,030	40.5	98	75
2000	4,450	186	1,260	3,390	44.7	100	76

SOURCE: CBO calculations using the CBO model of the U.S. nonrubber-footwear market.

NOTES: Dollar values are in terms of 1990 prices as indexed by the GNP deflator. Including the effects of inflation would increase the values.

The net welfare cost is equal to the consumer cost plus the tariff revenue loss minus the producer gain.

ducers because producers receive the higher prices on only the textiles and apparel they produce and sell in the U.S. market, whereas consumers pay the higher price on both domestically produced and imported textiles and apparel. Unlike the higher prices paid on domestically produced goods, which hurt the U.S. consumer and benefit the U.S. producer equally and therefore represent no net loss or gain for the United States, the higher prices paid on imported goods are a net loss to the United States.

The reduced volume of imports causes tariff revenues to decline, which adds to the loss. This loss cannot be estimated precisely even if the exact value of the reduction in imports of textiles and apparel is known. The reason is that the quotas cannot affect the overall aggregate trade balance, which is determined by the macroeconomic factors of aggregate saving (including the dissaving represented by the federal budget deficit) and aggregate investment. Thus, the reduction in textile and apparel imports that results from the quotas must be accompanied by either an increase in imports of other products or a decrease in exports (of any products). To estimate the effect of the quotas on tariff revenues, one must determine the increase in tariff revenues resulting from any increase in imports of other products. Therefore, one must know by how much these imports increase, if at all, and what products they comprise (since different products have different tariff rates). In fact, neither the size of the increase in imports nor the composition of the imports is known.

A final loss, referred to by economists as "deadweight loss," is caused by inefficient allocation of resources resulting from the distortion by quotas of prices from their free-market values. Specifically, U.S. textile and apparel firms cannot profitably produce more than they do at free-market prices because they are relatively inefficient in the sense that they produce relatively little value for the amount of resources they employ. The quotas raise the price of the textiles and apparel, making the industries profitable despite their inefficiency, and thereby attract more labor and capital to the textile and apparel industries and away from more efficient industries.

Using the model of the textile and apparel markets, CBO estimated the consumer cost, tariff-revenue loss, producer gain, and net

welfare cost (which is the consumer cost and tariff-revenue loss after netting out the producer gains) of the textile and apparel quotas. These estimates and estimates of the number of jobs retained in each industry are set forth in Table 9.

The consumer and net welfare costs per job retained are higher in the first year then in subsequent years because the domestic apparel industry is slow to respond with increased output and employment. After the domestic industry has had time to respond, the consumer cost per job retained in the industries settles into a range of $59,000 to $74,000 per year. This range is reasonably close to the estimates given earlier for the MFA and tariffs, especially when inflation is factored in. It is also close to the costs in the apparel market that Cline estimated for a virtually identical bill in 1987.[6] The annual net welfare cost per job retained settles into a range of $31,000 to $38,000. This is somewhat higher than the estimates given earlier for the MFA and tariffs, but probably close enough to be within the range of expected error for these kinds of estimates.

Like the MFA quotas, the new global quotas on apparel imports would be much more significant than those on textile imports, and this is true even for the textile industry. The textile industry is more competitive than the apparel industry and better able to fend off imports on its own. Thus, the textile quotas would not restrain textile imports as much as the apparel quotas would restrain apparel imports.

The most significant characteristic of the numbers for the nonrubber-footwear industry (see Tables 10 and 11) is that both the consumer cost per job retained and the net welfare cost per job retained are substantially higher for this industry than for the textile and apparel industries. The most important reason for the higher costs is that the share of imports in the market for nonrubber footwear is much higher than it is in the other two markets. Thus, for a given price increase resulting from a quota, much more of the cost goes to foreign exporters

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6. Cline, *The Future of World Trade in Textiles and Apparel*, p. 228. Cline's estimates of the consumer cost per job saved are in the range of $48,000 to $62,000. They are slightly lower than the estimates presented here, which in turn are lower than the costs (not shown) for the apparel sector alone. Cline included indirect employment effects (jobs saved in industries that supply intermediate goods to the industry), as well as direct effects. Excluding these effects would raise his estimates.

and much less to domestic producers. The result is that fewer jobs are retained, which drives up both cost ratios. There is also more net welfare loss, which further drives up the ratio of net welfare cost to jobs retained.

CONCLUSIONS

Quotas are a costly means of helping the workers in these industries. The Congressional Budget Office estimates that new global quotas on textile and apparel imports from all foreign sources would cost the U.S. economy $31,000 to $38,000 for each job that the quotas retain in the two industries, and that such quotas on nonrubber-footwear imports would cost $74,000 to $86,000 for each job retained. Studies by others in the past few years have also found that the tariffs and quotas that currently protect the textile and apparel industries are costly.

These are net costs; they are the amount by which the costs to consumers and the federal government exceed the financial gains to the workers and firms in the industries. They result from higher prices paid to foreign exporters, reduced tariff revenues collected by the federal government, and inefficiencies (referred to by economists as deadweight losses) that are caused by distortion of prices from their free-market values. In many cases, the net costs are higher than the average yearly earnings of the workers involved ($16,400 for textile workers, $12,436 for apparel workers, and $12,511 for nonrubber-footwear workers in 1990). Costs to the consumer are higher than the net welfare costs.

The proposed North American Free-Trade Area would probably have lesser effects on the textile and apparel industries than would either eliminating the Multifiber Arrangement or carrying out new global import quotas. Because the textile industry is more competitive than the apparel industry, all three policy proposals would affect the apparel industry and consumers more than the textile industry and consumers. Of the three proposals, only the new global quotas would be likely to have substantial effects on the nonrubber-footwear industry.

APPENDIXES

APPENDIX A

COUNTRIES WITH AGREEMENTS OR QUOTAS LIMITING TEXTILE AND APPAREL EXPORTS TO THE UNITED STATES

Table A-1 lists the countries whose exports of textiles and apparel to the United States were subject to restraint agreements or other quotas as of September 11, 1991. The table also indicates the expiration dates of those agreements and the percentage of U.S. imports of textiles and apparel that each country supplied in 1990.

TABLE A-1. COUNTRIES WITH AGREEMENTS OR QUOTAS LIMITING TEXTILE AND APPAREL EXPORTS TO THE UNITED STATES

Country[a]	Percentage of U.S. Textile and Apparel Imports in 1990	Expiration Date of Agreement or Quota
Argentina	.26	03/31/92
Bangladesh	1.57	01/31/93
Brazil	.89	03/31/92
China	12.92	12/31/93
Costa Rica	1.21	05/31/92
Czechoslovakia	.03	05/31/92
Dominican Republic	2.27	05/31/92
Egypt	.29	12/31/91
El Salvador	.22	12/31/92
Fiji	.04	12/31/92
Guatemala	.64	12/31/92
Haiti	.57	12/31/93
Hong Kong	13.28	12/31/95
Hungary	.18	12/31/91
India	3.10	12/31/91
Indonesia	2.23	06/30/92
Jamaica	.74	12/31/92
Japan	2.43	12/31/91
Macau	1.32	12/31/93
Malaysia	1.65	12/31/91
Mauritius	.40	09/30/92
Mexico	3.96	12/31/92
Nepal	.17	12/31/93
Nigeria	.02	12/31/92
Pakistan	1.43	12/31/91
Panama[b]	.19	n.a.
Peru	.25	12/31/91
Philippines	3.43	12/31/91
Poland	.21	12/31/92
Romania	.08	12/31/93
Singapore	2.00	12/31/95
South Korea	11.64	12/31/93
Soviet Union	.03	12/31/92
Sri Lanka	1.41	06/30/92
Taiwan	9.32	12/31/95
Thailand	1.80	12/31/93
Trinidad and Tobago	.005	12/31/91
Turkey	1.23	12/31/93
United Arab Emirates	.30	12/31/93
Uruguay	.25	06/30/92
Yugoslavia	.27	12/31/92
Total	84.16	

SOURCES: Office of the U.S. Trade Representative (list of countries and expiration dates) and CBO calculations based on data from the Bureau of the Census (import shares).

NOTES Guam, a U.S. possession, is an exception to the quotas. This exception allows limited amounts of sweaters originating in other countries but assembled in Guam to be imported into the United States without being counted against the originating country's quota under certain conditions. The expiration date for this exception is October 31, 1992.

n.a. = not applicable.

a. Countries with active agreements or quotas as of September 11, 1991.

b. Unlike the other countries on this list, Panama does not have a restraint agreement with the United States. Rather, it is subject to call, which means essentially that the United States has unilaterally imposed a quota until an agreement can be reached.

APPENDIX B

THE CONGRESSIONAL BUDGET OFFICE MODELS OF THE TEXTILE, APPAREL, AND SHOE MARKETS

The models of the textile, apparel, and shoe markets used for the simulations in this study are partial equilibrium models that CBO designed and estimated specifically for this purpose. The models were designed to fit SIC numbers 22, 23, and 314.

Because the domestic apparel industry buys most of its raw material from the domestic textile industry, and because most domestically produced textiles are bought by the domestic apparel industry, whatever affects one industry strongly is likely to affect the other strongly. Hence, CBO incorporated both industries into one model to capture the interactions. The nonrubber-footwear market was modeled separately.

In both models, imports and goods produced domestically for the domestic market are assumed to be perfect substitutes. Goods produced for export are imperfect substitutes for goods sold in the domestic market. Perfect substitutability implies that all goods produced for the domestic market, whether imported or produced domestically, have the same price. Imperfect substitutability between goods produced for export and those produced for the domestic market implies that the price of goods in the domestic market affects exports but is not necessarily the same as the price of exports.

Lack of sufficient price data to estimate the cross-price elasticities of demand made it necessary to assume perfect competition. While this assumption could be slightly in error in the very short run, it should be reasonably accurate in the longer run. The textile, apparel, and nonrubber-footwear industries are not as closely associated with concerns about national security and industrial strength as are the automobile and electronics industries. Further, unlike automobiles and electronic products, for which brand names are obvious and often closely associated with the nationality of the producer, the country of origin for textiles, apparel, and shoes is not apparent to anyone who does not seek it out (for example, by looking at the tag on the inside of a shirt collar). Consumers probably pay much less attention to the national origins of their clothes, fabric, or shoes than they do to those of their

automobiles and electronic products. Consequently, there should be little long-term difference in price between imports and domestically made products of the three industries. At any given time, foreign countries might export apparel to the United States that is lower in quality than the average quality of domestically made products. Should U.S. producers take advantage of this temporary lack of competition and raise prices, however, foreign countries could and probably would begin producing the higher-quality apparel at lower prices. U.S. producers would be forced to match or nearly match the import price if they wanted to stay in business.

The models use annual data. Prices are producer prices, which are approximately the same as wholesale prices. Import values are CIF values increased by the average tariff rate for the product in question.[1] The models are composed of identities and log-linear stochastic equations. The coefficients were estimated using one- and two-stage least squares over a sample period extending from 1962 to 1990. Manual adjustments were made to some coefficient estimates that seemed unreasonable, were out of line with values commonly used in the economics literature, or for which there was reason to think that the estimation procedures would produce statistically biased or inconsistent results. The equations are described below. Where they lack symmetry (for example, the equation for shipments of apparel by domestic producers includes shipments during the previous year as an explanatory variable whereas the equation for shipments of textiles does not), the reason is that statistical tests indicated in the one case that the variable was significant and in the other that it was not.

MODEL OF THE SHOE MARKET

The model of the shoe market consists of one identity and four stochastic equations, which are solved for five endogenous variables:

- Domestic demand for shoes,
- Shipments of domestically produced shoes,

1. CIF stands for "charges, insurance, and freight." The CIF value of an import is the customs value plus all freight, insurance, and other charges, except U.S. import duties, incurred shipping the product to the United States from the exporting country.

- Imports of shoes,
- Exports of shoes, and
- The domestic price of shoes.

Quantities of shoes are measured in 1990 dollar values. The price is an index defined to equal one in the year 1990. The effects of economywide inflation were removed by dividing the price and dollar values by the GNP deflator. The five equations are described below. The numbers in parentheses below the estimates of the parameters are the standard errors of the estimates.

Definitional Identity. By definition, the domestic demand for shoes (D_S) is equal to shipments of domestically produced shoes (S_S) plus imports (M_S) minus exports (X_S). The identity is:

$$D_S \equiv S_S + M_S - X_S$$

Domestic Demand Equation. The domestic demand for shoes (D_S) is a function of the price of shoes (P_S), GNP (Y), and a truncated time trend (*TRUNCTREND*) that extends from the beginning of the estimation range through 1979. GNP serves as a proxy for the income of consumers. The truncated time trend was necessary because a pronounced trend in domestic purchases from 1962 to 1979 could not be accounted for by the price of shoes or GNP. Evidently some other exogenous variable has had a significant influence on the demand for shoes, but that variable is unknown. To avoid erroneous estimates of the coefficients for the other two exogenous variables, the truncated trend was used as a proxy for the omitted exogenous variable. The estimated equation, estimated first-order autoregressive coefficient for the error term, and summary statistics are:

$$\ln(D_S) = \underset{(0.025)}{0.945} - \underset{(0.225)}{0.587} \times \ln(P_S) + 1.0 \times \ln(Y) - \underset{(0.0044)}{0.0254} \times \ln(TRUNCTREND)$$

$$AR1 = \underset{(0.153)}{0.659}$$

$$\bar{R}^2 = 0.927 \quad s = 0.0346 \quad DW = 1.90$$

The unrestricted regression produced an estimate of 1.24 for the coefficient of Y, which seemed unreasonably high and resulted in simulations into the future that appeared unrealistic. Therefore, for the estimates given here and used to produce the results in this study, this coefficient was constrained to equal one, which is a reduction of roughly 1.5 standard errors from the unrestricted estimate. Because the coefficient was constrained, no standard error is given. The constraint had little effect on the price coefficient, which was increased in magnitude from 0.515 to 0.587.

Domestic Supply Equation. Shipments of domestically produced shoes (S_S) are a function of the price of shoes (P_S), the price of leather (P_L), the BLS multifactor productivity index for the shoe industry (MFP_S), and the value of shipments in the previous year.[2] The estimated equation and summary statistics are:

$$\ln(S_S) = \underset{(1.86)}{3.35} + \underset{(0.49)}{1.30} \times \ln(P_S) - \underset{(0.145)}{0.316} \times \ln(P_L) + \underset{(0.203)}{0.116} \times \ln(MFP_S) + \underset{(0.187)}{0.534} \times \ln(S_S)_{-1}$$

$$\bar{R}^2 = 0.962 \quad s = 0.0488 \quad DW = 1.74$$

2. The multifactor productivity index measures productivity changes that result from technological change. It is essentially a measure of the residual change in output from year to year that cannot be accounted for by changes in the quantities of factors of production (labor, capital, land, intermediate inputs) employed by the industry to produce that output.

Because the regressors include the value of shipments in the previous year, the Durbin-Watson statistic is biased toward two and is therefore not a good indicator of serial correlation in the error term.

Import Supply Equation. Shoe imports supplied to the domestic market (M_S) are a function of the price of shoes (P_S) divided by one plus the tariff rate for shoe imports (τ_S), a real effective exchange-rate index ($REER_{SM}$) calculated as a weighted average of exchange rates between the dollar and other currencies using the values of U.S. shoe imports from the respective countries as weights, and a time trend (*TREND*).

A dummy variable for the restraints on imports from Taiwan and Korea from 1977 to 1981 was included among the explanatory variables in an earlier version of the equation but found to be insignificant. The time trend is a proxy for the increase in U.S. imports that results from the expansion of the shoe industry in less-developed countries that has occurred over time as technology and capital have spread to those countries. Unfortunately, this expansion is not constant--the trend is only an average--and there is no reason to expect the trend to be the same in the future as it has been in the past. In fact, it cannot be the same. Extending the trend into the future in simulations run on the model quickly results in the growth of several variables to absurd values. For the simulations described in this report, the future trend was set at 35 percent of the trend from 1962 to 1990. This value, of the various values tried, produced the most reasonable continuation of current trends in the solutions for imports and other variables in the model. The estimated equation, estimated first-order autoregressive coefficient for the error term, and summary statistics are:

$$\ln(M_S) = \underset{(0.18)}{5.36} + \underset{}{0.7} \times \ln\left(\frac{P_S}{1+\tau_S}\right) + \underset{(0.390)}{0.686} \times \ln(REER_{SM}) + \underset{(0.006)}{0.115} \times TREND$$

$$AR1 = \underset{(0.173)}{0.522}$$

$$R^2 = 0.987 \quad s = 0.104 \quad DW = 1.79$$

Even using the two-stage least squares estimation procedure, the time trend was not a good enough proxy to allow direct estimation of the coefficient for the price of apparel divided by one plus the tariff rate. The trend simulates the average rate of growth of the industry in other countries, not the actual growth. Whenever the actual growth was higher than average, it caused a surge of imports, which moved the equilibrium down the domestic demand curve, resulting in a lower price. Thus, lower prices are correlated with higher imports, which causes the estimated coefficient to be negative.

One may argue from economic theory that the price coefficient should be roughly equal to the coefficient for the real effective exchange rate. Therefore, the regression for this equation was run several times with different externally imposed price coefficients until a regression was found in which the exchange rate coefficient was equal to the imposed price coefficient. Since the price coefficient was indirectly estimated in this manner rather than directly estimated by regression, no standard error is given for the estimate.

Export Equation. The fraction of shipments of domestically produced shoes that is exported (X_S/S_S) is a function of a real effective exchange-rate index calculated using U.S. shoe exports as weights ($REER_{SX}$), the price of shoes in the domestic market (P_S), the price of leather (P_L), the BLS multifactor productivity index for the shoe industry (MFP_S), and the fraction of shipments that was exported in the previous year. The idea behind the inclusion of the domestic shoe price in this equation is that an increase in that price relative to the price of shoe exports will cause domestic producers to switch production from exports to the domestic market. Lack of data prevented the inclusion of the price of exports in the equation, necessitating the inclusion of the price of leather and the multifactor productivity index to act as a proxy for that price. Thus, if a worldwide increase in productivity or decrease in the price of leather were to cause a worldwide decrease in the price of shoes (and, hence, in the price of shoe exports), the U.S. domestic price would also decline. Without proxies for the export price decline, the model would predict an increase in exports as a result of the U.S. domestic price decline. Including the proxies prevents this problem. The estimated equation and summary statistics are:

$$\ln\left(\frac{X_S}{S_S}\right) = \underset{(1.34)}{5.43} - \underset{(0.236)}{0.692} \times \ln\left(REER_{SX}\right) - \underset{(0.33)}{1.27} \times \ln\left(P_S \times MFP_S\right) + \underset{(0.288)}{0.966} \times \ln\left(P_L\right) + \underset{(0.061)}{0.776} \times \ln\left(\frac{X_S}{S_S}\right)_{-1}$$

$$R^2 = 0.989 \quad s = 0.118 \quad DW = 2.10$$

Correlation between measurement errors in the multifactor productivity index and shipments of domestically produced shoes may result in the coefficient estimate for the ratio of price to multifactor productivity being slightly too large; however, the relatively small values of exports should keep this factor from having a significant effect on the solution variables of interest. Because the regressors include the fraction of shipments that was exported in the previous year, the Durbin-Watson statistic is biased toward 2 and is therefore not a good indicator of serial correlation in the error term.

MODEL OF THE TEXTILE AND APPAREL MARKETS

The model of the textile and apparel markets consists of two identities (one for each industry) and eight stochastic equations (four for each industry), which are solved for 10 endogenous variables:

- Domestic demand for apparel,
- Shipments of domestically produced apparel,
- Imports of apparel,
- Exports of apparel,
- The domestic price of apparel,

- Domestic demand for textiles,
- Shipments of domestically produced textiles,
- Imports of textiles,
- Exports of textiles, and
- The domestic price of textiles.

Quantities of textiles and apparel are measured in 1990 dollar values. The prices are indexes defined to equal one in the year 1990. Removal of the effects of economywide inflation was accomplished by dividing the price and dollar values by the GNP deflator. The 10 equations are described below. The numbers in parentheses below each parameter estimate are the standard errors of the estimates.

Apparel Market

The equations for the apparel market are as follows:

Definitional Identity. By definition, the domestic demand for apparel (D_A) is equal to shipments of domestically produced apparel (S_A) plus imports (M_A) minus exports (X_A). The identity is:

$$D_A \equiv S_A + M_A - X_A$$

Domestic Demand Equation. The domestic demand for apparel (D_A) is a function of the price of apparel (P_A), current GNP normalized by dividing it by a centered seven-year moving harmonic average of GNP (Y_N), and the centered seven-year moving harmonic average of GNP itself ($\bar{Y}$). As in the model of the shoe industry, GNP serves as a proxy for the income of consumers. Demand for apparel is cyclical, however, which means that purchases of apparel vary more strongly with cyclical fluctuations in GNP than with long-run equilibrium levels of GNP. The formulation of the equation allows for this difference. The estimated equation, estimated first-order autoregressive coefficient for the error term, and summary statistics are:

$$\ln(D_A) = \underset{(3.10)}{3.48} - \underset{(0.453)}{0.347} \times \ln(P_A) + \underset{(0.34)}{1.31} \times \ln(Y_N) + \underset{(0.362)}{0.919} \times \ln(\bar{Y})$$

$$AR1 = \underset{(0.172)}{0.572}$$

$$\bar{R}^2 = 0.984 \quad s = 0.0341 \quad DW = 1.61$$

Domestic Supply Equation. Shipments of domestically produced apparel (S_A) are a function of the price of apparel (P_A), the price of textiles (P_T), the BLS multifactor productivity index for the apparel industry (MFP_A), and the value of shipments in the previous year. The estimated equation and summary statistics are:

$$\ln(S_A) = \underset{(1.02)}{-2.60} + \underset{(0.098)}{1.0} \times \ln(P_A) - \underset{(0.20)}{0.619} \times \ln(P_T) + \underset{(0.129)}{1.70} \times \ln(MFP_A) + 0.468 \times \ln(S_A)_{-1}$$

$$\bar{R}^2 = 0.991 \quad s = 0.0328 \quad DW = 1.69$$

The unrestricted regression produced an estimate of 0.609 for the apparel price coefficient, which seemed too low and produced simulations that indicated that the cost of the quotas per job retained was extremely high. A similar but more severe problem was encountered with the price coefficient for the domestic textile supply equation. These coefficients may be biased downward because inaccurate regressor data or missing regressor variables result in unaccounted-for fluctuations in supply, forcing the equilibrium down the demand curve as in the case of the shoe import equation described above. Because it was clear that the estimated cost would be fairly high in any case, it was decided to constrain the coefficient to equal one (an increase of roughly 1.2 standard errors), which seemed more reasonable and produced a lower, more conservative estimate of the cost of the quotas.[3]

3. Cline assumed a value of one for the price elasticity, though he did not have the lagged value of the dependent variable in his equation. With the lagged value included, the coefficient of one becomes the short-run elasticity and the long-run elasticity is higher. Without the lagged value, the short-run and long-run elasticities are both equal to the coefficient of one.

Because the regressors include the value of shipments in the previous year, the Durbin-Watson statistic is biased toward two and is therefore not a good indicator of serial correlation in the error term.

Import Supply Equation. Apparel imports supplied to the domestic market (M_A) are a function of the price of apparel (P_A) divided by one plus the tariff rate for apparel imports (τ_A), a real effective exchange-rate index for the previous year calculated using the values of U.S. apparel imports as weights ($REER_{AM}$), four dummy variables to capture the effects of the introduction and subsequent modifications to the Multifiber Arrangement ($DUMMY_{MFA1}$ through $DUMMY_{MFA4}$), and a time trend ($TREND$). The time trend is a proxy for the expansion of the apparel industry in less-developed countries that has occurred over time as the technology and capital have spread to those countries. As was the case for shoe imports, there is no reason to expect apparel imports to exhibit the same growth trend in the future that they have exhibited in the past. For the simulations described in this study, the future trend was set at 40 percent of the trend from 1962 to 1990. This value, of the various values tried, produced the most reasonable continuation of current trends in the solutions for imports and other variables in the model. The estimated equation and summary statistics are:

$$\ln(M_A) = \underset{(0.20)}{5.51} + \underset{}{0.9} \times \ln\left(\frac{P_A}{1+\tau_A}\right) + \underset{(0.684)}{0.898} \times \ln(REER_{AM})_{-1} + \underset{(0.116)}{0.116} \times DUMMY_{MFA1}$$

$$- \underset{(0.081)}{0.206} \times DUMMY_{MFA2} - \underset{(0.157)}{0.209} \times DUMMY_{MFA3} - \underset{(0.112)}{0.110} \times DUMMY_{MFA4}$$

$$+ \underset{(0.009)}{0.156} \times TREND$$

$$\bar{R}^2 = 0.994 \qquad s = 0.0893 \qquad DW = 1.60$$

The same problem was encountered in estimating the price coefficient of this equation as was encountered in the import equation for the shoe model, and the problem was solved in the same manner that was described in the explanation for that equation. Therefore, no standard error is given for the price coefficient.

Export Equation. The fraction of shipments of domestically produced apparel that is exported (X_A/S_A) is a function of a real effective exchange-rate index calculated using U.S. apparel exports as weights ($REER_{AX}$), the International Monetary Fund production index for industrialized countries (Y_W), the price of apparel (P_A), the price of textiles (P_T), the BLS multifactor productivity index for the apparel industry (MFP_A), and the fraction of shipments that was exported in the previous year. The production index is a proxy for income in countries that import apparel from the United States. The rationale for the other variables is the same as that for the corresponding variables in the shoe export equation given above. The estimated equation and summary statistics are:

$$\ln\left(\frac{X_A}{S_A}\right) = \underset{(5.8)}{21.2} - \underset{(0.33)}{1.52} \times \ln(REER_{AX}) - \underset{(1.19)}{4.42} \times \ln(P_A \times MFP_A) + \underset{(0.70)}{1.88} \times \ln(P_T)$$

$$+ \underset{(0.299)}{0.591} \times \ln(Y_W) + \underset{(0.065)}{0.630} \times \ln\left(\frac{X_A}{S_A}\right)_{-1}$$

$$R^2 = 0.977 \quad s = 0.0973 \quad DW = 2.13$$

As in the case of the shoe export equation, correlation between measurement errors in the multifactor productivity index and shipments of apparel may result in the magnitude of the coefficient estimate for the ratio of price to multifactor productivity being slightly too large, but the relatively small values of exports should keep this factor from having a significant effect on the solution variables of interest. Also, because the regressors include the fraction of shipments that was exported in the previous year, the Durbin-Watson statistic is biased toward two and is therefore not a good indicator of serial correlation in the error term.

Textile Market

The equations for the textile market are as follows:

Definitional Identity. By definition, the domestic demand for textiles (D_T) is equal to shipments of domestically produced textiles (S_T) plus imports (M_T) minus exports (X_T). The identity is:

$$D_T \equiv S_T + M_T - X_T$$

Domestic Demand Equation. The domestic demand for textiles (D_T) is a function of the price of textiles (P_T), shipments of domestically produced apparel (S_A) multiplied by the ratio of materials to output in the apparel industry (*MATRATIO*), the ratio of current GNP to average GNP described above (Y_N), and a time trend (*TREND*). Shipments of domestically produced apparel multiplied by the materials ratio serves as a measure of the demand for textiles by the apparel industry. Including this variable (along with inclusion of the price of textiles in the equations for apparel production and exports) is necessary in order to make the model fully reflect the effects on each industry of trade restrictions on goods produced by the other industry. People or companies outside the apparel industry purchase one-third of textile-industry output, so one might expect income (for which GNP is a proxy) to be a significant determinant of demand. Statistical tests showed that the cyclical GNP variable is a significant determinant but that long-run average GNP is not significant when the demand by the apparel industry is included in the set of explanatory variables. The time trend serves as a proxy for some omitted variable, possibly a shift by consumers from clothes made at home, which require the purchase of textiles in addition to those purchased by the apparel industry, to clothes purchased at department stores, which do not. The estimated equation, estimated first-order autoregressive coefficient for the error term, and summary statistics are:

$$\ln(D_T) = \underset{(2.87)}{4.70} - \underset{(0.229)}{0.708} \times \ln(P_T) + \underset{(0.286)}{0.645} \times \ln(S_A \times MATRATIO) + \underset{(0.55)}{1.06} \times \ln(Y_N) - \underset{(0.00536)}{0.00780} \times TREND$$

$$AR1 = \underset{(0.124)}{0.631}$$

$$\bar{R}^2 = 0.952 \quad s = 0.0358 \quad DW = 2.28$$

Domestic Supply Equation. Shipments of textiles by domestic producers (S_T) are a function of the price of textiles (P_T), the price of textile fibers (P_F) that are the raw materials from which textiles are made, the ratio of current GNP to average GNP described above (Y_N), and the BLS multifactor productivity index for the textile industry (MFP_T). The statistical significance of the cyclical GNP variable could result from rigidity in the price of textiles (perhaps because of fixed-price contracts with apparel producers). Such rigidity would keep the price from fully reflecting cyclical fluctuations in the demand for textiles. Textile producers would undoubtedly notice these fluctuations even beyond their reflection in the price level and would attempt to vary their shipments accordingly. Thus, both the price and a cyclical demand indicator would be needed in the shipments equation if there were price rigidity. The estimated equation, estimated first-order autoregressive coefficient for the error term, and summary statistics are:

$$\ln(S_T) = \underset{(1.35)}{7.10} + \underset{}{1.0} \times \ln(P_T) - \underset{(0.144)}{0.816} \times \ln(P_F) + \underset{(0.259)}{0.750} \times \ln(MFP_T) + \underset{(0.499)}{0.947} \times \ln(Y_N)$$

$$AR1 = \underset{(0.119)}{0.629}$$

$$\bar{R}^2 = 0.977 \quad s = 0.0491 \quad DW = 2.08$$

The unrestricted regression produced a negative estimate for the price coefficient, which makes no sense theoretically and is clearly wrong. This is

probably a more severe manifestation of the problem of downward bias encountered and discussed above with regard to the price coefficient for the domestic apparel supply equation. It was decided to constrain the coefficient to equal one, which is the value used by Cline in his model.[4]

Because the regressors include the value of shipments in the previous year, the Durbin-Watson statistic is biased toward two and is therefore not a good indicator of serial correlation in the error term.

Import Supply Equation. Textile imports supplied to the domestic market (M_T) are a function of the price of textiles (P_T) divided by one plus the tariff rate for textile imports (τ_T), a real effective exchange-rate index for the previous year calculated using the values of U.S. textile imports as weights ($REER_{TM}$), four dummy variables to capture the effects of the introduction and subsequent modifications to the Multifiber Arrangement ($DUMMY_{MFA1}$ through $DUMMY_{MFA4}$), and a time trend (*TREND*). The time trend is a proxy for the expansion of the apparel industry in less-developed countries that has occurred over time as the technology and capital have spread to those countries. As with apparel and shoes, this trend will almost certainly be lower in the future than it has been in the past. For the simulations described in this report, the future trend was set at 85 percent of the trend from 1962 to 1990. This value, of the various values tried, produced the most reasonable continuation of current trends in the solutions for imports and other variables in the model. The estimated equation and summary statistics are:

4. William R. Cline, *The Future of World Trade in Textiles and Apparel* (Washington, D.C.: Institute for International Economics, 1987).

$$\ln(M_T) = \underset{(0.42)}{4.31} + \underset{}{3.5 \times \ln\left(\frac{P_T}{1+\tau_T}\right)} + \underset{(1.43)}{3.47 \times \ln(REER_{TM})_{-1}} - \underset{(0.262)}{0.614 \times DUMMY_{MFA1}}$$

$$- \underset{(0.1675)}{0.0664 \times DUMMY_{MFA2}} - \underset{(0.400)}{0.703 \times DUMMY_{MFA3}} + \underset{(0.366)}{0.428 \times DUMMY_{MFA4}}$$

$$+ \underset{(0.018)}{0.155 \times TREND}$$

$$\bar{R}^2 = 0.954 \quad s = 0.173 \quad DW = 1.45$$

When estimating the price coefficient of this equation, the same problem was encountered as in the import equations for the shoe model and the textile sector, and the problem was solved in the same manner as that described in the explanation for the shoe import equation. Hence, no standard error is given for the price coefficient.

Export Equation. The fraction of shipments of domestically produced textiles that is exported (X_T/S_T) is a function of a real effective exchange-rate index calculated using U.S. textile exports as weights ($REER_{TX}$), the International Monetary Fund production index for industrialized countries (Y_W), the price of textiles (P_T), the price of textile input fibers (P_F), the BLS multifactor productivity index for the textile industry (MFP_T), and the fraction of shipments that was exported in the previous year. The rationale for this equation is the same as that for the apparel export equation given above. The estimated equation and summary statistics are:

$$\ln\left(\frac{X_T}{S_T}\right) = \underset{(3.819)}{0.888} - \underset{(0.18)}{1.05} \times \ln\left(REER_{TX}\right) - \underset{(0.691)}{0.309} \times \ln\left(P_T \times MFP_T\right) + \underset{(0.409)}{0.770} \times \ln\left(P_F\right)$$

$$+ \underset{(0.29)}{1.01} \times \ln\left(Y_W\right) + \underset{(0.080)}{0.689} \times \ln\left(\frac{X_T}{S_T}\right)_{-1}$$

$$\bar{R}^2 = 0.945 \quad s = 0.0813 \quad DW = 1.82$$

As with the shoe and apparel export equations, correlation between measurement errors in the multifactor productivity index and shipments of textiles may result in the magnitude of the coefficient estimate for the ratio of price to multifactor productivity being slightly too large, but the relatively small values of exports should prevent this factor from having much effect on the solution variables of interest.

RELATED CBO STUDIES

The GATT Negotiations and U.S. Trade Policy, June 1987.

Has Trade Protection Revitalized Domestic Industries?, November 1986.

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551

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