Chapter 1
Overview

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Providing nearly 2 million jobs, America's textile and apparel enterprises remain a critical part of the national economy—but technology and international competition are forcing the industry through its most profound transformation since the industrial revolution.[1] While forces leading to change have been gathering strength for a generation, the pace increased sharply in the early 1970s. These changes are affecting the nature of products produced; how they are produced; how they are marketed; the structure, scale, and scope of the enterprises producing them; and the nature of jobs created directly and indirectly by the industry. Although much of this change may be beyond the control of public policy, the policy decisions of the next few years could have a critical effect on the industry's future,

The United States is one of the few nations that has left its markets largely open to foreign sales of textiles and apparel, and one of the few that has paid little attention to the research needs of its domestic industry. As a result, imports have flooded domestic markets. Unless policy action is taken in the next few years, there is reason to be concerned about the very existence of many parts of the industry. While it is reasonable to debate whether the Federal Government should act to preserve U.S. textile and apparel enterprises, it is becoming increasingly unlikely that the industry will be able to maintain its present position in the U.S. economy without action to counter the rising tide of imports.

[1] U n less specifically cited i n a note i n this sect] on. data described i n this summary are documented in later sections of the report and are not separate]}' referenced.

AN INDUSTRY IN TRANSITION

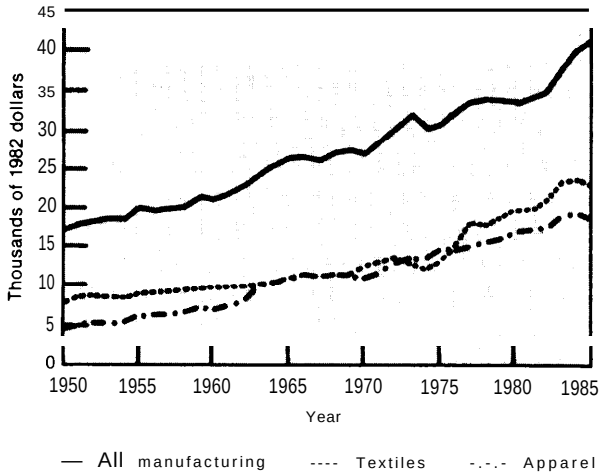
The U.S. textile and apparel industry is acting quickly to regain its ability to serve previously secure markets. The industry that produces chemical fibers for textiles, which represents a growing fraction of U.S. products, is a world leader in new product ideas. Measured in terms of output per person-hour, the U.S. textile industry is among the most productive in the world—and it continues to modernize, investing about $1.5 billion per year in new plant and equipment. Personal spending for textile and apparel products has grown sharply since the early 1960s, although net profits from the sale of textiles have not changed significantly during the past two decades[2].

Significant new technologies include water- and air-jets, which have replaced shuttles; robots that deliver materials and splice broken yarn; computers that design fabric and lay patterns on material; and advanced spinning methods. More uniformity in the quality of natural materials, along with increased use of synthetics, has facilitated greater automation throughout the fabric formation process. There has been a sharp increase in "nonwoven" fabrics assembled without weaving. Moreover, while labor productivity in textiles is half the average of that in all manufacturing industries, textile productivity has increased at twice the average manufacturing rate for over a decade (see figure 1). There is no sign that the pace is diminishing.

Productivity in apparel assembly, which still utilizes mostly hand-work and sewing machines, also advanced faster than the manufacturing average between 1975 and 1985. Computer-assisted cutting machines, robotic substitutes for labor-intensive materials handling, and stitching operations promise dramatic gains in the near future. A fundamental breakthrough seems to have been achieved in the vexing problem of handling a single ply of limp material. For years, mechanical equipment has easily handled and positioned rigid metal and paper; until recently, however, machines lacked the dexterity to handle cloth. A robotic sewing technology that will soon be ready for commercial use promises to bring substantial increases in sewing productivity.

[2] U S. Congress, Congressional Budget Office, *Has Trade Protection Revitalized Domestic Industries?* (Washington, DC U S Government Printing Off Ice, November 1986), p 34 Profits measured in terms of constant dollars.

Figure 1 .—Constant Dollar Value-Added per Full-Time Equivalent Employee: Manufacturing, Apparel, and Textiles



SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, "National Income and Product Accounts, " Survey of *Current Business,* July 1966, tables 6.2 and 6.7B.

Actual sewing accounts for less than a quarter of the time required in apparel assembly. The remaining time involves a series of materials handling steps that could be streamlined through automation and improved management. New, "quick response" information technologies have the potential to unite the entire fiber-to-textile-to-apparel-to-retail network in ways that could make the system operate more efficiently as a whole, with greater responsiveness to rapidly changing consumer tastes and preferences. Already, forced markdowns and stock-outs—responsible for estimated losses of $14.6 billion and $8 billion in 1985 retail sales, respectively—have been reduced, by both improved management practices and new equipment that allows for low-cost, small-scale batch runs and rapid reorders. And Wal-Mart has successfully tested a prototype, automated retail system now being investigated actively by major retailers; the system is likely to be improved through greater use of computer-readable tags on retail products and sophisticated communication systems.

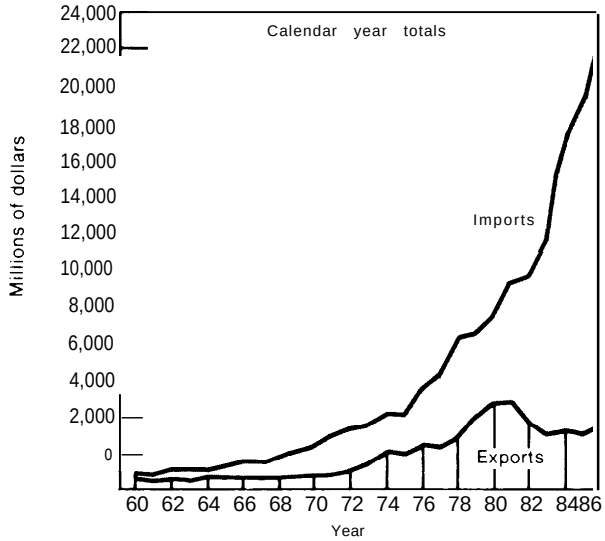
The Challenge From Abroad

In spite of these remarkable advances, the industry is gravely threatened. Tariffs, the Multi-Fiber Arrangement—a set of guidelines that allows developed countries to regulate most textile and apparel imports—and other complex attempts at protection have not stemmed the flood of imported textile and apparel products. Measured in square yards, 33 percent of the U.S. textile market and 48 percent of the U.S. apparel market was imported in 1985, shares that have more than doubled since 1975, This rate of erosion of domestic market shares shows no sign of diminishing. In fact, if penetration of U.S. apparel markets were to continue at the pace of the past decade (measured in terms of volume), domestic sales of U.S. apparel firms would approach zero by the year 2000, while two-thirds of the U.S. textile market would be served by imports. Moreover, much of the technology that has made the U.S. textile industry among the most productive in the world has been purchased overseas. Such problems have been compounded by America's comparatively insignificant textile and apparel exports—when apparel exports reached an all-time high in 1980, for example, they amounted to roughly 3 percent of domestic apparel production.

Because of the relatively low cost of imported products, the trade imbalance is somewhat less when measured in dollars instead of volume. In dollar terms, textile imports represent roughly 6 percent of domestic textile consumption, and apparel imports about 20 percent of domestic apparel consumption; much of the difference between dollar and volume measurements can be attributed to the continued ability of U.S. firms to compete in markets for high-quality, high-price products. Still, if apparel imports are taken in terms of garment purchases at the retail level, their domestic market share rises to approximately one-third. Overall, the 1986 U.S. trade deficit in textiles and apparel exceeded $21 billion—a fourfold increase since 1980 (see figure 2).

The factors behind this dramatic rise in U.S. purchases of foreign textile and apparel products are complex. The strength of the dollar between 1980 and 1985 made imports far less expensive, relative to domestically produced items. The recent fall in the dollar's value with respect to the currencies of industrial nations will tend to provide only modest relief; much of the growth in U.S. imports has come from nations like Korea, Hong Kong, and Taiwain, whose currencies are either tied to the dollar or have not changed significantly with respect to the dollar. And changes in the value of currencies may have a greater effect on the profitability of foreign manu-

Figure 2.— U.S. Textile and Apparel Trade



SOURCE U S Department of Commerce, FT.135, FT-140, SITC Classification 65 and 84

facturers or U.S. retail operations than on consumer prices.

At the same time, as other countries began to close their borders to textile and apparel imports, the United States maintained its support for open markets, opting to push for movement toward free trade rather than toward protection and government intervention. Several European economists have commented that:

> . the United States government . persistently opposed the concept off direct government intervention of the types undertaken by its counterparts in Europe and in the Asia Pacific Region.[3]

Indeed, in addition to the obvious economic stimulus that the textile industry gives to developing economies, many developed nations view the industry as critical to their economic vitality. Since 1983, the European Economic Community (EEC) has strengthened import restrictions significantly, pursuant to bilateral agreements negotiated under the Multi-Fiber Arrangement (MFA). Japan restricts imports more informally—by placing pressure on the distribution network, and by concluding a variety of non-MFA bilateral restraint agreements. Available evidence suggests that the EEC's adoption of a more restrictive regime under the MFA as of 1983, coupled with Japan's continuing restrictions, has had the effect of channeling developing nation textile and apparel exports into the U.S. market.

In particular, the U.S. manmade fiber industry depends on international developments throughout the domestic textile and apparel industry complex. Technology for producing a variety of fibers is available worldwide. A number of nations are rapidly expanding production, substituting their own products for U.S. fibers. The world market share of U.S. production of "noncellulosic" fiber—including nylon, acrylic, and polyester—fell from 33 to 23 percent between 1979 and 1985. During the same period, China increased noncellulosic production by 361 percent, India by 203 percent, and Indonesia by 102 percent; China expects to be self-sufficient in the near future.

The fact that China and Australia are the world's leading producers of two important natural fibers—cotton and wool, respectively—accentuates this growing competition. Moreover, many developing nations, which hope to stimulate their domestic economies by retaining more of the value added during textile and apparel production, are investing heavily in production facilities for manmade fibers. U.S. imports of synthetic textiles and apparel grew from about 3 billion to 5.5 billion square yards between 1979 and 1984.

New textile and apparel production equipment moves into world markets rapidly. Many of the productivity gains enjoyed by the U.S. textile industry have resulted from equipment purchases from West Germany, Switzerland, Japan, and even Czechoslovakia. U.S. textile and apparel producers will almost certainly continue to benefit from new devices under development abroad. In addition, many developing nations have access to the same sophisticated machinery that is available to U.S. firms.

On the other hand, U.S. producers of textile machinery have fallen far behind the international state-of-the-art. Their overall share of the domestic market has fallen from 93 percent in 1963 to 55 percent today; the United States produces none of the advanced shuttleless looms that are revolutionizing weaving. What remains of the industry is not particularly encouraging. Over 92 percent of the export sales of domestic textile machinery firms went to supply replacement parts.

[3]B Toyne et al, The Global Textile industry (London George Allen & Unwin, 1984), p 68

Linkages to the Rest of the U.S. Economy

While employment in domestic wholesale and retail textile and apparel firms—which add over half the value of industry products that are sold to consumers—is not likely to change significantly as the result of trade, the fates of a number of other important U.S. industries are linked closely to that of textiles and apparel. Failure on the part of textile and apparel enterprises can have dramatic effects on the local communities where they operate, especially in the many small towns of the southeastern United States where a textile plant represents the main source of industrial employment. On a larger scale, such effects can propagate throughout the U.S. economy, since only about one-quarter of the value added by production and sales of textile goods and fabricated textile products goes to textile and apparel firms, while only about 40 percent of the value added from production and sales of fabrics and apparel remains within the industry.

The rest of the value from these sales is distributed quite broadly throughout the U.S. economy. A significant portion ends up in the "service" industries, particularly transportation and trade and the highly paid "transactional" services like finance, insurance, and business services. To a large degree, the fate of America's textile and apparel industry—like that of other manufacturing sectors—affects the health of U.S. service industries.

Table 1 reviews some of these linkages in greater detail. The table suggests the number of jobs lost in the U.S. economy from $1 million of imports in the industries shown, or the number of jobs gained from $1 million of exports.[4] It indicates that $1 million of production in the U.S. fabrics sector creates approximately 28 U.S. jobs; this number accounts for the negative effects of trade. Of the jobs created, approximately 60 percent are in the textile and apparel industry. The apparel sector is less linked with businesses outside textiles and apparel, as 70 percent of the jobs created by output from apparel production remain within the industry.

These calculations do not account for purchases needed to modernize plants or replace depreciated equipment. Adjusting for purchases of capital equipment is a difficult undertaking, given the poor qual-

[4]Since the details of the products exported and imported in any industrial category differ, the number of jobs created and lost from $1 million of trade are necessarily different. But because the data available cannot be disaggregate beyond the categories shown, the effect of differences in the composition of exports and imports within the input/output categories exhibited cannot be shown

Table 1.—Full-Time Equivalent Jobs Created by $1 Million of Output in Textile and Apparel Enterprises in 1984 (including trade effects outside textiles and apparel)

	Classification[a]			
	Fabrics	Textile goods	Apparel	Fabricated textiles
Natural Resource Intensive[b]	1.4	1.2	*0.7*	*0.9*
Construction	0.4	*0.4*	*0.3*	*0.3*
Manufacturing[c]	20.1	18.4	24.1	22.6
Low wage	(16.8)	(14.0)	(22.3)	*(20.0)*
Medium wage	(0.6)	(0.8)	*(0.5)*	*(0.7)*
High wage	(2.7)	(3.6)	(1.3)	(1.9)
Trade & transportation		4.0	3.2	3.8
Transactional services[d]	1.7	1.5	1.6	1.6
Personal services[e]	0.4	0.4	0.4	0.5
Social services[f]	0.5	*0.5*	*0.5*	*0.5*
Total	28.2	26.4	30.8	30.2

NOTE: Read the table as follows: $1 million dollars in output in the U.S. fabric industry generates a total of 28.2 jobs, of which 1.4 were in natural resource intensive industries, 0.4 were in construction, etc.

[a]Industry classifications accord to two input-output tables provided by the U.S. Department of Commerce

[b]Mostly agriculture and mining

[c]Manufacturing is divided into Low Wage (mostly textiles, apparel, and wood products), Medium Wage (mostly "high tech" machinery), and High Wage (mostly "heavy" manufacturing)

[d]Media, finance, real estate, and business services

[e]Hotels, auto repair, household industries, and amusements

[f]Includes government and private sector

SOURCE: Office of Technology Assessment, 1987. Compiled from 1980 Input/Output relationships provided by the Bureau of Economic Analysis, U.S. Department of Commerce; 1984 productivity levels and estimated trade statistics provided by the Bureau of Labor Statistics, U.S. Department of Labor.

ity of available data. Still, 1977 purchasing patterns suggest that $1 million of output in fabric and textile goods production—adjusted for 1984 trade patterns—would generate another five jobs in enterprises supplying production equipment, mostly in medium- and high-wage industries and transportation. Since apparel production is not heavily capitalized, including the effects of capital equipment purchases for these industries would create few additional jobs.

The Impact on the U.S. Labor Force

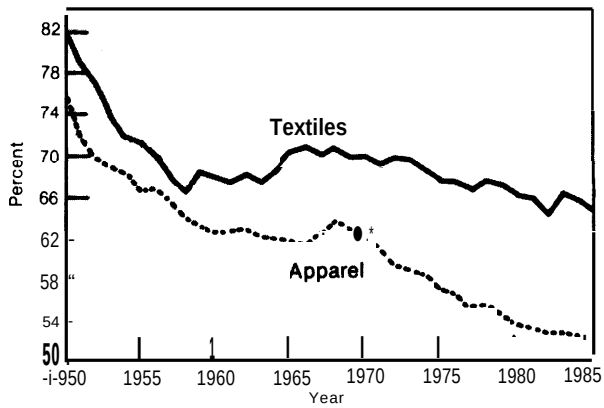
Growth in domestic demand has partially offset employment loss resulting from increases in imports and productivity. But between 1980 and 1985, employment in the apparel industry fell 11 percent, and textile employment fell 15 percent. A total of 142,000 jobs were lost. It is important to note, though, that many of the jobs eliminated by automation were dangerous and unpleasant. The threat of "brown lung" that haunted the industry for years has been reduced significantly through the use of machines for tasks that would pose health and safety threats to human operators.

The combined effects of new technology and pressure from imports have also had a sharp effect on industry wages. As a percentage of wages for all manufacturing industries, wages and other forms of compensation for textile workers (measured in current dollars) have fallen steadily since the late 1960s (see figure 3)—despite the rapid growth of labor productivity in textiles.

Undoubtedly, pressure from imports was at least partly responsible for the inability of U.S. workers to enjoy greater benefits from productivity growth. And U.S. apparel workers have been the victims of that industry's intensive struggle to maintain its competitive position—they have seen a significant decline in average real wages. Relatively stable during the 1960s, average apparel compensation fell from 62 percent of the U.S. manufacturing average in 1970 to 52 percent in 1985 (again see figure 3). Some have charged that this problem has been accentuated by the recent rise in the use of "subminimum" wages, as well as growing complaints about employer violations of overtime regulations. j

'International Ladies' Garment Workers' Union, Research Department, "The U S Apparel Industry, 1960-1985, With Special Emphasis on Women's and Children's Apparel, " Oct18, 1985, p 1(1

Figure 3.—Textiles and Apparel Compensation per Full-Time Equivalent Employee As a Percent of Compensation per Full-Time Equivalent Employee in All Manufacturing[a]

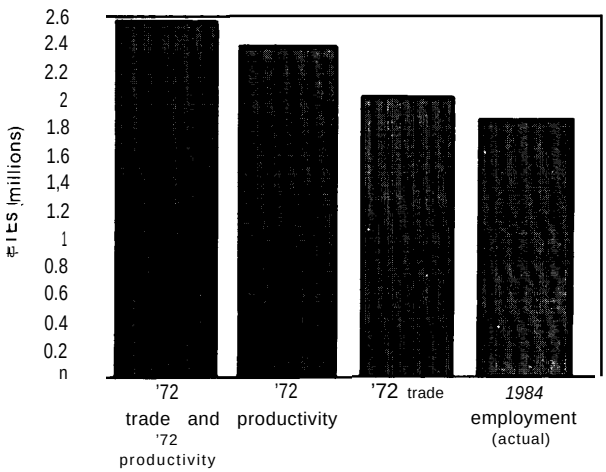


[a]Includes wages and other forms of compensation

SOURCE: U S. Department of Commerce, Bureau of Economic Analysis, "National Income and Product Accounts, " Survey *of Current Business*, July 1986, tables 67 and 68

Job losses resulting from imports cannot be easily disentangled from those resulting from rising domestic productivity. While trade clearly stimulated technological change in the domestic industry, for example, both trade and technology stimulated price reductions that increased domestic demand. Figure 4 compares trade and productivity effects; clearly, the data provide only a crude approximation of how

Figure 4.—Change in Full-Time Equivalent Employment Resulting From Changes in Trade and Productivity Levels, 1972 and 1984, for Textiles and Apparel



SOURCE Off Ice of Technology Assessment, based on data provided by the U S Department of Commerce and U S Department of Labor 1987

these factors have affected job losses among U.S. textile and apparel enterprises.

All four bars in the figure assume that domestic demand for textiles and apparel remained as it was in 1984. The bar on the far right assumes that trade and productivity levels also matched those of 1984, while the bar on the far left suggests what might have occurred if 1972 patterns of trade and productivity had existed in 1984—a hypothetical gain of approximately 700,000 jobs. The intermediate bars suggest that more jobs have been lost due to investment in automation than to the effects of trade.

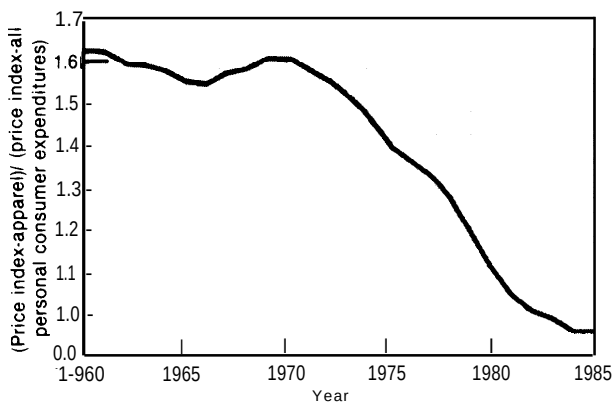
Tomorrow's textile and apparel jobs are unlikely to provide as many low-paid, entry-level positions for immigrants and minorities as they have in the past. Increasingly, technicians and highly trained operators may substitute for people with more traditional skills, who—without appropriate retraining—could see traditional employment opportunities move into overseas, low-wage production facilities. In this sense, U.S. textile and apparel enterprises that continue to operate as they have for generations might not survive except through the most draconian of public intervention. Firms that do remain may have to transform their operations in fundamental ways.

The Impact on the U.S. Consumer

While there is reason to doubt that consumers have been given full advantage of the comparatively low price of imported textiles and apparel, there is little doubt that American consumers have benefited enormously from the changes taking place in the industry. The price index of apparel, or the rate at which apparel prices change, has dropped sharply as a percentage of the overall rate of inflation since 1970 (see figure 5). Although the real impact of import quotas and tariffs on the price paid by consumers is difficult to estimate, one analysis suggests that even during periods of strong demand, trade quotas increase domestic clothing prices by 10 percent at most.[6]

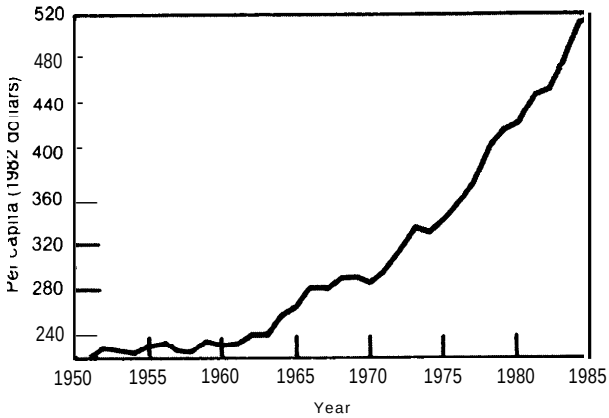
[6]D. Kessing and M. Wolf, "Textile Quotas Against Developing Countries" (London Trade Policy Research Center, 1980).

Figure 5.— Price Index for Apparel (fraction of price index for all personal consumer expenditures)



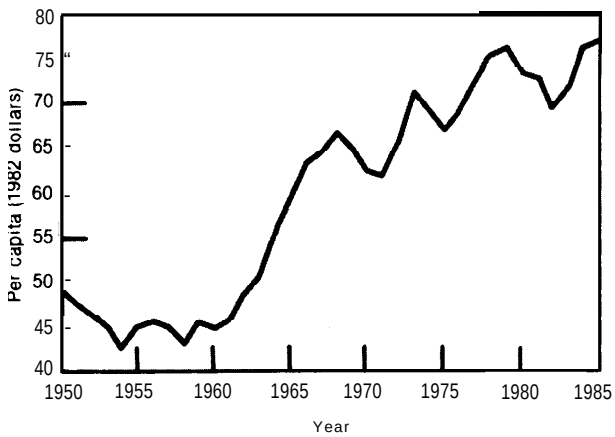
SOURCE U.S. Department of Commerce, Bureau of Economic Analysis, "National Income and Product Account s," Survey *of Current Business*, July 1986, tables 24 and 25 (1982 = 1 00).

Figure 6.— Personal Expenditure on Clothing and Accessories



SOURCE: US. Department of Commerce. Bureau of Economic Analysis. "National Income and Product Account s," Survey *of Current Business*, July 1986, table 2.5

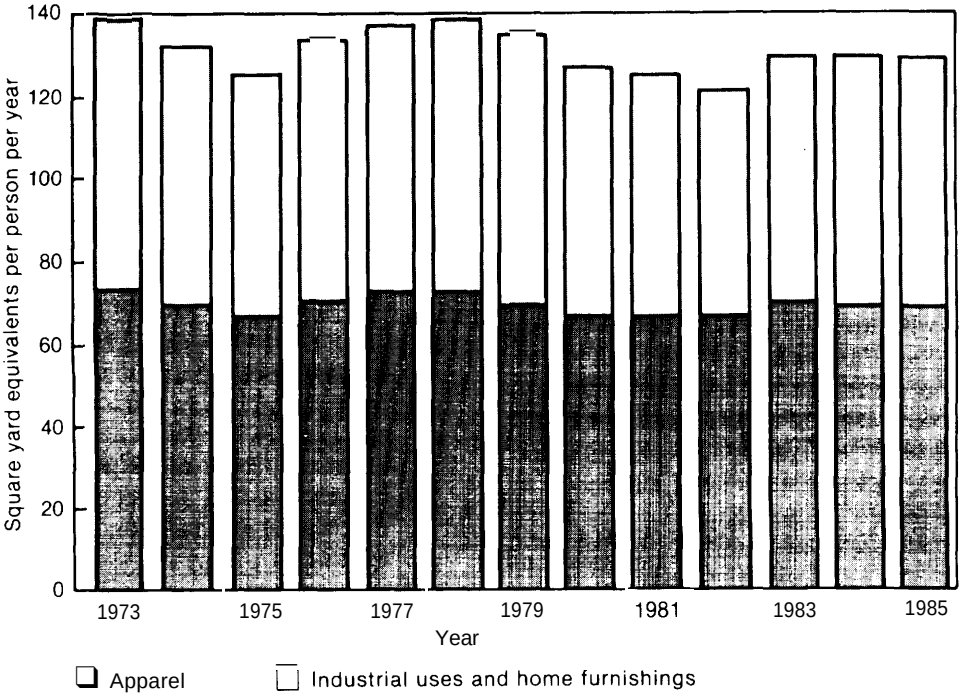
Figure 7.— Personal Expenditure on Textiles (Home Furnishings)



SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, "National Income and Product Account s," Survey *of Current Business*, July 1986, table 2.5,

Measured in dollars of purchases, personal spending on apparel and other textile products has increased rapidly (see figures 6 and 7), even though per-capita volume purchases have remained relatively stable in terms of raw volume (see figure 8). This means that many purchasers have turned to more expensive products. However, such a development must be viewed with caution. Many high-priced American goods are sold by U.S.-owned firms that do much of their production overseas. This "offshoring" of production allows U.S. companies to benefit from lower wages abroad, since firms may use lower labor input costs to increase profits while retail prices are held steady.

Figure 8.— U.S. Market in Textiles and Apparel



SOURCE Office of Technology Assessment, based on data provided by the American Textile Manufacturers Institute, 1987

LOOKING TO THE FUTURE: ALTERNATIVES FOR POLICY

Whatever the future may bring, the next generation of U.S. textile and apparel enterprises is likely to be almost unrecognizable, measured by both the nature of the jobs that will be created and the nature of the firms that will prosper:

1. **Jobs:** Productivity growth is likely to continue to outstrip growth in domestic demand. As a result, domestic jobs will continue to be lost even if trade penetration levels return to those of the early 1970s.

2. **Business structure:** Midsize U.S. companies are being squeezed, in part by the versatility and low capital needs of many small firms and in part by the power and scale of increasingly large integrated corporations. Indeed, horizontal and vertical integration are changing the very structure of the industry.

In the face of these developments, Congress must grapple with a series of uncomfortable dilemmas. Should the United States intervene in domestic and international markets in order to save an industry with comparatively low wages and productivity? Given that a number of developing nations, including China, are attempting to use exports of textiles and apparel to stimulate domestic economic develop-

ment—and are willing to go to extreme lengths to protect domestic industries and promote exports—can the U.S. industry ever compete successfully? In Pakistan, for example, more than half of all industrial employment is associated with textiles and apparel. Can the United States suggest alternative methods for promoting economic development in these nations? If short-term protection is provided, can the U.S. industry reshape itself so that it could survive without long-term import restrictions? If such protection is provided, can the industry be given adequate incentives to make needed investments? None of these issues have unambiguous answers.

It is possible, however, that given creative industry management and appropriate public policy, U.S. textile and apparel enterprises can continue to be a significant part of the U.S. economy without strong protection over the long term. While the burden of responsibility for building a competitive industry rests primarily with industry management—its willingness to innovate, take risks, and rethink old patterns of industrial organization—appropriate government actions could facilitate the process, or could buy time for the textile and apparel industry to make needed changes. Options have been suggested in the following areas.

1. Programs to protect the domestic industry from imports in the near term could include:
   —tougher enforcement of bilateral trade agreements and the Multi-Fiber Arrangement;
   —expansion of Multi-Fiber Arrangement coverage to fibers not presently controlled;
   —an import licensing system to help prevent overshipments, which might also limit the growth of textile and apparel imports to the growth of the U.S. market;
   —mandatory retaliation, in the form of quotas or other measures, against nations judged to be "dumping" in the United States, or engaging in unfair trade practices;
   –defining "unfair trade practices" to include denial of basic labor rights and standards; or
   —negotiated increases in tariffs.

   The wisdom of such measures should be weighed in the context of overall U.S. strategy in international trade, Foreign retaliation against protection for textile and apparel enterprises could affect America's ability to reduce trade barriers in other industries.
2. Encouraging a strong industry commitment to retrain people displaced from traditional textile and apparel jobs could help these workers find new jobs, some of which might be in a rebuilt and more sophisticated textile and apparel industry.
3. An ambitious program for research and development in areas related to textile and apparel production could be implemented, in order to rebuild U.S. technical capabilities in the manufacture of textile machinery equipment and to ensure that U.S. production leads the world in state-of-the-art technologies. Programs might include designating several "centers of excellence" for research and development, in areas like apparel assembly technology, sensors and handling systems for limp fabrics, and computer-assisted design of apparel and fabrics. The Textile/Clothing Technology Corp. 's [$(TC)^2$] remarkable success in combining government, industry, and union support in the development of advanced sewing equipment provides an instructive example on which to build; Japan and several European nations are investing large sums to develop new machinery.
4. Programs could be established to facilitate industrywide cooperation and standard-setting, leading to a "quick response" system capable of tying apparel and textile product retailing operations with apparel and textile production facilities. "Quick response" could provide flexibility to respond to shifting domestic markets that are best understood by producing close to consumers.
5. A macroeconomic policy could be designed to encourage industrial research and private sector investment in innovative technology.

These options would take time to implement, and some may require increases in Federal funding for research and training. They depend on flexibility and imagination in private management. Above all, they require confidence in the future of the industry. The analysis presented in this report suggests that appropriate public policy can help to justify such confidence.

Indeed, an array of new production and control technologies—coordinated through a "quick response" network that can reduce the distance between producers and retailers—may greatly expand the range

of product areas in which U.S. producers are competitive. Given implementation of this integrated U.S. system, foreign low-cost producers could lose market share in all but the most labor-intensive products and specialties. A "quick response" system, of course, could add significantly to domestic communications and transportation costs, and could increase demand for sophisticated local management. As a whole, however, "quick response" technologies may significantly reduce, and in some cases eliminate, the price advantages of low wage competitors—even under current conditions.

Any of these programs will be moot if the industry is eliminated by a flood of imported products. Even measures designed to eliminate obviously unfair trade practices may be inadequate to protect large parts of the U.S. industry against imports from nations that pay workers as little as one-fifth of average U.S. wages. It is clear that without serious action in the near future, long-term strategies for making the U.S. apparel and textile industries competitive may become largely academic.

A GUIDE TO THIS REPORT

The first part of this special report examines the textile and apparel industries as they exist today, their structure (ch. ***2),*** and the forces of change already at work (ch. 3). Major areas where policy decisions will be needed are examined in the second half of the document. Trade, technology, employment, and marketing are addressed in chapter 4, followed by a review of policy options and the barriers that need to be addressed in order to achieve effective change (ch. 5).

Throughout this study, the term "textile" is often used to represent the entire industry complex: from fiber, to fabric, through the end uses of apparel, home furnishings, and industrial products. "Fiber" refers to the initial production phase, be it woven, nonwoven, natural, or synthetic material. "Fabric" and textile mill products are used interchangeably, and sometimes the term "textile" is specifically focused on this phase of production. "End uses" refers to all textile products ready for application, be they apparel, home furnishings, industrial goods, or some new and innovative function like chemical reagents. The terms "synthetic" and "manmade" are used interchangeably, and include both cellulosic and noncellulosic fibers.

One methodological problem in studying the textile industry complex deserves special note. Production and consumption statistics are available in many different units, ranging from dollar value, to yards, to square yard equivalents, to pounds. Clearly, for any given analytical issue the measure chosen can affect the statistical outcome—sometimes significantly. If all data were available in square yard equivalents, that would probably be the measure of choice. But this is not the case, and this special report uses a variety of measures, of which the reader should be aware while forming his/her own conclusions.