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# **China: Emerging as a World Force in Textiles**



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**An Intelligence Assessment**

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*EA 82-10067  
June 1982*

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# **China: Emerging as a World Force in Textiles**

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## **An Intelligence Assessment**

*Information available as of 15 May 1982  
has been used in the preparation of this report.*

This assessment was prepared by [redacted]  
Office of East Asian Analysis. Comments and queries  
are welcome and may be directed to the Chief,  
China Division, OEA. [redacted]

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**China: Emerging as  
a World Force in Textiles**



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**Key Judgments**

China has the potential during this decade to become the world's leading exporter of textiles and apparel. By 1985 the Chinese textile industry will have the capacity to double its export volume while providing 50 percent more cloth for domestic consumption.

Asian exporters and Western importing countries alike prefer that China remain a supplier of raw materials to complement, rather than compete with, their apparel manufacturers. Beijing nonetheless intends aggressively to expand apparel exports because of their high value. Hard currency earnings from apparel and other textile exports are slated to be a major source of financing for China's economic modernization in the 1980s.

Low-cost labor makes Chinese textile products highly competitive on world markets. Moderating world demand in the 1980s will intensify competition between China and Asia's three big textile exporters—Hong Kong, Taiwan, and South Korea. With developed nations tightening restrictions on textile imports, increases in China's foreign sales will almost certainly cut into the exports of the other major suppliers, heightening regional competitive rivalries. We believe China will feel compelled to join the international textile trade governing body, the Multifiber Arrangement, by mid-decade to protect more easily and perhaps expand its share of world textile trade.

Beijing also will try to soften international resistance by giving the developed countries a vested interest in China's growing textile industry, primarily through marketing agreements, equipment purchases, and technical assistance. Joint ventures and other forms of cooperation will combine foreign skills in production and marketing with Chinese labor. Such cooperative efforts may be the primary means by which the PRC expands its exports during the 1980s.

To achieve its potential for increasing exports, however, China will have to continue importing raw materials. We estimate that production of domestic fibers will lag behind requirements, forcing Beijing to purchase large quantities of cotton and wool in foreign markets. Capacity to print, dye, and treat fabrics will be sufficient to process export goods but not all domestically consumed textiles.

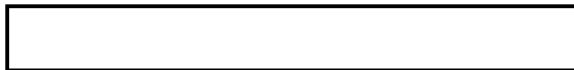
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Textiles for the Chinese consumer will improve markedly by the mid-1980s, both in quantity and quality. Still, the average Chinese will continue to be poorly dressed by international standards. Clothing will remain a major household budget item, and per capita consumption will remain far short of the world average. Rural consumption, moreover, will improve only slightly in the years ahead. The gap between fashion-conscious city dwellers and peasants will widen and further aggravate urban-rural tensions.

Beijing will pressure Washington for reduced limitations on imports of Chinese textiles and apparel by threatening to stop its purchases of US fibers. Nevertheless, the United States will continue to be the primary supplier of cotton to China. US sales of synthetic fibers will drop sharply as China expands its own capacity. American apparel manufacturers can expect stiff competition from Chinese goods but may be able to profit from cooperative ventures to produce and market Chinese textiles and apparel.



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**China: Emerging as a World Force in Textiles**

**Textiles: A Key to Modernization**

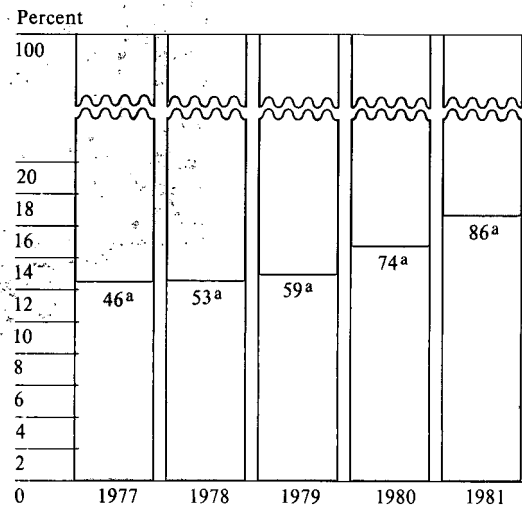
China's textile industry is vital to the success of Beijing's modernization plans. Textile exports are the single largest source of the hard currency earnings with which China hopes to finance economic development during the 1980s.

Rapid growth in recent years illustrates the priority that Beijing has placed on the industry. The value of textile output jumped from a little more than 12 percent of total industrial production in 1977 to almost 17 percent last year (see figure 1). The textile sector is second only to machinery among China's 10 largest categories of industry.

The Ministry of Textile Industry directly controls about 5,000 plants and 3 million workers. Additional textile mills are run by provinces, towns, communes, and even families. In all, the textile industry may employ as much as 10 percent of China's nonagricultural work force. Although among the lowest paid in state-owned enterprises, the average textile worker produces about 40 percent more in product value than the average industrial worker. The textile sector also is more energy-efficient, producing nearly three times as much per kilowatt-hour as China's industrial average.

The emergence of China's textile industry as a major growth sector can be attributed to large investments in new capacity in the 1970s. Since 1977 state investment in textile and related industries has exceeded 1.3 billion yuan annually, about 6 percent of budgeted investment funds. In addition, Beijing purchased several large fiber mills from Japan and West Germany at a cost of \$3 billion. More recently, proposed projects have been less costly and usually involve upgrading existing facilities. In early 1982, the textile ministry purchased a used woolen mill and dyeworks from West Germany

**Figure 1  
Gross Value of Textile Output as a Share of Gross Value of Industrial Output**



<sup>a</sup>Billion Yuan.

In another move to modernize and boost production, Beijing has opened the Chinese textile industry to direct foreign investment, mostly on a cooperative basis. At present, at least 300 textile projects operate as joint ventures, and 190 others process customers' raw materials for export. More such operations will open as southeastern provinces develop their trade zones. Indeed, factories in trade zones could be the major source of future growth in Chinese exports of apparel.

**Consumption Patterns**

Even though the textile industry has grown dramatically in recent years, per capita consumption in China is still only one-half the world average. Cotton cloth is rationed, and allocations vary according to location and climate—ranging from less than 5 meters per

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Figure 2. Rural apparel contrasts sharply with city fashions. [redacted]



person in warm southern areas to 8 meters in colder northern climates. Total 1980 consumption of all fabrics was only 10 meters per person—barely enough for a jacket, shirt, pants, underwear, and pajamas. [redacted]

Despite the overall shortage of textile products, domestic consumption has risen substantially since 1978 when wage increases provided more disposable income to workers and peasants. Textile products accounted for 25 percent of total retail sales in 1980 and led sales increases in 1981. In urban areas, where expensive and stylish clothing is gaining popularity, consumption is nearly double the rural level and the gap seems to be widening (see figure 2). [redacted]

A recent survey suggests that the average city family spends nearly two months' wages each year just for clothing. With national annual per capita income less than 300 yuan, the purchase of a wool overcoat becomes a major undertaking (see table 1). About 70 percent of urban families own a foot-powered sewing machine to make their own clothing. Ordinary cotton cloth costs less than 3 yuan per meter, but cotton prices are heavily subsidized. Wool costs 10 to 40 yuan and is usually hard to find. Polyester, which costs about 2 yuan to manufacture, sells for 3 to 11-

yuan per meter and is widely available. Beijing recently cut the cost of polyester fabrics about 10 percent to make them more affordable and to clear excess stocks. [redacted]

Personal consumption by no means absorbs the entire textile supply. Social consumption (hospital linens, banners, Army uniforms), industrial uses (sacks, tire cord, conveyor belts), and export commitments place additional demands on the textile industry. Twenty years ago, personal consumption accounted for 70 percent of PRC textile production, but in 1981 it had dropped below 55 percent. Social and industrial uses now absorb more than one-third of production, and exports account for about 10 percent. [redacted]

**Export Patterns**

China's drive to develop its textile industry has yielded dramatic increases in exports in recent years. Sales have risen about 26 percent annually since the mid-1970s—from \$1.6 billion in 1975 to \$5.1 billion in 1980 (see table 2).<sup>1</sup> Textile fibers and products currently account for more than one-fourth of total PRC exports and generate an equal amount of hard currency earnings. [redacted]

<sup>1</sup> In 1975 dollars, the value of exports in 1980 is \$3.6 billion, an 18-percent annual increase. [redacted]

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**Table 1**

Yuan

**PRC: Prices of Selected Apparel Items, 1981**

Item	Price
Men's slacks	15
Men's shirts	10
Women's blouses	1
Women's dresses	7 to 10
Padded jackets	30
Overcoats	90 to 160
Nylon socks, pair	2

The United States has become a major customer for Chinese textiles, increasing purchases nearly 60 percent annually since 1975, to \$440 million in 1980 (see table 3). China now provides 10 percent of US textile imports, and is exceeded only by Hong Kong, Taiwan, and South Korea. [redacted]

Silk is the only fiber imported by the United States in significant quantities. Most US purchases of Chinese textiles consist of fabrics and finished goods, particularly apparel, which accounts for nearly one-half the total. Last year manmade fabrics and garments led an overall 73-percent increase in US imports of Chinese textile goods. The rapid increase in supplies of PRC-origin products has alarmed American textile and apparel manufacturers. The US textile industry employs about 13 percent of total manufacturing workers and is highly sensitive to rising imports from low-cost competitors. Some imported Chinese textiles cost only one-third of what it costs American firms to produce them, prompting US manufacturers to demand protection. [redacted]

The European Community, long a leading consumer of Chinese textiles, also has become increasingly negative toward imports from China. The EC's textile and apparel industries account for about 10 percent of their industrial work force. Since 1973 these industries have been on a downturn, and, with the continuing economic slump, are now seeking protection. France and the United Kingdom in particular are

**Table 2**

**PRC: Growth in Textile Exports, 1976-80**

Category	Value (Million US \$ f.o.b.)		Average Annual Rate of Growth (percent)
	1975	1980	
<b>Total</b>	<b>1,632</b>	<b>5,113</b>	<b>26</b>
Raw silk and yarn	150	282	13
Silk fabrics	113	268	19
Cotton fabrics	439	894	15
Synthetic fabrics	59	264	35
Linens	163	494	25
Men's, boy's outerwear	59	344	42
Women's, girl's outerwear	41	318	51
Knit outerwear	46	273	43
Men's, boy's underwear	40	187	36
Knit underwear	59	149	20
Fur clothing	10	69	47
Other	453	1,571	28

concerned about the effect of imports on domestic producers, although China supplied less than 3 percent of their total textile imports in 1980. Italy continues to purchase a large share of China's silk exports for manufacture into high-fashion apparel but has expressed protectionist sentiment toward PRC-made sportswear. [redacted]

Three of China's largest consumers purchase Chinese goods to supply their own textile and apparel manufacturing sectors. Hong Kong, Japan, and Singapore together accounted for 42 percent of China's textile exports in 1980. Lacking the acreage to cultivate their own raw materials, they buy Chinese fibers and fabrics to process or sew into finished goods, largely for export. Hong Kong is China's single largest market. Two-thirds of Hong Kong's imports of Chinese textiles in 1980 were raw materials for textile and apparel manufacturers. Japan is China's second-largest customer and the largest buyer of PRC silks, which account for more than one-third of Japan's

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Table 3

China's Major Textile Markets, 1980 <sup>a</sup>

Markets	Value of Textile Imports From PRC (million US \$, f.o.b.)	Share of PRC Textile Export Market (percent)	PRC Share of Market's Total Textile Imports (percent)	Textiles as a Share of Market's Total Imports From PRC (percent)
Hong Kong	1,318 <sup>b</sup>	26	28	43
European Community	759	15	2	42
Of which:				
Belgium/Luxembourg	28	1	1	23
Denmark	19	NEGL	2	48
France	135	3	2	43
Ireland	3	NEGL	NEGL	36
Italy	180	4	3	57
Netherlands	54	1	1	32
United Kingdom	115	2	2	44
West Germany	226	4	2	38
Japan	680	13	13	21
United States	440	9	4	43
Singapore	136	3	12	34
Australia	128	3	8	76

<sup>a</sup> Includes fibers, yarn, fabric, and apparel.<sup>b</sup> Includes about \$580 million in re-exports of PRC-origin goods.

imports of Chinese textiles. Japan is also among the top buyers of cotton yarn and cloth. Singapore also buys Chinese cotton and silk goods in relatively large volume to manufacture garments for export. These countries have not been as vocal as the United States and the EC about China's growing impact on world textile trade, but they have [redacted] expressed concerns to Beijing that their own exports will fall to cheaper Chinese competition. [redacted]

**Importing Materials To Support Exports**

The rapid expansion of fabric and apparel exports in recent years has forced Beijing to import more raw materials. Purchases of fibers and yarn increased more than 40 percent yearly between 1975 and 1980, climbing to \$2.6 billion. Fibers and yarn currently account for about 85 percent of the value of Chinese textile imports. [redacted]

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**Table 4**

**PRC: Selected Textile Imports, 1980**

Commodity	Value (Million US \$)	Principal Supplier(s)
Cotton	1,482	United States
Synthetic fibers, yarn	744	United States, Japan
Synthetic fabrics	239	Japan, Hong Kong, United States
Clothing	21	Hong Kong

**Nagging Problems**

The rapid growth of China's textile sector has created several problems of imbalance within the industry. China's capacity to print, dye, and chemically treat fabrics has lagged behind its ability to produce cloth. In addition, the Chinese have been unable to produce colorfast dyes and other treatments in the quantities and quality required. They also have been slow to develop and distribute processes for crease resistance, shrinkage control, mildew prevention, water and soil repellency, and other features required for export-quality products.

The textile ministry recently made some progress in overcoming problems facing the textile industry. It has already started to purchase some capacity to produce dyestuffs and has encouraged foreign investment in printing and dyeing mills. The ministry also is restructuring its factories, closing those that continue to operate inefficiently. Nevertheless, a shortage of finishing capacity will continue into the mid-1980s, and the PRC may have to direct more unfinished goods to industrial uses and to domestic consumers where top quality is not required.

The failure of domestic fiber output to meet projected goals will be a continuing problem. As late as 1980, the textile ministry was still announcing in the press that chemical fibers would account for 40 percent of

**Table 5**

Thousand Metric Tons

**PRC: Recent and Projected Production of the Four Main Fibers, 1981 and 1985**

Fiber	1981		1985	
	Production	Share of Total (percent)	Production	Share of Total (percent)
Cotton	2,968	80	3,400	71
Man-made	527	14	1,183	24
Wool	189	5	208	4
Silk	37	1	44	1
Total	3,721	100	4,835	100

total fiber production by 1985. Under the most favorable conditions, however, these fibers will not exceed 25 percent (see table 5). Moreover, China has been slow in implementing plans to increase wool fiber production, and output will rise only slowly in the next few years. Domestic wool production will, in fact, account for a smaller share of raw materials in the mid-1980s than it does now. The share of cotton in China's total fiber supply will probably drop from the current 80-percent level to about 70 percent in 1985 (the methodologies for calculating capacity estimates for 1985 are presented in appendixes A, B, and C).

**Prospects for the 1980s**

Projects now under way ensure that China will continue rapid expansion of the textile industry during the 1980s to greatly increase exports and domestic consumption. Annual investment in the industry will likely remain in excess of 1 billion yuan, and national priorities will include:

- Completing major chemical fiber complexes.
- Doubling wool production capacity.
- Improving printing, dyeing, and finishing capacity.

Beijing will continue to encourage foreign investors to increase participation in joint ventures and compensation trade. We believe the textile ministry also will seek assistance from Western as well as Asian firms

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**Table 6**

Billion Linear Meters

**PRC: Cloth Production, 1980 and 1985**

Fiber	1980		1985			
	Volume	Share of Total (percent)	Low Projection		High Projection	
			Volume	Share of Total (percent)	Volume	Share of Total (percent)
<b>Total</b>	<b>20.4</b>	<b>100</b>	<b>28.6</b>	<b>100</b>	<b>30.5</b>	<b>100</b>
Cotton	14.3	70	18.5	65	20.4	67
Manmade	5.1	25	8.8	31	8.8	29
Wool	0.1	NEGL	0.2	1	0.2	1
Silk	0.8	4	1.0	3	1.0	3
Bast	0.1	NEGL	0.1	NEGL	0.1	NEGL

Because of rounding, components may not add to the totals shown.

[Redacted]

in design, processing, finishing, and marketing. In addition, China will try to acquire advanced textile manufacturing equipment, industrial sewing machines, and other devices to help improve quality control and productivity. [Redacted]

We estimate that fabric output will increase 45 percent by 1985 (see table 6). Cotton fabrics and blends will account for two-thirds of about 30 billion meters of cloth production, with manmade fabrics providing nearly all of the remainder. Woolen fabrics will make notable gains with output increasing as much as 60 percent. Even so, wool, silk, and bast (linen, ramie) fabrics will remain relatively insignificant in terms of output volume. [Redacted]

**Gains in Domestic Consumption**

We believe that by 1985 the textile ministry probably will be able to increase per capita domestic consumption of textiles by 50 percent to about 15 meters. Urban residents will average more than 23 meters compared with 13 meters in rural areas. The disparity between urban and rural consumption could increase tensions between city and country residents as living standards become more divergent. [Redacted]

Clothing stalls are already beginning to dominate free markets and will play an even greater role in apparel distribution later in this decade as individually operated clothing shops become common. Although officially sanctioned editorials have been critical of young people's predilection toward Western-style clothing, modern fashions will probably become more popular with younger consumers. Readymade foreign clothing is currently available through relatives or black-market connections and probably will be imitated by tailors and apparel manufacturers for domestic consumption. Prices will remain high, however, reflecting both scarcity and high consumer appeal. [Redacted]

Because of increasing consumer expectations, Beijing will be unable to continue forcing low-quality fabrics onto the retail market. Chinese consumers, especially in the cities, have become increasingly selective. In late 1981, for example, a six-month supply of cotton-polyester cloth remained in inventory because consumers refused to pay high prices for low quality. To reduce these stocks the government subsequently lowered prices on several blended fabrics. [Redacted]

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Social and industrial uses for textiles will grow only marginally in the coming years. Polypropylene is replacing cloth and burlap in sacks for packaging, and new plants are opening to provide industrial-grade synthetics for tire cord, conveyor belts, and other purposes. Textiles no longer needed in industry will go to social uses, which will show an overall increase of a little more than 10 percent. [redacted]

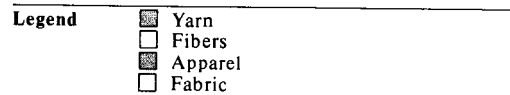
**Trade Outlook: Bullish on Exports**

We estimate that personal consumption will rise to 16 billion meters and other uses will increase to about 9 billion, leaving China nearly 5 billion meters of cloth available for export in 1985, more than double the estimated 1980 level of 2 billion meters. Exports could thereby account for up to 17 percent of total production, compared with 10 percent in 1980. [redacted]

Beijing also will try in coming years to increase the value of textile exports (see figure 3). The trade ministry has publicly announced plans to export a larger share of China's textiles as apparel, concentrating on the higher value-added products to increase hard currency earnings. PRC products will be competitive in price and probably also in quality. Chinese manufacturers and exporters will make every effort to ensure that exported goods are of consistently high quality, even if that means continued shortchanging of domestic markets. [redacted]

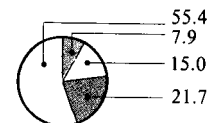
Beijing's primary obstacle will be resistance among importing countries. After allowing textile imports from Hong Kong, Taiwan, and South Korea to expand for several years, the developed nations have begun to reject continued growth. In recent bilateral negotiations between the EC and China, the importers successfully limited trade growth levels. EC negotiators also persuaded Beijing to link exports and imports, so that EC exports to China (primarily of manmade fibers) will rise as Chinese exports to the EC increase. The EC also has proposed to China and other textile exporting countries that outward processing—the manufacture of goods from raw materials supplied by the country to which the product will be exported—be considered separately from direct imports for quota purposes. Under this proposal, goods could be more easily exported to EC nations if made

**Figure 3**  
**The Growing Importance of Apparel**  
**in China's Textile Exports**



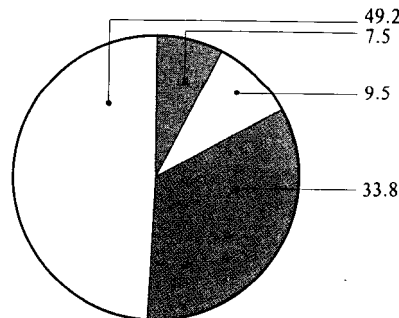
Total 1975 Exports=  
US \$1.6 Billion

Percent



Total 1980 Exports=  
US \$5.1 Billion

Percent



[redacted]

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from EC-origin raw materials. Most exporting countries have been lukewarm toward the idea, but China could find this mechanism a useful way to expand trade-zone processing. [redacted]

Another problem for China's growing textile industry in the 1980s is an adverse reaction from other major exporting areas—notably Hong Kong, Taiwan, and

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South Korea. With the world textile market depressed, increases in Chinese exports would cut into their sales. Hong Kong in particular has tried to convey to Beijing its preference that China remain a complementary, not a competitive, force in the Asian textile scene. The expansion of Chinese textile sales at a time of sagging world markets during the 1980s could thus increase friction between Beijing and its Asian neighbors. [redacted]

China is not a party to the Multifiber Arrangement, the international agreement that governs textile and apparel trade between industrialized importers and LDC exporters. China's bilateral agreements, however, contain provisions similar to those of the Multifiber Arrangement. To date, Beijing has attended the Arrangement's meetings as an observer but has remained uninvolved in the dickering over quota levels and allocations. [redacted]

We believe China will feel compelled to join the Arrangement by mid-decade. China's ability to expand rapidly its textile exports could unify importers and other exporters to take steps to limit Beijing's markets. By joining the Arrangement, China could more easily protect and perhaps expand its share of world textile trade. [redacted]

**Implications for the United States**

The United States faces continued political and economic pressures to reduce limitations on imports of PRC-origin textile goods. China will demand greater percentage increases in annual import quotas than those allowed to Hong Kong, South Korea, and Taiwan. If not satisfied, Beijing will threaten to import most of its raw materials from non-US suppliers and add the textile trade issue to the list of grievances used when questioning US-PRC diplomatic relations. [redacted]

American cottongrowers face competition from Egypt, Pakistan, Brazil, and others who are seeking a larger share of China's cotton imports. Beijing will likely reduce but not terminate purchases of US cotton, primarily because American fibers are consistently reliable in quality and availability. PRC purchases of manmade fibers from the United States will drop sharply as new domestic capacity becomes operational and replaces the need for imports. [redacted]

American apparel manufacturers can expect strong competition from Chinese goods, in both US and overseas markets. The quality of Chinese goods will improve markedly by 1985. PRC export officials also will learn to discern fashion trends and change the industry's products accordingly, making Chinese goods even more competitive. [redacted]

We believe Beijing will seek technical and marketing assistance from US and other firms. Although European firms hold a technological edge in producing textile machinery, American firms are known for their prowess in processing, finishing, and marketing textiles and apparel. The textile ministry will ask some US firms to join in cooperative ventures with Chinese enterprises to manufacture and export textiles and apparel. Indeed, such ventures may be the only way some of the less diversified US apparel manufacturers will survive Chinese competition. [redacted]

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## Appendixes

Appendixes A, B, and C provide methodologies for the derivation of estimates for output, productivity, and potential of cotton, synthetic, and other fibers through 1985. Appendix D contains the fiber, yarn, fabric, and apparel sections of the United Nations trade data for China, reprinted from *China: International Trade Annual Statistical Supplement*, EA 82-10015, February 1982.

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**Appendix A**

**China's Production of Cotton Fiber and Cloth**

Beijing ultimately wants to reduce dependence on cotton for textiles, but, to meet the need for textiles, it has encouraged high production of cotton for the last few years. In 1979 the government increased official cotton prices 15 percent and added a 30-percent bonus for above-quota production. Cotton output increased an average 10 percent yearly between 1977 and 1981 (see table A-1). In early 1982 China's media began to express concern about substantial conversions of acreage from grain to cotton. With average conditions and probable restoration of some acreage to food crops, domestic output probably will increase to 3.3 to 3.5 million metric tons (mmt) by 1985. [redacted]

**Yarn Spinning**

Data on China's output of cotton yarn and cloth include both all-cotton and cotton-synthetic blends. A rough calculation of the shares represented by cotton and synthetics indicates that cotton's share has actually risen during the past five years (see table A-2). This trend resulted from rapid growth in cotton production and imports, coupled with the still relatively small volume of available synthetic fibers. [redacted]



**Table A-1**

**Sources of Cotton Supply**

Year	Total (mmt)	Production		Imports	
		Volume (mmt)	Share of Total (percent)	Volume (mmt)	Share of Total (percent)
1977	2.3	2.0	87	0.3	13
1978	2.7	2.2	81	0.5	19
1979	2.8	2.2	79	0.6 <sup>a</sup>	21
1980	3.5 <sup>a</sup>	2.7	77	0.8 <sup>a</sup>	23
1981	3.6 <sup>a</sup>	3.0	83	0.6 <sup>a</sup>	17

<sup>a</sup> Estimated.



A major source of increasing spindle productivity is improved utilization. On average, state-run mills operate six days per week, with two or three shifts daily. Beijing and Shanghai have been experimenting with new shift schedules, most recently a seven-day, four-shift system. The longer workweek provides a 17-percent increase in production capabilities. With revised work schedules, China's textile industry should be able to increase yarn output 8 to 10 percent annually through 1985. [redacted]

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Table A-2

## Cotton Yarn Production, 1977-81, 1985

Year	Production (mmt)	Available Supply <sup>a</sup> (mmt)	Imports (mmt)	Exports (mmt)	Personal Allocations <sup>b</sup> (mmt)	Supply for Yarn Spinning (mmt)	Yarn Output (mmt)	Cotton Share of Yarn Output (percent)
1977	2.049	2.056	0.320	0.042	0.486	1.848	2.230	82.87
1978	2.167	2.088	0.508	0.036	0.494	2.066	2.382	86.73
1979	2.207	2.180	0.606	0.043	0.501	2.242	2.635	85.09
1980	2.707	2.374	0.820	0.030	0.509	2.655	2.930	90.61
1981	2.968	2.794	0.630	0.020	0.516	2.888	3.167	91.19
1985 Projections								
Scenario 1 <sup>c</sup>	3.3	3.223	1.295	0.035	0.542	3.941	4.637	85.0
Scenario 2 <sup>d</sup>	3.5	3.383	0.641	0.035	0.542	3.447	4.309	80.0

<sup>a</sup> Adjustment in available supply compensates for late summer harvest of raw cotton. It is one-third of the current year's domestic production plus two-thirds of the previous year's.

<sup>b</sup> Personal allocations for padding and other uses calculated at 1 catty (1.1 pounds) per person based on population figures supplied by US Census Bureau Demographic Division population levels.

<sup>c</sup> Cotton crop increasing by an average of 2.5 percent per year; yarn output up 10 percent per year; cotton share of yarn is 85 percent.

<sup>d</sup> Cotton crop increases by 4 percent per year; yarn output up 8 percent per year; cotton share of yarn is 80 percent. These scenarios yield the minimum and maximum expected import levels, given the broadest range of reasonable growth rates for cotton crops and yarn output.



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**Table A-3**

**Spindle Productivity**

Year	Yarn Output <sup>a</sup> (billion pounds)	Spindles (million)	Output per Spindle <sup>b</sup> (pounds)
1977	4.9	15.0	386
1978	5.3	15.8	390
1979	5.8	16.4	416
1980	6.5	17.2	442
1981	7.0	18.1	454

<sup>a</sup> The United States produced 6 billion pounds of yarn in 1979 with about 17.2 million spindles, or 410 pounds per spindle at 85-percent capacity utilization.

<sup>b</sup> Output per spindle is based on an assumed capacity utilization rate of 85 percent.

Between 1980 and 1981, China's output per ton dropped from 4,597 to 4,505 meters, which represents a rather sharp decline that will probably continue. By 1985, output will likely be 4,300 to 4,400 meters per ton. With projected cotton/cotton-blend yarn production of 4.3 to 4.6 mmt, fabric production from these years should be between 18.5 and 20.4 billion meters.

[Redacted]

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**Cloth Production**

China's publication of selected annual production statistics for cotton and cotton-blend cloth helps in calculating future capabilities. In the late 1960s the standard Chinese conversion factor was 7,576 linear meters of cloth per ton of cotton yarn. As the textile industry has improved the quality of its cloth and expanded its product line to include more heavy-weight fabrics, average linear output per unit of raw material has declined. Over the past five years, average output for cottons and blends was 4,562 linear meters per ton. This is comparable to the 1972 average for US cotton broadwoven goods (see table B-4 for comparability of conversion factors). Between 1978 and 1980, Chinese cottons averaged 37 inches in width; US broadwovens have averaged about 45 inches.

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**Appendix B**

**The Chemical Fiber Industry**

In the early 1970s Beijing decided to develop a major petrochemical-based fiber sector (see table B-1). New large complexes were planned for Shanghai, Tianjin, Liaoyang, Nanjing, and Beijing. By 1979 China had signed nearly \$3 billion in contracts for plants to produce textile-grade synthetic fibers. During 1979 uncertainties about petroleum feedstocks and financing briefly jeopardized some of these contracts. However, the textile ministry publicly gave priority to the chemical fiber sector in 1980, with 80 percent of the state investment for the textile industry being allocated to chemical fibers, and 21 of 34 planned new mills being chemical fiber plants. [redacted]

A second period of hesitation in 1981 again suspended progress on imported plants. With less optimistic prospects for long-term oil supplies, the textile ministry reduced the scope of the Nanjing project, which, if completed, would have been the world's largest polyester plant. For the present, only one-third of the original capacity for the complex will be installed. The Chinese have negotiated financing with Japan to continue other suspended projects, and a few additional smaller plants may be constructed. [redacted]

[redacted]

**Table B-1**

**China: Production of Chemical Fibers**

	1957	1970	1977	1978	1978	1980	1981
<b>Thousand tons</b>							
<b>Total</b>	<b>0.2</b>	<b>103</b>	<b>190</b>	<b>284</b>	<b>327</b>	<b>450</b>	<b>527</b>
Cellulosic	0.2	53	84	115	113	136	142
Synthetic	0.0	50	106	169	214	314	385
<b>Percent</b>							
Cellulosic	100	51	44	40	35	30	27
Synthetic	NA	49	56	60	65	70	73

**Cloth Production**

Because a large share of chemical fibers is used in blends and is reported along with the blended natural fiber, it has been difficult to determine production levels of pure chemical fiber cloth. China's announcements of new plants often mention capacity in terms of both tons and meters produced; these data have provided conversion factors for calculating approximate textile capacity from the chemical fiber output. Given variances in width, weight, and fineness of PRC fabrics compared with those made in the United States, the conversion factors seem reasonable (see table B-4). [redacted]

[redacted]

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**Table B-4** Linear Meters Per Ton

**Fiber-to-Fabric Conversion Factors**

Fiber	Average US Factors, 1972-77 <sup>a</sup>	Calculated Factor for PRC Fabrics
Cotton	4,596	4,562
Acrylic	2,137 <sup>a</sup>	4,390
Vynlon (nylon)	5,826	6,625
Polyester	9,898	10,325
Cellulosics	4,758	4,562

<sup>a</sup> Average from statistics in US Department of Commerce, Bureau of the Census, *Average Weight and Width of Broadwoven Fabrics (Gray)*, November 1977. Chinese acrylics are probably measured in linear-meter equivalents which average one-half the width of US acrylics.

Cellulosics—rayon and acetate—are used in pure and blended textiles largely for apparel. Rayon also is used in making tire cord and conveyor belts. Apparel-grade textile production probably reached 325 million meters in 1980, with additional fiber used in blends. Expansion of cellulosic capacity is limited by scarcity of suitable raw materials. By 1985 another 60 meters of capacity for apparel-grade rayon and acetate are expected to be on line. [redacted]

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Vynlon (polyvinyl alcohol) fabrics are primarily used for utility garments, but some vynlon blends are made into lightweight apparel. China has an estimated 200,000 tons of annual vynlon capacity which can yield up to 1.3 billion meters of cloth, of which an estimated 330 million meters is not blended with cotton, silk, or other synthetics. The textile ministry is concentrating on polyester to meet the need for lightweight fabrics which, coupled with delays in providing feedstocks to new vynlon plants, will prevent significant expansion of vynlon. [redacted]

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## Appendix C

### Wool, Silk, and Other Fibers

#### Wool

Wools include sheep's wool, mohair, cashmere, camel hair, yak, and other animal fibers. Acrylic yarns are blended with wool and may account for as much as one-half the raw materials used to produce wool textiles in China. [redacted]

In 1978 China's wool industry included 157 plants with 478,000 spindles. About 60,000 new spindles were added in both 1979 and 1980 and 90,000 in 1981. China has built several new plants including large and medium-sized facilities in Xinjiang, Qinghai, and Henan. Foreign investors have helped open new plants in Guangdong, Xinjiang, and Inner Mongolia; the output of these plants may not be included in the national production statistics. [redacted]

There are few complete data on domestic production of wool, and the statistics available do not indicate whether they include fibers other than sheep's wool. Late 1970s data on China's sheep inventory and wool output correlate strongly (see table C-1), but the average output per head is low when compared to the 1950's average of 1.1 kilograms. China's wool productivity is the lowest among major wool-producing countries, but new breeding programs will help increase output. Beijing claimed in 1981 that a new breed of sheep yields 6 to 7 kilograms of wool. [redacted]

China has published data on its woollen fabric production, including both natural and synthetic wools. One textile official claimed average woollens output of 2.5 million meters per 10,000 spindles, but available data suggest a lower average rate of about 1.7 million meters in recent years (see table C-2). It is possible that spinning mills are operating at about 70 percent of capacity. [redacted] China's total weaving and knitting capacity was about one-half its natural and synthetic wool yarn spinning capacity in 1979. Indeed, the textile ministry is seeking to enlarge China's fabric-producing capacity to correspond more closely with yarn output. [redacted]

**Table C-1**

#### Wool Productivity in China

Years	Sheep Inventory Beginning of Year (millions)	Wool Output (thousand metric tons)	Kilogram Per Sheep
1978	161	145	0.90
1979	170	153	0.90
1980	183	176	0.96

Future production of wool will depend mainly on expansion of herds, increase in weaving and knitting capacity, and improvement in raw wool output and spindle productivity. The herds increased at about 2.5 percent per year through the 1970s, and wool output at about 3.4 percent. In addition, imports have accounted for about 10 percent of total wool supply. If these rates can be sustained and if processing capacity can catch up, China's output of wool textiles should increase by 12 to 13 percent annually through 1985. [redacted]

#### Silk

Silks are traditionally "the Chinese textile," but they only account for a small share of the total textile industry. The textile industry has been trying to improve the productivity and quality of its silk industry, particularly after a record increase in silk cocoon production in 1980 (see table C-3). [redacted]

Few industrywide statistics on silk production are available; instead most Chinese press items on silk discuss local cocoon production or improvements at local silk mills. The high export value of silks has

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Table C-2

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Table C-3

**China's Silk Output**

Years	Raw Silk (metric tons)	Silk and Satin Fabrics (million meters)
1977	26,900	529
1978	29,690	610
1979	29,749	664
1980	35,400	759
1981	35,900	820

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prompted many localities and regions to expand mulberry acreage for silkworms. Advanced plants are installing automatic reeling machines, wider looms, jacquard looms, and quality improvement programs to increase productivity. [redacted]

The PRC's production of raw silk has increased 7.5 percent annually since 1977, whereas fabric output has expanded at an 11.6-percent rate. The disparity is due in part to a sharp decline in the share of raw silk exported in 1980. The 1981 export level was also low, leaving more raw materials for domestic textile production in those years. Cocoon yield per hectare has increased rapidly since 1976 but will probably grow more slowly in the 1980s. [redacted]

Because the growth rate of raw silk production is constrained by increases in mulberry acreage and environmental factors, output will not rise sharply in the 1980s. Silk production will probably reach 44,000 tons by 1985, with fabric production slightly exceeding 1 billion meters. [redacted]

**Other Fibers**

China also produces bast fibers such as hemp, jute, flax, and ramie. In 1979 hemp was listed by the Chinese among the top five fibers, but it is not a major apparel fiber. Bast fibers are generally used for

cordage, gunny bags, carpet and upholstery backings, and tarpaulins. Polypropylene has been introduced as a substitute for bast fibers in the manufacture of bags for packaging. In 1981 China made about 400 million polypropylene bags and 428 million traditional gunny bags. [redacted]

Flax is used in linen production, which does enter the apparel sector, but no information is available on the magnitude of production. Ramie is used, especially blended with cotton and polyester, in textiles primarily for domestic consumption. A new plant that opened in late 1981 in Hunan Province will produce 9.5 million meters a year of ramie and ramie-blend fabrics. The largest known bast fiber textile mill is at Guangzhou (Canton) and produces about 30 million meters of ramie and ramie-blend fabrics annually. Bast textile production is probably in the 100-million-meter-per-year range, with most output going to industrial uses. Although bast fiber production may increase slightly by 1985, it will have little impact on China's apparel-grade textile capacity. [redacted]

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## Appendix D

### Value of China's Textile Trade

Table D-1

Thousand US \$

## Exports, f.o.b., by Commodity

SITC <sup>a</sup>	Description	1975	1980
<b>26</b>	<b>Textile fibers</b>		
261	Silk	132,092	211,085
262	Wool and other animal hair	40,382	218,805
263	Cotton	59,972	15,280
264	Jute	154	16,199
265	Vegetable fibers, excluding cotton and jute	12,233	22,850
266	Synthetic fibers and regenerated fibers	56	265
267	Other manmade fibers	106	542
<b>651</b>	<b>Textile yarn and thread</b>		
6511	Thrown silk and other silk yarn and thread	43,771	86,946
6512	Yarn of wool and animal hair	334	8,240
6513	Cotton yarn, not mercerized, unbleached, not retail	36,883	156,444
6514	Cotton yarn and thread, bleached, dyed, mercerized	24,976	36,383
6515	Yarn and thread of flax, ramie, and true hemp	276	420
6516	Yarn and thread of synthetic fibers	9,704	43,463
6517	Yarn and thread of regenerated fibers	12,201	50,710
6519	Yarn of textile fibers, NES	101	2,541
<b>652</b>	<b>Woven cotton fabrics</b>		
6521	Cotton fabrics, woven, unbleached, not mercerized	233,928	464,344
6522	Cotton fabrics, woven, bleached, dyed, mercerized	204,605	429,459
<b>653</b>	<b>Woven textile fabrics, other than cotton fabric</b>		
6531	Silk fabrics, woven	112,534	267,638
6532	Woolen fabrics, woven	5,744	71,579
6533	Woven linen, ramie, and true hemp fabrics	260	810
6534	Woven fabrics of jute	93	3,224
6535	Woven fabrics of synthetic fibers	30,371	193,410
6536	Woven fabrics of regenerated fibers	28,173	70,997
6537	Knitted or crocheted fabric, not elastic or rubberized	570	7,951
6538	Woven fabrics of glass fiber	135	316
6539	Woven fabrics, NES	2,125	5,341
6540	Tulle, lace, embroidery, ribbons, trimmings	5,646	39,334

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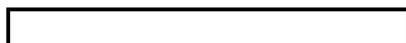
Table D-1 (Continued)

Thousand US \$

## Exports, f.o.b., by Commodity

SITC <sup>a</sup>	Description	1975	1980
<b>655</b>	<b>Special textile fabrics and related products</b>		
6551	Felt and articles of felt, NES	727	1,200
6554	Coated or impregnated textile fabrics and products, NES	318	1,339
6555	Elastic fabrics and trimmings of elastic	205	1,921
6556	Cordage, cables, ropes, twines, and manufactures	7,989	28,920
6557	Hat bodies	6,772	24,601
6558	Wadding, wicks, and textile fabrics for industrial use	963	2,049
6559	Special products of textile and related materials	798	1,132
<b>656</b>	<b>Made-up art, mainly of textile materials, NES</b>		
6561	Sacks and bags of textile materials	10,012	64,867
6562	Tarpaulins, sails, awnings, sunblinds, tents	391	1,166
6566	Blankets, traveling rugs and coverlets	20,638	46,212
6569	Made-up articles of textile materials, NES	169,118	516,101
<b>657</b>	<b>Floor coverings, tapestries, and so forth</b>	<b>62,868</b>	<b>272,647</b>
<b>841</b>	<b>Clothing</b>		
8411	Clothing of textile fabric, not knitted or crocheted	152,657	885,978
8412	Textile clothing accessories, not knitted or crocheted	34,604	120,179
8413	Apparel and clothing accessories of leather	22,952	152,135
8414	Clothing and accessories, knitted or crocheted	123,538	470,652
8415	Headgear	8,738	21,392
8416	Articles of clothing made of rubber	898	7,640
8420	Fur clothing and other articles made of furskins	10,109	68,468

<sup>a</sup> Commodities are categorized by the Standard International Trade Classification, Revised. For a more complete description of commodities included in each SITC category, see: United Nations, Statistical Office, *Commodity Indexes for the Standard International Trade Classification, Revised*, Series M, No. 38, Vols. I and II, New York, 1963.



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Table D-2

Thousand US \$

## Imports, f.o.b., by Commodity

SITC <sup>a</sup>	Description	1975	1980
<b>26</b>	<b>Textile fibers</b>		
261	Silk	0	0
262	Wool and other animal hair	10,178	138,559
263	Cotton	284,697	1,482,132
264	Jute	0	22,278
265	Vegetable fibers, excluding cotton and jute	7,747	2,808
266	Synthetic fibers and regenerated fibers	92,258	500,311
267	Other manmade fibers	27	209
<b>651</b>	<b>Textile yarn and thread</b>		
6511	Thrown silk and other silk yarn and thread	69	589
6512	Yarn of wool and animal hair	47	96,249
6513	Cotton yarn, not mercerized, unbleached, not retail	1,366	25,212
6514	Cotton yarn and thread, bleached, dyed, mercerized, and so forth	1,782	2,988
6515	Yarn and thread of flax, ramie, and true hemp	88	60
6516	Yarn and thread of synthetic fibers	31,318	244,426
6517	Yarn and thread of regenerated fibers	12,020	45,512
6519	Yarn of textile fibers, NES	78	2,981
<b>652</b>	<b>Woven, cotton fabrics</b>		
6521	Cotton fabrics, woven, unbleached, not mercerized	839	11,830
<b>653</b>	<b>Woven textile fabrics, other than cotton fabric</b>		
6531	Silk fabrics, woven	193	2,609
6532	Woolen fabrics, woven	29	1,289
6533	Woven linen, ramie, and true hemp fabrics	2,096	13,117
6534	Woven fabrics of jute	1,056	869
6535	Woven fabrics of synthetic fibers	29,800	238,760
6536	Woven fabrics of regenerated fibers	51	4,924
6537	Knitted or crocheted fabric, not elastic or rubberized	245	39,362
6538	Woven fabrics of glass fiber	21	35
6539	Fabrics, woven, NES	8	176
6540	Tulle, lace, embroidery, ribbons, trimmings	137	7,805
<b>655</b>	<b>Special textile fabrics and related products</b>		
6551	Felt and articles of felt, NES	30	654
6554	Coated or impregnated textile fabrics and products, NES	3,581	27,863
6555	Elastic fabrics and trimmings of elastic	9	2,230
6556	Cordage, cables, ropes, twines, and manufactures	51	873
6557	Hat bodies	0	8
6558	Wadding, wicks, and textile fabrics for industrial use	357	14,302
6559	Special products of textile and related materials	28	247

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Table D-2 (Continued)

Thousand US \$

## Imports, f.o.b., by Commodity

SITC <sup>a</sup>	Description	1975	1980
<b>656</b>	<b>Made-up articles, mainly of textile materials, NES</b>		
6561	Sacks and bags of textile materials	1,878	4,415
6562	Tarpaulins, sails, awnings, sunblinds, tents	1	55
6566	Blankets, traveling rugs, and coverlets	9	75
6569	Made-up articles of textile materials, NES	573	5,055
<b>657</b>	<b>Floor coverings, tapestries, and so forth</b>	<b>140</b>	<b>877</b>
<b>841</b>	<b>Clothing</b>		
8411	Clothing of textile fabric, not knitted or crocheted	88	2,641
8412	Textile clothing accessories, not knitted or crocheted	18	3,598
8413	Apparel and clothing accessories of leather	5	2,340
8414	Clothing and accessories, knitted or crocheted	58	11,706
8415	Headgear	43	357
8416	Articles of clothing made of rubber	1	86
8420	Fur clothing and other articles made of furskins	1	200

<sup>a</sup> Commodities are categorized by the Standard International Trade Classification, Revised. For a more complete description of commodities included in each SITC category, see: United Nations, Statistical Office, *Commodity Indexes for the Standard International Trade Classification, Revised*. Series M. No. 38, Vols. I and II, New York.



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