

TRENDS IN THE TEXTILE INDUSTRY: IMPACTS ON THE COTTON SECTOR

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Abstract

Three major trends impacting the textile manufacturing industry, from the global and the U.S. standpoints, are considered: (1) globalization and the information revolution, (2) trade policies and programs, and (3) competition within and between fiber groups. Effects on the textile industry are used to draw implications for the U.S. cotton sector that is competing to supply textile manufacturers.

Introduction

The cotton fiber is an industrial raw material that is utilized primarily by the textile manufacturing industry. Therefore, in order to reach and serve the ultimate source of demand for cotton, the consumers, it is necessary to serve the needs of textile manufacturers well enough to displace other available fibers—whether they be foreign cotton, other natural fibers, or manmade fibers. Success for the cotton production sector requires understanding and accommodation of the major trends impacting the textile industry.

Time constraints make it impossible to be comprehensive; rather, it is necessary to select major trends for emphasis. Many of the factors driving developments in the textile manufacturing sector may be grouped under three categories:

- Globalization and the information revolution,
- Trade policies and programs, and
- Competition within and between fiber groups.

Each of these will be considered to the extent that time will allow.

Globalization and the Information Revolution

It is impossible to explain the accelerating trend toward “globalization” apart from the “information revolution.” Too many people still limit their concept of globalization to increased trade, which is only one of the symptoms that accompany it. Please remember this: Globalization is inextricably related to the ease and the speed of obtaining and communicating knowledge and information.

Computerization/Telecommunication

Globalization advanced at a moderately accelerating, *evolutionary* pace throughout much of the 20th century. During the last fifteen to twenty years, however, synergy among computers, space satellites, and communication infrastructure has accelerated the process of globalization to a *revolutionary* pace. The convergence of these technologies is making telecommunications (of data and other information) the mechanism that will shape the business, political and cultural realities of the next century—much as the “industrial revolution” shaped the 19th and 20th centuries. For better or worse, there is little doubt that the 21st century will be known as the “information age.”

The textile industry was the fountainhead of the industrial revolution when it began in the 18th century. It is ironic, therefore, that the information revolution is transforming global competition to such a degree that it may eventually end the status of textile manufacturing as a bastion of protectionism in much of the world. If so, I believe it may unfold a great opportunity before the U.S. textile industry and before the U.S. cotton industry that serves it.

Throughout the majority of the 20th century, most newly developed capital equipment for the textile industry was used to produce *things*. Now, however, much of the new equipment is used to produce *information*—which is then used to monitor and control production processes, to facilitate buying and selling activities, to predict outcomes and control risk, etc. For example, the on-going development of robotics to perform tasks necessary for production is largely based on the capability to generate information (on a real-time basis) and use it to guide the activities of the robotic machinery.

We have watched this century as the number of people working the land to produce food and fiber in the U.S. dropped to less than two percent of the population. Now we are watching the number of people operating the machinery in textile factories drop rapidly even as output capacity is increasing. It is increasingly misleading to classify yarn and fabric formation as “labor intensive.” It is still appropriate to label it “capital intensive,” but it is increasingly appropriate to characterize it as “information intensive.”

Objective Measurement and Quality Control

Developments within the last twenty-five years have brought within our reach the ability to objectively measure the properties of fibers going into textile manufacturing processes and the quality of products being produced. Therefore, we can reach new levels of exactness in quality control—which translates quickly into higher levels of manufacturing efficiency. This is critically important for cotton, which is a natural fiber with complex, biological distributions of properties that could not be adequately measured and manipulated until computers became very powerful and fast. The capability for measurement and

statistical process control translates into an improvement in cotton's comparative advantage relative to the manmade fibers.

This speed and power provided by computerization and telecommunication also makes it possible to refine price information (specific to alternative fiber properties) and make it available to the (increasingly electronic) marketing system. The advantages of increased marketing efficiency will accrue to those cotton production sectors that can exploit the computerized measurement and information technologies. The emerging textile manufacturing industry of the 21st century will be looking for cotton that comes with such information.

Quick Response

One of the most visible manifestations of on-going developments related to the information revolution is the focus on "quick response" (QR) by the U.S. textile industry. QR was formally conceived about a decade ago as a business strategy for all participants in textile channels (textile manufacturers, apparel manufacturers, and retailers) to exploit technology and collaboration in order to shorten the response times between junctures in the system.

During the past decade, it is estimated by Kurt Salmon Associates (KSA) that increased efficiencies from QR have saved the U.S. system about \$13 billion annually (*Southern Textile News*, 1997). Large savings have come from reducing excess costs associated with inventories that are not in accord with market demands. In effect, investments in the technology and organization required for QR have been more efficient than investments in warehouses and inventories.

Vertical Integration

The process of incorporating QR within the U.S. textile industry leads inevitably to more vertical integration throughout the market channels. The integration is being accomplished largely by contractual arrangements, rather than by ownership arrangements. It should not be confused with either the merger binge in textile manufacturing that took place during the 1980's or the mergers that are occurring now. These mergers are manifestations of horizontal integration, not vertical integration, and they are aimed at achieving a size and market power sufficient to deal with dominant, multinational retail firms and with related global market challenges.

This contractual vertical integration phenomenon may become an American version of marketing networks that exist in Japan, Inc. If so, it is likely that the American networks will have the virtue of being "merit based," in that the main criterion will be an integrated supply chain that more effectively meets consumer needs.

The U.S. textile manufacturing industry is now taking some initiatives to extend this vertical integration back to the

cotton ginning and production sectors. For example, it is the driving force behind initiatives to control gin processes in order to optimize the cotton fiber properties. Also, the institutionalization of the Permanent Bale Identification (PBI) System, which must be actuated at the gin points, has been sped along by insistence and leadership from the textile manufacturing sector of the National Cotton Council. The PBI Task Force Chairman, George Herron of Dan River Mills said: "These ginners are to be commended for taking this step. This system is going to add value to each U.S. bale by making inventory management more accurate and efficient." (Denning, 1997, p. 12) His statement reflects the growing industry awareness that additional information generally means additional value.

The U.S. Textile industry knows very well that the kind of "information integration" it needs from the cotton production sector can only be realized in the foreseeable future through cooperation with U.S. cotton producers and ginners. Therefore, U.S. cotton producers have an opportunity to become more vertically integrated (making their supply position with U.S. textile manufacturers more "exclusive"), while simultaneously positioning themselves to work in coordination with other state-of-the-art textile mills anywhere in the world. It also bears remembering that that increasing numbers of state-of-the-art mills in other countries will be owned by U.S. companies.

Trade Policies and Programs

The issues related to international trade in both textiles and fibers should be well understood by anyone who wishes to make his living in either of these sectors. This is clearly an arena in which the national government must take responsibility and provide leadership.

The China Factor

While countries like India and Turkey will be critical to the course of future cotton and textile trade developments, the "wild card" in any future scenario is China. It has twenty-two percent of the world's total population and only seven percent of the world's farmland, yet it rivals the U.S. as the world's largest cotton producer. Perhaps sensing the absurdity of this situation (or perhaps simply suspecting that it cannot be sustained), the Chinese government has now leveraged China into the position of having the world's largest production capacity for polyester.

The only safe bet is that China will, if possible, leverage more and more polyester (and other synthetic fibers) into global textile markets. As long as the Communist government has a strong centralized control, this will likely be done without concern about (or even comprehension of) the astronomical net social costs to China. Certainly there will be no consideration of the artificially induced damage to cotton's global market shares and price levels. Textile manufacturing accounts for about 15% of the gross value of China's total industrial production and for about 30% of all

export generated foreign exchange. It is unlikely that the government will think creatively about how to substitute other industries for this “huge chunk” of its industrial base.

GATT / WTO

Unfortunately, the GATT (General Agreement on Tariffs and Trade) negotiations, resulting in the current World Trade Organization (WTO), provided no structural stability to world trade in either cotton or textiles. Both the Reagan and Bush Administrations made liberalization of agricultural trade a condition for signing a new agreement, resulting in no agreement being signed before Bush’s presidency was ended by the 1992 election. The Clinton Administration quickly decided to forego inclusion of strategic objectives for either agricultural or textile products in the new agreement.

Regional Trading Blocks

Some seem to view world trade as an all-or-nothing issue; perhaps they relate only to a comparative static analysis of alternatives in trade policy. Nevertheless, the main dynamic in world trade issues now is the development and evolution of regional trading blocks. These include the North Atlantic Free Trade Agreement (Nafta), the Caribbean Basin Initiative (CBI), the European Union (EU), the Southern Cone Common Market (Mercosur), and the Andean Community (ANCOM).

This forum does not permit a policy discussion about each of the regional trading agreements mentioned above; neither will the merits of enlarging the free-trade region to the entire Western Hemisphere be considered. The focus will be limited to the Nafta and the CBI, since they are obviously important to the current and future situations for both U.S. cotton and textiles.

The fundamental influence of Nafta and CBI on the U.S. textile industry—and on the U.S. cotton industry—may be seen in some textile production, cotton consumption, and trade statistics. The CBI was made effective in 1982 and the Nafta in 1993. Using a decade of available trade data, from 1987 to 1996, the impacts of each of these may be seen. Table 1 gives the U.S. textile and apparel trade deficit for each of these years. Under the CBI, the textile trade deficit trended slightly downward and the apparel trade deficit trended slightly upward, causing the total deficit to stay relatively flat through 1991. Starting in 1992, perhaps in anticipation of the Nafta, the textile trade deficit increased slightly while the apparel trade deficit showed a modest uptrend. The U.S. manufacturing industry, which is normally militant about any increase in trade deficits, stayed quiet because these uptrends were due primarily to transshipments from U.S. manufacturers to Nafta companies in Mexico. As of 1997, Mexico and the Caribbean have become the largest suppliers of apparel imports to the U.S., displacing China and the Far East. This is welcome news for the U.S. textile industry because it is “in partnership” with Mexico and the Caribbean. It is also welcome news to

the U.S. cotton industry because the U.S. textile industry consumes primarily U.S. cotton.

The data clearly show that textile and apparel exports from all the Nafta countries have increased under the agreement (Table 2). While the ranking of countries has stayed the same, Mexico’s exports have increased most, both because of transshipments to the U.S. and more products made completely in Mexico. In the process, Mexico has become the first or second largest importer of U.S. cotton—reflecting the fact that it is using primarily U.S. cotton to make its textile products.

Table 3 shows that the tenure of Nafta corresponded with a consistent uptrend in U.S. exports of textiles and apparel. The index of U.S. apparel exports has actually increased more than the index of U.S. textile exports, but the index of the combined exports increased an impressive 79% between 1991 and 1996. This export performance has not been equaled in many years.

There is no doubt that the increasing U.S. exports are the result of Nafta and CBI. During the first half of 1997, two-thirds of U.S. textile and apparel exports went to Nafta and CBI destinations (Table 4). Another 23% went to the European Union, Japan, and South America. The remaining 11% went to various countries in the rest of the world.

To see what this means to U.S. cotton producers, compare the domestic and export shares of total U.S. cotton off-take during the 1987-88 crop year with those expected during the 1997-98 crop year (Table 5). In 1987-88, 54% of the total cotton off-take was by U.S. textile mills and 46% was exported. In 1997-98, it is expected that 62% will be due to domestic mills and 38% will be exported. This is especially good news in view of the fact that the total off-take (domestic plus export) increased from 14.2 million bales in 1987-88 to an estimated 18.4 million bales in 1997-98 (Table 5). This is an increase in total off-take of 30%, with most of the increase due to domestic mill use.

Competition Within and Between Fibers

Time limitations will permit only brief comments about trends in intra-fiber and inter-fiber competition. The “China Factor” is the most important single influence on both of these, but the impact on competition from polyester and other manmade fibers may be tremendous in coming years.

It is fundamentally important, however, to realize that concentration in textile manufacturing during the last two decades has occurred primarily in those countries that are the largest producers of cotton. A case-by-case analysis of the countries involved reveals that this has resulted from national industrial policies aimed at exploiting value-added production and obtaining increased foreign exchange revenues—certainly not from a *laissez faire* response to underlying comparative advantages.

Nothing short of *bona fide* global liberalization in cotton and textile trade can be expected to break this correlation between cotton production and textile production. Failing this, the U.S. cotton industry has ample reason to strengthen its alliances with the U.S. textile manufacturing industry, because these two industries will likely prosper (or suffer) together.

References

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Table 1. U.S. textile and apparel trade deficit (\$ mil.)

Calendar Year	Textile Deficit	Apparel Deficit	TOTAL Deficit
1987	3,994	20,804	24,798
1988	3,098	21,303	24,401
1989	2,197	22,473	24,670
1990	1,477	23,150	24,627
1991	1,499	22,987	24,486
1992	2,066	27,135	29,201
1993	2,543	28,965	31,508
1994	2,762	31,287	34,049
1995	2,802	33,046	35,848
1996	2,433	34,272	36,705

Source: ATMI

Table 2. Nafta textile and apparel exports (\$ bil.)

Calendar Year	United States	Mexico	Canada
1992	3.2	1.2	0.9
1993	3.5	1.4	1.2
1994	4.3	1.9	1.5
1995	4.9	3.1	1.9
1996	5.6	4.3	2.3

Source: ATMI

Table 3. Index of U.S. exports of textiles and apparel (1991 = 100)

Calendar Year	Textiles	Apparel	TOTAL
1991	100.0	100.0	100.0
1992	107.7	131.0	116.0
1993	111.5	158.6	128.4
1994	121.2	179.3	142.0
1995	134.6	213.8	163.0
1996	144.2	241.4	179.0

Source: Southern Textile News

Table 4. Shares, by destination, of U.S. exports of textiles and apparel*

Nafta countries	39.6%
CBI countries	26.3%
European Union	11.6%
Japan	6.3%
South America	4.7%
Rest of world	11.5%

*For first half of 1997

Source: ATMI

Table 5. Off-take of U.S. cotton

Crop Year	Domestic Share (%)	Export Share (%)	Total Off-take (mil. bales)
1987-88	53.6	46.4	14.2
1997-98p	61.6	38.4	18.5

Source: USDA