



Global Dynamics Impacting Yarn Production and Consumption

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ABSTRACT

This paper will provide the overview of the factors likely to affect the competition in the global yarn market related to yarn production and consumption. This report examines research, trade literature and government statistical reports regarding the yarn production, exports and imports, movement of machinery, preferential trade agreements and yarn consumption. To conclude, the trends in yarn production and consumption in different regions will be identified. Additionally, this study will provide the factors that should be considered for the yarn industry to stay competitive in this globally dynamic yarn market.

Keywords: Yarn Production, Yarn Consumption, Global Dynamics, Competitiveness, Imports and Exports

Introduction

Since the global yarn market has become competitive, domestic consolidation and regional adjustments are anticipated (Dockery, 2005). It is possible, from historical data, to examine the different factors that affect yarn production and consumption.

In a quota-free world, it is anticipated that relatively low-priced imported textile products will reduce the demand for domestic yarn (Gazanfer, 2005). As for the changes currently taking place in textile industry, the elimination of quota resulted in a flooding of Chinese imports last year. This year, additional adjustments will be required to deal with new 2006-2008 Chinese quotas, a possible upward revaluation of the undervalued Chinese yuan and all the new producer distribution-retail channels that are

J being developed and refined (Reichard, 2006). Many strategies evolved to stay competitive in yarn market during the year 2006. James W. Chesnutt, CEO, National Spinning Co. Inc., New York City and Chairman, National Council of Textile Organizations (NCTO), Washington asserts that if U.S. textile industry is going to be successful, it must go through Congress. One of the most successful legislations passed by congress in recent years is to put 34 categories of textiles and apparel products from China under safeguards (Chesnutt, 2006).

Some of the United States spinners have provided an outlook for spinning industry in 2006 and beyond. They envision in short term, that the U.S. spinning industry will have the advantage to work with Central American vendors, especially with the passage of CAFTA-DR. However, the

long-term outlook is tempered by uncertain business conditions and increasing imports (Dockery, 2006). As apparel production is moving to Central America, with the closing of US operations, spinning manufactures are moving in the same direction to become yarn suppliers and to gain a competitive advantage in speed-to-market strategy for US marketplace.

The key drivers determining the competitive advantage in producing textile and apparel items are many factors such as energy, interest rate, etc. According to Julian (2005), the key drivers are labor, capital/infrastructure, technology, and raw materials (Julian, 2005). Labor competitiveness is defined in terms of labor cost per unit of output or called unit labor cost (Culbertson & Hackett, 2005). Capital/Infrastructure is the money available to build upon an existing base (Julian, 2005). Technology is the process of incorporating the best available expertise and equipment into the production. Raw materials are considered to be a key driver when there is a cost difference between competitors (Julian, 2005).

To understand global dynamics of yarn market we have to obtain a meaningful measurement for the consumption by

consumers in each country, the import and export trade of yarn must be evaluated. Knowing where and what are being consumed by whom, allows yarn production and future growth to be more understandable and predictable (Julian, 2005). Therefore, this report will particular emphasize yarn production and consumption, and the factors likely to affect the competition in the global yarn market.

Historical

Regionalizing production networks in the textile and apparel industry

Several broad regional shifts have occurred in the global textile and apparel industry since the 1950's (see Figure 1). The relocation of production is mostly dominant in the apparel industry. Some researchers think that the internationalization of apparel manufacturing began earlier and has extended further than that of any other industry. Textile and apparel firms have relocated their labor-intensive manufacturing operations from high wage regions to low-cost production regions in industrializing nations. Since the 1960's, the industrializing countries of Asia and some countries of Latin America have achieved a healthy return from export-oriented production (Gereffi, 1999).

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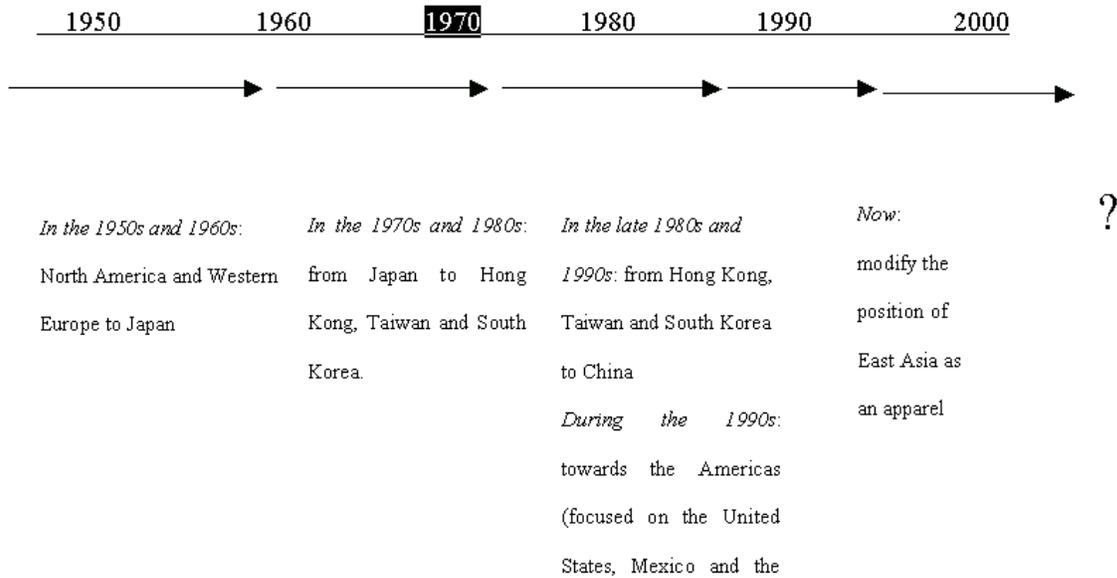


Figure 1. Movement of Manufacturing (Patterns of global shifts in manufacturing)

Source: Author (Tangboonritruthai, S., 2005)

According to Bair and Gereffi (2002), the first migration of apparel production was from North America and Western Europe to Japan in the 1950's and 1960's. Since Japan turned its interest to more profitable products such as cars, stereos and computers, and the Japanese textile and clothing sector lost 400,000 workers (Catholic Agency For Overseas Development (CAFOD), 1998). As a result, the second supply shift of apparel production took place in the 1970's from Japan to the Asian Tigers – South Korea, Taiwan, Hong Kong and Singapore. The trend of relocation of production did not stop there, and in the 1990's the textile and apparel industry had been dominated by the final wave of exporters, which include Bangladesh, Sri Lanka, Pakistan and Vietnam (Dicken, 2003). While China was the principal beneficiary of the shift (in less than ten years from the late 1980's), China became the world's major producer and exporter of clothing (CAFOD, 1998). During the 1990's, the relocation in production moved towards the Americas, which was focused on the United States, Mexico and the Caribbean.

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Since the late 1990's, East Asia has become an apparel production complex, and other major regions were consolidated to become regional apparel complexes, such as the Americas and Europe. The reason lies in the trade-off between labor costs on the one hand and the need for market proximity on the other. Because time-to-market and the need to response of short-cycle production are beginning to impact competition in retail, apparel and textile channels, three global regions are emerging: 1) the United States plus Mexico and the Caribbean Basin; 2) Japan plus East and South East Asia; and 3) Western Europe plus Eastern Europe and North Africa. Each of these regions includes both advanced economics and developing areas that are close to consumer markets (Abernathy et al., 1999) that might give the benefit when the manufacturing system give the quick response.

The creation of the EU and the North American Free Trade Agreement (NAFTA) has led to the imposition of preferential tariffs within regional markets, which has generated a major shift in global sourcing dynamics (United Nations Industrial Development Organization

(UNIDO), 2003). Furthermore, US apparel and home textile operations will continue to move offshore, to lower cost locations, due to further downward pressures on prices through trade liberalization and the need to be closer to major apparel manufacturing centers (Kilduff, 2005). However, domestic operations will continue in innovation to produce leading edge products, while the brain function of design, marketing, operations management and related functions will remain centered in the USA for the future (Kilduff, 2005).

Global Dynamics

Globalization is creating a growing level of interconnectedness and competition in the world economy, and geographical clustering of activity is an important way in which firms and localities deal with these pressures (Dicken, 2003). As a result, extraordinary changes are taking place in the

world of textiles. The six main drivers in textile industry today are as follows:

Labor costs

The driving force of transition in the textile business is competitive advantage. One component of competitive advantage is labor; labor cost has driven the textile industry to sourcing products from developing countries. Similar to other industries, the hourly labor cost is one of the major factors that impact competitiveness. According to a Werner International (2005) newsletter, Switzerland has the highest hourly labor cost. Japan has dropped from the first place in 2000 to the third place in 2004 (see Figure 2). Several countries positions have changed, due to the changes in the exchange rate of the United States Dollar. When compared to those in 2003, there is not much change in the low labor wage countries of ranking: the lowest labor costs are noted in Asia, with Sri Lanka, Vietnam, and Pakistan.

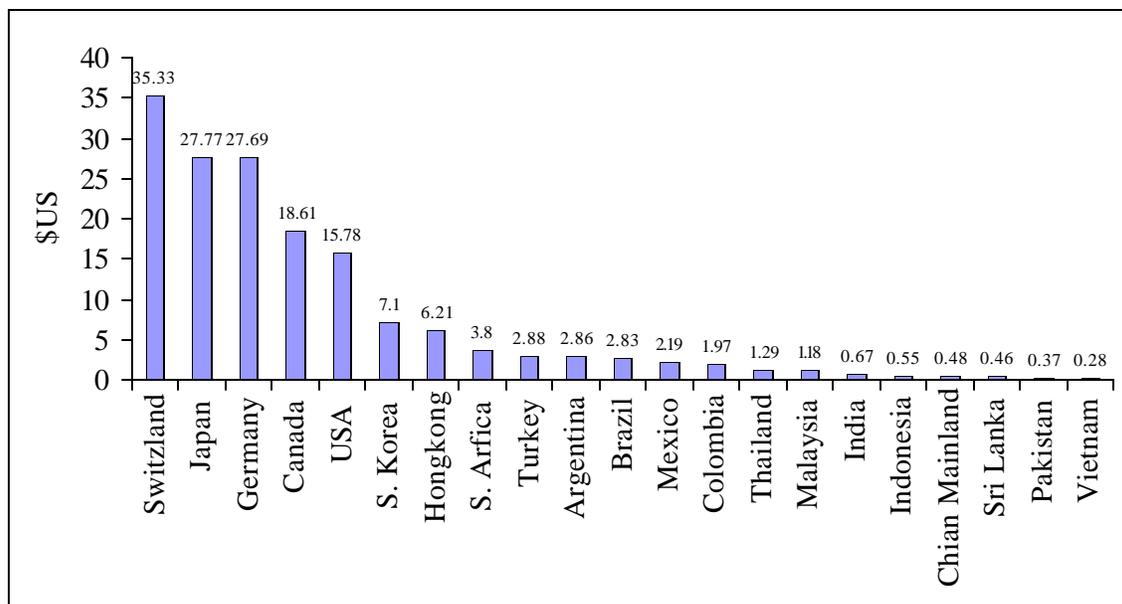


Figure 2. Average cost per operator hour comparison in the primary textile industry (\$US) in 2004, selected countries

Source: Werner International. (2004). *Primary Textiles Labor Cost Comparisons Winter 2004/2005*. Reston, VA: Werner International, Infotext Division.

Note: Employee benefits are not included [U.S. Department of Labor. (2005)].

In the spinning industry, the movement of U.S. yarn manufacturers to lower labor cost countries might not be the most economical solution (Dodd, 2000). However, since U.S. yarn producers still have to pay for the transportation costs, it may be better to have their production close to their customers. In order to make labor cost per unit more meaningful, we have to introduce labor productivity factor into the calculation of unit cost. Even then it can only give a limited view of the total competitiveness of the primary textile industry, since total competitiveness depends on other costs and other factors, such as raw material, energy, interest cost, inventory turn-over, throughout time, quality, and styling (OECD, 2004).

Tariffs and Regional Trade Agreements

Since a lot of the textile industry is closely tied to apparel, the effect of lifting quotas has as much, or more, to do with the vulnerability of the U. S. textile industry as it does for apparel (Abernathy, Volpe, & Weil, 2005). After the elimination of quota in January 2005, some buyers shifted their sourcing from the cost effective region formerly limited by quotas. Although quota elimination may continue to drive production to Asia, the emergence and expansion of trading blocs, as well as the increasing trend of preferential trade agreements as political tools, will constrain the migration of production within the region (Singhal, 2004).

Although quota was ended under terms of the Agreement on Textile and Clothing (ATC) in 2005, tariffs established within the system of bilateral agreements will remain. Tariff agreements are the set of regional trade agreements that provide participants with full or partial relief from their partner's standard tariff rates on certain products under certain conditions (Chiron, 2004). As the result, it gives the competitive advantage to particular suppliers with duty free benefits under the same agreement. In the United States, a key preferential trade agreement that has impacted spinning industry is the North American Free Trade

Agreement (NAFTA) signed in 1994. This agreement eliminated quotas and tariffs on duty-free benefits to apparel made from yarn originating between member countries: Mexico, Canada and United States (The Office of Textiles and Apparel (OTEXA), 2006).

The second trade agreement was the Caribbean Basin Trade Partnership Act (CBPTA), enacted in 2000. According to the CBPTA agreement section 211(b)(2)(A), members (see Appendix A) receive the benefits of market access to the U.S with duty and quota free products, as long as products are constructed strictly from U.S. yarns and textiles (Abernathy, Volpe, & Weil, 2005). For example, eligible apparel articles can be assembled in one or more CBTPA beneficiary countries from fabrics wholly formed and cut in the United States, or from yarns wholly formed in the United States. Moreover, it includes the articles assembled with thread formed in the United States (OTEXA, 2006).

The third trade agreement, the Andean Trade Preferences Act (ATPA), effects in lower or eliminate duties on imports from Bolivia, Colombia, Ecuador and Peru. This agreement provides duty and quota free imports of apparel assembled from U.S. formed, dyed, printed and finished fabrics or fabric components, or knit-to-shape components from U.S. or regional yarns (OTEXA, 2006). The fourth agreement, the Central America-Dominican Republic-United States Free Trade Agreement (CAFTA-DR), which was signed on August 5, 2005, is designed to eliminate tariffs and trade barriers and expand regional opportunities for the workers, manufacturers, consumers, farmers, ranchers and service providers of all the countries (OTEXA, 2006). The agreement immediately eliminate tariffs on more than 80 percent of U.S. exports of consumer and industrial products, phasing out the rest over 10 years. Eighty percent of CAFTA-DR imports already enter the United States duty free under the Caribbean Basin Initiative (OTEXA, 2006). This agreement allows apparel produced in the five Central

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American countries (see Appendix A) and the Dominican Republic under the U.S. yarn forward, rule of origin and short supply¹ to enter the U.S. duty free. In fact, since Central American countries lack their own yarn-producing industries, they will still have to import yarn from the United States for the future (Bair & Dussel, 2004).

Supply Chain

Logistics and transportation services have become a leading area of growth in the global market. The challenge for supply chain management is the ability to accomplish delivery of the right products at the right time, all for low costs (Plunkett's Research, Ltd., 2004).

According to Kurt Salmon Associates (KSA, 2004), the bigger retailers have a significant impact on supply chains, especially with their increased negotiation power when purchasing large volumes. In international markets, companies are required to pay attention and deliver satisfaction to consumers, while finding and maintaining specialized, reliable, highly competitive suppliers. Since the textile chain has changed from a supply chain to a demand chain, the key success factors for this chain in the future will be joint forecasting and planning, and joint inventory management as a result of cooperation by all firms in the chain (KSA, 2005). Some experts expected that it is worth to pay more for the benefits of a better implementation of the supply chain, and retailers will look for new partnerships to access new groups of customers (Cole, 2004).

One global supplier, Unifi, has refocused marketing efforts of yarn products to include downstream marketing activity. Unifi's emphasis includes a "pull through" marketing effort by focusing on brand development of yarn products, as well as to educate and inform merchandisers, designers, customers and retailers. As a result, retailers will request specific suppliers whom they have acknowledged that will offer good quality products and good services.

Technological Change and Innovation

Technological change is a form of learning about how to solve specific problems in a highly differentiated and volatile environment (Dicken, 2003). The technology is used to reduce costs, improve quality and increase flexibility (Sabanci, 2005). The impacts of technology changes affect the local, regional and worldwide industry. Economic theory, historical evidence, and growth models confirm that advancing technological knowledge is the most important single factor that contributes to long-term productivity and economic growth (Freeman, 1997).

The spinning industry has a long history in terms of technological advances, and over the past few decades, this industry has had an almost continuous flow of new developments in terms the process methods in production. The three spinning technologies (ring, rotor, air jet spinning), with their different focus on applications, cover the entire range concerning fineness and input materials. The majority of all machines running (about 80% on the world's machines), produce yarns in the count range from Ne 5 to Ne 30. The majority in ring spun yarn covers the range from Ne 18 to Ne 30 (Saurer, 2005).

Machine speeds have risen, and automated operations have improved production capability, and increased product quality demands (Dinsdale, 2004). One of the most important technological innovations in the spinning of yarn was the introduction of open-end spinning, which combined what were formerly three separate processes into a single process using rotors instead of spindles. Spinning speeds increased at least four-fold, and labor requirements were reduced by approximately 40 percent (Dicken, 2003). The innovations have led to further improvements, including the increased automation and increased speed of textile operations and the consequent reduction in the number of worker needs. The drive to introduce new technologies has been stimulated mainly by the need for the production in developed country to be cost

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competitive in the face of the very low labor costs in developing countries (Dinsdale, 2004). Cost reduction is not the only benefit derived from the new technologies for developed countries to gain cost competitive over the low labor costs in developing countries, but timesaving as the result of the automated manufacturing, also provides greater benefits for the manufacturers to respond quickly to customer demand (Dicken, 2003).

Quality

Quality has been defined as value (Abbott, 1955), conformance to specifications (Gilmore, 1974), fitness for use (Juran & Gryna, 1988), and meeting and/or exceeding customer's expectations (Parasuraman, Zeithaml, & Berry, 1985). In the textile industry, the importance of quality cannot be overstated. For example, the combed cotton yarn in Canada represents high quality products that can compete over low labor cost products. The better quality of products and services on a consistent basis are needed for industry to compete internationally (Sabanci, 2005). With the competitiveness in low-wage countries, the differentiated products with high quality have made the Italian manufacturer an example of the major exceptions in competing for low-price products. In general, the Italian producers have pursued a strategy of product specialization. They have

focused on a fashion orientation with the aim of avoiding dependence upon these types of goods most strongly affected by low-cost competition.

Oil prices

The rapid increase in oil prices is one of the keys driving the development of the global market, especially in production cost and consumer spending. With higher oil prices, the raw material prices will be a major issue in the spinning industry. If oil prices fail to decline to more substantial levels, it becomes less probable that world GDP growth will continue to be above 4% in 2005 and 2006, and both world textile fiber and cotton consumption will likely grow at lower rates (International Cotton Advisory Committee (ICAC), 2005).

Global Competition in Yarn Production

World Yarn Production

The growth rate in cotton yarn production dramatically increased 25.9 % from 1995 to 2000 and still increased but at a lower rate (13.3%) in the last 5 years (2000-2005) (see Figure 3). World production of cotton yarn is moving toward certain global regions, especially the Asian region. During 1995-2000, the growth rate of Asia & Oceania increased 20.1%, with a more significant increase of 35.2% during 2000-2005 (see Table 1).

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Table 1*World Production of Cotton Yarn by Regions (000 Metric Tons)*

	1995	2000	2005	Growth Rate 1995-2000	Growth Rate 2000-2005	Share of the World 2004
	(000 Metric Tons)			(% Change)	(% Change)	(% Share)
Regions						
North America	2,250.6	2,387.0	1,450.9	6.1	(39.2)	6.4
Central America	13.6	21.3	15.6	56.6	(26.8)	0.1
South America	903.8	986.3	920.0	9.1	(6.7)	4.0
Americas	3,168.0	3,394.6	2,386.4	7.2	(29.7)	10.5
Africa	563.0	421.8	398.3	(25.1)	(5.6)	1.8
Europe	1,616.1	1,576.2	1,309.6	(2.5)	(16.9)	5.8
Asia & Oceania ^(a)	10,561.9	12,680.1	17,149.8	20.1	35.2	75.4
Europe, other (Turkey)	369.2	1,040.0	1,106.2	181.7	6.4	4.9
World	16,718.9	19,493.5	22,741.9	16.6	16.7	100.0
						% Share of Asia & Oceania^(b)
Selected countries						
China (Mainland)	5,422.5	6,575.7	10,976.6	21.3	66.9	64.0
India	1,834.0	2,290.0	2,147.2	24.9	(6.2)	12.5
Pakistan	1,210.5	1,706.7	2,106.2	41.0	23.4	12.3
						% Share of Americas
United States	2,012.4	1,906.2	1,052.2	(5.3)	(44.8)	44.1

(a) Asia & Oceania represents 19 countries; China, Hong Kong, Taiwan, Australia, Indonesia, Japan, Korea, Malaysia, Philippines, Thailand, Vietnam, Afghanistan, Bangladesh, India, Myanmar, Pakistan, Sri Lanka, Iran, Israel.

(b) Three Asia countries represents 88.8% of the total share of Asia & Oceania.

Source: International Cotton Advisory Committee (ICAC). (2004). *World Textile Demand*. Washington, DC: Author.

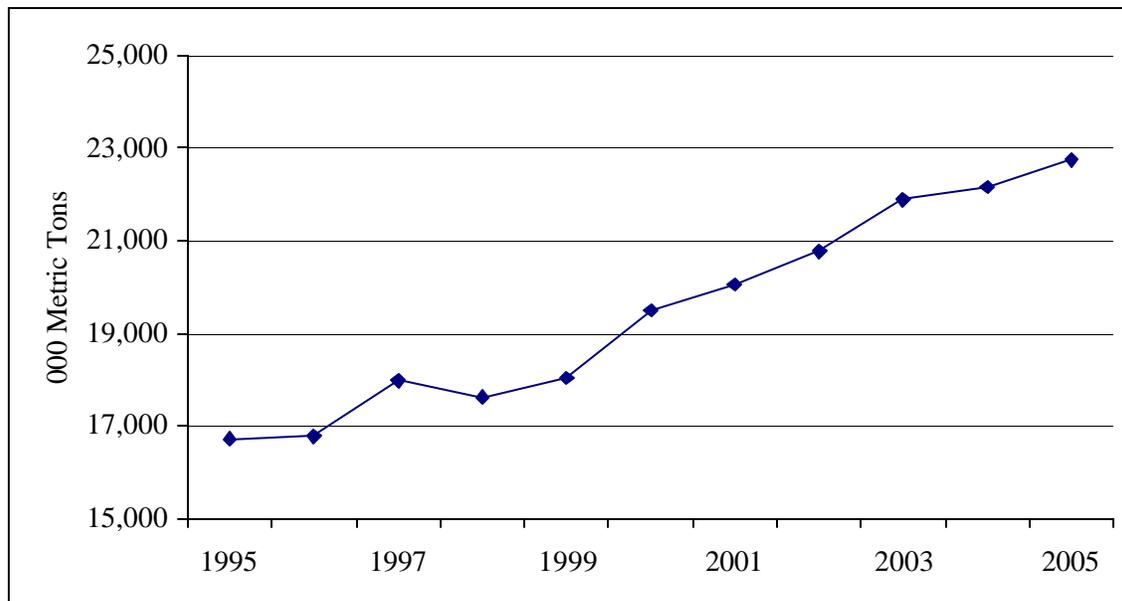


Figure 3. World cotton yarn production, 1995-2005

Source: International Cotton Advisory Committee (ICAC). (2004). *World Textile Demand*. Washington, DC: Author.

In 2005, Asia & Oceania region accounted for the biggest production of cotton yarn with a share of 75%, followed by North America (6%), South America (4%), Europe (6%), Europe (other, including Turkey, 6%), Africa (2%), and other countries (2%) (see Figure 4). Within the region, the highest share of the cotton yarn production still belonged by China (Mainland), which accounted for 64 % of total cotton yarn produced in Asia & Oceania (see Table 1). Besides China, other countries that play a major role within this region include India and Pakistan, which when combined with China accounted for 88.8% of cotton yarn production in Asia & Oceania region.

During the last five years U.S. cotton yarn production declined 44.8% to 1.1 million metric tons in 2005, although U.S cotton yarn production was ranked the fourth in cotton production worldwide (see Figure 5). Increases in cotton yarn production were registered in China (Mainland) (4,401,000 metrics tons more) and Pakistan (400,000 more).

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Production of cotton yarn will continue to concentrate in China (Mainland), a country that accounted for 28% for world cotton yarn production in 1990, 34% in 2000, 45% in 2003, and is projected to account for 49% of world cotton yarn production in 2006 (International Textile Manufacturers Federation (ITMF), 2004).

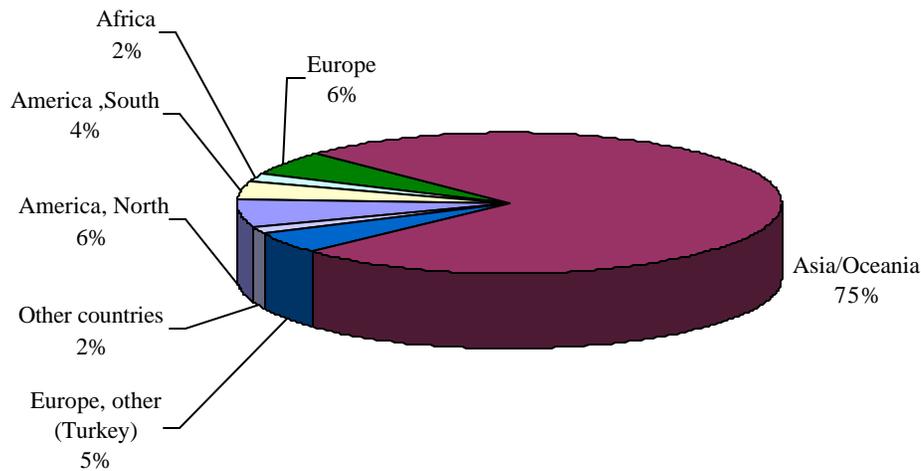


Figure 4. Production of cotton yarn by regions in 2005

Source: ICAC ^{2,3}. (2004). *World Textile Demand*. Washington, DC: Author.

² World Textile Demand (2004): Cotton yarn production data represented in this resource is the latest one that is available. Some data for years before 2001, as well as 2002-2005 data for most countries are estimated using previous year fiber consumption to yarn production.

³Countries including in Regional segmentation are

Asia & Oceania: China, Hong Kong, Taiwan, Australia, Indonesia, Japan, Korea, Malaysia, Philippines, Thailand, Vietnam, Afghanistan, Bangladesh, India, Myanmar, Pakistan, Sri Lanka, Iran, Israel.

North America: Canada, Cuba, Dom Rep, Mexico, United States.

South America: Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, Paraguay, Peru.

Central America: El Salvador, Guatemala, Honduras, Nicaragua.

Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands,

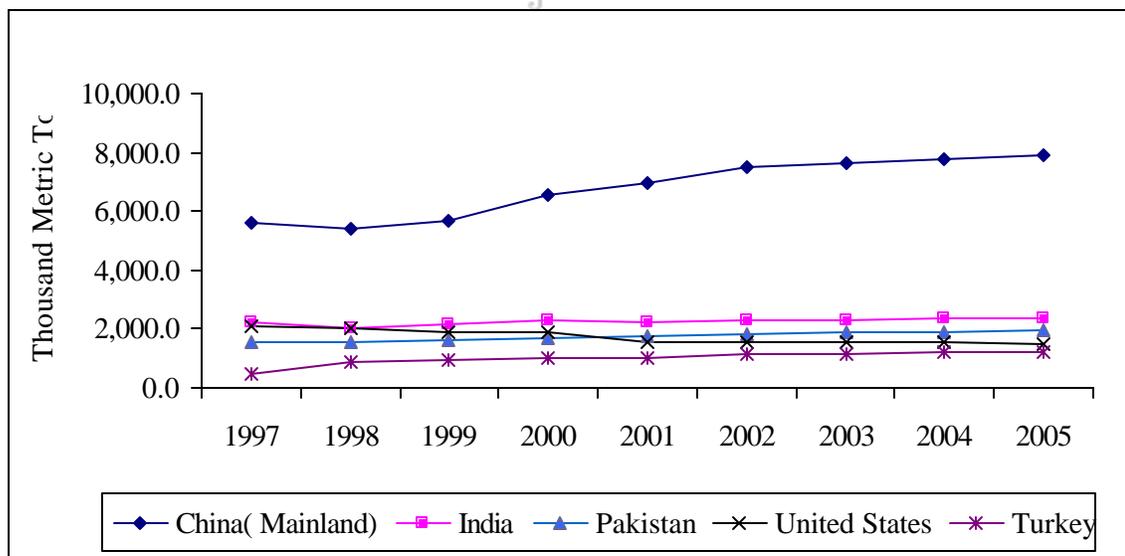


Figure 5. Top 5 countries in cotton yarn production in 2005

Source: International Cotton Advisory Committee (ICAC). (2004). *World Textile Demand*. Washington, DC: Author.

Costs in international cost comparisons

Yarn costs need to be analyzed to see the difference in international cost comparisons. According to international production cost comparison report from ITMF (2003), each country represented in the data represents the almost same amount on some components such as waste, and power cost. The difference among countries was capital (depreciation & interest) and labor costs. Comparing the total yarn costs from different countries (see Figure 13), the ring spun yarn cost indexes shows that Italy is the only country in here that had the

higher cost than that in U.S., and other countries had the cheaper yarn costs in ring spun yarns. The only factor is the labor cost in Italy is higher than that in U.S. While in rotor spinning Turkey, Korea, Italy and China had higher rotor spun yarn costs. India ring spun yarn cost is cheaper than that in U.S., because US had lower raw material cost and power cost. Therefore, labor cost is not the main factor in yarn costs. It is more important to include other factors, which influence yarn costs, especially capital and power cost.

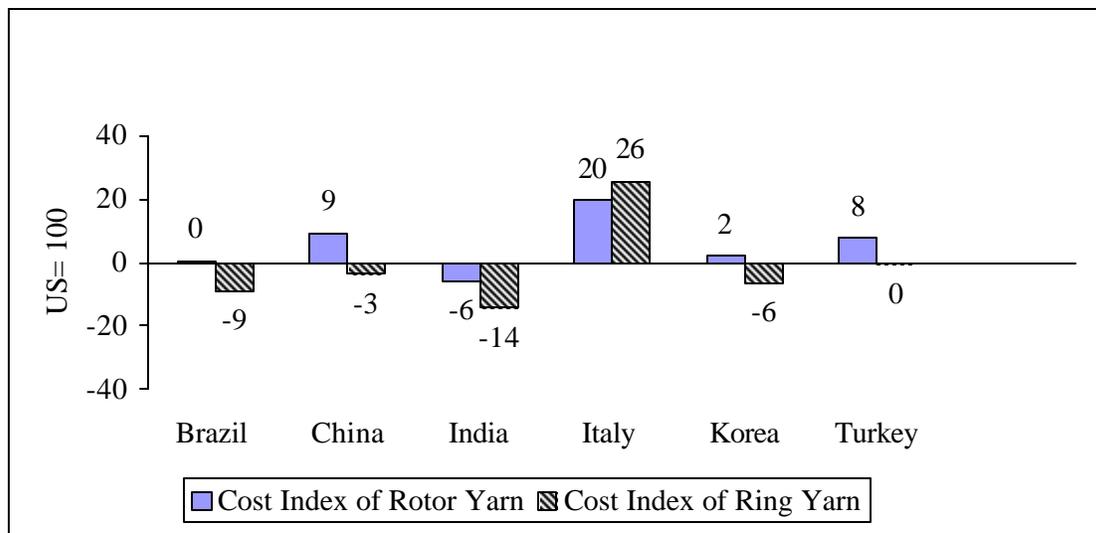


Figure 13. Cost index for ring and rotor spun yarn compared to the U.S. yarn cost in 2003
 Source: ITMF. (2003), *International Production Cost Comparison*. Zurich, Switzerland: International Textile Manufacturers Federation.

Import and Exports

For the U.S. yarn market, it is interesting to address the yarn trade balance, which represents the U.S position in the yarn market. Figure 6 shows that the U.S. had negative yarn trade balances with NAFTA, which includes Mexico (-4 million dollars in 2003) and Canada (-82 million dollars, -100 million dollars in 2003 and 2004, respectively). The U.S. had positive yarn trade balances with Caribbean Basin

Initiative (CBI) countries of 560 million dollars in 2004. It appears that the CBI region will maintain a positive position for the future, according to the benefits of recent preferential trade agreements, including CAFTA-DR. Most of the imports of textile and apparel from Central America and the Dominican Republic have already gained access to the U.S. market under the Caribbean Basin Trade Partnership Act (CBTPA).

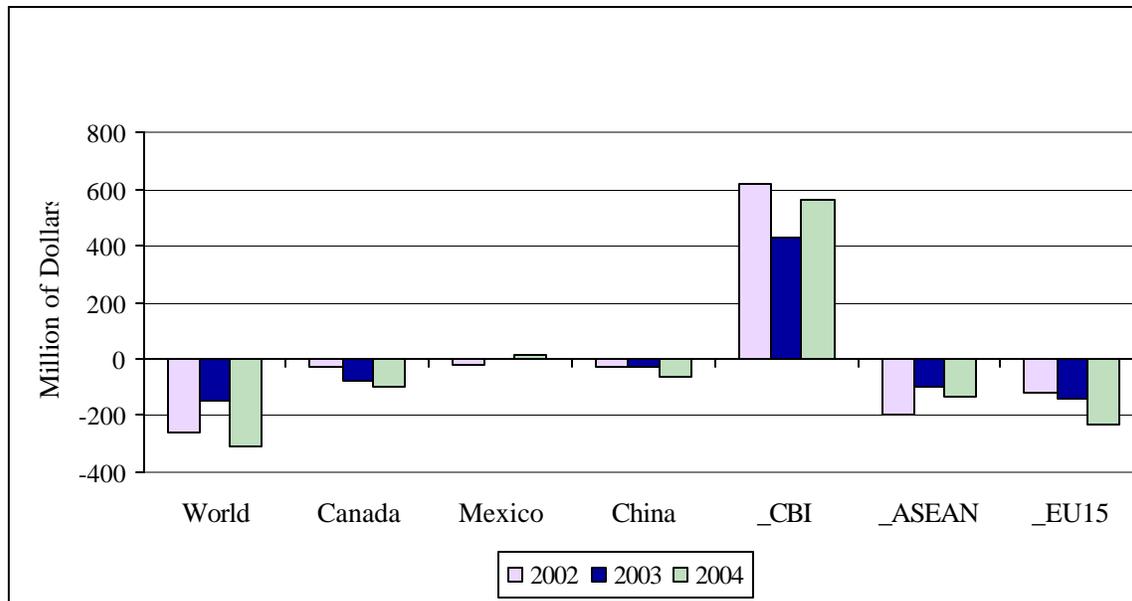


Figure 6. U.S. yarn trade balance, 2002-2004

Source: The Office of Textiles and Apparel (OTEXA) (n.d.), U.S. Department of Commerce.

United States' imports of cotton yarns continued to rise during 2000-2004. Together, the leading ten suppliers to the United States accounted for 90.3% of U.S. imports of cotton yarn in 2004 (see Table 2). Pakistan, Indonesia, and Brazil are gaining new market share in the United States market. Pakistan currently is the U.S.'s largest supplier of cotton yarn with a 32.8 percent share of total U.S. imports of cotton

yarn (see Table 2). Mexico and Canada continued to occupy second and third place in 2004, followed by Brazil at number four, and Indonesia at number five. Thailand, South Korea and China moved up the position to be the eighth, ninth, and tenth place respectively in 2004 (these countries ranked the twelfth, twenty-seventh, and fourteenth place in 2000).

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Table 2

Top 10 U.S. Cotton Yarn Import Countries in 2004

Rank (in 2000)	Rank (in 2004)		Growth Rate		Share of the World	
			2000 (Kilograms)	2004 (Kilograms)	2000-2004 (% Change)	2004 (% Share)
1	1	Pakistan	35,106,189	44,442,938	27	32.8
3	2	Canada	14,779,584	23,975,783	62	17.7
2	3	Mexico	23,490,930	22,120,683	(6)	16.3
6	4	Brazil	6,254,130	8,312,142	33	6.1
8	5	Indonesia	4,966,624	7,606,871	53	5.6
5	6	Egypt	6,520,523	3,955,729	(39)	2.9
10	7	Malaysia	4,059,057	3,651,674	(10)	2.7
12	8	Thailand	2,770,420	3,162,305	14	2.3
27	9	Korea,South	621,811	2,820,060	354	2.1
14	10	China	2,056,952	2,420,598	18	1.8
World			136,973,870	135,670,557	(1)	100.0

Source: The Office of Textiles and Apparel (n.d.), U.S. Department of Commerce (<http://www.otexa.ita.doc.gov/scripts/tqads1.exe/catpage>, 2006)

Pakistan seems likely to continue as a supplier to the U. S market, and is considered by many U.S. firms as a competitive alternative to China. The key competitive factors for Pakistan are inexpensive labor supply, access to local supplies of raw cotton, and government support (The Office of the United States Trade Representative, 2002). Pakistan's spinners benefited from a rebound in their sales to the United States. Taking advantage of its quota-free access to the US market, US imports of Pakistan's cotton yarns were up 27% in unit terms over the period after falling in 2003. Moreover, the 2004-05 trade policy in Pakistan offers a wide range of incentives to help exporters meet the challenges of a WTO global trade. In this regard, notable is the elimination of sales tax on ginned cotton to reduce costs for the spinning sector, setting up of garment cities and removal of the ban on the import of cotton waste (Mazhar & Baqai, 2004).

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During 2000-2004, cotton yarn imports from NAFTA (Canada and Mexico) show an overall increase with a combined share of 34% of the total U.S. import market (see Table 2). While cotton yarn imports from Mexico slightly dropped by 6% to 22 million kilograms, Canada imports significantly increased 62% to 23 million kilograms.

Canada, the United States' other NAFTA partner, remained in second position in 2004. This low value is reflected in Canada's combed cotton yarns, compared with other suppliers. The average value (unit value = US\$/kilogram) of combed cotton yarns from Canada only was US\$2.91 over the period, compared with US\$3.33 for yarns from Pakistan and US\$3.30 for yarns from Indonesia in 2004 (EmergingTextiles, 2004).

United States' imports of cotton yarns from Brazil and Indonesia also surged over the same period. If the Brazilian quota in categories 300/301 is far from being filled, the fill rate of Indonesian limit already reaches 70.40% in the same category 300/301 (carded and combed cotton yarns) (EmergingTextiles, 2004). Shipments from Indonesia were up 53% in the cotton yarn market while those from Brazil were up 33% on the cotton yarn market.

According to Table 3, there was a dramatic change during 2000-2004 in the U.S. exports of cotton yarn to NAFTA, with Canada and Mexico decreasing 69% and 42% respectively. However, the amount of export of cotton yarn from U.S. to the

Caribbean Basin Initiative (CBI) group increased with the significant growth rate in Honduras (1025%), Guatemala (507%), El Salvador (117%), Dominican Republic (117%), and Costa Rica (48%). In addition, there was growth rate to selected countries in South America, such as Colombia (845%) and Peru (287%). The increased number of exports of cotton yarn to the CBI region was due to the passage of CBPTA, which extended duty-free and quota-free benefits for apparel products assembled in the Caribbean that use fabrics manufactured in the U.S. from U.S. yarn (U.S. Newswire, 2000). Furthermore, the increased number of exports of cotton yarn to Colombia and Peru were due to the passage of the Andean Trade Preferences Act (ATPA).

Table 3

Top 10 U. S. Exports of Cotton Yarn to Various Countries in 2004, Kilograms basis

Rank (in 2000)	Rank (in 2004)		2000	2004	Growth Rate	Share of the World
			(Kilograms)	(Kilograms)	(% Change)	(% Share)
3	1	Honduras	12,152,802	136,658,604	1,025	66.3
1	2	Canada	53,033,914	16,566,180	(69)	8.0
6	3	Guatemala	2,522,855	15,317,020	507	7.4
2	4	Mexico	23,351,772	13,507,842	(42)	6.6
4	5	El Salvador	4,956,300	10,738,223	117	5.2
7	6	Dominican Republic	1,348,949	2,927,392	117	1.4
8	7	Costa Rica	1,713,952	2,534,181	48	1.2
14	8	Colombia	249,993	2,363,519	845	1.1
5	9	Venezuela	3,111,526	1,657,080	(47)	0.8
12	10	Peru	209,970	811,886	287	0.4
World			105,285,290	206,186,218	96	100.0

Source: Office of Textiles and Apparel (n.d.), U.S. Department of Commerce (http://www.otexa.ita.doc.gov/scripts/tqexp_ads.exe, 2006)
(Includes 10-digit HS codes 5205 - 5207)

Table 3 shows that the ten major countries to which U.S. exported of cotton yarn during 2000 to 2004 represent 97.7% of total U.S cotton yarn exports. Related to NAFTA, Canada and Mexico accounted for 15.5% of the US cotton yarn exports. Five of the six countries of DR-CAFTA (Honduras, Guatemala, El Salvador, Costa Rica, and Dominican Republic) occupied the top U.S cotton yarn exports market. Honduras is one of the largest customers for yarn, and accounted for 66.3% of total US cotton yarn exports. All the agreements benefit from the yarn forward, rule of origin that gives the advantage to access the U.S. market. These agreements are consistent with the Bush Administration trade policy which emphasizes trade agreements that will help enlarge and strengthen a viable textile and clothing industry in the western hemisphere, with strong production ties to U.S textile manufacturers (Just-styles, 2005).

Machinery Shipments

The textile machinery shipment report represents one of the most essential sources of information that can be used to judge the likely future migration of the textile industry globally. This information helps companies to better focus on investment decisions and to formulate company strategies (Burgi, 2005). There was a small amount of growth in overall shipments of short staple spindles in 2004 (see Figure 7). The decline in overall shipments reflected uncertainty among buyers because of the elimination of quota in the beginning of 2005.

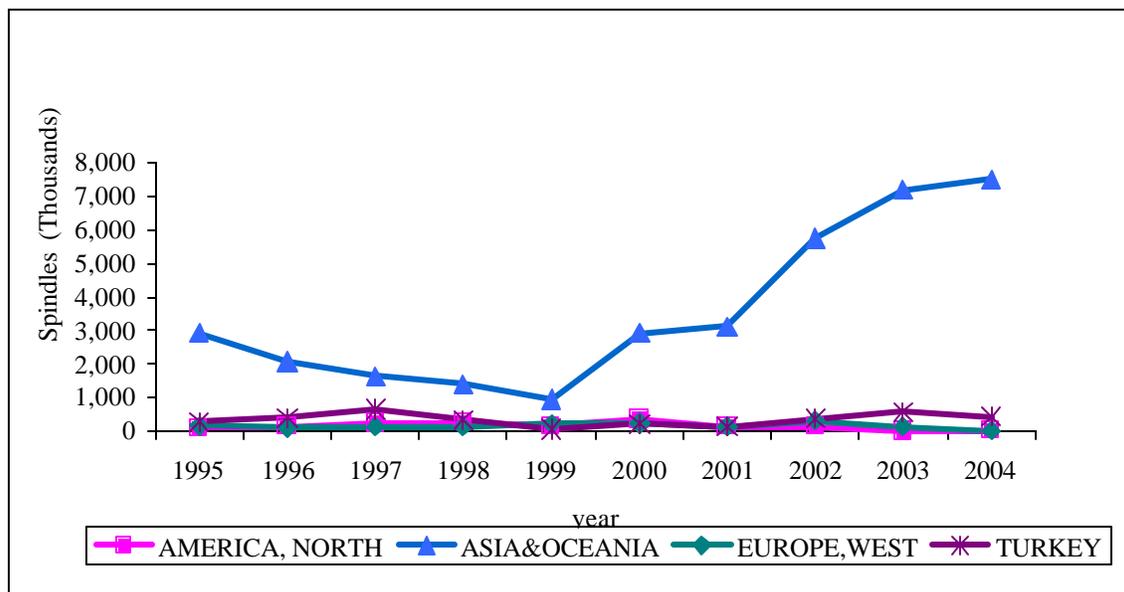


Figure 7. Spinning machinery short staple spindles recorded shipments, 1995-2004.

Source: ITMF. (2004), *International Textile Machinery Shipment: 1995-2004*[Data file]. Zurich, Switzerland: International Textile Manufacturers Federation.

According to ITMF's report (2004), textile machinery shipments showed increases in weaving, flattening, and short-staple spindles; and decreases in texturing, circular knitting, long-staple spindles and open-end (OE) rotors. Of the 8.2 million short-staple spindles shipped, 4.5 million went to China (by far the largest single investor). Pakistan, with the 104 million spindles that showed an increase of more than 100% compared to 2003, became the second largest investor, followed by India (745,000) and Turkey (448,000). Asia &

Oceania accounted for 91.8 percent of shipments in short staple spindles, compared with 88.1 percent in 2003 (see Table 4). The other 8.2 percent of all shipments spread over other regions including Europe (other, including Turkey, 5.5%), Africa (1.2%), Western Europe (0.5%), South America (0.7%), and North America (0.3%). The biggest single buyer in 2004 was the textile industry in China, which accounted for 55% of global deliveries (Anson & Brocklehurst, 2005). China's spinning industry has been undergoing major restructuring in recent

years, involving a drastic elimination of obsolete spindles and re-equipment with new ones (Comité International de la

Rayonne et des Fibres Synthétiques (CIRFS), 2001).

Table 4

Shipments of Short Staple Spindles by Regions, 2003 and 2004

Rank (in 2004)	Continent (Destination)	Shipment		Growth Rate	Share of the world	
		2003 (Spindles)	2004 (Spindles)	2003-2004 (% Change)	2003 (% Share)	2004 (% Share)
1	Asia & Oceania	7,187,796	7,502,424	4.4	88.1	91.8
3	Europe, Other(Turkey)	595,392	448,008	(24.8)	7.3	5.5
4	Africa	139,824	94,644	(32.3)	1.7	1.2
2	America, South	65,520	55,700	(15.0)	0.8	0.7
5	Europe, West	137,956	40,608	(70.6)	1.7	0.5
6	America, North	7,056	25,260	258.0	0.1	0.3
World		8,157,600	8,173,600	0.2	100	100

Source: ITMF, *International Textile Machinery Shipment: 2003-2004*[Data file]. Zurich, Switzerland: International Textile Manufacturers Federation.

China and India were the major countries investing in short staple spinning. For the ten-year period (1995-2004), China was the biggest investor, taking almost 29% of world purchases. India accounted for 25% of the total (Anson & Brocklehurst, 2005).

Comparison shipments of short staple spinning and weaving machinery to different regions, 1995-2004

The shipment of short staple spinning machinery moved following the shipment of weaving machinery during the last ten-year period (1995-2005), but these

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movements showed a time lag in shipments (see Figure 8 and Figure 9). According to analysis by region, the shipments of spinning and weaving machinery to Asia & Oceania were increasing, while those to North America were decreasing. This has implications for sourcing of material since one key to diversity of manufacture is the availability of variety of raw material close to the spindle point and then yarn production close to fabric forming units. It is advantageous for the weaving manufacturers not to have the cost burden of transporting yarn long distances (Dinsdale, 2004).

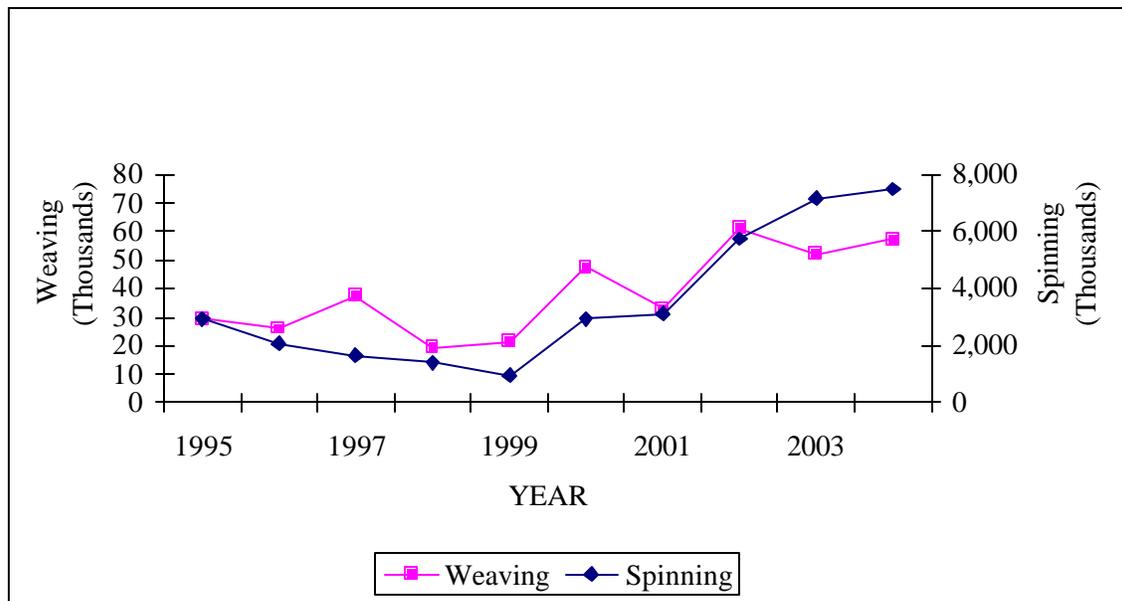


Figure 8. Shipment of short staple spinning and weaving machinery to Asia & Oceania
 Source: ITMF. (2004), *International Textile Machinery Shipment: 1995-2004*[Data file]. Zurich, Switzerland: International Textile Manufacturers Federation.

The shipments of short staples spinning to North America in 2000 showed exception data (see Figure 9). In 1999, the overall of shipments of short staple spindles to North America dramatically increased, while the weaving shipments have decreased since 1997. These causes can be the lag time of data reported to ITMF, or this may be the increased number of countries that participated in this report. According to the World Textile and Apparel Trade and Production Trends (2005) report, these changes might be due to ITMF's survey data

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that covers most of the world's deliveries of textile machinery, based on data supplied by some 120 manufacturers of spinning, draw texturing, weaving, and knitting machinery. These manufacturers represent almost all of the world's output. Coverage was expanded significantly in 2000 by incorporating data from more than 25 Manufacturers in China applying China market and the international market. Delivery data for 2000-2004 is therefore not strictly comparable for the previous year (Anson & Brocklehurst, 2005).

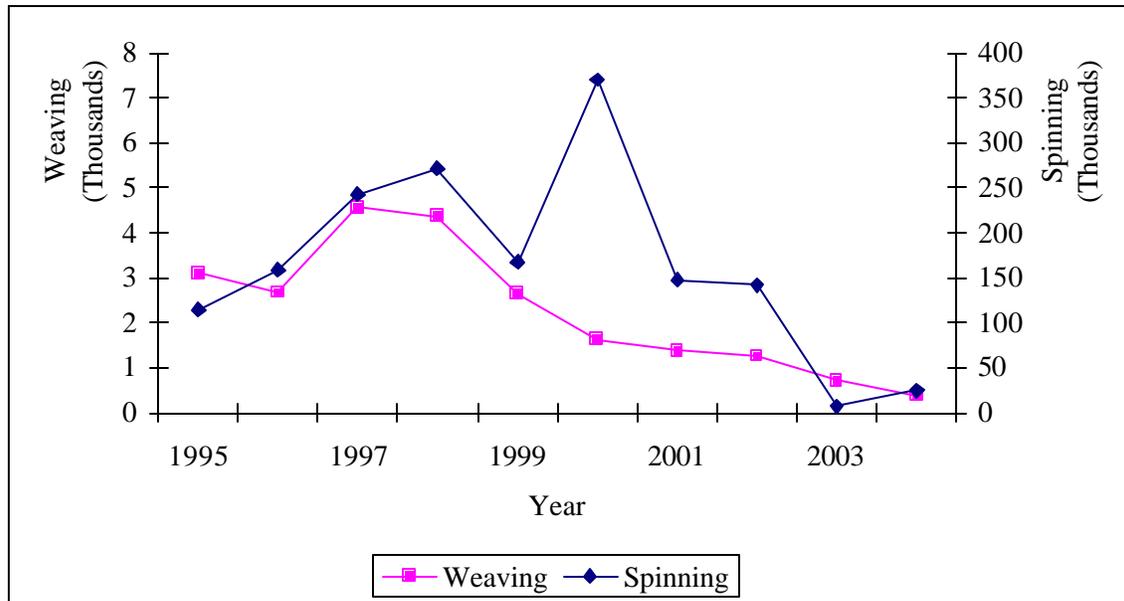


Figure 9. Shipment of short staple spinning and weaving machinery to North America
 Source: ITMF. (2004), *International Textile Machinery Shipment: 1995-2004*[Data file]. Zurich, Switzerland: International Textile Manufacturers Federation.

Yarn Consumption

To see the future for the cotton yarn industry, it is important to take a historic look at cotton's market share.

Cotton consumption by end uses

Figure 10 shows cotton consumption by end uses: apparel, home furnishing, and industrial uses. Overall, the picture shows that cotton consumption has decreased

during 1995-2004. Cotton's percentage of apparel market has decreased from 68% to 63% between 1995 and 2004, while those of home furnishing have decreased from 24% to 17%. The amount of cotton used in industrial textiles has slightly decreased since 1995. One important aspect to note is that some industrial textiles do not contain yarn, but are made from nonwoven materials.

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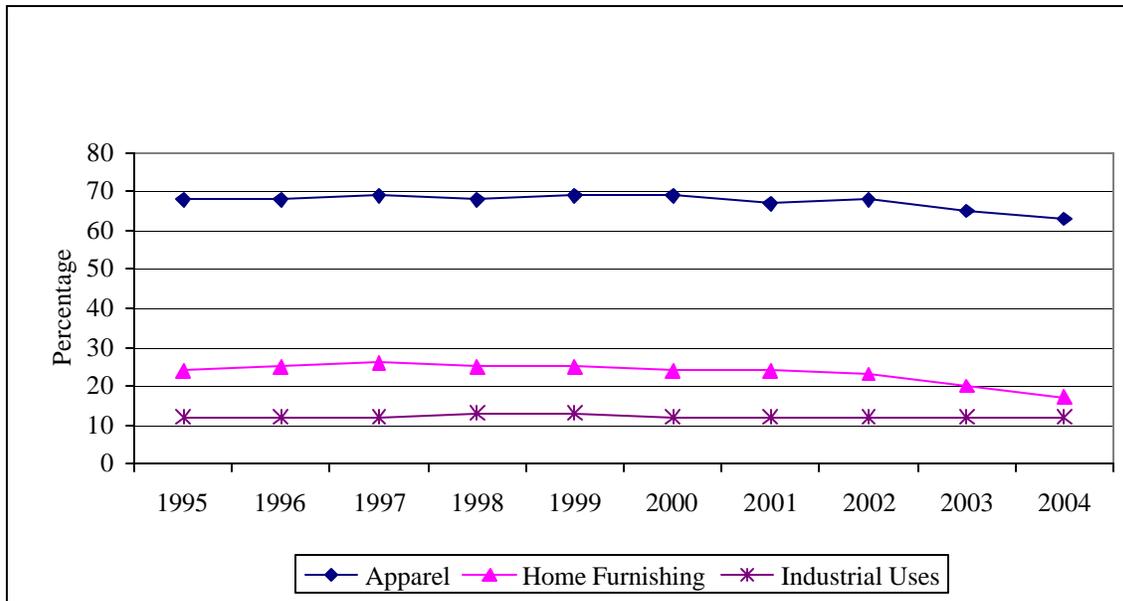


Figure 10. U.S. consumption of cotton by major end uses, 1995-2004
 Source: National Cotton Council of America (2005). *Cotton Counts Its Customers*.
<http://www.cotton.org>, 2005)

Fiber Consumption

World fiber usage is expected to increase from 53 million tons in 2000 to 74 million tons in 2010, and 95 million tons by 2020. Cotton is still the fiber choice for much of the apparel market, notably in next to skin applications. For example, in the USA cotton has a 60% share of the apparel market (Dinsdale, 2004).

Cotton is still the dominant fiber used in the manufacture of the short staple system. While Asia and Oceania accounted for 72% of the 33.6 million metric tons of cotton consumed by the short staple system in 2004, other regions represented the rest; North America 9%, Africa 3%, Europe 11%, and South America 6 % (see Figure 12).

However, in the long-term outlook, the data for the period between 1999-2003 shows that cotton has gradually been losing market share to synthetic fiber (see Figure 11).

Conclusion and Future Prospects

The yarn market will continue to grow and become more competitive in the global marketplace making it more challenging for producers to devise effective production, distribution, and market strategies to deal with the myriad of changes. Yarn producers need also to be able to detect the changes in trends of yarn production and consumption in the new marketplace.

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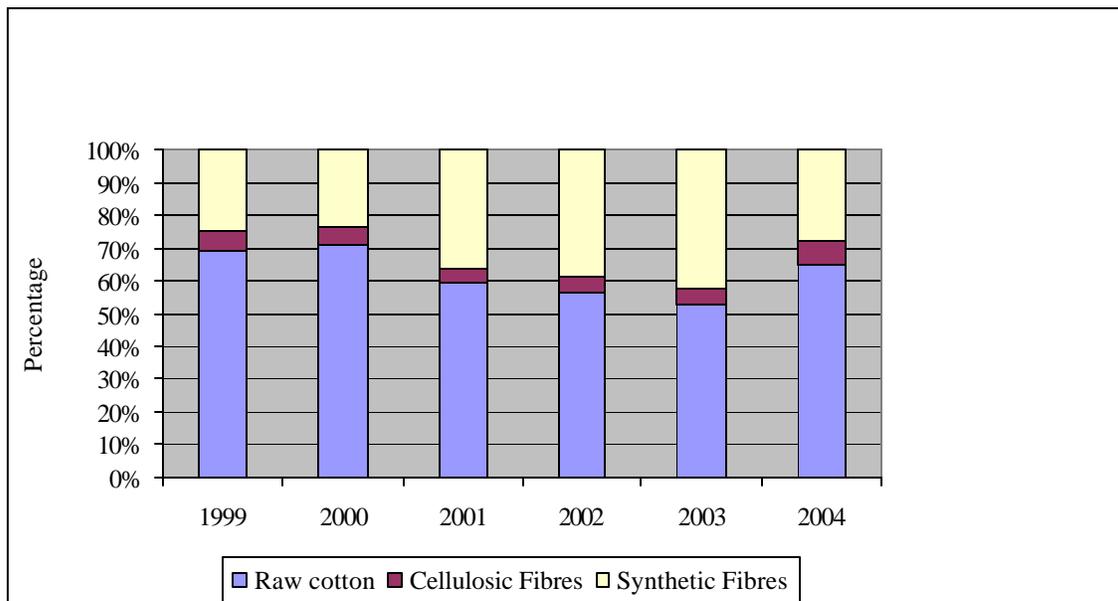


Figure 11. World consumption of raw materials in the short staple system by main fiber types, 1999-2004

Source: ITMF. (2004), *International Textile Machinery Shipment: 1995-2004*[Data file]. Zurich, Switzerland: International Textile Manufacturers Federation.

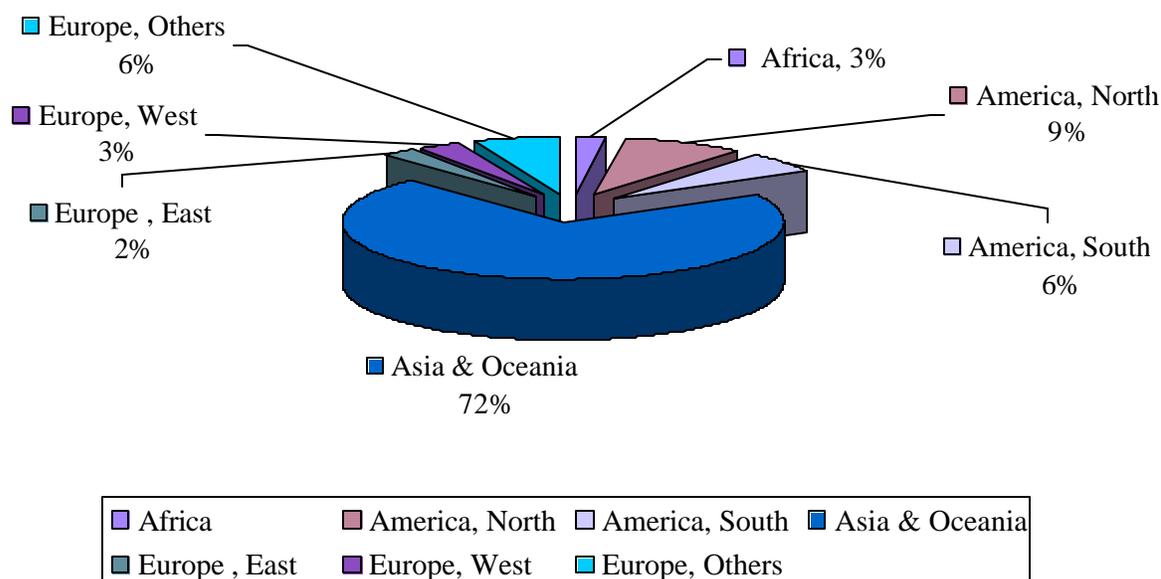


Figure 12. Regional distribution of world cotton consumption in the short staple system, in 2004.

Source: ITMF. (2004), *International Textile Machinery Shipment: 1995-2004*[Data file]. Zurich, Switzerland: International Textile Manufacturers Federation.

Emergence and expansion of trading blocs as well as increasing trend of Preferential Trade Agreements as political tools

Global trade has seen a sharp increase in Regional Trade Agreements (RTA's) over the past decades. The increasing trend of RTA's will continue, with 51.2 % of world merchandise trade occurred under the umbrella of RTA's (Singhal, 2004). These trade agreements are increasing due to many driving forces, such as gains from trade over the competition, movement to eliminate terrorism, which bring attraction for foreign direct investment, and more bargaining power at multilateral negotiations.

The United States (U.S.) is seeking to increase Bilateral Agreements (see Appendix B), and is aggressively negotiating agreements (see Appendix C). The U.S. has been busy over the past five years attempting to increase the number of Free Trade Agreements (FTA's) with trading partners and the Bush administration is particularly interested in establishing a Middle East FTA by 2013. So far, FTA's have been concluded with Jordan, Morocco and Bahrain, with Oman not far behind. Negotiations are currently underway with the United Arab Emirates while Egypt has entered into preliminary discussions laying the groundwork for full-blown FTA negotiations (EmergingTextiles, 2006).

Rule of Origin is the example of FTA's for the textile sector. Textiles and apparel will be duty-free and quota-free immediately if the products meet the agreement's rule of origin, promoting new opportunities for U.S. fiber, yarn, fabric and apparel manufacturing (The Office of the United States Trade Representative, 2006). The FTA with Peru is a good example of this. Rule of origin is generally based on the yarn forward standard, thus encouraging production and economic integration between the United States and Peru. This agreement is specially designed to eliminate the use of the material from strong exporters, such as China (EmergingTextiles, 2006). Therefore, it cannot use cheaper imports from other countries (such as

Bangladesh or China) and could dampen hopes of significantly increasing exports to the United States.

Technology and innovation factors

The trend in labor cost is considered a less important factor when compared with productivity. For example, comparing productivity in each spinning type, a rotor frame can produce the same yarn 7.5 times faster than the ring frame. An air jet frame can produce 13.75 times faster, and a Vortex frame can produce this yarn 18.75 times faster than ring frame (Dodd, 2000). Over the past 15 years, yarn and fabric manufacturing mills have average annual efficiency gains of 5.2 percent and 4.4 percent, respectively. As spinning producers continue to invest in new, increasingly more efficient and sophisticated equipment and processing techniques including automation, this can hold down the relative costs per textile worker. Costs per unit of output have been falling about 1 percent each year since 2002 (Reichard, 2006). The productivity in different processes of spinning will have an important role in determining the future strategies in the spinning industry, with consolidation of capacity in one region, and into particular countries.

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Important technological developments are aimed mainly at raising productivity, improving quality and control, and making manufacturing more environmentally friendly. Innovation in new products is expected to increase, due to the fact that customers today are becoming more individualistic as there is an increased demand for customized clothing, either through niche differentiated brands or made-to-measure garments (KSA, 2004). There are growing numbers of eco-friendly concerns in many countries, for example, cotton yarn produced without the aid of pesticides and chemical washes (Reichard, 2006). Therefore, it is significant for manufacturers to consider environment-protecting issues and to develop innovative new products that will gain more demand in the future.

According to World Markets for Spun Yarn: Forecasts to 2010 (CIRFS, 2001), world yarn production will continue to rise, but production will shift to developing countries, mainly in Asia. U.S. exports of cotton yarns to the CBI region will increase, due to the advantage of their preferential trade agreements. Spinning manufacturers, as suppliers, who are geographical close to the end market (e.g. Caribbean Basin for the U.S.; Eastern and Southern Europe and North Africa for the EU) will maintain a significant advantage over China in terms of “speed to the market” providing that the suppliers can meet all the customers other needs. Developed countries should move their yarn production to the high value-added products, so they can stay competitive with differentiated products.

Footnotes

¹**Yarn-forward Rule of Origin:** Parties agreed to a “yarn forward” rule, meaning that only apparel using yarn and fabric from the U.S., Central America nations and the Dominican Republic qualifies for duty-free benefits. Other parts, trims and findings can be from any CAFTA country.

²**Short Supply:** Certain specified typed of yarns and fabrics, which cannot be supplied by the US industry in commercial quantities in a timely manner, can be sourced from third countries. (Office of the United States Trade Representative, 2005)

References

Abbott, L. (1955). *Quality and competition*. New York: Columbia University Press.

Abernathy, F., Dunlop, J., Hammond, J. H. & Weil, D. (1999). *A stitch in time: Lean retailing and the transformation of manufacturing: Lessons from the apparel and textile industry*. New York: Oxford University Press.

Abernathy, F., Volpe, A. & Weil, D. (2005). *The future of the apparel and textile industries: Prospects and Choices for Public and Private*. Cambridge,

MA: Harvard Center for Textile and Apparel Research.

Anson, R. & Brocklehurst, G. (2005, July). World Capacities and Shipments of Textile Machinery. *Textile Outlook International*, pp.135-170.

Bair, J. & Dussel, E. (2004). *Global commodity chains and endogenous growth: Export dynamism and development in Mexico and Honduras*. New Haven: Yale University.

Barrie, L. (2005). Prospects for the textiles and clothing Industry in Guatemala. *Textile Outlook International*, pp. 13-44.

Burgi, T. (2005). Dawn of a New Era. *International Textile Manufacturers Federation (ITMF) Annual Conference Report 2005*, pp. 7-9.

Catholic Agency For Overseas Development (CAFOD). (1998). *The Asian garment industry and globalization*. Retrieved September 1, 2005, from http://www.cafod.org.uk/policy/garment_industry.shtml.

Chesnutt, J. (2006, January). Working together for textiles, *Textile World*, 156(1), 20.

Chiron, C. (2004). *An overview of apparel and textile quota, tariff and trade agreements*. Retrieved January 15, 2006, from <http://www.hctar.org>.

Cole, M. (2004, September 30). Apparel industry cautiously equips for global marketplace. *Apparel Magazine*. Retrieved February 1, 2006, from <http://www.apparelmag.com/conferences/Tech/tech-conferences-learning-center093004-c.shtml>.

Comité International de la Rayonne et des Fibres Synthétiques (CIRFS). (2001, July). *World Markets for Spun Yarns: Forecasts to 2010*. Wilmslow, United Kingdom: Textiles Intelligence Limited.

Cox, R.W. & Schechter, M.G. (2002). *The Political Economy of a Plural World: Critical reflections on Power, Morals and Civilization*. London and New York: Routledge Taylor & Francis Group.

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- Culbertson, B. & Hackett, S. (2005). *Econdata online*. Retrieved from January 15, 2006, from http://www.swlearning.com/economics/econ_data/labor_cost_unit/labor_cost_unit_definition.html.
- Dicken, P. (2003). *Global shift: Reshaping the global economic map in the 21st century* (4th ed.). New York: The Guilford Press.
- Dinsdale, P. (2004, May). *Developing investments in textiles in emerging markets the search for quality projects*. Proceedings of The Textile Institute 83rd World Conference, Shanghai, China.
- Dockery, A. (2005, November). Fiber Price Squeeze. *Textile World*, 155(10), 18.
- Dockery, A. (2006, January). Spinners expect upswing in first half. *Textile World*, 156(1), 16-17.
- Dodd, L. E. (2000). U.S. trends in short staple spinning. Master's Thesis, North Carolina State University, Raleigh, North Carolina.
- EmergingTextiles (2004, July 26). Pakistan, Indonesia and Brazil gaining new market shares. *U.S. cotton yarn imports continue surging*. Retrieved January 15, 2006, from <http://www.emergingtextiles.com/?q=art&s=040726Amark&r=free>.
- EmergingTextiles (2006, January 16). *U.S. seeking to increase Bilateral Trade Agreements*. Retrieved January 30, 2006, from <http://www.emergingtextiles.com/?q=art&s=060116-trad&r=free&n=1>.
- Freeman, C. (1997). *The national system of innovation in historical perspective: Technology, Globalization and Economic Performance*. Cambridge: Cambridge University Press.
- Gazanfer, S. (2005). Turkish Cotton in the World Context. *ITMF Annual Conference Report 2005*.
- Gereffi, G. (1999). International trade and industrial upgrading in the apparel commodity chain, *Journal of International Economics*, 48, 37-70.
- Gereffi, G., Spencer D., & Bair J. (2002). *Free trade and uneven development: The north American apparel industry after NAFTA*. Philadelphia : Temple University Press.
- Gilmore, H. L. (1974). Product conformance cost. *Quality Progress*, 7(15), 16-19.
- International Cotton Advisory Committee (ICAC). (2004). *World Textile Demand*. Washington, DC: Author.
- ICAC. (2005). Cotton: review of the world situation, 59(1), 10-12.
- ITMF. (2003), *International Production Cost Comparison*. Zurich, Switzerland: International Textile Manufacturers Federation.
- ITMF. (2004), *International Textile Machinery Shipment: 1995-2004*[Data file]. Zurich, Switzerland: International Textile Manufacturers Federation.
- Julian, I. (2005), The changing world of fiber demand, *Fiber Journal*. Retrieved February 2, 2006, from www.fiberjournal.com.
- Juran, J.M. & Gryna, F. M. (1988). *Juran's quality control handbook* (4th ed.). New York: McGraw-Hill.
- Just-style (2005). U.S. textile industry counting on CAFTA. Retrieved February 8, 2006, from www.just-style.com.
- Kilduff, P. (2005). Patterns of strategic adjustment in the US textile and apparel industries since 1979, *Journal of Fashion Marketing and Management*, 9(2), 180-194.
- Kurt Salmon Associates (KSA). (2004). *Vision and perspective of consumer behavior and trends*. Deutscher Fachverlag GmnH, Frankfurt am Main: Author.
- KSA. (2005). Trends in consumer's behavior and the global clothing market, *Textile Outlook International*, 118, 120-150.
- Mazhar, Y. & Baqai, A. (2004). Trade policy 2004-2005. *Partisan Textile Journal*. Retrieved February 1, 2006, from <http://www.ptj.com.pk/Web%202004/08-2004/edi-article.html>.

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- National Cotton Council of America (2005). *Cotton Counts Its Customers*. Retrieved February 1, 2006, from <http://www.cotton.org>.
- Organization for Economic Co-operation and Development (OECD). (2004). *A new world map in textile and clothing: Adjustment to change*. Paris: OECD.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Retailing*, 69, 140-147.
- Plunkett's Research, Ltd. (2004). *Apparel and textiles industry trends* [Electronic Version]. Plunkett Research Online.
- Reichard, R. (2006, January). Economic outlook: Surviving the game of textiles. *Textile World*, 156(1), 22-31.
- Sabancı, O. (2005, December). Meeting the challenge of global competition. *International Fiber Journal*, 20(6), 4-6.
- Saurer. (2005, May). *World survey on the textile and nonwoven industry: The fiber year 2004*. Retrieved January 13, 2006, from <http://www.texdata.com/content/0451e.pdf>.
- Singhal, A. (2004). Looking Back to the Future. *ITMF Annual Conference Report 2004*.
- The Office of Textiles and Apparel (OTEXA) (n.d.), U.S. Department of Commerce. Retrieved January 15, 2006, from <http://otexa.ita.doc.gov/>.
- The Office of the United States Trade Representative (2005, February). *Textiles in CAFTA*. Retrieved January 10, 2006, from http://otexa.ita.doc.gov/cafta_textiles.pdf.
- The Office of the United States Trade Representative (2006, January). *United States-Peru PTA Texts*. Retrieved January 10, 2006, from http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Peru_TPA/Final_Texts/asset_upload_file630_8688.pdf.
- The Office of the United States Trade Representative (2002). *Textiles and apparel: assessment of the competitiveness of certain foreign suppliers to the U. S. market* (No.32-448).
- United Nations Industrial Development Organization (UNIDO). (2003). The global apparel value chain: What prospects for upgrading by developing countries? Retrieved January 15, 2006, from <http://www.unido.org/file-storage/download/?file%5fid=11900>.
- U.S. Department of Labor (2005). *Bureau of labor Statistics*. Retrieved January 3, 2006, from <http://www.bls.gov/>.
- U.S. Newswire. (2000). *White Houses Fact Sheet: Details of the Trade and Development Act of 2000*. Retrieved January 13, 2006, from www.textileweb.com.
- Werner International. (2004). *Primary Textiles Labor Cost Comparisons Winter 2004/2005*. Reston, VA: Werner International, Infotext Division.
- Werner International. (2005, March 8). International Comparison of the Hourly labor cost in the primary textile industry winter 2004/2005. *New Twist Newsletter*, 1. Retrieved January 3, 2006, from <http://www.werner-newtwist.com>.
- World Textile and Apparel Trade and Production Trends. (2005, March). *Textile Outlook International*, pp.10-30.

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Appendix A: Beneficiary Countries of Two Major U.S. Trade Agreements

Caribbean Basin Trade Partnership Act (CBPTA)	Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; British Virgin Islands; Costa Rica; Dominica; Dominican Republic; El Salvador; Grenada; Guatemala; Guyana; Haiti; Honduras; Jamaica; Montserrat; Netherlands Antilles; Nicaragua; Panama; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago
CAFTA-DR	Costa Rica, El Salvador, Guatemala, Nicaragua, Honduras and the Dominican Republic

Source: The Office of Textiles and Apparel (OTEXA) (n.d.), U.S. Department of Commerce.

Appendix B: Bilateral Free Trade Agreements between United States and other countries (negotiations completed or already in force)

United States Free Trade Agreements		
Negotiations completed or already in force		
Country	Current Status	Date
Israel	Completed	1985
Canada	Completed	1989/1994
Mexico	Completed	1994
Jordan	Completed	2001
Chile	Completed	2004
Singapore	Completed	2004
Australia	Completed	2005
Morocco	Completed	2006
Bahrain	Completed	2006
El Salvador*	Awaiting entry into force	2006
Guatemala*	Awaiting entry into force	2006
Honduras*	Awaiting entry into force	2006
Nicaragua*	Awaiting entry into force	2006
Dominican Rep*	Awaiting entry into force	2006
Costa Rica*	Awaiting Govt Approval (C.Rica)	2006
Oman	Awaiting mutual signing	January 2006
Peru	Awaiting US Congress notification	
* Central American Free Trade Agreement (CAFTA)		
©EmergingTextiles.com (1998-2006)		

Source: EmergingTextiles (2006). *U.S. seeking to increase Bilateral Trade Agreements.* (<http://www.emergingtextiles.com/?q=art&s=060116-trad&r=free&n=1>, 2006)

Appendix C: Bilateral Free Trade Agreements between United States and other countries (currently being negotiated)

United States Free Trade Agreements	
Free Trade Agreements currently being negotiated	
Country	Current Status
Colombia	Under negotiations – possible completion 2006
Panama	Under negotiations – possible completion 2006
Ecuador	Under negotiations – possible completion 2006
Thailand	Negotiations underway
UAE	Negotiations underway
Botswana**	Negotiations on hold
Lesotho**	Negotiations on hold
Namibia**	Negotiations on hold
South Africa**	Negotiations on hold
Swaziland**	Negotiations on hold
S. Korea	Preliminary discussions
Egypt	Preliminary discussions
Malaysia	Preliminary discussions
Switzerland	Preliminary discussions
** Members of Southern African Customs Union (SACU)	
©EmergingTextiles.com (1998–2006)	

Source: EmergingTextiles (2006). *U.S. seeking to increase Bilateral Trade Agreements*. (<http://www.emergingtextiles.com/?q=art&s=060116-trad&r=free&n=1>, 2006)

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