The Global Textile and Clothing Industry post the Agreement on Textiles and Clothing

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I. INTRODUCTION

After more than forty years of import quotas, the textile and clothing sector will become subject to the general rules of the General Agreement on Tariffs and Trade from 1 January, 2005. Liberalization has been controversial because both textiles and clothing contribute to employment in developed countries, particularly in regions where alternative jobs may be difficult to find. In the European Union, for example, the sector is dominated by small and medium-sized enterprises concentrated in a number of regions that are highly dependent on this sector (Commission of the European Communities, 2003). Textiles and clothing are also among the sectors where developing countries have the most to gain from multilateral trade liberalization. In fact, the prospect of liberalization of the textiles and clothing sectors was one of the reasons why developing countries accepted to include services and intellectual property rights – areas to which they were sceptical at the outset – in the Uruguay Round (Reinert, 2000).

The objective of this paper is to assess the likely impact of liberalization, taking into account recent technological and managerial developments in the sector, and focusing on recent developments in supply chain management in the clothing and textiles sectors.

The clothing industry is labour-intensive and it offers entry-level jobs for unskilled labour in developed as well as developing countries. Job creation in the sector has been particularly strong for women in poor countries, who previously had no income opportunities other than the household or the informal sector.[2] Moreover, it is a sector where relatively modern technology can be adopted even in poor countries at relatively low investment costs. These technological features of the industry have made it suitable as the first rung on the industrialization ladder in poor countries, some of which have experienced a very high output growth rate in the sector (e.g. Bangladesh, Sri Lanka, Viet Nam and Mauritius).[3] These characteristics, however, have also made it a footloose industry

that is able to adjust to changing market conditions quickly.

At the same time, the textile and clothing industry has high-value added segments where design, research and development (R&D) are important competitive factors. The high end of the fashion industry uses human capital intensively in design and marketing. The same applies to market segments such as sportswear where both design and material technology are important. Finally, R&D is important in industrial textiles where, again, material technology is an important competitive factor.

Textiles and clothing are closely related both technologically and in terms of trade policy. Textiles provide the major input to the clothing industry, creating vertical linkages between the two. International trade in the two sectors is regulated by the Agreement on Textiles and Clothing (ATC) at the multilateral level, while bilateral and regional trade agreements typically link the two sectors through rules of origin accompanying preferential market access.

At the micro level, the two sectors are increasingly integrated through vertical supply chains that also involve the distribution and sales activities. Indeed, the retailers in the clothing sector increasingly manage the supply chain of the clothing and textiles sectors. This development probably started with the establishment of shopping malls such as Wal-Mart in the United States in the 1970s. Wal-Mart insisted that suppliers implemented information technologies for exchange of sales data, adopted standards for product labelling and methods of material handling. This ensured quick replenishment of apparel, which in turn allowed the retailer to offer a broad variety of fashion clothes without holding a large inventory. This approach has spread throughout the industry in the United States as well as elsewhere (and to other industries), shifting the competitive advantage of suppliers from being mainly a question of production costs to becoming a question of costs in combination with lead time and flexibility. This development has in turn favoured suppliers located close to the major

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[2] See Nordås (2003a) for a discussion.

[3] The textile and clothing sector has also grown very fast in more developed countries that have entered into preferential agreements with the EU or the US or both (e.g. Bulgaria, Lithuania, Macedonia and Jordan).

markets.[4] In the following sections it will be shown that Latin America has indeed gained market shares in United States at the expense of Asia, while Central and Eastern Europe have gained market shares in the EU.

The study starts with a discussion of the structure of the textile and clothing industries, focusing on technology and industrial organization. Section III discusses the ATC and the progress so far in quota elimination.   Section IV analyses the ATC countries' trade patterns in the sector since 1995, followed by an assessment of the likely changes in the sector post-ATC. Two different techniques are used for assessing the post-ATC trade patterns. First, a general equilibrium model of the world economy, the GTAP model, is run with the pre-ATC quotas in place as an initial scenario and the elimination of the quotas is the second scenario.

The predicted changes are a substantial increase in market shares for China and India, while previously unrestricted (no quotas or non-binding quotas) countries will lose market share as will also local producers in North America and the EU. However, as will be argued in the discussion of the structure of the textile and clothing sectors, clothing is increasingly considered as a perishable good where time to market matters. This will render producers in more remote locations at a disadvantage, particularly in the fashion-segments of the clothing industry. In order to capture this feature of the industry, an assessment of determinants of bilateral trade flows is included as well, focusing on the role of trade barriers and distance to the supplier.[5] It will be shown that when taking proximity to markets into consideration, the negative impact on countries like Mexico, Central and Eastern European countries and North Africa of quota elimination is smaller than suggested from the GTAP simulations.

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[4] These suppliers' advantages have been further enhanced through regional agreements giving them preferencial access to the market.

[5] The methodology used for this is the gravity model.

II.   THE STRUCTURE OF THE TEXTILE AND CLOTHING SECTOR

The clothing sector is both a labour-intensive, low wage industry and a dynamic, innovative sector, depending on which market segments one focuses upon.   In the high-quality fashion market, the industry is characterized by modern technology, relatively well-paid workers and designers and a high degree of flexibility.   The competitive advantage of firms in this market segment is related to the ability to produce designs that capture tastes and preferences, and even better – influence such tastes and preferences – in addition to cost effectiveness.   The core functions of firms servicing this market segment are largely located in developed countries and often in limited geographical areas or clusters within these countries.   The Emilia-Romagna district in the so-called Third Italy is one of the most prominent and prosperous textile and clothing clusters in the world, while Italy is the second largest exporter of both textiles and clothing when intra-EU trade is included.   However, this market segment has also seen a significant amount of relocation of production and outsourcing to lower-cost producers, often in geographical proximity to the major market (Navaretti et al., 2001).

The other major market segment is mass production of lower-quality and/or standard products such as t-shirts, uniforms, white underwear etc.   Manufacturers for this market segment are largely found in developing countries, often in export processing zones and/or under so-called outward processing agreements with major importers.[6]   They employ mainly female workers – semi-skilled and unskilled – and outsourcing to household production is quite common in the low end of the market.   In the low to middle priced market, the role of the retailer has become increasingly prominent in the organization of the supply chain. The retail market has become more concentrated, leaving more market power to multinational retailers.   These have market power not only in the consumer market, but perhaps more importantly they have considerable buying power. In addition, high-volume discount chains have developed their own brands and source their clothing directly from the suppliers, whether

foreign or local.   According to Gereffi (2001), retailers accounted for half of total garment imports in the European Union in the mid-1990s, a trend that probably has continued during the second half of the 1990s.

Consumers spend a smaller share of their income on clothing than in the past, although consumers shop more frequently and buy a larger number of clothing items than before.   The response from producers to the challenge of slow growth in total demand is to build on consumers' love of variety and provide new fashions and a broad variety of sizes, colours, designs etc. at a frequent rate.   The details of these developments and their impact on international trade in textiles and clothing are discussed in the rest of this section.

A.   THE SUPPLY CHAIN

The textiles and clothing sectors can be seen as a supply chain consisting of a number of discrete activities.   Increasingly the supply chain from sourcing of raw materials via design and production to distribution and marketing is being organized as an integrated production network where the production is sliced into specialized activities and each activity is located where it can contribute the most to the value of the end product. When the location decision of each activity is being made, costs, quality, reliability of delivery, access to quality inputs and transport and transaction costs are important variables.

The supply chain in the textile and clothing sector is illustrated by Figure 1.   The dotted lines represent the flow of information, while the solid lines represent the flow of goods. The direction of the arrows indicates a demand-pull-driven system. The information flow starts with the customer and forms the basis of what is being produced and when.   It is also worth noticing that information flows directly from the retailers to the textile plants in many cases. The textile sector produces for the clothing sector and for household use.   In the former case there is direct communication between retailers and textile mills when decisions are made on patterns, colours and material.   In the second case textile mills often deliver household appliances directly to the retailers.

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[6] The US has the 807/9802 production sharing program, while the EU has so-called outward processing agreements with several countries, both as part of regional free trade agreements and as stand-alone agreements with a number of Asian countries (WTO, 2001).

Figure 1: The supply chain in the textile and clothing sector
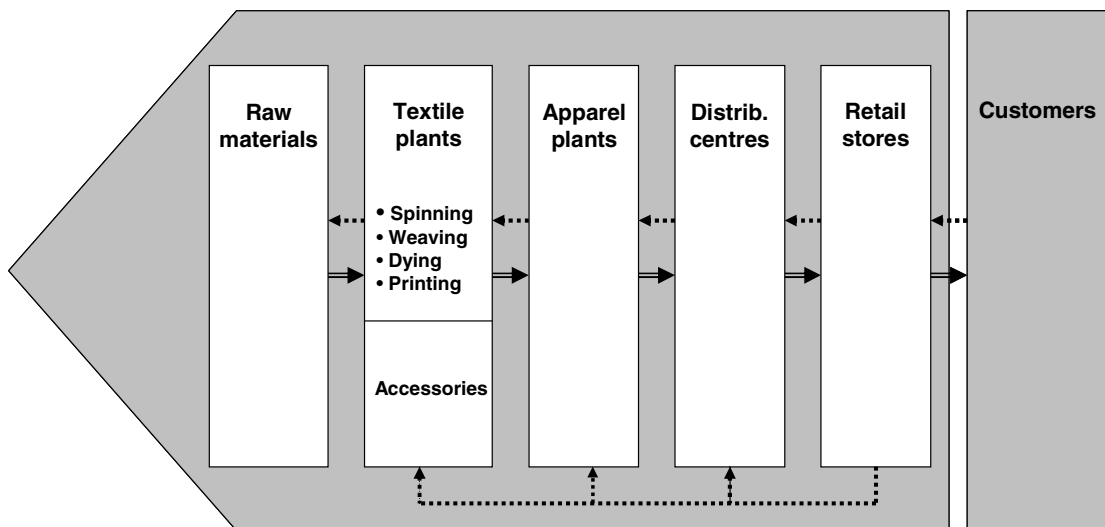
At each link in the production chain to the left of the distribution centre in Figure 1, there are usually several companies. In order to make goods, information and payments flow smoothly, a number of logistics and business services are needed. Depending on the size and development of the host economy, such services are provided by the lead firm in the supply chain or independent service providers in the more advanced countries.

An illustration of how a supply chain operates is as follows: lean retailers in the United States typically replenish their stores on a weekly basis. Point of sales data are extracted and analyzed over the weekend and replenishment orders placed with the manufacturer on Monday morning.[7] The manufacturer is typically required to fill the order within a week, which implies that the manufacturer will always have to carry larger inventories of finished goods than the retailer. How much larger depends on his own lead time and demand volatility. The larger the fluctuations in demand, and the larger the number of varieties (e.g. style, size, colour) the larger the inventory has to be. On the other hand, the shorter the manufacturer's lead time, the better the demand forecasts and the larger

the market, the less the inventory needed relative to sales. The size of the market matters, since the variation of aggregate demand from a large number of consumers are less than the variation over time of a few consumers. Upon receiving the replenishment order, the manufacturer will fill it from its inventory and then on the basis of the gap between remaining inventory and the desired inventory level, will make a production order to the production plant, of which the manufacturer may have several in different locations. The retailers may order large quantities of, say, shirts spread over a number of producers in several low-wage countries. In order to ensure that the shirts are similar and can sell under the same label, the buyer often buys fabric and accessories in bulk and provides its clothing suppliers with these inputs. In addition, buyers often also specify the design and assist the producers in providing the desired quality (Abernathy et al., 1999; Kelegama and Foley, 1999).

The underlying technological developments of modern supply chain management are discussed below. Given the demand-pull nature of the supply chain, it is natural to start the discussion with the retail sector, followed by clothing and then textiles.

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[7] The analysis is often automatic by means of a purpose-made data software.

1. The retail sector

Substantial changes in the retail sector have been observed during the past few decades and modern retailing has been called "lean retailing" in a recent comprehensive study (Abernathy et al, 1999). The technological building blocks of lean retailing are bar codes and uniform product codes, electronic data interchange (EDI) and data processing, distribution centres and common standards across firms. The change most visible to consumers is the expansion of large shopping malls at the outskirts of the cities at the expense of city centre department stores and boutiques. As already mentioned, the retail sector has become more concentrated, particularly in the United States. Concentration implies more buying power for the retailer and thus increased bargaining power towards suppliers.

The bar code and complementary equipment for reading it are crucial for the retailer to collect point of sales information in real time. Bar codes were first introduced in the food industry in the 1970s and became widespread in the clothing sector from the mid 1980s. The technology allows retailers continuously to monitor which products sell and which do not – down to the details on size, colour and other characteristics. The technology also allows retailers to keep track of inventories. Such information is only valuable if it can be used for adjusting the supply of garments to consumer tastes as the information becomes available. Such adjustments require more frequent supply of garments in smaller quantities as opposed to the traditional stocking of the store before the season and clearance sales at the end of the season. In order for suppliers to be able to provide frequent supplies and make changes in the product spectre at short notice, retailers need to share point of sales data with suppliers, which requires frequent communication between retailers and their suppliers. For this purpose, EDI and data processing programmes are necessary. These provide a direct and often automated information exchange between retailers and suppliers and require that both parties invest in compatible software. A very crucial technology applied throughout the textile and clothing supply chain is the laser which is used for reading bar codes and transmitting the information content to the EDI and data processing equipment.

Efficient and timely information flows are of little use if not complemented by equally efficient and timely flows of the goods for sale. The emergence of distribution centres, replacing traditional wholesalers and storage facilities ensures efficient and timely flows of goods. A distribution centre consists of bays for trucks to unload or load goods. Incoming goods are packed in standard containers with barcodes that are scanned as they enter conveyor belts. The information on the bar codes is matched with information on purchase orders by means of information processing systems. The goods are then routed to the correct bay for outgoing trucks to the store that has ordered them. Only when the information on the bar code does not match purchasing orders are containers routed to manned stations. The information processing system also process financial information and may be linked to automatic invoicing and thus an equally efficient flow of financial transactions between buyers and suppliers. Distribution centres are usually smaller in terms of floor area than traditional wholesale storage buildings, but the distribution centre is much more capital-intensive and automated.

Finally, the integration of information flows, flows of goods, and payments are only possible if all the links in the chain use compatible standards. Suppliers are required to add bar codes that comply with industry standards to garments before they are shipped. Often they are also required to place the apparel on hangers such that it can go straight from the truck to the shop floor. Evidently, lean retailing has a bearing on suppliers and the technology applied in the clothing and textiles sectors.

2. Clothing

The basic production technology of the apparel industry has not changed much over the past century, and is characterized by the progressive bundle system. Work is organized such that each worker is specialized in one or a few operations. The fabric is first cut and then grouped by parts of the garment, tied into bundles (pre-assembly) and then sewed together. The individual sewing tasks are organized in a systematic fashion and specialized sewing machines have been developed for the individual tasks. A worker receives a bundle of unfinished garments, performs her single task and places the bundle in a buffer. A buffer of about one day's work has been common at each operation. It takes about 40 operations to complete a pair of pants, which implies that there is about 40 days of in-process inventory. For men's blazers, however, it takes as much as 100 operations. Although a number of improvements in terms of systematizing the operations and reducing the time at each individual operation has taken place over

time, the basic system has remained the same. One explanation for this is that technology changes cannot be implemented in a partial fashion involving only a few operations. This would unbalance the system and any major technological change therefore needs to involve the entire system (Abernathy et al., 1999).

In the early days of industrial development in Europe and the United States, the bundles of unfinished garments could either be sewn together in a factory, or workers took the bundles home to sew them together there, after which they were returned to the shop or factory for finishing. The latter arrangement dominated in the early days and is still a feature of the apparel industry in developing countries today.

Even though the basic technology and the sequence of operations have not changed much, new innovations have improved efficiency at each stage of production and not least, improved coordination between stages and provided a more seamless interface between them. One major innovation was the automatic cutting machine introduced in 1969. This machine has made it possible to cut increasingly thick layers of cloth accurately. Moreover, cutting machines, pattern layouts and other functions are computer-assisted and in many cases designs can be transformed to patterns which are directly fed into cutting machines via electronic networks. These innovations are mainly related to the so-called pre-assembly phase of production, where technological developments have been more prominent than at the assembly stage. Pre-assembly is also the most capital intensive stage in the clothing sector and where quality and precision is the most important. If, for example the fabric is not cut precisely, the quality of the finished garment can be seriously damaged. Pre-assembly is therefore the stage in the production chain that is most likely to be done in-house by major clothing firms (Abernathy et al., 1999).

However modern, the assembly stage of the clothing sector is still labour-intensive and it is the stage that is most likely to be farmed out to lower-cost firms. Table 1 below shows the cost structure of the clothing sector, given as percentages of gross value of the sector's production.[8] The countries included in the table constitute the major exporters or importers under the ATC for which data are available.

The table should be interpreted with caution since everything that is not wages and salaries is registered as capital income in the GTAP database. The income of self-employed persons, for example, is not included in wage income and consequently appears as capital income in the data. Nevertheless, the table indicates the unskilled labour-intensity of the clothing sector.[9] India and China have very low import shares, reflecting the fact that most of the supply chain from textiles to ready-made clothing is located within the country. India has a number of restrictions and regulations in the cotton industry throughout the supply chain from farmers producing cotton to final garments. In Viet Nam, a recent, but fast-growing entrant to the world market in textile and clothing, the value-added share is very low and import content high. The Viet Namese structure illustrates the ease of entry into the clothing sector for poor countries that lack an industrial base, including suppliers of inputs. It also suggests that strict rules of origin may substantially raise the barrier to entry for poor countries with low industrial capacity. Another example of a country benefiting from low entry barriers in the sector is Bangladesh. The import value of textiles was about 60 per cent of the export value of clothing in 1991, but it had declined to about 40 per cent by 2001, indicating that backward linkages have developed over time.[10]

As discussed above, lean retailing has imposed a number of requirements on manufacturers, which have pushed some of the work and related costs up the supply chain to manufacturers. As a response manufacturers can either absorb the costs and thus lower margins, reduce costs by improving productivity, thereby shortening lead time and possibly relocating to lower-cost countries, or pass the costs further up the supply chain to the textile sector, which is discussed in the next section.

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[8] The shares are calculated from the GTAP version 6.2 input-output matrix for the year 2001.

[9] One would expect that developed countries have a more capital-intensive technology than developing countries, suggesting that, roughly, a capital share over and above about 10 per cent in low-income countries is due to farming out production to self-employed and to excess profits.

[10] Source of trade data for Bangladesh: Comtrade database. The data are at 2-digit HS level and includes sectors 50-63.

Table 1: The cost structure of the clothing industry, selected countries, 2001 (per cent of gross output)

	Unskilled labour	Skilled labour	Capital	Total value added	Intermediate inputs	of which imported
Canada	25.9	5.0	10.2	41.2	58.8	19.8
USA	21.0	5.8	5.8	32.6	67.4	13.8
France	21.6	4.7	8.8	35.0	65.0	24.3
Italy	14.3	3.1	16.4	33.8	66.2	13.5
Japan	21.9	4.0	11.2	37.1	62.9	7.8
Hong Kong, China	22.6	7.9	12.9	43.4	56.6	13.0
Korea, Rep.	15.0	2.9	4.7	22.6	77.4	15.9
Chinese Taipei	20.8	3.5	6.0	30.3	69.7	10.9
China	18.2	2.5	12.2	32.9	67.1	5.7
India	21.1	2.9	7.8	31.8	68.2	1.8
Viet Nam	9.0	1.2	3.8	14.0	86.0	40.4
Czech Rep.	21.1	3.2	9.9	34.1	65.9	28.9
Morocco	14.6	2.1	10.9	27.6	72.4	37.9

Source: GTAP.

3. Textiles

The textile industry is usually more capital intensive than the clothing industry and it is highly automated, particularly in developed countries. It consists of spinning, weaving and finishing, and the three functions are often undertaken in integrated plants. Traditionally, and in many markets, it is still the case that lead time in the textile sector is quite long and the capital intensity of the industry results in relatively large minimum orders. The textile industry is therefore less flexible in terms of adjusting to consumer tastes during a season than the clothing and retail sectors. The textile sector is thus in many ways the bottleneck in the supply chain.

In industrial countries, notably the United States, an increasing share of the textile sector produces household appliances and other industrial fabric e.g. for the furniture and car industries. This is a more R&D intensive segment of the industry and subject to less frequent changes in patterns, material and colours. Only about a third of US textile production was used for clothing in the late 1990s. The composition of inputs in the textile industry in a selected number of countries is presented in Table 2, which corresponds to Table 1 for the clothing sector.

The textile sector is less unskilled labour-intensive than the clothing sector. We notice that the import share is in general quite high but some of the richer and larger countries such as China; Hong Kong, China and India rely mainly on locally produced inputs for textiles as well as clothing.

It has been difficult for poor countries to create backward linkages to the local economy in the business environment described in this section. The import content of the clothing industry is therefore typically high in poor countries as indicated in Tables 1 and 2. But even if local value- added is low, the clothing sector plays a major role in job creation and many countries have been able to upgrade their clothing sectors by moving from assembly of imported cut fabrics and accessories to full-package production over time. Mexico's experience suggests that trade liberalization is important for this upgrading to take place, because a relatively free trade regime provides sufficient flexibility for the production networks to operate and rules of origin become less of a problem (Bair and Gereffi, 2001).

Table 2: **The cost structure of the textile industry, selected countries, 2001 (per cent of gross output)**

	Unskilled labour	Skilled labour	Capital	**Total value added**	**Intermediate inputs**	of which imported
Canada	22.7	3.1	10.3	36.1	63.9	24.2
USA	19.5	4.2	10.3	34.0	66.0	9.7
France	13.8	3.7	7.2	24.7	75.3	22.0
Italy	11.8	3.2	12.6	27.6	72.4	35.0
Japan	17.6	6.6	7.0	31.2	68.8	11.2
Hong Kong, China	9.0	3.9	10.8	23.8	76.2	5.8
Korea, Rep.	12.0	2.3	15.2	29.5	70.5	20.0
Chinese Taipei	10.4	3.3	8.3	22.0	78.0	10.2
China	9.7	1.6	12.0	23.2	76.8	8.1
India	17.8	2.8	6.7	27.3	72.7	4.0
Viet Nam	10.2	1.6	12.4	24.3	75.7	34.3
Czech Rep.	13.0	1.8	13.8	28.7	71.3	35.1
Morocco	5.8	0.9	6.2	13.0	87.0	44.3

Source: GTAP.

4. The integrated supply chain – some examples

An example from Sri Lanka illustrates how buyers can benefit from low production costs in developing countries while at the same time ensuring efficient operation of the supply chain in the face of poor financial, physical and institutional infrastructure. According to Kelegama and Foley (1999), 15 per cent of Sri Lankan producers' inputs are provided by the buyers without payment (i.e. the Sri Lankan suppliers are paid a net price for the final output), 55 per cent are bought by the local clothing producing firm from a supplier nominated by the buyer, while 30 per cent is bought by the local producer without any restrictions from the buyer. A similar pattern is found in Viet Nam, where importers place orders with East Asian intermediaries that provide raw materials, machinery and services such as quality control and packaging to Viet Namese exporters.[11]

The extent to which the textile and clothing industry participates in international production networks can also be illustrated by the so-called vertical specialization index. This measures the share of foreign value-added embodied in exports, or put differently, the imported intermediate inputs contained in exports as a share of total exports.[12] The index captures one important feature of international supply chains: parts, components and semi-finished goods cross the border several times before the final product reaches the consumer. This feature of vertical specialization implies that tariffs have a multiplicative effect on costs, which makes trade driven by vertical specialization particularly sensitive to tariffs, as is shown in Section V.C below. We have estimated the vertical specialization index for the textiles and clothing sector for a number of countries and the result is depicted in Figure 2.[13]

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[11] This is an example of how traded business services can help poor countries enter world markets.

[12] Since it is usually assumed that exports are produced according to the same technology as like goods for domestic consumption, the vertical specialization index is equivalent to the cost share of imported intermediate products (e.g. as presented in the last column of Tables 1 and 2).

[13] Estimated by author using the GTAP version 6.2 database and the methodology suggested by Hummels et al (2001).

Figure 2: Vertical specialization share in exports, selected countries and territories, 2001
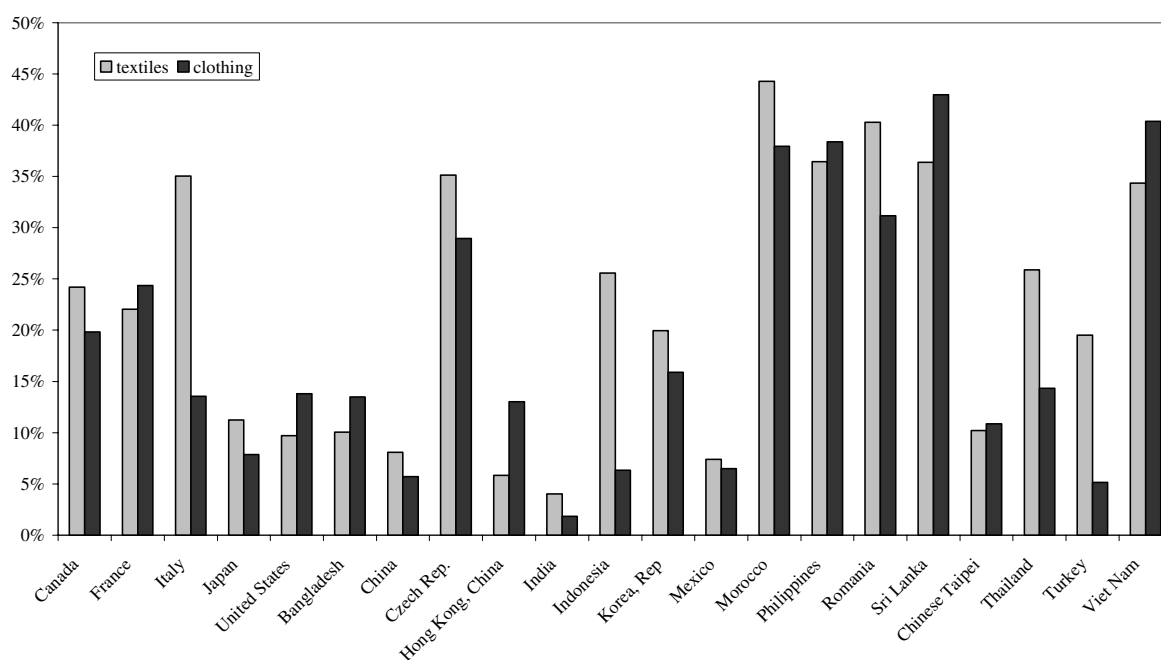
Source: GTAP.

The poorer and smaller countries in the sample have a higher vertical specialization index than the larger and richer ones, indicating that being part of a production network could be important for entering the export market for small and/or poor countries.[14] We also note the low indices for India, China and Mexico.[15] The large size of the local market is one reason for this. In addition, as far as India is concerned, there are a number of restrictions on the textile and clothing industry, including export quotas on cotton and cotton-based fibres in order to ensure that the domestic clothing industry has access to cheap local inputs. Furthermore, spinning mills are required to produce a certain per cent of their output in a form suitable for the handloom sector, a technology used by small-scale firms, but long abolished in most other significant textile and clothing exporting countries. This has rendered the Indian textiles and clothing industry a locally integrated industry, heavily protected, using outdated technology and lagging far behind China, for example, as far as productivity is concerned. Some

of these restrictions have been abolished recently, including the reservation of the garment sector for small-scale firms. Import taxes on synthetic fibres have also been reduced substantially.[16]

An empirical estimate of the determinants of vertical specialization in the textiles and clothing industry finds that small countries are indeed more likely to engage in vertical specialization than larger countries. It was further found that the quality of infrastructure is an important determinant. The better the quality, the larger the share of total exports driven by vertical specialization Countries with a low score on control of corruption are less likely to participate in vertical specialization in the clothing sector, underscoring the importance of the smooth and timely flow of goods, payments and information. Finally, the MFA quota system as practiced by the United States has a negative impact on vertical specialization.[17]

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[14] Ireland, Denmark and the Netherlands also have high vertical specialization indices in the textiles and clothing sectors.

[15] According to the Comtrade database, Mexico has a significant imports of textiles, and the vertical specialization index estimated from GTAP seems to be on the low side on the basis of this observation.

[16] See Elbehri et al (2003) for a discussion and an estimate of the impact of domestic reforms in isolation and simultaneously with the phasing out of the ATC.

[17] The regression included the following variables: GDP, distance from equator (an index that measures distance from major markets, which in turn are concentrated in the temperate zone of the world), whether or not the country is an island,

To summarize this section, both in the high quality fashion end of the market and in the mass consumer market the buzzword of modern manufacturing is flexibility. The MFA quota system carried over to the ATC is not designed for such a business environment. The quotas are allocated at a detailed 6-digit HS level and in a particular country they are often spread out over a large number of products. This may make it difficult to specialize in niches or to create clusters. In addition, quotas make it more difficult to adjust rapidly to changing market conditions. The uneven utilization of quotas, ranging from zero to more than 100 per cent indicates that the quotas are indeed out of step with the developments in the market. In

other words, the quota system impedes restricted countries from participating gainfully in international production networks.

B. EMPLOYMENT IN TEXTILES AND CLOTHING

One of the reasons why trade policy regarding the textile and clothing sector has been a politically sensitive issue is the importance of these activities in employment. Employment figures for the US, Canada and the major textile and clothing producers in the EU are presented below. If not otherwise stated the data are based on labour force surveys.[18]

Table 3:   Employment in textiles and clothing, ATC countries (thousands)

	1995	1996	1997	1998	1999	2000	2001	2002
Textiles								
Canada	54	55	51	60	59	54	51	54
United States*	688	660	653	642	614	595	539	489
France**	134	129	126	126	123	119	116	109
Germany	261	209	188	194	184	168	154	146
Italy	332	340	326	351	334	352	344	335
Portugal	99	87	83	101	101	100	106	104
Spain	108	91	94	99	99	101	101	99
United Kingdom**	188	185	184	178	162	149	135	120
Clothing								
Canada	92	80	92	98	97	85	94	80
United States*	814	743	700	639	556	497	427	358
France**	137	128	121	115	106	95	87	81
Germany	122	133	128	120	114	117	118	105
Greece	66	65	60	52	50	50	51	45
Italy	274	243	235	229	209	206	206	198
Portugal	143	131	124	176	164	156	151	143
Spain	117	114	120	111	126	123	125	116
United Kingdom**	173	165	163	159	133	109	88	78

Source: ILO (2004).
* Data based on establishment surveys.
** Data based on official estimates.

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whether or not it is landlocked, tariff rates, dummies for whether or not the country has a quota under the MFA with the United States and EU respectively, and the quality of infrastructure. Of these only GDP, the US quota dummy and infrastructure were significant. See Nordås (2003b) for further details. Regressions were run for the textile and clothing sectors combined and for each of them separately.

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[18] The ILO data are not always comparable between countries since data for some countries are based on labour force surveys, some are based on establishment surveys, which are less comprehensive than the labour force surveys, and yet others are based on "official estimates". The establishment survey data thus are downward biased.

From the table it is clear that employment has been held up much better in the textiles sector than in the clothing sector in the ATC countries, but employment has declined substantially also in textiles in Germany, the United Kingdom and the United States. Only Portugal and Spain have avoided job losses in the clothing sector. According to the Commission of the European Communities (2003), the textile and clothing sector accounts for about 4 per cent of total manufacturing production and 7 per cent of employment in the manufacturing sector in the European Union. After enlargement in May 2004 however, the European Union employs about 2.7 million people in the textile and clothing sector. The employment data reflects a long-term decline in textiles and clothing in the major developed countries, in spite of the protective trade regime. Furthermore, it appears that a substantial adjustment has already taken place following regional trade agreements, particularly in the United States and United Kingdom where employment in the clothing sector has more than halved since 1995.

Turning to the major exporters to the ATC countries, textiles and clothing has been an important source of job creation during the period 1995 to the latest available year of information.[19] Employment data from the ILO are presented in Table 4. It should be noted that the figures refer to paid employment and do not capture self-employment in the sector, which in some countries can be significant. In the same way as in Table 3 the data are based on labour force surveys if not otherwise stated. As is clear from the table, data on employment in developing countries are less frequent than for developed countries. Furthermore, the discrepancy between various sources and estimation methods are much larger than for developed countries. The data should therefore be interpreted with caution and are more suitable for analyzing time trends within a country than for comparison between countries.

For Turkey, data based on establishment surveys are available for the period 1995-2000. They indicate that employment grew by more than 4 per cent per annum in the textile sector and almost 3 per cent per annum in the clothing sector during this period. Comparing the levels of employment from labour force surveys and establishment surveys in 2000, however, shows that establishment surveys capture less than 40 per cent of the employment covered in the labour force survey.

We notice that employment has declined in some of the exporting countries and territories since 1995, notably in some of the former Eastern European countries; Hong Kong, China and Chinese Taipei. It is also notable that employment has declined substantially in the Chinese textile sector following restructuring of the sector, while employment has levelled off in the clothing sector in spite of high export growth. Employment has, however, increased substantially in Turkey and Romania, two of the counties with increasing market shares on the EU market. Employment has also increased in the clothing sector in EU's North African trading partners, although employment has stagnated or declined in the textile sector in these countries. Also Mexico has experienced job growth in textiles and clothing following the entering into force of the NAFTA agreement in 1995, although employment in the clothing sector peaked in 2000. India and Indonesia have seen significant employment growth in the clothing sector. Comparable data are not available in the ILO database for Bangladesh and the Dominican Republic, but in Bangladesh the textile and clothing sectors accounted for about half of industrial employment in 2002 (Textile Intelligence, 2003). According to UNIDO data, employment in the textile and clothing sector in the Dominican Republic was about 360,000 in 1997, the only year that data could be found. The employment data thus indicate a shift in employment from both the ATC countries (EU, USA and Canada) and upper middle-income countries to low-income countries and lower middle income countries.

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[19] Major exporters to the ATC countries are defined as the top ten exporters of textiles and clothing to the EU and USA respectively. See Figures 3-6 below.

Table 4:   Employment in textile and clothing (thousands)

	1995	1996	1997	1998	1999	2000	2001	2002
Textiles								
Czech Republic	100	86	90	86	74	79	76	72
Poland*	159	153	146	128	108	97	88	N/A
Romania*	186	189	159	128	105	94	98	91
Turkey	N/A	N/A	N/A	N/A	N/A	471	493	584
Morocco*	70	70	70	71	69	70	N/A	N/A
Tunisia***	18	19	18	18	9	12	N/A	N/A
Mexico	187	184	198	240	263	269	317	N/A
China"	6730	6340	7302	5780	5109	4829	4775	N/A
Hong Kong, China*	59	48	41	33	31	27	27	25
India"	1579	1518	1529	1330	1283	1289	N/A	N/A
Indonesia*	N/A	N/A	N/A	595	638	662	679	N/A
Philippines*'	56	53	54	N/A	N/A	N/A	N/A	N/A
Chinese Taipei*	161	155	154	154	154	154	142	135
Clothing								
Czech Republic	50	52	49	50	47	41	37	36
Poland*	240	260	254	259	225	211	194	N/A
Romania*	189	203	181	246	240	261	290	302
Turkey	N/A	N/A	N/A	N/A	N/A	487	468	501
Morocco*	102	106	117	122	127	135	N/A	N/A
Tunisia***	94	103	103	103	103	110	N/A	N/A
Mexico	476	486	525	740	723	760	681	N/A
China"	1750	1680	2439	2117	2027	2156	2027	N/A
Hong Kong, China*	80	64	53	44	40	36	30	23
India"	264	267	283	279	296	331	N/A	N/A
Indonesia*	N/A	N/A	N/A	349	436	485	462	N/A
Philippines*'	143	154	154	N/A	N/A	N/A	N/A	N/A
Chinese Taipei*	114	107	103	101	96	93	86	80

Source: ILO (2004) and UNIDO, various issues.
* Data based on establishment surveys.
*** Data based on administrative records.
' ISIC revision 2 code for 1995, ISIC revision 3 for subsequent years.
" Data are from UNIDO.

III. THE AGREEMENT ON TEXTILES AND CLOTHING

Protection of the textile and clothing sector has a long history in United States and Europe. In the 1950s, Japan; Hong Kong, China; India and Pakistan agreed to voluntary export restraints for cotton textile products to the United States. In 1962 a Long Term Agreement Regarding International Trade in Cotton Textiles (LTA) was signed under the auspices of the GATT (replacing a 1-year short-term agreement). The LTA was renegotiated several times until it was replaced by the Multi Fibre Agreement (MFA), which came into force in 1974. The MFA, as the name suggests, extended restrictions on trade to wool and man-made fibres in addition to cotton.

The MFA aimed at an orderly opening of restricted markets in order to avoid "market disruptions". Like the LTA, it was supposed to be a temporary measure. The science of quantitative trade policy analysis was not very well developed in the 1970s. The burden of proof of what constituted a "market disruption" was therefore relatively weak and the agreement came to comprise most developing country exports to the United States and the EU. By the end of the second MFA (1981), 80 per cent of imports of textiles and apparel into United States were covered by bilateral quota agreements with 20 countries and territories and by consultative mechanisms with another 11 countries (Krishna and Tan, 1997). The MFA violated the principles of the multilateral system in several ways:

- It violated the most favoured nation principle;
- It applied quantitative restrictions rather than tariffs;
- It discriminated against developing countries;
- It was non-transparent.

The MFA was renegotiated four times, the last time in 1991, and it finally expired in 1994. Six developed countries applied quotas under the MFA during the final years of the agreement (the EU, Austria, Canada, Finland, Norway and the United States), and the quotas were applied almost exclusively to imports from developing countries (Francois et. al., 2000). The expiration of the MFA did not, however, mean the end of quotas on textile and clothing exports from developing countries. Instead the MFA was followed by the Agreement on Textiles and Clothing (ATC), which came into force with the establishment of the WTO in 1995. ATC is *not* an extension of the MFA. Rather, it is a transitory regime between the MFA and the full integration of textiles and clothing into the multilateral trading system. Four countries carried the MFA restrictions into the ATC (Canada, the EU, Norway and the United States).[20] The integration is to take place in four steps over a 10-year period, as indicated in Table 5. The steps can be seen as two separate processes:

- The progressive integration of products into the GATT 1994 as the integrated products are no longer part of the ATC but fall under the GATT;
- The progressive increase of the quotas that remain under the ATC.

The products to be included in the agreement are listed in the Annex to the ATC. This Annex includes, however, items that were not restricted under the MFA and the list therefore served to inflate the basis from which liberalization was calculated.

Table 5: Integration of textiles and clothing into GATT

Date	Minimum volume integrated (per cent)	Accumulated volume integrated (per cent)	Remaining quota growth rate
01.01.1995	16	16	16
01.01.1998	17	33	25
01.01.2002	18	51	27
01.01.2005	49	100	Full integration

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[20] Austria and Finland, which had applied quotas within the MFA in 1994 became EU members on 1 January, 1995.

It is important to note that the percentages to be liberalized refer to total *volume* of trade in textiles and apparel in 1990.[21] The choice of products to be integrated in any of the stages is left to the Members within the framework given by Article 2 of the ATC. The last column in Table 5 refers to increases in the quotas that remained under restrictions. The 16 per cent in the first step is understood to mean that the annual increase carried over from the MFA should be multiplied by 1.16. For example, if the quota on a particular item increased by 6 per cent annually under the MFA, it should increase by 6*1.16 = 6.96 per cent annually under the first phase of the ATC. Since the restricting countries had different quota increase rates during the MFA, the differences remaining under the ATC were such that the accumulated aggregate increase of the quotas over the 10-year ATC period were 17.8 per cent in the EU and 25 per cent in the United States, compared to what they would have been with the continuation of the MFA (Reinert, 2000).

Whether or not the quota growth has represented a significant liberalization is disputed. The EU, Canada and United States argue that the quota growth is sufficient to render the quotas de facto non-binding by the end of the ten-year period for most of the restricted items, while a number of restricted members complain that quota increases have not significantly improved market access so far. This issue will be further discussed below, but for now we notice that there has been full compliance with the quota growth rate commitments (WTO, 2001).

Turning to the integration process, it is fair to say that progress has been limited. Stage 1 brought the integration of *one single* restricted product by one country into the GATT – Canada integrated work

gloves. Nevertheless, all the restricting countries complied with their first stage commitments. This was possible because of the extension of the list of products in the Annex to ATC, as mentioned above. The opportunity to integrate non-restricted products had not been exhausted during step 1, so step 2 saw more of the same – it was the unrestricted products that were integrated first.

When the third stage was reached, the opportunity to integrate products that previously had not been restricted under the MFA had been exhausted. However, the Textiles Monitoring Body observed that there was a tendency to integrate products where quota utilization was particularly low. In the case of Canada, out a total of 27 specific constraints to be eliminated, 19 had a utilization rate of less than 50 per cent in the year 2000, and of these six had zero utilization rates. The corresponding figures for the EU were that out of 37 specific constraints to be eliminated, 28 had a utilization rate of below 50 per cent, while in the United States, out of 43 specific constraints to be eliminated, 21 had utilization rates below 50 per cent and of these the utilization rate was zero for three quotas. Although these figures only show a snapshot of the situation in 2000, and may or may not represent general trends, they concur with the statement of developing country members to the effect that during the first and second steps liberalization was not commercially meaningful to them. They further claimed that the proportion of the integrated products that represented real liberalization was in the range of 0 – 3 per cent of 1990 import value covered by the ATC (WTO, 2001).

A summary of the progress when the commitments for step 3 had been received by the Textile Monitoring Body is presented in Table 6.[22]

Table 6:   Integration during the first 3 stages

	Constraints carried over from MFA	Remaining constraints to be eliminated 01.01 2005	Share clothing constraints eliminated before step 4 (%)
Canada	295	239	7
EU	218	167	6
USA	758	701	6.5

Source: WTO (2001).

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[21] The volume is measured in physical units in categories defined by the Harmonised System and the list of integrated items must encompass products from each of the four broader groups: tops and yarns, fabrics, made-up textile products and clothing (Article 2).

[22] The number of constraints includes specific limits, sub-limits and group limits where applicable. The share of clothing constraints eliminated relates to the share of total volume integrated.

The number of constraints does not reflect the value or volume of imports, and it is important to stress that the Members included in Table 6 have fully complied with their obligations under the ATC. Nevertheless, the large number of constraints left to the fourth stage and the low share of clothing in the volume of integrated products so far suggests extensive back-loading and that the most sensitive products and the products with the highest value-added have been left to the final stage of integration. In short, the table leaves the impression that liberalization has been kept to a bare minimum.

Extensive use of the safeguard measures according to article 6 in the ATC during the first stage of liberalization further contributed to the perception of lack of will to liberalize. No less than 33 requests for consultations were registered from January 1995 to July 1997 (i.e., stage 1); 26 from the United States and 7 from Brazil. Of these, 24 came in the first half of 1995. Most of the measures were found to be unjustified when challenged by the Textile Monitoring Body (or the Dispute Settlement Body in some cases).

During the second stage there were 29 requests for consultations regarding safeguard measures, (one by the United States, nine by Columbia, two by Poland and 17 by Argentina). No requests were made during the year 2000 and it appears that recourse to safeguards has declined, particularly among the members that carried MFA constraints into the ATC. The most probable reason for this is that the Textile Monitoring Board's findings have clarified the criteria for using safeguards and that this has discouraged unjustified cases (WTO, 2001).

On the brighter side of the implementation of the ATC, it is worth noticing that 11 countries chose to integrate the clothing and textile sector into GATT 1994 immediately. Imports of textiles and clothing in the restricting countries have actually increased, and developing countries and countries in transition have gained market share during the period 1995-2002 as demonstrated in the next section.

To conclude, steps 1 to 3 have been implemented according to the letter in the agreement, but with the exception of Norway, the four countries that carried the MFA restrictions into the ATC have to a large extent used all opportunities available to retain restrictions in the most sensitive areas. They have inflated the basis from which liberalization is measured and they have first liberalized the restrictions that appear not to be binding.

IV. TRADE PATTERNS IN TEXTILES AND CLOTHING

This section analyzes trade patterns in textiles and clothing during the period 1995-2002.[23] China was the world's largest exporter both of textiles and clothing in 1995 as well as 2002. Its world market share (excluding intra-EU trade) increased from 22.5 per cent to 30 per cent over this period in the clothing sector and from 16 to 22 per cent in the textile sector. The other dominant exporters of textiles in both years are Italy, Germany, Republic of Korea, Chinese Taipei, France, Belgium, Japan and the UK, while Turkey and India had made it to the top 10 list in 2002. Developed countries thus dominate exports in the textiles sector, indicating that the case for continued protection is weak. In the clothing sector the major exporters in addition to China are Italy; Hong Kong, China; Germany; France; Turkey; India; Indonesia; Republic of Korea and Thailand. Mexico had made it to the top ten in 2002, ranking fifth, mainly due to NAFTA.

A. SOURCES OF IMPORTS TO USA AND THE EUROPEAN UNION

Since 1995 the share of the ATC countries (Canada, the EU and the United States) in world imports of textiles has increased from about 35 per cent to 43.5 per cent in 2002 (excluding intra-EU trade). The increase is mainly due to an increase in the US's share from 14 to 21 per cent while the shares of EU (again excluding intra-EU trade) and Canada have remained stable at about 19 and 2.7 per cent respectively. Turning to clothing, the ATC countries' combined share of world imports has increased from 62 per cent to 67 per cent during the same period. Canada's share has increased, but is only about 2 per cent in 2002, while the EU and the United States are moving in opposite directions. The EU's share declined slightly from about 32 per cent to about 30 per cent, while the US share increased from 30 per cent to 35 per cent. Thus, the ATC countries are relatively more important markets for exporters of clothing than for exporters of textiles.

The second half of the 1990s saw changes in both the EU and the United States in relation to the sourcing of textile and clothing imports, reflecting regional trade agreements and structural changes in the textile and clothing sectors. Starting with the United States, Figures 3 and 4 depict the sources of imports of textiles and clothing respectively in 1995 and 2002. Both figures show the 10 largest suppliers to the United States, while all other suppliers are included in the "Other" category.

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[23] Textiles and clothing in this section are defined as sector 17 and 18 respectively in ISIC Revision 3 classification.

Figure 3: Source of imports of textiles to the USA

1995

China 14%
Hong Kong, China 8%
Mexico 7%
Chinese Taipei 6%
Korea, Rep. 6%
Canada 6%
India 5%
Italy 5%
Pakistan 3%
Japan 3%
Other 37%

2002

China 14%
Mexico 11%
Canada 6%
India 5%
Korea, Rep. 5%
Hong Kong, China 5%
Pakistan 5%
Chinese Taipei 4%
Honduras 4%
Italy 3%
Other 38%
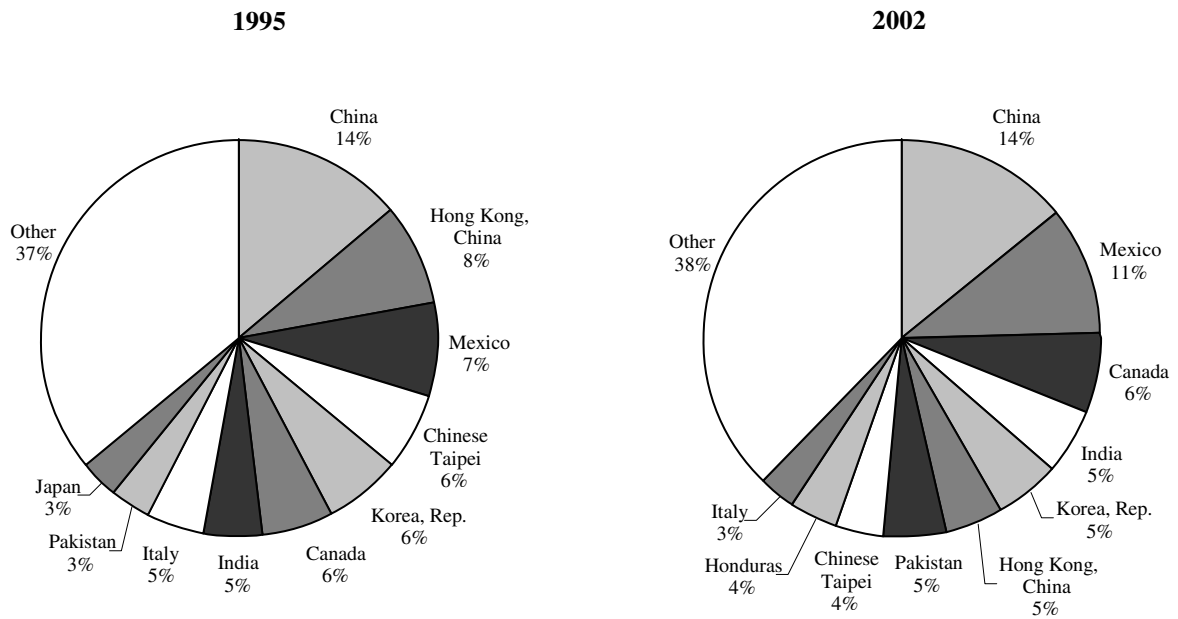
Source: Comtrade database.

Growth in imports of textiles to the United States during the period 1995 to 2002 was about 9 per cent annually in nominal dollar terms. We notice the sharp increase in Mexico's market share, probably reflecting the impact of NAFTA. The regionalization of the market is further indicated by the entry of Honduras among the 10 largest suppliers, while Japan has fallen out of the top 10 list. We also notice that low-income countries in Asia such as India and Pakistan have climbed in the ranking at the expense of higher-income Asian suppliers such as Chinese Taipei and Hong Kong, China; although India's market share has remained constant. Also China's market share has been fairly stable during the period 1995-2002.

Figure 4: Source of imports of clothing to USA

1995

China
15%

Hong Kong, China
10%

Mexico
7%

Chinese Taipei
5%

Dominican Rep.
5%

Philippines
5%

Korea, Rep.
5%

India
4%

Indonesia
4%

Bangladesh
3%

Other
37%

2002

China
16%

Mexico
12%

Hong Kong, China
6%

Dominican Rep.
4%

Indonesia
4%

India
4%

Bangladesh
4%

Philippines
3%

Thailand
3%

Korea, Rep.
3%

Other
41%
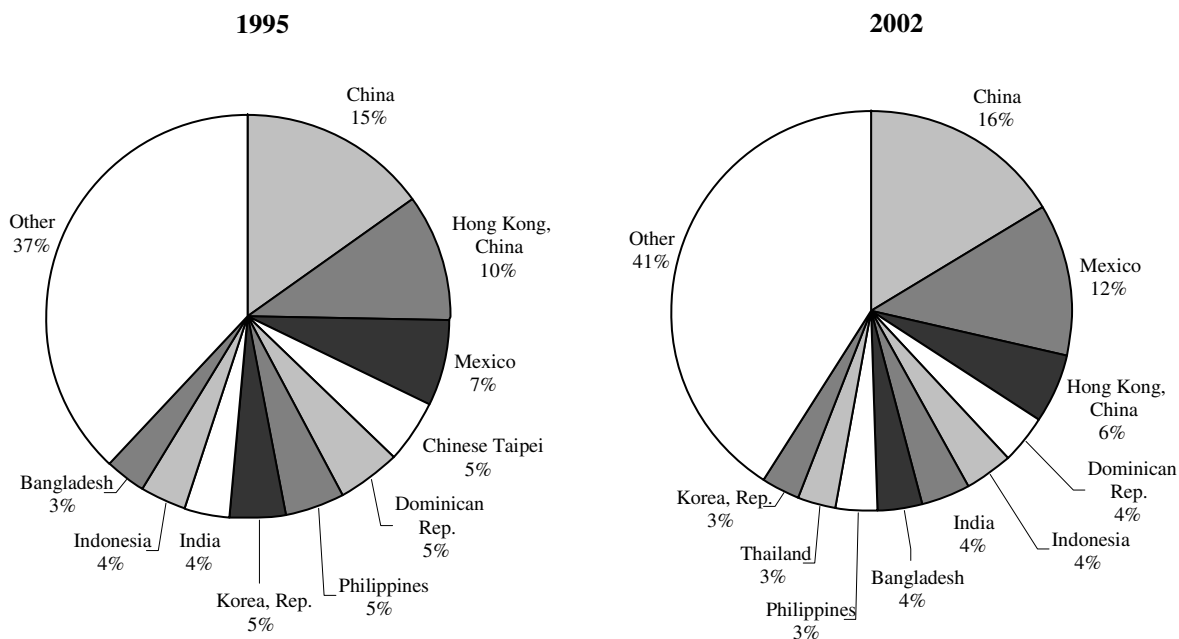
Source: Comtrade database.

Total imports of clothing grew somewhat less than textiles, at an annual average rate of about 5.5 per cent in nominal dollar terms. Mexico has increased its market share sharply also in the clothing sector, but after catching up with China in 1999, the market share has fallen back somewhat and China had more than regained its 1995 market share by 2002. One noticeable development during the period is the increase in the market share of "Other" reflecting the entry and growth in market share of a number of smaller suppliers, notably Sri Lanka (the eleventh largest). We also notice the sharp fall in relatively high-cost Asian exporters' market shares, e.g. Hong Kong, China; Chinese Taipei and Republic of Korea. Among the 10 largest exporters

in textiles and clothing to the USA in 2002, all but Italy faced quotas on some products (US Customs Services, 2003).

It is also of interest to look at how much of total exports of the countries included in Figures 3 and 4 go to the United States, and how much of their imports of textiles and clothing come from the United States. Table 7 presents the data for 2002. The first two columns show the share of the country's total exports destined for the United States, while the last two columns show the US share in the country's total imports.

Table 7: The US trading partners' trade with the United States, 2002

	Share of total exports going to USA (per cent)		US share of total imports (per cent)	
	Textiles	**Clothing**	**Textiles**	**Clothing**
Canada	94.2	94.3	50.3	10.4
Mexico	88.2	95.9	77.2	65.4
Dominican Republic	50.2	95.0	38.2	21.7
Honduras	42.8	91.8	32.8	24.7
Bangladesh	19.0	54.3	0.6	2.7
China	9.9	12.6	1.2	0.7
Hong Kong, China	29.9	49.2	1.4	0.5
India	20.0	31.2	2.2	2.2
Indonesia	10.7	50.2	4.0	2.0
Korea, Rep.	13.9	53.4	2.8	1.4
Philippines	44.3	78.0	2.8	6.5
Thailand	23.3	56.5	2.9	3.6
Chinese Taipei	9.1	72.7	5.5	1.2
Italy	5.9	12.1	1.0	0.6

Source: Comtrade database.

The US takes a very large share of Latin American exports, as one should expect from the discussion in section II. In particular, the two NAFTA partners, Canada and Mexico send almost all their exports in these two sectors to the United States, while Mexico also sources most of its imports from the United States. A similar pattern can be discerned for Honduras and the Dominican Republic, although the United States features less prominently in these countries' imports.

Turning to the EU, imports (excluding intra-EU trade) of textiles grew by about 3 per cent in nominal dollar terms during the period 1995-2002.

Behind this modest growth lies a substantial shift from intra-EU trade to imports from lower cost external suppliers. In fact, intra-EU trade declined from 61 to 50 per cent of total trade during this period. Moreover, it also declined slightly in nominal dollar value. Changes in the EU's external sourcing of textile imports are characterized by a sharp increase in Turkey's market share following the EU-Turkey customs union that entered into force in 1996. Switzerland, the fourth largest exporter in 1995, has fallen out of the list of the 10 largest exporters, while Bangladesh has entered the list and gained a significant market share. China has also increased its market share.

Figure 5: Sources of imports of textiles to the EU

1995

Turkey
10%

China
9%

India
9%

Switzerland
7%

United States
6%

Pakistan
5%

Hong Kong,
China
4%

Indonesia
4%

Korea, Rep.
3%

Czech
Republic
3%

Other
40%

2002

Turkey
16%

China
11%

India
7%

Bangladesh
5%

Pakistan
4%

Hong Kong,
China
4%

Korea, Rep.
3%

Czech
Republic
3%

Indonesia
3%

United States
3%

Other
41%
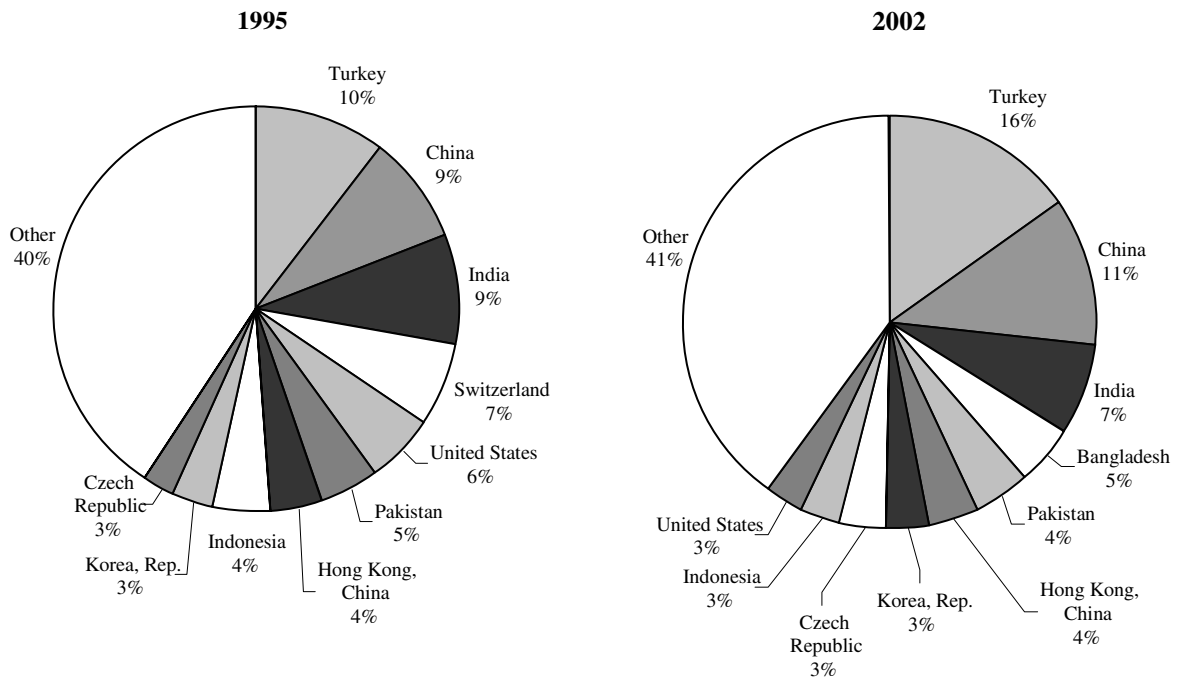
Source: Comtrade database.

Total clothing imports (in nominal dollar terms) from external suppliers grew by about 2.5 per cent annually during the period. Also in the clothing sector this reflects a shift from intra-EU trade to lower cost external suppliers, and intra-EU trade declined from about 36 to 30 per cent of the total during the period in question. Figure 6 depicts sources of imports of clothing, and shows that China was the largest supplier in both years and that its market share has increased. Turkey has advanced to second place following the customs union between EU and Turkey, but its market share

has been stable at around 10 per cent. The countries and territories on the 10 largest exporters list have not changed, but the ranking according to market share has. Notably, Romania has more than doubled its market share. Comparing EU and US sources of imports, a regional dimension is clear. Of the 10 largest exporters to the EU in the textile and clothing sectors, China; India; Indonesia; Hong Kong, China; Pakistan and Republic of Korea faced quotas while the others did not (European Commission, SIGL, 2003).

Figure 6: Sources of imports of clothing to EU

1995

China
14%

Hong Kong,
China
10%

Other
32%

Turkey
10%

Bangladesh
3%

India
7%

Indonesia
3%

Tunisia
6%

Romania
3%

Poland
6%

Morocco
6%

2002

China
20%

Other
29%

Turkey
10%

Indonesia
3%

Hong Kong,
China
8%

Bangladesh
3%

Romania
7%

Poland
4%

Morocco
5%

India
5%

Tunisia
6%
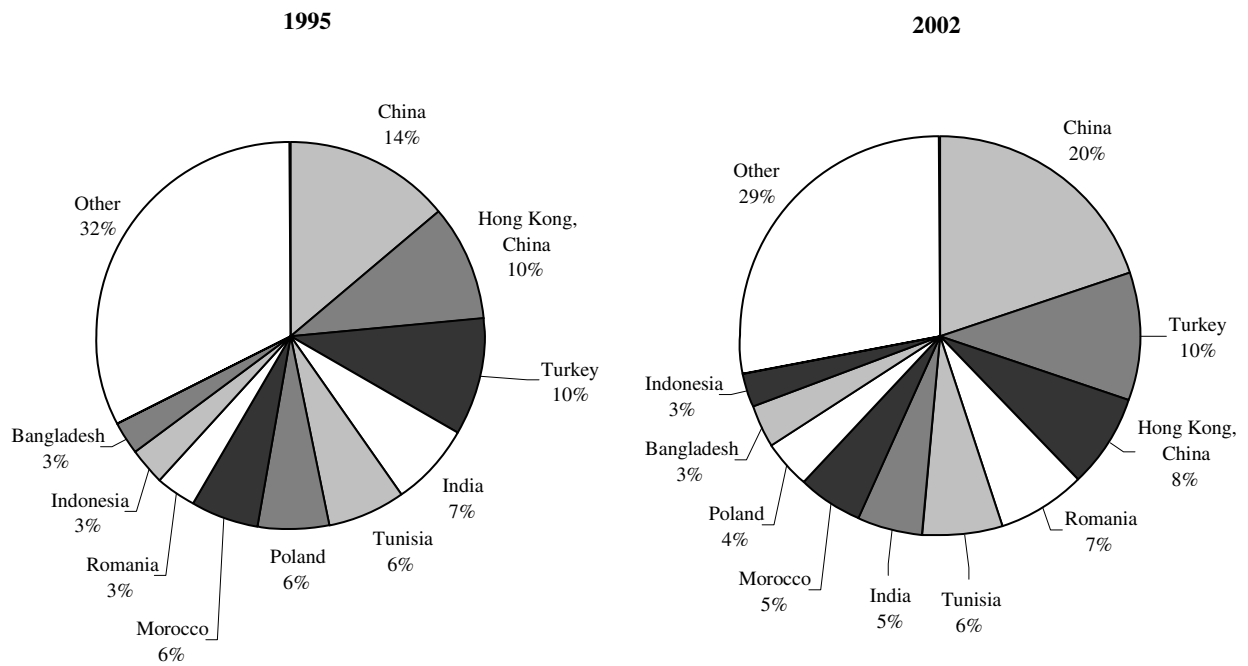
Source: Comtrade database.

The relative importance of the EU as a trading partner for the countries and territories included in Figures 5 and 6 are presented in Table 8, which corresponds to Table 7 above. Comparing the two tables, we see that EU and the United States take about the same share of China's exports while Hong Kong, China and the Republic of Korea are more oriented towards the United States. It is also noticeable that the countries and territories located close to the United States or the EU respectively have a high share of total imports being sourced from these major markets. This is not the case for the Asian exporters on the list, who source their inputs from within Asia.

Table 8: EU's trading partners' trade with EU, 2002

	Share of total exports (per cent)		EU share of total imports (per cent)	
	Textiles	**Clothing**	**Textiles**	**Clothing**
Czech Republic	71.0	82.6	76.3	27.7
Poland	77.8	89.6	68.2	27.5
Romania	84.5	94.1	84.3	79.3
Turkey	59.6	67.8	40.8	63.5
Morocco	95.9	95.2	86.0	91.2
Tunisia	91.5	97.4	91.0	96.1
Bangladesh	59.7	40.9	0.7	1.4
China	8.7	12.8	4.4	12.3
Hong Kong, China	19.3	21.1	5.9	4.3
Indonesia	22.4	23.5	5.9	3.1
India	27.4	39.4	11.0	17.8
Korea, Rep.	8.7	8.4	12.4	14.9
United States	7.1	5.5	9.1	3.9

Source: Comtrade database.

A similar pattern as was found for the United States and the Latin American countries included in Table 5 is found for the EU and Central European and North African countries, where Tunisia and Morocco trade almost exclusively with the EU. Again, regional agreements facilitating the development of regional supply chains appear to be the major driving force.

The regional dimension is also clear when we take a closer look at the major Asian textile and clothing exporters' sourcing of imports. China sourced more than 80 per cent of its textiles imports from Japan, Hong Kong, China; Chinese Taipei and the Republic of Korea, but as suggested by Table 1 above, China sourced most of its inputs for the clothing industry domestically. Hong Kong, China had a similar pattern as China, with more than 80 per cent of total textiles imports coming from China, Japan, Chinese Taipei and the Republic of Korea, with China alone accounting for more than 60 per cent. Also, the Philippines, Thailand and Indonesia sourced between 75 and 82 per cent of their textile imports from the five large Asian textile exporters (China; Hong Kong, China; Chinese Taipei; the Republic of Korea and Japan). India imports very little textiles, with an import value of less than $1 billion in 2002, and more than

half came from other Asian countries and territories. Bangladesh, by contrast, imported about 84 per cent of its textiles from the five big Asian countries and territories, but replacing Japan with India.[24]

Comparing developments in market shares in the United States and the European Union and developments in employment in the textile and clothing sectors, it appears to be a high correlation between changes in market shares and changes in employment. In particular, the upper middle income countries in Asia have lost market shares and jobs in textile and clothing sector, probably as a result of changing trade policies and changing comparative advantage.[25]

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[24] The figures in this section are taken from Comtrade and are in respect of 2002 except for Bangladesh and Thailand, where the latest available figures are 2001.

[25] According to ILO labour statistics the unemployment rate has increased in Hong Kong, China, Chinese Taipei and Republic of Korea during the period 1995-2002, but the unemployment rate of women is lower than for men in all three countries, suggesting that the mainly female laid off workers in the textile and clothing sector may have had less difficulties in finding alternative employment than laid off workers in other restructuring industries.

Recent debate on the impact of the phasing out of textile and clothing quotas has been concerned with China's rapid expansion in world market shares. Before analyzing the impact of the final stage of phasing out the quotas in the next section, it is useful to take a look at how China's market shares have developed in unrestricted, relatively developed markets over the period 1995 – 2002. Japan, Australia, Switzerland and South Africa are such quota-free markets. Table 9 presents the figures.

A high and rapidly increasing market share is observed for China following its accession to the WTO in 2001 in Australia, Japan and South Africa, but a very modest share in Switzerland. Japan already sourced a large share of its imports of textiles and clothing from China in 1995. Australia and South Africa are relative far from all significant textile and clothing exporters and China

is at a less time-to-market disadvantage in these markets than in the EU and USA. The major sources of imports to Switzerland are the European Union members, notably Germany. Major suppliers to South Africa in addition to China are the major Asian exporters as far as textiles are concerned, but Malawi is the second largest supplier of clothing to South Africa, and Mozambique also features among the 10 largest suppliers. Again we observe the regional dimension, although China indeed dominates the markets except in Switzerland. However, a comprehensive recent study (Institut Français de la Mode, 2004) argues that other Asian countries (India, Indonesia and Viet Nam) are catching up with China in terms of favourable unit labour costs and that the Chinese industry is still weak in design and fashion capabilities and "reactive production" along the lines described in Section II in this study.

Table 9: China's share of total imports, selected countries

	Textiles (per cent)		Clothing (per cent)	
	1995	2002	1995	2002
Australia	19.3	35.2	54.3	70.4
Japan	41.1	66.5	59.1	77.5
South Africa	5.9	18.5	29.0	56.3
Switzerland	3.9	5.2	8.8	9.3

Source: Comtrade database.

V.   THE IMPACT OF PHASING OUT THE ATC

The impact of implementing the ATC has several dimensions. First, there is the political gain related to the credibility of the multilateral trading system at a time when the system is experiencing considerable strains. Second, there are the efficiency gains from eliminating highly distorting quotas that have lead to an inefficient global allocation of textile and clothing production. Third, there is the loss of quota rents on the part of ATC exporters. Finally, there is the gain to consumers. Before discussing the gains in more detail, it is useful to briefly recapture how quotas work. In theory a quota is equivalent to a tariff and as such it increases the local price of the product in question in the importing country, and reduces local demand for the product. However, while the increased price in the case of tariffs partly benefits local producers and partly the government through tariff revenue, the increased price due to the MFA/ATC partly benefits local producers and partly accrues to the exporters as quota rents.

Another impact of the quotas (and tariffs) is that when the importing country is large, quotas lower the price of the product in question in unrestricted markets because the large country's reduced demand is sufficient to reduce total world demand. Thus, it is likely that the MFA/ATC quotas lower the world market price of textiles and clothing outside the EU, the United States and Canada.

How large these price and quantity effects are depends on how large the quotas are relative to local demand and the price elasticity of demand. Estimates of the tariff equivalents of the quotas applied by the EU in 1997 found that they varied from 1.3 per cent to 21.6 per cent for textiles and from 3 per cent to 34.8 per cent for clothing. In both sectors the lowest barriers were towards Central and Eastern Europe, while the highest barriers were towards Asian countries, e.g. China, India, Malaysia, Indonesia and the Philippines (Francois et. al. 2000). We notice that the tariff equivalents of the quotas are by far higher than the average tariffs facing manufactured imports to the EU and the United States. The ATC quotas are therefore seen as discriminating against developing countries. If the quotas are set at a level higher than local demand at world market prices, then the quota will not be binding, and will have no effect besides the administrative costs of managing the quota system, which may still be significant both on the exporting and importing side.

Quotas can also be seen as a tax on exports in the exporting country. An estimate of the equivalent average export tax for India found that it varied between 24 per cent (in 1997) and 40 per cent (in 1999) during the period 1993-99 for exports to the United States and between 14 per cent (in 1994) and 19 per cent (in 1999) for exports to the EU. India also has a number of domestic distortions that if eliminated would improve the performance of the clothing and textiles sector substantially. Thus, according to a study by the World Bank, the welfare gains to India from the elimination of the ATC quotas would be three times as high if combined with domestic reforms (Kathuria et. al. 2001).

Finally, the MFA and ATC provisions create incentives for rent-seeking, transhipment, re-routing and false declarations concerning country or place of origin, and fibre content of the textiles and clothing in question. There is therefore a need to use resources on monitoring and controlling trade in textiles and clothing, in addition to the administration costs of this relatively complex system. These costs and distortions will be saved when the quotas are phased out.

As indicated in the introduction, relative prices, trade barriers and comparative advantage are one set of parameters that determine trade patterns in the textile and clothing sector. In addition, proximity to markets and ease of transactions are likely to have a significant impact on trade flows. In the following we explore each of them and discuss the results in the light of the elimination of quotas under the ATC.

A.   A SIMULATION OF THE IMPACT OF THE PHASING OUT OF ATC QUOTAS

A number of studies estimating the gains from the Uruguay Round were published in the period 1995-97. The estimates varied somewhat depending on model specifications, but they had in common that a large part of the total estimated gains of the Uruguay Round – ranging from 20 per cent to 50 per cent of the total – stem from elimination of quotas on industrial goods, of which the ATC is the most important component (Reinert, 2000). Since most of the liberalization of the textiles and clothing sector is back-loaded to 2005, the estimates should still have relevance. Francois et. al. (1997), for example, find that the impact of

eliminating the quotas on exports of textiles is an increase in export volume ranging from 17.5 per cent to 72.5 per cent. The lower figure only takes into account static gains, while the higher one also takes into account a number of dynamic effects. The estimates of export increases in the clothing sector range from 70 per cent to 190 per cent under the same model specifications. The welfare gains (i.e. increases in income) from elimination of quotas are estimated to account for 42 per cent of total gains of Uruguay Round liberalization in the static model and 65 per cent in the dynamic model. The welfare gains are, however, concentrated in the *importing* countries, while there is a small welfare loss in the exporting countries in the static version of the model, but an income gain also in exporting countries in the dynamic version of the model. The reason why there is a welfare loss in exporting countries in the static version is that the rise in exports is not sufficient to compensate for the loss of quota rents.

Which estimate is the most realistic? There is considerable scepticism regarding the realism of the most optimistic forecasts of dynamic models in general. For example, there were a number of dynamic estimates of the gains from the European integration following the implementation of the Maastricht Treaty in the early 1990s, which turned out to be too optimistic. Further, a number of studies of scale effects and international spillovers have found such effects to be smaller than anticipated. The most optimistic forecasts should therefore be taken with a pinch of salt. On the other hand, there are reasons to believe that the quota rents are already shared with the multinational retailers as discussed above, and the loss of quota rent is probably less than the model estimates.

To shed some more light on the issue, this section presents the results of a simulation using the GTAP model. This is a general equilibrium model for the world economy, particularly suitable for trade policy analysis. We believe that general equilibrium models of this type are better at projecting relative performance of countries than absolute performance. The results are therefore presented in the form of developments in the market share of the major textiles and clothing exporters to the EU, the United States, and Canada. The GTAP model has 1997 as its base year, while the ATC was introduced in 1995 and all quotas will be phased out by 2005. As shown in section III, little had changed from 1995 to 1997. A simulation using 1997 as the base year should therefore not constitute a major problem for analysing the impact of the ATC. The United States and Canada are aggregated into one region in the model. The two scenarios that are simulated are the base line GTAP solution and a simulation where the quotas are eliminated and all other parameters and resource endowments are kept constant.

Table 10 presents the GTAP estimate of the export tax equivalent of the textiles and clothing quotas in the base year. The exporting countries included in the table are those included in the model for which the equivalent export tax exceeds 5 per cent in the United States, the EU or both.

Table 10: Export tax equivalent of quotas base year

	USA/Canada (per cent)		EU (per cent)	
	Textiles	**Clothing**	**Textiles**	**Clothing**
Bangladesh	15.3	8.1	8.4	7.3
China	20.0	33.0	12.0	15
Hong Kong, China	1.0	10.0	1.0	5.0
Hungary	6.9	5.0	0	0
India	9.8	34.2	12.0	15.2
Indonesia	8.1	7.8	6.3	6.0
Philippines	6.5	7.8	5.7	6.0
Poland	6.9	5.0	0	0
Sri Lanka	15.3	8.3	5.5	6.6
Thailand	8.3	13.2	6.4	7.8
Turkey	7.0	4.9	1.5	0
Viet Nam	6.9	7.1	7.5	7.2
Other Central Europe	6.9	5.0	0	0

Source: GTAP database.

We notice that in most cases the United States has the most restrictive quotas of the two major importers and that the EU has no quotas on the Central and Eastern European countries. It is also generally the case that the quotas are more restrictive for the clothing sector than for the textile sector, although there are some exceptions such as Bangladesh and the Eastern European countries. By far the most restricted countries are India and China. We first assess the relation between locally produced and imported textiles and apparel. The import share of total domestic demand for textiles and clothing in the United States/Canada and the EU before and after quotas were eliminated is presented in Table 11 below

Since the United States/Canada has the most restrictive quotas, the impact on import share of total demand is the most dramatic here. The import share in clothing will increase by as much as a third according to the model simulations. In the EU, the impact on import penetration is less dramatic and the major impact will be seen in the sourcing of imports as will be further discussed below.

The European Union

The European Union has less restrictive quotas than the United States/Canada on both textiles and clothing. It also has provided a number of least developed countries with tariff- and quota-free market access, provided certain criteria such as rules of origin are satisfied. Finally, the EU has entered free trade agreements with a number of Central and Eastern European countries and some of them became members of the EU in May, 2004.

Table 11: Imports as share of domestic demand with and without quotas

	USA/Canada (per cent)		EU (per cent)	
	Textiles	**Clothing**	**Textiles**	**Clothing**
Before	20.9	33.8	52.5	48.5
After	21.5	45.0	53.0	51.0

Figure 7: Market shares before and after quota elimination, textiles, EU

Before

- Turkey 13%
- China 10%
- India 9%
- United States, Canada 8%
- Other Central and Eastern Europe 6%
- Korea, Rep. 5%
- Indonesia 4%
- Chinese Taipei 3%
- Other North Africa 3%
- Africa 3%
- Rest of the World 36%

After

- China 12%
- Turkey 12%
- India 11%
- United States, Canada 7%
- Other Central and Eastern Europe 6%
- Indonesia 5%
- Korea, Rep. 4%
- Other North Africa 3%
- Chinese Taipei 3%
- Bangladesh 3%
- Rest of the World 34%
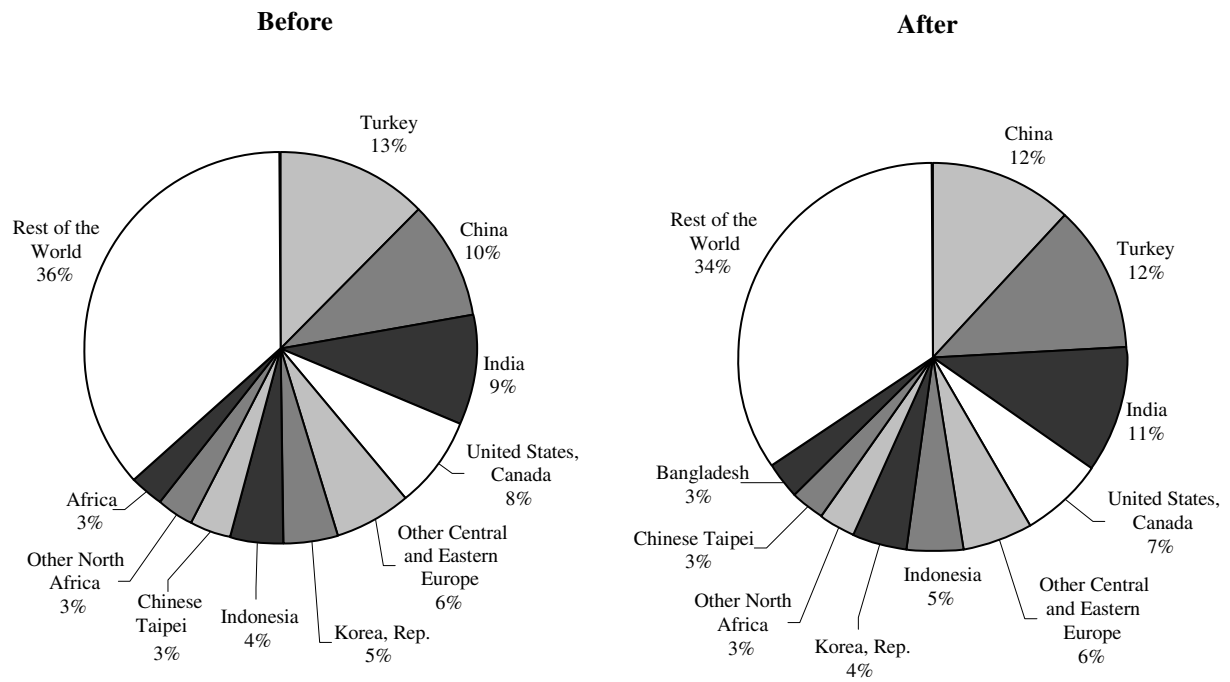
"Africa" in the figure refers to sub-Saharan Africa, XNF is North Africa excluding Morocco, while XCE is Central and Eastern Europe excluding Hungary and Poland which are included separately in the model. China makes the largest gain in market share, followed by India. Also, Bangladesh makes a substantial gain compared to 1997, but not compared to the present situation as depicted in

Figure 5. The countries losing market shares are those enjoying unrestricted or preferential access to the EU market before the phasing out of quotas – most OECD countries, and sub-Saharan Africa. Turning to the clothing sector, Figure 8 illustrates the impact of quota elimination on market shares in this sector.

Figure 8: Market shares before and after quota elimination, clothing, EU

Before

China 18%
Turkey 9%
Other Central and Eastern Europe 9%
Other North Africa 6%
Hong Kong, China 6%
India 6%
Poland 5%
Morocco 5%
Indonesia 3%
Bangladesh 3%
Rest of the World 30%

After

China 29%
India 9%
Turkey 6%
Other Central and Eastern Europe 6%
Hong Kong, China 6%
Other North Africa 5%
Morocco 4%
Poland 4%
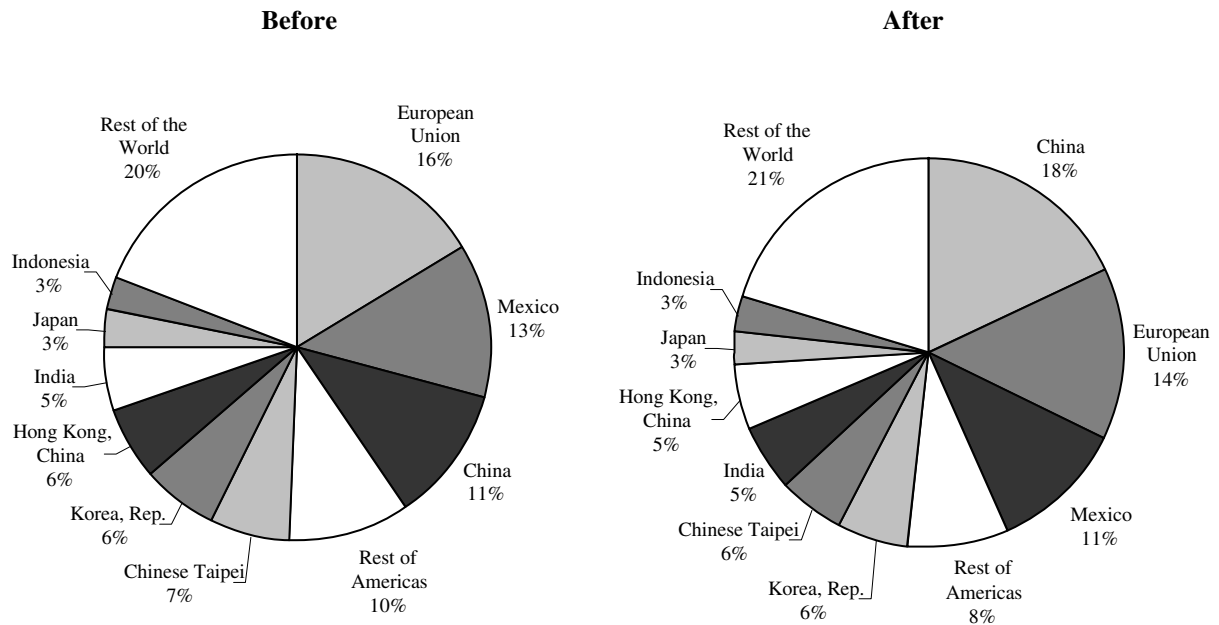Bangladesh 4%
Indonesia 3%
Rest of the World 24%
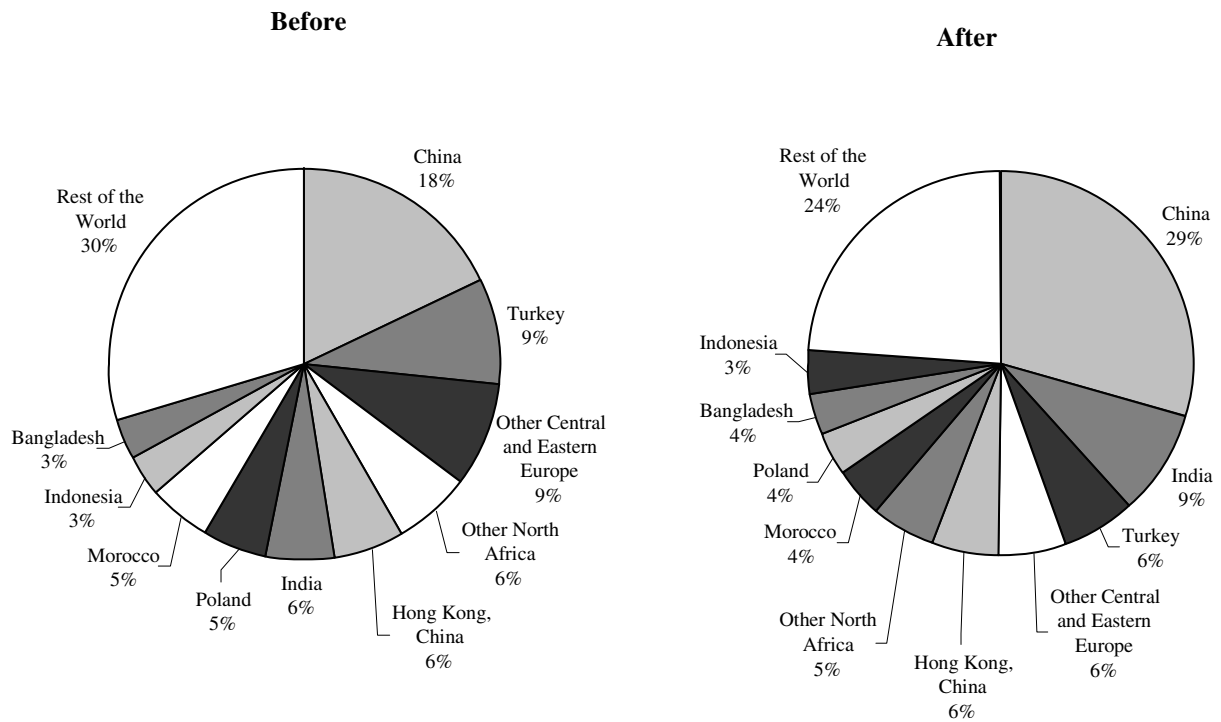
Both India and China will almost double their market share, and China will be the single largest exporter. All the countries listed in Table 9 above with quotas equivalent to an export tax of more than 5 per cent in absolute value will gain market share, while Africa, the United States/Canada, Turkey, Central and Eastern European countries and richer Asian countries and territories such as Republic of Korea and Chinese Taipei will lose market share.

United States/Canada

The United States/Canada and Mexico formed the North American Free Trade Agreement (NAFTA) in 1994. However, while Canada and the United States have retained quotas under the ATC, Mexico's exports have been subject to quotas in the past. These have been eliminated within NAFTA, but Mexico still faced quotas in the EU in the base year of the simulations. It is therefore natural to split NAFTA into the United States/Canada and Mexico in the simulation. Figure 9 below shows the sources of imports to the US/Canadian market before and after the ATC quotas are eliminated.

Figure 9: Market shares before and after quota elimination, textiles, USA

Before

Rest of the World 20%	European Union 16%
Indonesia 3%	Mexico 13%
Japan 3%	China 11%
India 5%	Rest of Americas 10%
Hong Kong, China 6%	
Korea, Rep. 6%	
Chinese Taipei 7%	

After

|	
Rest of the World 21%	China 18%
Indonesia 3%	European Union 14%
Japan 3%	Mexico 11%
Hong Kong, China 5%	Rest of Americas 8%
India 5%	
Chinese Taipei 6%	
Korea, Rep. 6%	

Following the elimination of quotas, China increases its market share by about 50 percent. The list of the 10 largest exporters remains the same, but the ranking has changed. We also notice that the combined market share of smaller exporters has increased. Within the ROW group Bangladesh and Sri Lanka both increase their market shares by almost 50 per cent, but from a low base. Nevertheless, this gain in market share represents a substantial increase in these countries' exports of

textiles. Other countries losing market shares are African countries that have had preferential access to the market before the phasing out of quotas and Latin American countries.

Turning to clothing, Figure 10 shows the changes in sources of imports following the elimination of quotas for this sector.

Before ATC

After ATC
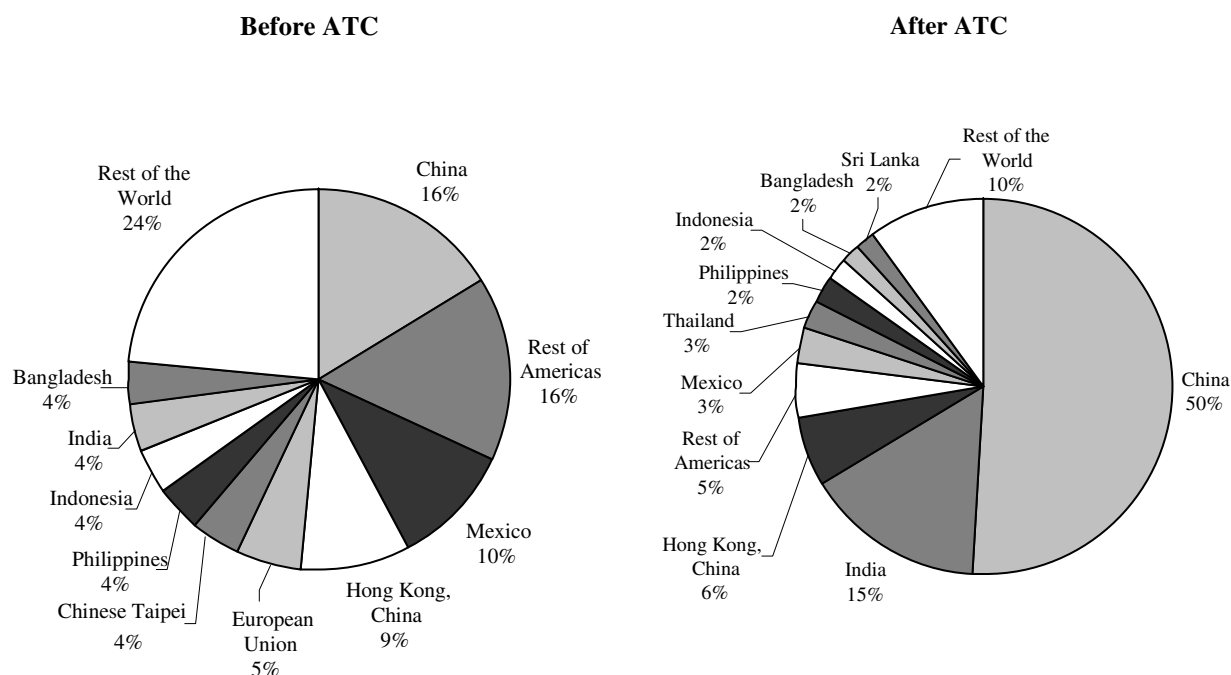
Here the impact is much more dramatic. China and India combined take 65 per cent of the export market – China triples its market share while India's market share is quadrupled. All others lose market share and the largest losses are incurred by African countries and Mexico, whose market shares decline by close to 70 per cent. These results are largely in line with other GTAP simulations (e.g. Ianchovichina and Martin, 2001). A cautionary note is, however, pertinent at this point. The GTAP results are driven by changes in relative prices, rendering the previously restricted low-cost producers more competitive and thus increasing their market share. The limits of such low-cost producers' expansion in the model simulations are production capacity constraints and the fact that increased demand for unskilled labour in textiles and clothing industries raises the wage rate and cost competitiveness is somewhat reduced as a result. The model simulations do not capture the changes in technology and possible increase in the relevance of time and distance as a trade barrier. Therefore the projected decline in the market share of Mexico and the rest of Latin America may be exaggerated in the model simulation. Nevertheless, there is no doubt that India and China will increase their world market share substantially in the textiles and clothing sector

following the elimination of quotas as agreed under the ATC.

Comparing the predicted market shares with those recorded in 2002, it is also notable that some of the countries that have benefited from preferential access to the EU and US markets will lose market shares as these preferences are eroded. Mexico and the Dominican Republic are in a position to lose market shares in clothing in the United States compared to 2002. Turkey, North Africa and Eastern Europe are in danger of losing market shares in the clothing sector in EU compared to 2002.

One aspect of the liberalization of the clothing sector that is not captured in any of the models is the employment effect in poor countries. While the CGE models assume full employment in all scenarios, experience from several poor countries show that the establishment of export-oriented clothing firms has mobilized labour that was previously not in the labour force, first and foremost women. Between 70 per cent and 80 per cent of the workers in the clothing sector are women in most poor countries, and many – perhaps most of them – would not have had an income in the formal sector

in the absence of the clothing industry. If we assume that these workers have a higher income and higher productivity in the clothing sector than in their best alternative economic activity, the income gains in poor, clothing-exporting countries are higher than the model estimates, and so is probably their supply response to improved market access.

The relative importance of political and physical trade barriers can be estimated by means of the so-called gravity model. In this analytical framework trade is determined by the size of the market of the exporter and importer, the distance between them (which is a proxy for transport costs) and tariffs and other trade barriers. The determinants of the EU's imports from external sources by exporter were estimated for the year 2000 on 2-digit HS categories. One variable that is of interest is whether or not the exporter has a border with the EU. This variable captures the importance of proximity to the market. For the sample as a whole (i.e. when including all 2-digit HS sectors from 50 to 63 in the same regressions) having a border with the European Union multiplies trade flows by a factor of 2.7. At the 2-digit sector level a more complex picture emerges. Having a border with the EU appears not to be significant for trade flows in most of the textiles sectors (50, 51, 52, 53, 54, 55, 56, 57, 60), while the border effect is very strong for clothing, multiplying trade flows by a factor of 9, all other things equal. It is also found that trade flows fall off with distance at a rate of about 5 per cent for every 10 per cent increase in distance for the sample as a whole. Again, there are large differences between sub-sectors. Imports

of silk and wool, for example, are unrelated to the distance to the exporter, while the sectors in which trade falls off most sharply with distance are "other vegetable textile fibres" (53), "wadding, felt and nonwoven; yarns; twine, cordage etc." (56) and carpets (59), where trade falls off by 12 per cent when distance increases by 10 per cent.

Turning to trade policy, the analysis includes bilateral tariffs (i.e. a tariff factor which is 1+ the tariff rate) relative to the MFN tariff rate in each 2-digit sector, and whether or not trade is subject to import quotas, outward processing quotas or surveillance restrictions.[26] From the analysis it appears that the allocation of quotas has a large and *positive* impact on trade flows. There are two possible explanations for this. Either quotas are allocated disproportionately to competitive exporters in a generous way so that most of the restrictions are non-binding. Alternatively, non-binding quotas combined with low or no in-quota tariffs are allocated to countries that would otherwise have difficulties in gaining market shares on the EU markets. Table 12 below indicates the extent to which quotas are binding and exporters' comparative advantage in the textiles and clothing sector. It contains the countries and territories included in Annex II of the European Union's rules for imports of textiles and clothing (Office for Official Publications of the Commission of the European Communities, 2003). The first two columns show revealed comparative advantage for textiles and clothing respectively, while the third column shows the number of binding quotas relative to the total number of quotas. A binding quota is defined as a quota fill rate above 90 per cent.[27]

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[26] Using the tariff factor instead of the tariff rates allows us to take logs of the tariff rates without losing the observations with zero tariff rate. Whether or not the exporting country is subject to quota regulation, outward processing agreements or surveillance regulations is captured by three dummy variables. They take the value 0 in the case of no regulation and 1 if one or more item in the 2-digit category is regulated.

[27] Revealed comparative advantage is calculated as the share of textiles or clothing in total exports of each country relative to the share of textile or clothing in world exports. If the number is larger than unity, the country in question has a revealed comparative advantage. The quotas are classified according to the EU classification system which can be found on http://sigl.cec.eu.int.

Table 12: Revealed comparative advantage and binding quotas, 2000.

Country	Textiles	Clothing	Binding quotas
Argentina	0.28	0.09	0/3
Armenia	0.25	0.31	0/0
Azerbaijan	0.88	0.00	Surveillance
Bangladesh	8.74	18.63	Surveillance
Belarus	1.46	1.02	2/33
Bosnia Herzegovina	0.76	3.25	1/12
Brazil	0.54	0.12	0/11
Cambodia	8.84	18.06	Surveillance
China	3.18	3.64	33/76
Croatia	1.50	2.80	2/12
Egypt, Arab Rep.	5.44	2.20	0/2
Georgia	0.03	0.09	0/0
Hong Kong, China	4.87	10.09	3/34
India	4.67	3.90	7/21
Indonesia	1.98	2.04	2/15
Kazakhstan	0.02	0.01	Surveillance
Korea, Rep.	2.49	0.70	4/43
Kyrgystan	0.56	0.32	Surveillance
Laos	4.70	11.59	Surveillance
Macao, China	8.02	19.97	11/24
Macedonia, FYR	1.51	7.46	Surveillance
Moldova	1.03	4.59	Surveillance
Mongolia	5.83	5.43	Surveillance
Malaysia	0.36	0.39	3/12
Nepal	10.37	11.66	Surveillance
Pakistan	18.35	6.53	8/16
Peru	2.18	1.09	0/3
Philippines	0.41	1.97	1/16
Russian Federation	0.13	0.07	Surveillance
Singapore	0.32	0.32	0/10
Sri Lanka	4.61	14.36	1/6
Chinese Taipei	2.44	0.48	4/43
Thailand	1.16	1.33	2/20
Turkmenistan	1.65	0.24	Surveillance
Ukraine	0.25	0.87	0/30
United Arab Emirates	0.46	0.55	Surveillance
Uzbekistan	2.89	0.23	0/1
Viet Nam	1.12	3.70	12/29

Of the 38 countries and territories included in Table 12, 13 were subject to surveillance restrictions only. These are largely newcomers to the market, particularly newcomers from the former Soviet Union. We also see that many of these do not have a comparative advantage in textiles and clothing. China; Viet Nam; Macao, China; Pakistan and India appear to be the countries and territories most restricted by quotas and these have all comparative advantage in textiles and clothing and have experienced rapid export growth during the 1990s.

Yet, even for China less than half of the quotas were binding. Among the countries and territories with mainly non-binding quotas are both those with strong comparative advantage in textiles and clothing (Egypt; Hong Kong, China and Sri Lanka) and no comparative advantage (Argentina, Armenia, Brazil, Malaysia, Singapore and Ukraine). It thus seems that the explanation for a positive impact on trade of having a quota can be explained by a mix of the two possibilities – some countries with quotas have strong comparative advantage and are large exporters, and much of their exports enter outside binding quotas. Others have no comparative advantage and may export more to the EU when being allocated a quota combined with low tariffs than they otherwise would. In addition, a third possible explanation of historical inertia emerges. The quota system created incentives for countries that were losing comparative advantage in the textiles and clothing sector to retain their quotas in order to appropriate the quota rents. The strategy for filling the quotas for these countries was to relocate production to lower cost countries with unfilled quotas, but also to continue to export to the EU for longer than they otherwise would.[28]

For countries under surveillance restrictions, it may well be that successful exporters are more likely to be subject to surveillance restrictions than that surveillance *per se* stimulates exports. The non-former Soviet Union exporters under surveillance indeed have a high index of revealed comparative advantage. Tariffs have a large and negative impact on trade flows and from the analysis in section II, a large sensitivity to tariffs should be expected.

GDP per capita was also included in the analysis in order to investigate what role the income level, which in turn is closely related to the labour cost level, plays in bilateral trade with the EU. For the sample as a whole, there was no strong relationship between income level and exports to the EU. For some individual sub-sectors, however, income and thus labour costs play an important role. GDP per capita is positively related to exports of wool and perhaps surprisingly, clothing (both 61 and 62).

This supports the assumption that timeliness and quality are important determinants of trade in clothing and that the higher end of the fashion market is a significant part of the total market. GDP per capita is negatively related to exports in cotton, other vegetable textile fibres and carpets.

Similar studies have been done for US imports of textile and clothing, using a somewhat different methodology (Evans and Harrigan, 2003; 2004). Evans and Harrigan report that about 40 per cent of US imports of textiles and clothing came in under binding quotas during the 1990s, a figure that was fairly stable during the period. There were, however, important changes in relative market access conditions. Thus, there was a sharp reduction in tariffs, but an increase in binding quotas for Mexico and the Caribbean during the 1990s, while South Asia saw a large increase in the relative share of binding quotas during the 1990s. At the same time there was a substantial shift in sourcing of inputs from Asia to Mexico and the Caribbean. In the market segments with the highest rate of replenishment, imports from nearby Mexico and the Caribbean grew by 70 percentage points faster than those sectors with low replenishment rates over the period 1991 to 1998. Studies by Evans and Harrigan argue that the shift is due to lean retailing practices. They utilize a unique dataset from the US Commerce Department at the 10-digit HS level and incorporate data on most favoured nation applied tariff rates, preferential rates and quotas under the Multi-Fibre Agreement, and find evidence for the relevance of distance in trade in "replenishment goods". They argue that distance matters because of its correlation with time to market, not primarily because of transport costs.

It appears, however, that cost differences still matter. Thus, our analysis of the data since 1998 shows that there has been a reversal in China's market share in textile and clothing which has increased from 13.2 percent in 1999 to 15.5 percent in 2002. There is still some way to go before China has regained its market share of about 18 per cent from 1993, but the declining market share has apparently been halted and possibly reversed.[29]

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[28] The simple average quota fill rate for each 2-digit HS category was calculated and included in the regression. It took a positive and significant value, but with a very small coefficient.

[29] The market shares are calculated as US imports of textiles and clothing (ISIC codes 17 and 18) from China relative to total US imports of these categories during the period 1990-2002.

VI. CONCLUSION

The developed countries have "temporarily" protected their textiles and clothing sectors for 40 years and these two sectors have represented anomalies in the GATT ever since the LTA came into force in 1962. Among the most distorting measures to have prevailed are import quotas allocated to some, mainly developing countries on a country-by-country and product-by-product basis, while other countries face no quotas. This has led to a pattern of specialization where countries with the strongest comparative advantage for textiles and clothing, such as China and India, face binding quotas, while others receive investment in the sector motivated by unfilled quotas and may well find that these investments are unsustainable in a trade regime based on the principles of the GATT.

Most analyses of the impact of the phasing out of the ATC conclude that China and India will come to dominate world trade in textiles and clothing, with post-ATC market shares for China alone estimated at 50 per cent or more. This study replicates those predictions using a model which is commonly used in such studies (the GTAP model). It is argued, however, that these estimates only tell part of the story, as they are totally driven by changes in relative prices and cost competitiveness. This paper has focused on other factors that are also important and which have generally not been taken into account in the previous literature.

The main contribution of this study is thus to take into account recent developments in the organization of the textiles and clothing sector, where vertical specialization is an important feature. Vertical specialization implies that the inputs embodied in the final product cross borders several times and such trade is very sensitive to the tariff level. Hence the outcome of the phasing out of quotas will depend much more on the prevailing tariff rates and the preference margins of countries receiving such preferences than is captured by the conventional estimates. Second, time to market is important and increasingly so, particularly in the fashion clothing sector. Therefore, countries close

to the major markets are likely to be less affected by competition from India and China than has been anticipated in previous studies. Mexico, the Caribbean, Eastern Europe and North Africa are therefore likely to remain important exporters to the US and EU respectively, and possibly maintain their market shares. This is even more likely given the preferential access they have to the markets through regional trade agreements. Thus, it is shown in the paper that having a common border with the importer and facing low or zero tariffs have a substantial impact on bilateral trade.

The countries that are most likely to lose market shares are those located far from the major markets and which have had either tariff and quota-free access to the United States and EU markets, or which have had non-binding quotas. These countries will undoubtedly face adjustment challenges. Also local producers in EU, the United States and Canada are likely to lose market shares. These producers have enjoyed more than 40 years of "temporary" protection, but nevertheless face a long-term structural decline. Thus, adjustments costs due to changing comparative advantage in the textile and clothing sector are not new, and it is not confined to the ATC countries, as the experience of some of the major Asian exporter such as Hong Kong, China; Chinese Taipei and the Republic of Korea shows.

To conclude, there is no doubt that both China and India will gain market shares in the European Union, the United States and Canada to a significant extent, but the expected surge in market share may be less than anticipated, as proximity to major markets assumes increasing economic significance and tariffs are increasingly restraining trade due to the fact that products cross borders several times. Furthermore, other developing countries are catching up with China in terms of unit labour costs in the textile and clothing sector and China has of yet not shown competitive strength in the design and fashion segments of the markets.

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