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Competitiveness of the Turkish Textile and Clothing Industries

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Abstract: This paper studies the competitiveness of the Turkish textile and clothing industries in the last decade, and attempts to identify its sources and changes in competitive conditions. It is found that the Turkish textile and clothing producers have been quite successful in enhancing their competitive position in major markets, namely, in the EU and the US, and seem to be in a strong position for the coming decade. However, major changes in the textile and clothing markets, most importantly the elimination of quotas in developed countries after January 1, 2005, would transform the competitive conditions in these markets. The Turkish textile and clothing industries that earn about 40% of export revenue should prepare themselves against these changes in order to protect the existing shares in major markets.

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1. Introduction

The aim of this report is to study the development of Turkish textile and clothing (T&C) industries, and to assess the sources of their competitiveness. The textile and clothing industries play an important role in generating employment (about 35 % of manufacturing employment in the late 1990s), and help to ease the pressure of high population growth rate. These industries were also the engine of the export boom Turkey experienced in the first half of the 1980s and have generated almost 40% of export revenue since the early 1990s. Although T&C industries have a very significant share in manufacturing employment and exports, their shares are much lower in manufacturing value added because of low labor productivity. For example, the T&C industries produced only about 16% of manufacturing value added in the second half of 1990s whereas their share in employment reached to almost 34%.

Low productivity, and, hence low wages in T&C industries as well as low income elasticity of T&C products bring into question the future role of these industries in Turkey. In this report, we focus our attention on short and medium-term prospects for these industries in order to understand if these industries could play an active role in the process of recovery from the prolonged economic crisis that started in February 2001. After the economic crisis, the Turkish government has launched a fiscal policy that aims at decreasing PSBR with severe cuts in public expenditures. This policy, which is essential for debt sustainability, has also suppressed domestic demand. Under these circumstances, export-oriented industries could play an important role in the process of recovery. Therefore, the report looks at short and medium-term growth potential of these sectors and does not question their role for long term economic growth.

The report is organized as follows. The development of T&C industries since 1980 is summarized in Section 2. Competitive position of Turkish producers in two main markets, the EU and the US, is analyzed at the product level in Section 3. Labor cost and productivity levels and their evolution in major producer countries are studied in Section 4. Section 5 discusses prospects for the T&C industries paying due attention to the elimination of quotas in WTO member countries in 2005. The last section summarizes policy recommendations.

2. Textile and Clothing Industries in Turkey: An Overview

The T&C industries are characterized by labor intensity and low productivity (low value added per employee). Moreover, they produce one of the most essential consumer products. The T&C industries have played a very important role in the early industrialization process of almost all countries since the Industrial Revolution.

Although the T&C industries are labor intensive, and developing countries with low wages have strong comparative advantage in these industries, the developed countries have protected their T&C industries by a series of measures: T&C industries in developed countries have still much higher tariff rates than other products do, and imports from developing countries have been severely restricted by quotas. Although the standard international trade theory shows that quantitative restrictions are the worst type of protective measure, they have been extensively used for a long time. "We can take as a starting point [for the use of quantitative restrictions] the year 1957, when the US forced Japan to agree on a five-year voluntary export restriction on its cotton textile exports to the US" (Navaretti, Faini and Silbeston, 1995: 14). As a result of export restrictions on Japan, developing countries increased their exports to the US, and the US pressed for a multilateral agreement to restrict cotton imports from developing countries that led to the Short Term Cotton Textile Arrangement in July 1961, and, later, to a more comprehensive Long Term Cotton Textile Arrangement in 1962. This time, developing countries increased their exports of man-made fibre products that led to the restrictions on these products as well: the Multi-fibre Arrangement (MFA) was signed on December 20, 1973. The MFA has been renewed three times until it has been taken over by the WTO's Agreement on Textiles and Clothing (ATC) in 1995. The MFA regulated T&C trade between developed and developing countries by means of quantitative restrictions (for a detailed history, see Cline, 1987). The ATC, which was approved by all WTO members, stipulates that the sector will be fully integrated into GATT rules by 2005. In particular, the quotas will come to an end, and importing countries will no longer be able to discriminate between exporters. Quotas will be eliminated in four steps (the first step, 16% of quotas eliminated in January 1, 1995, to December 31, 1997; step 2, 17% in January 1, 1998, to December 31, 2001; step 3, 18% in January 1, 2002, to December 31, 2004; and step 4, all the remaining 49% by January 1, 2005), and existing quotas would be opened up at an increasing rate. These percentages are applied to the importing country's T&C trade levels in 1990.

As in many other developing countries, the T&C industries have played an important role in the process of industrialization of Turkey (for comprehensive studies on the Turkish T&C industries, see Aydın, Soykan and İskender, 1978; Pazarcık and Turunç, 19874; İlyasoğlu and Duruiz, 1991; Duruiz and Yentürk, 1992; DPT, 1985 and 2001; ITKIB, 2001; DTM, 2002). Sümerbank was established in 1933 to develop a number of industries, including the T&C industries, in Turkey. It played a leading role in T&C industries since the late 1970s. However, as a part of the new market-oriented economic policies adopted in the 1980s, Turkish governments have curtailed investment by state-owned T&C establishments, and started the process of privatization in 1996. The share of state-owned establishments in textiles employment declined sharply from 18% in the early 1980s to 2% in 2000. There is a similar trend in the clothing industry in the 1990s: the share of state-owned establishments in clothing employment declined from 3.9% in 1988 to 1.5% in 2000.[1]

The share of T&C in manufacturing value added increased gradually from 13% in 1981 to 16% in the second half of 1990s. However, the increase is mainly due to clothing. The share of textiles fluctuated around 12% in the last couple of decades. The share of clothing increased from mere 0.7% in 1981 to 5.0% in 1996, then declined to 3.2% in 2000 (Figure 1a).

As a labor-intensive industry, employment shares of T&C show significant increases since 1980 (Figure 1b). The share of textiles fluctuated around 20% since the mid 1990s, and then jumped to 24-25% in the second half of 1990s. The clothing sector had a continuous increase in manufacturing employment share, from 1.7% in 1981 to 11.4% in 1996. Its share declined to some extent in 1997-2000, due to economic crises in Turkey.

T&C industries were behind the export boom in the 1980s. The share of T&C in total export revenue doubled from 1980 to 1995 (from 27% to 40%). Export revenue of T&C jumped from 0.9 billion USD to 9.9 billion USD (11 fold) in the same period. Much of this increase is accounted for by the clothing sector. Since the early 1990s, there seems to be no increase in the share of T&C exports. Incidentally, the proportion of exports to GNP has also remained

[1] In this report, we use two different classifications for textile and clothing industries. For the industry data, the textile sector is defined as ISIC 321, Rev. 2, and clothing as ISIC 322, Rev. 2. However, this is not strictly comparable to the classification of trade data based on HS. When the HS is used for trade data, textiles refer to products classified under HS 50-60, and clothing HS 61-63. ISIC 321 includes a part of clothing as well, but does not cover some products that are classified under various industries, e.g., man made fibers classified under chemicals. The industry data covers all state-owned establishments and private establishments employing 10 or more employees.

almost constant since the early 1990s. This may indicate that the limits of T&C-based export growth have been reached in the early 1990s (Figures 1c).

As a result of rapid increase in imports from Turkey, the EU started to impose quantitative restrictions on Turkish exports in 1984. These restrictions were eliminated after the customs union in 1996.

Although the share of T&C in total imports is still very low, it had a sharp increase from 1981 to 1995 (from 1.0% to 5.5%), mainly derived by the textile demand of the growing clothing industry.

At the disaggregated level, there are significant differences among 4-digit textile industries (Table 1). ISIC 3212 (textile products excl. apparel) and 3213 (knitting) experienced higher growth rates in terms of employment, value added, and export value, whereas ISIC 3211 (spinning and weaving) accounts almost 80% of the increase in imports. (Note that a large part of products produced in ISIC 3213 industry is indeed classified as clothing products in trade statistics.) Since clothing is relatively more labor-intensive that textiles, it is fair to say that labor-intensive activities have flourished since the early 1980s.

Table 2 shows data on major markets for Turkish T&C products (countries are ranked by the average export share in the last 5 years). Germany is the main export market albeit the steep decrease in its share (from 36.0% in 1996 to 26.7% in 2001). The US is the second biggest market and its share is increasing (from 8.5% in 1996 to 14.0% in 2001). Other large EU countries (the UK, Italy and France) have large and increasing shares. These countries compensate for the decline in Germany's share so that the EU keeps its share almost constant (about 80% of Turkish T&C exports). Articles of apparel and clothing accessories, knitted (HS 61) is the single largest export revenue generating product category (3.6 billion USD in 2001), followed by HS 62 (articles of apparel and clothing accessories, not knitted), and HS 63 (other made up textile articles).

3. Competitiveness of the Turkish Textile and Clothing Industries

Since the EU and the US are major markets for Turkish T&C products, it is necessary to explore the competitive position of Turkish producers in these markets.

Figure 2 depicts data on Turkey's share in the EU market for T&C products.[2] As may be expected, Turkey is more competitive in clothing than textiles in the EU market, and has continuously gained ground in both products. Turkey's share in EU countries' clothing imports has increased from about 5.0% in 1991 to 7.4% in 2000. Turkish textile firms have also succeeded in increasing their market share, from 2% in 1991 to 3% in 2000. It is interesting to observe that there is no apparent break in market share trend around 1996 when Turkey joined the customs union with the EU.

The data of quota restrictions and surveillance measures adopted by the EU show that these restrictions were binding for only a few product categories before the customs unions. For example, the Turkish exporters had utilized more than 90% of the working level (=quota level as adjusted following the use of flexibility provisions provided for under the relevant legal texts) in 1995 in only five product categories: "4 shirts, T-shirts, lightweight fine knit roll, polo or turtle necked jumpers and pullovers (other than of wool or fine animal hair), undervests and the like", "7 women's or girls' blouses, shirts and shirt-blouses", "12 panty-hose and tights, stockings, understockings, socks, ankle-socks, sockets and the like", "13 Men's or boys' underpants and briefs, women's or girls' knickers and briefs", and "83 overcoats, jackets, blazers and other garments, including ski suits". Moreover, the quota levels for these products had been increased quite significantly (15%-30% per year) in the couple of years preceding the customs union. Moreover, utilization levels for Outward Processing Trade (OPT) quotas had remained quite low. Therefore, it would not be incorrect to suggest that quota restrictions before the customs union did not significantly hold back the growth rate of T&C exports to the EU.

Table 3 shows data on market shares of major suppliers to the EU (countries are ranked by average market share in the last 5 years). China is the main T&C supplier to the EU (7.6% in 2000) followed by Turkey (5.7% in 2000). Both China and Turkey achieved similar growth

[2] The EU import data include *intra-EU trade*. The EU countries' total share in T&C declined from 73% in 1991 to 63% in 2000.

rates in their exports to the EU although Turkey has enjoyed customs union (no quota restrictions) with the EU since 1996. Some Asian (India and Bangladesh), East European (Romania, Poland and Czech Republic), and Mediterranean (Tunisia and Morocco) countries have achieved relatively high export growth rate in the EU market.

Outward processing trade is quite important in explaining T&C trade flows between the EU and the East European and the Mediterranean Basin countries. The EU firms started to relocate their labor-intensive (assembly) operations towards those countries to reduce production costs. This process was also supported by special the tax treatment for OPT by the EU until the elimination of all quotas and tariffs for imports from the East European and the Mediterranean Basin countries in the late-1990s. Germany, France, Italy, and the Netherlands have been quite active in OPT. For example, The OPT/clothing production ratio increased to 29% for Germany and 40% for the Netherlands in 1996 (3.5 and 0.5 billion Ecu, respectively). Similarly, temporary exports of textiles were also quite high in the mid-1990s (14% for Germany, and 7.5% for the Netherlands). OPT imports of clothing amounted to 11.3 billion Euro in 1999, which corresponds to more than a quarter of total clothing imports into the EU (Stengg, 2001). Baldone, Sdogati and Tajoli (2000) estimate that cost saving due to OPT was about 50% for German and 40% for Italian firms (for more information about the sources and effects of OPT, see Baldone, Sdogati and Tajoli, 2000 and 2001).

Turkey's main T&C products exported to the EU and the market shares in those products are shown in Tables A1 and A2 (ranked by the value of exports in the last 5 years). HS 5205, 5402, 5209, and 5515 (cotton yarn other than sewing thread; synthetic filament yarn, including synthetic monofilam; woven fabrics containing more than 85% cotton; and woven fabrics containing 50-85% synthetic fibre) are main textile products, and HS 6110, 6109, 6204, 6104, 6203, 6108, and 6115 (jerseys, pullovers, cardigans, waistcoats; t-shirts, singlets and other vests, knitted or crocheted; women's or girls' suits, ensembles, jackets, dress; men's or boys' suits, ensembles, jackets, blazers; bed-linen, table linen, toilet linen and kitchen linen; women's or girls' slips, petticoats, briefs) main clothing products exported to the EU. Turkish producers have substantially increased their markets shares in the last decades in almost all these products.

The competitiveness map of Turkish exports in the EU is depicted in Table 4. T&C products are classified depending on the change in the market size (above/below average) and the

change in the market share of Turkish exports (increase/decrease in market share). The upper part of the table lists growing markets, and the lower part declining markets. The left part of the table list products where Turkish exporters loose ground, and the right part markets where they increase their competitiveness. Products with above average unit price charged by Turkish exports are shown in bold characters. Products with export value less than 20 million Euro in 2000 are not shown in the table. It is interesting to observe that Turkish exports have increased their market shares in all major products since 1991. They increased their market shares even though they charged higher prices in a large group of products: in textiles, HS 5407, 5902, and 5702, and in clothing, HS 6109, 6204, 6305, 6105, 6106, 6303, 6103, 6304, and 6210.

In order to assess the sources of growth in Turkey's share in EU T&C markets, we perform a simple decomposition analysis. First, we decompose the growth rate of the value of EU imports into two components, aggregate price effects and aggregate quantity effects.

The growth rate of EU textile (clothing) imports is defined by

$$G_t = \frac{\sum_{i \in I} p_{i,t} q_{i,t} - \sum_{i \in I} p_{i,t-1} q_{i,t-1}}{\sum_{i \in I} p_{i,t-1} q_{i,t-1}}$$

where G_t is the growth rate at time t, $p_{i,t}$ the price of product i at time t, and $q_{i,t}$ the quantity of product i imported at time t. The G_t can be decomposed into two components as follows:

$$G_t = \frac{\sum_{i \in I} \left(p_{i,t} - p_{i,t-1} \right) q^a_{i,t} - \sum_{i \in I} \left(q_{i,t} - q_{i,t-1} \right) p^a_{i,t}}{\sum_{i \in I} p_{i,t-1} q_{i,t-1}}$$

where $q^a_{i,t}$ is the average quantity ($q^a_{i,t} = (q_{i,t} + q_{i,t-1})/2$) and $p^a_{i,t}$ is the average price ($p^a_{i,t} = (p_{i,t} + p^a_{i,t-1})/2$). The first part of the left hand side of the equation gives the increase in import value as a result of an increase in product prices (*aggregate price effect*), and the second part gives the increase in import value as a result of an increase in quantity demanded (*aggregate quantity effect* or *demand effect*).

In a similar way, the growth rate of imports from a particular country, say Turkey, can be decomposed into four components:

$$
\begin{aligned}
G_t^T = & \left(\sum_{i \in I} \left(p_{i,t}^T - g_{i,t}^p p_{i,t-1}^T \right) q_{i,t}^{a,T} / \sum_{i \in I} p_{i,t-1}^T q_{i,t-1}^T \right) + \\
& \left(\sum_{i \in I} \left(g_{i,t}^p p_{i,t-1}^T - p_{i,t-1}^T \right) q_{i,t}^{a,T} / \sum_{i \in I} p_{i,t-1}^T q_{i,t-1}^T \right) + \\
& \left(\sum_{i \in I} \left(q_{i,t}^T - g_{i,t}^q q_{i,t-1}^T \right) p_{i,t}^{a,T} / \sum_{i \in I} p_{i,t-1}^T q_{i,t-1}^T \right) + \\
& \left(\sum_{i \in I} \left(g_{i,t}^q q_{i,t-1}^T - q_{i,t-1}^T \right) p_{i,t}^{a,T} / \sum_{i \in I} p_{i,t-1}^T q_{i,t-1}^T \right)
\end{aligned}
$$

In this equation, superscript *T* refers to imports from Turkey, i.e., $p^T_{i,t}$ refers to the price of Turkish product *i* imported at time *t*. $g^q_{i,t}$ is the growth rate of the quantity of product *i,* and $g^p_{i,t}$ the growth rate of the price of product *i*. Thus, $g^q_{i,t}q^T_{i,t-1}$ gives the quantity of *i* imports from Turkey at time *t*, had the Turkish producers increased their exports at the same rate as other producers.

These four components of the growth rate of imports from Turkey can be interpreted as follows:

a) Relative price effect: The increase in Turkey's exports as a result of the increase in relative price of Turkish products. If Turkish producers have increased their prices relative to their competitors, then this effect will be positive.

b) Price effect: The increase in Turkey's exports as a result of an increase in general level of prices. This term will be equal to the aggregate price effect as defined above *if* the composition of Turkey's exports to the EU is the same as the composition of all EU imports. If this term has a value higher than the aggregate price effect, then it shows that Turkey is specialized in products whose prices increase at a higher rate.

c) Market share effect: The increase in Turkey's exports as a result of an increase in Turkey's market share (*in volume terms*) at the product level.

d) Quantity effect: The increase in Turkey's exports as a result of the increase in quantity demanded in products that are supplied by Turkey.

Table 5 presents the results of decomposition analysis for the EU imports for the period 1992-2000, and EU's imports from Turkey and the main competitor, China. We defined "product" at the HS 4-digit level. The first row of the table shows annual growth rates of EU clothing imports. The mean annual growth rate for the 1992-2000 period is 6.3% (2.7% for textile products). The growth rate is decomposed into aggregate price and quantity effects. It is found that, for the period under consideration, the price effect is -2.1%. In other words, the price of clothing products imported by the EU has declined on average by 2.1% per annum from 1992 to 2000. The average aggregate quantity effect is 8.4%. We observe a similar decline in textile prices (-0.9%) whereas the aggregate quantity effect for textiles is much lower: 3.6% for the same period.

The mean annual growth rate of clothing (textile) imports from Turkey is 11.4% (8.4%). Turkey's T&C export growth rates are quite higher that growth rates of EU's imports that lead to an increase in the market share. When we look at the decomposition for clothing imports from Turkey, it is found that the relative price effect fluctuates to a large extent, but the net effect for the 1992-2000 is nil. In other words, relative prices of Turkish products did not experience any significant change. The net price effect is also insignificant.[3] Turkish clothing producers have achieved a rapid increase in their exports to the EU thanks to the increase in their market shares at the product level, and overall increase in clothing demand in the EU (average annual market share effect is 2.2% and quantity effect is 9.0%). However, the market share effect is negative (-4.8% and -6.8%) in the last two years that signals that there could be a problem in that market. The decomposition of Turkish textile exports to the EU reveals a similar pattern, but the market share effect is relatively more important than the quantity effect for textiles (4.8% vs 3.6%).

When the decomposition findings for Turkey and China are compared, two differences strike. First, the relative price effect for Chinese exports, especially in the case of clothing products, is positive (about 3% for clothing). If changes in relative prices mimic changes in product quality, it can be suggested that Chinese producers have been successful in moving towards high quality/high value added products whereas Turkish producers have failed to do so.

[3] Note that the aggregate price effect was negative. This finding shows that Turkish producers are specialized in those products that do not experience a decline in prices.

Second, there is a very high negative correlation between relative price effects and market share effects in the case of Turkey, but there is almost no correlation in the case of China. In other words, Turkish producers could increase their market shares in terms of the volume of products only by decreasing the relative price whereas relative price increases for Chinese products do not lead to a decline in the quantity demanded. This finding also supports the argument on product quality.

The share of Turkish T&C producers in the US market shows a steady increase since 1991 (Figure 3). The market share increased from 1.0% in 1989 to 2.9% in 2001 for textiles, and 1.4% in 1989 to 1.8% in 2001 for clothing. Contrary to its position in the EU market, Turkey is more competitive in textiles than clothing in the US market.

Table 6 presents market share data for 15 major suppliers of the US market (EU 15 is considered to be a single category). The data show that East Asian "Tigers" (Korea, Taiwan and Hong Kong) together with the EU 15 have experienced the sharpest decline in market shares in the 1990s whereas some Latin American countries, foremost Mexico, and to a large extent Honduras and Dominican Republic have achieved to capture a bigger part of the US market. Turkey, Bangladesh, Thailand, Indonesia, and Canada have also increased their market shares quite a large extent although they started with a low base. China, once the main supplier, has failed to increase its market share.

The changes in the pattern of US imports reflect the US government's policies and US textile and clothing firms' strategies. The US government has taken extensive measures (like tariffs, quotas, and bilateral trade agreements) to protect the domestic T&C industries. Special OPT agreements allow tariff and quota free imports of clothing products made of US inputs from a group of Latin American and the least developed countries. Therefore, the US companies find it profitable to relocate labor-intensive activities (especially assembling activities) to those countries and Mexico who has a free trade agreement with the US. Moreover, the Caribbean Basin Economic Recovery Act and the Trade and Development Act of 2000 allow some African and Caribbean countries to export T&C products to the US without any quota or tariff restrictions. Foreign (mainly Asian) firms also attempt to relocate their production activities into those countries to benefit from special arrangements with the US and to evade quota restrictions they face with in their home countries. It is thus expected to observe an increase in imports (indeed, re-imports) from Latin American countries as a result of this

policy-induced distortion. The value of garment parts cut to shape in the US and sent offshore for assembly totaled 7.2 billion USD in 1997 (about 10% of industry shipments) and almost all these exports went to the Caribbean countries (4.1 billion USD), and Mexico (2.8 billion USD), and then re-exported to the US. (ITC, 1999: 8-3)

Tables A3 and A4 present detailed data on Turkish exports to the US at the product level. Textile exports to the US increased from 59.4 million USD in 1989 to 406.1 million USD in 2001. Main textile products exported to the US are "666 other man-made fiber furnishings", "465 floor coverings", "362 bedspreads and quilts", and "363 terry and other pile towels". In most of these products, Turkish producers have increased their market shares to a considerable extent in the 1990s. Clothing exports to the US increased from 302 million USD in 1989 to 1045 million USD in 2001. Main clothing products exported are "339 W&G knit shirts and blouses", "348 W&G trousers, breeches and shorts", "338 M&B knit shirts", "350 robes, dressing gowns", and 351 nightwear and pajamas". Contrary to the case in textiles, more than 3-fold increase in clothing exports has been accompanied by a slight increase in the market share (it increased from 1.4% in 1989 to only 1.8% in 2001) as a result of huge increase in clothing imports, mainly from Mexico to the US.

The competitiveness of Turkish producers at the product level is show in Table 7. Turkish producers tend to gain ground in most of the rapidly growing markets (products in the upper-right quadrant) and they charge relatively higher prices for main product categories. Among the rapidly growing segments of the market, Turkish exporters experienced a decline in market shares in only a few categories of clothing products (knit shirts and blouses, women and girls trousers, breeches and shorts, and underwear).

Table 8 presents the findings of decomposition analysis for US imports. The mean annual growth rate of US clothing imports is 8.6% for the period 1990-2001. The corresponding rate for clothing is 7.8%. The analysis shows that the aggregate price effect is negative since 1996; the US imports T&C products at a decreasing price (2-4% per annum in the last four years).

T&C imports from Turkey have grown at a very high rate: 12.3% for clothing, and 19.0% for textiles (the 1990-2001 period). Relative price effect is consistently positive for clothing products since 1995 (about 2.3% per year). In other words, the Turkish clothing products have become more expensive relative to products imported from other countries. However,

the market share effect is negative since 1995 (except 2000) that indicates Turkish producers have lost some ground in terms of the volume of imports. Finally, the quantity effect for Turkish clothing is consistently higher that the aggregate demand effect that shows that Turkish exporters are specialized in those products that have higher growth rates.

The relative price effect in the case of textile products is, on average, negative in the last five years, i.e., Turkish textile products are getting relatively cheaper. On the other hand, the market share effect is quite substantial except the last year, 2001, that merely reflects rapid penetration of Turkish textile products into the US market. The market share effect alone explains on average 13.7% annual growth in textile exports to the US. The quantity effect is somewhat lower that the aggregate quantity effect, i.e., Turkish textile producers are specialized in low growth products.

Chinese exports of both clothing and textile products have positive relative price effect, and negative market share effect. The negative market share effect is quite substantial for clothing products that reflects the effects of severe quota restrictions on Chinese products.

Mexico experienced a surge in especially clothing exports to the US in mid-1990s. As a result, clothing exports increased 3.5-fold from 1993 to 2000, meanwhile textile exports doubled in the same period. The main factor behind the surge in clothing exports is the relocation of clothing production in Mexico. However, the decline in T&C imports in the US in 2001 had a stronger negative impact on imports from Mexico (10% decline in clothing, and 7% decline in textile imports). In spite of the Mexican producers geographical advantages and tariff and quota-free access to the US market, Turkish producers have a better performance than their Mexican counterparts especially in exporting textile products to the US.

As in the case of Turkish T&C exports to the EU, there is a strong negative correlation between relative price effect and market share effect for Turkish T&C exports to the US whereas the correlation is much lower for Chinese imports.

Clothing is considered by researchers to be more labor intensive than textile production. The competitive position of Turkish textile and clothing products in the EU market supports this view. Turkey is more competitive in clothing in the EU market (higher market share in clothing than in textiles). However, the opposite case is observed in the US market: Turkey

has a higher and growing market share in textiles. However, this apparent contradiction could be explained by the specific US policies. First, Turkish clothing exports are restricted by quotas. Table 9 presents data on export values of product categories that were faced with quota restrictions in any given year in the period 1999-2001. As can be seen in the table, quota restrictions are binding on mainly clothing products (there are only two textile products in the list, "410 woven fabric", and "604 yarn containing 85% or more synthetic staple fiber"). The share of products under quota restriction in clothing exports was around 80% in 2001 (A quota-filled rate above 90% is assumed to be binding.). Second, as explained above, the US clothing firms relocated their assembling activities abroad that led to an increase in temporary textile exports from the US and clothing re-imports from those countries. The market share of Turkish clothing producers have not increased because of these two factors.

Since Turkish clothing exports are under quota pressure, the relative price is on average higher for those products. However, the absolute level of clothing prices tend to decrease since the mid 1990s (Table 9) as a result of intense competition by Latin American re-imports. This trend affects adversely the export revenue of Turkish exporters.

4. A Comparison between Turkey and Major Producers

The analysis in Section 3 identified a number of global competitors for Turkish T&C producers that have increased their market shares in the last decade: in the EU market, some Asian countries (China, India and Bangladesh), East European countries (Romania, Poland and Czech Republic), and Mediterranean countries (Tunisia and Morocco); in the US market, Latin American countries (Mexico, Honduras and Dominican Republic), and Asian countries (China, Indonesia, Thailand, India and Bangladesh). Domestic producers (EU and US producers) should also be added to this list of competitors. In this section, we will compare Turkish T&C industries with competitors, especially in terms of labor productivity and cost structures.

Table 10 presents data on the value of sectoral output for selected years for Turkey and 20 countries that had the highest trade volume (exports plus imports) in T&C in 1999.[4] The US

[4] Unless otherwise stated, all data in this section are from UNIDO Industrial Statistics Database (3-digit level of ISIC Code, Rev.2), and UNIDO International Trade Statistics (4-digit level of ISIC Code, Rev. 2).

has the highest value of output (about 170 billion USD in 1999), followed by Japan (more than 80 billion USD), and China (77 billion USD). Turkey ranks 10th in the list in 1999. In terms of employment, China ranks first (almost 8 million employees in 1999), followed by India (about 2 million) and the US (1.2 million). The industry employs about 390,000 people in Turkey. Note however that the Turkish data does not include micro-establishments (private establishments employing less than 10 people). According the latest Census of Manufacturing Industry (1992), micro-establishments employ about one third of all employees in the T&C industries. If the same ratio is assumed for 1999, there would be about 600,000 employees in the Turkish T&C in 1999.

The share of T&C in manufacturing value added is inversely related with the level of economic development (as measured by output per capita). The value added share has remained constant in a few countries (Indonesia, Italy and Turkey) or declined in most of them (Table 11). The only exception here is Pakistan where the share of T&C has increased to some extent. In the late 1990s, the share of T&C in manufacturing valued added was about 10% or more in about half of countries in our sample (China, Hong Kong, India, Indonesia, Italy, Pakistan, Portugal, Thailand and Turkey).

The share of T&C in manufactured exports has almost the same pattern we observe in value added (Table 12). It is less that 5% in all developed countries with the exception of Italy. The share of T&C in manufacturing exports is very high in Turkey (above 40% in most of the 1990s) that reflects extreme export specialization in these industries. The share of T&C in manufactured imports is about 6-10% in developed countries and somewhat lower in developing countries. Italy is the only developed country that has a strong competitive advantage in T&C. Korea has experienced a sharp decline in T&C export intensity since the early 1990s.

Labor productivity, as measured by value added per employee, is much higher in developed countries than in developing countries (Table 13). Labor productivity is higher in the textile industry than in the clothing industry in almost all countries. As may be expected, the same pattern is also observed in wages per employee, i.e., and average textile worker gets a higher wage than a worker in the clothing industry in almost all countries.

Value added per employee comparisons with the US levels (Table 13) show that there is not much difference between textile and clothing industries in relative productivity levels. The Turkish T&C industry is about 30% as productive as the US industry. The relative productivity level fluctuates widely, mainly as a result of changes in the exchange rate. However, there seems to be no significant improvement in relative productivity level of the Turkish T&C industry.

Turkey's competitors, China, South Asian countries, Poland and Hungary, and Morocco have very low and declining relative productivity levels (on average, 2-10% of the US level). Tunisia performs better (36% in textile and 17% in clothing in the late 1990s). East Asian countries (Japan, Korea and Hong Kong) are the only countries that have substantially improved their relative productivity levels.

China and South Asian countries have quite low wage rates (2-10% of the US level). Wages are relatively higher in Tunisia and Morocco (35% and 15%, respectively, in the second half of the 1990s). The relative wage level for Turkey fluctuates within the 15-30% range with the mean around 20% of the US level. The relative productivity level in Turkey is substantially higher than the relative wage rate level especially in clothing (relative productivity/relative wage ratio is more than 1.5 in the late 1990s). In other words, Turkey has a strong competitive position on the basis of (relatively) low wages. Among all other competitors, only South Asian countries have such a high ratio in the textile production. (Unfortunately, comparable productivity data for China for recent years are not available.)[5]

These figures show that Turkey's labor productivity is, on average, higher that its competitors. Although it is less productive than major EU countries and the US, the wage differential compensates for low productivity, and makes Turkish producers competitive. Moreover, the wage differential between Turkey and the EU countries tend to widen over time. With the exception of Korea, who is not one of the main competitors for Turkey, there seems to be no significant change vis-a-vis other developing countries in terms of labor productivity and wages.

The historical data on productivity and wages suggest that Turkish exporters are likely to be competitive in major markets in the near future on the basis of very low wages. However, the

[5] The cost data prepared by Werner International for various countries (Table A5) are quite in line with the UNIDO data discussed above.

data on relative productivity reveal that Turkish producers have failed to converge towards the US and EU levels in spite of heavy investment in textile machinery and equipments in the mid-1990s. The failure in improving relative labor productivity deters increases in relative wages as well, and prevents structural transformation in the economy.

5. Prospects for the Future

The short- and medium-term future of the Turkish T&C industries will be determined by the following factors:

1) Exchange rates: Since the industry is a heavily export-oriented industry, changes in exchange rates are very important. Figure 4a shows five-month moving averages of annual change in exchange rates (USD and DM, equal weights), and T&C exports.[6] It is apparent that exchange rate determines to a large extent T&C exports, possible with a very short lag. Sharp declines in T&C exports in the mid 1999 and late 2000-early 2001 were preceded by revaluations of TL. The devaluation of TL in 2001 also led to an increase in T&C exports, but the effect seems to be weaker than the case in previous time periods.

Figures 4b and 4c present the same data for exports to the US (against USD exchange rate) and exports to Germany (against DM exchange rate). There is again a strong correlation in the case of US. However, this effect seems to be disappeared in 2001: in spite of devaluation of TL against USD by about 80%, T&C exports to the US did not increase, and even declined in 2001. There are two factors behind the failure in increasing exports to the US in 2001: a) quotas on major Turkish clothing products have been filled in 2000 and 2001, and restricted exports in major product categories in 2001, and b) the US market did shrink in 2001.

Interestingly, there seems to be no strong correlation between DM exchange rate and exports to Germany, but the devaluation of TL against DM in 2001 led to an increase in textile exports (about 15%) in 2001. It seems that devaluation of TL does not play a very important role in boosting T&C exports. The impact of cross rates on the direction of exports is shown

[6] Figures 4a-d plot five-month moving averages of annual (month-to-month) percentage changes in trade values and the exchange rate. The exchange rate is defined as the value of foreign currency in domestic currency (TL/FX). Therefore, a positive change in the exchange rate indicates nominal devaluation of the Turkish lira.

in Figure 4d. When the USD devaluates against the DM, Turkish exports to Germany increase rapidly compared to exports to the US.

2) Elimination of quotas after 2005: Elimination of quotas in 2005 is expected to have profound impact on trade patterns. China is believed to be the largest beneficiary of this process. However, China's gains after 2005 depend on a number of factors. *First*, as Yang (1999) suggests, China's current quota allocation process is essentially based on past performance with some incentives for product upgrading and diversification, and the use of domestic inputs. This system also favors state owned establishments that are considered to be less efficient. Therefore, after the elimination of the quota system, more efficient Chinese producers could enter into the world market, and capture a larger market share. *Second*, how the US government will react against Chinese exports is an important factor. The US and China reached a series of agreements contained in a Memorandum of Understanding dated February 1, 1997, before China's membership to the WTO. The agreement contains provisions for a safeguard mechanism to protect domestic T&C producers. This safeguard mechanism allows the US to impose (quantitative) restrictions against China upon the determination of a surge of Chinese imports and serious damage, or threat thereof, to the domestic industry. This mechanism will be in effect for four additional years beyond the termination of T&C quotas from January 1, 2005, to December 31, 2008 (ITC, 1999). Since China is considered to be a planned economy with broad government interventions in production and trade, it is quite likely that the US government could adopt these measures against China. *Third*, anti-dumping and countervailing measures have been extensively used by many countries to curb imports, and are likely to be used after 2004 against China as well. For example, the EU alone has brought at least 179 anti-dumping measures or proceedings against China in the late 1980s and early 1990s. Mexico imposed anti-dumping duties of 54-500% on Chinese T&C products (Yang, 1999). Turkey also imposed anti-dumping duties of 87% on various types of Chinese woven fabrics in recent years (HS 5513, 5514, 5515, and 5516). *Finally*, some researchers suggest that *regionalization* will be the dominant trend in the post-2005 world because of the adoption by T&C producers and suppliers lean production and product proliferation strategies. Abernathy *et al.* (2002) claim that "[i]nstead of a single international market for apparel and textiles, three regionally based models anchored in the US, Europe, and Japan may better reflect the realities of post-2005 globalization". If this is the case, then Chinese producers may find it difficult to penetrate into the US and the EU markets even if they are not under quota restrictions.

A study conducted by US ITC shows that the elimination of quotas will lead to an increase in the market share of China in the US clothing market. The effect on the textile market is expected to be weaker. China is expected to gain the market share at the expense of quota-free suppliers (Latin American and Caribbean countries), whereas quota-restricted countries are expected to protect their market shares after 2005. Some researchers (Abernathy *et al.*, 2002) consider these finding exaggerated, and claim that China would not even be able to increase its market share in clothing to the extent suggested by the ITC, because changes in supplier-buyer relations in the clothing industry (short delivery times, no-inventory policies, etc.) favor producers located in close proximity to the market. It seems that the elimination of quotas in 2005 would not harm badly Turkish producers exporting to the US because Turkish textile producers have succeeded a competitive position, and clothing producers, that themselves are under quota restrictions, could even further increase their market shares after 2005.

The elimination of quotas would have the strongest effect on Turkish clothing producers who enjoy tariff- and quota-free access to the largest T&C market in the world, because Asian clothing suppliers, under quota restrictions, would increase their market shares after 2005. At time being, "[t]he EU applies import quotas against products from 23 supplier countries – either under the ATC (against 16 countries), or under bilateral agreements with non-WTO members 8 countries, including Vietnam). However, about 70% of total EU imports (in value terms) are imported without any quantitative restrictions." Moreover, "many countries enjoy tariff-free access to the EU market (or access at reduced tariff rates), either under the various preferential trade arrangements/ agreements (e.g., with the CEECs, the Mediterranean countries, the countries belonging to the European Economic Area, the ACP countries, etc.), or under the Generalized System of Preferences, GSP (which provides for zero tariffs for least developed countries, and for tariff reductions of 15% for the remaining countries covered by that regime). As a result, in 1999, almost 50% of all EU imports were exempted from customs duties (compared to only 28% in 1994)." (Stengg, 2001) Although, the proportion of EU imports under quantitative restrictions is only about 30% percent, Asian countries, and most importantly, China is expected to increase its market share in the EU to a large extent. The magnitude of the expansion in the Chinese market share of course depends on the trade policies of the EU countries in the post-2005 period (for the competitiveness of the European textile industry, see Giuli, 1997).

3) Productivity and wages: Changes in productivity and wages is the third major factor that determines the medium- and long-term development of the Turkish T&C industries. As discussed in the preceding section, there is not any strong change in relative productivity/wage structure in most of the competitor countries except some major EU producer countries where wages increase at a rate faster than productivity does. The historical trends are expected to continue in the near feature, and Turkish producers can protect their competitive advantage in the short and medium-term. Moreover, the data on textile machinery imports (Table 14) suggest that Turkish producers have invested heavily in textile machinery in recent years. If investment in machinery brings embodied technology, which is certainly quite important in T&C manufacturing, Turkish producers have been able to keep up their relative productivity. The relative labor productivity data at the industry level indicate that Turkish T&D industries failed to achieve convergence towards the leaders, and could sustain their competitiveness on the basis of low wages.

4) New marketing strategies: Supplier relationships in the clothing industry are claimed to be changing. Abernathy *et al.* (2002) suggest that geographical proximity has become more important in recent years because of frequent model changes and the pressure to lower inventory costs. Moreover, clothing producers in developed countries tend to relocate labor-intensive activities into close-by low-wage countries by keeping design and marketing the final product themselves. If Turkish clothing producers benefit from these trends, either by developing their own brands and establishing new marketing channels, or coupling their strategies with the EU and US companies, they could increase their market shares (see also Tan, 2000).

Although T&C industries are regarded "traditional" sectors using "mature" product and process technologies, product innovations have become an important factor for competitiveness. New product characteristics (inflammable, flexible, wrinkle-proof materials, etc.), and new products (technical textiles, eco-textiles, etc.) have become increasingly more important. For example, the European textile producers have a strong competitive position in technical textiles that account for 27.6% of EU textile production in 1999 (Stengg, 2001). These products have high growth rates and high value added, but their production requires substantial investment in R&D activities in which Turkish producers are extremely weak (average R&D intensity in the Turkish T&C industry is only about 0.05%, see TBMM, 1999).

Our analysis indicates that Turkish T&C firms would find it difficult to sustain export growth rates they achieved in the last decade. First, the elimination of quotas would intensify competition and force T&C prices decline. Second, some Asian producers could increase their market shares at the expense of Turkey, especially in the EU market.

Turkish T&C exports have increased by 9% per year in the 1990s (from 4.7 billion USD in 1990 to almost 10 billion in 1999, 113%). Textile and clothing imports of the US increased by 124% and 149%, respectively, and textile and clothing imports of the EU increased by 23% and 71%, respectively, from 1991 to 2000. In the same time period, total world manufactured exports increased by only 87%. As mentioned above, the elimination of quotas will change the competitive conditions in the world textile and clothing markets. If we assume that,

- trend growth rates in relative prices and quantity effects in the 2000s will be same as trend values in the second half of 1990s (1996-2000),
- the elimination of quotas will lead to additional 2% annual reductions in clothing prices and 1% in textile prices,
- market share effects for Turkish producers will remain the same in the US market, but will decline 2% annually in the EU market,
- the conditions in the EU markets affect 80% of Turkish T&C exports and the rest affected by the US market,

then we can forecast the growth rate of T&C exports in the next decade as 9.4% (if we do not assume any price and market share effects, the estimated growth rate would be 12.5%). Since the T&C industries' total output is about 20 billion USD, if T&C exports could be increased at this rate, exports alone, ignoring indirect effects, could lead to about 4.7% growth in domestic T&C production.

The demand for T&C products by developed countries is one of the main factors that determine the growth rate of Turkish T&C industries because of export-orientation of these industries. Cline (1987: 298) suggests that the income elasticity of demand in the US is about 1.2 for textile and 1.7 for clothing for imports from developing countries. (The corresponding elasticities for imports from developed countries are 1.2 and 1.0, respectively.) The data on the US and the EU provide support for Cline's estimates. In the period from 1989 to 2001, the US nominal GNP grew about 5.2% per year (logarithmic rate) whereas US T&C imports had a growth rate of 8.3%, i.e., if one ignores all other factors, the income elasticity of import demand was about 1.6. The EU nominal GNP had 4.5% growth in the period 1991 to 2000

that led to 4.6% annual increase in T&C imports. For the periods under consideration, Turkish T&C exports to the US and EU achieved annual growth rates of 12.3% and 10.4%, respectively, that suggest that the income elasticity of import demand for Turkish T&C products in both the US and EU is almost the same: 2.3. Therefore, the estimated 9.4% *potential* annual growth rate for Turkish T&C exports is consistent with about 4-4.5% annual growth in nominal GNP in developed countries.

The output data shows that the industry employs about 20000 people to produce 1 billion USD worth of output. The value of textile imports is about 2 billion USD (about 10% of T&C output). If we assume that the indirect employment generation effect of the industry is equal to (Q-M)/VA ratio, then the industry, through backward linkages, generate about 30000 additional jobs for 1 billion USD output. Thus, if the industry achieves 9% export growth rate, it could generate 18000 jobs directly and 27000 jobs indirectly every year. These calculations are of course based on rather strong assumptions, and ignore "low" capacity utilization rates,[7] but could give an idea about the order of magnitude of employment generation potential of the T&C industries.

6. Policy Options

The textile and clothing industries in Turkey accounts for 30-35% of manufacturing employment, 15% of manufacturing value added, and 35-40% of all exports. These industries have played a very important role in generating employment opportunities, and generating export revenue. However, the T&C industries are also characterized by their low productivity and wages.

The T&C industries will continue to play an important role in the near future as well. However, exports to the EU and US markets will be conducted in an environment of growing competition that will be intensified after the elimination of import quotas on January 1st, 2005. Therefore, the public policy towards the T&C industries in Turkey should pursue two aims simultaneously: i) to enhance competitiveness of T&C producers in foreign markets through improvements in productivity and specialization towards high value added products and

[7] The average capacity utilization rate in Turkish T&C industries (Table 15) in 2000 was about 80% that is not very low compared to its historical values. Therefore, the arguments about "overcapacity" seem to be not strong.

activities, and ii) to gradually transform the structure of the economy by diversifying towards other sectors.

The first aim is based on the fact that the Turkish T&C producers are in a strong position against their competitors, and have achieved to raise their market shares in the last decade. The industry could protect its competitive position in the near future i) by adopting new marketing strategies (developing their own brands, establishing new marketing channels, coupling their strategies with the EU and US companies), ii) by specializing in niche markets, and iii) by being innovative in generating and adapting new products (/technical textiles, eco-textiles, etc.) and processes (non-woven fabrics, etc.). These strategies would be successful only if they are complemented with a supportive technological and legal infrastructure. Therefore, the public policy could aim at providing incentives for R&D activities, encouraging the development of supplier industries and developing a system of standards and accreditation. Macroeconomic policies reducing, for example, exchange rate uncertainty are also important in supporting the T&C industries.

The public policy should also aim at changing the structure of the industry. The productivity of T&C industries should certainly be increased, but this process needs to be accompanied by the reallocation of resources towards more productive sectors of the economy so that wages, per capita income, and living standards could be improved in the long run.

References

Abernathy, F.H., Dunlop, J.T., Hammond, J.H. and Weil, D., 2002, *Globalization in the Apparel and Textile Industries: What is New and What is Not?* Harvard University, Harvard Center for Textile and Apparel Research (www.hctar.org/pages/pub_2.html)

Aydın, S., Soykan, M. ve İskender, C., 1978, *Tekstil Sektörü*, İstanbul: Türkiye Sınai Kalkınma Bankası.

Baldone, S., Sdogati, F. and Tajoli, L., 2000, *International Fragmentation of Production and Competitiveness in the Textile and Apparel Industry*, paper presented at the 2nd Annual Conference on the European Trade Study Group, Glasgow, 15-17 September.

Baldone, S., Sdogati, F. and Tajoli, L., 2001, "Patterns and Determinants of International Fragmentation of Production: Evidence from Outward Processing Trade between the EU and Central Eastern European Countries", *Weltwirtschaftliches Archiv* (137): 80-104.

Cline, W. R. 1987, *The Future of World Trade in Textiles and Apparel*, Washington, D.C.: Institute for International Economics.

DPT (State Planning Organization), 1985, *Dünyada ve Türkiye'de Tekstil Sanayii*, Ankara: DPT.

DPT (State Planning Organization), 2001, *Tekstil ve Giyim Sanayii Özel İhtisas Komisyonu Raporu*, Ankara: DPT.

DTM (Undersecretariat of Foreign Trade), 2002, *Türkiye Tekstil ve Hazır Giyim Sanayiinin 1989-2000 Dönemine Ait Veriler Bazında Değerlendirilmesi*, Ankara: DTM (www.dtm.gov.tr).

Duruiz, L. and Yenturk, N., 1992, *Facing the Challenge: Turkish Automobile, Steel and Clothing Industries' Responses to the Post-Fordist Restructuring*, Istanbul: Iletisim.

Giuli, M., 1997, *The Competitiveness of the European Textile Industry*, South Bank University, Centre for International Business Studies, Research Papers in International Business No. 2-97.

İlyasoğlu, E. and Duruiz, L., 1991, *Turkish Clothing Industry*, Istanbul: Turkish Clothing Manufacturers' Association.

ITKIB (Istanbul Textile and Apparel Exporters Associations), 2001, *Textile and Apparel from Turkey: A Summary of Turkey's Potentials*, Istanbul: ITKIB (www.itkib.org.tr/Res800/Arge/English/default.htm)

Navaretti, G.B., Faini, R. and Silberston, A. (eds.), 1995, *Beyond the Multifibre Arrangement: Third World Competition and Restructuring Europe's Textile Industry*, Paris: OECD.

Pazarcık, O. ve Turunç, Ş.D., 1984, *Türkiye'de Tekstil Sanayiinin Teknolojik Düzeyi ve Gelişimi*, Ankara: MPM.

Singleton, J., 1997, *The World Textile Industry*, London: Routledge.

Staber, U., 2001, "Spatial Proximity and Firm Survival in a Declining Industrial District: The Case of Knitwear Firms in Baden-Wurttemberg", *Regional Studies* (35): 329-341.

Stengg, W., 2001, *The Textile and Clothing Industry in the EU: A Survey*, EU Enterprise Papers No: 2-2001.

Tan, B., 2000, *An Overview of the Turkish Textile and Apparel Industry*, Harvard University, Harvard Center for Textile and Apparel Research (revised 12/02) (www.hctar.org/pages/pub_2.html)

TBMM Tekstil Komisyonu, 2001, *Tekstil Raporu*, Ankara: TBMM (www.tbmm.gov.tr/komisyon/tekstil)

US ITC (US International Trade Commission), 1999, *Assessment of the Economic Effects on the United States of China's Accession to the WTO*, Investigation no. 332-403, Publication 3229, Washington, D.C.: USITC.

Yang, Y., 1999, *China's Textile and Clothing Exports: Changing International Competitive Advantage and its Policy Implications*, Asia Pasific School of Economics and Management Working Paper no. 99-3 (ncdsnet.anu.edu.au).

Data Sources

EU quotas: sigl.cec.eu.int
EU tariffs: europa.eu.int/eur-lex/en/oj/2002/ca10420020430en.html
EU trade data: Werner International.
US quotas: www.customs.ustreas.gov/quotas
US tariffs: dataweb.usitc.gov/SCRIPTS/tariff/toc.html
US trade data: US Census Bureau.
Turkish industry and trade data: State Institute of Statistics, Turkey.
World industry and trade data: UNIDO.