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Analysis of the Competitiveness of the Turkish Textile and Clothing Sector in the European Union Market

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Abstract

The Turkish textile and clothing sector maintains its significance and place in the national economy and exports despite the increasing international competition. The European Union-28 (EU-28) countries are some of the most significant markets in which the sector possesses a net foreign trade surplus. In this context, this study aims to analyse the competitiveness of the Turkish textile and clothing sector in the EU market. Therefore Turkey's textile and clothing trade with the EU-28 countries is analysed in detail within the scope of the research. Besides this, the decadal unit export prices of Turkey and its rivals in the EU-28 market are calculated and evaluated. Finally the competitiveness of Turkey and its rivals in the EU market is analysed with Balassa and Vollrath indices. According to the results obtained, the Turkish textile and clothing sector maintains its importance and competitiveness in the EU market with regard to average unit export prices per kilogram and average Balassa and Vollrath index values.

Key words: competitiveness, European Union market, Turkish textile and clothing sector, unit export price, Balassa index, Vollrath index.

Introduction

Competitiveness can be captured and measured by several aspects at micro and macro levels. On the one hand, the World Economic Forum defined national competitiveness as "the set of institutions, policies and factors that determine the level of productivity of a country". On the other hand, OECD describes competitiveness as "the degree to which, under open market conditions, a country can produce goods and services that meet the test of foreign competition while simultaneously maintaining and expanding domestic real income". According to the definitions mentioned above, competitiveness can be interpreted from trade and policy perspectives. As to the trade perspective, since the seminal work of Balassa in 1965, a vast amount of research has analysed comparative advantage in international trade at the country level [1]. In other words; the concept of comparative advantage has been widely used in economic literature to assess the specialisation of countries in commodities in which they have a competitive edge [2].

In this context, there are many researches in literature which measure and compare comparative advantages, or in other words the competitiveness, of different countries' and economies' dissimilar industries. Within these researches, studies [3-5, 22, 25-28, 31], which focus on the textile and clothing sectors that hold a significant place in global trade, are substantially limited. These studies in-

vestigated the international competitiveness of the Turkish, Romanian, Eastern European, former Soviet Union Nations', Serbian, Vietnamese, Chinese and Lithuanian textile and clothing sectors in the period 1990-2014. In order to achieve this, the authors used different techniques such as the Balassa index, Vollrath index, Lafay index, revealed symmetric comparative advantage index, export-import rate index, Grubel Lloyd's index, the RUV indicator, the generalised double diamond model, simplified national export profile, Mereuta's valuation model, the trade competitiveness index, world market share dynamics and other statistical indicators. According to the results obtained, some countries possessed competitiveness in the textile sector, whereas others owned a comparative advantage in the clothing sector. Besides the, some countries like China and Turkey possessed competitiveness in both sectors.

In addition to these studies, researches [21, 23, 24, 29, 30], which investigate the competitiveness of different countries' textile and clothing sectors in the European Union (EU) market, are also substantially limited. These studies researched the competitiveness of the Croatian, Polish and Chinese textile and clothing sectors in the European Union market. In order to achieve this, the authors used different techniques such as statistical analysis and revealed comparative advantage analysis. The results obtained varied according to the country. For Croatia, its accession to the European Union had a positive impact on improving the

Table 1. Distribution of textile and clothing products according to the International Harmonized System Commodity Classification Codes [13].

HS code	Explanation
50	Silk
51	Wool, fine or coarse animal hair: horsehair yarn and woven fabric
52	Cotton
53	Vegetable textile fibres, paper yarn and woven fabrics of paper yarn
54	Man-made filaments, strip and the like of man-made textile materials
55	Man-made staple fibres
56	Wadding, felt, nonwovens, and special yarns: twine, cordage, ropes, cables, and articles thereof
57	Carpets and other textile floor coverings
58	Fabrics, special woven fabrics, tufted textile fabrics, lace, tapestries, trimmings, embroidery
59	Textile fabrics - impregnated, coated, covered or laminated, textile articles of a kind suitable for industrial use
60	Fabrics; knitted or crocheted
61	Apparel and clothing accessories, knitted or crocheted
62	Apparel and clothing accessories, not knitted or crocheted
63	Textiles, made up articles. Sets, worn clothing, worn textile articles, rags

competitiveness of the Croatian textile sector in the EU market. For Poland, its textile and clothing industry had relatively high competitive ability in the European Union's internal market. Lastly, for China, its textile and clothing sector had a competitive advantage in the European Union market.

Finally studies [6-11], which investigate the European Union market, which is one of the most important sectorial markets, and the Turkish textile and clothing sector, which is a significant global player of these sectors, jointly are also substantially limited and outdated. Some of these researches investigated the competitiveness of the Turkish textile and clothing sectors in the European Union market, whereas others analysed the Turkish textile and clothing sectors' competitiveness together with their European rivals'. In order to achieve this, the authors used different techniques such as analysis of investment, turnover and export figures, analysis of textile and clothing trade between Turkey and the European Union, the revealed comparative advantage, revealed competitiveness and comparative export performance indices, and the Grubel-Lloyd index. According to the results obtained, the Turkish textile and clothing sector had a competitive advantage in the EU market. Moreover the Turkish textile and clothing sector also had a competitive advantage over its European rivals in international markets.

At this point, this study will both inform about the important market (European Union market) and reveal the current circumstances of the significant global

player investigated herein (Turkish textile and clothing sector) and its rivals by analysing the competitiveness of the Turkish textile and clothing sector in the EU market. Furthermore this study gathers different methods together in order to analyse competitiveness. Therefore it must consider the subject from different views in a broad perspective, as distinct from other researches with these qualifications.

Purpose and the method of the research

This study aims to analyse the competitiveness of the Turkish textile and clothing sector in the EU market. In accordance with the aim of the research, firstly the major rivals of the Turkish textile and clothing sector in the EU market are determined. According to the Euratex 2016 Key Figures report [12], China, Turkey, India, Pakistan and South Korea are the top five textile suppliers of the EU-28 countries, respectively. The top five clothing suppliers consist of China, Bangladesh, Turkey, India and Cambodia, respectively. In this context; China, India, Pakistan, South Korea, Bangladesh and Cambodia are determined as rival countries. In the second stage, the decadal (2007-2016) textile and clothing trade of Turkey with the EU-28 countries are analysed in detail. During the analysis, decadal foreign trade balances of the sectors, annual percentage changes in export and import values, the shares of the textile and clothing sectors within the total export and import values and their shares within the EU-28 market are calculated, shown in graphics and evaluated. In

the third stage, the decadal (2007-2016) unit prices of Turkey and its determined rivals' export to the EU-28 countries are calculated separately for each textile and clothing product group within the International Harmonized System Commodity Classification. According to the classification, there are 14 product groups, explained in **Table 1**. Besides this, decadal unit export prices are also calculated for the textile (whole product groups between 50 and 60) and clothing (whole product groups between 61 and 63) sectors. The data obtained are evaluated and interpreted via graphics.

In the fourth stage, the decadal Balassa and Vollrath index values of Turkey and its rivals are calculated for the textile (whole product groups between 50 and 60) and clothing (whole product groups between 61 and 63) sectors. In addition, the decadal Balassa and Vollrath index values of the countries are also calculated separately for each textile and clothing product group. The data obtained are evaluated and interpreted via graphics. Finally the competitiveness of the Turkish textile and clothing sector in the EU market is summarised with a table. The export and import values and quantities used in the calculations are acquired from Eurostat [14] and Trademap [15]. The whole export and import values are attained in Euros, whereas all quantities are obtained in kilograms. Besides this, EU-Extra export and import values and quantities (in other words the export of the EU-28 countries outside of the Union and their import from outside) are taken into consideration for accurate evaluation. The EU-Intra trade flow is ignored.

The unit export price, which is chosen as one of the research methods, is calculated via dividing a country's annual export value to the EU-28 countries (Euro) by its annual export quantity to these countries (kg). Another research method is using Balassa and Vollrath indices, which demonstrate the comparative competitiveness superiorities of countries in relation to their rivals.

The notion of a revealed comparative advantage was first introduced by Liesner in 1958 and operationalised by Balassa in 1965. It is widely used to identify a country's weak and strong export sectors [16,17]. The concept of a revealed comparative advantage concerns the relative trade performances of individual countries in particular commodities.

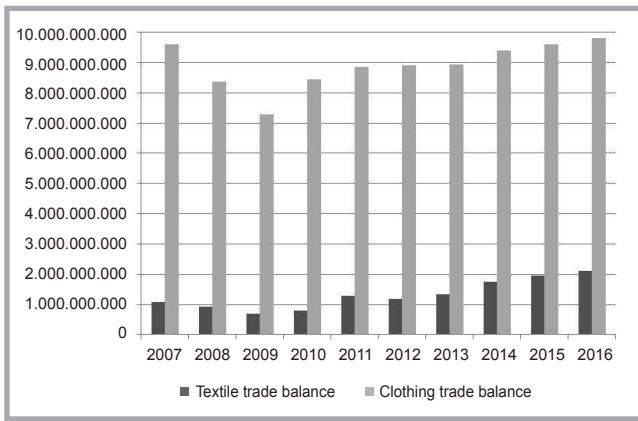


Figure 1. Turkey's textile and clothing trade balance with EU-28 countries (Euro).

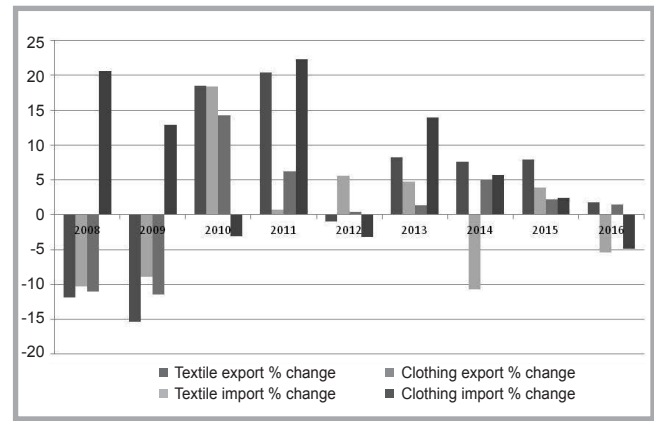


Figure 2. Annual percentage changes in Turkey's textile and clothing trade with EU-28 countries.

The method is commonly used to evaluate international competitiveness. Balassa's original index is the ratio of a country's exports of a product to its total exports relative to the ratio of world exports of the product to the total world exports [18]. The Balassa index is formalised as follows;

$$\text{Balassa index} = (X_{ij} / X_{it}) / (X_{nj} / X_{nt}) \quad (1)$$

where X is exports, i – the country, j – the commodity/industry, n – the world or a set of countries (for example, the European Union), and t is all product groups. As per Balassa, if the index is greater than one, it indicates that the country has a comparative advantage in the commodity/industry, and if the index is smaller than one, it indicates that the country has a comparative disadvantage [3, 17, 19]. If the Balassa index value is between 0 and 1, it indicates a competitive disadvantage. However, if it possesses a value between 1 and 2, it specifies a weak competitive advantage; whereas values between 2 and 4 indicate an intermediate competitive advantage, and values greater than 4 specify a strong competitive advantage [4]. However, there are some criticisms of this method. It has been criticised for its poor empirical distribution characteristics and for taking only exports into consideration, while ignoring imports. Another objection is the fact that if the country has a comparative disadvantage, the index ranges from zero to one, whereas if it has a comparative advantage the index ranges from one to infinity [3].

Therefore the index was modified by Vollrath in 1991. According to the approach suggested by Vollrath, revealed competitiveness is calculated as the logarithm of the relative export advantage (InRXA)

minus the logarithm of the relative import advantage (InRMA), where RXA equals the Balassa index, and RMA is calculated on the basis of **Equation (1)**; but, instead of export flows, imports are considered. It is expressed as follows:

$$\text{Vollrath index} = \ln \left(\frac{X_{ij} / X_{it}}{X_{nj} / X_{nt}} \right) - \ln \left(\frac{M_{ij} / M_{it}}{M_{nj} / M_{nt}} \right) \quad (2)$$

Where, X is exports, M – imports, i – the country, j – the commodity/industry, n – the world or a set of countries. and t is all product groups. Values greater than zero reveal a comparative advantage, whereas negative values reveal a comparative disadvantage [3, 19, 20].

Findings of the research and their analysis

Analysing Turkey's textile and clothing trade with EU-28 countries

If Turkey's textile and clothing trade with the EU-28 countries is analysed, it can be seen that Turkey maintains its importance in the EU market, possessing a net foreign trade surplus in both sectors (**Figure 1**). The Turkish textile sector possessed a 2 billion Euro foreign trade surplus by 2016, whereas the Turkish clothing sector had a 9.8 billion Euro foreign trade surplus. Turkey's textile export to the EU-28 countries increased from 2.7 billion Euros in 2007 to 3.7 billion Euros in 2016. On the other hand, clothing export increased decennially from 10.1 billion Euros to 10.7 billion Euros. Turkey's textile import from the EU-28 countries decreased to 1.6 billion Euros in 2016 from 1.7 billion Euros in 2007. However, clothing export increased decennially from 512 million Euros to 938 million Euros. As can be seen, Turkey's textile export to the EU-28

countries increased decennially, whereas its import from the EU-28 countries slightly decreased. On the other hand, Turkey's decadal clothing export slightly decreased, whereas its clothing import increased by approximately 83%. Turkey continued to be the second biggest textile supplier to the EU-28 countries after China. However, in the clothing sector, Turkey was relegated to third place, losing its position to Bangladesh because Turkey's decadal clothing export remained at the same level, whereas Bangladesh's decadal clothing export increased approximately 3.5 times.

Both decadal textile and clothing export values usually demonstrated an incremental tendency, whereas import values generally showed a declining tendency (**Figure 2**). Turkey's decadal textile export to the EU-28 countries increased by 20% at most, whereas it decreased by 15% at the most. Furthermore Turkey's clothing export increased by 14% at most, whereas it decreased 11% at the most. In 2016, both textile and clothing export values increased by 2% in relation to the previous year. If Turkey's textile and clothing imports from the EU-28 countries are analysed via percentage changes, it can be seen that the decadal textile import increased by 6% and decreased by 11% at most. In addition, clothing import increased by 22% and decreased by 5% at most.

The Turkish textile sector took a 5.8% share in Turkey's total export to the EU-28 countries in 2007, whereas it had a 5.5% share in 2016 (**Figure 3**). The decadal percentage shares varied between 5.2% and 6.2%. On the other hand, the Turkish clothing sector took a 21.3% share in Turkey's total export

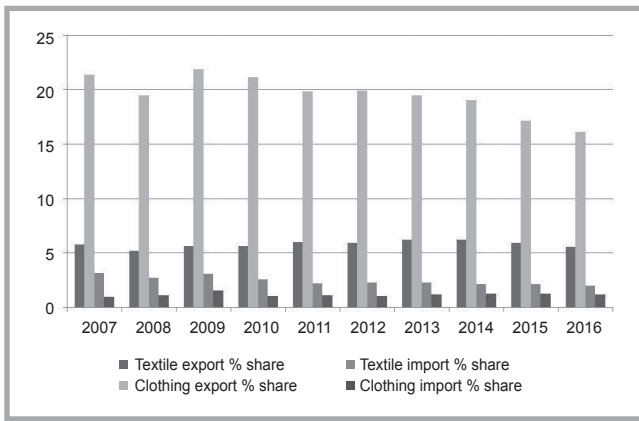


Figure 3. Annual shares of Turkey's textile and clothing sectors within the total trade between Turkey and EU-28 countries.

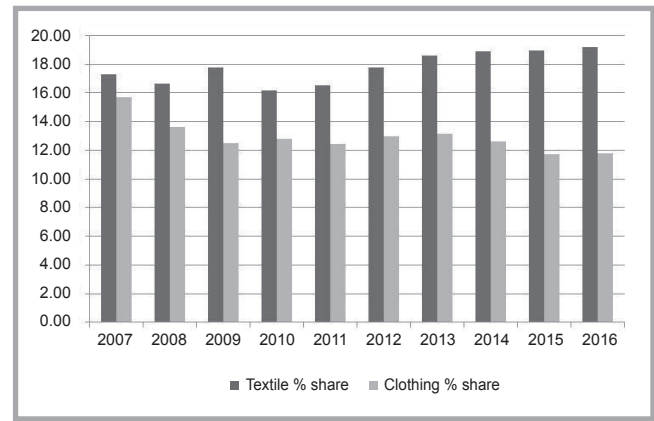


Figure 4. Turkey's shares in the EU-28 textile and clothing market.

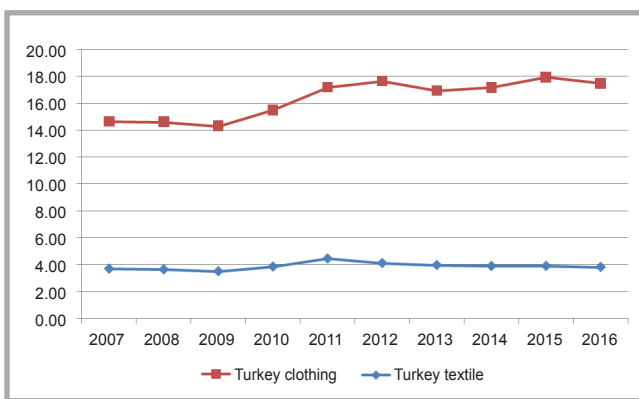


Figure 5. Unit prices of Turkish textile and clothing sectors' export to EU-28 countries (Euro/kg).

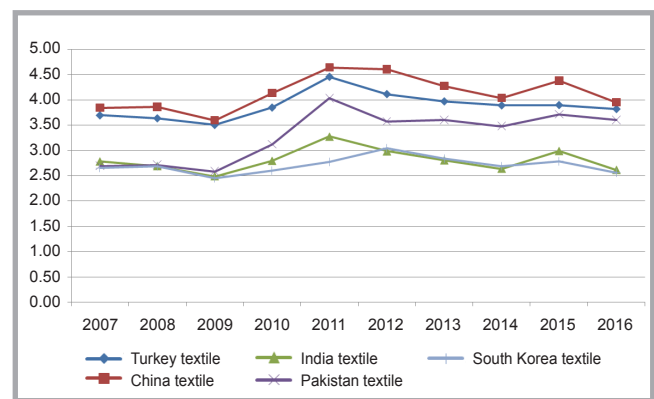


Figure 6. Unit textile prices of Turkey and its major rivals' export to EU-28 countries (Euro/kg).

to the EU-28 countries in 2007, whereas it had a 16% share in 2016. The decadal percentage shares ranged between 16% and 22%. Moreover the decadal shares of the Turkish textile sector in Turkey's total imports from the EU-28 countries varied between 2% and 3%, whereas the decadal shares of the Turkish clothing sector in Turkey's total imports from the EU-28 countries ranged between 1% and 1.6%.

If the shares of the Turkish textile and clothing sectors in EU-Extra textile and clothing import values (textile and clothing import values of the EU-28 countries from outside the Union) are analysed, it can be seen that the textile sector's decadal percentage shares ranged between 16% and 20%, whereas the clothing sector's decadal percentage shares varied between 12% and 16% (Figure 4). In other words, Turkey usually maintained its shares in the EU-28 textile market during the period determined, whereas its shares in the EU-28 clothing market declined generally. As mentioned above, this situation resulted in a decrease from

second to third place in the EU-28 clothing market and an unaltered second place in the EU-28 textile market.

Analysis of the unit textile and clothing export prices of Turkey and its major rivals with respect to EU-28 countries

If the unit prices of the Turkish textile and clothing sectors' export to the EU-28 countries are analysed, it can be seen that the textile sector's decadal unit export prices varied between 3.51 and 4.46 Euros, whereas the clothing sector's decadal unit export prices ranged between 14.28 and 17.92 Euros (Figure 5). The decadal average unit price of the Turkish textile sector's export to EU-28 countries was calculated as 3.89 Euros per kilogram, whereas it was determined as 16.32 Euros per kilogram for the clothing sector.

If the unit export prices of the first five suppliers in the EU-28 textile market are analysed, it can be seen that China possessed the highest decadal average unit export price (Figure 6). The decadal average unit textile price of China's,

which is the biggest rival of Turkey, export to EU-28 countries was determined as 4.14 Euros per kilogram. China is followed by Turkey (3.89 EUR), Pakistan (3.32 EUR), India (2.81 EUR) and South Korea (2.71 EUR), respectively. The ranking of the decadal average unit textile export prices coincides with that of the shares taken from the AB-28 textile market by the same countries.

If the unit export prices of the first five suppliers in the EU-28 clothing market are analysed, it can be seen that Turkey possessed the highest decadal average unit export price (Figure 7). The decadal average unit clothing price of Turkey's export to the EU-28 countries was calculated as 16.32 Euros per kilogram. Turkey is followed by Cambodia (14.73 EUR), India (11.44 EUR), China (11.35 EUR) and Bangladesh (10.41 EUR), respectively. On the other hand, China is the biggest clothing supplier of the AB-28 market and is followed by Bangladesh, Turkey, India and Cambodia, respectively. If the decadal average unit export prices are analysed, it can be seen that

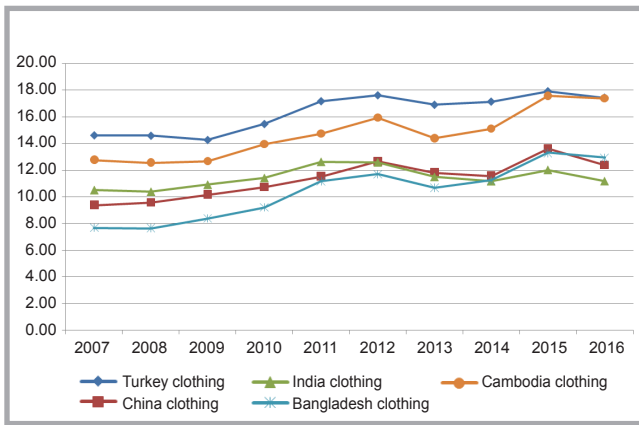


Figure 7. Unit clothing prices of Turkey and its major rivals' export to EU-28 countries (Euro/kg).

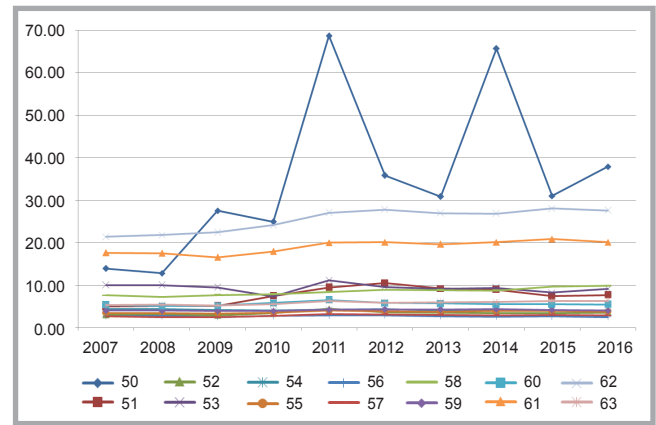


Figure 8. Unit prices of Turkish textile and clothing product groups' export to EU-28 countries (Euro/kg).

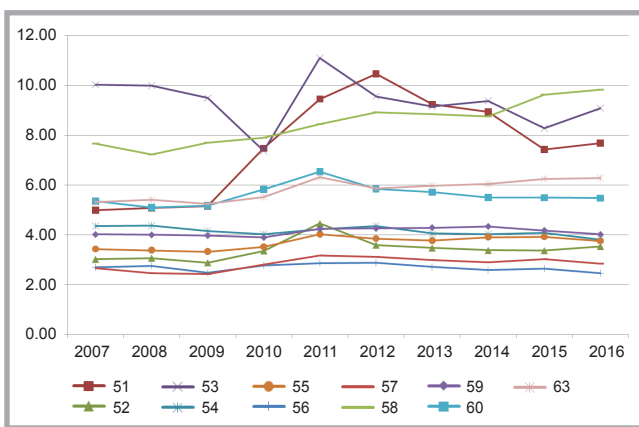


Figure 9. Unit prices of Turkish textile and clothing product groups' export to EU-28 countries (except 50, 61 and 62 product groups) (Euro/kg).

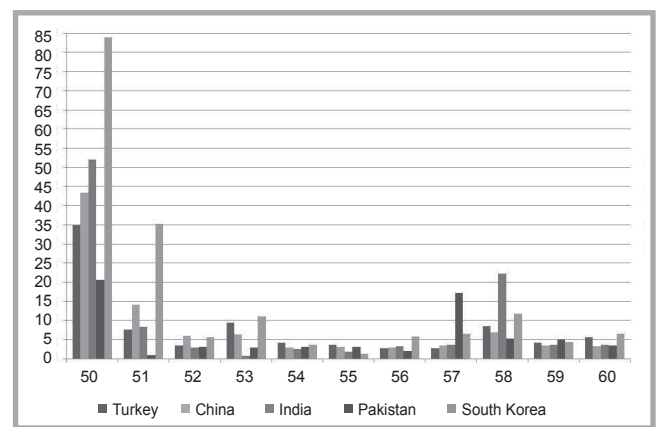


Figure 10. Unit prices of Turkey and its major rivals' export to EU-28 countries on the basis of textile product groups (Euro/kg).

Turkey is at the top, but Cambodia almost caught Turkey in the last two years. China could only take fourth place. This situation can be explained with the high value-added of Turkey's product exports to the EU-28 clothing market. Although Turkey lost some of its market share in the latter years, it tried to compensate for this loss by selling high value-added products. On the other hand, Cambodia made a serious spurt and took second place in the average unit export price ranking; however, it took fifth place in the supplier ranking. Even though China is the biggest supplier, it could only take fourth place due to substantial low value-added product procurement.

If the unit export prices of Turkish textile and clothing sectors are analysed on the basis of product groups, it can be seen that the highest unit export prices belong to the silk group (Figure 8). The decadal average unit export price of the silk group was determined as 34.94 Euros per kilogram. On the other hand, knitted and

woven apparel and clothing accessories are the other product groups which raise the unit export prices. The decadal average unit export price of woven apparel and clothing accessories was calculated as 25.4 Euros per kilogram, whereas it is 19.06 Euros per kilogram for knitted apparel and clothing accessories.

If the product groups, which raise the unit export prices per kilogram, are left out, it can be seen that the decadal average unit export prices ranged between 2.69 Euros and 9.34 Euro (Figure 9). Special woven fabrics, tufted textile fabrics, embroideries, vegetable textile fibres and the wool group possessed the highest decadal average unit export prices per kilogram. On the other hand; wadding, felt, nonwovens, carpet and other textile floor coverings, the cotton group and man-made staple fibres had the lowest decadal average unit export prices per kilogram.

If the unit export prices of the first five suppliers in the EU-28 textile market are

analysed on the basis of textile product groups, it can be seen that the highest decadal average unit export price per kilogram belonged to South Korea in terms of the silk category (Figure 10). Besides this, South Korea possessed the highest average unit export prices for wool, vegetable textile fibres, wadding, felt, nonwovens and knitted fabric categories. On the other hand, Pakistan had the highest average unit export prices for carpets and other textile floor coverings as well as for impregnated, coated, covered and laminated textile fabrics, whereas India possessed the highest average unit export prices for special woven fabrics and embroideries. In addition to these, China had the highest average unit export prices in the cotton category, whereas Turkey possessed the highest average unit export prices for the man-made filament and staple fibre categories.

If the unit export prices of the first five suppliers in the EU-28 clothing market are analysed on the basis of cloth-

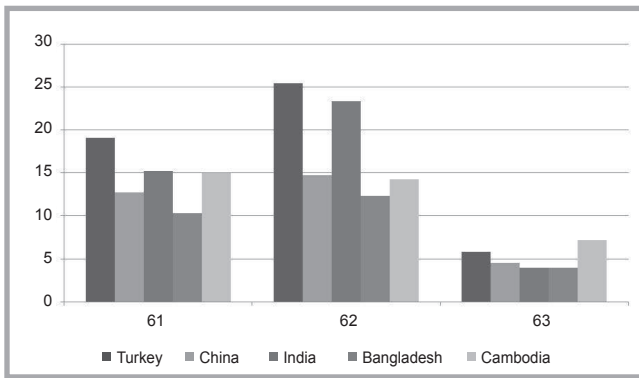


Figure 11. Unit prices of Turkey and its major rivals' export to EU-28 countries on the basis of clothing product groups (Euro/kg).

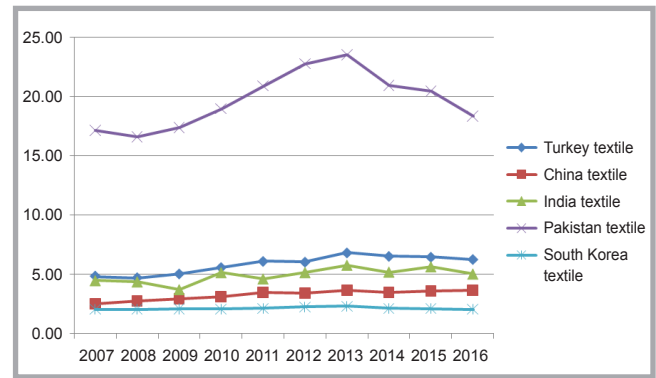


Figure 12. Distribution of Turkey and its major rivals according to the Balassa index values calculated for the textile sector

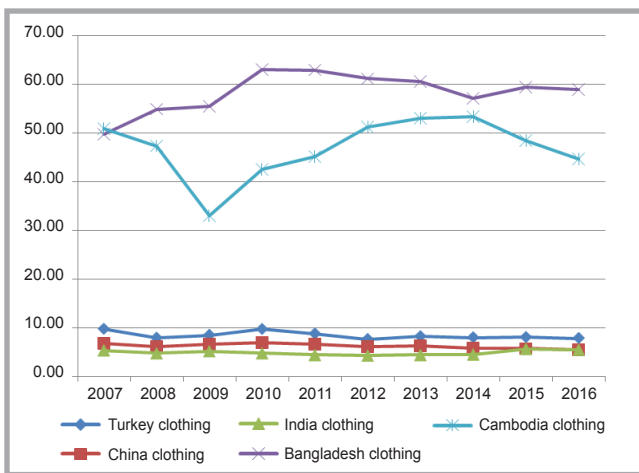


Figure 13. Distribution of Turkey and its major rivals according to Balassa index values calculated for the clothing sector.

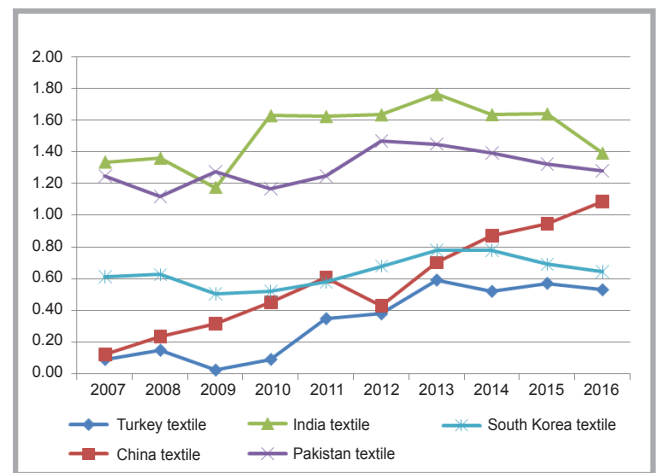


Figure 14. Distribution of Turkey and its major rivals according to Vollrath index values calculated for the textile sector.

ing product groups, it can be seen that the highest decadal average unit export price per kilogram belonged to Turkey in terms of the woven and knitted apparel and clothing accessory categories (Figure 11). On the other hand, Cambodia possessed the highest average unit export price for home textile and used textile product category. In this category, Turkey took second place just after Cambodia.

Analysis of the competitiveness of Turkey and its major rivals in the EU-28 market with Balassa and Vollrath indices

If the decadal Balassa index values calculated for the Turkish textile sector are analyzed; it can be seen that Turkey gained a strong competitive advantage in the EU-28 market in terms of exports (Decadal Balassa index values ranged between 4.69 and 6.82) (Figure 12). If the major rivals' situations are analyzed, it can be seen that Pakistan had the strongest competitive advantage in the EU-28 textile market in terms of exports

(Decadal Balassa index values varied between 16.59 and 23.53). Pakistan possessed very high Balassa index values because its textile exports had big shares in the country's total exports. On the other hand, India possessed a strong competitive advantage in the decade determined, except in 2009. Moreover China and South Korea possessed an intermediate competitive advantage in the EU-28 textile market with regard to exports. China had an intermediate competitive advantage, despite being the number one textile supplier to the EU-28 market; because the shares of China's textile industry in China's total exports are smaller in comparison with rivals' shares.

If the decadal Balassa index values calculated for the Turkish clothing sector are analysed, it can be seen that Turkey gained a strong competitive advantage in the EU-28 market in terms of exports (Decadal Balassa index values ranged between 7.89 and 9.76) (Figure 13). If the major rivals' situations are analysed,

it can be seen that Bangladesh and Cambodia had the strongest competitive advantage in the EU-28 clothing market in terms of exports (Decadal Balassa index values of Bangladesh changed between 49.73 and 63.04; whereas those of Cambodia varied between 33.06 and 53.35). Both countries' clothing exports had big shares in their countries' total exports: 88% of Bangladesh's total export and 67% of Cambodia's total export were attributed to their clothing sectors in 2016. Therefore their export based competitive advantages are very high, and this situation brings risks concomitantly. If a crisis or bottleneck occurs in the clothing sector, this can cause serious economic problems in the national economy. On the other hand, China and India had a strong competitive advantage in the EU-28 clothing market with regard to exports. As can be seen, the first five suppliers which compete in the EU-28 clothing market possessed a strong competitive advantage in terms of exports. However, if the risky situations of Bangladesh and

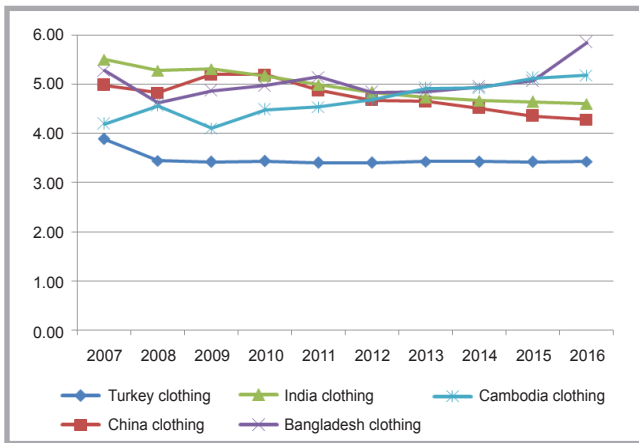


Figure 15. Distribution of Turkey and its major rivals according to Vollrath index values calculated for the clothing sector.

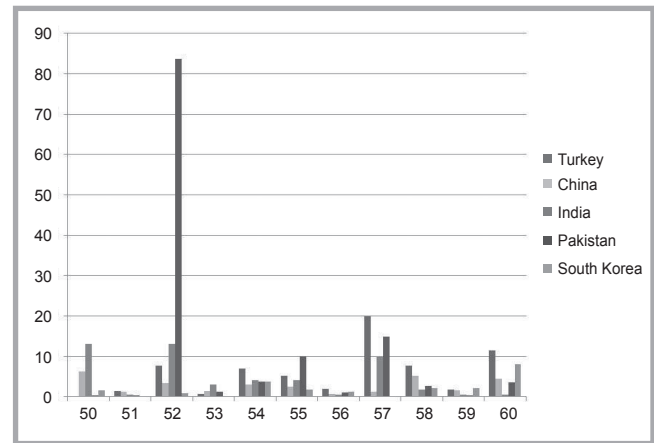


Figure 16. Distribution of Turkey and its major rivals according to average Balassa index values calculated on the basis of textile product groups.

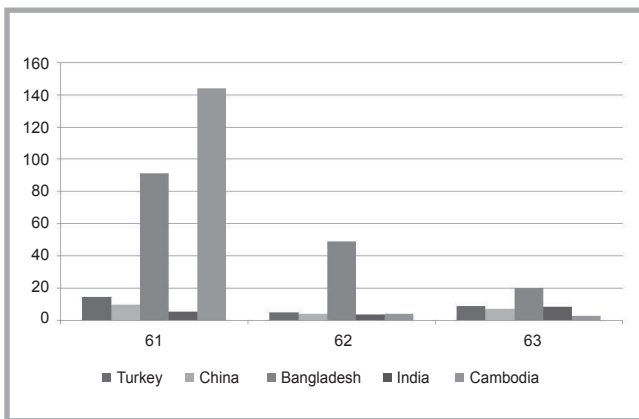


Figure 17. Distribution of Turkey and its major rivals according to average Balassa index values calculated on the basis of clothing product groups.

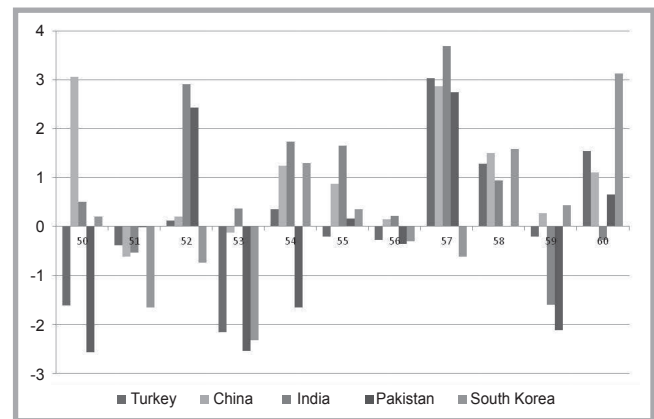


Figure 18. Distribution of Turkey and its major rivals according to average Vollrath index values calculated on the basis of textile product groups.

Cambodia are taken into consideration, it can be seen that Turkey possessed the healthiest and strongest competitive advantage.

If the decadal Vollrath index values calculated for the Turkish textile sector are analysed, it can be seen that Turkey gained a competitive advantage in the EU-28 market (Decadal Vollrath index values ranged between 0.02 and 0.59) (Figure 14). If the major rivals' situations are analysed, it can be seen that all countries possessed a competitive advantage in the EU-28 textile market. Import as well as export values are taken into consideration during Vollrath index value calculation. Therefore it can be said that Vollrath index values give healthier and more accurate competitiveness results in comparison with Balassa index values.

If the decadal Vollrath index values calculated for the Turkish clothing sector are analysed, it can be seen that Turkey

gained a competitive advantage in the EU-28 market (Decadal Vollrath index values ranged between 3.40 and 3.88) (Figure 15). Similarly all of the major rival countries possessed a competitive advantage in the EU-28 clothing market.

If the decadal Balassa index values calculated for textile product groups are analysed, it can be seen that India and China possessed a strong competitive advantage in the silk category in the EU-28 market (Figure 16). Turkey and China had a weak competitive advantage in the wool category, whereas the other countries possessed a competitive disadvantage. On the other hand, India, Pakistan and Turkey had a strong competitive advantage in the cotton category, whereas Turkey and India possessed a strong competitive advantage for man-made filaments. In addition to these, Turkey, India and Pakistan had a strong competitive advantage for man-made staple fibres, carpets and other textile floor cover-

ings. Besides this, Turkey and China possessed a strong competitive advantage for special woven fabrics and embroideries, and Turkey, South Korea and China had a strong competitive advantage with respect to knitted fabrics. On the other hand, India possessed an intermediate competitive advantage for vegetable textile fibres, whereas Turkey, Pakistan and South Korea had a weak competitive advantage for wadding, felt and nonwovens. Finally South Korea possessed an intermediate competitive advantage for impregnated, coated, covered and laminated fabrics. None of the countries had a strong competitive advantage in these categories.

If the decadal Balassa index values calculated for clothing product groups are analysed; it can be seen that all countries possessed a strong competitive advantage in the knitted apparel and clothing accessory category in the EU-28 market (Figure 17). Cambodia and Bangladesh

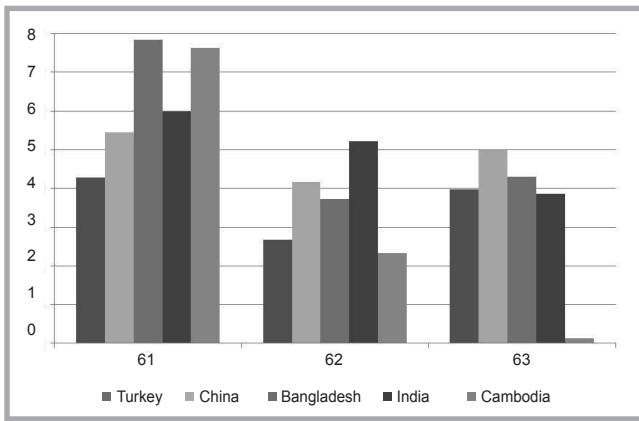


Figure 19. Distribution of Turkey and its major rivals according to average Vollrath index values calculated on the basis of clothing product groups.

had the highest Balassa index values because both countries' clothing exports took big shares in their countries' total exports. On the other hand, only Turkey, Bangladesh and China possessed a strong competitive advantage in the woven apparel and clothing accessory category. India and Cambodia had an intermediate competitive advantage in this category. Furthermore all countries, except Cambodia, possessed a strong competitive advantage in the home textile and used textile product category, whereas Cambodia had an intermediate competitive advantage.

If the decadal Vollrath index values calculated for textile product groups are analysed, it can be seen that only China, India and South Korea possessed a competitive advantage in the silk category in the EU-28 market (Figure 18). None of the countries had a competitive advantage in the wool category. On the other hand, all countries, except South Korea, possessed a competitive advantage in the cotton category, whereas India possessed a competitive advantage in vegetable textile fibres. Moreover all countries, except Pakistan, had a competitive advantage in man-made filaments, and all countries, except Turkey, possessed a competitive advantage in man-made staple fibres. In addition to these, China and India had a competitive advantage in wadding, felt and nonwovens, whereas all countries, except South Korea, possessed a competitive advantage for carpets and other textile floor coverings. Furthermore all countries, except Pakistan, had a competitive advantage in special woven fabrics and embroideries, whereas China and South Korea possessed a competitive advantage in impregnated, coated, covered and laminated fabrics. Finally all countries, except India, had a competitive advantage in knitted fabrics.

If the decadal Vollrath index values calculated for clothing product groups are analysed, it can be seen that all countries possessed a competitive advantage in all categories (knitted apparel and clothing accessories, woven apparel and clothing accessories, and home textile and used textile products) in the EU-28 market (Figure 19).

The competitiveness of the Turkish textile and clothing sector in the EU-28 market and the situations of its major rivals are summarised in Table 2. According to the results obtained, the Turkish textile and clothing sector possessed a competitive advantage in the EU-28 market with regard to decadal average unit export prices. The clothing sector surpassed all its rivals with its decadal average unit export price per kilogram, whereas the textile sector was only surpassed by China. Besides this, Turkey possessed the leading position in two product categories in both the textile and clothing sectors with regard to the decadal average unit export prices per kilogram. Turkey is the second biggest textile supplier and third biggest clothing supplier to the EU-28 market. However, it surpassed all its rivals in the average unit export prices per kilogram, because it exported high value-added textile and clothing products.

According to other results obtained, the Turkish textile and clothing sector possessed a competitive advantage in the EU-28 market with regard to decadal Balassa and Vollrath index values. As stated by Balassa index values, both the textile and clothing sectors had a strong competitive advantage in the EU-28 market. Pakistan is the strongest rival of Turkey in terms of textile exports, whereas Bangladesh and Cambodia are the strongest rivals of Turkey with regard to clothing exports. Moreover Turkey possessed

a strong competitive advantage in nine product groups in textile and clothing exports, whereas it had a weak competitive advantage in three product groups. Furthermore it possessed a competitive disadvantage in two product groups. Turkey possessed a strong competitive advantage in approximately 64% of textile and clothing product groups with regard to exports. In this context, it can be said that the sector maintained its significance and place in the EU-28 market, being exact evidence.

Import as well as export values were taken into consideration during the Vollrath index value calculation, showing that the number of textile and clothing sector rivals increased. According to this index, the Turkish textile sector should pay attention to China, India, Pakistan and South Korea, whereas the Turkish clothing sector should focus on China, India, Bangladesh and Cambodia. As stated by Vollrath index values, Turkey possessed a competitive advantage in eight product groups in the textile and clothing sectors, whereas it had a competitive disadvantage in six product groups. As can be seen, Turkey possessed a competitive advantage in approximately 57% of the textile and clothing product groups with regard to the Vollrath index. In this context, it can be said that Turkey accomplished this situation with high unit export prices and created added-value. Therefore Turkey maintains its voice in the EU-28 textile and clothing market and protects its competitive advantage with its expertise.

Conclusions and general evaluation

The Turkish textile and clothing sector maintains its significance in the national economy and exports despite increasing international competition. If Turkey's textile and clothing trade with EU-28 countries is analysed, it can be seen that Turkey maintains its importance in the EU market and both sectors possess a net foreign trade surplus. The Turkish textile sector possessed an approximately 2 billion Euro foreign trade surplus by 2016, while the clothing sector had a 9,8 billion Euro foreign trade surplus.

According to Euratex data [12], the sector was the second biggest textile and third biggest clothing supplier to the EU-28 countries by 2016. Besides this, as stated by this research, the sector pos-

Table 2. Competitiveness of Turkish textile and clothing sector in EU-28 market.

	According to the decadal average unit export prices	According to the decadal average balassa index values	According to the decadal average vollrath index values
Textile	3.89 Euro/kg (China is the strongest rival)	Strong competitive advantage/Pakistan is the strongest rival.	Competitive advantage/China, India, Pakistan and South Korea are the rivals.
Clothing	16.32 Euro/kg (Cambodia is the closest rival)	Strong competitive advantage/Bangladesh and Cambodia are strongest rivals.	Competitive advantage/China, India, Bangladesh and Cambodia are the rivals.
Silk	34.94 Euro/kg (South Korea is the strongest rival)	Competitive disadvantage/China and India are the strongest rivals.	Competitive disadvantage/China, India and South Korea are the rivals.
Wool, fine or coarse animal hair, horsehair yarn and woven fabric	7.59 Euro/kg (South Korea is the strongest rival)	Weak competitive advantage/China is the closest rival.	All countries possess competitive disadvantage.
Cotton	3.42 Euro/kg (China is the strongest rival)	Strong competitive advantage/Pakistan and India are the strongest rivals.	Competitive advantage/China, India and Pakistan are the rivals.
Vegetable textile fibres, paper yarn and woven fabrics of paper yarn	9.34 Euro/kg (South Korea is the strongest rival)	Competitive disadvantage/India is the strongest rival.	Competitive disadvantage/India is the rival.
Man-made filaments, strip and the like of man-made textile materials	4.15 Euro/kg (South Korea is the closest rival)	Strong competitive advantage/India is the closest rival.	Competitive advantage/China, India and South Korea are the rivals.
Man-made staple fibres	3.69 Euro/kg (China is the closest rival)	Strong competitive advantage/Pakistan is the strongest rival.	Competitive disadvantage/China, India, Pakistan and South Korea are the rivals.
Wadding, felt, nonwovens, and special yarns: twine, cordage, ropes, cables and articles thereof	2.69 Euro/kg (South Korea is the strongest rival)	Weak competitive advantage/South Korea is the closest rival.	Competitive disadvantage/China and India are the rivals.
Carpets and other textile floor coverings	2.84 Euro/kg (Pakistan is the strongest rival)	Strong competitive advantage/Pakistan is the closest rival.	Competitive advantage/China, India and Pakistan are the rivals.
Fabrics, special woven fabrics, tufted textile fabrics, lace, tapestries, trimmings, embroidery	8.48 Euro/kg (India is the strongest rival)	Strong competitive advantage/China is the closest rival.	Competitive advantage/China, India and South Korea are the rivals.
Textile fabrics:, impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use	4.13 Euro/kg (Pakistan is the strongest rival)	Weak competitive advantage/South Korea is the strongest rival.	Competitive disadvantage/China and South Korea are the rivals.
Fabrics knitted or crocheted	5.60 Euro/kg (South Korea is the strongest rival)	Strong competitive advantage/China is the closest rival.	Competitive advantage/China, Pakistan and South Korea are the rivals.
Apparel and clothing accessories knitted or crocheted	19.06 Euro/kg (India is the closest rival)	Strong competitive advantage/Bangladesh and Cambodia are the strongest rivals.	Competitive advantage/China, Bangladesh, India and Cambodia are the rivals.
Apparel and clothing accessories not knitted or crocheted	25.41 Euro/kg (India is the closest rival)	Strong competitive advantage/Bangladesh is the strongest rival.	Competitive advantage/China, Bangladesh, India and Cambodia are the rivals.
Textiles – made up articles, sets, worn clothing and textile articles; rags	5.82 Euro/kg (Cambodia is the strongest rival)	Strong competitive advantage/Bangladesh is the strongest rival.	Competitive advantage/China, Bangladesh, India and Cambodia are the rivals.

essed a strong competitive advantage in nine out of fourteen product groups in the EU-28 market with regard to exports. In other words, Turkey possessed a strong competitive advantage in approximately 64% of textile and clothing product groups according to Balassa index values. In this context, it can be said that the sector maintains its significance and power in the EU-28 market, being exact evidence.

In addition, if both the export and import values are taken into consideration, it can be seen that the Turkish textile and clothing sector possessed a competitive advantage in eight out of fourteen product groups. In other words, Turkey possessed a competitive advantage in approximately 57% of textile and clothing product groups with regard to Vollrath index values. In this context, it can be said that Turkey maintains its voice in the EU-28 textile and clothing market and protects its competitive advantage with its expertness.

Pakistan is the strongest rival of the Turkish textile sector in the EU-28 market with regard to exports. If both export and import values are taken into consideration, the rivals can be determined as China, Pakistan, India and South Korea. On the other hand, Bangladesh and Cambodia are the strongest rivals of the Turkish clothing sector with regard to exports. If the evaluation is based on foreign trade, China, Bangladesh, India and Cambodia are found as rivals.

According to the results obtained, the Turkish textile and clothing sector should focus on the product groups in which it possesses a weak competitive advantage or disadvantage in order to increase its competitiveness in the EU-28 market. These product groups can be listed as follows: silk, wool, vegetable textile fibres, man-made staple fibres, wadding, felt and nonwovens, and impregnated, coated, covered and laminated fabrics. As can be seen, all of them belong to the textile sector. China, India, Pakistan and

South Korea are the rivals in this sector with regard to these categories.

According to another significant result, the Turkish textile and clothing sector possessed a serious competitive advantage in the EU-28 market with regard to decadal average unit export prices. The clothing sector surpassed all its rivals with its decadal average unit export price per kilogram, whereas the textile sector was only surpassed by China. Besides this, Turkey possessed the leading position in two product categories in both the textile and clothing sectors with regard to decadal average unit export prices per kilogram. As can be seen, the Turkish textile and clothing sector surpassed all its rivals in accordance with the average unit export prices per kilogram, by exporting high value-added products to the EU-28 market.

As can be seen, the Turkish textile and clothing sector competes especially with Far East countries in the EU-28 market.

At this point, Turkey should export high value-added products and increase these products' export amounts in order to increase its market share, by which the sector could be able to compete against these rivals and protect its competitiveness. In this context, it should produce and export high-quality products at appropriate costs by using its knowledge, experience and expertise. Therefore it should give great importance to research and development activities and design through which it should both increase the average unit export prices and the number of textile and clothing product groups in which it possesses a competitive advantage.

To sum up, this study contributes to literature by informing about an important market (European Union market) and reveals the final situations of a significant global player (Turkish textile and clothing sector) and its rivals. Moreover this study gathers different methods together in order to analyse competitiveness, in which it considers the subject from different views in a broad perspective. On the other hand, the research has focused on a determined period (2007-2016) and only six significant rivals (China, India, Pakistan, South Korea, Bangladesh and Cambodia) are included in the research. These are its limitations. For future researches, the period investigated and rivals included can be broadened. Besides these, other comparative analyses can be carried out for the European Union market. In addition to these, similar researches can be carried out in other markets (such as the Middle East, North Africa, Turkic Republics) in which the Turkish textile and clothing sector operates.



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