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R&D INTENSIVE GOODS TRADE AND COMPETITIVENESS OF TURKEY IN THE EUROPEAN UNION MARKET

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R&D Intensive Goods Trade and Competitiveness of Turkey in the European Union Market*

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Abstract

This paper aims to measure trade competitiveness of Research and Development (R&D) intensive goods of Turkey in the European Union (EU) market, using different trade indices. Concentration Ratio (Michaely, 1958), Export-Import Commodity Composition Index (Muscatelli, 1991), Intra-Industry Trade Index (Grubel, Lloyd, 1971) and Sectoral-Bilateral Trade Intensity Ratios (Seymen, 2009) are calculated to analyze the technology composition of manufacturing goods trade between Turkey and the EU27. Revealed Comparative Advantage Index (Balassa, 1965), Marginal Intra-Industry Trade Index (Brulhart, 1994), and Sectoral-Bilateral Competitiveness Index (Seymen, 2009) are employed to gain insight about the bilateral competition between two parties. Thus, once the general situation related to the R&D intensive goods trade between Turkey and the EU is detected, it will be possible to draw some policy implications through a future study in the following phase, by identifying the value added structures, exterior input dependence and vertical-horizontal specialization levels of the goods revealed to have competitive advantage in this study.

Keywords: R&D intensive goods trade, competitiveness, Turkey & EU Trade

JEL Classification: F10, F14, F15

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I. Introduction

This paper analyzes the R&D intensity of manufacturing trade between Turkey and the EU27, and measures Turkey's competitiveness in those goods in the EU market. The research is mainly based on different trade measures such as: Concentration Ratio (CR) (Michaely, 1958), Export-Import Commodity Composition Index (Muscatelli, 1991), Intra-Industry Trade Index (IIT) (Grubel, Lloyd, 1971) and Sectoral-Bilateral Trade Intensity Ratios (SBTX and SBTM) (Seymen, 2009) which are measured to analyze technology composition of manufacturing goods trade between Turkey and the EU27. Furthermore, Revealed Comparative Advantage Index (RCA) (Balassa, 1965), Marginal Intra-Industry Trade Index (MITT) (Brülhart, 1994), and Sectoral-Bilateral Competitiveness Index (SBTC) (Seymen, 2009) are also employed in order to gain insight about the bilateral competition between two parties.

Technological effort is a critical determinant of international competitiveness. High technology industries are the ones which continue to expand most strongly in the international trade and their dynamism helps the sector to improve its performance together with the performance of all the other sectors and consequently the economy as a whole. In order to analyze the positive impact of technology on industrial performance, it is important to be able to identify those industries or products. However, the "technology-intensity" classification is relative. Many manufacturing activities could be considered as "high technology" by looking at their direct or indirect R&D intensities. While "direct R&D intensity" refers to the industries that produce technology, "indirect R&D intensity" refers to the industries that make use of technology intensively. Also, high technology (high tech) industries can produce variety of products ranging between low tech and high tech. Individual countries may have slightly different classifications subject to different definitions of R&D intensity and data availability.

In this study, in order to construct an "R&D intensive goods" definition, OECD Technology Classification is used. OECD defines R&D intensities with R&D expenditures as a percentage of production or value added, and calculates them after converting main developed OECD Countries' R&D expenditures and productions using PPPs (OECD, 2003). Manufacturing industries are classified into four main technology categories on the basis of the degree of technology intensity introduced by Hatzichronoglou (1997), namely: *a)* high technology *b)* medium high technology, *c)* medium low technology and *d)* low technology.

Hatzichronoglou (1997) explains the methods used to classify the OECD Countries' industrial sectors and manufactures by the level of technology based on two different approaches.

Sectoral approach takes into account both the level of technology specific to the sector (measured by the ratio of R&D expenditure to value added) and the technology embodied in purchases of intermediate and capital goods.

The second approach called product approach consists solely of high technology products (products which are the most technology-intensive). Product approach provides a more appropriate tool for analyzing international trade and competitiveness. It is based on the Standard International Trade Classification (SITC). Although the list of high-tech products is much more disaggregated, the product approach excludes all products that are not high-tech, even if they are manufactured by high-tech industries[1].

In the present paper, we employed sectoral approach to be able to make comparisons with other researches, but we highlight the high-technology group with the purpose of focusing specially on more R&D intensive goods. Amongst the four categories, industries in the higher groups are defined to be more R&D-intensive than those in the lower groups. Similarly, within a technology group, the sectors appearing in the higher ranks are counted to be more R&D intensive compared to the ones in lower ranks. To illustrate, “Aircraft and spacecraft” sector is the most R&D intensive industry of both high-technology group and total manufacturing. Likewise, “Textiles, textile products, leather and footwear” sector consists of the least R&D intensive goods of both low-technology group and total manufacturing.

In the study, Turkey-EU27 trade dataset has been obtained from the Turkish Statistical Institute (TURKSTAT) based Database of the Republic of Turkey Ministry of Economy. The dataset used in the empirical calculations covers the period 1989-2010. When the EU27’s total exports and imports were calculated, the enlargement process of the EU was not considered. Consequently, the observations represent the trade between Turkey and all the EU countries in the time period in question, without taking into account their accession dates to the EU. In the study, International Standard of Industrial Classification (ISIC.Rev.3) is employed. However, since the Standard International Trade Classification (SITC) facilitates investigating the trade competitiveness in a relatively clear manner by providing a more detailed structure, ISIC – SITC correspondence table was used to construct SITC. Rev.3. five-digit sub-components under each ISIC industries.

The plan of the paper is as follows. The following section reviews the trade theories on technological competitiveness. Section III outlines the methodology of the study to explain the indices employed to measure trade structure and competitiveness. Section IV

[1]For the details of the methodology of the definition of high-technology by sectoral and product approaches, see OECD (2011) and T.Hatzichronoglou (1997).

summarizes the economic relations between Turkey and the EU. Using different ratios and indices, findings on Turkish case is depicted in Section V. The final section draws some conclusions based on the findings.

II. Trade Theories on Technological Competitiveness, a Short Survey

The theoretical arguments on the role of technology in the determination of patterns of trade have dramatically changed since the beginnings of trade theories. If we are to survey technology determining comparative/competitive advantage in trade, we need to go back to the writings of D. Ricardo (1817). The concept of "comparative advantage" was introduced first by his work as an explanation of trade and international patterns of specialization. The "law of comparative advantages" states that, countries engaged in trade specialize in the production of those goods in which they have a relative cost advantage over their trading partners. In addition to other simplest setting of assumptions, Ricardian theory assumed that international differences in the productivity of labour to be the sole reason for cross-country differences in comparative production costs. In other words, differences in technology were at the centre of explanations of specialization patterns in international trade. But in contrast to the "new" theories, Ricardian theory took technology as exogenous and characterized by constant returns to scale. Traditional trade theories focused almost exclusively on the effects of technological differences between countries without delving much in to their causes (Grossman-Helpman, 1995).

The other prominent traditional theory that explains comparative advantage is Heckscher-Ohlin (H-O) theory. The H-O theory attributes comparative advantage to cost differences resulting from differences in factor prices across countries. However, the theory suggests that technologies are the same across countries and comparative advantages are then entirely due to the differences in factor endowments or relative factor intensity of production. Thus, under the assumption of given and basically identical technologies across countries as well as under the assumption of constant returns to scale technologies, the H-O model predicts that countries will tend to specialize in the export of goods whose production is intensive in factors with which they are abundantly endowed (Utkulu, Seymen, 2004).

In brief, the predictions of traditional trade theories are based on the principle of comparative advantage which derives from relative price determination, i.e. differences in pre-trade relative prices across countries, underlined by supply and demand factors without considering the effect of technology on economic growth, consequently the trade performance of the economy.

Until the early 1980's theory of factor endowment with given identical technologies across countries was the major explanation for trade specialization/competitiveness. There were also "new theories" which argue the effect of technology on trade such as product cycle theory or technological gap hypothesis developed by Posner (1961) and Vernon (1966) and later formalized by Krugman (1980).

But the new generation of trade models that take trade into account heavily on the insights of the "new endogenous growth theories" and explain with technological changes driven by investments in R&D, were emerged by Romer (1986) and his followers (Utkulu, Özdemir, 2001). As a result, trade theory returned to the basic Ricardian idea that the trade pattern is largely driven by the international differences in technology rather than factor endowments, while in the traditional Ricardian model, technological differences were exogenously given. Explanations for the sources of technological differences stand at the centre of new trade models now.

Grossman and Helpman, constructed different trade models under the assumption of endogenous innovation, endogenous technology transfer and quality competition. Their "product cycle model" is based on the models of endogenous technical change by Romer (1990) and interprets product and process innovation as the result of deliberate, purposeful R&D by profit seeking enterprises. In a Sumpeterian frame work, the firms' incentive to invest in R&D and to innovate depends on the expectations that the innovation will generate monopoly profits until the new technology becomes standard. Sustainable growth is made feasible by the assumption of some kind of technological externality, which is the creation of knowledge through private R&D yielding positive external effects so that the social return on investment in R&D exceeds the private return. The new knowledge thus adds to the public stock of technological knowledge and is accessible to all firms carrying out R&D themselves. Without the assumption of technological externalities innovators would be in a position to establish permanent monopolies without further R&D efforts. R&D therefore, has a major role to play; it is the source of technological progress and driving force behind long run total factor productivity growth (Grossman and Helpman, 1991; Wolfmayr-Schnitzer, 1998).

Grossman and Helpman also go on to distinguish between horizontal and vertical product innovation. The former arises with the development of different varieties of a product that are of similar quality; the latter with the development of different varieties that are of different qualities. Equating innovation to the development of new products that are of higher quality than similar products on the market, the authors introduced the notion of the "quality ladder" into the literature (see more on quality ladder, Krugman, 1995). The more unique and sophisticated a firm's technology and products are the greater and easier to defend will be

the firm's monopoly power. On the other hand, countries at the other end of the "quality ladder" will have to specialize at the lower end of the quality spectrum and compensate their relative technological backwardness by lower wages, higher usage of energy or environmental resources, while competitiveness mainly builds on favourable manufacturing cost conditions and low price strategies. Technological differences are thus one of the main sources of international competitive advantages (Grossman and Helpman, 1995; Wolfmayr-Schnitzer, 1998; Kokta and Weisert, 2001).

Competitive advantage based on technological capabilities reveals specific dynamic characteristics. On the one hand, they are transitory in that they are continuously exposed to a process of imitation (product cycle) and product upgrading in a race on the quality ladder. On the other hand, technological knowledge is of a self-reinforcing character yielding positive external and internal economies of scale. The ability to appropriate technological knowledge thus depends on complementary, specific knowledge and skills and the capacity to understand components of the acquired knowledge. These in turn are a function of the availability of skilled human capital, a country's own R&D efforts as much as appropriate channels of information (Grossman and Helpman, 1995).

So, with the thought of technology playing a decisive role in the formation of international trade patterns, it is possible to draw conclusions on the technological competitiveness of a country from an analysis observed trade specialization (Wolfmayr-Schnitzer, 1998). This point of view comprises the empirical work of this paper. That is, instead of examining R&D input and output directly, the technological competencies of Turkey are emphasized and to that end competitiveness of Turkey was elaborated by looking at the indicators directly measuring economic performance of goods having different technological sophistication. With this motivation, next section summarizes briefly those measures that are used to provide information on technology composition and R&D intensity of Turkey's trade.

III. Methodology for Measuring Trade Structure and Competitiveness

Two groups of trade indices were employed to measure the trade structure and competitiveness of Turkey in the EU Market. In the first group, Concentration Ratios (CR) (Michaely, 1958), Export-Import Commodity Composition Index (XCC and MCC) (Muscatelli, 1991), Intra-Industry Trade Index (IIT) (Grubel, Lloyd, 1971) and Sectoral-Bilateral Trade Intensity Ratios (SBTX and SBTM) (Seymen, 2009) are measured to analyze technology composition of manufacturing trade between Turkey and the EU27.

Measures determining the structure of trade:

- Concentration Ratio (CR):

In this study, concentration ratio was calculated to see cumulative shares of a certain number of countries in Turkey's high-tech manufacturing industries. The calculated values range between 0 and 100. The employed formula is[2],

$$CR(n) = \sum_{i=1}^{n} R_{it}$$

where CR is the concentration ratio and R_{it} is the share of each country in the study. CR (1) is the share of the largest unit while CR (n) is the cumulative share of the n^{th} unit. The selection of n is optional. A small number signifies an increase in concentration and the control of foreign trade by a small number of units.

- Export-Import Commodity Composition Index (XCC and MCC):

$$XCC_t = \frac{\sum_{t=1}^{4} a_t C_t}{\sum_{t=1}^{4} C_t}$$

The commodity composition index (XCC-MCC), is constructed in the following way: first, export (import) goods are divided into four commodity groups, (C_1,...,C_4). OECD technology classification was chosen to determine the groups. The groups are weighted based on their increasing technological content, moving from C_1 (low tech) to C_4 (high tech). The second stage is to construct an index, XCC_t or MCC_t, which lies over the interval [0, 1]. Muscatelli *et al*. (1991) and Utkulu (1995) were followed in constructing the index, and in choosing a symmetric distribution for the weights, i.e. the weights chosen are: a_1=0, a_2=0.33, a_3=0.67, a_4=1, over the interval [0, 1].

- Intra-Industry Trade (Grubel-Lloyd) Index (IIT):

Trade measures of intra-industry trade show, to what extent the intra-industry specialization exists. In this paper, the trade measure named RCA_B is employed as an indicator for competitiveness. When similar logic is applied, measurement of intra-industry trade also shows the competitiveness. As the share of the intra-industry trade in the total trade decreases, competitiveness at this industry increases. Various measures of intra-industry trade have been offered in the literature (Greenaway and Milner, 1986). In this paper, we

[2] Studies on concentration indices are (Michaely, 1958), (Massell, 1964) and (Bailey, Boyle, 1971), (Erlat, Akyüz 2001).

employ the most well-known and common one; Grubel-Lloyd Index (GL-IIT) (Grubel and Lloyd, 1975):

$$IIT = \left[\frac{(X_i + M_i) - |X_i - M_i|}{(X_i + M_i)} \right] * 100$$

where X_i and M_i are exports and imports of industry i (Grubel and Lloyd, 1975). IIT approaches towards +100 as trade becomes balanced and towards 0 as either exports or imports begin to dominate. That is, the values vary between 0 and +100. A higher result implies that intra-industry specialization exists.

- Sectoral-Bilateral Trade Intensity Ratios (SBTX and SBTM):

Sectoral-Bilateral Trade Intensity Index (Seymen, 2009), is used to figure out in which sector a country intensifies mostly in the bilateral trade with its trading partners. In order to see the Sectoral-Bilateral Trade Intensity in Exports (SBTX), the following index is formulated:

$$SBT_x = \frac{(X_{ijk} / X_{ijt})}{(X_{ikt} / X_{it})}$$

Here, X_{ijk} represents the exports of country i to country j in the industry group k; X_{ijt} represents total exports of country i to country j; X_{ikt} represents total exports of country i in industry group k while X_{it} is the total exports of the country. Hence, the share of a country's exports in a certain industry group in total exports of that country is compared to the share of the country's exports of the relevant industry in its total exports. In the case that SBTX index is greater than 1, this leads to the conclusion that the country in question intensifies the trade of the relevant industry group within the bilateral trade with the trading partner.

In order to see the Sectoral-Bilateral Trade Intensity in Imports (SBTM), a similar index in the following form can be formulated:

$$SBT_m = \frac{(M_{ijk} / M_{ijt})}{(M_{ikt} / M_{it})}$$

Here, M_{ijk} represents the imports of country i from country j in the industry group k; M_{ijt} represents total imports of country i from country j; M_{ikt} represents total imports of country i in industry group k while M_{it} is the total imports of the country. Hence, in case that the index has a value greater than 1, this would give the opportunity to observe whether a country intensifies its imports in a certain industry from the trading partner by comparing that to the share of its total imports of that industry in total imports.

For measuring competitiveness, Revealed Comparative Advantage Index (RCA) (Balassa,1965), Marginal Intra-Industry Trade Index (MIIT) (Brulhart,1994), and Sectoral-Bilateral Competitiveness Index (SBTC) (Seymen,2009) are employed (to see bilateral competition between Turkey and the EU).

Trade measures of comparative/competitive advantage:

- Revealed Comparative Advantage Index (RCA):

A widely accepted and afterwards modified measure of Revealed Comparative Advantage Index (RCA) in the literature is presented by Balassa (1965). The Balassa index tries to identify whether a country has a "revealed" comparative advantage, rather than to determine the underlying sources of comparative advantage. It is expressed as follows:

$$RCA_A = \frac{(X_{ij} / X_{it})}{(X_{nj} / X_{nt})} = \frac{(X_{ij} / X_{nj})}{(X_{it} / X_{nt})}$$

where *X* represents exports, *i* is a country, *j* is a commodity (or industry), *t* is a set of commodities (or industries) and *n* is a set of countries. RCA_A measures a country's exports of a commodity (or industry) relative to its total exports and to the corresponding exports of a set of countries, e.g. the EU. A comparative advantage is "revealed", if $RCA_A > 1$. If RCA_A is less than unity, the country is said to have a comparative disadvantage in the commodity/ industry.

Some studies measure RCA at the global level (see e.g. Vollrath, 1991), others at a sub-global/regional level (see Balassa's original index); while some others evaluate the measurement in the bilateral trade between two countries or trading partners context (see e.g. Dimelis and Gatsios, 1995).

Since we are interested in the competitiveness of Turkey within a European context, we measure RCA with respect to the EU as the comparator. Thus, Balassa's modified version of RCA index (RCA_B in the present paper) is computed in order to make reference to the "own" country trade performance only. This type of measurement of a country's RCA recognizes the possibility of simultaneous exports and imports within a particular commodity / industry:

$$RCA_B = \frac{(X_{ij} / X_{it})}{(M_{ij} / M_{it})} = \frac{(X_{ij} / M_{ij})}{(X_{it} / M_{it})}$$

where *X* and *M* represents exports and imports respectively. Here, *i* is a country, *j* is a commodity (or industry) and *t* is a set of commodities (or industries).

Although this is a widely accepted approach to analyze trade data and comparative advantage, the definition and empirical adaptation of RCA are subject to controversies and thus some alternative measures now exist[3].

- Marginal Intra-Industry Trade Index/ Brülhart-B (MITT):

$$BB(MIIT) = \frac{\Delta X - \Delta M}{|\Delta X| + |\Delta M|}$$

The Brülhart-B index takes values between -1 and +1. The index gives information on two dimensions: first, information about the proportion of marginal intra-industry trade (MIIT), and second, country-specific sectoral performance. With regards to the first dimension, the closer Brülhart-B to 0, the higher is MIIT. If Brülhart-B is equal to 0, the marginal trade in the particular industry has purely the intra-industry type, while at both -1 and +1 it reveals marginal trade to be purely the inter-industry type. Regarding the second dimension, the definition of the sectoral performance is the change in exports and imports in relation to each other. When Brülhart-B is equal to -1, this means that ΔM was ≥ 0 while ΔX was Δ≤0 over the examined period. The opposite is true for the case when Brülhart-B is equal to 1. In other words, when Brülhart-B>0 then this implies that ΔX>ΔM, and when Brülhart-B<0 then this reflects that ΔX<ΔM (Brülhart, 1994; 606-607).

- Sectoral-Bilateral Trade Competitiveness Index (SBTC) (Seymen 2009):

For circumstances that the concentration is higher on exports, by proportioning the sectoral-bilateral concentration index of exports to that of imports, it is possible to make an evaluation such that the country has more competitive power in the bilateral trade of the relevant industry goods compared to its trade partner. This Sectoral-Bilateral Trade Competitiveness Index is formularized as shown below:

$$SBC = \frac{(X_{ijk} / X_{ijt})}{(X_{ikt} / X_{it})} \Big/ \frac{(M_{ijk} / M_{ijt})}{(M_{ikt} / M_{it})}$$

When the sectoral concentration on exports is higher compared to imports, this situation can be interpreted as the country having more competitive power on that sector relative to its trade partner. The values of the index will be between 0 and +∞. If the value of the index is greater than 1, it means that the competitive power will also be higher depending on having

[3] See for different arguments on advantages and constraints of RCA Indices e.g., Vollrath (1991), Dimelis and Gatsios (1995), Fertö and Hubbard (2003), Greenaway and Milner (1993), Balance et al., (1987), Yeats (1985), Hinloopen and Van Marrewijjk (2001), Utkulu, Seymen (2004), Greenaway and Milner (1993).

higher concentration on exports than imports in the trade of that industrial group with the trading partner.

Sectoral-Bilateral Competitiveness Index reveals the competitive power of the two countries on their mutual trade, in other words, on their mutual markets. However, this index would not provide the chance of analyzing the competitive power of the two countries on global/world market similar to the Balassa Index. However, if the trade concentration of a country with a country group which is included to a particular integration is calculated on sectoral base, this will provide the chance of seeing the sectoral competitive power of that country on the exports to such integration.

On the other hand, there are some points to keep in mind while interpreting the results of the index. The results to be greater than 1, makes it possible to accept the existence of the sectoral bilateral competitiveness in the relevant sector. However, it wouldn't be possible either to sort the sectors according to their competitive powers depending on how large the results are nor to conclude that their competitiveness improve over time based on whether they are increasing over the period or not. This drawback occurs as a result of two circumstances. The first of these reasons is that, the increases in the index can be resulting from the decline in the share of the industry in total exports or from its staying steady; rather than the increase in the share of exports of that industry in the exports to the trading partner, since the index is calculated using current values. The other reason, on the other hand is, although the concentration in the exports are very little, as a result of the concentration in imports being close to zero, the ratio can take quite big values. This conclusion may reflect the situation as if the competitiveness in the industry is too strong. Thus, it would be more appropriate to interpret the results by stating the existence or the absence of competitive power in the industry, based on the index values to be greater than 1 or not. This interpretation is also valid for several indices employed to evaluate the competitiveness. Furthermore, the studies carried out to measure the consistency of different indices used to evaluate competitiveness also confirm this interpretation (Seymen, Şimşek, 2006:46-47). Besides, since the Sectoral-Bilateral Competitiveness Index is calculated with the existing trade data, it does not involve the deviations in trade created by the state intervention such as customs duty or subsidies.

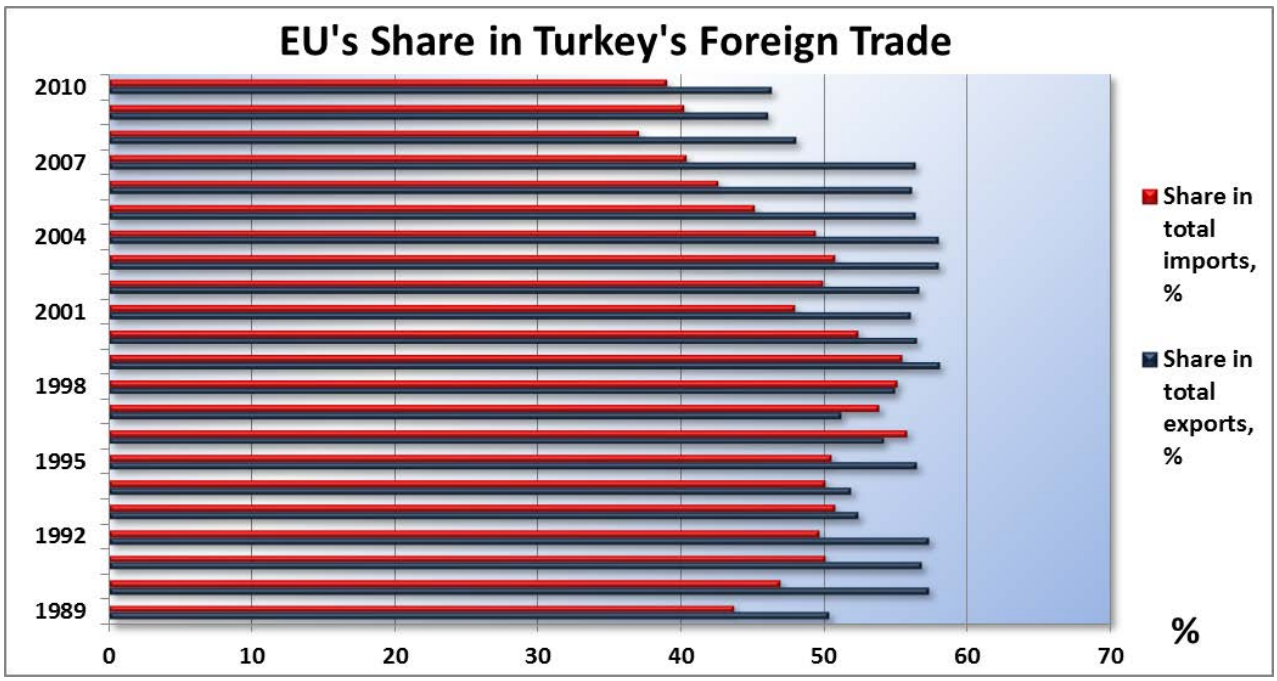
IV. Turkey and the EU Trade Relations

Besides the political relations, trade relations between Turkey and the EU have been strong since the early 1950s, but have intensified over the recent decades. Reasons for the long-standing close relations between Turkey and the EU can be summarized as geographical

closeness between countries, relative labour abundance of Turkey in trade, long-run process of Association Agreement and, at the end, Customs Union relations between parties.

Turkey's application as an associate member to the European Economic Community (EEC) in 1959 forms the basis of Turkey's current Customs Union (CU) relations which came into force in 1996. The CU between Turkey and the EU goes far beyond a basic customs union with free international trade and common external tariffs and has given new impetus to the liberalization process in Turkey. Apart from the liberalization of tariffs and adoption of the EU's common external tariff for industrial products and the industrial components of processed agricultural products by Turkey, the agreement also embraces a number of integration elements; which include the adoption of the Community's commercial policy towards third countries, the adoption of the free trade agreements with all the EU's preferential trade partners; co-operation on the harmonization of agricultural policy, mutual minimization of restriction on trade in services, harmonization of Turkey's legislation to that of the EU in the area of competition policy, intellectual and industrial property rights, public procurement and technical barriers to trade. The scope of the CU excludes Turkey from some of the crucial aspects of the common market: the common agricultural policy, including the free circulation of agricultural products; the free movement of labour and capital; and moves towards a single currency. Unlike countries in the European Economic Area, Turkey may also be subject to anti-dumping measures by the EU (Seymen, Bilici: 2009; Seymen Utkulu: 2004).

Figure 1:

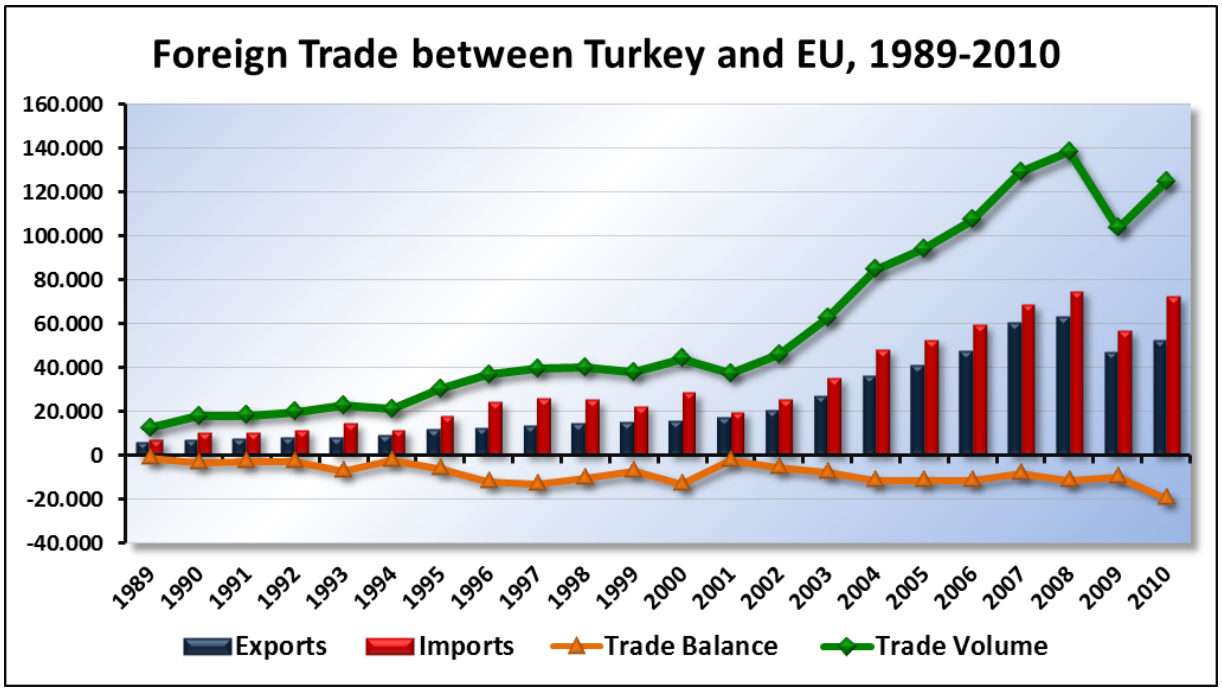


It is clear that the Association relations have caused the EU to become not only the most important market for Turkey (46% of Turkey's total exports in 2010) but also one of the main sources for imported goods (39% of Turkey's total imports in 2010). The EU27 countries account for nearly half of Turkey's total trade compared to other partners. Figure 1 and 2; represent Turkey's foreign trade relations with the EU27.

CU has provided trade creation effects on Turkey's trade flows by decreasing tariffs and non-tariff barriers. Since 1996, trade volume has increased in favour of importation, as a result trade deficits of Turkey with the EU have increased. In 2010, Turkey's exports to the EU27 totalled $52.7 billion while imports from the EU27 reached $72.3 billion with $19.5 billion trade deficit. The share of deficit originating from the trade with EU in total deficit has increased first with the effects of the CU, and has been followed by slight decreases (Turkey-EU27 trade deficit's share in total trade deficit is 6.5% in 2010).

Although total trade actualized in the EU is generally intra-EU trade, Turkey is an important trading partner for EU, nevertheless. In 2010, Turkey is the 6th country in the EU27's trade with the share of 4.5% in exports and 2.8% in imports. EU countries satisfy 70% of their demand in their internal market (European Commission, 2011).

Figure 2:



Trade conversion effect of the CU has also occurred as Turkey has started to apply common trade policies to third countries via preferential/free trade agreements. Besides that, the accession of new countries (with similar product structure) during the enlargement process of 2004 and 2007 increased the competition environment in the EU market (see Seymen and

Bilici, 2009 for the effects of Customs Union on country concentration of Turkey's trade in the EU market.)

Tables in Appendix[4] show the shares and the annual compound growth rates of Turkey's bilateral exports and imports with the individual EU countries. The long term data set gives the opportunity to observe the effects of the CU and accession of new members to the EU, as well.

Tables 1 and 2 (Appendix), show Turkey's exports to EU countries historically. In 2010, Germany, the UK, Italy and France have the highest shares in Turkey's exports to the EU. Although Germany is the most important trade partner of Turkey (1989:37.2%-2010:21.8%) in the EU, it is observed that, her share in Turkey's total exports as well as the growth rate of exports decreased over time. Germany has the highest share in Turkey's total exports too, and during this period, relative importance of Germany has decreased as well. (1989:18.71%-2010:10.1%). This also means a decrease in trade concentration of Turkey to this country. But "10% trade share" with one country is still high, meaning that Turkey's exports highly depend on any change in demand in this market.

Examining the trade relations with the EU Countries over the study period, it is observed that while the shares of exports to France, the UK and Greece have decreased until 1995, after the implementation of the CU, exports shares of those countries have started to increase again. But significant decrease can be observed at Germany's and Austria's exports share after the CU came into force. Austria's accession to the EU in the same year may have caused this diversion effect as well.

While Turkey's export growth rate to the EU is compared to Turkey's total export growth rate, countries which have higher growth rate than expected were happened to be Estonia, Lithuania, Spain, Slovenia, Slovakia, Latvia, Bulgaria, Romania, and Czech Republic. Thus, Turkey can be considered as a dynamic country which has very high export growth rate in exports to those countries.

Tables 3 and 4 (Appendix), show Turkey's imports from EU countries historically. In 2010, Germany is also the biggest source market within the EU followed by Italy, France and the UK. During the 1989-2010 periods, Poland, Romania, Estonia, Latvia, and Slovakia have increased their shares in Turkey's importation from the EU. On the other hand, Turkey's highest import growth rates are observed in the accession years of countries to EU such as Denmark, Portugal, Ireland and Spain, Bulgaria, Poland, Romania, Latvia, Estonia, Slovenia, Slovak Republic.

[4] Countries' shares in Turkey's foreign trade with EU27, and Annual Compound Growth Rates of trade with the EU27 are given in Appendix in detail.

V. Findings of Different Indices on Structure and Competitiveness of Turkey's R&D Intensive Goods Trade towards the EU27

In the first stage, we measured different ratios and indices to analyze the technology composition of Turkey's manufacturing trade with the EU27 as a whole, and individual EU countries in the market. Tables 5 and 6, show technology breakdown of manufacturing industries of Turkey's trade in the EU27 market.

Table 5 presents, classification of Turkey's manufacturing exports to EU27 based on technology intensity using ISIC Rev.3 breakdown of activity. In Turkey's total exports to the EU27, manufacturing accounts for almost the whole with a share of 95% in 2010. High-tech and medium-high tech industries together constitute nearly 45% of manufacturing exports to the EU27. On the other hand, high-tech industries manufacturing has been taking the smallest share (with %5, 2010) with slight increases over the period. Observations on long term data-set show that, in 2010, medium high-tech and low tech industries have the same percentage shares (%38, 2010) in manufacturing exports to the EU market, but while the share of medium high-tech industries has increased over time, the low-tech industries' share has continued to decrease in the meantime.

In the high-tech industry category, "Radio, TV and communication equipments" ranks first, followed by "pharmaceuticals". On the other hand, share of those industries in total manufacturing are 3.4% and 0.5% respectively in 2010. "Motor vehicles, trailers and semi-trailers" group has the biggest share in medium-high tech classification followed by "Machinery and equipment n.e.c.". Those groups of industries have quite high shares in both within the technology breakdown and in total manufacturing. Their shares in manufacturing are 22.6% and 8.2% respectively in 2010.

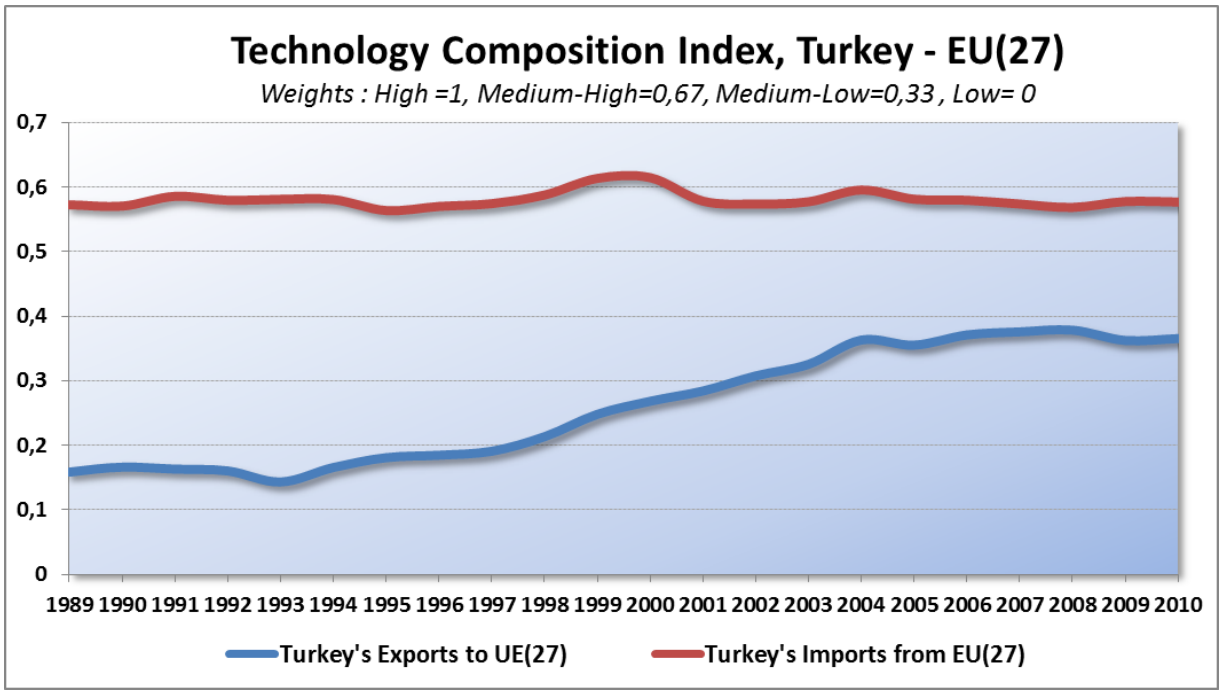
In 2010, Turkey's high-tech industries (R&D intensive goods) accounted for only 5% of total manufacturing. In the high-tech group 75% of the group consists of "Radio, TV and communication equipments" industries.

Table 6, presents classification of Turkey's manufacturing imports from the EU27 based on technology intensity. Turkey's manufacturing imports from EU27 account for almost 80% of total manufacturing, and medium high tech industries have the biggest share in the technology classification of manufacturing imports. Findings of technology classification of imports from total EU27 show that there is no significant change in the commodity composition during the long term period (1989-2010). Import Commodity Composition (MCC) Index in Figure 3 also supports those findings.

In the high-tech and medium high-tech classification, industries numbered 32 and 34 seem to be the most important industries both in exports and imports. For this reason, further analysis needs to be done to see; whether Turkey exports the goods that are more R&D intensive ones in those industry groups, in other words, horizontal and vertical specialization of those industries by Turkey in the EU Market should be analyzed further to have more information on Turkey's competitiveness in the EU Market.

Figure 3 presents the commodity composition of exports and imports of Turkey with the EU. Turkey's commodity composition of imports with the EU does not change much during the period, but follows a higher path compared to the exports commodity composition (XCC). High-tech commodities (which present the most R&D intensive goods group in our research) are weighted with unit, to analyze any change in the technology composition of Turkey, especially in exports.

Figure 3:



The commodity composition index findings show that high-tech composition of exports has increased during the period. From the beginning of 90's, in a decade period, R&D intensive goods trade increased the most, following with a steady stand period. Although there is an increase in R&D intensive goods' portion in Turkey's trade to the EU, the share of those goods in total manufacturing is still too low (5%).

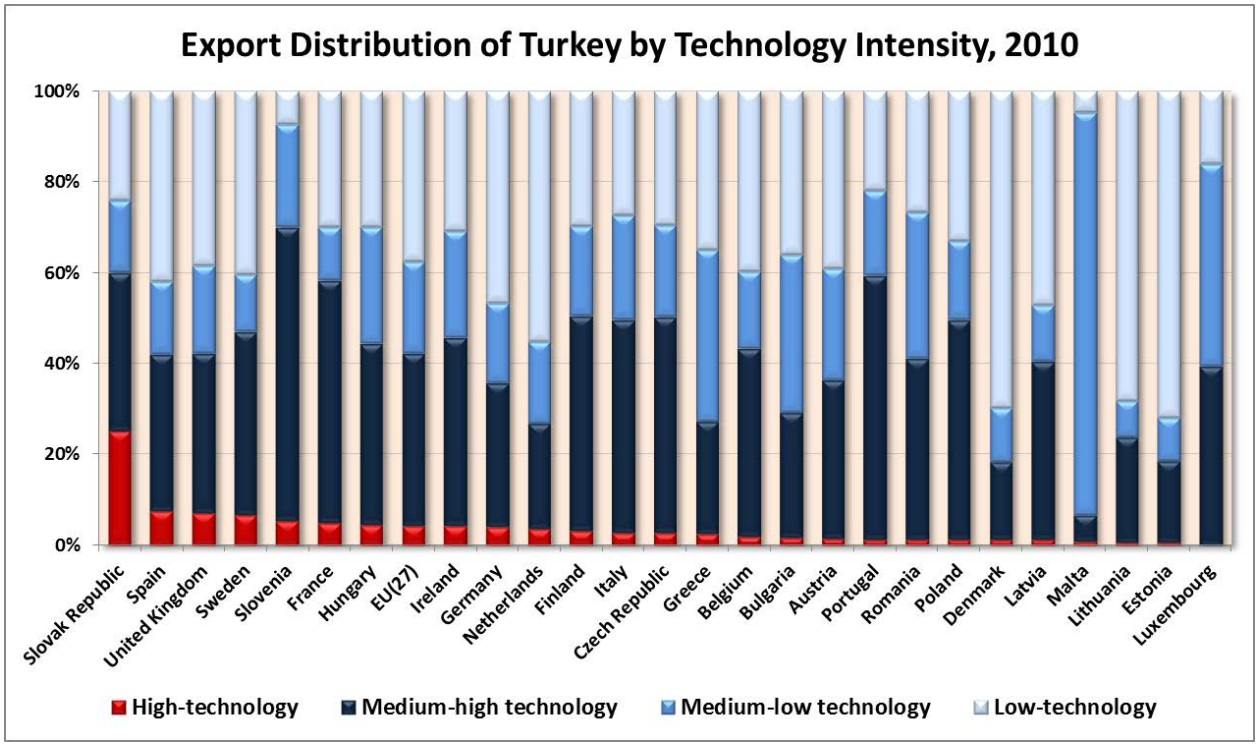
Following analysis will present trade concentration ratios to determine Turkey's important exporting and importing partners among the EU countries considering technological breakdown of manufacturing industries.

In Table 7 and 8, CR(1), shows the trade share of the country which has highest value in the technology classification of manufacturing, while CR(27), shows the cumulative trade shares of all countries in the EU in that classification.

Findings of concentration ratios show that Turkey concentrated mainly on one country, with 23% of high tech (the UK) and 18% of medium high tech (Germany) in manufacturing exports. Nearly half of Turkey's high tech exports to EU are concentrated on two countries: the UK and Germany, while medium high tech exports are concentrated on Germany, France and Italy. Furthermore, over 90% of high tech manufacturing exports go to ten countries. In this group, there are also new members of the EU such as Slovak Republic and Romania. The other half of the EU countries has quite small shares in Turkey's country composition of manufacturing exports, specifically in high and medium high tech groups. On the other hand, import concentration ratios reveal that Turkey has higher dispersion rates compared to her exports.

Turkey imports, nearly 21% of high-tech and 31% of medium high tech industries from just one country (Germany) while almost half of the high tech importation is compensated from three countries (Germany, France, Italy). Over 90% of high-tech importation is from thirteen of EU countries. In the country group from which Turkey's R&D imports are done intensively (nearly 85%), there are also new members of the EU such as Hungary, Romania, Czech Republic, and Poland.

Figure 4:



The Figures 4 and 5 show the export and import distribution of Turkey to EU Members by technology intensity.

In 2010, Turkey's high-tech industry (most R&D intensive goods) exports accounted for 5% of total manufacturing exports to the EU while Turkey's R&D goods imports constituted 13% of total manufacturing imports from the same market. If we focus especially on high-tech industries assuming that they are the most R&D intensive goods and analyze bilateral trade by individual members; in 2010, R&D goods exports have the highest share of one forth in our exports to Slovak Republic, followed by Spain and the UK. Similarly, in our imports from Hungary, Ireland, and Estonia, R&D goods imports have the highest shares respectively.

Figure 5:

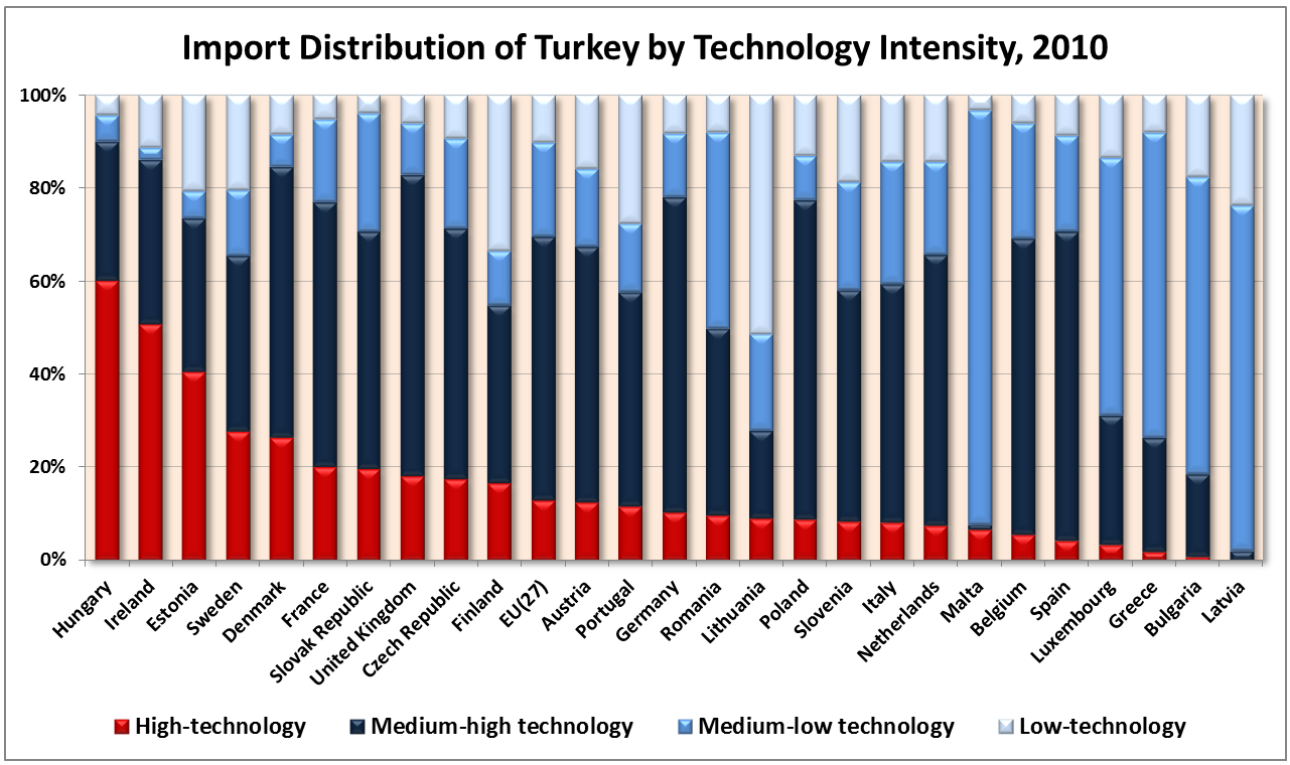


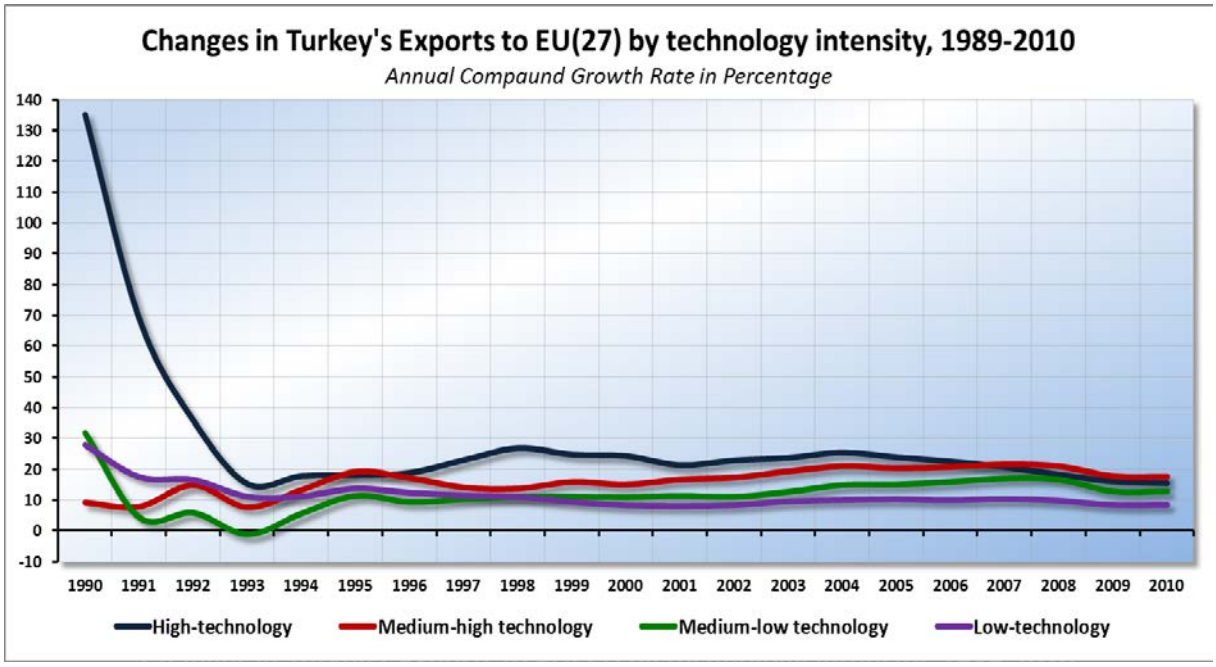
Figure 6 and 7 illustrate changes in Turkey's exports and imports to EU27 by technology intensity. Annual compound growth rates[5] of Turkish foreign trade according to different technology groups are calculated in order to see changes in four categories. The results at the first glance reveal that high tech industry exports have increased higher than the other

[5] The formulation below used to calculate annual compound growth rates:

$$CAGR = \left[\left(\frac{X_{ti}}{X_{t0}} \right)^{\left(\frac{1}{ti - t0} \right)} - 1 \right] * 100 \quad \text{where } i = 1,\ldots,n$$

categories in manufacturing. While after mid 90's high tech and medium high tech categories showed increases above the average[6], growth rates of low tech category started to decrease. On the other hand, it is interesting to note that during the last two decades, high tech and medium high tech industries has grown above the average generally, while the growth rates of the remaining industries have continued to stay below or around the average.

Figure 6:



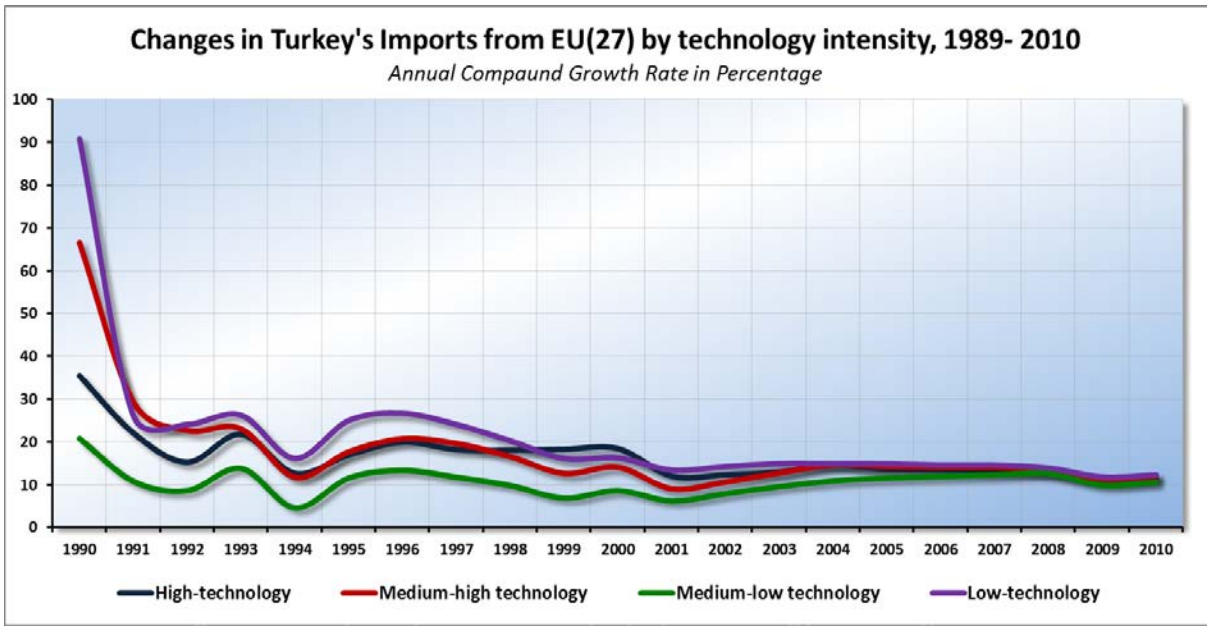
When changes in Turkey's imports from the EU27 by technology intensity are examined, it draws attention that there exits increases above or around the average in three main technology categories while the medium low tech category continues to stay below the average during the period. No major changes are observed in the growth rates of high tech and medium high tech industries. Low tech industry imports have increased with diminishing rates after 2001 reflecting a decrease in Turkey's dependency on low tech industries from Europe. The major reason for this might be Turkey's diversion of her importation to China in low tech manufacturing industries.

In the second stage we analyze, in detail, the competitiveness of Turkey in R&D goods vis-à-vis the EU27. First we focus on Turkey's R&D goods trade performance in the EU27 market as a whole, and then analyze bilateral trade in those goods in question with EU's individual countries.

[6] The average growth rate of exports (imports) is taken as the annual compound growth rate of the total manufacturing exports (imports) in order to compare with individual categories.

Table 9 (Appendix) shows summery findings of inter-industry and intra-industry structure of manufacturing goods and bilateral trade intensity ratios of exports and imports with the EU27 in total.

Figure 7:



In the aggregate level, findings show that Turkey has revealed comparative disadvantage in high tech and medium high tech categories. Only low tech industry group reveals comparative advantage in the aggregated level. Turkey's high tech trade category shows inter-industry type of trade in general and marginal intra-industry trade index (MIIT) confirms the claim of Turkey's comparative disadvantage in the sense that changes in trade within this group are import-oriented, resulting a decline in Turkey's competitiveness. Revealed Comparative Advantage (RCA) Index supports those findings, too. Conversely, aggregated findings associated with the categories other than the high-tech group show intra-industry type of trade. However, aggregated findings show that Turkey's trade pattern in medium high technology group converted from inter-industry to intra-industry trade during the period. In the medium-high tech group MIIT results show that, although there are export-led changes in some years, intra-industry trade pattern is more import-oriented during the long term. In all technology classes, only low tech industry category reveals comparative advantage with nearly intra-industry trade pattern and mainly with export-oriented changes.

SBTX and SBTM Indices' aggregated findings reveal that beginning from the end of 20th century, in high-tech and med-high tech categories, Turkey has concentrated on both exports and imports with the EU countries, compared to the rest of the world. In the aggregate level, concentration ratio of medium high tech group's exports shows slight increases towards the end of the period.

Although aggregated data set gives some idea about the picture, it still has a few shortcomings and causes loss of some important information at product level. From this point of view, table 10, 11, 12, 13 analyze main industries in different technology groups[7]. Remembering industries are ranked by their R&D intensities, the first industry group involves the most R&D intensive goods in both high tech group and all manufacturing. Although high tech category reveal comparative disadvantage in the aggregated level, there are some commodities that have comparative advantage at industrial and product levels, namely:

"Aircraft and spacecraft" (ISIC.Rev.3-No.353): Turkey's exports value to EU27 in this group account $101.1 million in 2010, while imports value $865.6 million in the same year. This industry group has 4.5% share in Turkey's high tech industry groups of her exports to EU27. Group ISIC.Rev.3 No.353, has revealed comparative disadvantage at aggregated level. However, when five-digit disaggregated level correspondence of this group in SITC Rev.3 classification is examined, in the case that RCA index is taken into consideration, it is found that 4 out of 19 (21%) sub-sectors (basic headings under SITC Rev.3) reveal comparative advantage in 2010.

The main sub-sectors that have RCA are;

"Aircraft ULW, 2001, 15000kg: Aeroplanes and other aircraft, mechanically-propelled (other than helicopters), of an unladen weight exceeding 2,000 kg but not exceeding 15,000 kg" (SITC.Rev.3-79230) in 2007 and 2010;

"Parts, Jet Turbo Prop. Eng.: Parts for turbojets or turbo propellers" (SITC.Rev.3-71491) since 2006,

"Aircraft Engines, IC.Sparking: Spark-ignition reciprocating or rotary internal combustion piston engines for aircraft "(SITC.Rev.3-71311) since 2006,

"Other parts of Aeroplanes or Helicopters" (SITC.Rev.3-79295) since 2001, and

"Turbo Propellers" (SITC.Rev.3-71481) in 2004 and 2005.

ITT index revealed that only 71491, 79295 and 79230 have intra industry trade pattern while MIIT index of 79230 has positive signs showing that there exists export-oriented changes in this commodity group.

Observing more disaggregated findings of SBTM, SBTX and SBTC indices in Group 353; countries that Turkey has export intensity are found to be Spain, France and Italy while the countries that Turkey has import intensity are, France (M>X) and the UK. Since the bilateral

[7] Main products at SITC.Rev.3 5-digit levels are also examined but in order to make the observations easier to read, they are aggregated under main industry groups.

import intensity is higher in trade with France, this may reflect competitive disadvantage of Turkey vis-à-vis France.

"Pharmaceuticals, medicinal chemicals and botanical products" (ISIC.Rev.3-No.2423): In 2010, Turkey's exports value to EU27 in this group account $240.6 million, while imports value is $3.4 billion. The share of those products in high tech exports to the EU27 is 11% in the same year. In the Group of ISIC.Rev.3 No.2423 although there is comparative disadvantage at aggregated level, 6 out of 63 (1%) sub-sectors reveal comparative advantage in 2010. IIT index is also confirmative about the intra-industry trade pattern of those groups. Some sub-sectors such as,

"Alkaloids of opium etc.: Alkaloids of opium and their derivatives; salts thereof" (SITC.Rev.3-54141) and

"Bandages, gauze etc. n.e.s.: Wadding, gauze, bandages and similar articles (e.g., dressings, adhesive plasters, poultices), impregnated or coated with pharmaceutical substances or put up in forms or packing for retail sale for medical, surgical, dental or veterinary purposes, n.e.s." (SITC.Rev.3-54191) revealed comparative advantage in full period.

On the other hand, Turkey seems to lose[8] comparative advantage in:

"Med. Penicillin: Medicaments containing antibiotics or derivatives thereof containing penicillin or derivatives thereof, with a penicillanic acid structure, or streptomycin or their derivatives, put up in measured doses or in forms or packing for retail sale (SITC.Rev.3-54213)" after 2000.

Observation on marginal changes of net trade in underlined product groups reveal that while the first group has some positive changes during the investigated period, latter two groups have negative changes conforming a decrease in competition in market of "Pharmaceuticals, medicinal chemicals and botanical products" (ISIC.Rev.3 No.2423).

SBTX, SBTM and SBC indices indicate that countries in which Turkey has export intensity are Slovenia, Belgium, Germany, Netherlands, Malta, Hungary and the UK. On the other hand, the markets that Turkey has import intensity in are Ireland, Denmark, England, Sweden, Austria and France.

"Office, Accounting and Computing Machinery" (ISIC.Rev.3-No.30); with $71.3 million exports in 2010 is the sector that Turkey has the smallest share in high tech industry exports to EU27. Turkey's importation in this product group from the EU Market accounted as $559.3

[8] Changes in values from RCA>1 to RCA<1, are interpreted as having or losing comparative advantage respectively. See, Seymen and Şimsek (2006) for consistency tests of RCA indices.

million in same year (2010). Group ISIC.Rev.3 No.30 reveals comparative disadvantage at aggregated level, but have revealed comparative advantage in 3 out of 30 sub-sectors at industrial level. The main item is; “Electronic calculators” (SITC.Rev.3-75121) which reveals comparative advantage since 2007. Additionally, despite having an inter-industry character in general, this product group’s trade pattern transforms into intra-industry type of trade in the same year with positive changes according to MIIT index.

“Data-processing equipment, n.e.s.” (SITC.Rev.3-75290) has RCA and intra-industry trade pattern in 2010 and MIIT index values indicate positive changes in favour of exports since 2007.

“Parts automatic data proc. machine : Parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with the machines of subgroups 751.1, 751.2, 751.9 and group 752” (SITC.Rev.3-75997) has RCA since 2008 and from then on IIT index shows that the trade structure changes in favour of intra-industry pattern. Marginal changes (MIIT) show export-orientation in some years and in 2010 at the end.

Although “Parts type word proc. machine” group (SITC.Rev.3-75991) has revealed comparative advantage between 2005 and 2009, index value has changed to revealed comparative disadvantage since then.

In the “Office, Accounting and Computing Machinery” group of high tech industry, countries in which Turkey has export intensity in bilateral trade in 2010 are Netherlands, Hungary, Belgium, Germany and Poland while the countries in which Turkey has import intensity are, Hungary (M>X), Czech Republic, Ireland, Luxemburg, the UK and Poland (M>X).

“Radio, TV equipments and apparatus” (ISIC.Rev.3-No.32) group; is the only sector in the high tech industry group which has revealed comparative advantage in aggregated industrial level since 2001. Turkey’s exports worth $1.7 billion (covers 75% of high tech exports to the EU27), and imports worth $2.2 billion (cover 25% of high tech imports from the EU27) in 2010. In this industry group 4 out of 72 (0.6%) items have revealed comparative advantages in 2010. Only the “Radio, TV equipments and apparatus” sector shows intra-industry type of trade with an average of approximately 90% after 2001 till 2010, and the major increase in this trade pattern in 2001 remains remarkable over the mentioned period. On the other hand, MIIT index demonstrates that while Group ISIC.Rev.3-no.32 has export-oriented changes after 2001, negative changes occurred beginning from 2007 reflect decreases in competitiveness in the EU Market since then.

More disaggregated index values give further information about sub-sectors in this industry group.

The most outstanding item which has revealed comparative advantage in this high tech industry group is;

"Colour TV receivers: Television receivers, colour (including video monitors and video projectors), whether or not incorporating radio-broadcast receivers or sound –or video-recording or reproducing apparatus" (SITC.Rev.3-76110) in almost over the whole period. On the other hand, Turkey's trade in this sector still has import-originated inter-industry characteristic. In addition, negative marginal changes show that Turkey has been losing her competition power in the market since 2006.

Surprisingly, "Black-white TV receivers: Television receivers, black and white or other monochrome (including video monitors and video projectors), whether or not incorporating radio-broadcast receivers or sound- or video-recording or reproducing apparatus" (SITC.Rev.3-76120) started to have revealed comparative advantage and intra-industry type of trade after 2006.

And "Portable radio w. recorder: Radio-broadcast receivers capable of operating without an external source of power (including apparatus capable of receiving radio-telephony or radio-telegraphy incorporating sound-recording or reproducing apparatus)" (SITC.Rev.3-76221) has revealed comparative advantage starting with 2009, and possesses intra-industry type of trade with positive changes in exports in recent years.

Additionally, disaggregated findings also give some idea for other sub-groups of this industry:

"Printed circuits" (STIC.Rev.3 no.77220) has revealed comparative disadvantage (RCD) since 2001 and its trade pattern turns into intra-industry type of trade after 2008 with negative marginal changes causing decreases in competitiveness of Turkey in the market.

"Part diodes etc. crystal: Parts of the devices of subgroup 776.3 and of the mounted piezoelectric crystals of item 776.81" (STIC.Rev.3 no.77688) has RCA only in 2007 and 2008.

"Other radio w. recording equipment: Other radio-broadcast receivers (including apparatus capable of receiving radio-telephony or radio-telegraphy incorporating sound-recording or reproducing apparatus)" (STIC.Rev.3 no.76281) has started to possess RCD since 1995.

"Parts, sound record equipment: Parts and accessories suitable for use solely or principally with the apparatus of division 76 with the apparatus falling within group 763" (STIC.Rev.3 no.76499) group reveals comparative advantage between 2006 and 2008 turning to comparative disadvantage since then, and in the same periods this sub-sector changes trade pattern from inter-industry to intra-industry type of trade.

SBT indices also give information on country concentration of this industry group. Countries in which Turkey has export intensity are Slovak Rep (X>M), Spain, the UK, Sweden, Ireland and France, while the markets in which Turkey has import intensity are, Hungary, Estonia, Slovak Republic, Sweden (M>X), Finland, Portugal, Romania, Poland, Lithuania, and Czech Republic. Since export intensity is higher than import intensity in trade with Slovak Republic, this result may be interpreted as bilateral competitiveness of Turkey in the market.

Medical, precision and optical instruments, watches and clocks (ISIC.Rev.3-No.33): In 2010, Turkey's exports value to EU27 in this group totalled $157 million, while imports value is $1.8 billion. The share of those products in high tech exports and imports with the EU27 are 7%, and 20% respectively in the same year. According to aggregated industrial index findings, Turkey has comparative disadvantage in the ISIC.Rev.3-No.33 group throughout the investigated period. IIT index results demonstrate that the pattern of trade in Group ISIC.Rev.3-No.33 has an intra-industry trade characteristic, while changes in marginal trade values are import-originated almost over the whole term.

Disaggregated dataset shows that 11 out of 299 (0.04%) sub-sectors in Group ISIC.Rev.3-No.33 have comparative advantage in 2010. In this industry group following sub-sectors:

"Artificial teeth and dental fittings" (SITC.Rev.3-89965),

"Other clock, watch, mvnt: Other clocks with watch movements (excluding clocks of heading 885.71)" (SITC.Rev.3-88573),

"Wall clock, battery, etc.: Wall clocks, battery, accumulator or mains powered" (SITC.Rev.3-88576) and,

"Other wall clocks" (SITC.Rev.3-88577) have revealed comparative advantage through nearly the whole period in hand, having intra-industry trade pattern recently. On the other hand, recent changes in trade are mostly in favour of importation during the time-period.

"Parts gas etc., meter: Parts and accessories of gas, liquid or electricity meters" group of Group 33 (SITC.Rev.3-87319) has RCA since 2006 while IIT index gives results in favour of intra-industry type of trade between 2004 and 2008 with positive changes towards exports for most of the years.

"Watches, battery, prec mtl: Wrist-watches, battery or accumulator powered, whether or not incorporating a stopwatch facility" group (SITC.Rev.3-88531) reveals comparative advantage since 2000 while IIT index generates results in favour of intra-industry trade for the recent years.

"Parts microfilm, photo enl: Parts and accessories for the equipment of headings 881.31 through 881.33" Group of (SITC.Rev.3-88134) and,

“Unassembled movement etc.”, (SITC.Rev.3-88598) deliver signs of revealed comparative advantage with intra-industry type of trade starting in 2010. On the other hand MIIT index for the latter sub-sector shows that changes in trade are mostly import oriented.

In addition, some sub-sectors start to reveal comparative disadvantage after 2004, such as;

“Parts, navigation instruments” (SITC.Rev.3-87412),

“Spectacle lenses, glass” (SITC.Rev.3-88415) and,

“Clock, watch parts nes“(SITC.Rev.3-88599) (from 2006 on). Additionally, beginning from 2004, those sub-sectors begin to give the indications of inter-industry trade while changes year by year are becoming more import-oriented.

To see the country concentration of exports and imports of the “Medical, precision and optical instruments, watches and clocks” high tech industry group, calculated SBT indices are examined. The results indicate that that countries in which Turkey has export intensity are Slovak Republic, Finland, France (X>M), Hungary, Latvia, Poland, Romania and Germany while the markets in which Turkey has import intensity are, Ireland, Slovenia, Denmark, France, Estonia, Germany, the UK, Lithuania, Czech Republic, Netherlands, Austria and Italy. Due to the higher export intensity in this industry group compared to the import intensity in bilateral trade with France, this result may point out to the bilateral competitiveness of Turkey in France market.

VI. Conclusion

This paper examined patterns of technological specialization of Turkey in the EU market based on OECD technology classification during the period of 1989 through 2010. Instead of focusing on one index, different and alternative indices have been measured, with the purpose of analyzing the pattern and competitiveness of R&D goods trade of Turkey in the EU market.

The motivation of the study emerged while seeking the answers to the following questions:

- What is the role of the R&D goods trade in the bilateral trade of Turkey with the EU?
- Which R&D intensive goods are sold by Turkey to the EU and which ones are bought by Turkey from the EU?
- How is the country composition within the EU formed in the R&D intensive goods trade of Turkey? Is there any change in the country composition of R&D intensive goods trade when the EU’s enlargement process is taken into account?

- Although the share of Turkey's R&D intensive goods exports is low, does it possess any competitiveness potential for the future?
- At which part of the "quality ladder" that was explained in Section III, does Turkey take place when the R&D intensive goods definition is taken into account?
- Do the goods subject to Turkey's trade with the EU belong to the category of direct R&D intensive goods which create technology or to the category of indirect R&D intensive goods which uses technological inputs intensively?
- If the goods traded by Turkey to the EU can be classified as indirect R&D intensive goods, to what extent is Turkey dependent on external resources / imports?
- What portion of the R&D intensive goods is produced by Turkey, what portion is imitated and what portion does the assembly comprise?

Having defined the R&D intensive goods which are the focus of this study as the high tech industry class, it is found that Turkey's R&D intensive goods exports to the EU only constitutes 5% of the total exports to the same direction in 2010. Although the technological commodity composition of Turkey's exports have improved slightly over the recent decade by including goods that belong to relatively higher technology classes in time, the share of high tech industries in total manufacturing exports to the EU market never showed a noteworthy progress in this time period but stayed steady around the average 5.5% share[9]. Additionally, the fact that there have been no major changes in the growth rate of the R&D intensive goods over the period contributes to the ongoing low share of these goods exports. However, when compared to the export share, R&D intensive goods have relatively greater but still minor shares in imports of Turkey from the EU (15% on the average). Nonetheless, the R&D intensive goods that Turkey sells and buys constitutes very little portion of all the traded manufacturing goods with the EU, all in all.

In the commodity level, Turkey exports three fourths of its total R&D intensive goods exports to the EU in the "Radio, TV equipments and apparatus" group following with the pharmaceuticals with 10% share, while importing mostly the pharmaceuticals as well. Although Turkey has comparative disadvantage in R&D intensive goods trade with an import oriented inter-industry trade pattern which highlights the absence of competitiveness, still a closer look reveals that, there are some commodities in which Turkey has become comparatively advantageous recently. As given in detail in Section V, colour TV receivers, black-white TV receivers and portable radio recorders in "Radio, TV equipments and

[9] The arithmetic mean of the shares of high technology industry exports to the EU in total exports to the EU market over 1989-2010 is 5.47%.

apparatus"; alkaloids of opium and bandages in "Pharmaceuticals"; aircraft engines, parts for turbojets and other parts for aeroplanes in "Aircraft and spacecrafts"; parts of automatic data processing machines in "Office, Accounting and Computing Machinery"; artificial teeth and dental fittings, wall clocks and batteries and watches in "Medical, precision and optical instruments, watches and clocks" constitute examples to the R&D intensive goods that Turkey has started to reveal comparative advantage. However, these results are preliminary in the sense that they need investigation in some additional dimensions.

Turkey exports more than one fifth of its R&D intensive goods exports to one country, namely the United Kingdom (in 2010) while with the exports to Germany the share increases to 45% and with France to 57%. Furthermore, Turkey sends over 90% of its total R&D intensive goods exports towards EU to 10 European countries. In this group of 10, new members of the EU such as Slovak Republic and Romania also take place. However, the remaining ones take minor shares in R&D intensive goods exports of Turkey to EU market. On the other hand, compared to the exports, R&D intensive goods imports of Turkey have a relatively dispersed country composition. Although nearly half of the R&D intensive goods imports are carried out from three countries, namely Germany, France and Italy, it takes 13 countries for Turkey to gather 90% of its R&D intensive goods imports, in which new members of the EU such as Hungary, Romania, Czech Republic, and Poland take place.

Besides, Sectoral-Bilateral Trade Intensity indices revealed that in the R&D intensive goods trade, Turkey has intensified mostly on importation from the EU compared to the rest of the world. To illustrate, Hungary, Ireland, Estonia, Sweden, Denmark, France, Slovak Republic, the UK, Czech Republic and Finland are the countries from which Turkey has intensified its imports in high tech goods. When it comes to exports, Turkey has high exports intensity ratios in trade with France, the UK, Spain, Sweden, Hungary, Slovak Republic, and Slovenia. Therefore, regardless of the duration of the membership, countries could play significant roles in Turkey's R&D intensive goods trade with the EU.

Although the share of Turkey's R&D intensive goods exports is low, until very recently, it was the group whose exports have grown fastest amongst the other technology groups in manufacturing. Furthermore, the R&D intensive goods exports of Turkey to the EU have increased above the annual growth rate of total manufacturing, especially after mid 90's. Despite the fact that R&D intensive goods exports of Turkey to EU have started to lose pace beginning from 2005, the group still constitutes one of the fastest growing industries in technology classes, together with the medium high tech industry. Imports on the other hand, have been growing at the rates around the growth rates of total manufacturing recently. Since R&D intensive goods exports have a greater annual compound growth rate (2010:

16%) than the imports (2010: 12%), this may lead to an expectation regarding possible competitiveness of Turkey in R&D goods trade to arise in the future.

However, with the information gathered throughout this study, it is not possible to find answers to the latter four questions. Nevertheless, by the findings generated out of the answers given to the former questions, a pre-knowledge is built which would constitute the inputs for the more elaborate future study that we are planning to conduct afterwards. In addition, the available results have given the opportunity to make an assessment of the current situation as well. In order to be able to answer the latter four questions, some further information such as the input-output analysis, value added shares and imported inputs ratios of the R&D intensive goods are needed. Furthermore, the goods in question should be investigated even in the level of 5 digit sub components, comparing the value added shares and imported inputs ratios of the exported and imported ones of these commodities. The relevant policy recommendations then could be formed based on the results of the aforementioned detailed analysis which ultimately constructs the subject of a further separate study.

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APPENDIX

Table 1: Shares of EU (27) Countries in Turkey's Total Exports to EU (27)

Countries' Shares In Total Exports To EU(27)																						
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Germany	37.20	41.28	44.21	43.42	44.08	41.91	41.26	41.29	39.11	36.88	35.50	33.07	30.59	28.75	27.32	23.91	22.86	20.21	19.86	20.44	20.83	21.79
France	10.17	9.93	8.92	9.60	9.28	9.06	8.46	8.38	8.66	8.81	10.18	10.58	10.80	10.46	10.32	10.03	9.20	9.61	9.89	10.44	13.22	11.49
Italy	16.73	14.91	12.59	11.18	9.06	11.01	11.94	11.51	10.33	10.52	10.91	11.42	13.35	11.64	11.66	12.71	13.58	14.09	12.39	12.34	12.54	12.35
Netherlands	6.96	5.87	6.15	5.93	6.22	6.62	6.04	6.13	5.80	6.00	6.05	5.58	5.09	5.17	5.57	5.84	5.97	5.30	5.00	4.96	4.52	4.67
Belgium-Luxembourg	4.47	4.20	3.72	3.44	3.66	3.95	3.70	3.92	4.20	4.52	4.04	4.13	3.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40	3.23	3.23	3.12	2.88	2.87	3.35	3.82	3.72
Luxembourg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.05	0.05	0.07	0.05	0.12	0.09	0.04	0.05
United Kingdom	10.53	10.04	8.76	9.45	10.03	9.47	9.30	10.04	11.25	11.75	11.86	13.00	12.40	14.82	13.40	15.16	14.31	14.22	14.28	12.87	12.59	13.73
Ireland	0.33	0.33	0.25	0.28	0.28	0.35	0.39	0.48	0.65	0.60	0.87	1.29	0.84	0.90	0.96	1.19	0.98	1.20	1.06	1.05	0.62	0.64
Denmark	1.27	1.17	1.13	1.10	1.02	0.98	1.09	1.18	1.28	1.35	1.29	1.40	1.55	1.79	1.66	1.74	1.77	1.73	1.67	1.50	1.45	1.45
Greece	2.14	1.88	1.86	1.73	1.43	1.80	1.72	1.88	2.22	2.50	2.64	2.79	2.71	2.89	3.36	3.20	2.72	3.34	3.75	3.83	3.48	2.76
Spain	2.25	2.68	3.08	3.55	2.43	2.47	2.90	2.89	3.27	3.47	4.95	4.55	5.42	5.51	6.53	7.16	7.28	7.76	7.58	6.39	6.01	6.71
Portugal	0.43	0.60	0.55	0.50	0.54	0.47	0.49	0.60	0.73	1.05	1.10	1.18	1.63	1.11	1.15	1.10	0.96	1.17	0.91	0.85	0.87	0.88
Austria	2.25	2.41	2.76	2.73	2.77	2.65	2.26	2.31	2.23	2.05	2.02	1.87	1.95	1.80	1.73	1.53	1.59	1.48	1.40	1.56	1.72	1.59
Sweden	1.44	1.08	0.94	0.99	0.81	0.91	0.86	0.97	1.09	1.27	1.18	1.27	1.22	1.45	1.67	1.53	1.60	1.64	1.46	1.45	1.59	1.80
Finland	0.58	0.34	0.25	0.25	0.18	0.33	0.34	0.36	0.37	0.39	0.43	0.48	0.41	0.66	0.78	0.70	0.72	0.75	0.68	0.58	0.42	0.56
Poland	1.22	1.39	1.83	2.21	2.73	2.66	2.23	2.02	1.90	1.96	1.42	1.11	1.37	1.68	1.77	1.91	2.01	2.21	2.38	2.50	2.81	2.86
Czech Republic	0.00	0.00	0.00	0.00	0.72	0.66	0.62	0.74	0.62	0.47	0.44	0.65	0.62	0.64	0.69	0.61	0.70	0.79	0.96	1.11	1.04	1.32
Hungary	0.42	0.41	0.45	0.32	0.47	0.62	1.31	0.82	1.00	0.77	0.79	0.70	0.97	0.98	1.04	0.96	0.92	1.02	1.28	1.08	0.95	0.84
Slovenia	0.00	0.00	0.00	0.03	0.34	0.21	0.27	0.20	0.26	0.26	0.25	0.30	0.36	0.34	0.37	0.52	0.80	0.87	0.81	1.02	1.27	0.68
Slovak Republic	0.00	0.00	0.00	0.00	0.19	0.14	0.13	0.16	0.19	0.12	0.11	0.13	0.16	0.16	0.22	0.30	0.30	0.36	0.47	0.48	0.46	0.86
Estonia	0.00	0.00	0.00	0.01	0.00	0.01	0.03	0.04	0.04	0.04	0.06	0.06	0.08	0.09	0.08	0.10	0.14	0.16	0.14	0.38	0.23	0.17
Lithuania	0.00	0.00	0.00	0.02	0.05	0.09	0.23	0.12	0.41	0.23	0.17	0.15	0.19	0.26	0.31	0.33	0.36	0.35	0.39	0.37	0.32	0.40
Latvia	0.00	0.00	0.00	0.00	0.04	0.02	0.05	0.02	0.02	0.08	0.06	0.10	0.09	0.10	0.10	0.10	0.20	0.16	0.17	0.16	0.14	0.13
Malta	0.27	0.22	0.19	0.36	0.66	0.33	0.40	0.21	0.42	0.30	0.40	0.46	0.36	0.69	0.57	0.27	0.68	0.47	1.03	1.51	1.40	0.78
Romania	0.90	1.12	1.36	2.05	1.89	1.87	2.47	2.50	2.67	3.16	1.74	2.08	2.23	2.77	3.19	3.38	4.32	4.90	6.03	6.29	4.72	4.93
Bulgaria	0.46	0.14	0.99	0.86	1.07	1.42	1.50	1.25	1.31	1.44	1.51	1.61	1.71	1.86	2.27	2.44	2.85	3.27	3.41	3.39	2.96	2.84
Cyprus	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total EU(27)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Turkish Statistical Institute based Database of Ministry of Economy

Table 2: Annual Compound Growth Rates of Turkey's Exports to EU (27) Countries

Annual Compound Growth Rates of Turkey's Exports to EU(27) Countries																						
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Germany		40.83	25.25	18.94	12.96	12.58	15.02	13.22	11.65	10.77	9.67	8.21	7.82	7.93	9.23	9.72	9.62	9.18	9.95	9.84	7.81	8.24
Austria		35.93	27.37	20.59	14.10	13.65	13.13	12.01	10.89	9.78	9.05	7.57	8.29	8.23	9.59	10.17	10.61	10.44	10.89	11.22	9.51	9.21
Belgium-Luxemburg		19.25	4.87	3.52	3.01	7.25	9.55	9.47	10.08	11.01	9.08	8.59	8.40	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00
Bulgaria		-61.21	68.72	39.31	34.03	37.98	37.83	28.77	26.56	25.96	24.21	22.67	22.31	22.66	25.20	26.37	26.71	27.07	27.30	25.98	21.84	21.13
Denmark		16.42	8.19	7.52	2.56	4.24	10.20	10.29	11.04	11.61	10.34	10.31	11.39	13.01	13.79	15.39	15.37	15.22	15.58	14.37	11.69	11.74
France		23.87	7.60	10.81	5.82	7.42	9.64	8.50	8.74	9.12	10.19	9.76	10.14	10.33	11.78	12.89	12.30	12.79	13.67	13.52	12.44	11.68
Finland		-24.46	-23.55	-14.75	-18.71	-1.52	3.56	4.26	4.86	6.32	7.13	7.65	6.43	11.32	14.13	14.49	14.57	14.94	14.94	13.40	9.23	10.92
Netherlands		7.00	8.03	7.10	5.29	8.83	10.40	9.53	8.46	9.07	8.65	7.20	6.76	7.61	9.90	11.70	11.93	11.37	11.78	11.36	8.61	8.95
Hungary		24.65	18.68	3.18	11.19	18.88	36.64	22.71	23.63	18.57	17.39	14.61	17.51	17.55	19.13	19.38	18.66	19.21	21.15	19.14	15.60	14.74
Malta		4.21	-2.27	24.40	35.92	14.51	21.17	7.52	17.31	12.28	14.76	14.93	12.35	18.51	17.95	13.10	19.78	17.07	22.73	24.21	20.57	16.87
Poland		44.82	40.68	37.62	32.41	28.42	24.99	19.82	17.26	16.89	11.89	8.47	10.68	12.82	14.68	16.41	16.57	17.20	18.14	17.73	15.71	15.62
Portugal		76.41	30.03	18.79	14.60	11.84	15.50	16.86	18.58	22.42	21.09	19.90	22.47	18.43	19.80	20.30	18.80	20.06	18.71	17.53	14.97	14.91
Romania		57.58	41.12	48.57	30.25	27.13	33.74	29.02	27.07	27.45	17.65	18.00	18.19	20.03	22.19	23.39	24.62	25.02	26.52	25.56	20.55	20.39
Greece		11.56	7.24	5.26	-2.04	6.18	9.04	9.54	11.49	12.82	12.53	12.07	11.79	12.69	15.33	16.09	14.73	16.19	17.46	16.91	13.72	12.40
United Kingdom		20.92	4.77	8.94	6.95	7.61	10.74	10.77	11.87	12.23	11.50	11.49	11.09	13.02	13.60	15.78	15.19	15.19	15.79	14.57	11.98	12.45
Ireland		28.61	-0.59	7.06	3.63	11.20	16.27	17.54	20.74	18.54	21.45	23.83	18.47	18.91	20.47	23.06	20.95	22.11	21.45	20.47	14.50	14.63
Spain		51.42	34.53	31.56	10.43	12.02	17.97	15.62	16.27	16.34	19.23	16.61	17.92	17.95	20.50	22.07	21.62	21.73	21.81	19.77	16.57	16.97
Sweden		-4.56	-7.12	-0.20	-6.28	0.39	3.87	5.43	7.13	9.35	8.06	8.18	8.10	10.16	12.86	13.48	13.76	14.06	13.95	13.41	11.55	12.22
Italy		13.11	-0.33	-1.22	-7.12	1.11	6.87	5.75	4.47	5.30	5.57	5.64	7.55	7.06	8.82	10.95	11.54	12.04	11.97	11.56	9.39	9.44
Estonia					-55.48	9.38	72.91	61.95	53.91	44.88	45.10	39.24	39.27	39.09	38.05	39.26	40.83	40.07	37.78	44.44	34.72	31.34
Lithuania					186.79	145.22	173.22	81.90	109.46	71.17	51.93	42.88	42.11	44.23	45.56	45.34	43.39	40.89	40.91	37.74	31.84	32.15
Slovenia					870.29	166.63	126.78	72.02	65.02	55.11	45.50	42.48	41.24	37.76	38.72	42.01	44.40	42.97	41.03	40.54	37.05	30.89
Latvia						-26.90	44.04	-12.01	0.86	32.04	22.64	27.78	23.95	24.20	24.89	26.49	32.06	28.77	29.28	27.00	21.47	20.20
Slovak Republic						-17.89	2.22	8.84	12.64	2.93	1.40	3.73	7.35	8.73	14.38	19.27	18.73	20.16	23.02	21.95	17.88	21.93
Czech Republic						7.21	14.28	17.25	9.35	3.71	2.50	8.34	8.26	9.41	12.53	12.99	14.36	15.51	17.84	18.07	14.25	15.72
Belgium															27.72	30.63	23.06	18.80	20.15	20.50	14.57	13.87
Luxemburg															-22.97	8.86	18.91	9.31	34.96	22.74	2.40	5.73
Total EU(27)		26.90	14.89	12.96	8.27	9.93	13.05	11.54	10.96	10.87	10.18	9.37	9.59	10.09	11.66	13.00	13.01	13.17	13.85	13.36	10.98	11.04
Total Turkey		11.48	8.14	8.19	7.19	9.27	10.91	10.39	10.72	9.80	8.62	8.24	8.61	9.10	10.54	11.95	12.21	12.46	13.14	13.64	11.48	11.48
Source: Turkish Statistical Institute based Database of Ministry of Economy																						

Table 3: Shares of EU (27) Countries in Turkey's Total Imports from EU (27)

Countries' Shares In Total Imports from EU(27)																						
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Germany	31.98	33.45	30.72	33.12	30.39	31.31	30.78	32.13	30.71	28.94	26.10	25.23	26.91	27.41	26.90	26.02	25.87	24.86	25.56	24.98	24.91	24.29
France	10.81	12.82	11.66	11.92	13.09	12.52	11.07	11.40	11.36	12.00	13.88	12.38	11.52	11.88	11.85	12.89	11.17	12.19	11.44	12.06	12.53	11.32
Italy	15.54	16.52	17.54	16.93	17.15	17.25	17.72	17.62	17.09	16.70	14.17	15.19	17.58	15.95	15.57	14.27	14.36	14.58	14.53	14.72	13.56	14.12
Netherlands	6.46	5.48	6.10	6.16	5.83	6.36	6.02	5.96	5.69	5.72	5.84	5.55	5.25	5.10	4.71	3.97	4.08	3.64	3.87	4.09	4.49	4.37
Belgium-Luxembourg	6.43	5.00	5.30	4.86	4.58	4.57	5.06	4.64	4.66	4.76	5.03	5.82	4.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.48	4.34	4.14	4.25	4.17	4.18	4.21	4.19	4.45
Luxembourg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	1.05	1.11	0.23	0.16	0.22	0.17	0.14	0.16
United Kingdom	10.56	9.70	11.08	10.47	10.37	10.05	10.15	10.32	10.58	10.61	9.72	9.63	9.65	9.49	9.96	8.97	8.91	8.65	7.98	7.12	6.14	6.48
Ireland	0.28	0.59	0.41	0.45	0.48	0.87	1.07	0.59	0.79	1.02	1.24	1.68	1.91	1.86	1.43	1.46	1.38	1.35	1.26	1.30	1.44	1.21
Denmark	0.57	0.97	0.91	0.92	0.91	0.83	1.05	0.71	0.77	0.82	0.91	0.69	0.99	1.14	0.98	0.71	0.83	0.75	0.96	1.21	1.03	0.94
Greece	1.46	1.23	0.73	0.78	0.81	0.90	1.11	1.17	1.65	1.26	1.28	1.51	1.34	1.22	1.22	1.24	1.38	1.76	1.38	1.54	2.00	2.13
Spain	3.63	3.30	3.04	2.83	2.89	3.27	3.28	4.25	4.88	5.05	5.60	5.88	5.38	5.52	5.70	6.76	6.75	6.45	6.33	6.08	6.67	6.70
Portugal	0.14	0.17	0.17	0.21	0.32	0.36	0.40	0.35	0.38	0.31	0.31	0.32	0.34	0.39	0.44	0.49	0.76	0.64	0.59	0.64	0.74	0.70
Austria	2.25	2.40	3.06	2.49	2.14	1.81	1.63	2.24	1.92	2.41	2.26	1.81	2.11	2.29	2.35	2.23	1.78	1.81	1.97	2.04	2.13	1.99
Sweden	2.28	2.05	2.44	1.96	2.87	2.43	2.87	2.71	3.43	3.95	6.41	5.05	2.74	2.08	2.34	2.33	2.71	2.51	2.50	2.55	3.34	2.66
Finland	1.39	0.99	0.91	0.91	1.19	1.22	1.34	1.05	1.31	1.67	2.24	2.54	1.52	1.45	1.37	1.47	1.83	1.92	1.76	1.58	1.41	1.54
Poland	1.42	2.01	1.43	0.76	0.61	0.59	0.36	0.33	0.35	0.32	0.36	0.58	0.85	0.95	1.18	2.07	2.36	2.42	2.40	2.64	3.21	3.63
Czech Republic	0.00	0.00	0.00	0.00	1.50	0.81	0.58	0.45	0.38	0.37	0.36	0.56	0.64	1.23	1.26	1.36	1.33	1.15	1.70	1.74	1.82	1.84
Hungary	1.26	1.06	1.27	0.86	0.58	0.48	0.39	0.39	0.41	0.60	0.42	0.76	0.94	1.27	1.19	1.47	1.80	2.17	2.07	1.72	1.74	1.91
Slovenia	0.00	0.00	0.00	0.04	0.31	0.27	0.20	0.07	0.11	0.17	0.21	0.20	0.25	0.22	0.26	0.42	0.41	0.34	0.34	0.33	0.44	0.40
Slovak Republic	0.00	0.00	0.00	0.00	0.15	0.23	0.24	0.10	0.09	0.09	0.20	0.18	0.25	0.44	0.59	0.48	0.72	0.74	0.94	1.21	1.44	1.28
Estonia	0.00	0.00	0.00	0.01	0.02	0.02	0.07	0.06	0.12	0.04	0.02	0.02	0.01	0.00	0.04	0.09	0.11	0.16	0.24	0.35	0.18	0.20
Lithuania	0.00	0.00	0.00	0.04	0.09	0.07	0.17	0.13	0.15	0.31	0.27	0.25	0.39	0.43	0.39	0.36	0.30	0.24	0.18	0.27	0.14	0.16
Latvia	0.00	0.00	0.00	0.00	0.02	0.04	0.02	0.01	0.01	0.01	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.03	0.09	0.10
Malta	0.02	0.01	0.01	0.04	0.05	0.10	0.16	0.03	0.10	0.03	0.06	0.14	0.05	0.11	0.21	0.15	0.09	0.03	0.14	0.22	0.24	0.27
Romania	3.46	1.94	1.89	2.26	2.02	1.97	2.04	1.81	1.51	1.36	1.78	2.36	2.43	2.58	2.72	3.53	4.34	4.49	4.54	4.74	3.99	4.77
Bulgaria	0.05	0.30	1.33	1.98	1.63	1.68	2.23	1.49	1.57	1.45	1.31	1.63	1.99	1.98	1.96	1.99	2.26	2.80	2.84	2.46	1.97	2.36
EU(27) Toplam	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Turkish Statistical Institute based Database of Ministry of Economy

Table 4: Annual Compound Growth Rates of Turkey's Imports from EU (27) Countries

Annual Compound Growth Rates of Turkey's Imports from EU(27) Countries																						
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Germany		58.66	21.10	19.43	19.76	10.59	16.63	19.82	17.52	14.26	10.31	11.36	7.65	9.35	10.96	12.27	12.06	11.84	12.21	11.91	9.72	10.38
Austria		62.02	44.25	22.19	19.79	6.36	11.28	19.71	15.86	16.42	12.63	11.58	8.62	10.81	12.69	13.77	11.93	12.09	12.79	12.80	10.80	11.20
Belgium-Luxemburg		17.93	12.12	7.54	11.41	3.71	12.78	14.28	13.45	11.73	9.84	12.76	6.88	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00
Bulgaria		867.13	551.50	308.40	193.09	126.27	122.69	95.73	82.68	68.83	56.77	56.83	48.96	47.34	46.47	45.97	44.49	44.21	42.57	39.50	33.81	34.65
Denmark		159.74	55.90	38.68	36.44	19.68	29.94	23.46	22.65	20.28	18.04	15.81	14.34	16.72	16.80	15.55	16.23	15.37	16.94	17.94	14.47	14.54
France		79.94	28.32	21.95	27.24	14.38	17.85	20.65	18.86	16.89	15.43	15.20	9.79	11.46	13.08	15.18	13.79	14.31	13.98	14.03	11.93	12.08
Finland		8.23	-0.17	2.45	16.71	8.23	16.58	14.98	17.19	17.87	18.05	20.16	10.02	10.99	12.19	14.26	15.50	15.67	15.11	14.12	11.16	12.39
Netherlands		28.68	20.05	16.17	18.23	10.69	15.99	18.36	16.25	13.99	11.44	12.23	7.34	8.66	9.84	10.19	10.35	9.74	10.43	10.67	9.10	9.77
Hungary		26.62	23.80	3.67	-0.14	-8.64	-3.61	1.15	2.54	6.40	0.87	8.61	6.55	10.68	11.83	14.96	16.07	17.16	16.79	15.22	12.90	14.07
Malta		-10.88	-10.97	46.54	50.87	51.38	64.14	25.34	42.77	21.37	24.46	35.08	16.51	25.61	32.20	29.79	24.08	16.83	26.39	28.38	25.41	26.29
Poland		114.39	23.93	-4.05	-1.83	-6.76	-6.56	-2.99	-0.80	-1.96	-1.87	4.82	4.59	7.30	10.86	16.71	17.21	17.10	16.96	17.13	15.71	16.94
Portugal		81.87	37.86	36.00	49.84	34.54	39.95	36.44	33.75	26.47	22.02	22.65	17.67	19.81	21.98	23.82	26.21	24.19	23.13	22.86	20.76	20.75
Romania		-15.11	-8.76	2.40	5.97	-0.82	7.49	9.19	6.48	4.17	5.34	9.90	6.02	8.16	10.42	13.99	15.17	15.26	15.34	15.27	11.89	13.57
Greece		27.46	-12.60	-4.40	4.53	0.82	12.14	15.99	19.90	13.67	11.04	14.11	8.42	9.09	10.87	12.55	13.15	14.74	13.27	13.67	12.84	13.86
United Kingdom		39.30	26.56	17.72	20.73	9.96	16.61	19.35	18.15	15.60	11.65	12.84	8.39	9.75	11.87	12.60	12.36	12.18	11.87	11.04	8.13	9.27
Ireland		222.09	49.56	38.83	39.16	39.60	47.08	33.58	34.73	33.62	30.85	34.03	28.26	28.10	26.30	27.16	25.53	24.60	23.59	23.00	20.66	19.98
Spain		37.91	13.03	8.57	14.52	8.71	15.38	22.45	22.57	19.84	17.56	18.88	12.83	14.28	16.02	18.64	18.04	17.41	17.18	16.49	14.53	15.15
Sweden		36.72	27.89	12.25	28.48	12.53	22.02	22.78	24.34	22.84	24.85	22.32	10.91	9.90	12.56	13.99	14.80	14.15	14.21	14.05	13.25	12.67
Italy		61.26	31.27	21.45	24.32	13.40	19.97	21.91	19.53	16.46	11.54	13.55	10.33	10.87	12.36	13.19	13.00	13.09	13.19	13.05	10.35	11.33
Estonia					490.77	80.69	182.91	123.60	121.41	61.33	34.98	36.69	9.69	7.30	33.42	43.47	42.60	44.22	45.84	46.48	35.52	35.94
Lithuania					75,743.48	3,376.48	856.87	454.47	239.10	199.53	139.93	175.27	51.66	50.79	70.08	61.62	65.94	74.02	84.81	73.56	75.29	73.21
Latvia					208.74	30.83	90.07	61.97	54.31	61.55	45.26	41.40	37.34	37.80	36.39	35.66	31.62	28.22	24.64	26.76	18.61	20.00
Slovenia					864.90	157.99	95.42	37.09	44.52	44.52	39.14	36.00	29.57	28.22	31.04	36.74	34.21	30.70	29.60	27.89	26.24	25.69
Slovak Republic						20.54	40.60	2.65	0.59	1.48	13.02	13.00	10.70	19.92	25.11	23.96	26.79	25.90	27.37	28.14	25.35	24.64
Czech Republic						-57.54	-31.53	-21.36	-18.48	-15.99	-15.35	-4.74	-6.81	3.98	7.13	10.29	9.98	8.98	12.56	12.49	10.03	11.07
Belgium															32.48	31.60	24.91	21.14	20.06	18.29	10.89	13.71
Luxemburg															176.46	100.16	-2.80	-8.25	2.54	-1.00	-7.10	-1.88
Total EU(27)		51.69	23.55	18.04	21.29	11.06	17.38	19.74	18.12	15.54	12.58	13.79	9.20	10.65	12.34	13.83	13.56	13.51	13.62	13.37	11.10	11.84
Total Turkey		41.22	15.44	13.14	16.84	8.06	14.57	15.62	15.07	12.59	9.92	11.92	8.36	9.53	11.15	12.91	13.32	13.68	14.11	14.35	11.56	12.45
Source: Turkish Statistical Institute based Database of Ministry of Economy																						

Table 5: Classification of Turkey's Manufacturing Exports to EU (27) based on Technology, in percentages

Classification of Turkey's Manufacturing Exports to EU(27) based on Technology, *in percentages*																							
ISIC Rev.3		**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
High Technology Industries (Share in Total Manufacturing)		2,18	3,99	4,66	3,58	2,73	2,98	2,68	3,17	4,64	6,73	6,92	8,07	6,66	8,22	8,23	9,42	8,58	7,55	5,60	4,40	4,90	4,55
353	Aircraft and spacecraft	0,00	0,00	0,19	0,49	1,75	6,92	6,70	8,41	9,96	7,31	21,77	20,13	13,27	3,44	9,90	10,61	4,11	6,85	8,67	8,28	4,51	4,48
2423	Pharmaceuticals	9,17	4,73	7,59	7,59	11,51	13,79	12,14	14,05	10,51	5,81	5,53	6,68	7,72	5,61	4,74	5,05	5,07	4,59	5,73	7,64	9,20	10,68
30	Office, accounting and computing machinery	7,33	7,63	5,16	5,28	3,38	3,09	1,56	3,15	2,89	2,73	4,10	2,80	2,93	1,12	0,82	0,74	0,82	1,12	1,98	2,61	2,35	3,16
32	Radio, TV and communications equipment	82,08	86,37	85,48	79,25	76,99	68,72	72,87	65,93	71,21	80,24	65,17	67,71	73,42	87,09	81,71	81,10	87,04	83,96	78,61	74,69	77,49	74,71
33	Medical, precision and optical instruments	1,42	1,27	1,58	7,38	6,38	7,47	6,73	8,47	5,43	3,92	3,43	2,68	2,66	2,75	2,84	2,50	2,96	3,48	5,01	6,78	6,45	6,96
Medium-High Technology Industries (Share in Total Manufacturing)		12,51	10,64	10,90	12,40	11,91	14,01	16,15	16,41	14,54	14,40	18,86	19,67	23,88	25,72	28,34	31,13	30,85	33,61	36,36	38,01	37,06	37,91
31	Electrical machinery and apparatus, n.e.c.	6,41	12,33	18,25	26,73	22,36	19,19	18,98	23,48	23,40	24,10	15,73	15,42	12,88	10,11	8,96	6,48	6,94	7,98	8,46	8,56	9,21	10,00
34	Motor vehicles, trailers and semi-trailers	17,72	16,50	18,28	18,43	18,63	22,78	28,47	28,97	20,81	23,94	41,21	41,05	51,78	53,68	55,65	63,70	63,95	63,92	65,27	63,59	60,83	59,54
24 excl. 2423	Chemicals excluding pharmaceuticals	62,78	55,70	44,90	34,94	37,30	35,26	30,36	22,67	25,57	21,34	17,31	18,72	14,18	12,15	9,69	8,93	7,73	8,06	6,68	7,17	7,02	8,56
352 + 359	Railroad equipment and transport equipment, n.e.c.	0,22	0,22	0,35	0,20	0,73	0,82	0,76	0,69	1,50	0,93	0,43	0,45	0,35	0,29	0,38	0,34	0,35	0,26	0,22	0,19	0,27	0,22
29	Machinery and equipment, n.e.c.	12,88	15,26	18,23	19,70	20,98	21,95	21,42	24,18	28,73	29,70	25,32	24,37	20,81	23,77	25,32	20,54	21,03	19,78	19,36	20,50	22,67	21,68
Medium-Low Technology Industries (Share in Total Manufacturing)		16,25	16,65	13,20	12,56	10,93	12,72	13,90	13,03	14,25	15,01	15,89	16,84	17,44	16,05	16,12	18,24	19,01	21,30	23,08	24,14	19,73	19,96
351	Building and repairing of ships and boats	0,96	1,20	3,31	2,72	8,13	3,30	2,28	2,03	3,90	4,34	3,93	2,49	4,12	6,09	7,40	6,40	11,39	7,47	8,65	10,75	10,62	5,25
25	Rubber and plastics products	7,38	5,07	8,65	11,39	14,26	15,49	16,12	14,84	15,12	16,62	16,05	17,46	17,63	19,58	19,27	16,55	17,37	16,30	15,86	16,23	21,70	23,56
23	Coke, refined petroleum products and nuclear fuel	24,53	20,47	25,18	20,06	16,09	17,35	13,00	12,25	6,77	5,86	8,00	6,14	7,35	9,12	6,15	5,84	7,82	12,90	11,48	13,42	8,81	7,43
26	Other non-metallic mineral products	19,84	24,71	30,34	33,05	33,41	27,75	24,48	27,28	25,44	22,27	21,28	22,19	22,13	23,82	20,75	16,65	14,90	11,29	10,31	10,16	13,94	11,98
27 + 28	Basic metals and fabricated metal products	47,29	48,56	32,51	32,78	28,12	36,11	44,11	43,60	48,76	50,91	50,74	51,73	48,77	41,38	46,43	54,56	48,51	52,04	53,70	49,44	44,93	51,78
Low Technology Industries (Share in Total Manufacturing)		69,06	68,72	71,25	71,47	74,43	70,29	67,28	67,39	66,57	63,87	58,33	55,41	52,03	50,01	47,31	41,20	41,57	37,55	34,97	33,45	38,31	37,58
36	Furniture; Manufacturing, n.e.c.	0,36	0,42	0,52	0,64	0,82	1,02	1,16	1,35	1,29	1,60	2,16	2,53	2,80	3,31	3,97	4,62	5,14	5,35	5,92	6,58	5,97	5,11
20 - 22	Wood, pulp, paper, paper products, printing and publishing	0,42	0,54	0,60	1,16	1,29	1,57	1,07	1,49	1,20	1,40	1,21	1,12	1,51	1,69	1,64	1,66	1,67	1,85	2,29	2,60	2,53	2,26
15 + 16	Food products, beverages and tobacco	7,77	9,41	11,19	9,95	10,43	12,67	12,07	13,65	13,68	12,33	12,71	10,43	10,73	8,02	8,61	9,13	12,47	11,07	11,06	11,87	12,43	13,00
17 - 19	Textiles, textile products, leather and footwear	91,45	89,63	87,70	88,24	87,46	84,74	85,70	83,51	83,83	84,66	83,93	85,92	84,97	86,99	85,78	84,58	80,72	81,73	80,73	78,95	79,07	79,64
Total Manufacturing Share in Total Exports to EU(27)		80,77	81,93	82,18	86,29	83,83	84,94	87,14	88,40	88,62	90,13	91,02	92,14	92,76	92,91	93,65	93,64	93,66	94,36	95,03	95,32	94,43	94,06
Total Manufacturing Share in Total Exports of Turkey		78,40	79,64	78,38	83,31	83,18	85,31	87,86	88,36	88,76	89,18	90,09	91,85	91,96	92,80	93,30	93,63	93,65	93,82	94,23	94,82	93,45	92,61
Turkey's Exports to EU(27) Share in Total Exports of Turkey		50,31	57,26	56,79	57,27	52,35	51,85	56,42	54,09	51,16	54,89	58,00	56,40	55,99	56,62	57,97	57,91	56,29	56,03	56,30	48,00	45,99	46,26
Source: Turkish Statistical Institute based Database of Ministry of Economy																							

Table 6: Classification of Turkey's Manufacturing Imports from EU (27) based on Technology, in percentages

Classification of Turkey's Manufacturing Imports from EU(27) based on Technology, *in percentages*																							
ISIC Rev.3		**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
High Technology Industries (Share in Total Manufacturing)		13,69	12,08	13,30	12,51	13,95	14,83	13,58	13,82	13,52	16,17	21,77	20,77	18,01	16,34	14,67	15,12	13,54	13,53	12,69	12,54	13,94	13,05
353	Aircraft and spacecraft	14,32	8,19	8,52	10,40	23,34	18,24	15,99	25,06	7,63	4,78	3,90	4,24	3,13	2,08	2,29	7,75	2,54	12,06	9,59	9,92	6,70	9,96
2423	Pharmaceuticals	18,90	18,16	17,47	18,56	15,58	18,35	19,98	15,66	18,43	18,92	18,36	16,86	28,18	31,72	35,24	33,29	34,91	32,03	34,84	39,14	41,76	38,59
30	Office, accounting and computing machinery	16,41	19,74	18,94	19,97	16,06	11,71	12,10	11,79	15,25	14,46	12,32	13,17	11,12	10,74	8,50	6,84	8,80	7,85	7,55	7,25	6,12	6,44
32	Radio, TV and communications equipment	29,32	26,81	29,03	24,87	21,81	26,80	31,04	27,88	38,45	43,54	52,19	53,72	42,16	40,33	38,65	35,95	34,23	29,06	27,37	21,82	25,38	24,68
33	Medical, precision and optical instruments	21,06	27,10	26,05	26,19	23,21	24,89	20,89	19,61	20,23	18,30	13,23	12,01	15,41	15,13	15,32	16,17	19,52	19,00	20,66	21,87	20,04	20,33
Medium-High Technology Industries (Share in Total Manufacturing)		53,24	57,75	58,03	58,69	56,60	55,53	54,88	56,30	57,96	56,14	52,04	53,63	50,93	52,55	55,74	58,17	57,55	56,85	56,85	55,19	55,39	56,65
31	Electrical machinery and apparatus, n.e.c.	9,84	9,21	10,81	10,19	8,98	9,53	7,83	8,07	8,33	9,47	11,49	8,49	10,34	9,26	7,07	6,70	6,96	7,51	8,67	10,50	12,66	10,98
34	Motor vehicles, trailers and semi-trailers	11,24	15,90	12,99	15,52	18,22	12,84	15,16	18,10	22,72	22,00	23,87	33,91	19,53	20,07	30,26	37,29	35,13	33,84	33,11	31,81	29,63	33,99
24 excl. 2423	Chemicals excluding pharmaceuticals	41,63	32,72	31,63	32,52	29,22	34,54	36,49	29,02	28,53	28,40	32,97	29,71	36,26	34,31	30,35	28,08	29,58	29,61	28,30	29,23	29,51	28,18
352 + 359	Railroad equipment and transport equipment, n.e.c.	0,64	0,45	0,30	0,27	1,76	1,87	0,59	0,59	1,11	0,38	0,67	0,57	1,12	0,24	0,68	0,38	0,33	0,39	0,51	0,58	1,74	1,35
29	Machinery and equipment, n.e.c.	36,65	41,73	44,28	41,51	41,81	41,22	39,92	44,23	39,31	39,75	31,00	27,32	32,75	36,11	31,64	27,56	28,01	28,65	29,41	27,88	26,44	25,50
Medium-Low Technology Industries (Share in Total Manufacturing)		24,03	18,92	19,29	18,48	18,79	18,20	18,13	16,47	15,32	15,03	14,18	14,34	17,16	17,54	17,22	16,41	18,16	19,14	19,90	22,12	20,24	20,13
351	Building and repairing of ships and boats	2,19	3,01	4,42	1,65	4,39	4,84	6,29	4,36	4,57	4,05	3,82	2,19	7,54	7,81	1,58	2,66	5,49	1,85	2,30	2,99	5,37	1,31
25	Rubber and plastics products	6,84	11,27	11,84	13,91	13,52	14,27	15,46	13,67	15,27	17,76	19,10	16,71	15,97	19,48	18,57	18,03	15,74	15,53	15,57	14,24	15,88	15,58
23	Coke, refined petroleum products and nuclear fuel	7,01	7,95	9,84	7,01	9,59	11,20	7,42	9,82	9,72	9,81	14,80	19,13	9,03	6,34	8,81	9,23	10,23	14,96	12,96	20,46	18,72	20,75
26	Other non-metallic mineral products	8,47	11,01	9,98	10,35	8,72	10,04	9,58	10,16	9,10	10,31	9,57	7,68	7,09	7,16	6,19	6,45	6,31	6,56	6,36	5,24	5,45	5,31
27 + 28	Basic metals and fabricated metal products	75,49	66,75	63,93	67,07	63,78	59,65	61,24	61,99	61,34	58,08	52,70	54,29	60,37	59,21	64,85	63,62	62,24	61,10	62,81	57,06	54,58	57,05
Low Technology Industries (Share in Total Manufacturing)		9,04	11,25	9,38	10,32	10,66	11,44	13,41	13,41	13,20	12,66	12,01	11,25	13,90	13,57	12,38	10,29	10,75	10,48	10,56	10,15	10,43	10,17
36	Furniture; Manufacturing, n.e.c.	6,33	6,50	8,02	8,71	8,11	7,06	8,73	9,05	9,89	10,38	10,00	9,98	10,17	7,84	8,10	9,61	10,98	13,32	14,91	14,19	12,05	11,64
20 - 22	Wood, pulp, paper, paper products, printing and publishing	36,44	23,19	30,52	28,33	37,76	28,44	25,08	23,74	24,35	26,02	29,32	32,60	29,52	28,08	30,89	30,73	35,97	35,17	35,04	35,89	38,59	39,00
15 + 16	Food products, beverages and tobacco	31,22	43,90	31,36	29,88	22,52	27,89	34,07	25,14	21,11	19,66	18,42	17,41	16,44	18,94	18,95	19,58	18,19	17,68	17,11	17,90	19,48	22,80
17 - 19	Textiles, textile products, leather and footwear	26,01	26,41	30,10	33,08	31,61	36,61	32,12	42,08	44,65	43,94	42,26	40,01	43,87	45,14	42,06	40,08	34,86	33,83	32,94	32,03	29,87	26,55
Total Manufacturing Share in Total Imports from EU(27)		93,39	94,54	93,94	95,29	93,33	92,77	92,39	94,02	95,46	96,43	96,61	96,29	96,84	95,45	94,94	95,62	96,08	95,88	94,40	92,53	93,55	92,19
Total Manufacturing Share in Total Imports of Turkey		70,35	73,50	78,11	78,73	81,07	78,02	79,99	80,66	81,95	84,98	83,44	81,09	78,94	80,34	80,39	82,23	80,68	79,08	78,76	74,40	78,79	78,35
Turkey's Imports from EU(27) Share in Total Imports of Turkey		43,64	46,87	49,98	49,56	50,68	50,03	50,48	55,75	53,79	55,06	55,40	52,34	47,88	49,83	50,68	49,32	45,13	42,56	40,34	37,04	40,15	38,94
Source: Turkish Statistical Institute based Database of Ministry of Economy																							

Table 7: Exports Concentration Ratio of Turkey (CR (n)) in Trade with EU (27)

Exports Concentration Ratio CR(n), 2010								
	High-technology		**Medium-high technology**		**Medium-low technology**		**Low-technology**	
CR (1)	23,23	(UK)	18,37	(DE)	19,30	(DE)	27,28	(DE)
CR (2)	44,26	(DE)	34,93	(FR)	33,38	(IT)	41,89	(UK)
CR (3)	57,18	(FR)	49,89	(IT)	47,18	(UK)	51,23	(FR)
CR (4)	68,88	(ES)	63,13	(UK)	55,11	(RO)	60,05	(IT)
CR (5)	76,88	(IT)	69,38	(ES)	62,01	(FR)	67,71	(ES)
CR (6)	81,84	(SK)	74,56	(RO)	67,53	(ES)	74,17	(NL)
CR (7)	85,48	(NL)	78,35	(BE)	72,36	(EL)	77,82	(BE)
CR (8)	88,10	(SE)	81,90	(PL)	76,62	(BG)	81,32	(RO)
CR (9)	89,76	(BE)	84,61	(NL)	80,58	(NL)	84,11	(DK)
CR (10)	91,37	(RO)	86,50	(SE)	84,24	(MT)	86,56	(PL)
CR (11)	92,92	(EL)	88,28	(BG)	87,17	(BE)	88,93	(EL)
CR (12)	93,87	(BG)	89,95	(CZ)	89,60	(PL)	91,29	(BG)
CR (13)	94,76	(PL)	91,62	(EL)	91,45	(AT)	93,19	(SE)
CR (14)	95,64	(CZ)	93,01	(AT)	92,80	(CZ)	94,75	(AT)
CR (15)	96,49	(HU)	94,40	(PT)	93,92	(SE)	95,79	(CZ)
CR (16)	97,33	(SI)	95,61	(SI)	95,01	(HU)	96,52	(LT)
CR (17)	98,00	(IE)	96,51	(HU)	95,91	(DK)	97,19	(HU)
CR (18)	98,52	(AT)	97,33	(SK)	96,77	(PT)	97,76	(SK)
CR (19)	98,99	(DK)	98,05	(IE)	97,57	(SI)	98,31	(IE)
CR (20)	99,37	(FI)	98,73	(DK)	98,36	(IE)	98,84	(PT)
CR (21)	99,67	(PT)	99,37	(FI)	99,06	(SK)	99,24	(FI)
CR (22)	99,85	(MT)	99,61	(LT)	99,56	(FI)	99,58	(EE)
CR (23)	99,93	(LT)	99,74	(MT)	99,72	(LT)	99,73	(LV)
CR (24)	99,96	(LV)	99,86	(LV)	99,84	(LU)	99,87	(SI)
CR (25)	100,00	(EE)	99,95	(EE)	99,93	(EE)	99,98	(MT)
CR (26)	100,00	(LU)	100,00	(LU)	100,00	(LV)	100,00	(LU)
EU(27)	100,00		100,00		100,00		100,00	

Source: Turkish Statistical Institute based Database of Ministry of Economy

Table 8: Imports Concentration Ratio of Turkey (CR (n)) in Trade with EU (27)

Imports Concentration Ratio CR(n), 2010								
	High-technology		**Medium-high technology**		**Medium-low technology**		**Low-technology**	
CR (1)	20,58	(DE)	30,63	(DE)	19,58	(IT)	21,00	(IT)
CR (2)	39,23	(FR)	44,23	(IT)	37,11	(DE)	41,84	(DE)
CR (3)	48,83	(IT)	56,31	(FR)	47,73	(FR)	47,96	(FR)
CR (4)	57,36	(UK)	64,74	(ES)	55,55	(RO)	54,06	(ES)
CR (5)	65,79	(HU)	71,64	(UK)	62,91	(ES)	59,46	(FI)
CR (6)	70,88	(IE)	76,30	(PL)	68,87	(BG)	64,61	(NL)
CR (7)	75,95	(SE)	80,72	(BE)	74,46	(EL)	69,57	(PL)
CR (8)	78,76	(RO)	84,45	(NL)	79,29	(BE)	74,32	(SE)
CR (9)	81,47	(CZ)	87,11	(RO)	82,89	(NL)	77,94	(UK)
CR (10)	84,14	(PL)	89,18	(AT)	86,22	(UK)	81,28	(AT)
CR (11)	86,55	(ES)	91,07	(CZ)	88,13	(CZ)	84,55	(BG)
CR (12)	88,70	(NL)	92,66	(SE)	89,92	(PL)	87,51	(RO)
CR (13)	90,83	(FI)	93,91	(SK)	91,68	(AT)	89,83	(BE)
CR (14)	92,93	(SK)	95,01	(FI)	93,43	(SK)	91,86	(PT)
CR (15)	95,02	(AT)	95,97	(HU)	95,09	(SE)	93,67	(CZ)
CR (16)	96,72	(BE)	96,78	(IE)	96,29	(MT)	95,10	(IE)
CR (17)	98,29	(DK)	97,57	(DK)	97,24	(FI)	96,47	(EL)
CR (18)	98,98	(PT)	98,31	(EL)	97,80	(PT)	97,24	(HU)
CR (19)	99,26	(EL)	98,92	(PT)	98,30	(HU)	97,99	(SI)
CR (20)	99,53	(SI)	99,51	(BG)	98,78	(SI)	98,64	(DK)
CR (21)	99,67	(BG)	99,87	(SI)	99,25	(LU)	99,16	(SK)
CR (22)	99,81	(MT)	99,95	(LU)	99,51	(DK)	99,48	(LT)
CR (23)	99,91	(EE)	99,98	(LT)	99,76	(LV)	99,70	(LU)
CR (24)	99,95	(LU)	99,99	(EE)	99,93	(IE)	99,86	(LV)
CR (25)	100,00	(LT)	100,00	(MT)	99,99	(LT)	99,94	(MT)
CR (26)	100,00	(LV)	100,00	(LV)	100,00	(EE)	100,00	(EE)
EU(27)	100,00		100,00		100,00		100,00	

Source: Turkish Statistical Institute based Database of Ministry of Economy

Table 9: Structure of the Bilateral Trade between Turkey and EU (27) and Competitiveness of Turkey

Structure of Turkey - EU(27) Trade and Turkey's Competitiveness by Technology Classification																							
	1989	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
High-technology																						
RCA B	0.16	0.33	0.35	0.29	0.20	0.20	0.20	0.23	0.34	0.42	0.32	0.39	0.37	0.50	0.56	0.62	0.63	0.56	0.44	0.35	0.35	0.35
IIT	20.95	33.79	36.70	32.32	17.32	25.84	22.35	20.03	28.15	37.11	34.03	33.92	47.73	**56.02**	**60.28**	**63.38**	**65.29**	**61.42**	**56.20**	46.86	45.52	41.18
MITT		-0.38	-0.39	-1.00	-1.00	**1.00**	-0.87	-0.86	-0.02	-0.25	-0.83	-0.67	**0.93**	-0.07	-0.23	-0.30	**1.00**	-0.81	-1.00	-1.00	**0.46**	-0.89
SBTX	0.79	**1.17**	**1.35**	**1.32**	**1.09**	**1.19**	**1.28**	**1.12**	**1.24**	**1.24**	**1.04**	**1.04**	**1.02**	**1.33**	**1.27**	**1.39**	**1.43**	**1.37**	**1.27**	**1.41**	**1.42**	**1.35**
SBTM	**1.21**	**1.04**	0.98	0.90	0.92	**1.05**	0.99	**1.10**	**1.01**	**1.06**	**1.15**	**1.14**	**1.22**	**1.19**	**1.15**	**1.09**	**1.13**	**1.15**	**1.17**	**1.25**	**1.12**	**1.06**
Medium-high technology																						
RCA B	0.23	0.18	0.19	0.21	0.21	0.25	0.29	0.29	0.25	0.26	0.36	0.37	0.47	0.49	0.51	0.54	0.54	0.59	0.64	0.69	0.67	0.67
IIT	29.41	20.35	21.51	24.91	18.48	31.40	31.64	24.80	21.39	24.62	37.88	32.32	**56.88**	**54.92**	**56.22**	**57.00**	**58.17**	**63.88**	**72.34**	**75.09**	**71.84**	**66.48**
MITT		-0.95	**0.24**	-0.48	-1.00	**1.00**	-0.68	-0.95	-1.00	**1.00**	**1.00**	-0.89	**1.00**	-0.52	-0.41	-0.41	-0.30	**0.00**	**0.12**	**0.21**	**0.15**	-0.56
SBTX	0.80	0.80	0.87	0.92	0.88	0.93	0.95	0.92	0.89	0.88	0.98	0.96	**1.05**	**1.04**	**1.06**	**1.10**	**1.08**	**1.10**	**1.13**	**1.24**	**1.23**	**1.20**
SBTM	**1.52**	**1.48**	**1.40**	**1.42**	**1.34**	**1.40**	**1.37**	**1.31**	**1.32**	**1.27**	**1.30**	**1.39**	**1.47**	**1.42**	**1.42**	**1.44**	**1.49**	**1.55**	**1.56**	**1.65**	**1.54**	**1.56**
Medium-low technology																						
RCA B	0.68	0.88	0.68	0.68	0.58	0.70	0.77	0.79	0.93	1.00	**1.12**	**1.17**	**1.02**	0.92	0.94	**1.11**	**1.05**	**1.11**	**1.16**	**1.09**	0.97	0.99
IIT	**66.32**	**70.25**	**61.02**	**62.78**	43.95	**68.08**	**65.75**	**55.52**	**61.50**	**70.67**	**83.89**	**76.32**	**92.56**	**82.90**	**83.74**	**90.58**	**88.93**	**93.81**	**98.65**	**97.57**	**89.92**	**84.92**
MITT		-0.14	-1.00	-0.08	-1.00	**1.00**	-0.39	-1.00	**0.64**	**1.00**	**1.00**	-0.62	**1.00**	-0.66	-0.14	**0.08**	-0.19	**0.14**	**0.29**	-0.29	-0.12	-0.40
SBTX	0.64	0.64	0.55	0.54	0.44	0.51	0.63	0.62	0.67	0.75	0.80	0.83	0.78	0.71	0.73	0.71	0.71	0.74	0.77	0.64	0.58	0.64
SBTM	**1.24**	**1.19**	**1.14**	**1.16**	**1.09**	**1.11**	**1.06**	**1.06**	**1.01**	0.98	0.94	0.89	0.87	0.87	0.86	0.79	0.80	0.81	0.78	0.83	0.85	0.83
Low technology																						
RCA B	**7.64**	**6.11**	**7.60**	**6.92**	**6.98**	**6.15**	**5.02**	**5.03**	**5.05**	**5.04**	**4.86**	**4.92**	**3.74**	**3.69**	**3.82**	**4.00**	**3.87**	**3.58**	**3.31**	**3.30**	**3.67**	**3.69**
IIT	30.29	42.03	34.03	35.32	45.68	36.12	47.55	**58.13**	**58.67**	**53.17**	48.40	**55.76**	47.93	**51.93**	**50.77**	**50.23**	**50.52**	**52.03**	**50.83**	**51.58**	49.06	**53.36**
MITT		**0.27**	**1.00**	**0.57**	-1.00	**1.00**	**0.22**	-0.44	**0.33**	**1.00**	**0.17**	-1.00	**1.00**	**0.21**	**0.54**	**0.53**	**0.47**	**0.25**	**0.56**	-0.13	-0.36	**0.13**
SBTX	**1.29**	**1.26**	**1.29**	**1.25**	**1.27**	**1.21**	**1.13**	**1.15**	**1.13**	**1.12**	**1.09**	**1.08**	**1.10**	**1.08**	**1.07**	**1.05**	**1.08**	**1.09**	**1.08**	**1.19**	**1.22**	**1.17**
SBTM	0.93	**1.00**	0.83	0.91	0.87	0.83	0.86	0.91	0.99	0.96	0.98	**1.00**	**1.12**	**1.03**	0.99	0.95	1.00	**1.00**	0.98	0.98	0.87	0.85
Source: Turkish Statistical Institute based Database of Ministry of Economy																						

Table 10: Competitiveness of Turkey in the Bilateral Trade with EU (27) with respect to Technology Classification (RCA Index)

RCA B (with respect to Manufacturing)		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
High-technology		0.16	0.33	0.35	0.29	0.20	0.20	0.20	0.23	0.34	0.42	0.32	0.39	0.37	0.50	0.56	0.62	0.63	0.56	0.44	0.35	0.35	0.35
353	**Aircraft And Spacecraft**	0.00	0.00	0.01	0.01	0.01	0.08	0.08	0.08	0.45	0.64	**1.77**	**1.85**	**1.56**	0.83	**2.43**	0.85	**1.02**	0.32	0.40	0.29	0.24	0.16
2423	**Pharmaceuticals, Medicinal Chemicals And Botanical Products**	0.08	0.09	0.15	0.12	0.14	0.15	0.12	0.21	0.20	0.13	0.10	0.15	0.10	0.09	0.08	0.09	0.09	0.08	0.07	0.07	0.08	0.10
30	**Office, Accounting And Computing Machinery**	0.07	0.13	0.10	0.08	0.04	0.05	0.03	0.06	0.07	0.08	0.11	0.08	0.10	0.05	0.05	0.07	0.06	0.08	0.12	0.13	0.13	0.17
32	**Radio, Television And Communication Equipment And Apparatus**	0.45	**1.06**	**1.03**	0.91	0.69	0.52	0.46	0.54	0.64	0.77	0.40	0.49	0.64	**1.09**	**1.19**	**1.41**	**1.61**	**1.61**	**1.27**	**1.20**	**1.07**	**1.06**
33	**Medical, Precision And Optical Instruments, Watches And Clocks**	0.01	0.02	0.02	0.08	0.05	0.06	0.06	0.10	0.09	0.09	0.08	0.09	0.06	0.09	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.12
Medium-High Technology		0.23	0.18	0.19	0.21	0.21	0.25	0.29	0.29	0.25	0.26	0.36	0.37	0.47	0.49	0.51	0.54	0.54	0.59	0.64	0.69	0.67	0.67
31	**Electrical Machinery And Apparatus N.E.C.**	0.15	0.25	0.32	0.55	0.52	0.51	0.71	0.85	0.70	0.65	0.50	0.67	0.58	0.53	0.64	0.52	0.53	0.63	0.62	0.56	0.49	0.61
34	**Motor Vehicles, Trailers And Semi-Trailers**	0.37	0.19	0.26	0.25	0.22	0.45	0.55	0.47	0.23	0.28	0.63	0.44	**1.24**	**1.31**	0.94	0.91	0.98	**1.12**	**1.26**	**1.38**	**1.37**	**1.17**
2411	**Basic Chemicals, Except Fertilizers And Nitrogen Compounds**	0.39	0.29	0.21	0.21	0.24	0.26	0.21	0.20	0.24	0.23	0.25	0.26	0.20	0.20	0.18	0.21	0.16	0.20	0.20	0.23	0.24	0.32
2412	**Fertilizers And Nitrogen Compounds**	0.16	0.54	0.28	0.15	0.21	0.87	0.17	0.16	0.19	0.04	0.02	0.01	0.08	0.24	0.14	0.27	0.10	0.11	0.12	0.38	0.14	0.45
2413	**Plastics In Primary Forms And Of Synthetic Rubber**	0.27	0.23	0.22	0.18	0.20	0.10	0.12	0.09	0.09	0.08	0.06	0.06	0.07	0.05	0.04	0.05	0.04	0.07	0.06	0.08	0.08	0.10
2421	**Pesticides And Other Agrochemical Products**	0.03	0.01	0.13	0.18	0.10	0.04	0.11	0.15	0.10	0.08	0.06	0.13	0.08	0.09	0.09	0.08	0.08	0.07	0.06	0.20	0.12	0.10
2422	**Paints, Varnishes And Similar Coatings, Printing Ink And Mastics**	0.05	0.04	0.04	0.05	0.09	0.07	0.09	0.15	0.12	0.14	0.13	0.13	0.11	0.09	0.09	0.10	0.11	0.12	0.11	0.14	0.15	0.14
2424	**Soap And Detergents, Cleaning And Polishing Preparations, Perfumes And Toilet Preparations**	0.07	0.31	0.25	0.18	0.51	0.67	0.88	0.85	0.47	0.35	0.31	0.37	0.28	0.33	0.36	0.34	0.32	0.30	0.27	0.30	0.32	0.30
2429	**Other Chemical Products N.E.C.**	0.23	0.25	0.19	0.21	0.26	0.13	0.15	0.06	0.04	0.05	0.04	0.07	0.05	0.06	0.08	0.06	0.06	0.08	0.07	0.08	0.06	0.09
2430	**Man-Made Fibres**	0.81	0.62	0.75	0.53	0.52	0.65	0.72	0.75	0.79	0.66	0.62	**1.03**	0.66	0.58	0.62	0.74	0.65	0.63	0.61	0.52	0.42	0.57
352	**Railway And Tramway Locomotives And Rolling Stock**	0.01	0.01	0.27	0.00	0.01	0.04	0.07	0.02	0.02	0.07	0.05	0.08	0.03	0.14	0.04	0.08	0.12	0.08	0.06	0.06	0.03	0.02
359	**Transport Equipment N.E.C.**	0.94	0.31	0.18	0.23	0.56	**1.04**	**1.52**	0.77	**1.41**	**1.68**	**1.17**	0.99	**1.22**	**1.52**	**1.95**	**1.80**	**1.45**	0.99	**1.12**	**1.01**	**1.96**	**1.72**
29	**Machinery And Equipment N.E.C.**	0.08	0.07	0.08	0.10	0.11	0.13	0.16	0.16	0.18	0.19	0.30	0.33	0.30	0.32	0.41	0.40	0.40	0.41	0.42	0.51	0.57	0.57
Medium-Low Technology		0.68	0.88	0.68	0.68	0.58	0.70	0.77	0.79	0.93	1.00	**1.12**	**1.17**	**1.02**	0.92	0.94	**1.11**	**1.05**	**1.11**	**1.16**	**1.09**	0.97	0.99
351	**Building And Repairing Of Ships And Boats**	0.30	0.35	0.51	**1.12**	**1.08**	0.48	0.28	0.37	0.79	**1.07**	**1.15**	**1.33**	0.56	0.71	**4.39**	**2.67**	**2.17**	**4.50**	**4.36**	**3.92**	**1.93**	**3.96**
25	**Rubber And Plastics Products**	0.73	0.40	0.50	0.56	0.61	0.76	0.80	0.86	0.92	0.93	0.94	**1.23**	**1.12**	0.92	0.97	**1.02**	**1.16**	**1.17**	**1.18**	**1.24**	**1.33**	**1.50**
23	**Coke, Refined Petroleum Products And Nuclear Fuel**	**2.36**	**2.26**	**1.75**	**1.94**	0.98	**1.08**	**1.34**	0.99	0.65	0.60	0.61	0.38	0.83	**1.32**	0.65	0.70	0.80	0.96	**1.03**	0.72	0.46	0.36
26	**Other Non-Metallic Mineral Products**	**1.58**	**1.97**	**2.08**	**2.17**	**2.23**	**1.93**	**1.96**	**2.13**	**2.60**	**2.16**	**2.49**	**3.39**	**3.17**	**3.05**	**3.14**	**2.87**	**2.47**	**1.91**	**1.88**	**2.11**	**2.49**	**2.24**
27	**Basic Metals**	0.44	0.67	0.34	0.30	0.19	0.40	0.56	0.53	0.76	0.95	**1.23**	**1.16**	0.90	0.67	0.61	0.85	0.68	0.87	0.93	0.83	0.59	0.71
28	**Fabricated Metal Products, Except Machinery And Equipment**	0.35	0.51	0.36	0.43	0.46	0.49	0.53	0.62	0.70	0.73	0.83	**1.02**	0.68	0.58	0.90	**1.32**	**1.26**	**1.20**	**1.20**	**1.30**	**1.45**	**1.55**
Low Technology		**7.64**	**6.11**	**7.60**	**6.92**	**6.98**	**6.15**	**5.02**	**5.03**	**5.05**	**5.04**	**4.86**	**4.92**	**3.74**	**3.69**	**3.82**	**4.00**	**3.87**	**3.58**	**3.31**	**3.30**	**3.67**	**3.69**
36	**Furniture; Manufacturing N.E.C.**	0.43	0.39	0.49	0.51	0.70	0.89	0.67	0.75	0.66	0.78	**1.05**	**1.25**	**1.03**	**1.55**	**1.87**	**1.93**	**1.81**	**1.44**	**1.31**	**1.53**	**1.82**	**1.62**
20	**Wood And Of Products Of Wood And Cork, Except Furniture; Articles Of Straw And Plaiting**	0.73	0.66	0.47	0.81	0.34	0.71	0.76	0.72	0.59	0.37	0.46	0.29	0.43	0.44	0.39	0.27	0.18	0.24	0.26	0.24	0.23	0.14
21	**Paper And Paper Products**	0.02	0.04	0.08	0.13	0.09	0.23	0.13	0.13	0.12	0.13	0.11	0.13	0.18	0.20	0.18	0.19	0.17	0.18	0.21	0.24	0.24	0.22
22	**Publishing, Printing And Reproduction Of Recorded Media**	0.22	0.26	0.26	0.59	0.57	0.50	0.38	0.81	0.60	0.81	0.48	0.23	0.13	0.19	0.18	0.28	0.21	0.21	0.21	0.21	0.28	0.29
15	**Food Products And Beverages**	**2.02**	**1.34**	**2.87**	**2.39**	**3.33**	**2.83**	**1.70**	**2.66**	**3.27**	**3.24**	**3.38**	**2.95**	**2.45**	**1.52**	**1.77**	**1.96**	**2.86**	**2.38**	**2.25**	**2.31**	**2.52**	**2.20**
16	**Tobacco Products**	0.05	0.06	0.14	0.10	0.51	**1.82**	**9.36**	**6.23**	**3.11**	0.71	0.79	**2.68**	**1.54**	**2.85**	**1.13**	0.55	0.39	0.52	0.57	0.49	0.39	0.42
17	**Textiles**	**21.18**	**13.60**	**15.19**	**11.26**	**12.26**	**9.82**	**8.47**	**5.68**	**5.75**	**5.88**	**5.53**	**6.39**	**4.58**	**5.35**	**6.08**	**6.57**	**4.92**	**5.12**	**4.75**	**4.96**	**5.75**	**6.60**
18	**Wearing Apparel; Dressing And Dyeing Of Fur**	**584.54**	**286.32**	**202.02**	**150.89**	**137.82**	**88.88**	**92.27**	**47.43**	**38.01**	**37.51**	**43.63**	**39.34**	**24.17**	**20.99**	**21.54**	**24.74**	**35.31**	**29.17**	**26.08**	**23.81**	**30.40**	**34.18**
19	**Tanning And Dressing Of Leather; Luggage, Handbags, Saddlery, Harness And Footwear**	0.99	0.91	**1.13**	**1.31**	**1.18**	**1.17**	**1.07**	0.85	0.92	0.79	0.98	0.86	0.71	0.75	0.95	**1.12**	**1.12**	**1.02**	**1.09**	**1.09**	**1.28**	**1.57**
Total Manufacturing		0.86	0.87	0.87	0.91	0.90	0.92	0.94	0.94	0.93	0.93	0.94	0.96	0.96	0.97	0.99	0.98	0.97	0.98	**1.01**	**1.03**	**1.01**	**1.02**

Source: Turkish Statistical Institute based Database of Ministry of Economy

Table 11: Intra-Industry Trade (IIT) Structure of Turkey's Bilateral Trade with EU (27) with respect to Technology Classification (IIT Index)

IIT		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
High-technology		20.95	33.79	36.70	32.32	17.32	25.84	22.35	20.03	28.15	37.11	34.03	33.92	47.73	**56.02**	**60.28**	**63.38**	**65.29**	**61.42**	**56.20**	46.86	45.52	41.18
353	**Aircraft And Spacecraft**	0.00	0.00	1.01	1.80	1.41	10.66	10.02	7.20	35.21	**51.65**	**93.28**	**98.47**	**85.96**	**78.33**	**69.78**	**77.71**	**87.86**	40.24	**52.22**	40.68	33.14	20.91
2423	**Pharmaceuticals, Medicinal Chemicals And Botanical Products**	10.75	10.06	17.80	14.61	13.09	20.07	14.20	18.15	17.09	13.07	11.63	14.98	15.82	12.87	10.96	13.16	13.15	11.93	12.08	11.28	12.19	13.39
30	**Office, Accounting And Computing Machinery**	9.93	14.56	11.54	9.70	3.91	7.54	3.18	5.77	6.03	8.24	12.77	8.33	15.27	7.78	7.95	9.50	8.60	11.91	18.61	19.82	20.31	22.61
32	**Radio, Television And Communication Equipment And Apparatus**	49.36	**79.15**	**79.65**	**76.10**	**50.14**	**55.12**	45.60	41.68	46.54	**59.14**	40.77	40.95	**70.62**	**91.32**	**95.39**	**97.73**	**89.59**	**87.71**	**94.22**	**97.68**	**94.72**	**87.96**
33	**Medical, Precision And Optical Instruments, Watches And Clocks**	1.57	1.89	2.69	10.30	5.08	8.53	7.79	9.17	8.42	9.30	10.10	8.71	10.27	13.20	14.82	13.39	13.71	15.03	17.30	17.33	17.33	16.31
Medium-High Technology		29.41	20.35	21.51	24.91	18.48	31.40	31.64	24.80	21.39	24.62	37.88	32.32	**56.88**	**54.92**	**56.22**	**57.00**	**58.17**	**63.88**	**72.34**	**75.09**	**71.84**	**66.48**
31	**Electrical Machinery And Apparatus N.E.C.**	20.18	26.33	33.83	**54.37**	40.43	**54.54**	**62.57**	**58.38**	**50.37**	**52.66**	48.50	**51.87**	**66.22**	**58.45**	**66.31**	**55.67**	**58.08**	**66.57**	**71.25**	**65.76**	**57.93**	**62.39**
34	**Motor Vehicles, Trailers And Semi-Trailers**	42.74	21.04	29.01	28.91	18.85	49.67	**52.16**	36.95	19.77	26.50	**57.48**	37.83	**97.39**	**99.36**	**83.67**	**81.02**	**85.49**	**93.99**	**94.47**	**90.84**	**92.99**	**93.18**
2411	**Basic Chemicals, Except Fertilizers And Nitrogen Compounds**	44.53	29.86	24.21	24.60	21.13	32.00	23.94	17.66	20.47	22.55	27.70	24.04	29.33	26.64	24.40	27.24	21.87	27.63	29.89	33.67	32.95	38.59
2412	**Fertilizers And Nitrogen Compounds**	21.25	49.86	30.42	18.90	18.14	**78.21**	19.52	14.39	16.93	4.34	2.26	0.77	12.75	31.24	19.75	33.83	14.24	15.55	19.05	49.36	21.16	**50.57**
2413	**Plastics In Primary Forms And Of Synthetic Rubber**	33.30	24.61	25.19	21.56	17.99	13.45	14.26	8.65	8.24	8.28	7.69	6.09	11.73	7.44	6.56	6.94	6.35	10.55	10.44	12.43	11.98	13.51
2421	**Pesticides And Other Agrochemical Products**	4.42	1.48	15.77	21.89	9.37	5.52	13.18	13.97	9.30	8.28	7.60	12.35	12.98	13.62	12.68	10.73	11.27	10.37	10.66	29.10	18.71	13.82
2422	**Paints, Varnishes And Similar Coatings, Printing Ink And Mastics**	6.76	4.84	4.56	6.28	8.40	9.24	10.60	13.89	11.07	13.97	14.97	12.64	16.37	13.62	13.03	13.73	15.80	17.83	18.33	22.40	22.82	18.78
2424	**Soap And Detergents, Cleaning And Polishing Preparations, Perfumes And Toilet Preparations**	10.08	31.75	28.10	22.07	39.51	**66.07**	**71.93**	**58.21**	36.59	32.19	32.99	32.66	37.89	40.92	43.66	40.13	39.48	38.83	38.65	41.75	42.76	36.27
2429	**Other Chemical Products N.E.C.**	28.70	26.50	21.56	25.15	22.12	17.85	17.77	5.88	4.13	4.86	5.60	6.79	7.63	8.55	11.27	8.24	8.75	12.29	11.70	12.95	9.74	11.99
2430	**Man-Made Fibres**	**74.45**	**55.39**	**64.89**	**52.58**	39.92	**64.70**	**63.17**	**53.54**	**55.00**	**53.09**	**56.89**	**70.37**	**71.42**	**62.07**	**64.44**	**70.86**	**66.75**	**66.51**	**70.53**	**62.43**	**52.23**	**59.63**
352	**Railway And Tramway Locomotives And Rolling Stock**	2.03	0.75	29.65	0.65	1.26	5.27	8.31	1.53	1.76	7.35	6.44	8.39	4.44	19.25	6.44	11.62	16.21	12.53	9.32	9.76	4.28	2.79
359	**Transport Equipment N.E.C.**	**81.52**	32.06	20.55	26.70	42.93	**86.87**	**98.60**	**54.28**	**80.56**	**95.87**	**86.18**	**68.21**	**98.37**	**91.97**	**80.03**	**85.43**	**94.93**	**87.92**	**99.70**	**93.62**	**75.59**	**87.86**
29	**Machinery And Equipment N.E.C.**	11.43	7.95	9.45	12.65	9.72	18.05	18.32	14.37	16.10	18.99	32.05	29.34	40.32	39.89	47.67	45.81	47.09	48.95	**54.34**	**61.32**	**64.91**	**59.48**
Medium-Low Technology		**66.32**	**70.25**	**61.02**	**62.78**	43.95	**68.08**	**65.75**	**55.52**	**61.50**	**70.67**	**83.89**	**76.32**	**92.56**	**82.90**	**83.74**	**90.58**	**88.93**	**93.81**	**98.65**	**97.57**	**89.92**	**84.92**
351	**Building And Repairing Of Ships And Boats**	35.68	35.38	49.54	**86.03**	**68.50**	**52.05**	30.21	30.33	**54.97**	**73.94**	**85.24**	**82.40**	**64.02**	**71.19**	45.71	**66.88**	**75.18**	43.72	41.14	45.25	**76.49**	**50.70**
25	**Rubber And Plastics Products**	**69.78**	39.15	48.61	**54.49**	45.79	**71.81**	**67.59**	**58.86**	**61.10**	**67.66**	**75.54**	**78.38**	**97.50**	**83.15**	**85.56**	**86.35**	**93.84**	**96.21**	**97.70**	**95.90**	**94.49**	**94.52**
23	**Coke, Refined Petroleum Products And Nuclear Fuel**	**73.12**	**83.57**	**94.15**	**86.65**	**64.20**	**88.88**	**92.36**	**64.81**	47.26	49.22	**56.19**	33.04	**82.44**	**99.10**	**66.91**	**68.78**	**75.97**	**86.47**	**95.32**	**76.90**	**55.52**	41.81
26	**Other Non-Metallic Mineral Products**	**92.50**	**90.31**	**85.66**	**81.29**	**96.20**	**82.44**	**88.83**	**98.43**	**89.24**	**91.70**	**76.74**	**71.86**	**54.23**	**59.60**	**58.59**	**63.79**	**69.15**	**79.38**	**75.07**	**70.30**	**64.74**	**75.01**
27	**Basic Metals**	48.65	**58.27**	36.06	33.46	16.99	45.59	**52.54**	40.78	**53.08**	**68.66**	**88.51**	**75.80**	**86.32**	**68.08**	**64.04**	**77.80**	**68.14**	**81.55**	**90.29**	**84.08**	**66.43**	**69.04**
28	**Fabricated Metal Products, Except Machinery And Equipment**	41.14	47.96	37.77	44.72	36.26	**53.35**	**50.87**	46.33	**50.07**	**56.91**	**69.83**	**69.82**	**72.81**	**61.78**	**81.58**	**99.26**	**98.24**	**97.50**	**96.76**	**93.77**	**90.29**	**93.01**
Low Technology		30.29	42.03	34.03	35.32	45.68	36.12	47.55	**58.13**	**58.67**	**53.17**	48.40	**55.76**	47.93	**51.93**	**50.77**	**50.23**	**50.52**	**52.03**	**50.83**	**51.58**	49.06	**53.36**
36	**Furniture; Manufacturing N.E.C.**	48.18	39.03	47.87	**51.09**	**50.75**	**79.08**	**59.64**	**53.35**	47.83	**59.82**	**80.64**	**79.24**	**93.25**	**90.83**	**81.98**	**82.14**	**83.87**	**93.37**	**92.38**	**85.65**	**79.26**	**90.71**
20	**Wood And Of Products Of Wood And Cork, Except Furniture; Articles Of Straw And Plaiting Ma**	**69.70**	**57.59**	46.68	**70.81**	27.98	**69.08**	**65.47**	**51.70**	44.09	33.48	45.79	26.06	**53.21**	**50.61**	45.92	33.97	24.09	32.06	37.03	34.61	31.73	19.09
21	**Paper And Paper Products**	3.29	5.32	9.78	16.15	8.72	28.63	15.39	11.80	10.61	13.32	13.29	12.81	26.89	26.93	24.11	24.94	23.53	24.42	31.39	35.15	33.14	28.12
22	**Publishing, Printing And Reproduction Of Recorded Media**	27.50	27.61	28.54	**56.54**	43.33	**53.98**	38.74	**56.39**	44.26	**61.22**	47.45	21.30	20.39	25.37	24.60	34.01	27.20	28.24	30.75	31.30	37.50	35.26
15	**Food Products And Beverages**	**80.65**	**90.23**	**70.42**	**76.59**	**76.59**	**64.81**	**96.02**	**87.23**	**78.04**	**72.15**	**62.87**	**78.42**	**64.98**	**91.78**	**84.78**	**81.39**	**62.69**	**69.24**	**66.84**	**66.21**	**64.19**	**75.78**
16	**Tobacco Products**	6.71	7.21	16.34	13.16	39.73	**85.45**	28.67	49.71	**80.46**	**56.25**	**67.59**	**83.00**	**86.76**	**62.36**	**92.97**	**58.38**	46.21	**58.32**	**67.33**	**59.75**	49.25	47.50
17	**Textiles**	12.09	21.35	18.60	23.29	28.85	24.24	31.20	**53.23**	**53.42**	47.39	43.80	45.92	40.98	38.94	35.23	33.94	41.96	39.49	38.43	37.50	34.37	33.82
18	**Wearing Apparel; Dressing And Dyeing Of Fur**	0.47	1.13	1.53	1.95	2.95	3.00	3.34	8.32	10.44	9.29	6.86	9.23	9.31	11.60	11.39	10.29	7.14	8.28	8.30	9.18	7.55	7.57
19	**Tanning And Dressing Of Leather; Luggage, Handbags, Saddlery, Harness And Footwear**	**84.17**	**71.73**	**84.25**	**93.71**	**72.85**	**92.69**	**80.99**	**58.51**	**61.20**	**60.47**	**77.66**	**62.27**	**75.38**	**73.57**	**84.63**	**90.97**	**92.14**	**89.37**	**98.32**	**97.48**	**96.49**	**92.33**
Total Manufacturing		**84.65**	**76.17**	**78.19**	**80.49**	**65.22**	**84.94**	**77.96**	**65.37**	**64.64**	**70.76**	**78.41**	**68.89**	**91.76**	**87.23**	**86.94**	**85.37**	**86.69**	**88.51**	**93.96**	**93.21**	**91.18**	**85.32**

Source: Turkish Statistical Institute based Database of Ministry of Economy

Table 12: Marginal Intra-Industry Trade (MIIT) Structure of Turkey's Bilateral Trade with EU (27) with respect to Technology Classification (MIIT Index)

MITT		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
High-technology			-0.38	-0.39	-1.00	-1.00	1.00	-0.87	-0.86	-0.02	-0.25	-0.83	-0.67	0.93	-0.07	-0.23	-0.30	1.00	-0.81	-1.00	-1.00	0.46	-0.89
353	Aircraft And Spacecraft		1.00	-0.92	-0.95	-0.99	1.00	-0.93	-0.95	1.00	1.00	1.00	-0.42	0.19	-0.57	0.69	-0.52	0.28	-0.77	1.00	-1.00	0.50	-0.98
2423	Pharmaceuticals, Medicinal Chemicals And Botanical Products		-0.92	-0.08	-1.00	-0.95	1.00	-0.98	-0.49	-0.87	-1.00	-0.98	-0.58	-0.36	-0.98	-0.95	-0.81	-0.87	-1.00	-0.87	-0.93	0.98	-0.74
30	Office, Accounting And Computing Machinery		-0.79	-1.00	-1.00	-1.00	1.00	-1.00	-0.87	-0.93	-0.74	0.06	-1.00	1.00	-1.00	0.97	-0.80	-0.95	0.82	0.24	-0.23	0.81	-0.68
32	Radio, Television And Communication Equipment And Apparatus		0.34	-0.18	-0.01	-1.00	0.58	-0.72	-0.76	-0.44	-0.12	-1.00	-0.58	1.00	0.56	0.14	0.19	1.00	0.62	-1.00	-0.21	-0.87	-1.00
33	Medical, Precision And Optical Instruments, Watches And Clocks		-0.98	-0.85	0.12	-1.00	1.00	-0.96	-0.87	-1.00	-0.77	0.96	-1.00	0.97	-0.68	-0.79	-0.90	-0.85	-0.72	-0.70	-0.82	0.83	-0.89
Medium-High Technology			-0.95	0.24	-0.48	-1.00	1.00	-0.68	-0.95	-1.00	1.00	1.00	-0.89	1.00	-0.52	-0.41	-0.41	-0.30	0.00	0.12	0.21	0.15	-0.56
31	Electrical Machinery And Apparatus N.E.C.		-0.64	-0.34	0.63	-1.00	1.00	-0.13	-0.52	-1.00	-0.23	-1.00	1.00	1.00	-1.00	0.14	-0.85	-0.26	-0.03	-0.16	-0.61	-0.20	-0.08
34	Motor Vehicles, Trailers And Semi-Trailers		-0.99	1.00	-0.71	-1.00	1.00	-0.45	-0.92	-1.00	1.00	1.00	-0.94	1.00	-0.05	-0.36	-0.23	0.53	0.48	0.52	1.00	-0.14	-0.55
2411	Basic Chemicals, Except Fertilizers And Nitrogen Compounds		-1.00	-0.11	-0.72	-1.00	1.00	-0.92	-1.00	-0.33	1.00	1.00	-0.95	1.00	-0.91	-0.86	-0.61	-1.00	-0.18	0.86	-0.22	0.64	-0.44
2412	Fertilizers And Nitrogen Compounds		1.00	-1.00	-1.00	0.71	1.00	-1.00	-0.20	1.00	-0.70	0.88	-1.00	1.00	0.25	-1.00	-0.40	-1.00	-0.77	-0.41	0.30	-0.10	0.86
2413	Plastics In Primary Forms And Of Synthetic Rubber		-0.96	0.89	-1.00	-1.00	-0.04	-0.85	-1.00	-0.95	0.92	0.72	-1.00	1.00	-1.00	-0.96	-0.92	-0.97	-0.64	-0.91	-0.61	0.86	-0.81
2421	Pesticides And Other Agrochemical Products		-1.00	-0.13	-0.14	-1.00	0.68	-0.75	-0.81	-1.00	-1.00	0.80	1.00	0.90	-0.78	-0.91	-0.96	-0.83	-0.93	-0.86	0.09	0.33	-1.00
2422	Paints, Varnishes And Similar Coatings, Printing Ink And Mastics		-1.00	-1.00	-0.90	-0.75	0.95	-0.87	-0.73	-1.00	-0.25	0.97	-1.00	1.00	-0.94	-0.89	-0.84	-0.74	-0.69	-0.80	-0.36	0.79	-1.00
2424	Soap And Detergents, Cleaning And Polishing Preparations, Perfumes And Toilet Preparations		-0.49	-0.82	-1.00	1.00	1.00	-0.20	-1.00	-1.00	0.00	-0.55	-0.75	1.00	-0.44	-0.48	-0.73	-0.65	-0.65	-0.62	-0.38	0.78	-1.00
2429	Other Chemical Products N.E.C.		-0.79	-1.00	0.12	-1.00	0.12	-0.82	-1.00	-1.00	-0.63	1.00	-0.36	1.00	-0.87	-0.79	-1.00	-0.87	-0.55	-0.92	-0.78	0.69	-0.72
2430	Man-Made Fibres		-0.87	0.83	-1.00	-1.00	1.00	-0.40	-1.00	-0.32	0.31	0.78	0.45	0.46	-0.90	-0.16	-0.01	-1.00	-0.37	0.04	-0.19	0.00	-0.04
352	Railway And Tramway Locomotives And Rolling Stock		0.86	1.00	0.23	-0.99	1.00	0.97	-1.00	-0.98	1.00	-0.95	-0.37	-1.00	1.00	-0.97	1.00	1.00	-0.99	-0.95	-0.88	-0.99	0.44
359	Transport Equipment N.E.C.		-0.91	-1.00	-0.44	-0.36	1.00	0.19	-0.92	0.52	0.39	-0.12	-0.87	1.00	1.00	0.35	0.01	-0.34	-1.00	1.00	-0.65	0.98	-0.86
29	Machinery And Equipment N.E.C.		-0.96	-0.70	-0.28	-1.00	1.00	-0.81	-0.93	1.00	1.00	1.00	-0.92	1.00	-0.61	-0.29	-0.62	-0.42	-0.39	-0.20	1.00	0.49	-0.69
Medium-Low Technology			-0.14	-1.00	-0.08	-1.00	1.00	-0.39	-1.00	0.64	1.00	1.00	-0.62	1.00	-0.66	-0.14	0.08	-0.19	0.14	0.29	-0.29	-0.12	-0.40
351	Building And Repairing Of Ships And Boats		-0.65	-0.28	0.89	-0.40	-0.14	-0.99	0.71	0.56	1.00	1.00	0.08	-0.48	-0.12	1.00	-0.08	0.18	0.44	0.63	0.45	-1.00	-0.01
25	Rubber And Plastics Products		-1.00	0.17	-0.25	-0.97	1.00	-0.39	-1.00	-0.24	0.06	1.00	-0.02	1.00	-0.53	-0.06	-0.11	0.48	0.08	0.26	0.21	0.01	0.05
23	Coke, Refined Petroleum Products And Nuclear Fuel		-0.36	-0.83	0.26	-1.00	1.00	0.60	-1.00	-1.00	1.00	-0.23	-1.00	1.00	1.00	-1.00	-0.26	-0.07	-0.02	0.75	-0.54	-0.03	-1.00
26	Other Non-Metallic Mineral Products		0.13	1.00	0.49	-1.00	1.00	-0.07	-0.48	1.00	-0.35	1.00	0.81	1.00	0.13	0.47	0.16	-0.24	-1.00	0.45	1.00	-0.09	-1.00
27	Basic Metals		0.34	-0.31	-1.00	-1.00	1.00	-0.37	-1.00	0.75	1.00	1.00	-0.63	1.00	-1.00	-0.42	0.10	-1.00	0.28	0.16	-1.00	-0.09	-0.24
28	Fabricated Metal Products, Except Machinery And Equipment		-0.15	-0.96	-0.12	-1.00	1.00	-0.55	-0.61	1.00	0.27	1.00	-0.30	0.20	-1.00	1.00	0.31	-0.05	-0.07	0.32	0.21	0.02	-0.07
Low Technology			0.27	1.00	0.57	-1.00	1.00	0.22	-0.44	0.33	1.00	0.17	-1.00	1.00	0.21	0.54	0.53	0.47	0.25	0.56	-0.13	-0.36	0.13
36	Furniture; Manufacturing N.E.C.		-0.72	0.47	-0.39	-0.51	1.00	-0.61	-0.64	-0.95	1.00	1.00	-0.29	1.00	1.00	0.39	0.17	0.10	-0.42	0.11	1.00	0.02	-1.00
20	Wood And Of Products Of Wood And Cork, Except Furniture; Articles Of Straw And Plaiting Ma		-0.55	-1.00	0.90	-1.00	1.00	-0.50	-0.85	-1.00	-1.00	1.00	-1.00	1.00	-0.56	-0.62	-0.93	-1.00	1.00	-0.47	-1.00	0.59	-1.00
21	Paper And Paper Products		-0.74	-0.59	-0.22	-1.00	1.00	-1.00	-1.00	-1.00	1.00	-0.94	-0.90	1.00	-0.73	-0.84	-0.67	-0.82	-0.70	-0.23	-0.15	0.52	-0.97
22	Publishing, Printing And Reproduction Of Recorded Media		-0.72	1.00	-0.06	-0.69	0.77	-0.32	-0.27	-1.00	1.00	-0.28	-1.00	0.64	0.99	-0.78	0.34	-0.86	0.81	-0.58	-0.55	1.00	0.38
15	Food Products And Beverages		-0.37	1.00	-0.58	0.24	0.89	-0.55	0.96	1.00	0.73	0.89	-1.00	1.00	-1.00	0.38	0.34	0.90	-1.00	0.48	0.42	-0.20	-0.21
16	Tobacco Products		1.00	-0.70	0.74	1.00	0.95	1.00	-1.00	-1.00	-0.97	0.50	1.00	-0.58	0.43	-1.00	-1.00	-0.91	1.00	1.00	-1.00	-1.00	0.32
17	Textiles		0.30	1.00	0.47	-1.00	1.00	0.46	-1.00	0.45	1.00	0.45	-1.00	1.00	0.66	0.78	0.75	-0.96	0.97	0.70	0.34	-0.46	0.72
18	Wearing Apparel; Dressing And Dyeing Of Fur		0.97	0.88	0.96	-1.00	-0.99	0.96	0.62	0.35	1.00	-0.64	0.07	0.85	-1.00	0.90	0.99	0.99	0.73	0.92	-1.00	-0.83	0.92
19	Tanning And Dressing Of Leather; Luggage, Handbags, Saddlery, Harness And Footwear		-0.57	1.00	0.94	-1.00	1.00	-0.77	-1.00	-0.18	0.35	0.75	-1.00	1.00	-0.38	0.34	0.32	0.09	-0.25	0.46	-0.25	0.15	0.28
Total Manufacturing			-0.44	1.00	0.01	-1.00	1.00	-0.37	-0.86	-0.44	1.00	1.00	-0.87	1.00	-0.33	-0.14	-0.19	-0.02	0.01	0.22	-0.19	0.01	-0.45

Source: Turkish Statistical Institute based Database of Ministry of Economy

Table 13: Sectoral Bilateral Trade Intensity in Exports (SBTX) and in Imports (SBTM), Sectoral Bilateral Competitiveness (SBTC) of Turkey in EU (27) Market

2010		Germany	Austria	Belgium	Bulgari	Denmark	Estonia	France	Finland	Netherlands	Latvia	Luxemburg	Lithuania	Hungary	Malta	Poland	Portugal	Romania	Slovak Rep.	Slovenia	Greece	Czech Rep.	United Kingdom	Ireland	Spain	Sweden	Italy
High Technology Industry	SBTX	0,95	0,35	0,48	0,39	0,31	0,18	1,10	0,75	0,82	0,30	0,05	0,19	1,00	0,22	0,32	0,33	0,33	5,57	1,20	0,60	0,66	1,62	0,99	1,70	1,48	0,66
	SBTM	0,80	0,98	0,43	0,08	2,04	3,11	1,55	1,29	0,59	0,03	0,28	0,70	4,62	0,52	0,69	0,91	0,75	1,51	0,66	0,16	1,36	1,41	3,90	0,34	2,13	0,64
	SBTC	1,19	0,36	1,10	5,00	0,15	0,06	0,71	0,58	1,40	10,96	0,20	0,27	0,22	0,42	0,46	0,36	0,44	3,68	1,82	3,72	0,48	1,15	0,25	5,06	0,69	1,03
D2423	SBTX	1,63	0,44	2,45	0,78	0,71	0,12	0,31	0,12	1,57	0,53	0,00	0,04	1,20	1,30	0,43	0,52	0,31	0,65	7,46	0,16	0,10	1,15	0,99	0,16	0,33	0,88
	SBTM	0,94	1,75	0,86	0,04	3,93	0,00	1,33	0,73	0,66	0,01	0,01	0,01	0,56	0,36	0,08	0,22	0,01	0,04	0,25	0,29	0,03	2,11	7,21	0,65	2,02	0,81
	SBTC	1,74	0,25	2,85	20,55	0,18	-	0,23	0,16	2,39	106,68	0,00	3,60	2,14	3,56	5,47	2,41	34,12	14,67	29,59	0,54	3,12	0,54	0,14	0,25	0,16	1,09
D30	SBTX	1,44	0,15	3,13	0,20	0,03	0,01	0,58	0,12	7,75	0,14	0,21	0,04	5,54	0,16	1,40	0,01	0,09	0,13	0,13	0,59	0,40	0,12	0,69	0,05	0,08	0,12
	SBTM	0,72	0,20	0,06	0,54	0,48	0,04	0,25	0,04	0,34	0,00	2,18	0,02	11,37	0,01	1,67	0,05	0,02	0,15	0,03	0,02	10,33	1,83	8,17	0,06	0,76	0,18
	SBTC	2,00	0,74	50,79	0,37	0,06	0,31	2,33	3,24	22,62	-	0,10	2,42	0,49	13,73	0,84	0,11	4,26	0,85	5,10	29,91	0,04	0,06	0,09	0,82	0,11	0,66
D32	SBTX	0,85	0,36	0,08	0,33	0,26	0,21	1,04	0,73	0,44	0,17	0,06	0,17	0,71	0,09	0,15	0,32	0,27	7,08	0,47	0,70	0,79	1,92	1,12	1,95	1,87	0,62
	SBTM	0,44	0,13	0,18	0,07	0,27	11,48	0,32	3,69	0,12	0,03	0,01	1,79	14,15	1,22	2,03	2,99	2,78	5,64	0,48	0,08	1,73	0,32	0,28	0,14	4,61	0,26
	SBTC	1,91	2,75	0,47	5,07	0,96	0,02	3,25	0,20	3,66	4,96	5,13	0,10	0,05	0,07	0,07	0,11	0,10	1,25	0,99	8,56	0,45	5,94	3,97	14,09	0,40	2,39
D33	SBTX	1,22	0,34	0,48	0,75	0,43	0,16	2,20	2,53	0,92	1,55	0,06	0,78	1,87	0,11	1,41	0,52	1,28	2,98	0,59	0,52	0,42	0,57	0,29	0,26	0,43	0,71
	SBTM	1,32	1,19	0,25	0,06	2,08	1,34	1,38	0,50	1,24	0,08	0,65	1,26	0,87	0,38	0,26	0,45	0,29	0,46	2,13	0,04	1,24	1,31	2,48	0,22	0,81	1,06
	SBTC	0,92	0,29	1,91	12,01	0,21	0,12	1,59	5,08	0,74	18,88	0,10	0,62	2,15	0,30	5,33	1,17	4,47	6,52	0,28	13,96	0,34	0,43	0,12	1,18	0,53	0,67
D353	SBTX	0,40	0,04	0,47	0,00	0,16	0,00	2,64	0,18	0,44	0,02	0,04	0,00	0,92	0,00	0,37	0,00	0,00	0,00	0,00	0,14	0,34	0,48	0,21	4,67	0,39	1,12
	SBTM	0,16	0,11	0,03	0,00	0,00	0,00	6,65	0,00	0,33	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,06	0,20	0,02	1,27	0,21	0,03	0,00	0,37
	SBTC	2,51	0,32	15,93	-	180,27	-	0,40	-	1,34	-	-	-	262,47	-	126,61	2,51	4,90	-	0,01	0,67	18,22	0,38	1,00	143,72	111,71	3,01
Medium-High Technology Industry	SBTX	0,83	0,92	1,09	0,73	0,45	0,47	1,41	1,25	0,61	1,04	1,03	0,61	1,06	0,15	1,27	1,53	1,05	0,92	1,71	0,65	1,25	0,92	1,09	0,91	1,07	1,23
	SBTM	1,19	0,97	1,12	0,31	1,02	0,58	1,00	0,67	1,02	0,03	0,49	0,33	0,53	0,02	1,21	0,81	0,71	0,90	0,87	0,43	0,95	1,14	0,62	1,17	0,67	0,90
	SBTC	0,70	0,95	0,97	2,33	0,44	0,81	1,40	1,86	0,60	30,90	2,11	1,82	2,00	8,03	1,05	1,89	1,48	1,02	1,95	1,51	1,32	0,81	1,75	0,77	1,60	1,36
D2411	SBTX	0,19	0,27	2,84	0,75	0,03	0,01	0,37	3,10	1,56	8,66	0,11	0,04	0,19	1,31	0,78	2,49	0,67	0,45	4,19	2,06	0,29	0,37	0,07	2,68	1,08	2,15
	SBTM	0,99	0,77	2,30	1,64	2,12	2,02	0,58	1,03	2,72	0,15	0,09	0,02	0,75	0,15	0,36	1,83	1,24	0,19	1,61	0,65	0,18	1,62	1,82	1,33	0,61	0,40
	SBTC	0,19	0,35	1,23	0,45	0,02	0,00	0,63	3,01	0,57	59,27	1,25	1,83	0,26	8,75	2,19	1,36	0,53	2,35	2,61	3,15	1,59	0,23	0,04	2,02	1,77	5,38
D2412	SBTX	0,01	0,00	0,00	1,21	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,40	0,00	0,00	0,00	0,00	4,70	0,00	0,00	3,32	0,00	0,44	7,12	3,72	0,00	2,33
	SBTM	0,27	0,33	4,53	5,77	0,00	0,00	0,07	0,01	0,64	0,00	0,00	19,86	0,04	0,00	0,05	0,00	9,71	0,34	0,02	3,06	0,01	0,07	0,02	0,88	0,69	0,56
	SBTC	0,04	0,00	0,00	0,21	0,00	-	0,01	0,00	0,00	-	0,00	0,02	0,00	-	0,03	-	0,48	0,00	0,00	1,09	0,00	6,07	363,07	4,21	0,00	4,20
D2413	SBTX	1,50	0,33	1,01	4,01	0,11	0,21	0,15	0,54	0,43	0,33	14,25	0,05	1,14	0,04	1,00	2,58	1,40	0,43	1,02	3,07	1,52	0,10	0,17	0,42	0,10	1,60
	SBTM	0,85	0,88	4,01	0,27	0,03	0,00	0,75	0,74	3,10	0,00	0,09	0,00	1,28	0,00	0,42	2,14	0,39	0,17	0,30	2,34	0,51	0,73	0,04	1,17	1,20	0,68
	SBTC	1,76	0,38	0,25	14,71	3,83	572,81	0,20	0,73	0,14	-	151,30	852,81	0,89	584,19	2,37	1,21	3,62	2,48	3,44	1,31	2,98	0,13	4,17	0,36	0,09	2,36
D2421	SBTX	0,46	0,77	4,30	5,27	0,00	0,00	0,36	0,00	1,96	0,03	0,00	0,00	0,88	0,21	0,72	0,00	7,36	0,01	1,15	2,08	0,07	0,16	0,07	0,00	0,00	0,01
	SBTM	1,24	0,77	1,65	0,11	0,39	0,01	2,27	0,03	0,92	0,00	0,00	0,00	0,23	0,00	0,07	0,11	0,00	0,12	0,16	0,28	0,12	1,33	0,61	1,10	0,08	0,67
	SBTC	0,37	0,99	2,61	47,20	0,00	0,00	0,16	0,00	2,14	-	-	-	3,89	-	10,88	0,00	378547,74	0,05	7,18	7,47	0,55	0,12	0,11	0,00	0,00	0,02
D2422	SBTX	0,16	0,17	0,38	5,67	0,02	2,47	0,79	0,00	0,21	3,52	0,99	0,56	7,57	0,19	2,11	0,75	6,59	0,48	2,89	2,11	0,87	0,20	0,05	0,48	0,70	0,60
	SBTM	1,21	0,59	1,68	0,03	0,46	0,28	0,95	0,02	1,81	0,00	1,82	0,00	0,06	0,00	0,12	2,05	0,01	0,00	0,87	0,41	0,06	1,01	0,13	1,31	0,84	1,42
	SBTC	0,13	0,29	0,22	163,09	0,05	8,92	0,84	0,21	0,12	3716,69	0,54	1208,33	120,40	-	18,00	0,36	469,89	556,48	3,33	5,13	15,02	0,20	0,41	0,37	0,84	0,42
D2424	SBTX	0,73	1,27	0,60	5,61	0,26	1,33	0,28	0,45	1,20	3,96	0,00	2,85	1,40	0,41	3,78	0,30	3,77	2,16	0,48	1,70	2,15	0,55	0,38	0,29	0,33	0,33
	SBTM	1,12	0,15	0,81	0,13	0,69	0,00	1,84	0,00	0,60	0,01	7,81	0,03	0,68	0,00	3,07	0,02	0,80	0,17	1,81	0,39	0,85	1,09	0,66	0,47	0,36	0,67
	SBTC	0,65	8,49	0,75	42,23	0,37	-	0,15	318,99	1,99	370,02	0,00	100,05	2,04	-	1,23	15,27	4,69	12,86	0,27	4,40	2,52	0,50	0,58	0,62	0,93	0,49
D2429	SBTX	1,18	0,52	1,13	3,79	0,51	0,08	1,47	0,77	1,31	2,41	0,00	0,33	0,96	0,13	1,56	0,75	1,49	0,09	0,44	2,05	1,53	0,38	0,70	0,38	0,29	0,43
	SBTM	1,19	0,44	1,69	0,13	0,68	2,25	1,20	0,12	1,61	0,00	0,02	2,17	0,14	0,00	0,03	0,49	0,01	0,03	0,27	0,21	0,07	1,29	9,56	0,56	0,36	0,92
	SBTC	1,00	1,20	0,67	28,63	0,75	0,04	1,22	6,23	0,82	6181,39	0,00	0,15	6,70	1656,62	48,08	1,51	125,65	2,83	1,62	9,79	21,45	0,29	0,07	0,68	0,80	0,47
D2430	SBTX	0,48	1,63	3,52	4,05	0,22	9,11	0,25	0,04	1,50	0,07	14,04	0,30	2,10	0,00	1,63	4,89	0,66	1,11	0,85	0,91	0,97	0,28	0,21	1,23	0,83	1,58
	SBTM	1,39	9,98	0,13	0,19	0,40	0,00	0,34	0,00	0,28	0,17	0,00	2,11	0,09	0,00	0,05	2,92	0,12	0,14	2,09	0,10	0,05	1,58	0,21	2,04	0,00	0,51
	SBTC	0,34	0,16	27,44	21,52	0,54	-	0,73	609,21	5,39	0,40	7074,63	0,14	24,43	-	31,20	1,67	5,53	8,17	0,41	9,03	20,11	0,18	1,03	0,60	282,40	3,08
D29	SBTX	0,97	1,09	0,89	1,07	0,69	0,62	1,11	1,20	0,62	1,01	0,87	1,11	1,40	0,13	1,41	1,72	0,94	0,58	0,69	0,94	0,81	1,24	1,10	0,87	1,27	0,86
	SBTM	1,27	1,60	0,85	0,14	1,59	0,18	0,86	0,80	0,52	0,04	0,99	0,03	0,35	0,00	0,58	0,32	0,61	1,05	1,49	0,20	0,67	0,82	0,11	0,54	1,29	1,60
	SBTC	0,76	0,69	1,05	7,83	0,44	3,46	1,29	1,49	1,19	25,04	0,88	33,19	3,97	28,28	2,41	5,37	1,54	0,55	0,46	4,76	1,20	1,50	9,84	1,63	0,98	0,54
D31	SBTX	0,67	1,19	1,70	1,63	0,36	0,35	0,78	0,56	0,45	1,87	2,15	0,36	1,58	0,66	2,18	1,06	0,78	3,35	0,72	0,92	1,89	1,54	1,73	0,61	1,80	0,75
	SBTM	1,10	1,18	0,32	0,70	3,53	2,45	0,87	2,59	0,26	0,01	0,11	0,60	1,19	0,07	2,41	1,24	0,63	2,64	1,52	0,38	1,92	0,59	0,23	0,80	0,51	0,92
	SBTC	0,61	1,01	5,35	2,33	0,10	0,14	0,90	0,21	1,75	209,29	19,19	0,59	1,33	9,92	0,91	0,86	1,24	1,27	0,48	2,41	0,99	2,63	7,42	0,76	3,55	0,82
D34	SBTX	0,85	0,86	0,93	0,14	0,42	0,26	1,78	1,29	0,56	0,45	0,37	0,49	0,81	0,01	1,06	1,43	1,05	0,67	2,18	0,29	1,35	0,79	1,06	0,88	0,93	1,39
	SBTM	1,36	0,26	0,40	0,01	0,06	0,07	1,27	0,07	0,66	0,03	0,00	0,01	0,28	0,00	1,76	0,42	0,77	0,88	0,24	0,01	1,38	1,61	0,00	1,65	0,21	0,55
	SBTC	0,62	3,31	2,32	9,75	7,63	3,61	1,40	17,51	0,84	16,82	306,37	66,51	2,96	105,29	0,60	3,43	1,35	0,76	9,25	53,37	0,98	0,49	694,86	0,53	4,54	2,53
D352	SBTX	1,12	0,61	0,01	0,86	0,17	0,00	1,97	0,00	0,41	0,00	0,00	0,00	41,15	0,00	0,05	0,00	0,01	0,29	6,00	0,20	0,70	0,12	0,00	0,37	0,10	0,11
	SBTM	0,16	0,45	0,01	0,24	0,09	0,00	0,99	0,05	0,02	0,00	0,00	0,00	0,10	0,00	4,21	0,00	0,98	0,04	0,45	0,00	0,18	0,05	0,00	5,73	0,07	1,33
	SBTC	7,13	1,35	2,05	3,53	1,98	-	1,98	0,00	24,67	-	-	-	429,71	-	0,01	-	0,01	7,74	13,20	-	3,98	2,30	5,26	0,07	1,30	0,08
D359	SBTX	0,35	0,24	0,44	0,27	0,04	0,10	0,23	22,26	1,28	0,33	0,00	0,31	0,37	0,01	0,06	0,50	0,66	0,00	0,00	1,86	0,25	0,54	0,08	0,68	0,07	3,94
	SBTM	1,29	1,94	0,14	0,35	0,11	0,13	0,51	0,27	0,60	0,00	0,00	0,00	0,29	0,00	0,27	1,17	0,19	0,10	1,32	0,10	1,36	0,61	0,00	0,62	0,21	2,48
	SBTC	0,27	0,12	3,02	0,77	0,32	0,77	0,45	81,87	2,11	-	-	-	1,27	-	0,20	0,42	3,41	0,03	0,00	19,16	0,18	0,89	-	1,09	0,32	1,59

2010		Germany	Austria	Belgium	Bulgari	Denmark	Estonia	France	Finland	Netherlands	Latvia	Luxemburg	Lithuania	Hungary	Malta	Poland	Portugal	Romania	Slovak Rep.	Slovenia	Greece	Czech Rep.	United Kingdom	Ireland	Spain	Sweden	Italy
Medium-Low	SBTX	0,88	1,23	0,85	1,74	0,60	0,48	0,59	0,99	0,90	0,62	2,23	0,40	1,28	4,43	0,87	0,94	1,61	0,79	1,13	1,89	1,01	0,96	1,18	0,80	0,63	1,16
Technology	SBTM	0,68	0,82	1,23	3,16	0,34	0,29	0,88	0,58	0,99	3,69	2,75	1,03	0,28	4,42	0,47	0,73	2,08	1,26	1,16	3,25	0,96	0,55	0,13	1,02	0,70	1,30
Industry	SBTC	1,28	1,50	0,69	0,55	1,75	1,66	0,67	1,70	0,91	0,17	0,81	0,39	4,60	1,00	1,87	1,28	0,77	0,62	0,98	0,58	1,05	1,75	9,01	0,78	0,90	0,89
D23	SBTX	0,47	0,45	0,27	1,29	2,08	0,71	0,20	2,42	0,78	0,00	1,39	1,40	0,19	11,69	0,28	0,46	1,82	0,02	5,81	3,38	0,07	1,92	0,76	0,20	0,62	0,87
	SBTM	0,10	0,02	1,30	2,48	0,00	0,00	0,21	0,21	2,11	17,24	0,00	0,00	0,02	17,31	0,04	1,28	1,63	0,00	0,00	12,38	0,01	0,29	0,30	0,62	0,68	2,29
	SBTC	4,75	18,78	0,20	0,52	1906,82	510,53	0,95	11,35	0,37	0,00	1571,53	-	10,58	0,68	8,06	0,36	1,12	89,28	-	0,27	6,40	6,66	2,52	0,33	0,92	0,38
D25	SBTX	1,07	1,22	1,30	1,80	0,54	0,55	0,75	1,19	1,17	0,58	6,26	0,50	0,93	0,20	1,54	0,59	1,76	0,54	0,75	1,27	1,40	0,68	1,19	0,95	0,60	0,91
	SBTM	1,19	0,56	1,00	0,44	0,45	0,21	1,12	0,41	0,44	0,35	4,58	0,27	0,83	0,11	0,91	1,00	0,59	1,23	2,25	0,77	1,82	0,99	0,19	0,76	0,47	1,22
	SBTC	0,90	2,20	1,30	4,04	1,20	2,68	0,67	2,92	2,65	1,65	1,37	1,89	1,12	1,77	1,70	0,59	2,99	0,44	0,33	1,66	0,77	0,68	6,20	1,25	1,27	0,75
D26	SBTX	0,86	0,80	0,74	2,38	1,01	0,86	1,08	2,25	0,71	0,43	1,16	0,40	0,86	0,25	0,63	1,08	1,13	0,45	0,84	1,94	0,75	1,03	1,05	0,96	0,77	1,08
	SBTM	0,95	2,67	1,46	1,28	0,60	0,31	1,03	0,57	0,41	0,00	2,54	4,22	0,62	0,00	0,49	0,60	1,30	0,25	1,75	0,51	1,41	1,04	0,05	1,39	0,42	1,02
	SBTC	0,90	0,30	0,50	1,87	1,69	2,79	1,04	3,94	1,75	1205,52	0,46	0,09	1,38	-	1,29	1,79	0,87	1,75	0,48	3,77	0,53	0,99	19,47	0,69	1,82	1,06
D27	SBTX	0,74	1,55	0,92	2,08	0,24	0,38	0,31	0,33	0,81	0,14	0,55	0,11	1,49	0,38	0,57	1,76	1,82	0,40	0,43	2,47	1,20	1,04	1,76	1,09	0,31	1,54
	SBTM	0,54	0,86	1,56	5,65	0,11	0,43	1,06	0,88	0,77	0,12	4,10	0,12	0,15	0,01	0,44	0,33	3,49	2,25	1,18	1,00	0,72	0,41	0,00	1,36	0,83	0,89
	SBTC	1,37	1,82	0,59	0,37	2,16	0,88	0,29	0,37	1,05	1,18	0,13	0,93	9,68	63,46	1,27	5,30	0,52	0,18	0,36	2,48	1,67	2,54	740,62	0,80	0,38	1,74
D28	SBTX	1,16	1,57	0,69	1,36	0,58	0,38	0,80	0,75	0,75	1,91	1,68	0,46	2,33	0,17	1,15	0,40	1,58	2,36	1,39	1,26	1,04	1,01	0,79	0,52	1,19	0,82
	SBTM	1,23	1,61	0,28	0,21	1,02	0,40	1,07	0,40	0,87	0,02	0,73	0,65	0,34	0,00	0,73	1,02	0,37	0,52	1,50	0,67	2,16	0,71	0,26	0,78	0,73	1,42
	SBTC	0,94	0,98	2,49	6,50	0,57	0,95	0,75	1,86	0,86	86,06	2,29	0,72	6,86	60,82	1,57	0,39	4,26	4,49	0,93	1,88	0,48	1,43	2,99	0,67	1,63	0,58
D351	SBTX	0,35	0,05	0,02	0,01	0,14	0,00	0,15	0,12	1,36	0,00	0,00	0,00	0,00	63,38	0,00	0,00	0,52	0,00	0,10	1,37	0,00	0,16	0,00	0,02	0,21	1,88
	SBTM	2,10	0,02	0,00	0,00	4,57	0,00	0,39	0,31	0,58	0,00	0,03	47,57	0,01	61,55	0,07	0,05	0,04	0,02	0,00	0,32	0,01	0,64	0,00	0,34	0,11	0,53
	SBTC	0,17	2,97	-	-	0,03	-	0,38	0,40	2,35	-	0,00	0,00	0,00	1,03	0,00	0,00	14,41	0,03	137,17	4,33	0,00	0,24	-	0,05	1,90	3,55
Low	SBTX	1,24	1,04	1,05	0,96	1,85	1,91	0,80	0,79	1,47	1,25	0,43	1,81	0,79	0,13	0,88	0,58	0,71	0,64	0,19	0,93	0,78	1,02	0,82	1,11	1,07	0,72
Technology	SBTM	0,81	1,56	0,59	1,73	0,84	2,03	0,51	3,28	1,42	2,31	1,31	5,03	0,42	0,31	1,29	2,70	0,79	0,38	1,83	0,80	0,91	0,60	1,10	0,85	2,00	1,40
Industry	SBTC	1,53	0,66	1,79	0,55	2,21	0,94	1,56	0,24	1,04	0,54	0,32	0,36	1,87	0,42	0,68	0,22	0,90	1,69	0,11	1,17	0,86	1,71	0,75	1,31	0,54	0,52
D15	SBTX	1,38	2,10	1,34	0,92	1,01	0,50	0,83	1,16	2,71	1,04	0,01	0,93	0,27	0,09	0,99	0,25	0,59	0,65	0,09	0,90	0,52	0,84	0,72	0,51	0,96	0,63
	SBTM	0,73	1,55	0,96	2,33	1,35	0,58	0,56	0,04	3,87	2,22	0,00	6,46	0,63	0,00	3,60	0,96	0,55	0,46	0,36	1,33	0,61	0,75	2,21	1,05	0,30	0,63
	SBTC	1,89	1,35	1,39	0,40	0,75	0,86	1,48	27,26	0,70	0,47	4,83	0,14	0,42	-	0,27	0,26	1,08	1,43	0,24	0,68	0,86	1,12	0,32	0,48	3,16	1,00
D16	SBTX	0,01	0,00	23,50	0,73	0,00	0,00	0,00	0,00	2,06	0,00	0,00	0,57	0,00	0,00	0,00	0,00	0,09	0,00	4,52	0,00	2,35	0,04	0,00	0,00	0,00	0,00
	SBTM	1,22	0,00	0,06	0,00	0,00	0,00	2,34	0,00	10,32	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,13	0,42	0,00	0,00	0,00	0,00
	SBTC	0,00	-	409,35	1190,07	-	-	0,00	-	0,20	-	-	-	0,00	-	0,96	-	150,01	-	-	0,00	18,31	0,09	-	2,34	-	-
D17	SBTX	1,10	0,99	0,94	1,53	1,03	2,42	0,81	1,05	1,07	1,64	1,13	2,10	1,08	0,04	1,59	1,30	1,08	0,73	0,30	1,05	0,64	0,92	0,82	0,81	0,88	1,00
	SBTM	0,70	1,05	0,66	1,00	1,14	1,66	0,45	0,19	0,60	0,39	4,26	7,33	0,33	1,62	0,15	1,68	0,54	0,20	0,46	0,90	3,43	0,66	0,06	1,03	0,17	2,63
	SBTC	1,57	0,94	1,41	1,52	0,91	1,46	1,81	5,61	1,78	4,23	0,27	0,29	3,32	0,03	10,35	0,77	2,00	3,61	0,64	1,16	0,19	1,40	14,75	0,79	5,02	0,38
D18	SBTX	1,37	0,68	1,02	0,28	2,92	1,95	0,78	0,43	1,42	0,53	0,02	0,19	0,57	0,03	0,36	0,09	0,37	0,53	0,12	0,40	0,89	1,21	0,78	1,62	1,34	0,53
	SBTM	0,32	0,12	0,30	2,67	2,08	1,48	0,42	2,73	0,59	0,23	0,01	4,23	0,35	0,01	0,55	7,53	1,13	0,87	1,15	1,36	0,16	0,73	0,02	2,60	0,07	2,09
	SBTC	4,33	5,58	3,34	0,10	1,40	1,32	1,88	0,16	2,40	2,32	1,72	0,05	1,62	2,91	0,66	0,01	0,33	0,61	0,10	0,29	5,55	1,66	38,79	0,62	19,75	0,25
D19	SBTX	0,65	0,64	0,68	2,58	0,47	3,99	0,99	1,12	1,33	2,31	0,58	0,23	3,39	0,03	0,56	0,40	1,18	0,68	0,27	1,44	0,34	0,83	0,26	0,43	0,16	2,09
	SBTM	0,28	0,05	0,10	0,16	0,43	4,94	0,81	0,05	0,29	0,00	0,02	0,25	0,42	0,00	0,17	2,52	0,50	0,07	0,28	0,07	0,08	0,26	0,01	0,76	0,04	4,50
	SBTC	2,28	12,87	6,56	16,44	1,08	0,81	1,22	23,77	4,52	920,07	23,73	0,94	8,08	30,15	3,19	0,16	2,37	9,42	0,95	20,81	4,56	3,23	25,66	0,57	3,79	0,46
D20	SBTX	0,83	1,00	0,49	9,78	0,28	1,43	0,23	3,01	0,36	0,03	0,62	4,87	0,82	0,41	0,61	0,17	1,62	1,79	0,10	2,60	0,06	0,25	0,05	0,29	0,60	1,65
	SBTM	1,09	1,18	0,39	9,74	0,13	14,94	0,16	1,27	0,16	23,98	3,03	5,18	0,17	0,00	1,24	1,49	6,35	0,40	0,48	1,40	0,25	0,08	0,05	0,14	0,19	0,42
	SBTC	0,77	0,85	1,28	1,01	2,27	0,10	1,44	2,37	2,27	0,00	0,21	0,94	4,73	-	0,49	0,11	0,25	4,46	0,22	1,86	0,25	3,13	0,99	2,01	3,11	3,90
D21	SBTX	0,30	0,51	0,56	5,76	0,42	0,13	0,54	0,62	1,03	0,37	0,18	0,46	1,30	0,32	0,58	1,46	2,50	0,38	0,19	7,44	0,28	1,22	4,11	0,29	0,91	0,32
	SBTM	1,02	2,57	0,50	0,76	0,12	0,61	0,44	10,59	0,66	0,00	1,11	0,33	0,41	0,00	0,66	5,49	0,07	0,24	4,97	0,44	0,18	0,32	0,01	0,61	5,48	0,60
	SBTC	0,30	0,20	1,13	7,57	3,34	0,21	1,22	0,06	1,56	77,38	0,16	1,41	3,18	-	0,89	0,27	34,39	1,59	0,04	16,89	1,53	3,80	474,88	0,47	0,17	0,54
D22	SBTX	1,49	2,78	0,40	1,54	0,36	0,23	0,54	0,30	1,90	1,79	0,84	0,19	0,54	0,05	0,26	0,43	1,04	0,06	1,01	9,15	0,27	0,38	0,28	0,10	0,87	0,23
	SBTM	0,86	3,47	0,36	0,24	0,36	0,05	0,52	0,15	0,51	0,03	0,16	0,80	0,24	0,00	0,41	0,03	0,04	0,03	0,18	1,28	0,38	2,45	11,25	0,16	6,89	0,51
	SBTC	1,74	0,80	1,12	6,50	0,99	5,04	1,05	2,00	3,69	53,57	5,42	0,24	2,21	-	0,64	15,77	25,58	1,84	5,54	7,13	0,72	0,16	0,03	0,63	0,13	0,46
D36	SBTX	1,12	2,05	1,10	0,98	0,73	2,04	0,81	1,29	1,43	5,80	0,64	17,52	1,42	1,67	0,92	1,02	0,86	1,08	0,30	2,10	1,72	0,47	0,58	0,60	0,58	0,72
	SBTM	0,78	0,72	0,52	0,43	1,40	1,79	0,62	0,02	0,72	1,59	0,11	13,87	0,51	0,12	1,41	0,55	0,54	0,88	1,25	0,07	0,49	0,60	1,31	0,78	0,40	2,65
	SBTC	1,45	2,83	2,12	2,27	0,52	1,15	1,31	71,72	1,98	3,65	5,83	1,26	2,81	14,21	0,65	1,86	1,60	1,22	0,24	31,46	3,53	0,79	0,44	0,77	1,44	0,27

Source: Turkish Statistical Institute based Database of Ministry of Economy