

# **Turkey's Comparative Advantages and Dynamic Market Positioning in the EU market**

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## **I. Introduction**

Parallel to the reduction of trade barriers, which is a practical result of the globalization process, the competitiveness position of countries in the world market has become increasingly important in affecting their growth and development prospects. Improving the trade performance against the main competitors is an inevitable exigency in this fast-globalizing, new world-economic context. This is also the case for Turkey as a developing country.

EU-15 countries have traditionally been the most important trading partners of Turkey. Besides, the Customs Union between Turkey and the EU, which came into effect in 1995, has been a turning point for Turkey in terms of a new regional-economic integration. However, competition among countries that export to the EU-15 market has intensified in recent years. This intensification has resulted from EU's economic performance as well as from the export performances of the competing countries in the EU market. Central and Eastern European Countries (CEECs) have generally been the most outstanding competitors in this market, especially after their accession to the EU in 2004. Certain Asian countries – led by China – have considerably increased their exports to this market. Middle Eastern and North African (MENA) countries also have prominent export relations with the EU-15 countries. On the other hand, the export shares of certain developed countries – such as the US, which is the most important trading partner of the EU – have decreased.

Improving comparative advantages against main competitors is the key to acquiring higher levels of competitiveness in the fast-globalizing world. Therefore, in this paper, we analyze Turkey's competitiveness in the EU-15 market against the non-EU-15 countries in terms of static and dynamic comparative advantages.

More specifically, evaluating the comparative-advantage patterns of Turkey and its competitors, we aim at determining Turkey's competitiveness position in the EU-15 market. We also monitor the dynamic positioning of Turkish exports by identifying the products that shift dynamically and by examining whether these shifts have arisen from the supply-side fluctuations in Turkey or from the demand-side fluctuations in the EU-15 market. Based on these static and dynamic approaches, we select the relatively more promising sectors for Turkey's exports.

To do so, we first use the ‘Revealed Comparative Advantage’ (RCA) index, which was developed by Bela Balassa (1965). While the conventional RCA index is capable of providing useful information within a ‘static’ context of analysis, it is not so serviceable in examining the temporal changes in the comparative advantages. That is to say, it is troublesome to try to identify the dynamic changes in comparative advantages by using merely the conventional RCA index. Therefore, we also utilize an additional methodology in order to complement our results obtained from the conventional RCA index. This relatively newer methodology was developed by Edwards and Schoer (2002), by way of which one can analyze the ‘dynamic market positioning’ of competitors in a given market over time. In the previous literature, Turkey’s dynamic market positioning has not been analyzed at all; and hence, our utilization of the ‘dynamic RCA index’ is the first attempt to examine Turkey’s competitiveness in such a framework.

In this context, there are a number of research questions to be answered in this study. Do Turkey’s patterns of comparative advantage follow those of the non-EU competitors? Which products of Turkey have comparative advantage in the EU-15 market? How should the dynamic positioning of Turkish exports in the EU-15 market be monitored? Which products of Turkey shifted dynamically and did these shifts arise from the supply-side fluctuations in Turkey or from the demand-side fluctuations in the EU market? How can the more promising sectors for Turkey’s exports be selected? In answering these questions, we specifically focus on the behavior of the revealed comparative advantages classified according to the technological characteristics of the sectors.

Whether there have been significant changes in Turkey’s comparative advantages in the EU market and the sectors in which these changes can be further utilized as potential advantages are two important issues facing the prospects of trade policy in Turkey, which has been a candidate for EU membership for a long period of time. Thus, analyzing Turkey’s comparative advantages in different trade activities at this level of detail can provide useful information for decision-making processes, by way of which Turkey’s growth and development possibilities can be channeled into more efficient allocation of resources.

## **II. Literature Review**

In the literature, many different RCA indexes have been suggested and used, such as those by Bowen (1983), Yeats (1985), Vollrath (1991), Lafay (1992), etc. However, the most commonly used RCA index in empirical studies remains Balassa's 'classical' RCA index (Balassa, 1965).

In this section, we review some prominent empirical applications of the Revealed Comparative Advantage (RCA) approach. Amador et al. (2009) compare export and import patterns of Portugal with Spain, Greece and Ireland between 1967 and 2004, using ISIC 4-digit data. Based on the Balassa index, they find that Portugal became more open and less specialized in exports over time, like Spain and Greece. However, the degree of specialization was higher in exports than in imports. They also find that the degree of persistence of export patterns is higher than that of import patterns. Arghyrou and Bazina (2002) examine the competitiveness and the trade performance of Greece at the sector level, based on the RCA index. Their analysis shows that, in the 1990s, Greece lost its competitiveness in the sectors in which it had comparative advantage previously. Ferto and Hubbart (2002) investigate the competitiveness of the Hungarian agri-food sector vis-à-vis the EU for the period 1992-1998 by employing the RCA index, the Relative Trade Advantage (RTA) index, the Relative Export Advantage (RXA) index and the Relative Import Advantage (RIA) index. Haddad (2000) uses the RCA index to assess the competitiveness of the Middle Eastern and North African (MENA) countries in the world market.

In the literature, the studies on Turkey's competitiveness mostly use the RCA index and, also, most of them evaluate Turkey's competitiveness in the EU market. Akgüngör et al. (2002) examine the competitiveness of the Turkish 'fruit and vegetable processing industry' in the EU market. By using the RCA index and export performance index (EPI), they find that Turkish exports are competitive relative to Spanish and Portuguese exports in the grape processing sector, while they are competitive relative to Greek and Portuguese exports in the processed citrus products sector. However, Turkey does not have a competitive advantage for processed tomato exports over the rival countries.

Vergil and Yıldırım (2006) evaluate the effects of the Customs Union (CU) on the competitiveness of Turkey in the period 1993-2002. This one is the first studies using panel data

econometric methods, based on the RCAs for 215 exporting industries, which are categorized according to their technology levels (using the classification developed by Foders, 1996), as well as according to the intensities of factors of production (using the method developed by Hufbauer and Chilas, 1974). The dependent variable in the model is the RCA index, while the explanatory variables are the exchange rate, GDP of EU and a dummy variable for capturing the effects of the CU. They find that the CU has a positive effect on the competitiveness of advanced-technology and difficult-to-imitate research-intensive products, while it has adverse effects on the competitiveness of capital-intensive and intermediate-technology products of Turkey in the EU market.

Yılmaz (2003) examines the international competitiveness of Turkey vis-à-vis Bulgaria, Romania, the Czech Republic, Hungary, Poland and the EU-15 in the world market between 1996 and 1999, based on the following four indexes: RCA, Comparative Export Performance (CEP), Trade Overlap (TO), Export Similarity (ES). In this study, the sector-level classification is also based on Hufbaer and Chilas (1974). In terms of the RCA index, empirical results suggest that Turkey is in a strong competitive position in the labor-intensive sector, while it has comparative disadvantages in the easy-to-imitate research-intensive sector and the difficult-to-imitate research-intensive sector.

Similarly, Utkulu and Seymen (2004) analyze Turkey's competitiveness and trade structure vis-à-vis the EU at the sector-level, based on various RCA measures. They use annual 2-digit SITC-Rev.3 data, covering 63 products for the period 1990-2002. Seymen and Şimşek (2006) also investigate and compare the competitiveness of Turkish and Chinese exports in the OECD market, based on several RCA indexes.

Erlat and Erlat (2012) examine the comparative advantage of Turkish exports relative to the EU exports. They use annual 3-digit SITC-Rev.3 data, covering 256 products for the period 1990-2000. They employ the RCA index, using two different classifications of the sectors. The first classification is based on their 'traditionality index', while the second one is based on Hufbauer and Chilas's (1974) technological classification which is also used in this paper. They find that Turkey has comparative advantage in 82 sectors out of 256. In addition, Belgium, Denmark, Finland, Greece and Spain show a pattern similar to that of Turkey. They also show that the shares of the traditional sectors in which Turkey has comparative advantage, are decreasing. The

reason for this decrease can be explained as follows: The traditional exporters tend to take their competitiveness for granted and they do not significantly try to improve their products and exporting abilities. Of course, such deficiencies on the part of traditional exporters should be dealt with the context of a careful export policy. Those sectors with relatively higher comparative advantages should be evaluated in accordance with their export shares.

İnce and Demir (2007) analyze Turkey's competitiveness vis-à-vis Germany, investigating RCA patterns and sector-level shares of export and import items. They find that Turkey has a comparative advantage in textile and apparel products, while it has a comparative disadvantage in high-tech products with respect to Germany.

### **III. Theory, Methodology and Data**

Traditional trade theory provides us with a useful framework to understand how countries compete in the international markets. In this framework, competitiveness is generally linked to relative price (cost) differences. A country has a comparative advantage in the production of a good if it can produce that good at a lower opportunity cost than its trading partner and every country should specialize in those goods in which it has a comparative (cost) advantage.

'Comparative advantage' has long been the main concept around which patterns of international trade have been theoretically examined since the early 19th century. It is well-known that David Ricardo's 'classical' development of this concept formed the basis of later major theories of international trade. Most notably, the neoclassical trade theory, based on the famous Heckscher-Ohlin model, relies also on 'comparative advantage' as an explanatory key concept. While Ricardo's classical theory explains the basis for trade in terms of varying production conditions between trading partners, the neoclassical Heckscher-Ohlin model relies on the differences in factor endowments to account for the existence of trade. Despite this main difference between the classical and neoclassical theories of trade, the two approaches have a common conclusion based on the concept of comparative advantage: A country will specialize in and export the goods in which it has a comparative advantage and import the goods in which it has a comparative disadvantage. In other words, although comparative advantage is attributed to different sources in the classical and neoclassical approaches (i.e., to labor productivity differences in the classical theory and to the relative abundance/scarcity of resources in the

neoclassical theory), it is the ‘comparative advantage’ that determines the patterns of exports and imports in the final analysis. This being the case, ‘comparative advantage’ has always been the generally-agreed concept to explain the essential reason behind competitiveness in international trade.

However, it is practically very difficult – if not impossible – to determine accurately the actual comparative advantages of a country. For example, in the case of the simplest version of the neoclassical trade theory, based on the traditional Heckscher-Ohlin model, the researcher needs to know accurately about the relative amounts of labor and capital of the trading partners in order to be able to determine which country has a comparative advantage in the labor-intensive goods and which country in the capital-intensive goods. While it may be possible to measure the labor force somewhat accurately, it is usually a formidable task and a debatable issue to measure the capital stock, especially at the country-level of analysis. Moreover, measuring comparative advantage is problematic due to the unobservable relative autarkic prices; that is to say, they are simply unobservable at the post-trade equilibrium. Therefore, practical applications of the theoretical concept of ‘comparative advantage’ have usually been potentially problematic. Nevertheless, a practical concept was also developed in relation to ‘comparative advantage’. This useful concept is known as ‘Revealed Comparative Advantage’ (RCA).

*The RCA index by Balassa (1965)*

Actually, it was Liesner (1958) who first attempted to ‘reveal’ comparative advantages. However, the most common measures of comparative advantage are generally based on the ‘Revealed Comparative Advantage’ (RCA) index developed by Bela Balassa (1965). Balassa (1965) assumes that trade patterns reflect both relative costs and differences in non-price factors. Then, he suggests that comparative advantage can be ‘revealed’ by observing trade patterns. He formulated the RCA index as follows:

$$RCA_{ij} = \frac{X_{ij} / X_i}{X_{wj} / X_w} \quad (1)$$

where  $RCA_{ij}$  is the revealed comparative advantage index for commodity  $j$  of country  $i$ ;  $X_{ij}$  is the exports of commodity  $j$  of country  $i$ ;  $X_i$  is the total exports of country  $i$ ;  $X_{wj}$  is the world exports of commodity  $j$ ; and  $X_w$  is total world exports. Rearranging the terms on the right-hand side, it can be shown that the  $RCA_{ij}$  index compares “country  $i$ ’s share in the world market for commodity  $j$ ” to “its share in the world market for all commodities.”

At this point, the scope of the countries and products can change depending on the main purposes of each study. The term ‘world’ may cover all countries, a group of countries, or a single country. For example, Erlat and Erlat (2012) use the term ‘world’ to cover the EU-15 countries. In this paper, we consider EU-15 as a single country and analyze the RCA of Turkish exports in this ‘single’ market vis-à-vis world exports (excluding intra-EU trade) to this market. Therefore, ‘world’ covers non-EU-15 countries exporting to the EU-15 market.

The value of the RCA index varies between zero and infinity at product level. When RCA is higher (lower) than 1, “the share of country  $i$ ’s exports of commodity  $j$  in its total exports” is higher (lower) than “the share of world’s exports of commodity  $j$  in world’s total exports;” and hence, country  $i$  has a revealed comparative advantage (disadvantage) in commodity  $j$ .

*Dynamic RCA Index by Edwards and Schoer (2002)*

The RCA index by Balassa (1965) treats the concept of comparative advantage from a static point of view and such static treatment is usually insufficient in explaining the changing comparative advantages over time. Therefore, Edwards and Schoer (2002) developed an index to analyze the changing comparative advantages over time. They called it the “Dynamic RCA index.” They built the index by decomposing the growth in RCA into its components. Formally, by taking the logs of the conventional RCA index and then by total differentiation, they decomposed the growth in the RCA index as follows:

$$\frac{\Delta RCA_{ij}}{RCA_{ij}} = \frac{\Delta(X_{ij}/X_i)}{X_{ij}/X_i} - \frac{\Delta(X_{wj}/X_w)}{X_{wj}/X_w} \quad (2)$$



In this formula, the first term on the right-hand side reflects the growth in the share of commodity  $j$  in total trade of country  $i$  and the second term reflects the growth in the share of commodity  $j$  in world trade.

Observing the relative trends in the share of commodity  $j$  in country  $i$  and world exports, Edwards and Schoer (2002) analyze the ‘dynamics of market position’ as summarized in Table 1 below.

**Table 1 Dynamic Market Positioning of Exports**

Share of commodity $j$ in country $i$ 's exports		Share of commodity $j$ in world exports		
↑	>	↑		<b>Rising Stars</b>
↑		↓		<b>Falling Stars</b>
↓	>	↓		<b>Lagging Retreat</b>
↓	<	↓		<b>Leading Retreat</b>
↑	<	↑		<b>Lagging Opportunity</b>
↓		↑		<b>Lost Opportunity</b>

Source: Edwards and Schoer (2002)

In ‘dynamic market positioning,’ by means of a so-called ‘dynamic RCA index,’ export goods are categorized into six groups as (i) rising stars, (ii) falling stars, (iii) lagging retreat, (iv) lost opportunity, (v) leading retreat and (vi) lagging opportunity.

Following Edwards and Schoer (2002), we classify Turkish exports according to their dynamic market positions. We also apply this classification to all other countries under consideration. In our approach, thus, we compare “the increase or decrease in the share of a product in Turkey’s total exports” and “the increase or decrease in the share of that product in world’s total exports to EU-15.” If Turkey’s share is rising in the EU-15 market more than the rise in the share of this product in world exports, then we classify this as a “rising star.” This is the most preferred location for a country since the market share of the country is increasing in products for which demand is growing worldwide. If Turkey’s share is rising but less than the rise in the share of this product in world exports, then we classify this as a “lagging opportunity.” If Turkey’s share

is falling less than the fall in the share of this product in the world market, it is called a “leading retreat.” If Turkey’s share is falling more than the fall in the share of this product in the world market, it is called a “lagging retreat.” If Turkey’s share is rising while the share in worldwide exports is falling, it is called a “falling star.” Conversely, if Turkey’s share is falling while the share in worldwide exports is rising, it is called a “lost opportunity.” This is the least favorable position for a country. The cases of “rising stars” and “leading retreat” are evaluated as “successful restructuring of exports”, while the cases of “falling stars” and “lost opportunity” are evaluated as “poor restructuring of exports”. Leading retreat is referred to as “successful restructuring” since “retreat” may be seen as a rational way of restructuring away from the products with declining demand in the EU-15 market. Also, “falling stars” are not evaluated as undesirable as lost opportunity, since a country is gaining market share in this case, although it is not as desirable as the rising star category. Moreover, Tsikata (1999) also carries out a four-fold classification of dynamic market positions, which is slightly different from that of Edwards and Schoer (2002) and he puts the “falling star” category in the “competitive but vulnerable” quadrant.

We should also note that Edwards and Schoer (2002) evaluate the changes in RCA by comparing the values between an initial and a final year. In this study, our evaluation does not depend merely on a comparison of the initial and final years in the period under consideration. To lessen the limitation that RCA may result from policy-related or other distortions rather than true comparative advantage, we examine export patterns in time series rather than at a point in time. That is to say we are able to include all the years into our evaluation process. In this way, we calculate average annual changes in RCA.

Our data-source is United Nations Commodity Trade Statistics (“UN-comtrade”). Our computations involve data at the 3-digit level, according to SITC Rev. 3. We cover the whole period of 1996-2010 in our analysis. We made our calculations for each year, but we present the results as the whole period and two sub-period averages. That is to say, we divided the whole period into a ‘first period’ (1996-2003) and a ‘second period’ (2004-2010). The purpose of this sub-periodization is to see the possible effects of EU-expansions in 2004 and 2007.

All export data are measured in US Dollars (US\$). By using export data, we minimize some potential ‘distortion problems’, as it is known that imports may be distorted by transportation costs, insurance etc. Such distortions are less likely for export data. It should also be noted that we obtained ‘world export data’ by adding up the exports of all countries to the EU-15 market.

We also classify the products in accordance with their technological characteristics. Our classification is based on Hufbauer and Chilas (1974) and Yılmaz (2002). Such classification was used in Erlat and Erlat (2003, 2008, 2012). This method classifies the products as ‘raw material intensive goods’ (RMIG), ‘labor-intensive goods’ (LIG), ‘capital-intensive goods’ (CIG), ‘easy-to-imitate research goods’ (EIRG) and ‘difficult-to-imitate research-intensive goods’ (DIRG). More specifically, the classification can be summarized as follows:

SITC 0, 2 (ex.26), 3 (ex.35), 4, 56 as raw material intensive goods (RMIG).

SITC 26, 6 (ex.62, 67, 68), 8 (ex. 87, 88) as labor-intensive goods (LIG)

SITC 1, 35, 53, 55, 62, 67, 67, 78 as capital-intensive goods (CIG)

SITC 51, 52, 54, 58, 59, 75, 76 as easy-to-imitate research-intensive goods (EIRG)

SITC 57, 7(ex.75,76,78), 87, 88 as difficult-to-imitate research-intensive goods(DIRG)

## **IV. Results**

### **IV.a. Results from the RCA index**

#### *Comparison Between Countries*

As a first step, we calculate the RCA index for each 3-digit sector of all countries in our sample for each year. After this, we determine the actual number of over-unity RCA sectors (i.e., the sectors for which the RCA index is higher than 1) and their percentages in the total number of exporting sectors. We also distribute them among technological categories in the case of Turkey.

However, looking only at the number of the sectors may be misleading since our sample is very heterogeneous in terms of country sizes. Therefore, we also calculate the shares of exports of over-unity RCA sectors in the total exports of the country in question.

We present the results as averages of the periods; i.e., the full period (FP) for 1996-2010, the first period (P1) for 1996-2003 and the second period (P2) for 2004-2010. By doing this, we can see the changes in the RCA positions of the countries before and after the enlargements in the EU, as well as the changes in recent years. We take into account 33 countries in this context.

Table 2 presents the results for overall sectors. Part 'a' of the table shows the actual number of sectors and their percentages in the total number of sectors with the rankings. Part 'b' shows the shares of exports of these sectors in the total exports of the country in question with the rankings.

According to the table, Turkey has 68 over-unity RCA sectors and is ranked 13<sup>th</sup>. These 68 RCA sectors constitute 28% of Turkey's total number of sectors and the exports of these 68 sectors constitute 85 % of Turkey's total exports. In terms of the share of RCA exports, Turkey is ranked 15<sup>th</sup>, with 85.2 %. This share stays constant from the first to the second period.

Table 2.a shows that Poland, the Czech Republic, Switzerland and the US are the countries with the highest numbers of over-unity RCA sectors. Although Turkey has recorded an increase from the first to the second period, some CEECs such as Romania, Latvia, Lithuania and Croatia have had the highest increases from the first to the second period in terms of the actual numbers of over-unity RCA sectors.

Table 2.a also shows that the percentage of over-unity RCA sectors in total number of sectors does not exceed 50 % in any of the countries considered. The ranking of the countries is more-or-less similar to the previous case. Turkey has exhibited an increase from 26.6% in the first period to 29.4% in the second period. As in the previous case, Romania, Latvia, Lithuania and Croatia have had the highest increase from the first to the second period.

Table 2.b shows the shares of the exports of over-unity RCA sectors in the total exports of the country in question. Differently from the previous case, the export shares of over-unity RCA sectors in total exports are above 50 % for all countries. This share is the highest for Russia (93%), which is followed by Morocco and Egypt, while it is the lowest for Canada (76.7%).

**Tables 2.a-b Export Performance of the overall over-unity RCA sectors**

**Table 2.a Numbers & Percentages**

**Table 2.b Export Shares**

	Average Number of RCA Sectors				Average % of RCA Sectors in Total Number of Exporting Sectors				Share of RCA Exports in Total Exports				
	FP	Rank	P1	P2	FP	Rank	P1	P2	FP	Rank	P1	P2	
	<b>POLAND</b>	110	(1)	106	115	45.0	(1)	44.5	45.7	<b>RUSSIA</b>	93.0	(1)	91.5
<b>CZECH R</b>	109	(2)	109	108	43.0	(2)	43.3	42.6	<b>MOROCCO</b>	91.4	(2)	92.1	90.7
<b>SWITZERLAND</b>	100	(3)	102	99	39.5	(3)	40.2	38.6	<b>EGYPT</b>	90.3	(3)	92.2	88.2
<b>USA</b>	98	(4)	96	99	38.5	(4)	37.8	39.3	<b>LATVIA</b>	88.8	(4)	91.4	85.8
<b>SLOVENIA</b>	89	(5)	89	89	37.2	(5)	37.5	36.8	<b>JAPAN</b>	88.5	(5)	90.2	86.6
<b>BULGARIA</b>	86	(6)	81	92	36.7	(6)	35.1	38.5	<b>LITHUANIA</b>	87.5	(6)	88.4	86.4
<b>CHINA</b>	81	(7)	81	82	33.6	(10)	33.7	33.5	<b>MALAYSIA</b>	87.1	(7)	85.5	88.8
<b>SLOVAKIA</b>	80	(8)	80	80	33.9	(7)	33.9	33.9	<b>MALTA</b>	86.5	(8)	85.2	88.0
<b>HUNGARY</b>	79	(9)	78	80	33.7	(8)	33.4	34.2	<b>UKRAINE</b>	86.5	(9)	87.2	85.6
<b>CROATIA</b>	79	(10)	72	86	33.6	(9)	31.1	36.5	<b>TUNISIA</b>	86.1	(10)	88.3	83.6
<b>INDIA</b>	77	(11)	71	84	31.7	(11)	29.9	33.7	<b>CROATIA</b>	86.0	(11)	86.1	85.9
<b>ROMANIA</b>	69	(12)	61	78	29.7	(13)	27.1	32.7	<b>INDONESIA</b>	85.5	(12)	85.6	85.5
<b>TURKEY</b>	<b>68</b>	<b>(13)</b>	<b>65</b>	<b>72</b>	<b>27.9</b>	<b>(16)</b>	<b>26.6</b>	<b>29.4</b>	<b>SLOVENIA</b>	85.5	(13)	86.6	84.3
<b>JAPAN</b>	67	(14)	65	69	28.5	(14)	27.8	29.4	<b>S AFRICA</b>	85.3	(14)	84.2	86.6
<b>CANADA</b>	66	(15)	63	69	26.6	(18)	25.8	27.5	<b>TURKEY</b>	<b>85.2</b>	<b>(15)</b>	<b>85.2</b>	<b>85.2</b>
<b>ISRAEL</b>	66	(16)	66	65	29.9	(12)	30.6	29.2	<b>ISRAEL</b>	85.2	(16)	83.7	87.0
<b>THAILAND</b>	64	(17)	62	67	27.4	(17)	27.1	27.8	<b>BULGARIA</b>	85.2	(17)	85.9	84.3
<b>LITHUANIA</b>	64	(18)	57	72	28.1	(15)	25.5	31.0	<b>SWITZERLAND</b>	85.0	(18)	85.0	85.0
<b>BRAZIL</b>	60	(19)	56	66	25.2	(22)	23.5	27.1	<b>THAILAND</b>	84.8	(19)	87.2	82.1
<b>UKRAINE</b>	60	(20)	59	61	26.4	(19)	26.9	25.8	<b>ROMANIA</b>	84.7	(20)	85.6	83.6
<b>INDONESIA</b>	58	(21)	55	62	25.2	(21)	24.2	26.4	<b>NORWAY</b>	84.5	(21)	83.8	85.3
<b>S AFRICA</b>	57	(22)	60	54	23.2	(23)	24.7	21.5	<b>SINGAPORE</b>	84.5	(22)	84.0	85.0
<b>LATVIA</b>	56	(23)	49	64	26.0	(20)	23.8	28.5	<b>CHINA</b>	83.9	(23)	83.6	84.3
<b>MEXICO</b>	50	(24)	53	47	21.8	(26)	23.5	19.9	<b>KOREA</b>	83.4	(24)	83.3	83.5
<b>MOROCCO</b>	49	(25)	46	52	22.9	(25)	22.6	23.1	<b>BRAZIL</b>	82.9	(25)	84.3	81.2
<b>MALAYSIA</b>	44	(26)	39	50	19.9	(27)	17.7	22.4	<b>SLOVAKIA</b>	82.8	(26)	83.5	82.1
<b>KOREA</b>	43	(27)	44	42	19.3	(28)	20.1	18.5	<b>INDIA</b>	82.7	(27)	83.9	81.2
<b>EGYPT</b>	43	(28)	42	44	22.9	(24)	23.8	21.8	<b>POLAND</b>	82.1	(28)	82.1	82.0
<b>TUNISIA</b>	39	(29)	34	46	18.6	(29)	16.5	21.1	<b>HUNGARY</b>	81.2	(29)	79.8	82.7
<b>RUSSIA</b>	37	(30)	42	30	15.1	(31)	17.5	12.5	<b>CZECH R</b>	81.0	(30)	79.1	83.1
<b>MALTA</b>	32	(31)	32	33	17.2	(30)	16.3	18.3	<b>MEXICO</b>	80.7	(31)	80.5	80.8
<b>NORWAY</b>	26	(32)	33	19	10.5	(33)	13.1	7.5	<b>USA</b>	76.7	(32)	78.9	74.2
<b>SINGAPORE</b>	26	(33)	24	28	11.4	(32)	10.6	12.2	<b>CANADA</b>	76.7	(33)	76.8	76.5

Interestingly, Russia is one of the countries with the lowest percentage of over-unity RCA sectors in total number of sectors (ranked 31<sup>st</sup>), while it has the highest share of over-unity RCA

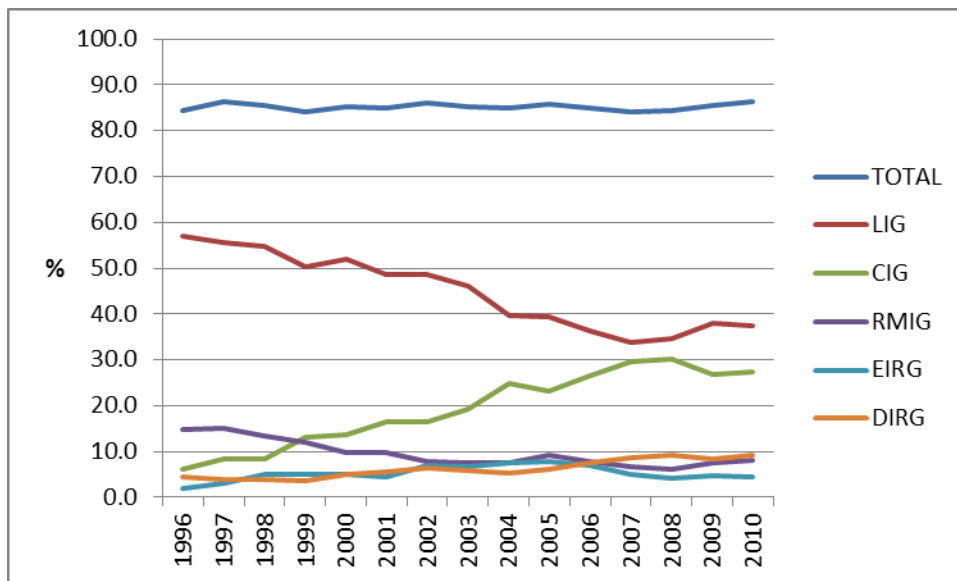
exports in total exports. Therefore, we can conclude that Russia has a very concentrated export structure.

It should also be noted that ‘the values for the share of RCA exports in total exports’ (in Table 2.b) are closer to each other among countries, as compared to ‘the values for average number and percentage of RCA sectors’ (in Table 2.a). This observation may indicate that the countries are quite heterogeneous in terms of the variety of products in which they have comparative advantages, whereas they are relatively more homogeneous in terms of the contribution of the RCA exports to their total export earnings. In other words, different countries may have many or few RCA sectors; however, the major source of export revenue remains to be the RCA sectors, irrespective of the degree of diversity or uniformity of comparative advantages.

*The RCA Performance of Turkey*

In the previous section, we compared the RCA performance of the countries based on the overall products for the full period (1996-2010) and the two sub-periods (1996-2003 and 2004-2010). We now focus upon Turkey separately and evaluate the RCA performance of its individual exporting sectors. First, we review the share of over-unity RCA sectors in Turkey’s total exports, based on technological categories for each year from 1996 to 2010. By doing this, we will be able to see the details at temporal and sector dimensions, separately.

**Figure 1 Share of Turkey’s RCA sectors in total exports, 1996-2010**



Based on Figure 1, we observe that the share of Turkey's over-unity RCA exports in total exports has changed between a minimum of 84.1% (in 2007) and a maximum of 86.4% (in 2010). Although LIG constitute the highest share from 1996 to 2010, it has been decreasing over time. The LIG category has the highest share in 1996 (57.0%) and it has been decreasing steadily until 2007 (33.7%). Although it has increased to 37.5% in 2010, it is still far lower than its 1996 value. This decrease in the share of LIG seems to be offset by the corresponding increase in the share of the CIG category. Indeed, the decrease in the LIG category and the increase in the CIG category are like mirror images of each other. The share of over-unity RCA exports in total exports of Turkey in the CIG category is the lowest in 1996 (6.2%) and it has been increasing until 2008 (30.2 %). The share of RMIG is the highest in 1997 (15.0%) and it has been decreasing until 2008 (6.2%); however, there is a slight increase in the share of RMIG since 2008 and it is 8.0% in 2010. The share of EIRG is the lowest in 1996 (1.9%), relative to the other years as well as relative to the other categories. It is the highest in 2005 (7.8%), but it has decreased until 2010 (4.4%). The share of DIRG has been increasing in recent years. It was 4.5% in 1996, while it has increased to 9.2% in 2010.

Now, we evaluate Turkey's 3-digit sectors with the highest RCA coefficients with their technological categories for the full period (1996-2010) and the two sub-periods (1996-2003 and 2004-2010). We also present the three countries with the highest RCA coefficients in these 3-digit sectors. Table 3 presents the results.

According to the table, Turkey's highest RCA sectors are 783 (Road motor vehicles), 662 (Clay construction materials), 844 (Women's or girls' coats), 782 (Special-purpose motor vehicles), 655 (Knitted or crocheted fabrics), 812 (Sanitary, plumbing and heating fixtures and fittings), 058 (fruit), 846 (Clothing accessories), 658 (Made-up articles of textile materials) and 056 (vegetables). Turkey's main competitors in these sectors are Poland, Czech Republic and Thailand in the CIG category; Egypt, Morocco, India, Bulgaria in the LIG category; Morocco, Egypt, South Africa and Thailand in the RMIG category.

**Table 3 Turkey's highest-RCA sectors, 3-digit**

Tech.	Sector	1996-2010	1996-2003			2004-2010		
		Turkey's RCA	Turkey's RCA	First 3 Countries's RCA		Turkey's RCA	First 3 Countries's RCA	
<b>CIG</b>	<b>S3-783</b> Road Motor Vehicles, N.E.S.	<b>10.71</b>	<b>9.94</b>	1-Turkey	9.94	<b>11.60</b>	1-Turkey	11.60
				2-Poland	5.56		2-Poland	6.63
				3-Czech R.	4.65		3-Czech R.	3.37
<b>LIG</b>	<b>S3-662</b> Clay Construction Materials and Refractory Construction	<b>10.34</b>	<b>12.10</b>	1-Turkey	12.10	<b>8.32</b>	1-Turkey	8.32
				2-Bulgaria	8.06		2-Bulgaria	2.92
				3-Czech R.	5.58		3-Czech R.	2.46
<b>LIG</b>	<b>S3-844</b> Women's Coats, Capes, Jackets, Suits, Trousers,	<b>9.07</b>	<b>10.83</b>	1-Turkey	10.83	<b>7.06</b>	1-Bulgaria	7.61
				2-Bulgaria	7.20		2-Turkey	7.06
				3-Morocco	5.35		3-Morocco	5.85
<b>CIG</b>	<b>S3-782</b> Motor Vehicles for the Transport of Goods and	<b>8.76</b>	<b>3.32</b>	1-Thailand	11.45	<b>14.99</b>	1-Turkey	14.99
				2-Turkey	3.32		2-Thailand	11.38
				3-Poland	3.31		3-Brazil	3.97
<b>LIG</b>	<b>S3-655</b> Knitted Or Crocheted Fabrics (Including Tubular Knit	<b>8.50</b>	<b>7.70</b>	1-Malta	15.22	<b>9.41</b>	1-Malta	34.00
				2-Korea	12.89		2-Turkey	9.41
				3-Turkey	7.70		3-Korea	7.51
<b>LIG</b>	<b>S3-812</b> Sanitary, Plumbing and Heating Fixtures And Fittings,	<b>7.91</b>	<b>7.58</b>	1-Egypt	34.24	<b>8.30</b>	1-Slovakia	8.73
				2-Bulgaria	8.13		2-Turkey	8.30
				3-Turkey	7.58		3-Egypt	5.89
<b>RMIG</b>	<b>S3-058</b> Fruit Preserved, and Fruit Preparations (Excluding Fruit	<b>7.82</b>	<b>8.14</b>	1-Turkey	8.14	<b>7.45</b>	1-Turkey	7.45
				2-Thailand	6.59		2-Thailand	5.74
				3-S.Africa	4.94		3-Morocco	3.90
<b>LIG</b>	<b>S3-846</b> Clothing Accessories, of Textile Fabrics,(other than	<b>7.16</b>	<b>7.40</b>	1-Turkey	7.40	<b>6.88</b>	1-Turkey	6.88
				2-India	4.30		2-Croatia	5.69
				3-Romania	4.05		3-India	3.34
<b>LIG</b>	<b>S3-658</b> Made-Up Articles, Wholly or Chiefly of Textile Materials,	<b>7.14</b>	<b>8.48</b>	1-Egypt	9.78	<b>5.60</b>	1-India	5.70
				2-Turkey	8.48		2-Turkey	5.60
				3-India	7.84		3-Egypt	4.46
<b>RMIG</b>	<b>S3-056</b> Vegetables, Roots and Tubers, Prepared or Preserved, N.E.S.	<b>6.91</b>	<b>7.83</b>	1-Morocco	11.78	<b>5.87</b>	1-Morocco	9.70
				2-Turkey	7.83		2-Turkey	5.87
				3-Egypt	7.06		3-Egypt	5.45

According to our results, some changes for Turkey between two periods are especially noteworthy. In the sector 782 (Special-purpose motor vehicles), there is a high increase in the coefficient of RCA. In this sector, Turkey has come to the 1st position in the country rankings. In the previous part, we have already mentioned about the increase in Turkey's over-unity RCA



exports in the CIG-category. We can especially emphasize the contribution of sector-782 to this increase. On the other hand, we should also note the importance of two CIG-products that are not shown in the table. Turkey gained comparative advantage in sectors 684 (Aluminum) and 678 (Iron and Steel Wire) in the second sub-period, with no over-unity RCA in these sectors in the first sub-period. As such, these two sectors can be said to have also contributed significantly to the increasing share of the CIG-category. Besides, when we consider the highness of the export value of sector 684, the role of this sector in the increasing share of the CIG category is especially remarkable. In this important sector (684), Norway, Slovenia and Egypt are the highest-RCA countries and hence they are the most important competitors of Turkey.

#### **IV.b. Dynamic Market Positioning**

##### *Comparisons Between Countries*

Evaluating dynamic market positions of the countries presents another way to view a country's position in the international markets. Therefore, in this part, we will review the dynamic market position of Turkish exports as well as other countries over the whole period.

Table 4 below shows the shares of "rising stars," "falling stars," "leading retreat," "lagging retreat," "lagging opportunity," and "lost opportunity" in the total exports of the countries in the period 1996-2010 for overall sectors. The ranking in Table 4 is based on the "rising stars." Bold numbers show the highest category among others for each country.

Table 4 indicates that 37.3% of Turkey's total exports fall in the category of "rising stars," 6.9% in "falling stars," 11.2% in "leading retreat," 31.9% in "lagging retreat," 6.6% in "lagging opportunity," and 6% in "lost opportunity." While the highest share of "rising stars" is good news for Turkey, "lagging retreat" has the second-highest share, implying that a considerable portion of Turkish exports belongs to sectors which are declining in terms of their share in the EU-15 market. In fact, "retreat" can be seen as a rational way of restructuring away from the products with declining demand by EU-15 and, hence, the year-by-year decrease in the exports of these products can be a good development for Turkey, provided that the rate of this decrease slows down so that Turkey can restructure its exports from 'lagging retreat' to 'leading retreat.'

When we compare the categories within each country, we see that most of the countries, including Turkey, have the highest share in the “rising stars.” Therefore, most countries are in the optimal position since the share of these countries in the EU-15 market is rising in products for which EU-15-demand is growing. On the other hand, Malaysia, Brazil, Morocco, Singapore and China have the highest shares in “falling stars;” Malta and Latvia in “leading retreat;” Romania and India in “lagging retreat” and Russia, Norway and Slovenia in “lagging opportunity.” None of the countries has the highest share in “lost opportunity.” However, for Egypt, the share of this category is very high compared to other countries. In other words, Egypt is losing market share in most of the sectors for which EU-15 demand is growing.

**Table 4 Dynamic market positioning, overall sectors, 1996-2010**

	Rising Stars		Falling Stars		Leading Retreat		Lagging Retreat		Lagging Opp.		Lost Opp.	
	Stars	Rank	Stars	Rank	Retreat	Rank	Retreat	Rank	Opp.	Rank	Opp.	Rank
CANADA	57.0	(1)	13.6	(24)	1.9	(25)	16.4	(14)	1.9	(25)	9.4	(17)
UKRAINE	55.1	(2)	21.3	(14)	2.7	(23)	7.5	(26)	9.6	(10)	3.8	(30)
ISRAEL	54.6	(3)	25.0	(10)	1.7	(26)	10.4	(24)	3.8	(20)	4.4	(28)
S AFRICA	53.5	(4)	16.2	(22)	4.0	(19)	2.4	(32)	16.0	(6)	7.9	(23)
SLOVAKIA	47.6	(5)	11.3	(27)	0.6	(32)	15.2	(16)	7.8	(11)	17.7	(9)
INDONESIA	44.6	(6)	21.8	(11)	16.1	(3)	14.6	(17)	0.1	(32)	3.0	(32)
HUNGARY	43.5	(7)	18.3	(18)	1.6	(27)	15.4	(15)	2.5	(23)	18.8	(8)
KOREA	42.8	(8)	10.2	(29)	9.4	(8)	14.4	(18)	2.4	(24)	21.0	(5)
CROATIA	41.3	(9)	20.4	(16)	6.1	(16)	22.8	(7)	5.9	(16)	3.4	(31)
BULGARIA	40.6	(10)	29.6	(7)	6.3	(14)	11.7	(23)	1.6	(26)	10.3	(14)
POLAND	39.8	(11)	12.3	(26)	2.7	(24)	16.7	(13)	6.4	(14)	22.1	(2)
TURKEY	37.3	(12)	6.9	(31)	11.2	(6)	31.9	(3)	6.6	(13)	6.0	(25)
MEXICO	36.9	(13)	21.8	(12)	1.1	(30)	6.1	(27)	25.3	(3)	8.8	(19)
LITHUANIA	36.6	(14)	18.2	(19)	1.4	(29)	27.4	(4)	0.1	(31)	16.5	(10)
BRAZIL	35.2	(15)	54.5	(2)	0.4	(33)	1.2	(33)	0.5	(28)	8.2	(21)
USA	34.5	(16)	10.9	(28)	9.2	(10)	19.7	(11)	4.6	(18)	21.3	(4)
EGYPT	34.5	(17)	20.6	(15)	5.7	(17)	5.7	(28)	0.0	(33)	33.7	(1)
CZECH R	31.1	(18)	20.0	(17)	3.5	(22)	14.1	(19)	9.9	(9)	21.5	(3)
THAILAND	30.6	(19)	30.3	(6)	7.6	(12)	18.6	(12)	2.9	(21)	10.0	(15)
LATVIA	29.0	(20)	21.5	(13)	29.8	(2)	12.8	(21)	0.1	(29)	6.8	(24)
ROMANIA	28.6	(21)	12.8	(25)	3.5	(21)	36.1	(1)	4.0	(19)	15.5	(11)
NORWAY	28.1	(22)	5.2	(32)	0.9	(31)	5.2	(30)	46.1	(2)	14.4	(12)
JAPAN	27.3	(23)	17.5	(20)	12.8	(5)	13.3	(20)	21.2	(5)	8.0	(22)
INDIA	27.2	(24)	17.1	(21)	7.5	(13)	34.2	(2)	2.9	(22)	11.2	(13)
CHINA	26.8	(25)	31.5	(5)	4.7	(18)	23.1	(6)	5.5	(17)	8.8	(18)
MALTA	25.2	(26)	26.2	(9)	30.9	(1)	12.3	(22)	0.6	(27)	4.7	(27)
SINGAPORE	23.2	(27)	35.6	(4)	10.9	(7)	21.8	(9)	0.1	(30)	8.3	(20)
SLOVENIA	22.8	(28)	15.7	(23)	6.2	(15)	9.8	(25)	24.8	(4)	20.6	(6)
TUNISIA	22.6	(29)	29.5	(8)	8.1	(11)	23.7	(5)	11.5	(8)	4.4	(29)
MALAYSIA	21.9	(30)	57.8	(1)	3.9	(20)	5.3	(29)	6.3	(15)	4.8	(26)
MOROCCO	21.5	(31)	40.1	(3)	9.3	(9)	21.0	(10)	6.6	(12)	1.4	(33)
SWITZERLAN	21.3	(32)	7.0	(30)	14.8	(4)	21.8	(8)	15.7	(7)	19.3	(7)
RUSSIA	13.1	(33)	2.8	(33)	1.5	(28)	4.3	(31)	68.6	(1)	9.7	(16)

Finally, we focus on Turkey and evaluate Turkey's dynamic market positioning. The table below shows the dynamic market positions for each technological category, covering the full period. The ranking is based on the share of each category in total exports. Bold numbers indicate the highest share of each category.

**Table 5 Dynamic market positioning of Turkey, technological categories, 1996-2010**

	TOTAL	Rising Stars	Rank	Falling Stars	Rank	Leading Retreat	Rank	Lagging Retreat	Rank	Lagging Opp.	Rank	Lost Opp.	Rank
<b>RMIG</b>	12.6	1.5	(28)	1.1	(27)	1.8	(8)	<b>6.6</b>	(3)	1.5	(11)	0.0	(28)
<b>LIG</b>	48.2	5.5	(11)	2.8	(25)	9.4	(1)	<b>24.8</b>	(3)	1.4	(4)	4.2	(9)
<b>CIG</b>	21.3	<b>17.9</b>	(4)	0.2	(26)	0.0	(13)	0.7	(4)	2.3	(6)	0.1	(28)
<b>EIRG</b>	7.1	0.9	(30)	1.1	(23)	0.0	(28)	0.0	(33)	<b>5.1</b>	(2)	0.0	(29)
<b>DIRG</b>	11.4	<b>7.1</b>	(13)	1.9	(28)	0.0	(31)	0.0	(33)	0.7	(13)	1.7	(13)

According to Table 5, for example, RMIG-exports constitute 12.6 % of Turkey's total exports. 1.5 percentage-points of this share belongs to "rising stars," 1.1 percentage-points to "falling stars," 1.8 percentage-points to "leading retreat," 6.6 percentage-points to "lagging retreat" (i.e., nearly half of total exports) and 1.5 percentage-points to "lagging opportunity." That is to say, a very large portion (almost half) of Turkey's exports fall into the category of "lagging retreat" and this is not a desirable market position. Actually, a decrease in the exports of these products is a good development for Turkey since these products are declining in terms of their share in the EU-15 market. But the rate of this decrease should slow down so that Turkey can restructure its exports from the 'lagging retreat' to the 'leading retreat' category.

The table also shows that 48.2 % of Turkey's total exports are in the LIG category and the highest portion of Turkey's LIG-exports is in the "retreat" categories. In other words, the bulk of Turkish exports in the LIG category fall in sectors that are declining in terms of their shares in the EU-15 market. According to the table, 21.3% of Turkey's total exports are in the CIG category and 17.9 percentage-points of this share belong to "rising stars." So, Turkey is in an optimal market position in this category because almost all of Turkey's CIG-exports belong to the "rising stars" category. Also, 7.1% of Turkey's exports belong to the EIRG category. Of this 7.1%, 5.1 percentage-points belong to "lagging opportunity." Turkey is ranked the second in the "lagging opportunity" category among other countries. This rank means that Turkey is gaining share in the EU-15 market for the products for which EU-15 demand is growing, however this

gain is not sufficient to move Turkey to an optimal dynamic position. Finally, 11.4 % of Turkey's total exports are in the DIRG category. 7.1 percentage-points of this share belong to "rising stars," implying that Turkey is in a promisingly competitive position despite the relatively low share of DIRG-exports in its total exports.

Turkey is in undesirable positions in RMIG and LIG, as its exports are mostly in "retreat" in these categories. However, "retreat" can also be interpreted somewhat in a positive way, as well-designed industrial and trade policies can lead Turkey to carry out a successful restructuring away from these low-value-added products towards products that generate higher value added. On the other hand, in the EIRG category, Turkey is ranked as the top-second country in terms of "lagging opportunity." Although Turkey is not in an optimal position in this category, it has an improving trend in terms of its share for the products for which EU-15 demand is growing. For the time being, however, this improving trend seems to be too weak to shift Turkey to an optimal position, as Turkey is "lagging" prominently in materializing the "opportunities." In DIRG, Turkey is in a promising and hope-generating market position, despite the relatively low share of DIRG-exports in total exports. Given these improvement tendencies in the 'high-tech' products (i.e., in EIRG and DIRG), Turkey seems to have the potential to raise its international competitiveness in the medium-to-long run, provided that rational science and technology policies are incorporated effectively with well-designed trade policies. Finally, Turkey is clearly in the best market position in the CIG category, as indicated by the fact that Turkey's CIG-exports are almost completely in the "rising stars" category. Considering the relatively higher share of CIG-exports in total exports, as compared to that of EIRG- and DIRG-exports, Turkey's long-term priority in improving its competitiveness in the EU-15 market can be summarized as follows: Turkey should channel its industrial and technological energies into a national effort of transforming its productive infrastructure away from such low-value-added products as RMIG and LIG towards mainly CIG, supporting this transformation simultaneously by also encouraging the production and exports of EIRG and DIRG.

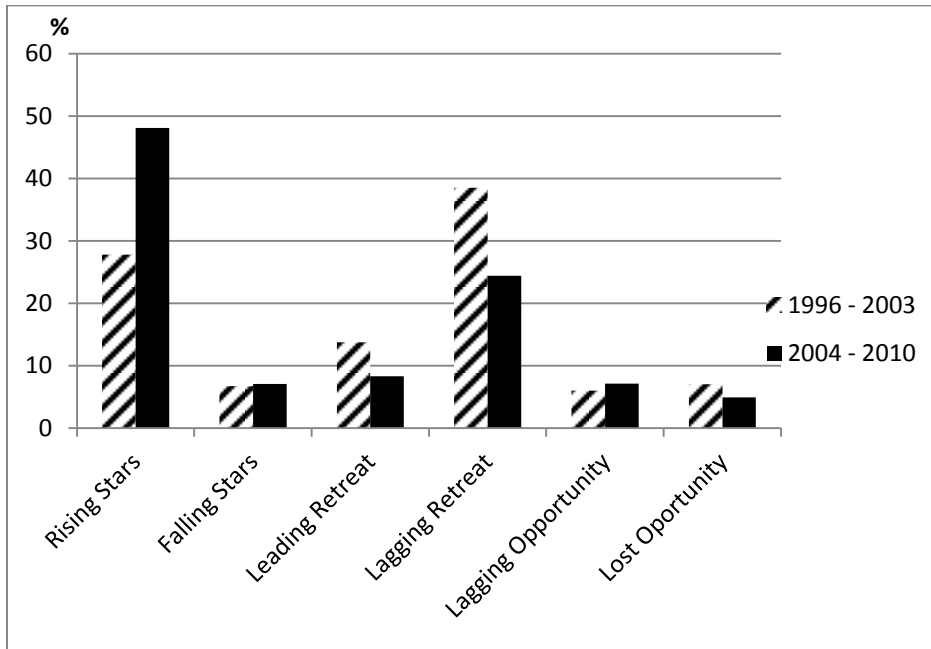
Next, we evaluate Turkey's dynamic market positioning for overall sectors in the two sub-periods (1996-2003 and 2004-2010).

Figure 2 below shows the share of each market position in Turkey's total exports for overall sectors. We find that the share of "rising stars" in Turkey's total exports increased remarkably

from 28% to 48% from the first to the second sub-period, while the shares of “leading retreat” and “lagging retreat” decreased prominently. The changes in the other three market positions are relatively much smaller.

This depiction of the changes in the shares of Turkey’s market positions demonstrates that, from the first to the second sub-period, Turkey has been successful in restructuring away from the declining segments of the EU-15 market, as indicated by Turkey’s decreasing shares in the “retreat” categories. What is more, this positive development has also been supported by a successful restructuring towards “rising stars”.

**Figure 2 Turkey’s dynamic market positioning, overall sectors**



Now, we evaluate Turkey’s 3-digit sectors with their dynamic market positions in the full period and the two sub-periods (1996-2003 and 2004-2010). The sectors examined here are the same sectors as in our RCA analysis, where we chose the sectors with the highest RCAs; i.e., the sectors that have RCA in the full period. Thus, Table 6 below presents the results for the dynamic market positions of Turkey’s over-unity RCA sectors at the 3-digit level.

**Table 6 Dynamic Market Positions of Turkey's over-unity RCA sectors, technological categories, 3-digit**

		<b>Dynamic Market Positioning</b>		
		1996-2010	1996-2003	2004-2010
	<b>Sector</b>			
<b>CIG</b>	<b>S3-783</b> Road Motor Vehicles, N.E.S.	<b>Rising Stars</b>	<b>Rising Stars</b>	<b>Rising Stars</b>
<b>LIG</b>	<b>S3-662</b> Clay Construction Materials and Refractory Construction Materials	Lagging Retreat	Lost Opportunity	Lagging Retreat
<b>LIG</b>	<b>S3-844</b> Women's Coats, Capes, Jackets, Suits, Trousers, Dresses, Underwear,	Lost Opportunity	Lost Opportunity	<b>Rising Stars</b>
<b>CIG</b>	<b>S3-782</b> Motor Vehicles for the Transport of Goods and Special Purpose Motor	<b>Rising Stars</b>	<b>Rising Stars</b>	<b>Rising Stars</b>
<b>LIG</b>	<b>S3-655</b> Knitted Or Crocheted Fabrics (Including Tubular Knit Fabrics,	<b>Rising Stars</b>	<b>Rising Stars</b>	<b>Rising Stars</b>
<b>LIG</b>	<b>S3-812</b> Sanitary, Plumbing and Heating Fixtures And Fittings, N.E.S.	Lagging Opportunity	Lagging Opportunity	Lost Opportunity
<b>RMIG</b>	<b>S3-058</b> Fruit Preserved, and Fruit Preparations (Excluding Fruit Juices)	Leading Retreat	Leading Retreat	<b>Rising Stars</b>
<b>LIG</b>	<b>S3-846</b> Clothing Accessories, of Textile Fabrics,(other than those for babies)	<b>Rising Stars</b>	<b>Rising Stars</b>	<b>Rising Stars</b>
<b>LIG</b>	<b>S3-658</b> Made-Up Articles, Wholly or Chiefly of Textile Materials, N.E.S.	Leading Retreat	Lagging Retreat	Leading Retreat
<b>RMIG</b>	<b>S3-056</b> Vegetables, Roots and Tubers, Prepared or Preserved, N.E.S.	Lagging Retreat	Lagging Retreat	<b>Rising Stars</b>

Our results show that in most of RCA sectors, there is successful restructuring of Turkish exports from the first to the second sub-period. In terms of dynamic market positioning, Turkey realized best restructuring of exports in sector 844 as moving its position from “lost opportunity” to “rising stars.” This success is mainly due to Turkey’s export performance in this sector. Actually, the scope of our analysis cannot let us know the exact cause behind this shift, but supply-side changes on the part of Turkey seem to be a reasonable explanation.

Also, sectors 058 and 056 became “rising stars” in the second sub-period. However, this positive restructuring is due to not only Turkey’s supply-side success in improving its export performance in these sectors, but also the demand-side developments in the EU-15 market, where the general conjuncture has been in favor of a higher demand for the products of these sectors. On the contrary, Turkey realized an unsuccessful restructuring by shifting her position from lagging opportunity to lost opportunity in sector 812. In the sectors 783, 782, 655 and 846 there is no dynamic shift since these sectors are rising stars in the full period and the two sub-periods. Also apart from the sectors with the highest RCAs, the sectors 684 and 678 which we examined in our RCA analysis are in rising stars position in the full-period and both sub-periods.

Finally, in EIRG and DIRG categories, we also see that some sectors are Turkey’s “rising stars” although their RCA coefficients are not as high as the sectors in other categories or Turkey doesn’t have RCA in these sectors in the EU-market. For EIRG, these sectors are 583 (Monofilament with a Cross-Sectional Dimension Exceeding 1 Mm, Rods, Sticks and Profile Shapes of Plastics), 581 (Tubes, Pipes and Hoses of Plastics) and 524 (Inorganic Chemicals, N.E.S.; Organic and Inorganic Compounds of Precious Metals). The RCA-coefficients of sectors 583 and 581 have increased in the second sub-period, becoming very close to 1. Turkey can rationally and realistically aim at concentrating on and increasing its exports in these sectors so as to gain comparative advantage relatively more easily. Even though the RCA-coefficient of sector 524 is much smaller than 1, this sector can also be considered as a promising one in terms of its potential contribution to Turkey’s international competitiveness over the long run. In the DIRG, Turkey achieved a successful restructuring in sector 733 (Equipment for Distributing Electricity) from the first to the second sub-period and moved its position from “lost opportunity” to “rising star” by exploiting the opportunities. Also, sectors 723 (Civil Engineering and Contractors' Plant and Equipment), 711 (Steam or Other Vapor Generating Boilers, Super-Heated Water Boilers and Auxiliary Plant For Use Therewith; and Parts Thereof), 748 (Transmission Shafts and Cranks), 718 (Power Generating Machinery and Parts Thereof, N.E.S), 872 (Instruments and Appliances, N.E.S., For Medical, Surgical, Dental or Veterinary Purposes) and 871 (Optical Instruments and Apparatus, N.E.S.) are the “rising stars” for Turkey, even though Turkey doesn’t have RCA in these sectors. Especially sectors 711 and 748 have RCA coefficients that are very close to 1 and, hence, Turkey should put priority on these sectors in the DIRG category.

## **V. Conclusions**

In this paper, we evaluated Turkey's competitiveness position vis-à-vis its non-EU-15 competitors in the EU-15 market from both static and dynamic points of view. We based our evaluation on the RCA index (due to Bela Balassa, 1965) and on the analysis of dynamic market positioning (due to Edwards and Schoer, 2002).

Our results show that the countries are quite heterogeneous in terms of the variety of products in which they have comparative advantages, whereas they are relatively more homogeneous in terms of the contribution of the RCA-exports to their total export earnings. In other words, different countries may have many or few RCA sectors; however, the major source of export revenue remains to be the RCA sectors, quite irrespective of the degree of diversity or uniformity of comparative advantages.

A year-by-year analysis of Turkey's over-unity RCA sectors show that the LIG category possesses the highest share in the full period, but the share of this category has been decreasing over time. This decrease in the share of LIG seems to be offset by the corresponding increase in the share of the CIG category. On the other hand, the share of EIRG has been increasing till 2006, but it has been decreasing since then. In the final year of the analysis (2010), the share of over-unity RCA exports in total exports is the lowest for the EIRG category, among other categories. On the other hand, the share of the DIRG category has been increasing after 2004. However, the shares and dynamics of these two high-tech categories are not very promising in terms of Turkey's RCA-patterns.

Our RCA analysis shows that road motor vehicles, clay construction materials, women's coats, special-purpose motor vehicles, knitted fabrics, sanitary, plumbing and heating fixtures and fittings, fruit, clothing accessories, made-up articles of textile materials and vegetables are Turkey's 3-digit sectors with the highest RCA coefficients. Poland, Czech Republic, Bulgaria, Egypt, India and Morocco are the main competitors of Turkey in these sectors.

After our 'static' analysis, we also examined the comparative advantages of Turkey and its competitors from a 'dynamic' perspective. In this framework, one important observation is that



most of the countries, including Turkey, have the highest share in “rising stars.” In this regard, the exceptions can be listed as follows: Malaysia, Brazil, Morocco, Singapore and China have the highest share in “falling stars,” Malta and Latvia in “leading retreat,” Romania and India in “lagging retreat” and Russia, Norway and Slovenia in “lagging opportunity.”

According to our results, considering the whole period, 37.3 per cent of Turkey’s total exports are in the category of rising stars, 6.9 per cent in the category of falling stars, 11.2 per cent in the category of leading retreat, 31.9 per cent in the category of lagging retreat, 6.6 in lagging opportunity and 6 per cent of its total exports are in the category of lost opportunity. In this case, “lagging retreat” is the second-highest market position. That is to say, a considerable amount of Turkey’s exports include products with decreasing export-shares in the EU-15 market. The immediate policy implication is that Turkey should gradually reduce its exports of such products in order to shift from the position of “lagging retreat” to the position of “leading retreat,” thereby restructuring its export composition successfully away from the products for which EU-15-demand is declining.

Indeed, evaluating Turkey’s dynamic market positioning for the first and the second sub-periods separately, we observe that Turkey has been generally successful in restructuring out of the declining segments of the EU-15 market. Moreover, restructuring into “rising stars” has supported this positive development. To be sure, Turkey will enhance its international competitiveness further if it keeps on achieving such successful restructurings in the future.

Considering that the ‘lagging retreat’ position has the highest share in LIG (as well as in RMIG), it can be argued that Turkey has been shifting away from these categories towards more ‘correct’ sectors, which have a higher potential to contribute to development and competitiveness. Actually, in the RMIG and LIG categories, the decline in the shares of over-unity RCA sectors in total exports shows that Turkey has been restructuring its exports towards more capital-intensive and higher-tech products. However, the ‘retreat’ from the RMIG and LIG categories should continue gradually (rather than rapidly) for this restructuring to yield much more successful and permanent results in terms of development and competitiveness. For example, Turkey should continue to export LIG in the ‘traditional’ sectors that are positioned as ‘rising stars,’ since there seems to be no new opportunities in this category.

All in all, Turkish policy-makers should consider these results as a warning. The LIG category generally involves traditional and low-value-added products and specialization in such products at earlier stages of development can be inevitable. However, long-term dependence on the exports of such products starts to restrict the possibilities of development and competitiveness at a certain point in time. Therefore, developing countries should reduce the weights of such products in their total exports over time in favor of higher-value-added products. Given Turkey's well-known and long-term experience with LIG and in the light of the more recent details summarized above, it is obviously time for Turkey to design a broad reallocation of its export-oriented productive resources towards sectors that can produce and export higher-tech and higher-value-added goods.

In terms of 3-digit sectors, Turkey has realized the best restructuring of exports in sector 844 ("Women's or girls' coats"), moving its position from "lost opportunity" to "rising stars." Also, in sectors 058 ("fruit") and 056 ("vegetables"), Turkey has been remarkably successful in restructuring its exports from the first to the second sub-period. On the other hand, Turkey's restructuring has been unsuccessful in sector 812 ("Sanitary, plumbing and heating fixtures and fittings"), in which its market position shifted from "lagging opportunity" to "lost opportunity."

The sectors 783 ("Road motor vehicles"), 782 ("Special-purpose motor vehicles"), 655 ("Knitted or crocheted fabrics"), 846 ("Clothing accessories"), 684 ("Aluminum") and 678 ("wire of iron or steel") are the promising sectors, as they are among the prominent "rising stars" of Turkey.

Our analysis also shows that, in most of the 3-digit sectors, Turkey's restructuring of exports has arisen from supply-side developments in Turkey, rather than from demand-side shifts in the EU-15 market.

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