

T.C.  
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AVRUPA BİRLİĞİ ENSTİTÜSÜ  
AVRUPA BİRLİĞİ İKTİSADI ANABİLİM DALI

**EFFECTS OF CUSTOMS UNION ON TURKEY'S  
COMPETITIVENESS IN TRADE WITH EU15**

Yüksek Lisans Tezi

ABDULLAH BAHADIR ŞAŞMAZ

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Danışman: PROF.DR. OSMAN KÜÇÜKAHMETOĞLU

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ONAY SAYFASI

Enstitümüz AB İktisadı Anabilim Dalı Türkçe / İngilizce Yüksek Lisans Programı öğrencisi Abdullah Bahadır Şaşmaz'ın *"EFFECTS OF CUSTOMS UNION ON TURKEY'S COMPETITIVENESS IN TRADE WITH EU15"* konulu tez çalışması. 22.10.2014 tarihinde yapılan tez savunma sınavında aşağıda isimleri yazılı jüri üyeleri tarafından OYBİRLİĞİ / ÖYÇOKLUĞU ile BAŞARILI bulunmuştur.

Onaylayan:

Prof. Dr. Osman KÜÇÜKAHMETOĞLU

Danışman

*O. Küçükahmetoğlu*

Doç. Dr. İmre S.ERSOY

Jüri Üyesi

*İmre S. Ersoy*

Yrd. Doç. Dr. Zelha ALTINKAYA

Jüri Üyesi

*Zelha Altinkaya*

Onay

Prof. Dr. Muzaffer DARTAN

Müdür



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## **Abstract**

Customs Union is an important part of Turkey and European Union (EU) relations. After the adoption of the customs union, EU became Turkey's biggest trade partner. Adoption of customs union was a controversial issue and it doesn't exactly involve the conditions as theory suggests due to political reasons. In this study it is aimed to examine the effects of the adoption of the customs union on Turkish industrial competitiveness with a comparative analysis between Turkey and EU15 by employing Revealed Comparative Advantages Method. Results are categorized under two different technological classifications in order to facilitate the examination. Analysis includes the period of 1996-2010 by taking three reference years. According to analysis with 166 industrial commodities under SITC Rev.3, there are no significant changes in the number of competitive commodities and classifications which shows that there is an insignificant shift from commodities with standard technology towards commodities with intermediate technology. While commodities with standard technology constitute the base of Turkish industrial trade in 1996, there was a shift to commodities with intermediate technology throughout years in terms of export revenue. In parallel with this situation, share of commodities with intermediate technology from total industrial trade increased over years. Number of competitive commodities with advanced technology hasn't changed much throughout the years and even it is slightly deteriorated in terms of numbers. However in terms of value there is an increase throughout the years in parallel with increasing trade volume with EU15.

**Keywords:** Revealed Comparative Advantages, Balassa Index, Competitiveness, Competition, Turkey - EU Relations, European Union, EU15

## Özet

Gümrük Birliđi Türkiye ve Avrupa Birliđi ilişkilerinin önemli bir parçasıdır. Gümrük Birliđi'nin kabulünden sonra Avrupa Türkiye'nin en büyük ticaret ortađı haline gelmiştir. Gümrük Birliđi'nin kabulü ihtilafli bir konudur ve siyasi sebeplerden dolayı teorideki şartları tam olarak taşımamaktadır. Bu çalışmada gümrük birliđinin kabulünün Türk endüstrisinin rekabetçiliđine etkilerinin, Açıklanmış Karşılaştırmalı Üstünlükler Metodu'ndan faydalanarak Türkiye ve AB15 arasındaki karşılaştırmalı bir analizle incelenmesi hedeflenmiştir. Sonuçlar, incelemeyi kolaylaştırmak amacıyla iki farklı teknoloji sınıflandırması altında kategorize edilmiştir. Analiz referans alınan yıl ile 1996-2010 dönemini içermektedir. SITC Rev. 3 altında bulunan 166 endüstriyel ürünle yapılan analize göre, rekabet edebilir olan ürünlerin sayısında önemli bir deđişiklik bulunmamakta ve sınıflandırma standart teknoloji ürünlerden orta seviye teknoloji içeren ürünlere dođru önemsiz bir kayma olduğunu göstermektedir. Standart teknoloji ürünler 1996 yılında Türk endüstriyel ticaretinin temelini oluştururken ihracat gelirleri açısından yıllar boyunca orta seviye teknoloji ürünleri bir yönelme bulunmaktadır. Bu duruma paralel olarak orta seviye teknoloji ürünleri toplam endüstriyel ticaretteki payı yıllar boyunca artmıştır. İleri seviye teknoloji rekabetçi ürünleri sayısı yıllar boyunca pek deđişmemiş ve hatta sayı açısından az da olsa gerilemiştir. Ancak ekonomik deđer açısından EU15 ülkeleriyle artan ticaret hacmine paralel olarak yıllar boyunca bir artış bulunmaktadır.

**Anahtar Kelimeler:** Açıklanmış Karşılaştırmalı Üstünlükler, Balassa Endeksi, Rekabetçilik, Rekabet, Türkiye - AB İlişkileri, Avrupa Birliđi, AB15

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## ABBREVIATIONS

AB:	Avrupa Birliđi
AB15:	Avrupa Birliđine üye olan ilk 15 ülke
BENELUX:	Union between Belgium, Netherlands and Luxembourg
COMECON:	The Council for Mutual Economic Assistance
EC:	European Community
ECJ:	European Court of Justice
ECU:	European Currency Unit
EEC:	European Economic Community
EFTA:	European Free Trade Association
EMU:	European Monetary Union
EU:	European Union
EU15:	First 15 members of European Union
EU27:	27 Members of European Union
EU28:	28 Members of European Union
GDP:	Gross Domestic Product
HS:	Harmonized System
NATO:	The North Atlantic Treaty Organization
NGO:	Non-governmental Organization
OECD:	Organisation for Economic Co-operation and Development
R&D:	Research and Development
RCA:	Revealed Comparative Advantages
SITC:	Standard International Trade Classification

SME:	Small-Medium Enterprise
TÜİK:	Turkish Statistical Institute
UNCTAD:	United Nations Conference on Trade and Development
USA:	United States of America
USSR:	Union of Soviet Socialist Republics

## **INTRODUCTION**

Turkey has applied to join European Economic Community (EEC) which was established with Treaty of Rome, in 1959. After the negotiations between two parties, Ankara Agreement was signed. In the Ankara Agreement, framework of Customs Union was determined. Customs Union process is examined under three stages: Preparatory, Transitional and Final stage. It was planned that preparatory stage would last 5 years and it has come to end on 1 January 1973 by the implementation of Additional Protocol. With the Additional Protocol EEC eliminated all tariffs, with some exceptions, on industrial products coming from Turkey and Turkey assumed a gradual tariff elimination for the products coming from EEC. This elimination would take place in 12 and 22 years. After the 1970's, in parallel with the global economic crisis, especially 1973 Oil Crisis, relationship between Turkey and EEC deteriorated and with the Coup d'etat in Turkey in 1980, relationship with the community had been frozen for 6 years.

On 14 April 1987, Turkey applied for full membership and European Commission informed that Turkey is not ready for full membership and on 18 December 1989 Commission stated that relationship between Turkey and Community should continue in the context of Customs Union.

Customs Union was adopted with Decision No 1/95 Of The EC-Turkey Association Council of 22 December 1995 by implementing the final phase of the Customs Union (96/142/EC) [Association Council Decision 1/95], (1995) after 22 years of transitional stage on 01 January 1996. Turkey has become the only country which adopted the Customs Union without full membership. With the adoption of Customs Union tariff, Turkey eliminated all customs duties and charges having equivalent effect and quantitative restrictions applied on imports of industrial products and processed agricultural goods from the EEC. Turkey also adopted the common external tariff to non member countries. Radical changes in foreign trade, elimination of barriers with Turkey's biggest trade partner and adoption of common external tariff, have caused to raise many questions and doubts from different actors in Turkey. Its effects on trade has

become a subject to many different studies in various areas. In this study the effects of Customs Union on Turkish industrial trade with first 15 members of EU (EU15) is tried to be examined with Revealed Comparative Advantages (RCA).

Entrance of Turkey to Customs Union in 1996 has changed the trade dynamics between EU and Turkey. Trade with EU has increased since and it constitutes almost half of Turkish trade today. However the topic on how this change effected Turkish economy is controversial. In this thesis, effects of Customs Union on industrial trade performance is compared with EU15 countries which were members of EEC before Turkey has adopted the Customs Union. This comparison will provide the opportunity to examine the situation on trade with Turkey's biggest trade partner. Thesis aims to examine the effects of Customs Union on Turkey's export and composition of industrial trade with EU15 in terms of technology by employing RCA and examining export data under Standard International Trade Classification (SITC) Rev.3 between 1996 and 2010.

In the first chapter, Customs Union is examined as a concept. Economic Integration is explained along with several definitions from different scholars. Determinants of a successful economic integration is tried to be explained and customs union as an economical integration model and its effects on economies were emphasized. Better understanding on Customs Union was aimed.

In the second chapter, a brief development of Turkey and Community relations was examined with an emphasis on Customs Union. European integration process, which now became European Union (EU), is given shortly first. Then starting point of Turkey -Community relations, Ankara Agreement is mentioned along with the Additional Protocol. Institutions which are created by Ankara Agreement is given in order to understand the internal process of Customs Union. Stages of the Customs Union which are determined in the Ankara Agreement are examined to provide a better perspective. Four freedoms and problems with customs union are also tried to be explained in this chapter.

In the third chapter, before RCA analysis, competitiveness is tried to be explained as a concept. In order to attain better perspective, different definitions of competition and competitiveness, type of competitiveness on different levels such as national, international, industrial and firm levels are given. Also criticism on competitiveness is examined with different point of views. Finally, RCA is explained in order to understand how the empirical research is made in the study.

A general foreign trade analysis is made to gain a better perspective in the fourth chapter before making annual analyses with RCA. Also methodology and dataset and how they are attained are presented and adoption of RCA for the study is explained. Results from the calculation with RCA method is classified by their technology level. Two classifications are used for examination. These classifications allow to examine the industrial trade better by showing work distribution between Turkey and Community in terms of commodities they produced. Calculations show the changes in Balassa index ratio and shares of industrial commodities to EU15 for the period of 1996 and 2010 under different technology classifications which are made by Foders (1995) and UNCTAD. Commodities which have gained competitive advantage and lost their advantages are also given year by year. In the end, an overall evaluation for the analysis is given.



# 1. ECONOMIC INTEGRATION THEORY AND CUSTOMS UNION

## 1.1 Economic Integration

According to Jovanovic (2011, p. 581), all types of economic integration are interesting because they both promote and restrict trade. Trade is liberalized among the participating countries while it is also distorted with third countries as there are various barriers between the integrated group and the rest of the world.

Robson (1998, p.1) defines the international economic integration as “the institutional combination of separate national economies into larger economic blocs or communities.”

According to Seyidoğlu (2013, p. 226-227) economic integration refers to a group of countries which start to develop trade liberalization policies among them. These policies also make those countries more dependent to each other.

Balassa (1973, p. 21) explained the term of economic integration with two points of view: a process and a state of affairs. As a process he defines economic integration as abolishment of discrimination between economic units in different countries. As a state of affairs he uses the more general terms and states that “it can be represented by absence of various forms of discrimination between national economies”.

Jovanovic (2011, p.581, 582) mentions that there can be seven theoretical types of integration between at least two countries:

*“1. A preferential tariff agreement among countries assumes that the tariffs on trade among the signatory countries are lower in relation to tariffs charged on trade with third countries.*

*2. A partial customs union is formed when the participating countries retain their initial tariffs on their mutual trade and introduce a common external tariff on trade with third countries.*

3. A free trade area is an agreement among countries about the elimination of all tariff and quantitative restrictions on mutual trade. Every country in this area retains its own tariff and other regulation of trade with third countries. The bases of this agreement are the rules of origin. These rules prevent trade deflection which is the import of a good from third countries into the area by country A (which has a relatively lower external tariff than the partner country B) in order to re-export the good to country B. None the less, production deflection is possible if the production of goods that contain imported inputs is shifted to countries that have lower tariffs if the difference in tariffs offsets the difference in production and trade costs.

4. In a customs union, participating countries not only remove tariff and quantitative restrictions on their intra-group trade, but also introduce a common external tariff (CET) on trade with third countries. The participating countries take part in international negotiations about trade and tariffs as a single entity.

5. In a common market, apart from a customs union, there exists free mobility of factors of production. Common regulations (restrictions) on the movement of factors with third countries are introduced.

6. An economic union among countries assumes not only a common market, but also the harmonisation of fiscal, monetary, industrial, regional, transport and other economic policies.

7. A total economic union among countries assumes union with a single economic policy and a supranational government (of this confederation) with great economic authority. There are no administrative barriers to the movements of goods, services and factors, hence prices are equalised net of transport costs.”

## **1.2 Determinants of Economical Integration**

One of the main reasons to follow policies to abolish tariff barriers and integrate economies, is to enjoy the benefits of free trade. When it is examined there are several conditions and determinants of a successful and efficient economical integration. Five important determinants can be mentioned: proximity between countries, politic and diplomatic ties, similarity of economic development or economic homogeneity, similarity of economic systems and socio-cultural ties. (Hosny 2013, p.133-155)

### **1.2.1 Proximity Between Countries**

Even though there is economic liberalisation between countries and/or economic blocs due to high transportation costs, economic integration might not be efficient and beneficial. It can be stated that the closer the proximity between countries, the lesser transportation costs are. In other words if the transportation costs are relatively low, gains from the economical integration will be correspondingly higher. (González-Rivera & Helfand, 2001, p. 9-10).

### **1.2.2 Politic and Diplomatic Ties**

There is a complex relation between politic and economy and no clear separation between them. A disturbance in politics or the political tension between two states might affect the economy and vice versa. In this context, countries tend to prefer to ingetrate with the other countries that they could get along politically and diplomatically. (Armstrong & Drysdale, 2009, p. 22-23)

### **1.2.3 Similarity of Economic Development or Economic Homogeneity**

Classical theory suggests that a country which doesn't have any advantages on any commodities, still might get benefit from international trade. Globalisation and economic integration also affects the small economies and poor countries positively. However it is also suggested that in practice, underdeveloped states don't jump into

trade with developed states. There are several theories which support that when underdeveloped states make economic integration with developed countries, rich countries will be richer and poor countries will be poorer. (Dollar and Kraay, 2002, p.120)

#### **1.2.4 Similarity of Economic Systems**

During 20<sup>th</sup> century, there were two major economical systems: capitalism and socialism-communism. There are major differences in economical view and dynamics between these economic systems. The countries in different blocs under different regimes will tend to or be forced to trade with states which have similar economic system. During 20<sup>th</sup> century, establishment of EU and The Council for Mutual Economic Assistance (COMECON) can be given as examples for capitalist and communist integration respectively. (Robson, p.4, 12)

#### **1.2.5 Socio-Cultural Ties**

Countries which share a common history, culture and religion have tendency to trade and cooperate more efficiently. Relation between people from different nations determine the policy between them thus effects economic relations. In this context, it can be stated that socio-cultural ties play important role in integration. (Balassa, 1973, p. 39, 40) EU integration process can be given as an example to this case.

### **1.3 Customs Union**

Jovanovic (2011, p.584-585) suggests that:

*“The intuition behind the neo-classical theory of customs unions is the proposition that the potential consumption of goods and services in a customs union is higher than the sum of the individual consumption of the potential member countries in the situation in*

*which trade among these countries is distorted by tariffs and quotas.”*

Jovanovic (2011, p.583-584) also suggests that decision of the adoption of customs union and/or any other integration is always related with politics. One of the main political argument on customs union is abandoning some of sovereign rights of countries. Customs union can also have political aims such in the case of establishment of European Community which liberalised trade and also prevent a potential war or conflict between France and Germany.

Robson (1998, p.2) defines Customs Union as a basic form of integration which is characterized by a common external tariff, tariff-free trade amongst its members, and the integration of tariff policy.

Balassa (1973, p. 21) states that in a customs union all tariffs and other forms of trade restrictions among the participating countries must be eliminated and uniform tariffs and other regulations on foreign trade with nonparticipating economies must be established.

Wooton (1998, p. 525-538) explains customs union as a coalition of countries that doesn't charge any taxes on goods traded between themselves but impose a common structure of taxes on goods traded with the rest of the world, irrespective of which of the member countries produces the goods or finally consumes them. This is one of the main points that distinguishes Customs Union from Free Trade Area.

Zollverein which can be called German Customs Union can be referred as the first customs union in international area. It had involved 38 city-states and started in 1834. Union between Belgium, Netherlands and Luxembourg (Benelux) is an another example for customs unions. However EEC is the most well-known and good example for customs unions.

## **1.4 Customs Union as an Economical Integration Model and Its Effects**

There were several theories and models for basic economic integration, such as preferential trade regimes and customs union until 1950. Viner (1950) suggested that customs union issue is somewhere between protectionism and liberalization and it concerns protectionists and liberalists both. Viner (1950) also stated that customs union has two effects: trade creation and trade diversion. Viner's analysis on Customs Union is limited with production effects. Viner also examined the effects of Customs Union on world wealth and tried to explain it with production effects. Meade (1955) suggested that Viner's theory doesn't explain consumption effect. Meade also stated that costs might not be always constant and can be changed and the scale economies should be taken into account. The supplementation made by Meade (1955) shaped the classical customs union theory.

Meade's theory was supported by Lipsey and Lancaster (1956) with "General Theory of the Second Best". According to Second Best Theory, pure competition model cannot be implemented in the real world and there is always going to be imperfect competition in markets, so under some circumstances it might be more beneficial to apply restriction on trade with tariff and quotas.

Cooper and Massel (1965, p. 461-476) developed another approach to Viner's model. According to Cooper and Massel (1965), when underdeveloped countries try to integrate with developed countries, the effects of the integration might have negative impact on the industry of underdeveloped country. Trade creation and trade diversion effects can be positive and negative at the same time. While integration increases trade volume among participating countries, it can also decrease trade volume with third countries due to existence of tariff barriers such as common external tariff.

### **1.4.1 Static Effects of Customs Union**

In the case of elimination of trade barriers in a certain area, trade volume increases among countries. Due to efficient use of resources, production costs would be

reduced and there will be a positive effect on global welfare. This is called static effects of Customs Unions.

While creating a tariff free area, trade volume among countries might increase but since there is a common external tariff which is applied to non-member countries, it might effect the trade with non member countries badly. Increase in trade in the tariff free area is called trade creation effect while decrease in trade with outside of tariff free area is called trade diversion effect.

Scale economies and specialization can be considered as two main reasons of trade creation. The countries in the free trade area eventually will produce what they're best at. This means that accordingly with comparative advantages theory, these countries will produce their most competitive sector/commodity which have lower costs than the other sector/commodities and shift all their production factors to the most competitive sector. This causes specialisation in the various sectors and mass production with lower costs due to scale economies.

Trade creation is a positive effect of customs union. On the other hand, customs union causes a disturbance in trade between member and non member countries. Due to common external tariff, which is also adopted with customs union, import from non member countries will be decreased since there is no trade barrier in the area. Member countries enjoy tariff free trade while a non member country faces a common external tariff. This will cause an incompetitive situation for the non member country/countries. This is called trade diversion effect. If common external tariff doesn't have any effect at all or it effects barely the export of non member countries or the exporter non member country has lower production cost even though it includes common external tariff than member countries, trade diversion effect would be minimal. (El-Agraa, 2011, p. 84).

If trade creation effect is greater than trade diversion effect, there is an increase in global welfare. But if there is an opposite situation, there is a welfare lost in total. It can be said that welfare is directly effected by static effects of customs union.

### **1.4.2 Dynamic Effects of Customs Union**

Static effects of customs union explain welfare and trade effects with trade creation and diversion. However, customs union also might cause structural changes on economic structures, production capacity and factor efficiency of member states. These effects are called dynamic effects of customs union.

Dynamic effects of customs union are scale economies, technology development, increase in competitiveness, increase in investments. (Cherunilam, 2008, p.303)

#### **1.4.2.1 Scale Economies**

Scale economies offer mass production which lowers the costs of the product. In case of establishment of a customs union, sectors will be able to engage trade without tariff costs and also be able to make mass production in a protected market by a common external tariff. (Cherunilam, 2008, p.304) Since there will be a mass production, the storage costs also will be lower and more qualified human resources can be employed. Production and marketing costs might be decreased while production quality increased.

Scale economies also effect other supporting sectors in the union as well. Thus quality in education, infrastructure such as communication, transport, energy, finance institutions are developed in parallel with manufacturing sector.

#### **1.4.2.2 Technology Development**

Technology development is another dynamic effect of a customs union. The larger market offers larger production. The number of larger corporations increases to make larger production. Free trade and larger market leads to competition between firms. In order to compete with each other, reduce production costs and increase quality, corporations make investment on research and development (R&D). (Cherunilam, 2008,



p.304) This also causes education sector development as well as technology. With increase in R&D, new technologies and more efficient techniques can be accessed by the sectors. This increases competitiveness in external trade with non member states and welfare in barrier free area.

#### **1.4.2.3 Increase in Competitiveness**

Increase in competitiveness is a dynamic effect of a customs union. Tariffs, quota restrictions and other trade barriers cause inefficiency in production and also encourage the monopoly in the country and/or region. When a customs union is established effectively, with the elimination of trade barriers, only the efficient corporations can survive and monopol firms in the sectors have to compete with other monopol and/or big firms which basically eliminate monopoly itself. (Cherunilam, 2008, p.304)

#### **1.4.2.4 Increase In Investments**

Increase in investments is another natural outcome of customs union. (Cherunilam, 2008, p.304) states that “An increase in competition and technological changes lead to additional investments made to cope with the new situation and to take advantage of the newly created opportunities.” With the establishment of a customs union, efficient use of resources cause an increase on the national income as well as savings and investments. Non member states also shift their production to barrier free area in order to avoid common external tariff.

## **2. TURKEY – COMMUNITY RELATIONSHIP**

### **2.1 Process of Establishing the European Union**

After the First World War, ideas and attempts for peace have gone in vein in Europe due to nationalist and colonialist way of thinking. (Borchardt, 1995, p. 5-6) During the Second World War, the idea of a single Europe and/or unification of Europe has emerged mainly because of war which is caused due to conflict of interest between rival countries (Wallace, 1996, p.11-16). Another reason for the unification of Europe was the political and economical threat of United States of America (USA) (Baun, 1996, p. 6-8).

In paralel with this idea, Belgium, Holland and Luxembourg decided to establish an economical integration between themselves which is called Benelux. Benelux is established in 1944 and it has started to be implemented by 1948.

Winston Churchill supported the idea of a unified Europe in the speech he made in 1946 in Zurich. According to Churchill, a United States of Europe should be established and first steps should be taken by Germany and France with the support of England. (Ülger, 2003: p.3-4)

Jean Monnet, Head of French State Planning Organization, also contributed to the idea of unification of Europe. Monnet defended the idea that in order to maintain peace in Europe, coal and steel should be controlled by a supranational body rather than the countries. In paralel with this idea, French Foreign Affairs Minister, Robert Schumann has proposed a plan which involves unification of coal and steel sources which are owned by Germany and France and management of these resources by a supranational body on 9 May 1950. (Karluk, 1996, p. 38) This proposal, also known as Schumann Plan, has been adopted by France, Germany, Belgium, Holland, Luxembourg and Italy in 1951 and the European Coal and Steel Community was established. (European Union, 2013)

In order to expand this cooperation between six countries, it was decided that the context of Coal and Steel Treaty should be expanded to other sectors as well and on 25 March 1957, Treaty of Rome was signed and EEC was established.

Purposes are set out in Article 2 of Treaty establishing the EEC [The Treaty of Rome] (1957). Establishment of a common market, harmonious development, continuous and balanced expansion, stability and raising standard of people who live in member states, and closer relations are aimed. The Treaty of Rome (1957) Article 3 explains how these aims can be achieved:

*“(a) the elimination, as between Member States, of customs duties and of quantitative restrictions on the import and export of goods, and of all other measures having equivalent effect;  
(b) the establishment of a common customs tariff and of a common commercial policy towards third countries;  
(c) the abolition, as between Member States, of obstacles to freedom of movement for persons, services and capital;  
(d) the adoption of a common policy in the sphere of agriculture;  
(e) the adoption of a common policy in the sphere of transport;  
(f) the institution of a system ensuring that competition in the common market is not distorted;  
(g) the application of procedures by which the economic policies of Member States can be co-ordinated and disequilibria in their balances of payments remedied;  
(h) the approximation of the laws of Member States to the extent required for the proper functioning of the common market;  
(i) the creation of a European Social Fund in order to improve employment opportunities for workers and to contribute to the raising of their standard of living;  
(j) the establishment of a European Investment Bank to facilitate the economic expansion of the Community by opening up fresh resources;  
(k) the association of the overseas countries and territories in order to increase trade and to promote jointly economic and social development.”*

As it can be seen, Treaty of Rome has become a foundation which today's Europe is shaped upon. After Maastricht Treaty is signed on 7 February 1992, this European Integration Process officially is named as European Union.

EU has started this integration process with 6 countries. As mentioned in the Treaty of Rome (1957) Article 2, ‘a balanced and continuous expansion’ was started. With first enlargement on 01.01.1973, Denmark, Ireland and United Kingdom joined to EU and number of member states increased to 9. Greece joined to EU On 01.01.1981. Spain and Portugal become members on 01.01.1986. Austria, Finland and Sweden has joined to EU, before Turkey joined to European Customs Union, on 01.01.1995. After the end of the cold war, EU evaluated this situation as an opportunity to add Eastern European countries which were under the influence Union of Soviet Socialist Republics (USSR) to its ranks, largest expansion has been realized and 10 new countries joined as member states: Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovakia and Slovenia on 01.05.2004. By joining Romania and Bulgaria to EU on 01.01.2007 and Croatia on 01.07.2014, number of member states become 28. (European Union, 2014)

## **2.2 Ankara Agreement**

After Second World War, Turkey has decided to cooperate with the western countries against the threat of Russia. While Turkey joined to NATO for political and military reasons, Turkey also decided to join economical integration with Europe as well.

In parallel with the political and military conjuncture, Turkey applied for membership to EEC. Also, since the establishment of Turkey, following the western civilization was one of the important element which shapes Turkish policy. Additionally rivalry with Greece played a major role for Turkey to apply to EEC. Turkey applied to EEC just after application of Greece. According to Turkish political view, if Greece is accepted to this kind of community, it can abuse this situation and use it against Turkey. (Karluk, 1996, p. 389-392) Turkey applied to EEC in 1959. EEC responded to this application that Turkey was not ready for membership, and until Turkey is ready, a partnership agreement has been offered. This agreement has been signed in Ankara on 12 September 1963 and started to be implemented on 1 December 1964 after being ratified by both sides.

### 2.2.1 Characteristics of Ankara Agreement

Ankara agreement is an association agreement based upon the Treaty of Rome (1957) Article 238. Lasok (1991, p. 27-47) states that "... according to EC law Ankara agreement signifies less than admission to the Community but more than a mere trade agreement." It can be stated that Ankara Agreement has envisaged Turkey's eventual admission to Community.

When it is examined, it can be seen that Ankara Agreement is a framework agreement as Treaty of Rome and Athens Agreement. These agreements provide a programme for reaching full integration without time limits. These framework agreements should be regulated with a legal body. This legal body is pointed out in Establishing an Association between EEC and Turkey [Ankara Agreement], 1963: Article 9:

*"In order to attain the objectives set out in Article 4, the Council of Association shall, before the beginning of the transitional stage and in accordance with the procedure laid down in Article 1 of the Provisional Protocol, determine the conditions, rules and timetables for the implementation of the provisions relating to the fields covered by the Treaty establishing the Community which must be considered; this shall apply in particular to such of those fields as are mentioned under this Title and to any protective clause which may prove appropriate."*

According to this article, Association Council decides, in parallel with the Provisional Protocol to Establishing an Association between EEC and Turkey [Provisional Protocol], (1971), Article 1 , the provisions relating to the conditions, detailed rules and timetables for implementing the transitional stage.

Provisional Protocol (1971, Article 1) states that:

*"Four years after the entry into force of this Agreement, the Council of Association shall consider whether, taking into*

*account the economic situation of Turkey, it is able to lay down, in the form of an additional Protocol, the provisions relating to the conditions, detailed rules and timetables for implementing the transitional stage referred to in Article 4 of the agreement. The additional Protocol shall be signed by the Contracting Parties and shall enter into force after completion of the respective constitutional procedures.”*

It has been foreseen that Council of Association will provide an institutional structure to Ankara Agreement.

### **2.2.2 Additional Protocol**

Ankara Agreement as a framework agreement provided substantive provisions for the transitional period and gradual realization of four freedoms which are free movement of goods, services, capital and persons. Additional protocol was signed in order to implement and provide details, conditions, details of the rules, timetables for the realization of customs union. The additional protocol consists of 64 articles which regulate main pillars of association relationship. It also aims to determine the remaining details for the realization of free movement of goods. It was signed in 1970 (Kabaalioglu, 1998, p.116).

### **2.2.3 Institutions Created by Ankara Agreement**

It was decided that for the realization of the free movement of persons, services, capital and goods parties should convene and decide about details. In order to facilitate and institutionalize this process, various institutions were created based on Ankara Agreement.

#### **2.2.3.1 Association Council**

Association Council is established in order to implement the decisions regarding Turkey and EU relations. It can be said that it is an important institution for Turkey-EU relations. It is an inspection mechanism as well as a decision making body. It oversees the functioning of customs union and its decisions are bounding for both parties. There are two tasks of the association council. First one is to take decisions in order to

implement and interpret the provisions acting as a legislative organ. It clarifies the decisions by eliminating misunderstandings. Association Council takes its decisions unanimously. Parties of the Association Council are representatives of member states at ministerial level.

Second task of the Association Council is solving disputes brought before itself. Any disputes relating to the implementation and also interpretation which concern member community and Turkey can be submitted to the Association Council for resolution. Only the contracting parties may submit a dispute and disagreement concerning community, member states of community and Turkey. Acting as a judiciary organ, Association Council's decisions are binding. The parties must take the provision which complies with the decision. Association Council also might bring the issue to the EU Court of Justice or any other international tribunal law court to settle a dispute. (Dış Ticaret Müsteşarlığı 2002, p. 314-315)

#### **2.2.3.2 Association Committee**

Ankara Agreement gives right for establishing institutional mechanisms and committees in order to assist Association Council. Association Council established Association Committee in 1964. The Association Committee is also an important body as the Association Council. The agenda of Association Council is prepared by Association Committee. Details and technical issues are argued in Association Committee. It establishes the agenda and presents to Association Council. Association Committee consists of technocrats. It is an executive organ. (Dış Ticaret Müsteşarlığı, 2002, p. 315)

#### **2.2.3.3 Turkey – EU Joint Parliamentary Commission**

Turkey – EU Joint Parliamentary Commission was also setup by Ankara Agreement in 1965. Ankara Agreement regulated the establishment of Turkey – EU Joint Parliamentary Commission. It consists of members of parliaments from both sides. It has 36 representatives, 18 from EU and 18 from Turkey. Association Council should

convene at least twice a year, once in a six months. This institution examines the annual activity report prepared by the Association Council and can make recommendations and offer opinions which are not binding (Dış Ticaret Müsteşarlığı 2002, p. 315-316).

#### **2.2.3.4 Customs Cooperation Committee**

This committee is established by the Association Council, in 1969. It provides an administrative cooperation for good and monotonious regular implementations on the customs related provisions of the Ankara Agreement. This institution convenes at the level of customs experts and officials of the parties. (Dış Ticaret Müsteşarlığı 2002, p. 316)

#### **2.2.3.5 Customs Union Joint Committee**

It was established on 6 March 1995 by Association Council. Association Council had taken the decision to establishing a Customs Union Joint Committee to complete the elimination of the barriers. This decision was taken in order to provide alignment of Turkish legislation with the EU legislation in the areas directly related to the effective functioning of the Customs Union. It can give to Association Council recommendations which are not binding. This institution convenes at least once a month. (Dış Ticaret Müsteşarlığı, 2002, p. 317)

#### **2.2.4 Stages of Customs Union**

In Ankara Agreement, Customs Union is divided into three stages to facilitate the process for both sides, especially for Turkish side to align its sectors and policies with EEC. There is also a timetable for these stages except final stage which will be based on customs union and will entail closer coordination of the economic policies of the Contracting Parties (Ankara Agreement, 1963, Article 5). These timetables also can be extended in accordance with Additional Protocol of Ankara Agreement.



In Ankara Agreement (1963) Article 2 the stages of Customs Union are determined: preparatory stage, transitional stage and final stage.

#### **2.2.4.1 Preparatory Stage**

During the preparatory stage Turkey had no commercial and legal obligations. Only obligation Turkey had was to prepare its economy for transitional and final stages with the EEC's help. Preparatory stage could last minimum 5 years and maximum 10 years in accordance with Ankara Agreement and its Provisional Protocol. During this period, EEC transferred to Turkey 175 Million European Currency Unit (ECU) as loan. (Özkan, 2001, p. 45) EEC also committed itself to reduce trade barriers for Turkey's four agricultural products for this stage. These products were hazelnut, dried fig, rizen and tobacco. (Griffiths & Özdemir, 2004, p. 19)

#### **2.2.4.2 Transitional Stage**

Additional Protocol was signed between Turkey and EEC on 23 November 1970. This protocol was set the conditions to pass Transitional Stage from Preparatory Stage. Timetables for four freedoms, free movement of goods, persons, services and capital, have been determined. Due to delay in ratification process of additional protocol, a provisional protocol was signed on 01.09.1971 and transitional stage has been started as defacto. (Ministry of Foreign Affairs, 2014) Additional protocol came into force in 1973 and transitional stage officially started. (Togan, 2012, p.1)

##### **2.2.4.2.1 Free Movement of Goods**

Free movement of goods includes removal of tariffs, elimination of charges having equivalent effect, quantitative restrictions, quotas and measures having equivalent effect.

The additional protocol required contracting parties to refrain from introducing new restrictions as a first step. Secondly additional protocol required parties to refrain to

increase in restriction on goods coming from third parties. Thirdly, it required from parties to eliminate all of the existing restrictions. (Kabaalioglu, 1998, p. 118)

**Table 2.1**

**Elimination of Trade Barriers between Turkey-EU**

<b>Type of Restriction</b>	<b>Years and Dates of Elimination</b>	
	<b>Turkey</b>	<b>EEC</b>
<b>Tariffs</b>	12-22 Years / 01.01.1986-1996	01.01.1971
<b>Charges</b>	12-22 Years / 01.01.1986-1996	01.01.1971
<b>Quotas</b>	22 Years / 01.01.1996	01.01.1973
<b>Measures</b>	22 Years / 01.01.1996	01.01.1996
<b>Common Customs Tariff</b>	12-22 Years/ 01.01.1986-1996	-

Source: Ankara Agreement (1963), Provisional Protocol (1971), Additional Protocol (1970)

Turkey was obliged to eliminate its tariffs and charges with equivalent effect over a period of 12 years following the entering into force of the additional protocol. There were some exceptions for sensitive products which were listed in the Additional Protocol to the Agreement establishing an Association between EEC and Turkey [Additional Protocol], (1970), Annex 3. Turkey was obliged to eliminate its tariffs and charges for sensitive products in 22 years by 1995. Sensitive product means having a low level of competitiveness compared to European products. Some Turkish products were noncompetitive compared to EU.

Quotas and measures would be eliminated in 22 years according to timetable of the Additional Protocol. Turkey also had to align its tariff with EEC's against third countries. According to the timetable Turkey had to align its tariffs with the common customs tariff in 12 years. There were also exceptions for some sensitive products listed in additional protocol. (Kabaalioglu, 1998, p. 116)

According to the additional protocol, the customs union would be mainly completed within 12 years, but entire alignment process would be completed in 22 years.

In preparatory stage Turkey assumed no obligations, whereas EU assumed a limited amount of obligations. It can be argued that this stage had relatively strategic importance for Turkey. However, economic concerns had risen during the transitional stage in 70's and 80's. Economic concerns started to deteriorate relations between EEC and Turkey.

Turkish side had to abolish and eliminate trade barriers in 22 years in a progressive manner. However it couldn't be realized as predicted and only two reductions was made by the Turkish side on imports from EEC in 1973 and 1976. Two reductions in tariffs were realized as %10 for each commodities which are subject to tariff elimination in 12 years and %5 for each commodities which are subject to tariff elimination in 22 years. Adjustment to the EEC common external tariff to third countries also couldn't begin. In 1978 the Turkish government proposed to revise the relations depending on the customs union and proposed on the suspending the commitment unilaterally by itself for 5 years. At the end of the 1979 the government changed and the new government withdrew this proposal. Although the new government withdrew this proposal and confirmed its commitments due to dominant economic and political situation, Turkish side couldn't perform its commitments until 1990's. (Nilüfer, 2002, p. 3-4)

#### **2.2.4.2.2 Agricultural Goods**

Turkey was required to take necessary measures to align with the common agricultural policy of the EEC. In order to access to European Agricultural Market, it was compulsory for Turkey to align its agricultural policy with EEC's common agricultural policy. Turkey was expected to comply with the common agricultural policy and take measures within 22 years following 1973. In this context, Additional Protocol, (1970) Article 33 gave authority to develop a preferential regime between parties for agricultural trade.

It was decided that Association Council would convene and decide on tariffs of the agricultural goods and trade between themselves. But Turkey couldn't perform its

obligations regarding complying with the common agricultural policy during transitional stage. Adoption of common agricultural policy and rules couldn't be realized. On the other hand EEC also imposed high protectionist policies on Turkey. Although the EEC eliminated agricultural levies, it imposed highly restrictive tariffs on Turkey instead.

#### **2.2.4.2.3 Free Movement of Persons**

Additional Protocol provided a clear timetable for the establishment of free movement of persons (and/or workers) between parties. It has foreseen that freedom of persons would be progressively realized in 12 and 22 years after the entering into force of Ankara Agreement. According to additional protocol the last date of the realization of freedom of workers should have been 1986.

Additional Protocol, (1970) Article 36 refers Ankara Agreement (1963) Article 12 for principles while creating a timetable for free movement of persons. Additional Protocol, (1970) Article 36 also states that "The Council of Association shall decide on the rules necessary to that end". Ankara Agreement (1963) Article 12 also refers the Treaty of Rome (1957) Articles 48, 49, 50. In the Ankara Agreement (1963) Article 12, it can be seen that the the Treaty of Rome (1957) Article 51 is implicitly excluded. The Treaty of Rome (1957) Article 51 refers to social security of migrant workers. This means that even if free movement of workers was established, their working periods and social security payments made in Turkey would not be counted in EEC countries.

According to timetable set out in Additional Protocol Article 36, Freedom of persons and/or workers should be established between 1976 and 1986. Decisions on this matter also had to be concluded by the Association Council.

In November 1986, The Commission proposed a definite regulation for the issue of freedom of workers. According to the proposal, immigration of new workers were virtually suspended during the negotiation or until the full membership. The Turkish government rejected this proposal and since then this issue has been pending.

#### **2.2.4.2.4 Free Movement of Services**

The additional protocol also regulated freedom of services. According to Additional Protocol, (1970) Article 41 parties must refrain from introducing new barriers between themselves on freedom of services. Additional protocol made it necessary for the Association Council for determining conditions and rules with the objective of providing free movement of services. Additional protocol doesn't have any details how Association Council had to decide and how the existing barriers would be eliminated.

#### **2.2.4.2.5 Right of Establishment and Free Movement of Capital**

Additional Protocol, (1970) Article 41 regulated the issue of services and the right of establishment. Ankara Agreement (1963) Article 13 refers the Treaty of Rome (1957) Articles 52, 56 and 58. According to that the contracting parties shall refrain from introducing new barriers and also from increasing existing barriers on free movement of services and right of establishment. It also provides that contracting parties shall refrain from new barriers or increasing existing ones on free movements of capital between contracting parties. Additional protocol also made it necessary for the Association Council to take measures and make necessary decisions for the free movement of services and capital just as in the case of free movement of workers.

#### **2.2.4.3 Final Stage**

Full membership has been envisaged in the Ankara Agreement (1963) Article 28 which has established a partnership between EU and Turkey. Final stage was stated in the Ankara Agreement (1963) Article 5: "The final stage shall be based on the customs union and shall entail closer coordination of the economic policies of the Contracting Parties."

In the meeting between Turkey and Association Council on 6 March 1995, Association Council Decision 1/95 which determines necessary condition, principle and time for completion and maintaining of customs union have been adopted. (Togan, 2012, p.1) In the context of Association Council Decision 1/95, after 22 years of a transitional stage Customs Union which allows free movement of industrial and processed goods was completed. (Ay, 2005, p.39-40) With the completion of Customs Union, according to Ankara Agreement (1963) Article 5, transitional stage is completed and final stage of partnership has been started.

Association Council Decision involves a more comprehensive regulation than the Association Agreement. It can be said that Single European Act also has widened the context of customs union established between Turkey and EU. Especially, Turkey has taken on the obligation of full adoption of competitiveness policy which EU applies, in the context of Customs Union. (Morgil, 2003, p.107). Association Council Decision 1/95 consists of 66 subjects, 17 statements and 10 annexes.

Context and provisions of Association Council Decision 1/95 are given below in the Table 2.2:

**Table 2.2**

**Context and Provisions of Decision 1/95**

FREE MOVEMENT OF GOODS AND COMMERCIAL POLICY
- Elimination of customs duties and charges having equivalent effect
- Elimination of quantitative restrictions or measures having equivalent effect
- Commercial policy
- Common Customs Tariff and preferential tariff policies
- Processed agricultural products
AGRICULTURAL PRODUCTS
CUSTOMS PROVISIONS
APPROXIMATION OF LAWS
Protection of intellectual, industrial and commercial property
Competition
Trade Protection Instruments
Government procurement
Direct taxation and Indirect taxation
INSTITUTIONAL PROVISIONS
The EC-Turkey Customs Union Joint Committee
Consultation and decision procedures
Settlement of disputes
Safeguard measures
GENERAL AND FINAL PROVISIONS

Source: Association Council Decision No: 1/95 (1995)

Meeting of Association Council on 6 March 1995, besides the decision numbered 1/95, a recommendation which aims to strengthen close cooperation that Association Agreement couldn't foresee and decision numbered as 2/95 which involves sensitive products has been adopted. Also community declaration which determines the framework of financial aid and cooperation which Turkish economy would need during the phases and changes due to effects of customs union, has been adopted.

### **2.2.5 Problems within Customs Union**

Even though it is decided to establish a customs union between Turkey and EU, this customs union has differences compared with the theory which is given in the first chapter. Main factor which plays an important role in this difference is caused by EU's political characteristic.

#### **2.2.5.1 Free Trade Agreements with Third Countries**

EU has made bilateral agreements with third countries while maintaining a customs union with Turkey. By adoption of customs union, Turkey also has adopted the common external tariff to third countries. In this context, agreements made by EU without Turkey's consent affects Turkish trade. While those countries can make export to Turkey without tariff, same rule doesn't apply for Turkey. This situation causes and pushes Turkey to make also free trade agreements with those countries. Those countries have upper hand in the negotiations because of an existing free trade agreement between EU and themselves. (Togan, 2012, p.21) While other countries that made free trade agreement with EU enjoying free trade, Turkish side has to suffer an economical loss from tariff incomes and Turkish markets lost their competitiveness due to free trade agreements. (Yazıcı, 2012, p.33)

#### **2.2.5.2 Transit Permit Quotas**

As against the free movement of goods, EU requires from Turkey to limit its cargo due to political matters. In this context, vehicles of companies which have Turkish origin have a limited amount of right of entrance to EU countries for a limited amount of time. (Yazıcı, 2012, p.34) This implementation does not only restrict the number of vehicles, it also restricts the amount of goods which can enter the free trade area. Thus EU restricts Turkish goods to enter to the EU countries indirectly. This also restricts producers who have EU origin and it causes negative effects on the competitiveness. (İktisadi Kalkınma Vakfı, 2014)



### **2.2.5.3 Principle of Exhaustion**

The doctrine of exhaustion plays an important role in European intellectual property law to preserve the free movement of products protected by intellectual property rights.

The application of the exhaustion rule, as established by the European Court of Justice (ECJ), concerns the loss of control in the exercise of distribution or importation rights over subsequent acts of distribution.

According to exhaustion rule, when a commodity becomes a product and sold to a third party owner, producer cannot claim any rights. Same principle can be applied to the license owners. When a license of a production is sold or rented to a third party for production purposes, that third party can use it in trade and make profit from it even though original owner produce the product more expensively than the license owner.

In the Customs Union between Turkey and EU, exhaustion principle has been excluded. (Keşli, 1999, p. 435) This also prevents Turkish license owners to produce and sell to the European market. License owners can only sell their products in domestic market and/or to other markets except Europe. This also prevents Turkish companies to produce cheaply with its low wage labour force and sell it to the European market to get more profit from it. Since this principle in the Customs Union isn't applied to Turkey, Turkey suffers in economic terms and lost competitiveness.

### **2.2.5.4 Lack of Legal Authority on Customs Union**

Association Council is established by the Ankara Agreement. It is a decision making body and its decisions are binding. It can also make decisions on problems between parties. However, only relevant parties, member countries and Turkey can apply to association council for the solutions of problems arising from the Customs Union. Private companies and/or any legal entity or citizens cannot bring a lawsuit to Association Council for problems due to Customs Union. Instead in such cases companies may apply for a law suit for Customs Union to ECJ indirectly. These indirect

applications are expensive and also decisions coming from the court have indirect effects on Turkish economy.

### **3. COMPETITIVENESS**

As classical scholars suggest, countries trade by taking into consideration of their comparative advantages. Specialization might be considered the most important element of comparative advantages. Countries try to be specialized on certain products and services which they have comparative advantages.

Besides the classical theory, modern foreign trade approach also supports the fact that the countries prefer to specialize on products and services which they have comparative advantages. RCA approach tries to explain and examine the international competitiveness with external trade indicators. RCA and competitiveness are complementary notions. In this study, competitiveness is tried to be explained firstly and RCA secondly.

#### **3.1 Competition and Competitiveness**

Even though competitiveness is often referred to in the economic literature, there is no common definition (Kösekahyaoglu and Özdamar, 2009, p.17). So notion of competitiveness is defined by different approaches. Elmacı and Kurnaz (2004, p.1-2) define competitiveness as providing customers' satisfaction at a sustainable level for the products which is produced by firms. According to Karaaslan and Altay (2002, p. 7) competitiveness is to provide newest and top-quality products with cheapest price and supportive services to the world market. According to another definition, competitiveness is a performance evaluation at firm, local and national economy level (Becerem, 2004, p. 280). This means that if a firm and/or a company has an ability to sell a product, it has competitiveness. Competitiveness represents superiority of a firm, an industry or a country in price and non-price against its competitors. (Çakmak, 2010, p. 51)

Porter (2005) states that "Competitiveness is defined by the productivity with which a nation utilizes its human, capital and natural resources."

According to Organisation for Economic Co-operation and Development (OECD) (2013), “Competitiveness is a measure of a country's advantage or disadvantage in selling its products in international markets.”

Competitiveness has been defined on different levels such as national, international, sectoral, firm level by various scholars and researchers. So in order to understand competitiveness as a concept it would be useful to define what competition is. According to Merriam-Webster Online Dictionary (2013) competition means “the effort of two or more parties acting independently to secure the business of a third party by offering the most favorable terms”. In other words it can be described as a race between economical units who want to realize their economical goals and profits in the market. (Uysal, 2000, p. 5.)

The term of competition is often referred to the opposite of monopoly. According to Scherer (1980, p.9) competition is a force which ensures the high economic performance. On the other hand monopoly is an obstacle to a competitive market economy which lowers optimal economic performance.

Clark (1961, p.9) interprets competition as an important and essential part of a market economy system. Private entrepreneurship plays important role in the existence of a competitive economy. Entrepreneurs determine the production of commodities and their price and quality in a competitive environment.

Bain (1950, p. 36-37) made a contribution to literature by analyzing the term of workable competition. Bain (1950) stated that there are conditions to be met in order to achieve workable competition. These conditions are efficiency in production, minimum usage of resources in sales and marketing, optimal allocation of resources in production, normal profits and commodity prices which ensures the stability and sustainability of market.

McNulty (1968, p.643) states that competition can be seen as a force. This force ensures the optimal allocation of resources in production thus increase efficiency and productivity. This increase lowers general prices of the commodities thus provides economical stability.

There are three different economical schools which have a different point of view to notion of competition. These are classical, neoclassical and Austrian schools. There are two conflicting views which try to explain the notion of competition. Classical school sees competition as a process while neoclassical school defines it as a structure. According to Adam Smith who is an important figure of classical school, "Competition was a process of rivalry between participants in the market who would compete by changing prices in response to market conditions, thereby eliminating excessive profits and unsatisfied demand." (Cook et.al, 2004, p.5).

Vickers (1995, p.5) states that according to classical view competition plays an important part in determination of market prices. Competition between rivals determines where supply and demand curves meets. Classical view suggests that competition ensures efficiency in allocation of resources and this causes prices to be natural. In a competitive environment excessive expense and gains are naturally eliminated.

At the end of the nineteenth century, views about competition had shifted from behavioral approach to market structure. According to this view, there are several different market structures and competition is depended on them. Neoclassical view states that there are few conditions which have to be met for a competitive market. According to this view there should be a large number of sellers in the market and products should be homogeneous. Thus no buyer and seller can affect the price equilibrium (Cook et. al, 2004, p.6). Neoclassical view considers price as a parameter rather than a variable. According to Cook (2002, p.544) neoclassical view on market and competition is that "... Market is characterized by a state of equilibrium that is dependent on forces of demand and cost structure that determine who survives and who fails, and is formally presented in the idea of perfect competition."

Austrian school made an analysis on competition by emphasizing the technology specifically. Austrian school suggests that affects of technological changes in the production factors play an important role in competition. Hayek (2002, p.19) views competition as a discovery procedure and considers competition as a process of experimentation in which new knowledge is generated. This new view of Austrian School is named as evolutionary view and it considers competition as a process that guides economic development rather than an equilibrium. According to this view, firms determine prices but their freedom to determine the prices is restricted by the market environment. Firms in perfect markets have less power to determine their prices on products.

According to Krugman (1994, p.28-44), competitiveness is a wrong and dangerous obsession. Krugman states that countries don't compete with each other like the companies do. He also reminds the fact that international trade is not a zero-sum game. An output of a country might be input of other country. They might be each others suppliers. Industries in different countries might produce complimentary products for each others industries. So one country might provide cheaper resources and this might be very beneficial for it. When a firm lost its competitiveness, as worst case scenario it goes bankrupt but this is not exactly valid for the countries. They can go bankrupt but not same as firms. Since their competition doesn't make anyone bankrupt and it might be even harmful. It might cause misallocation of resources in order to maintain the competitiveness. Krugman (1994) also states that for the year of early 1990's, 90 percent of goods and services U.S produces were for its own use. He also claims that national living standards are determined by domestic factors and productivity and international competition plays just a small role. Krugman (1994) states the fact that competitiveness decreases wages and lowers the living standards of the workers. Labour force is an important production factor and wages are part of the production costs. Krugman (1994) mentions that there are three real dangers of competitiveness. First one is wasteful spending of government money, second is that competitiveness might lead to protectionism and trade wars and finally it could result in bad public policy on a spectrum of important issues.

Porter (1990, p. 73) states that in the international area firms are the ones who compete rather than the countries and competitiveness of the countries are mainly depended on the firms in those countries. Porter (1990, p. 76) also claims that living standards in a country is depended on the productivity levels of firms. If firms in a country have an increasing and high level of productivity, their competitiveness will also increase in parallel with productivity thus also increases living standards. As Krugman (1994) suggested, Porter (1990, p.77) claims that shares of a country from global market don't explain competitiveness but productivity does. Porter (1990, p.76) asserts that the most meaningful definition of competitiveness is productivity and also adds that one of the most important aims of a nation is to offer a high and sustainable life standard to its citizens. This can be achieved by increasing productivity by specializing in the sectors which a country is most productive. So according to Porter (1990, p.77), international trade can be defined as a tool to increase national productivity level. High productivity is depended on the technology development of firms, improving production quality and manufacturing efficiency and the capacity of firms to maintain these factors. In other words it is depended on a firm's self-development capacity in production and/or services. So according to Porter (1990, p.76), examining productivity is more meaningful than examining international competitiveness. Elements which affect productivity positively such as technology, high skilled labours should be emphasized by policy makers. In order to do that, a macro economic approach might be insufficient, so industries with high productivity and wages should be investigated. Porter (1990, p.75) investigated the strategies of industries and firms who are successful in the international market and conclude that the only unchanging common point of them is ability to improve quality and make innovation. Improving quality and making innovation at the same time is a challenging business as well as maintaining the same position in a competitive market. Almost any innovation and self improvement can be copied by some other firm and/or industry.

### 3.1.1 EU's Strategy on Competition and Competitiveness

Competition and competitiveness is one of the aims of European Community (EC) since its establishment. In the preamble of the Treaty of Rome (1957) it is stated that the parties have to recognize that “the removal of existing obstacles calls for concerted action in order to guarantee steady expansion, balanced trade and fair competition.” By establishing EC a fair competition is aimed in the borders of member states while achieving competitive advantages against the non member states.

Even though European nations achieved a fair success in establishing a well functioning common market, against different variables in the world which affects economy and competition such as globalization movement, new developing countries and technologies, EU had to take measures. In order to do that European Council held a special meeting in Lisbon on 23-24 March 2000.

At the Lisbon European Council, the Heads of State or Government determined a new strategic goal for EU for its next decade: “to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion.” (Lisbon European Union Council Presidency Conclusions, 2000, p. 2)

In order to achieve this goal an overall strategy has stated (Lisbon European Union Council Presidency Conclusions, 2000, p. 2):

*“- preparing the transition to a knowledge-based economy and society by better policies for the information society and Research and Development (R&D), as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market;  
- modernising the European social model, investing in people and combating social exclusion;  
- sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix.”*



There are several important reasons to prepare a roadmap for more competitive Europe. Most important issue is increasing age average which offers inefficient and expensive labour force. Against emerging economies especially Asian countries which have vast cheap labour force, it is almost impossible to maintain competition in production of commodities that require low skilled labour force more than the technology. So EU draw up a strategy which aims to support sectors with high added value that can compensate this lack of labour force.

However, decisions taken at the Lisbon European Council was not followed up by the member countries. In order to ensure the fulfilment of commitments, this roadmap is revised in 2005. Revised version of the Lisbon Strategy wasn't followed up properly and Sovereign Debt Crisis that started to arise in 2008 required EU to draw up a more realistic strategy that can be implemented properly. This strategy is called Europe 2020: A strategy for smart, sustainable and inclusive growth Europe 2020 Strategy (2010, p.5-34), emphasizes especially on smart, sustainable and inclusive growth. According to this strategy, there are three important pillars which support Europe 2020:

- “- Smart growth – developing an economy based on knowledge and innovation.*
- Sustainable growth – promoting a more resource efficient, greener and more competitive economy.*
- Inclusive growth – fostering a high-employment economy delivering economic, social and territorial cohesion.”*

Europe 2020 Strategy also suggests that these priorities are mutually reinforcing; they offer a vision of Europe's social market economy for the 21<sup>st</sup> century. (Europe 2020 Strategy, 2010, p.5)

In this document there are also several flagship initiatives to achieve the priorities given above and tackle the challenges through these programmes (Europe 2020 Strategy, 2010, p.3-4):

“– *"Innovation Union" to improve framework conditions and access to finance for research and innovation so as to ensure that innovative ideas can be turned into products and services that create growth and jobs.*

– *"Youth on the move" to enhance the performance of education systems and to facilitate the entry of young people to the labour market.*

– *"A digital agenda for Europe" to speed up the roll-out of high-speed internet and reap the benefits of a digital single market for households and firms.*

– *"Resource efficient Europe" to help decouple economic growth from the use of resources, support the shift towards a low carbon economy, increase the use of renewable energy sources, modernise our transport sector and promote energy efficiency.*

– *"An industrial policy for the globalisation era" to improve the business environment, notably for SMEs, and to support the development of a strong and sustainable industrial base able to compete globally.*

– *"An agenda for new skills and jobs" to modernise labour markets and empower people by developing their of skills throughout the lifecycle with a view to increase labour participation and better match labour supply and demand, including through labour mobility.*

– *"European platform against poverty" to ensure social and territorial cohesion such that the benefits of growth and jobs are widely shared and people experiencing poverty and social exclusion are enabled to live in dignity and take an active part in society.”*

In the Europe 2020 Strategy Document, it is stated that Europe has become prosper through trade, export and importing the inputs and finished goods. Today EU's trade partners put pressure on its economy due to competitiveness on foreign trade. Document emphasizes on increasing productivity to tackle this challenge. It also emphasizes that China and North America are key competitors in the green economy, as the first mover of green solutions EU needs to maintain its lead position in the market by increasing efficiency and removing current problems. It is aimed that these precautions would boost EU's industrial competitiveness. (Europe 2020 Strategy, 2010, p.14)

### **3.1.2 Turkey's Strategy on Competition and Competitiveness**

In parallel with the globalisation and liberalisation movements in the world, Turkey has started to open its economy and markets to the world. Turkey decided to leave the economic model of import substitution which is followed between the years of 1960-1980. This economic model made Turkish economy and markets mainly restricted to the outside economies and companies. In other words, Turkish economy was nearly closed to competition for rivals from outside economies and countries. Import quotas and high tariff barriers along with other foreign trade barriers were implemented while demands for commodities were met with the production of Turkish companies. The main reason of this policy was to strengthen the capacity of Turkish companies in terms of capital, knowledge and human resources to make them be able to compete with the firms outside of country.

With the decisions taken on 24.01.1980, deregulations have started and Turkish economy and markets have become more integrated with foreign economies day by day. In this context, Turkish companies found themselves in a vicious competitive environment which gives an important role to policy makers to maintain competitiveness and survival of firms by giving them support and incentives with various strategies.

In order to state the current economical situation, structure and problems and to provide solutions to industries to tackle these problems, a strategy document is

published by the Turkish Ministry of Industry and Commerce with a special emphasis on Turkey's EU membership process for the period of 2011-2014 on 07.12.2010. This strategy document draws guidelines for public and private sector organizations to promote competitiveness of Turkish corporations.

According to Republic of Turkey Ministry of Science, Industry and Technology (2010, p.32), Turkish manufacturing sector has gone through an important change starting from 1996 to today. There is a notable increase in the shares of automotive, machinery, domestic appliance, electronic, petroleum products, rubber and plastic in total manufacturing industry export. On the other hand, shares of clothing, textile and food sectors have decreased in total manufacturing industry export. In the document it is pointed out that producers especially from India and China increased the pressure in international competition and due to this pressure, share of traditional labour intensive production in the total export has decreased. It is also pointed out that there is a pressure to shift the production to higher added value and innovative commodities. Additionally it is stated that changes in commodity prices would alter the export and production structure of Turkish manufacturing industry.

In order to find the solutions to increase and promote competitiveness especially for manufacturing sector, in the Turkish Industry Strategy Document a vision and strategic aims to achieve this vision are stated just as the same way the European Commission does in Europe 2020 Strategy Document.

According to Republic of Turkey Ministry of Science, Industry and Technology (2010), Turkey's long term strategic vision on industry has been determined as "becoming production base of Eurasia in products with medium and high technology". In parallel with this long term strategic vision, the general aim of Turkish Industry Strategy is determined as acceleration of transformation of Turkish Industry into an industrial structure which gets more share from world export, allows the production which mainly involves high added value and technology, has also qualified labour force and is sensitive to environment and society.

In parallel with this vision and general strategy three strategic aims have been determined:

- To increase the share of sectors which involves medium and high technology in production and export,
- To ensure the transition to products with high-added value from sectors which involve low technology.
- Increase the shares of corporations with continuous development in economy.

In order to achieve the general and strategic aims of Turkish Industry Strategy several policy areas have been determined. These policy areas have been split into two main policy areas as horizontal and sectoral. These two policy areas will be implemented with coordination.

Public institutions will contribute to increase the productivity in all industrial sectors by making improvements in horizontal industrial policy areas actively. In this context, public institutions will eliminate obstacles which corporations face in productivity. These horizontal industry policy areas concern public policies which constitute obstacle to firm productivity in industry and they can be lifted by public bodies. 8 Horizontal Industry Policy Areas are determined to eliminate these obstacles:

- Investment and job environment
- International trade and investment
- Skills and human resources
- Access of Small and Medium Enterprises to finance
- Technology development of firms
- Infrastructure Sectors and input costs
- Environment
- Regional Development

Horizontal industry policy areas are determined to establish a framework for firms to make more investment, to create more jobs, to improve the business environment. In this context, an effective coordination between different institutions such as private, public sectors, universities and non-governmental organizations is aimed to be established. Also quality of labour force, access to financial instruments, innovation capacity, input costs and environmental-consciousness are determined as main issues and it is aimed that they would be improved.

It is important to support industry to increase productivity as well as the competitiveness. In order to achieve this, needs of the sectors should be determined at first and then these needs should be met and obstacles should be eliminated.

In the context of sectoral policies, it is aimed to increase competitiveness of industrial sectors by making improvements on information and communication technologies, legal regulations, environment and energy, international competitiveness, trade, employment and geography.

### **3.2 Types of Competitiveness**

Since there is no consensus on the definition of competitiveness, it might be best to categorize it to understand the concept better. Competitiveness can be categorized in national, international, industrial and firm levels. (Ambastha & Momaya, 2004, p. 46)

#### **3.2.1 Firm Competitiveness**

Firm competitiveness is gaining of a firm more market share than its competitors by gaining price and other advantages in the international market. Determinants of firm competitiveness are profitability, cost advantage, marketing techniques and sufficiency of support industries. Other than these factors, comparative advantages on price, transportation on time, product design also determine the firm competitiveness. (Shone, 1989, p. 384)

Changes in competitiveness on a certain sector concern operating firms in that sector closely. Existence of firms mainly depended on their competitiveness compared to its rivals. While firms which couldn't achieve enough competitiveness to compete its rivals pull out of the market, firms with high competitiveness maintain their existence by producing cheap and/or quality product and services. This case is not only valid on national level but it is also valid on international level.

Firm competitiveness also affects national welfare and is also important for the countries. It can be stated that while a firm with low level competitiveness is pulling out of the market, country of residence of the firm is affected. These affects can manifest themselves as increase in unemployment, budget deficit and current account deficit, decrease in gross national output, taxes and welfare. So classical theory suggests that there is a strong correlation between competitiveness, economic growth and welfare. In this context, concept of international competitiveness gains importance.

### **3.2.2 Industrial Competitiveness**

Industry involves many firms which operate in the same sector and level of competitiveness of an industry is determined by the power of competitiveness of firms which operate in the industry. Factors which determine the competitiveness in industrial level are labour costs, factor efficiency and market share.

Competitiveness on the industrial level can be defined as having a high or same level of productivity of an industry compared with its rivals. Competitiveness of an industry is affected by fiscal policies, economic structure, political stability and acts of economic decision mechanisms. (Momaya, 1998, p.39-41)

### **3.2.3 National and International Competitiveness**

International competitiveness can be considered as ability of a country to compete with other countries and be able to keep up the pace in the international trade. International competitiveness can be established through low cost production along with low price and high quality compared with other countries.

Competitiveness on national level can be established by providing the best conditions to firms and sectors in a country to make production with balanced and/or low prices compared with rival sector and firms of countries and ensure the stability to keep up and compete. Determinants of competitiveness in national level can be listed as exchange rate advantage, foreign trade performance, foreign trade rate and sufficiency of infrastructure. International competitiveness of a country is effected by exchange and interest rates, public deficit, labour costs, taxes, natural resources and government policies. (Carayannis and Sagi, 2001, p. 506-507)

Competitiveness of a country is indicated by the price, quality, design, reliability, delivery on time of a commodity all together. If a commodity meets all of these factors better than the rivals then it has a competitive power over other commodities. (Doğan, 2000, p. 8.)

### **3.3 Determinants of International Competitiveness**

Due to trade liberalization trend in the world, importance of the concept of international competitiveness gains importance increasingly. It has been generally accepted that the competitiveness of a country doesn't mean only the total amount of competitiveness of the firms in the country, it means much more than that. International competitiveness may differ depending on knowledge, finance, experience in production, comparative advantages and labour force.

International competitiveness can be considered as one of the most important aims a country wants to achieve. Determinants of international competitiveness can be examined under these titles: productivity, production factors, macro economic indicators, structure of public economy, foreign trade policy, infrastructure, quality, education, demographic structure and geographical location.



### **3.3.1 Productivity**

Productivity plays an important role in competitiveness of a firm, a country and/or a country group. Productivity refers to the relation between production factors which are used in product or service and output. This relation is usually stated as a ratio. National productivity and welfare are common indicators which are used to calculate and compare the success level of national economies. (Ekin, 1997, p. 142)

The measure of productivity is defined as a total output per one unit of a total input. In a country which has high level of productivity, resource allocation is efficient and idle resources tend to be minimum. In order to avoid recession and resource loss, developed countries need to increase their productivity on knowledge and services constantly. High level productivity lowers costs due to multiple production and increases the profits. This also increases the competitiveness.

As it can be seen in Figure 3.1, Turkey ranked as 30<sup>th</sup> among 34 OECD countries. Portugal, as ranked 28<sup>th</sup>, has the lowest labor productivity among EU15. In the Table 3.1, it can be seen that Turkey has second longest work hours following Greece. These tables show that even though Turkey has the second highest work hours, its productivity level is very low.

**Table 3.1**

**Average annual hours actually worked per worker in 2010**

<b>Country</b>	<b>Hours</b>
Austria	1674
Belgium	1551
Denmark	1546
Finland	1677
France	1480
Germany	1406
Greece	2016
Ireland	1542
Italy	1772
Luxembourg	1636
Netherlands	1381
Portugal	1740
Spain	1674
Sweden	1635
United Kingdom	1652
Turkey	1877
*Source: OECD Database <a href="http://stats.oecd.org/">http://stats.oecd.org/</a>	

**Figure 3.1**

**Labor Productivity of 34 OECD Countries**



Source: Japan Productivity Center

### **3.3.2 Production Factors**

Quality of labour force in the country, capital, investments in R&D, natural resources and entrepreneurship are important determinants in international competitiveness.

In a country with relatively high capacity of labour force, wages are tended to be low compared to rival countries. This decreases the production costs and prevents import of labour force. In a country with low age average, productivity will be higher and dynamic. This causes high quality with low costs in the production.

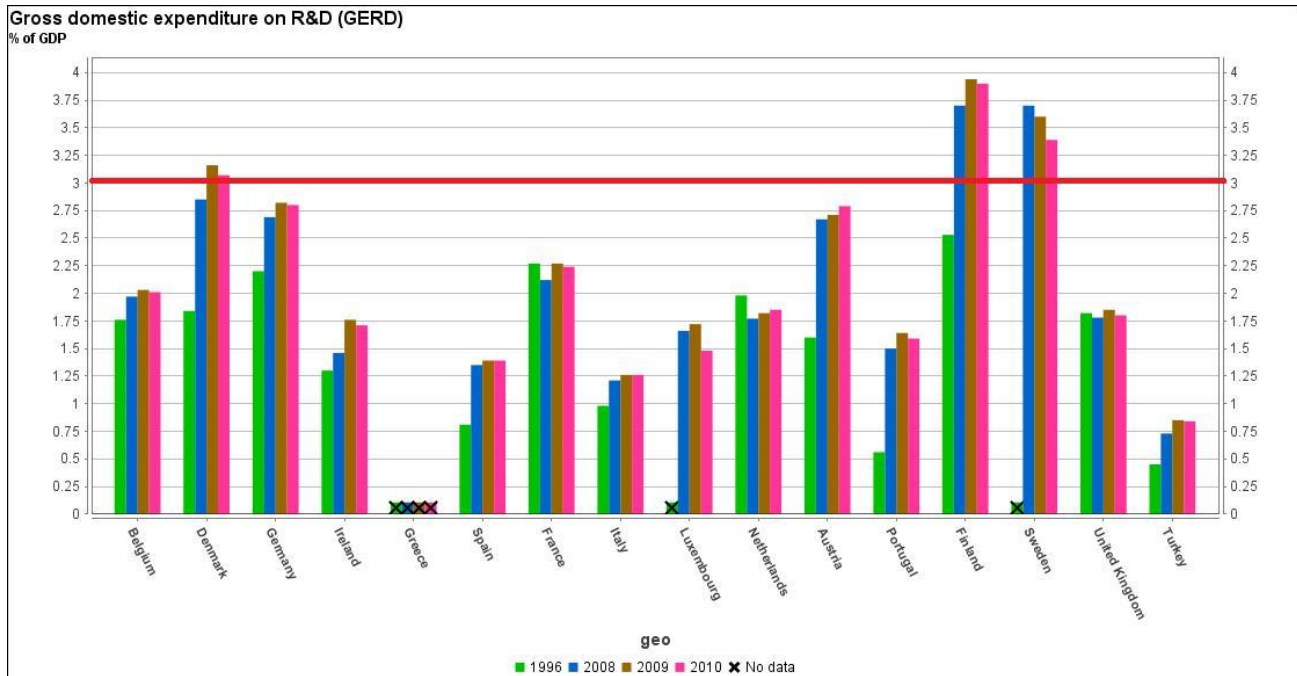
Capital potential, capital efficiency, national savings and interest of foreign investors determines investment and production potential of a country.

Technologic infrastructures of countries affect their export potential. Improvement in the technological infrastructure of a country and encouragement to use innovation systems increase international competitiveness of an industry. In developing countries, R&D is supported mainly by the state due to lack of capital resources of firms. Today's economic system force firms and even countries to produce, develop and/or import technologies and adapt it to the current production cycle. (Öztürk, 2003, p. 211)

Natural resource of a country is another important production factor. While some countries have no important natural resources, other countries have strategic resources such as petroleum. Importing these resources might have increased the production costs and geographic location of these resources naturally effect the transportation costs which also effects the production costs.

Figure 3.2

Gross Domestic Expenditure on Research and Development of EU15 and Turkey



Source: Eurostat database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

R&D plays major part in competitiveness of a country and/or firm. In the Figure 3.2, EU15 and Turkey's investment on R&D which is based on Gross Domestic Expenditure of countries, is illustrated for the years of 1996, 2008, 2009, 2010. There is no sufficient data for Greece, so it is excluded. As it can be seen Turkey has lowest R&D investment among the countries. Countries, such as Portugal and Spain, which have low investments on R&D in 1996, increased their investments in time. Italy has second lowest investment rates which is 1,26% of its Gross Domestic Product (GDP) while Turkey's investment rate is under 0,84% of its GDP for the year of 2010. Even though there is an increase in R&D investments since 1996, it can be seen that it is not sufficient enough compared with EU15.

### **3.3.3 Macro Economic Indicators**

One of the determinants of competitiveness of a country in the international area is the stability of macro economy. Exchange and interest rates are macro economic variables which determine international competitiveness in terms of price competition. Price stability and balanced exchange rates are important conditions for competitiveness of a country in the international area. So economic stability, intra industry trade and fiscal policy which is applied in the country affect competitiveness of a sector in the international markets. (Chinna and Fleming, 1999, p. 11)

A stable or unstable situation in a country affects its international competitiveness. A long term price stability in a country indicates that economic balance has been maintained for a long term and there is low risk in the country to make investments. So in other words an unstable economy prevents small and big investors to make investment to the country, lowers personal savings and also affects the ability of a firm to continue its production negatively. In a country with unbalanced macro economy, unfair income distribution decreases demand and high interest rates disturb fiscal balance by increasing capital costs. So macro economic indicators are important factors to determine international competitiveness.

### **3.3.4 Structure of Public Economy**

State as an economical actor plays important role to increase competitiveness by employing various economic policy instruments such as trade, monetary, fiscal policies and implementing policies to boost economic activities. Due to lack of capital resources, developing countries resort to support the firms in various ways to increase competitiveness in total in the international area. This causes an increase in public debt. With the globalization and liberalization trends in the world, role of the states as economic actors has started to diminish. (Rondinelli, 2007, p.3)

### **3.3.5 Foreign Trade Policy**

Countries apply foreign trade policies in parallel with their interest and in some cases they can intervene to the foreign trade by implementing various restrictions. Developed countries implement various restrictions to prevent the negative effects of import while developing countries resort to such restrictions to accelerate their development.

Aims of the countries to impose such restrictions and implement foreign trade policies are to ensure the balance of payment equilibrium, to protect national industries against competitiveness and to accelerate the economic development. According to World Trade Organization, these restrictions cannot be applied. So its members officially cannot apply this kind of restrictions or directly support a sector economically.

Foreign trade indicators of countries and their trade openness are also influential to determine international competitiveness. Openness in trade shows that how much and on what degree a country is integrated to the global economy which gradually evolves into a single market.

One of the most important factors to affect the competitiveness of a country in international area is exchange rates. By increasing the exchange rates, a country can decrease its purchasing power of money and lower the production costs. This situation makes firms in the country more competitive and profitable due to low costs. Countries might resort to this kind of manipulation to reduce their public debts. (Iversen and Soskice, 2010, p. 610)

### **3.3.6 Infrastructure**

Infrastructure of a country is another determinant of competitiveness. Since transportation network gives access to resources, productions and markets, it is an important factor. (Schwab, K., & Sala-i-Martin, X., 2012, p.5) Energy network, access to clean water also might play an important role to make production. In the countries

with insufficient infrastructure where firms need to make their own infrastructure investments, production costs tend to be higher than the rival companies which have sufficient infrastructure.

### **3.3.7 Quality**

Quality is another important element that affects the choice of customers. Consumers tend to choose commodities which offer more quality if there is similar price in the market. Even though there is a difference in prices between different commodities, consumers might choose product with higher quality. Customer support services, longer life cycle of the commodity and terms of guarantee are important elements in decision making process of a customer. On the other hand brand perception via marketing tools often can be misleading for customers and cause that the products under a certain brand offer more quality than the others even if it is not true. (Eugenia, 2010, p. 211)

### **3.3.8 Education**

Education systems and importance given to education in a country are important determinants of international competitiveness. In today's economy, knowledge and qualified labour force are counted as one of the most important factors which determine the competitiveness. Since the labour force is the most important production factor, under the heavy international competition, countries and their firms need labour force with high qualification. Education gains importance day by day and economic value of education shows itself in the production cycle as the added value. (Adıgüzel, 2013, p.10)

### **3.3.9 Demographic Structure and Geographical Location**

Demographic structure of a country affects its international competitiveness. Young and educated population and management of these resources create an advantage in the international area in terms of competitiveness. (Bakımlı, 2005, p. 22) It can be



seen that firms in the countries with similar social, cultural, historical structures can adapt each others markets more easily than the others.

Geographically closer countries usually has interacted each other in history and share common values, if not at least they understand each other better than the countries which has geographically more distance. This mutual understanding allows firms to understand what the consumers in the targeted country wants. So accessing to other market might be more easily than the others. Other countries try to bypass this problem with buyout of national companies. (Balassa, 1973, p.39-40)

Besides social, cultural and historical ties, distance between countries is important due to transportation costs. For production, natural resources might be imported, in that case transportation costs increase the price directly and for export the same situation applies. Geographic location also affects the climate conditions. It is an important factor especially for the production of agricultural goods.

### **3.4 Measuring Competitiveness on Country Level: Revealed Comparative Advantages**

Hughes (1993, p.1) states that there are different approaches on measurement of competitiveness. These approaches can be split into two basic groups.

- 1) Relative efficiency (Dynamic or Static)
- 2) Relative International Trade Performance (Measured as shares of world export markets, the degree of import penetration or an index of RCA)

In this study, RCA will be employed in order to achieve quantitative data and make analysis for competitiveness on the country level.

It can be claimed that it is hard to measure comparative advantages due to difficulties in calculation of price and non-price factors for multiple countries and multiple commodities. However, comparative advantages can be measured indirectly by

using the post foreign trade data. Balassa (1965) is one of the first who made a study on calculation of competitiveness by using trade data. Balassa (1965, p. 102-104) stated that there is no sufficient information on various economic variables to make comparison between countries properly and suggested to make the comparison by using trade data and to use RCA. Balassa (1965) suggests two different ways to examine the export performance:

- a) Comparing the relative shares of a country in the world exports of individual commodities,

$$RCA_i = (X_i / X) / (m_i / M)$$

RCA is the ratio of Revealed Comparative Advantages.

$X_i$ : Export of a commodity of the country

$X$ : Total export (or a sector or set of commodities) of the country

$M_i$ : Import of a commodity of the country

$M$ : Total import (or a sector or set of commodities) of the country.

- b) Indicating changes in relative shares over time.

$$RCA_i = (X_i / X) / (w_i / W)$$

RCA shows the ratio of Revealed Comparative Advantages.

$X_i$ : Export of a commodity of the country

$X$ : Total export (or a sector or set of commodities) of the country

$w_i$ : Export of a commodity of the world (or a set of countries in total)

$W$ : Total export (or a sector or set of commodities) of the world (or a set of countries in total)

RCA involves not only cost differences in the production of commodity but also differences due to customs fees and export incentives. And also it reflects the effects arising from non price factors such as quality, after sales support, branding and brand image.

RCA basically offers a comparative analysis on a certain commodity or commodity group between country and/or country group for a certain area. This area can be a country and/or country group which is in the RCA analysis. It could also involve a remote area or even the whole world. RCA analysis doesn't necessarily show whether an economy increased its performance on a certain product or not. It compares different economies. Even if one of the compared economies lost its competitiveness on a certain product, it doesn't mean that the other country increased its competitiveness. So it is important to consider the general trends of the world while making a comprehensive analysis.

According to theory, if the calculated RCA is bigger than 1, there is a comparative advantage in the trade of calculated commodity (or industry), if RCA is lower than 1 there is a comparative disadvantage.

Until the study of Yeats (1985, p.63-73), RCA is perceived as a quantitative method instead of a binary system. This means that if a comparison result calculated with RCA is a very large number, that country is most advantageous one. Yeats (1985) evaluates the results of RCA as a binary system. If a RCA result is under 1 then it has no advantage or if it is above 1 then it is advantageous. Yeats (1985) suggests that RCA score indicates the existence of competitiveness or uncompetitiveness but it doesn't explain its degree. Having the highest RCA score doesn't mean the country or set of countries is the most competitive exporter of the commodity in question, it just indicates that that country or set of countries has competitiveness on the commodity.

RCA provides a great efficiency and simplicity to the studies, evaluations on international competitiveness and trade and it is also accepted and supplemented by many scholars who work on international trade.

#### **4. EFFECTS OF CUSTOMS UNION ON INDUSTRY IN THE CONTEXT OF COMPETITIVENESS**

In this Chapter, a general foreign trade analysis based on import and export data was made before employing Balassa index to make an examination of the effects of Customs Union on Turkish Industrial Trade in the context of competitiveness. This examination aims to:

- Examine the general competitiveness on industrial commodities during the process of Customs Union by excluding non member countries in the Europe at the beginning of Customs Union for Turkey.
- Examine the general tendencies and measure the competitiveness between Turkey -EU in the light of recent debates in the literature
- Examine Turkey -EU trade specifically for the Turkish industry
- Examine the situation in industrial trade between 1996 and 2010 by classifying the trade between Turkey -EU in the context of technology which is used to produce the commodity,
- Provide an empirical analysis to policy makers for the EU Integration process,
- Provide a basis for other studies in the related area.

##### **4.1 An Analysis on Turkish Foreign Trade For the Period of 1996-2010**

Before making a specific analysis, it is important to gain a better perspective by making a general analysis on the topic. In this case, import, export shares, import coverage of export, foreign trade balance, commodity group and sectors are examined for the term of 1995-2010 in parallel with our research.

When it is examined it can be seen that export of Turkey to the world (excluding EU15) between 1995 and 2010 increased 559% while export to EU15 increased 300%. As it can be observed the export to the world excluding EU15 nearly doubles the export of EU15 countries. Before customs union, export share to EU15 was 51% and in 2010 it can be seen that it decreased to 39% percent and export shares to outside countries

excluding EU15 increased to 61% from 49%. Share of EU27 in total export gradually decreased to 46% from %56 between 1995 to 2010.

**Table 4.1**  
**Total Export to World and Country Groups By Years (Million \$)**

Year	Total	EU15	OTHERS	EU27	EU15 (%)	OTHER (%)	EU27 (%)
1995	21.636	11.084	10.552	12.207	51	49	56
1996	23.224	11.556	11.668	12.563	50	50	54
1997	26.261	12.248	14.013	13.435	47	53	51
1998	26.974	13.504	13.470	14.809	50	50	55
1999	26.587	14.352	12.235	15.424	54	46	58
2000	27.775	14.510	13.265	15.664	52	48	56
2001	31.342	16.118	15.224	17.546	51	49	56
2002	36.059	18.459	17.600	20.415	51	49	57
2003	47.252	24.484	22.768	27.394	52	48	58
2004	63.120	32.589	30.531	36.581	52	48	58
2005	73.476	35.872	37.604	41.365	49	51	56
2006	85.535	40.946	44.195	47.935	48	52	56
2007	107.272	50.081	57.133	60.399	47	53	56
2008	132.027	51.781	80.197	63.390	39	61	48
2009	102.143	39.369	62.774	47.013	39	61	46
2010	113.883	44.363	69.520	52.685	39	61	46

Source: TÜİK database, <http://www.tuik.gov.tr/>

There is a continuous increase in export after establishment of customs union but increase in import surpassed this increase. As it can be observed from Table 4.1, import from EU fluctuated time to time due to economical crises in the world and Turkey but it increased continuously in parallel with total import. When the change in Turkish import between 1995 and 2010 is examined, it can be seen that total import excluding EU15 increased 566% and import from EU15 increased by 256%.

**Table 4.2****Total Import From World and Country Groups By Years (Million \$)**

<b>Year</b>	<b>Total</b>	<b>EU15</b>	<b>OTHERS</b>	<b>EU27</b>	<b>EU15 (%)</b>	<b>OTHER (%)</b>	<b>EU27 (%)</b>
1995	35.707	16.862	18.845	18.025	47	53	50
1996	43.627	23.138	20.489	24.321	53	47	56
1997	48.559	24.870	23.689	26.119	51	49	54
1998	45.921	24.075	21.846	25.282	52	48	55
1999	40.671	21.401	19.270	22.530	53	47	55
2000	54.503	26.610	27.893	28.527	49	51	52
2001	41.399	18.280	23.119	19.823	44	56	48
2002	51.553	23.321	28.232	25.689	45	55	50
2003	69.339	31.696	37.643	35.140	46	54	51
2004	97.539	42.359	55.180	48.103	43	57	49
2005	116.774	45.468	71.306	52.696	39	61	45
2006	137.032	50.752	86.280	59.401	37	63	43
2007	170.057	58.004	112.053	68.612	34	66	40
2008	201.963	63.045	138.915	74.801	31	69	37
2009	140.928	47.868	93.060	56.509	34	66	40
2010	185.544	59.946	125.598	72.180	32	68	39

Source: TÜİK database, <http://www.tuik.gov.tr/>

When share of EU15 in total import is examined in Table 4.2, it can be seen that before Customs Union share of EU15 was 47% and in the year of 2010 it decreased to 32% while share of total export excluding EU15 increased to 68% from 53%. Share of EU27 countries from total import continuously have decreased to 39% in 2010.

Against EU's developed economy, it is almost unavoidable to have trade deficits due to low competitiveness which Turkish products have. Turkey aimed to increase the competitiveness and decrease trade deficits by taking advantage of dynamic effects of Customs Union. However, it is hard to determine how much of the trade deficit is caused by the Customs Union. Because macro economic trends and crises in the world have also effected Turkish trade composition.

From Table 4.1 and 4.2, it can be observed that total export and import decreased significantly in 2009 compared with 2008 due to sovereign debt crisis in Europe. Total export to EU15, the world (EU15 excluded) and EU27 decreased 23,97%, 21,73% and 25,84% while total import from EU15, the world (EU15 excluded) and

EU27 decreased 24,07%, 33% and 24,45% respectively. It can be also observed from the numbers that decreases in import and export are almost parallel. Table 4.3 also shows that import coverage of export remained the same while foreign trade balance decreased 21,82% with EU15 for the years of 2008 and 2009. However, as it can be seen that decrease in foreign trade balance with EU15 is in parallel with the fluctuations through the years.

Balance of Trade and Import Coverage of Exports between Turkey and EU15 are illustrated in Table 4.3. As it can be seen in Table 4.3, there is a continuous deficit in Turkey's balance of trade with EU15 as well as Turkey's general balance of trade with the world. Turkey's balance of trade deficit with EU15 was 5.8 billion dollars in 1995 and after the establishment of Customs Union this deficit doubles itself to 11.6 billion dollars and in 1997 it become 12.6 billion dollars. In the following years it decreased in parallel with fluctuations in economy and economical crisis to 2.1 billion dollars which is the lowest deficit in 2001 and in 2010 it increased to 15.6 billion dollars.

**Table 4.3**

**Turkey's Import Coverage of Export and Foreign Trade Balance With The World And Country Groups By Years (Million \$)**

Year	Import Coverage of Export (%)				Foreign Trade Balance (Million \$)			
	General	EU15	Other	EU27	General	EU15	Other	EU27
1995	61	66	56	68	-14.071	-5.778	-8.293	-5.818
1996	53	50	57	52	-20.403	-11.582	-8.821	-11.758
1997	54	49	59	51	-22.298	-12.622	-9.676	-12.684
1998	59	56	62	59	-18.947	-10.571	-8.376	-10.473
1999	65	67	63	68	-14.084	-7.049	-7.035	-7.106
2000	51	55	48	55	-26.728	-12.100	-14.628	-12.863
2001	76	88	66	89	-10.057	-2.162	-7.895	-2.277
2002	70	79	62	79	-15.494	-4.862	-10.632	-5.274
2003	68	77	60	78	-22.087	-7.212	-14.875	-7.746
2004	65	77	55	76	-34.419	-9.770	-24.649	-11.522
2005	63	79	53	78	-43.298	-9.596	-33.702	-11.331
2006	62	81	51	81	-51.497	-9.806	-42.085	-11.466
2007	63	86	51	88	-62.785	-7.923	-54.920	-8.213
2008	65	82	58	85	-69.936	-10.871	-58.718	-11.018
2009	72	82	67	83	-38.785	-8.499	-30.286	-9.496
2010	61	74	55	73	-71.661	-15.583	-56.078	-19.495

Source: TÜİK database, <http://www.tuik.gov.tr/>

When the export from the world, excluding the EU15 countries, and EU15 countries are compared, it can be observed that foreign trade deficit between Turkey and EU15 increase nearly 170% while foreign trade deficit between Turkey and the world, excluding EU15 countries, increased 576% for the period of 1995 and 2010. Turkey's external trade deficit with EU nearly tripled while Turkey's foreign deficit with the world excluding EU15 increased 6 times.

As it can be seen in Table 4.3, until the year of 2000, foreign trade deficit with world, excluding EU15, was lower than the trade deficit with EU15 countries. But after 2000 it increased and surpassed the foreign trade deficit with EU15. One of the main reasons of this deficit is the adoption of EU customs union. Due to customs union and adoption of the common external tariff of EU, foreign trade deficit with the world increased year by year. So it can be said that the major problem in trade deficit with world is caused partly by the adoption of the customs union and common external tariff.

Import Coverage of Exports with EU15 increased after 1996. In 1995, Import Coverage of Exports was 66% but after the adoption of Customs Union and common external tariff it decreased to 50%. Until 2010, Import Coverage of Exports gradually increased to 74%. Import coverage of exports between Turkey and the rest of the world excluding EU15 didn't change much in terms of ratio, it is 55% in 2010.

Export of Turkey to EU15 is illustrated in Table 4.4 in the process of Turkey – EU Customs Union, as commodity groups. According to Table 4.4, it can be seen that export, in terms of commodities, have continuously increased. But in the composition of export, it can be seen that capital (investment) goods and raw materials (intermediate goods) increased and consumer products decreased. In terms of import, all commodity groups increased in value and share of capital goods imported from EU15 decreased and share of consumer goods increased.

When the shares of commodities in export to EU15 from Turkey are compared for the term of 1995-2010, share of capital goods increased to 11% from 3%, share of raw materials increased to 37% from 32% and consumer goods decreased to 52% from



65%. For the term of 1995-2010 in Turkish import from EU15, share of capital goods decreased to 20% from 29% and share of raw materials decreased to 61,5% from 63% and share of consumer goods increased to 18,5% from 8%.

**Table 4.4**

**Turkish Import and Export with EU15 by Commodity Groups (Million \$)**

Year	Export (Million \$)			Import (Million \$)		
	Capital Goods	Raw Materials	Consumer Goods	Capital Goods	Raw Materials	Consumer Goods
1995	321	3537	7217	4785	10.663	1.385
1996	386	3722	7431	7030	13.225	2.700
2007	6.959	18.140	24.855	13.227	35.597	8.864
2008	7.873	19.476	24.269	13.276	40.122	9.405
2009	4.426	12.828	21.948	9.566	29.465	8.714
2010	5.076	16.199	23.032	11.915	36.799	11.082
	%Share			%Share		
1995	3	32	65	29	63	8
1996	3,3	32,3	64,4	31	57	12
2007	14	36	50	23	62	15
2008	15	38	47	21	64	15
2009	11	33	56	20	62	18
2010	11	37	52	20	61,5	18,5

Source: TÜİK database, <http://www.tuik.gov.tr/>

Turkish trade with EU, in terms of sectors is illustrated in the Table 4.5. According to Table 4.5, share of Agriculture and Forestry was 9% in the year of 1995 and in the year of 2010, its share was 3,5%. Share of Manufacturing industry in 1995 was 89% and it is increased to 95,2% in 2010 in the share of total export to EU15.

Share of Agriculture and Forestry goods was 3% in 1995 and in 2010 it decreased to 1%. Share of Manufacturing Industry goods in the total import from EU15 was 97% in 1995, later in the year of 1996 it increased 1 percent and became 98% and in the following years this share didn't change. In the year of 1995, Turkish agriculture and forestry export to EU15 was 994 million dollars and in 2010 it increased 54% percent and became 1.5 billion dollars. Export of manufacturing industry to EU15 was nearly 9.8 billion dollars and it increased 328% percent and became 41.9 billion dollars.

**Table 4.5****Turkish Import and Export with EU15 by Sectors (Million \$)**

Year	Export (Million \$)			Import (Million \$)		
	Agriculture and Forestry	Mine and Stone Quarry	Manufacturing Industry	Agriculture and Forestry	Mine and Stone Quarry	Manufacturing Industry
1995	994	184	9.772	408	65	15.646
1996	1.020	175	10.214	396	80	21.981
2007	1.502	537	47.568	435	516	55.333
2008	1.458	581	49.324	551	664	59.416
2009	1.404	403	37.272	646	364	45.423
2010	1.526	583	41.871	632	369	56.255
	%Share			%Share		
1995	9	2	89	3	0	97
1996	8,94	1,53	89,53	2	0	98
2007	3	1	96	1	1	98
2008	3	1	96	1	1	98
2009	4	1	95	1	1	98
2010	3,5	1,3	95,2	1	1	98

Source: TÜİK database, <http://www.tuik.gov.tr/>

Agriculture and Forestry import of Turkey from EU15 was 408 million in 1995 and it became 632 million dollars in 2010 by increasing 54,9% percent. Import of manufacturing industry to EU15 was 15.6 billion dollars in 1995 and it became 56,2 billion dollars by increasing 160% percent. Even though it seems that there is a significant increase in export compared to import in the manufacturing sector, it can be also said that between the years of 1995 and 2010, for the manufacturing sector, the external trade deficit nearly tripled.

Customs Union between Turkey and EU which involves only the free trade of industrial products and processed agricultural goods has started on 01 January 1996. Free trade of these commodities increased the trade volume between parties. But one of the most important factor which affected Turkish foreign trade is the adoption of common external tariff. Common external tariff also affected Turkey's trade with the rest of the world.

When Turkey's trade with EU is examined for the term of 1995-2010, it can be seen that the increase in export is bigger than the increase in import. But this increase in export couldn't change the deficit positively and there is still a big foreign trade deficit between EU15 and Turkey. This foreign trade deficit nearly tripled between 1995 and 2010. And foreign trade deficit with the rest of the world increased nearly 7 times for the term of 1995-2010. This deficit increases are caused by the adoption of the common external tariff of the EU.

The biggest share in the export to EU15 belongs to consumer products, after the customs union share of consumer products decreased while share of capital and intermediate goods increased. This composition is valid for Turkey's import. So it can be said that in order to make production and export, Turkey imports capital and raw material (intermediate goods). In other words, Turkey is depended on the import of capital and intermediate goods. So Turkey spends the income coming from export for production in order to import. Since more than 95% percent of export and import composition between Turkey and EU15 consists of industrial goods, this vicious cycle in the relation between export and import affects the foreign trade balance negative and causes an unfavourable trade balance.

#### **4.2 Analysis with Revealed Comparative Advantages by Export Performance**

Balassa (1965, p. 102-104) has studied on a comprehensive, advanced and yet a simple method to measure comparative advantages between countries. This method called RCA was supplemented and refined later by other scholars such as Yeats (1985) and Vollrath (1991). In this study, equation stated below is employed:

$$RCA = (X_{ij} / X_{it}) / (X_{wj} / X_{wt})$$

X: Export(s),

i: represents Turkey,

j represents a commodity,

t represents a set of commodities (in this case industrial commodities SITC rev. 3 between 500-900,)

w is set of countries (EU15 countries)

RCA is a competitiveness examination tool which offers substantive results. In order to calculate the effects of customs union on Turkey's industrial trade, a comparison with EU15 countries in the starting year of customs union 1996 and two reference years of 2003 and 2010 is made. For better and specific examination, rest of the world is excluded in the study and economical area in the analysis is chosen as EU15 countries. Therefore RCA would be a useful tool to measure Turkey's competitiveness with EU15 countries which are the most strategic trade partners for Turkey, after adopting the Customs Union.

In this study, export data of EU15 countries and Turkey to EU15 region were listed as commodities under 3-digit SITC Rev. 3 as well as their total export to EU15 region. Data were employed in the equation. According to equation, first of all, export value of a Turkish industrial commodity is divided by Turkey's total industrial export value to EU15. This result constitutes the first part of the equation as well as total share of the commodity in Turkish industrial trade to EU15. Second part of the equation involves the same process with EU15 export data. Export value of the same commodity in the first equation is divided with total value of industrial export value of EU15 country group. In the case of result is bigger than 1, the commodity in question is competitive but if the result is lower than 1, the commodity is uncompetitive.

#### **4.2.1 Literature Review**

Measuring international competitiveness is an attractive subject for economists. There are various calculation methods and point of views in the case of international competitiveness. One of the calculations which is mostly accepted by the economists is RCA. There are different research and studies in the literature which employ RCA. This study aims to contribute to literature by examining international competitiveness

between EU15 and Turkey on industrial trade. However there are also different studies which include Europe and competitiveness:

Davo, Mayor and de la Hera (2011, p. 5753) investigated technology innovation clusters in EU-15 countries while taking the competitiveness among the sectors and countries into the account. Several technology and competitiveness indicators were used in the study for the period of 1998-2008. According to results five groups of countries were categorized by their levels of technological innovation and competitiveness. Study shows that clusters in countries which have better technology and innovation capacity increase competitiveness compared with others.

Svatoš, Smutka and Miffek (2010, p. 569, 581, 582) compared agrarian trade of EU15 -old members- and EU12 which became members after 2004 and 2007. Study employs Balassa index and dataset for the period of 2004-2009. Results show that even though they are new member states, EU12 have a growing competitive power compared with EU15. However EU15 countries have competitiveness on the commodities with higher rate of processing and higher kilogram prices while EU12 countries having a comparative advantage on low processing rate and lower kilogram prices.

Fidan (2009, p.89-90) investigated the competition between EU15 and Turkey in the citrus sector by employing RCA and relative trade advantages. Dataset covers export and import of the period of 1990-2003. According to study, Greece, Spain, Italy, and Portugal are Turkey's main competitors in the citrus sector and Turkey has competitive advantage over Spain, Italy, Greece, and Portugal in lemon/limes and grapefruit exports.

Serin and Civan (2008, p.25-41) have measured the competitiveness on tomato, olive oil and fruit juice industries. Turkey has a comparative advantage over these sectors. Using the RCA method changes on these sectors have been observed for the period of 1995-2005. Study shows that Turkey has a comparative advantage in olive oil and fruit juice markets but also has an incompetent situation in tomato market.

Yılmaz (2008, p.54) studied foreign trade specialization and international competitiveness of Greece, Portugal, Spain, Turkey and the EU 12. RCA, Comparative Export Performance Index, Trade Overlap, Index, Export Similarity Index, Export Conformity Coefficient were employed for the term of 1995-2005. Study shows that even though Turkish economy cannot fully enjoy the benefits of the single market, it has been challenging economies of Portugal and Greece and starting to catch up with Spain.

Erlat and Erlat (2005, p. 1, 14) aims to identify the most promising sectors which can be leading sectors for Turkish economy by employing RCA for the period of 1990-2000. 3 digit SITC Rev. 3 data is used in the study. Results are classified according to their technological levels and being a traditional or nontraditional commodity. Results show that commodities in Labour Intensive Goods category will maintain its position as leading sector in Turkish economy before research intensive sectors gain the ascendancy.

Widgrén (2005, p.1), tries to examine the comparative advantage in Asian, American and European Countries. By using industry data at Harmonized System (HS) 4-digit level, RCA method had been employed for the period of 1996 and 2002. In this study, factor content of production of countries have been classified. According to classification, there is a convergence on factor content of comparative advantage between these countries. Study also shows that EU's comparative advantage moved towards intensive use of physical and human capital.

Borbély (2004, p.1) examined competition between selected accession countries - Hungary, Poland and the Czech Republic - and on four cohesion countries - Spain, Portugal, Ireland and Greece- in EU15 market. Study involves the term of 1993-2001 and employs RCA. According to Borbély (2004) cohesion and accession countries have intense market participation in commodities which mainly involves labour and resource while most of the countries have disadvantage in science based industries in EU15. Another result of the study shows that accession countries gain competition over cohesion countries in scale intensive industries over the years.

Ferman et. al (2004, p. 5-9) also used Balassa index as well as export similarity index to measure the competitiveness between Turkish export and export of other countries to EU market. Findings in this study show that Turkey has competitiveness on export of labour intensive and easily imitable products. Since Turkey only has competitiveness on these products, it is revealed that its closest rivals are India and China.

Yılmaz (2003, p.1) analyses factor content of production of Turkey, five EU ex-candidate countries (Poland, Hungary, Bulgaria, Romania, Czech Republic) and EU15 by measuring competitiveness via RCA and other methods. According to study, Turkey has competitive advantage on labour and raw material intensive goods and has comparative disadvantage on imitable goods. Later Yılmaz and Ergun (2003, p.1) examined competitiveness in the same countries and found that except Hungary to some extent, all countries (Turkey, Romania, Czech Republic, Poland, Bulgaria) has an incompetent situation on production and export of research oriented commodities.

Akgüngör et al. (2002, p. 34-53), makes an analysis on performance of Turkish Fruit and Vegetable Processing Sector in European Market. RCA index and comparative export performance index are employed to measure the competitiveness. According to study, in processed grape export Turkey has a competitive situation compared with Spain and Portugal and this case is valid in citrus fruit export for Greece and Portugal.

Küçükahmetoğlu (2002, p.34) examined intra-industry trade in Turkey for the period of 1989-1998 and compared Turkey with developed countries by employing Grubel-Lloyd index with SITC Rev.3. Results show that compared with developed countries intra-industry trade is low but there is a positive change over the years. Also Turkey's intra-industry trade in standard technology goods is greater than goods which involve intermediate and high technology.

Küçükahmetoğlu (2000, p.34-35) studied competitiveness between EU and Turkey by taking 3 reference years: 1984, 1990, 1996. In the study Balassa index was

employed and 149 industrial commodities in SITC Rev.2 which are between 500 and 900 was examined. Commodities and results are categorized as standard, intermediate and high technology. Study shows that there is no change in commodities which involve high technology over the years and Turkey has zero competitive commodity. However, commodities with intermediate and standard technology have slight development in terms of competitiveness.

As it can be seen, there are several research and empirical studies on different commodities that examine competitiveness in EU. Research in this study aims to contribute to literature by examining differences in competitiveness of industrial commodities with a comparative approach after adoption of the customs union. This comparison involves two different technological categorizations in order to attain a better understanding on competitiveness. It also offers a great perspective on changes in the composition of Turkish industrial trade after adoption of customs union.

#### **4.2.2 Methodology**

There are various methods to examine and calculate the international competitiveness and there is no consensus on the topic. However, RCA offers substantive results by comparing performances of different economies. There are different research and studies which employed RCA and it is a generally accepted methodology. Therefore in this study, RCA is employed.

Results of RCA are classified under two different technology categorization. One of them is an older one which is asserted by Fodors (1995) and other one is suggested by UNCTAD (2011). When technological developments are taken into account since 1995, Fodors technology categorization might be affected therefore in order to eliminate this possibility and attain more robust results UNCTAD categorization is also used.

#### **4.2.3 Dataset**

Annual data is used for 1996-2010 for EU15 countries and Turkey. The reason of selection of the country group, EU15 countries, is to make a consistent measurement.



Since Turkey adopted the Customs Union starting on 1 January 1996, it will be more accurate to evaluate the situation between Turkey and the member countries of the EU of that time period. EU15 countries were the members of the EU before 1996 and they still are, because of this situation it would be more accurate to measure the competitiveness by excluding members which joined to the EU and therefore adopted the Customs Union later. While time period is sufficient enough to make observations, a constant non tariff barrier trade between Turkey and EU15 provides a stable dataset to calculate RCA and export performance.

During the time of analysis EU integration process gained a new momentum and EU started to expand and deepen. In the literature, there is a general acceptance that for the time period of the study, EU single market has been accomplished. Especially EU Integration Process started to deepen accordingly with Single European Act in 1987 and it has been accomplished in 1992 mostly and a single market was created. On the other hand, in 1995 Austria, Finland and Sweden has become EU member state and EU-12 become EU-15. These three countries have a close economical relation between EU-12 countries because of European Free Trade Agreement (EFTA). On the other hand, with the expansion on 1 May 2004, Hungary, Poland, Czech Republic, Slovakia, Slovenia, Estonia, Lithuania, Latvia, Malta and Cyprus joined to EU-15 turned into EU-25 and by joining Romania and Bulgaria to EU on 01.01.2007 and Croatia on 01.07.2014, number of member states become 28. In this context, it can be stated that this analysis isn't affected due to new member states.

Three digit SITC data has been used because one and/or two digit commodity classification is not well detailed to measure and classify the results properly. SITC is a product classification of the United Nations used for external trade statistics (export and import values and volumes of goods), allowing for international comparisons of commodities and manufactured goods (Eurostat, 2012).

EU15 export data were taken from Eurostat database and Turkish export data were taken from TÜİK database. Reason of utilization of two databases is Turkish export to EU15 data were unavailable as SITC and were available only yearly in

Eurostat database. However, EU15 intra trade data were available for the term of 1996-2010. Eurostat data were taken from EU27 Trade Since 1988 By SITC subsection which is under the international trade section of the website in excel format which had separate worksheets for each commodity and revised and reduced into one working sheet for easier calculations. This process was made every year in the term of 1996-2010.

TUIK data were taken from database on its website. Since there was no option to select EU15 as a group of countries, countries were selected manually and downloaded as excel format. These excel sheets also involved export data of selected countries as well as their total export for every commodity and as a result these data were also revised and reduced manually for calculations.

The competitive advantages between SITC Rev.3 commodities under Foders (1995) classification and UNCTAD's classification are taken the 1996, 2003 and 2010 as reference years. Study focuses only on the industrial goods. Free movement of goods mainly realized on the industrial goods. As mentioned in the 2nd Chapter, agricultural trade is subjected to a tariff barrier since Turkey hasn't aligned its agricultural policy with the common agricultural policy of EU. Therefore this study is limited with the industrial commodities only.

#### **4.2.4 Classification**

When SITC Rev.3 is examined in 3-digit, there are 166 commodities in industrial trade. Therefore in this study, for any reference year there are 166 results for each commodity. These commodities are also classified under 2 different technology categorization. Under the results of a Balassa index, different analyses can be made with different classifications. In order to examine the situation of competitiveness between Turkey and EU15, two classifications are used.

One of the classifications is created by Foders (1995). Foders made his classification with a special emphasis on technology. In this technology classification,

commodities are split into 3 groups: High, intermediate and standard technology. Through this analysis, production compositions of manufacturing industry in terms of technology can be examined. In other words, this classification shows us what kind of technology Turkish exporters use for production and how competitive they are in the different technology groups.

According to Foders (1995), High, Intermediate and Standard technology includes 38, 61 and 67 commodities between 500-900 at 3-digit respectively.

**Table 4.6**

**Industrial Commodities with Advanced Technology**

Type of Technology	SITC Code	Commodity Name
High	54	Pharmaceutical products
	72	Machinery specialized for part, industries
	74	General industrial machinery and equipment
	75	Computer and other office machines
	764	Telecommunications Equipment, N.E.S., And Parts, N.E.S., And Accessories Of Apparatus Falling Within Division 76 Telecommunications equipment
	772	Apparatus for electrical circuits; board, panels
	774	Electrodiagnostic Apparatus For Medical, Surgical, Dental Or Veterinary Purposes, And Radiological Apparatus Medical apparatus
	776	Cathode valves and tubes
	778	Electrical Machinery And Apparatus, N.E.S. Electrical machinery and apparatus
	792	Aircraft And Associated Equipment; Spacecraft (Including Satellites) And Spacecraft Launch Vehicles; Parts Thereof Aircraft and associated equipment, spacecraft, etc.
	793	Ships, Boats (Including Hovercraft) And Floating Structures
	87	Professional, scientific and controlling Instruments
	88	Photographic and optical apparatus and equipment

Source: Foders (1995), p.25

**Table 4.7****Industrial Commodities with Intermediate Technology**

Type of Technology	SITC Code	Commodity Name
<b>Intermediate</b>	5 (less 54)	Chemicals and related products
	61	Leather, leather manufactures
	62	Rubber manufactures
	64	Paper, paperboard and articles of paper pulp
	71	Power generating machinery and equipment
	73	Metal working machinery
	76 (less 764)	Sound recording equipment
	77 (less 772, 774 , 776, 778)	Household appliances, transformers, etc.
	78	Road vehicles

Source: Foders (1995) p.25

**Table 4.8****Industrial Commodities with Standard Technology**

Type of Technology	SITC Code	Commodity Name
<b>Standard</b>	63	Cork and wood manufactures
	65	Textile yam, fabrics
	66	Non-metallic mineral manufactures
	67	Iron and steel
	68	Non-ferrous metals
	69	Manufactures of metals
	79 (less 792, 793)	Other transport equipment
	81	Prefabricated buildings etc.
	82	Furniture etc.
	83	Travel goods, handbags etc.
	84	Articles of apparel and clothing etc.
	85	Footwear
	89	Miscellaneous manuf. Articles

Source: Foders (1995), p.25

Another classification is made by UNCTAD (2011). According to UNCTAD (2011) manufactured goods is split into 5 groups which is also illustrated in Annex:

- Labour-intensive and resource-based manufactures
- Manufactures with low skill and technology intensity
- Manufactures with medium skill and technology intensity
- Manufactures with high skill and technology intensity
- Unclassified

This classification also allows us to examine the composition of export. It involves SITC 5 to 8 less 667 and 68. By employing Balassa index it is possible to see the composition of commodities which Turkey has competitiveness. In the study, Unclassified Commodities of the UNCTAD's classification is excluded from the analysis.

Both of these classifications provide us a chance to examine whether Turkish economy started to become more competitive in commodities which involves added value and research oriented goods or not. Since Lisbon Strategy and Europe 2020 Strategy aims to establish a smart, sustainable, inclusive and competitive, dynamic knowledge based economy, it is also going to show us that as a candidate country whether Turkey had converged enough with big European Economies or not in terms of competitiveness.

There are differences between UNCTAD's and Foders (1995) technology classification. When it is examined it can be seen that UNCTAD's classification offers an analysis on technology along with labour and their skill level while Foder's classification includes a more general approach to technology levels. It can be seen that some commodities are categorized differently in each classification system. It is estimated that two different classification systems would give us more robust and sufficient output for the study.

#### **4.2.5 Export Composition and Accumulation**

A country's technological level is determined not only by domestic innovation but also by the diffusion of technology from abroad. Neoclassical approach suggests that countries will specialize in the production and export of certain goods based on comparative advantage. Technological progress and economic integration in the world have enabled higher levels of technological diffusion and increased the mobility and accumulation of productive factors over time. (World Trade Organisation, 2013, p. 74-152)

So a commodity doesn't necessarily involve production factors from a single country. In this context, commodities exported from Turkey also involve imports of production factors and/or intermediate goods from other countries. This situation can be examined under the concept of accumulation or cumulation and cumulative rules of origin. World Customs Organization (2013) defines this concept as "cumulative rules of origin allows countries which are part of a preferential trade agreement to share production and jointly comply with the relevant rules of origin provisions." In this case, a producer of one contracting party of a free trade zone is allowed to use input materials from another contracting party without losing the originating status of that input for the purpose of the applicable rules of origin.

There are three types of accumulation: Bilateral, diagonal, full. Even though, the most common accumulation type is bilateral, EU legislation mostly offers diagonal accumulation to its partners (Abreu, 2013, p.9). Turkey became a member of the pan-European cumulation system which was created in 1997 and adopted the system in 1999. At present the system is being enlarged to the Faroe Islands and the Mediterranean countries and is commonly referred to as Pan-Euro-Mediterranean cumulation.

In the context of the Pan-Euro-Med system, diagonal cumulation means that products which have obtained originating status in one of the 42 countries, which involves EU member states, Algeria, Egypt, Faeroe Islands, Iceland, Israel, Jordan,

Lebanon, Morocco, Norway, Switzerland (including Liechtenstein), Syria, Tunisia, Turkey and West Bank and Gaza Strip, may be added to products originating in any other one of the 42 without losing their originating status within the Pan-Euro-Med zone (European Commission, 2014).

In the study it is important to give an emphasis on the cumulation system while making the analysis and assessments. Since Turkey's export mainly depends on the import and the cumulation system allows its members to use input materials from another contracting party without losing the originating status of that input for the purpose of the applicable rules of origin, the commodities in the analysis might be mainly consist of production combination from different countries. So analyses in the study also involves the export of commodities under the cumulation system.

#### **4.3 Revealed Comparative Advantages Analysis for the Period of 1996-2010 By Foders Classification**

As it was pointed out Foders Classification involves three technology levels. Employing RCA, it is aimed to calculate the performance of Turkey in EU15 market in each category.

##### **4.3.1 Export Developments for Advanced Technology Category**

Turkey has competitiveness on 3 commodities in 1996. These commodities are 793 - Ships, Boats (Including Hovercraft) And Floating Structures - Ships, Boats (Including Hovercraft) And Floating Structures, 721 - Agricultural Machinery (Excluding Tractors) And Parts Thereof and 776 - Thermionic, Cold Cathode Or Photo-Cathode Valves And Tubes; Diodes, Transistors And Similar Semiconductor Devices; Photosensitive Semiconductor Devices; Light-Emitting Diodes; Mounted Piezoelectric Crystals; Electronic Integrated Circuits And Microassemblies; Parts Thereof. In that time Turkey has only competitiveness over 3 commodities out of 38 in the advanced technology classification. These products constitute 3,15% of total industrial export of Turkey to EU15. Commodity with highest share in Turkish total industrial export to EU15 was 776 - Thermionic, Cold Cathode Or Photo-Cathode Valves And Tubes;

Diodes, Transistors And Similar Semiconductor Devices; Photosensitive Semiconductor Devices; Light-Emitting Diodes; Mounted Piezoelectric Crystals; Electronic Integrated Circuits And Microassemblies; Parts Thereof and it constitutes 1,93% in advanced technology classification.

In the year of 2003, 793 - Ships, Boats (Including Hovercraft) And Floating Structures - Ships, Boats (Including Hovercraft) And Floating Structures remained competitive with a rising percentage of total industrial export to the EU15 which is 1,01. 721 - Agricultural Machinery (Excluding Tractors) And Parts Thereof and 776 - Thermionic, Cold Cathode Or Photo-Cathode Valves And Tubes; Diodes, Transistors And Similar Semiconductor Devices; Photosensitive Semiconductor Devices; Light-Emitting Diodes; Mounted Piezoelectric Crystals; Electronic Integrated Circuits And Microassemblies; Parts Thereof have lost their competitiveness after the adoption of customs union. And also in this year commodity numbered as 722 - Tractors (Other Than Those Of Headings 744 - Mechanical Handling Equipment And Parts Thereof, N.E.S..14 and 744 - Mechanical Handling Equipment And Parts Thereof, N.E.S..15) become competitive and its share is 0,37%.

In 2010, Turkey has competitiveness on two commodities as in 2003 but 722 - Tractors (Other Than Those Of Headings 744 - Mechanical Handling Equipment And Parts Thereof, N.E.S..14 and 744 - Mechanical Handling Equipment And Parts Thereof, N.E.S..15) lost its competitiveness and 723 – Civil engineering & contractors' plant & equipment become competitive instead with the share of 0,55 percent in the total industrial export to EU15. 793 - Ships, Boats (Including Hovercraft) And Floating Structures - Ships, Boats (Including Hovercraft) And Floating Structures remained its place as the commodity which has the biggest share in this category with 0,6 percent from the total industrial export to EU15.



### 4.3.2 Export Developments for Intermediate Technology Category

**Table 4.9**  
**Competitive Commodities in trade with EU15 in 1996**

<b>Competitive Commodity</b>	<b>Share of Total Industrial Export To EU15</b>	<b>Balassa Index Ratio</b>
711 - Steam Or Other Vapour-Generating Boilers, Superheated Water Boilers, And Auxiliary Plant For Use Therewith; Parts Thereof	0,01	32,92
771 - Electric Power Machinery (Other Than Rotating Electric Plant Of Group 716) And Parts Thereof	0,03	6,61
712 - Steam Turbines And Other Vapour Turbines And Parts Thereof, N.E.S.	0,001	3,9
735 - Parts, N.E.S., And Accessories Suitable For Use Solely Or Principally With The Machines Falling Within Groups 731 And 733	0,004	3,18
642 - Paper And Paperboard, Cut To Size Or Shape, And Articles Of Paper Or Paperboard	0,029	2,8
773 - Equipment For Distributing Electricity, N.E.S.	0,017	2,5
522 - Inorganic Chemical Elements, Oxides And Halogen Salts	0,008	2,26
613 - Furskins, Tanned Or Dressed (Including Heads, Tails, Paws And Other Pieces Or Cuttings), Unassembled, Or Assembled (Without The Addition Of Other Materials), Other Than Those Of Heading 848 - Articles Of Apparel And Clothing Accessories Of Other Than Textile Fabrics; Headgear Of All Materials.31	0,0008	1,66
625 - Rubber Tyres, Interchangeable Tyre Treads, Tyre Flaps And Inner Tubes For Wheels Of All Kinds	0,013	1,59
763 - Sound Recording Or Reproducing Apparatus; Video Recording Or Reproducing Apparatus; Whether Or Not Incorporating A Video Tuner	0,004	1,49

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

As it can be seen in the Table 4.9, Turkey has competitiveness on 10 commodities in 1996. These products constitute 0,12% of total industrial export of Turkey to EU15. Competitive Turkish industrial commodities which involve intermediate technology production constitute 11,66 percent of Turkish total industrial export to EU15 countries. Commodity with highest share in Turkish total industrial export to EU15 was 771 - Electric Power Machinery (Other Than Rotating Electric Plant Of Group 716) And Parts Thereof and it constitutes 2,91 percent in intermediate technology classification.

**Table 4.10****Competitive Commodities in trade with EU15 in 2003**

<b>Competitive Commodity</b>	<b>Share of Total Industrial Export To EU15</b>	<b>Balassa Index Ratio</b>
761 - Monitors And Projectors, Not Incorporating Television Reception Apparatus; Reception Apparatus For Television, Whether Or Not Incorporating Radio-Broadcast Receivers Or Sound Or Video Recording Or Reproducing Apparatus	0,07	15,59
782 - Motor Vehicles For The Transport Of Goods And Special-Purpose Motor Vehicles	0,04	2,92
775 - Household-Type Electrical And Non-Electrical Equipment, N.E.S.	0,03	2,74
625 - Rubber Tyres, Interchangeable Tyre Treads, Tyre Flaps And Inner Tubes For Wheels Of All Kinds	0,01	2,05
773 - Equipment For Distributing Electricity, N.E.S.	0,01	2,01
522 - Inorganic Chemical Elements, Oxides And Halogen Salts	0,005	1,46
713 - Internal Combustion Piston Engines And Parts Thereof, N.E.S.	0,019	1,30
733 - Machine Tools For Working Metal, Sintered Metal Carbides Or Cermets, Without Removing Material	0,001	1,26
629 - Articles Of Rubber, N.E.S.	0,004	1,21
621 - Materials Of Rubber (E.G., Pastes, Plates, Sheets, Rods, Thread, Tubes, Of Rubber)	0,003	1,01

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

As it can be seen in Table 4.10, Turkey has competitiveness on 10 commodities in the intermediate technology classification in 2003. Competitive Turkish industrial commodities which involve intermediate technology production constitute 20,17 percent of Turkish total industrial export to EU15 countries. Commodity with largest share in Turkish total industrial export to EU15 was 761 - Monitors And Projectors, Not Incorporating Television Reception Apparatus; Reception Apparatus For Television, Whether Or Not Incorporating Radio-Broadcast Receivers Or Sound Or Video Recording Or Reproducing Apparatus and it constitutes 7,07 percent in intermediate technology classification.

Only 3 commodities which were competitive in 1996 remained competitive in 2003. These commodities are 773- Equipment For Distributing Electricity, N.E.S., 522- Inorganic Chemical Elements, Oxides And Halogen Salts, 625- Rubber Tyres, Interchangeable Tyre Treads, Tyre Flaps And Inner Tubes For Wheels Of All Kinds.

After the adoption of customs union 70% of commodities in intermediate technology have lost their competitiveness which indicates a structural break in the composition of the category.

**Table 4.11**  
**Competitive Commodities in trade with EU15 in 2010**

<b>Competitive Commodity</b>	<b>Share of Total Industrial Export To EU15</b>	<b>Balassa Index Ratio</b>
761 - Monitors And Projectors, Not Incorporating Television Reception Apparatus; Reception Apparatus For Television, Whether Or Not Incorporating Radio-Broadcast Receivers Or Sound Or Video Recording Or Reproducing Apparatus	0,04	6,91
782 - Motor Vehicles For The Transport Of Goods And Special-Purpose Motor Vehicles	0,07	6,19
775 - Household-Type Electrical And Non-Electrical Equipment, N.E.S.	0,05	5,97
783 - Road Motor Vehicles, N.E.S.	0,02	3,70
773 - Equipment For Distributing Electricity, N.E.S.	0,02	3,53
613 - Furskins, Tanned Or Dressed (Including Heads, Tails, Paws And Other Pieces Or Cuttings), Unassembled, Or Assembled (Without The Addition Of Other Materials), Other Than Those Of Heading 848.31	0,0005	3,33
523 - Salts And Peroxysalts, Of Inorganic Acids And Metals	0,01	3,12
629 - Articles Of Rubber, N.E.S.	0,01	2,49
733 - Machine Tools For Working Metal, Sintered Metal Carbides Or Cermets, Without Removing Material	0,001	1,93
625 - Rubber Tyres, Interchangeable Tyre Treads, Tyre Flaps And Inner Tubes For Wheels Of All Kinds	0,01	1,80
621 - Materials Of Rubber (E.G., Pastes, Plates, Sheets, Rods, Thread, Tubes, Of Rubber)	0,004	1,77
713 - Internal Combustion Piston Engines And Parts Thereof, N.E.S.	0,02	1,48
781 - Motor Cars And Other Motor Vehicles Principally Designed For The Transport Of Persons (Other Than Motor Vehicles For The Transport Of Ten Or More Persons, Including The Driver), Including Station-Wagons And Racing Cars	0,10	1,27
784 - Parts And Accessories Of The Motor Vehicles Of Groups 722, 781, 782 And 783	0,04	1,21

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

In 2010, there are 14 competitive commodities in intermediate technology category as it can be seen from Table 4.11. Competitive Turkish industrial commodities which involve standard technology production constitute 38,61 percent of Turkish total industrial export to EU15 countries. Commodity with highest share in Turkish total

industrial export to EU15 was 781 - Motor vehicles for the transport of persons and it constitutes 9,98 percent in standard technology classification.

Only two commodities which were competitive in 2003, have lost their competitiveness in 2010. These commodities are 522 - Inorganic Chemical Elements, Oxides And Halogen Salts and 713 - Internal Combustion Piston Engines And Parts Thereof, N.E.S.. Additionally 6 new commodities become competitive. These commodities are 783- Road Motor Vehicles, N.E.S., 613- Furskins, Tanned Or Dressed (Including Heads, Tails, Paws And Other Pieces Or Cuttings), Unassembled, Or Assembled (Without The Addition Of Other Materials), Other Than Those Of Heading 848.31, 523 - Salts And Peroxysalts, Of Inorganic Acids And Metals, 713 - Internal Combustion Piston Engines And Parts Thereof, N.E.S., 781- Motor Cars And Other Motor Vehicles Principally Designed For The Transport Of Persons (Other Than Motor Vehicles For The Transport Of Ten Or More Persons, Including The Driver), Including Station-Wagons And Racing Cars and 784- Parts And Accessories Of The Motor Vehicles Of Groups 722, 781, 782 And 783.

It can be observed that between 2003 and 2010, there is only a small change in the composition of the category. Also there is an increase in intermediate commodities in terms of share and number.

### 4.3.3 Export Developments for Standard Technology Category

**Table 4.12**

#### **Competitive Commodities in trade with EU15 in 1996**

<b>Competitive Commodity</b>	<b>Share of Total Industrial Export To EU15</b>	<b>Balassa Index Ratio</b>
843 - Men's Or Boys' Coats, Capes, Jackets, Suits, Blazers, Trousers, Shorts, Shirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,18	149,98
831 - Trunks, Suitcases, Vanity Cases, Executive Cases, Briefcases, School Satches, Spectacle Cases, Binocular Cases, Camera Cases, Musical Instrument Cases, Gun Cases, Holsters And Similar Containers; Travelling Bags, Insulated Food Or Beverages Bags, Toilet Bags, Rucksacks, Handbags, Shopping Bags, Wallets, Purses, Map Cases, Cigarette Cases, Tobacco Pouches, Tool Bags, Sports Bags, Bottle Cases, Jewellery Boxes, Powder Boxes, Cutlery Cases And Similar Containers, Of Leather Or Of Composition Leather, Of Sheetting Of Plastics, Of Textile Materials, Of Vulcanized Fibre Or Of Paperboard, Or Wholly Or Mainly Covered With Such Materials Or With Paper; Travel Sets For Personal Toilet, Sewing Or Shoe Or Clothes Cleaning	0,10	55,17
896 - Works Of Art, Collectors' Pieces And Antiques	0,004	14,95
842 - Women's Or Girls' Coats, Capes, Jackets, Suits, Trousers, Shorts, Shirts, Dresses And Skirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Not Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,08	10,23
678 - Wire Of Iron Or Steel	0,01	9,15
683 - Nickel	0,01	8,96
696 - Cutlery	0,01	8,65
687 - Tin	0,001	8,57
657 - Special Yarns, Special Textile Fabrics And Related Products	0,05	7,93
844 - Women's Or Girls' Coats, Capes, Jackets, Suits, Trousers, Shorts, Shirts, Dresses And Skirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,02	7,14
652 - Cotton Fabrics, Woven (Not Including Narrow Or Special Fabrics)	0,03	6,50
681 - Silver, Platinum And Other Metals Of The Platinum Group	0,01	4,78
656 - Tullies, Lace, Embroidery, Ribbons, Trimmings And Other Smallwares	0,004	4,30
658 - Made-Up Articles, Wholly Or Chiefly Of Textile Materials, N.E.S.	0,01	4,24
672 - Ingots And Other Primary Forms, Of Iron Or Steel; Semi-Finished Products Of Iron Or Steel	0,01	4,19
661 - Lime, Cement, And Fabricated Construction Materials (Except Glass And Clay Materials)	0,01	3,86
891 - Arms And Ammunition	0,003	3,76
841 - Men's Or Boys' Coats, Capes, Jackets, Suits, Blazers, Trousers, Shorts, Shirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Not Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,03	3,70

821 - Furniture And Parts Thereof; Bedding, Mattresses, Mattress Supports, Cushions And Similar Stuffed Furnishings	0,06	3,52
895 - Office And Stationery Supplies, N.E.S.	0,005	2,89
845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S.	0,03	2,84
659 - Floor Coverings, Etc.	0,01	2,57
651 - Textile Yarn	0,02	2,53
654 - Other Textile Fabrics, Woven	0,01	2,49
791 - Railway Vehicles (Including Hovertrains) And Associated Equipment	0,003	2,31
655 - Knitted Or Crocheted Fabrics (Including Tubular Knit Fabrics, N.E.S., Pile Fabrics And Openwork Fabrics), N.E.S.	0,004	1,89
664 - Glass	0,01	1,69
811 - Prefabricated Buildings	0,002	1,65
677 - Rails Or Railway Track Construction Material, Of Iron Or Steel	0,0004	1,33
812 - Sanitary, Plumbing And Heating Fixtures And Fittings, N.E.S.	0,004	1,30
695 - Tools For Use In The Hand Or In Machines	0,01	1,03

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

As it can be seen in the Table 4.12, Turkey has competitiveness on 31 commodities in 1996. Competitive Turkish industrial commodities which involve standard technology production constitute 70,91 percent of Turkish total industrial export to EU15 countries. Commodity with highest share in Turkish total industrial export to EU15 was 843 - Men's Or Boys' Coats, Capes, Jackets, Suits, Blazers, Trousers, Shorts, Shirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2) and it constitutes 18,25 percent in standard technology classification.

In that time Turkey has competitiveness over 31 commodities out of 67 in the standard technology classification. In other words, Turkey has competitiveness on 46,27 percent of the commodities in Standard Technology Category. It can be observed that commodities in Standard Technology Category constitutes Turkey's main export.

**Table 4.13****Competitive Commodities in trade with EU15 in 2003**

<b>Competitive Commodity</b>	<b>Share of Total Industrial Export To EU15</b>	<b>Balassa Index Ratio</b>
658 - Made-Up Articles, Wholly Or Chiefly Of Textile Materials, N.E.S.	0,05	19,43
844 - Women's Or Girls' Coats, Capes, Jackets, Suits, Trousers, Shorts, Shirts, Dresses And Skirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,04	17,69
845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S.	0,14	12,78
842 - Women's Or Girls' Coats, Capes, Jackets, Suits, Trousers, Shorts, Shirts, Dresses And Skirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Not Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,07	10,78
843 - Men's Or Boys' Coats, Capes, Jackets, Suits, Blazers, Trousers, Shorts, Shirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,01	10,58
846 - Clothing Accessories, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted (Other Than Those For Babies)	0,02	10,05
841 - Men's Or Boys' Coats, Capes, Jackets, Suits, Blazers, Trousers, Shorts, Shirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Not Knitted Or Crocheted (Other Than Those Of Subgroup 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S..2)	0,04	7,59
656 - Tullies, Lace, Embroidery, Ribbons, Trimmings And Other Smallwares	0,01	6,91
848 - Articles Of Apparel And Clothing Accessories Of Other Than Textile Fabrics; Headgear Of All Materials	0,01	6,54
661 - Lime, Cement, And Fabricated Construction Materials (Except Glass And Clay Materials)	0,01	4,27
655 - Knitted Or Crocheted Fabrics (Including Tubular Knit Fabrics, N.E.S., Pile Fabrics And Openwork Fabrics), N.E.S.	0,01	4,21
651 - Textile Yarn	0,02	4,10
812 - Sanitary, Plumbing And Heating Fixtures And Fittings, N.E.S.	0,01	3,97
653 - Fabrics, Woven, Of Man-Made Textile Materials (Not Including Narrow Or Special Fabrics)	0,01	3,86
652 - Cotton Fabrics, Woven (Not Including Narrow Or Special Fabrics)	0,01	3,65
676 - Iron And Steel Bars, Rods, Angles, Shapes And Sections (Including Sheet Piling)	0,02	3,30
897 - Jewellery, Goldsmiths' And Silversmiths' Wares, And Other Articles Of Precious Or Semiprecious Materials, N.E.S.	0,01	3,27
697 - Household Equipment Of Base Metal, N.E.S.	0,01	3,10
891 - Arms And Ammunition	0,002	3,04
693 - Wire Products (Excluding Insulated Electrical Wiring) And Fencing Grills	0,003	2,26
665 - Glassware	0,01	2,25
662 - Clay Construction Materials And Refractory Construction Materials	0,01	1,95

672 - Ingots And Other Primary Forms, Of Iron Or Steel; Semi-Finished Products Of Iron Or Steel	0,005	1,91
679 - Tubes, Pipes And Hollow Profiles, And Tube Or Pipe Fittings, Of Iron Or Steel	0,01	1,67
666 - Pottery	0,001	1,65
659 - Floor Coverings, Etc.	0,004	1,39
654 - Other Textile Fabrics, Woven	0,002	1,25

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

According to Table 4.13, there are 27 commodities competitive in standard technology class in 2003. Competitive Turkish industrial commodities which involve standard technology production constitute 53,87 percent of Turkish total industrial export to EU15 countries. Commodity with highest share in Turkish total industrial export to EU15 was 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S. and it constitutes 13,75 percent in standard technology classification.

In 2003, composition in Standard Technology Category is changed when it is compared with 1996. Nearly half of the competitive commodities have lost their competitiveness and new commodities took their places. This situation also indicates a structural break in this category as it was indicated in Intermediate Technology Category. Export composition of standard technology category has changed after the adoption of customs union. 16 competitive commodities remained at their status while 15 competitive commodities became uncompetitive.



**Table 4.14****Competitive Commodities in trade with EU15 in 2010**

<b>Competitive Commodity</b>	<b>Share of Total Industrial Export To EU15</b>	<b>Balassa Index Ratio</b>
844 - Women's Or Girls' Coats, Capes, Jackets, Suits, Trousers, Shorts, Shirts, Dresses And Skirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Knitted Or Crocheted (Other Than Those Of Subgroup 845.2)	0,04	13,94
658 - Made-Up Articles, Wholly Or Chiefly Of Textile Materials, N.E.S.	0,03	11,53
655 - Knitted Or Crocheted Fabrics (Including Tubular Knit Fabrics, N.E.S., Pile Fabrics And Openwork Fabrics), N.E.S.	0,01	9,88
846 - Clothing Accessories, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted (Other Than Those For Babies)	0,02	9,76
845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S.	0,09	8,96
842 - Women's Or Girls' Coats, Capes, Jackets, Suits, Trousers, Shorts, Shirts, Dresses And Skirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Not Knitted Or Crocheted (Other Than Those Of Subgroup 845.2)	0,05	7,61
843 - Men's Or Boys' Coats, Capes, Jackets, Suits, Blazers, Trousers, Shorts, Shirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Knitted Or Crocheted (Other Than Those Of Subgroup 845.2)	0,01	7,25
652 - Cotton Fabrics, Woven (Not Including Narrow Or Special Fabrics)	0,01	6,82
841 - Men's Or Boys' Coats, Capes, Jackets, Suits, Blazers, Trousers, Shorts, Shirts, Underwear, Nightwear And Similar Articles Of Textile Fabrics, Not Knitted Or Crocheted (Other Than Those Of Subgroup 845.2)	0,03	6,30
653 - Fabrics, Woven, Of Man-Made Textile Materials (Not Including Narrow Or Special Fabrics)	0,01	5,29
656 - Tulles, Lace, Embroidery, Ribbons, Trimmings And Other Smallwares	0,002	4,75
651 - Textile Yarn	0,02	4,70
812 - Sanitary, Plumbing And Heating Fixtures And Fittings, N.E.S.	0,01	4,10
693 - Wire Products (Excluding Insulated Electrical Wiring) And Fencing Grills	0,01	3,48
659 - Floor Coverings, Etc.	0,01	3,24
661 - Lime, Cement, And Fabricated Construction Materials (Except Glass And Clay Materials)	0,01	2,80
848 - Articles Of Apparel And Clothing Accessories Of Other Than Textile Fabrics; Headgear Of All Materials	0,01	2,80
666 - Pottery	0,001	2,42
697 - Household Equipment Of Base Metal, N.E.S.	0,005	2,13
897 - Jewellery, Goldsmiths' And Silversmiths' Wares, And Other Articles Of Precious Or Semiprecious Materials, N.E.S.	0,01	2,11
662 - Clay Construction Materials And Refractory Construction Materials	0,01	1,87
665 - Glassware	0,01	1,83
679 - Tubes, Pipes And Hollow Profiles, And Tube Or Pipe Fittings, Of Iron Or Steel	0,02	1,60
891 - Arms And Ammunition	0,001	1,58
679 - Tubes, Pipes And Hollow Profiles, And Tube Or Pipe Fittings, Of Iron Or Steel	0,01	1,51

654 - Other Textile Fabrics, Woven	0,001	1,37
673 - Flat-Rolled Products Of Iron Or Non-Alloy Steel, Not Clad, Plated Or Coated	0,01	1,22
657 - Special Yarns, Special Textile Fabrics And Related Products	0,04	13,94

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

In 2010, there are 28 competitive commodities in standard technology class. As it can be seen in Table 4.14, competitive Turkish industrial commodities which involve standard technology production constitute 42,11 percent of Turkish total industrial export to EU15 countries. Commodity with highest share in Turkish total industrial export to EU15 was 845 - Articles Of Apparel, Of Textile Fabrics, Whether Or Not Knitted Or Crocheted, N.E.S. and it constitutes 9,38 percent in standard technology classification.

When it is examined, only three commodities in 2003 which were competitive became uncompetitive while other 24 commodities remained competitive. This shows that there is no significant change in the composition of standard technology category after 2003. This situation indicates a rather stable export in commodities which involve standard technology during the period between 2003 and 2010.

#### 4.3.4 Overall Review for Foders Classification

**Table 4.15**

**Competitiveness of Turkey against EU15 Countries Classified Based on Technology by Years Between 1996-2010**

Product Classification Based On Technology	Total Commodity Numbers between 500-900	Competitive Commodities in Total														
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. Standard	67	31	29	31	30	32	31	28	27	28	28	26	29	29	29	28
2. Intermediate	61	10	9	10	9	10	14	9	10	12	14	14	16	15	15	14
3. Advanced	38	3	1	1	2	0	1	1	2	1	1	1	1	1	2	2
Total	166	44	39	42	41	42	46	38	39	41	43	41	46	45	45	44

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

Table 4.15 shows that there is no significant change in number of competitive commodities in total between 1996 and 2010. There is insignificant fluctuation in general throughout the years. When the technology categories is examined it can be observed that there is a small deterioration in the commodities with standard technology in terms of competitiveness while there is an small increase in commodities with intermediate technology. So it can be said that there is a small but gradual shift from commodities with standard technology towards commodities with intermediate technology. Commodities with advanced technology remained uncompetitive in general compared with the EU15.

In total of 166 commodities, Turkey has competitiveness on 26,5% of the commodities. Turkey's uncompetitive position had not changed between 1996 and 2010. In 1996, 46,27% of commodities in standard technology category were competitive while in 2010, 41,79% of commodities were competitive. In 1996, 16,39%

of the commodities in intermediate technology category were competitive however in 2010, 22,95% of the commodities became competitive. It can easily be said that commodities with standard technology consist base of Turkish competitive commodities even though there are fluctuation throughout the years.

**Table 4.16**

**Shares of Competitive Commodities of Turkey from total industrial export to EU15 Countries Classified Based on Technology By Years between 1996-2002**

Product Classification Based On Technology	Shares of Competitive Commodities						
	1996	1997	1998	1999	2000	2001	2002
1. Standard	70,91	72,20	70,22	64,60	64,40	60,52	56,94
2. Intermediate	11,66	11,31	14,06	12	14,45	17,44	20,08
3. High	3,13	0,42	0,73	1,12	0	0,61	0,82
Total	85,71	83,95	85,02	77,73	78,86	78,58	77,84

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

\*\* Fractions after 2 digits excluded.

**Table 4.17**

**Shares of Competitive Commodities of Turkey from total industrial export to EU15 Countries Classified Based on Technology By Years Between 2003-2010**

Product Classification Based On Technology	Shares of Competitive Commodities							
	2003	2004	2005	2006	2007	2008	2009	2010
1. Standard	53,87	48,73	46,85	43,93	43,58	40,79	43,19	42,11
2. Intermediate	20,17	22,91	24,67	34,68	38,58	38,81	39	38,61
3. High	1,38	1,16	2,01	1,56	1,79	1,86	1,36	1,16
Total	75,43	72,81	73,53	80,17	83,96	81,47	83,54	81,88

Source: Eurostat and TÜİK Database

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

<http://www.tuik.gov.tr/>

\* Own calculations

\*\* Fractions after 2 digits excluded.

As it can be seen Table 4.16 and 4.17, share of commodities in Standard Technology Classification in total industrial export to EU15 fell to 42,11 percent from 70,91 gradually while commodities in Intermediate Technology Classification increase to 38,6 from 11,66. Share of commodities which involve standard technology decreased 40,62 percent over 15 years while share of commodities which involve intermediate technology increased 231,04 percent.

It can be stated that after Turkey joined to Customs Union, shares of industrial commodities in export gradually changed and there is an exchange between commodities which involve standard and intermediate technologies. It can be observed that there is a negative correlation between commodities which involve standard and intermediate technologies in the total industrial export to EU15 countries. Share of commodities with standard technology fell over years while commodities with intermediate technology increase.

On the other hand, in 1996 commodities which involves advanced technology constitute 3,13 percent of total industrial export to EU15 countries. However, one year later its share dramatically drop 86,58 percent and after that, over the years it started to increase as unstable. Its share couldn't reach its previous state in 1996.

#### **4.4 Revealed Comparative Advantages Analysis for The Period of 1996-2010 by UNCTAD's Classification**

As it was pointed out that UNCTAD's Classification involves five technology levels. Employing RCA, it is aimed to calculate the performance of Turkey in EU15 market in each category. UNCTAD's classification also involves category of unclassified commodities which is excluded in these study.

##### **4.4.1 Labour-Intensive and Resource-Based Manufactures**

There are 34 commodities in the labour-intensive and resource-based manufactures section. This technology intensity group consists most of the Turkish

export especially for the term of Turkey's entrance to the Customs Union. In other words it was the base of manufacture industry export for the beginning of Customs Union.

When its share in the total industrial export is examined, for the year of 1996 it can be seen that it consists 68,64 percent. There are 19 competitive commodities for this year in the Labour-intensive and resource-based manufactures section. Financial value of these 19 competitive commodities in Turkey's export is 4.835.428.913 Euro while value of rest of the commodities in the list which are uncompetitive is 132.735.298,91 Euro which is an insignificant number compared with competitive commodities.

In 2003, it can be seen that Turkey still has 19 competitive commodities but there is a significant decrease in its share in the total industrial export. Compared to 1996, labour-intensive and resource-based manufactures have lost their share by 26,83 percent and it consists 50,23 percent of total industrial export for the year of 2003. Financial value of these 19 competitive commodities in Turkey's export is 9.043.830.162 Euro while value of rest of the commodities in the list which are uncompetitive is 582.643.816 Euro. It can be seen that Turkey's export nearly doubled for the commodities in Labour-intensive and resource-based manufactures.

In 2010, while the number of competitive commodities increases to 21, decrease in the share continued. The share of labour-intensive and resource-based manufactures in the total industrial export become 38,19 percent by decreasing 23,97 percent for the year of 2010. Financial export value of 21 competitive commodities is 10.300.259.956 Euro. And total financial export value of Labour-intensive and Resource-based Manufactures is 11.095.726.863 Euro for the year of 2010. There is a 15,26 percent increase in the total value of export compared with the year of 2003.

It can be clearly seen that since the Turkey's entrance to the Customs Union, Turkey has maintained its place with slight increase in the Labour-intensive and Resource-based Manufactures in terms of number of commodities, while its share continuously decreased. And there is also a major increase in terms of export value

especially after Turkey's adoption of the Customs Union. Even though there is increase in export value and number of commodities, its share in total industrial export indicates that there is a shift in Turkey's export composition in terms of production.

#### **4.4.2 Manufactures with Low Skill and Technology Intensity**

Manufactures with low skill and technology intensity section consists of 23 commodities. Even though this section consists of commodities with low technology and skill Turkey has no upper hand compared with EU15. Beginning of Customs Union in 1996, Turkey has competitiveness on only 8 commodities which consists nearly one third of the section.

Commodities in Manufactures with low skill and technology intensity section represent 6,27 percent of the total manufacturing industry export to the EU15. In terms of export value, commodities in this section is 453.626.239,6 Euro. 8 competitive commodities have a share of 77,04 percent of this export value which is 349.510.034 Euro.

There is a major increase in export value by the year of 2003. Export value increased more than 4 times compared to value of 1996 while there is a slight decrease in the number of competitive commodities. For the year of 2003 there are 7 competitive commodities with the share of 9,44 percent from the total manufacturing industry export to EU15. Their economical value is 1.314.231.523 Euro and total economical value of the commodities in this section is 1.809.524.837 Euro. This is a major increase while having a slight decrease in the number of commodities. This is an indication of growth in the export volume after the term of adoption of Customs Union.

Compared with the 2003, export values are increased 38,83 percent for the year of 2010 and become 2.512.301.933 Euro while there is a slight decrease in the number of the competitive commodities. For 2010, there are only 6 competitive commodities in Manufactures with low skill and technology intensity section. For 2010, commodities in this section have the 8,65 percent of the share from total manufacturing industry export. While competitive commodities are decreased, export volume continued to increase.

Since the beginning of Customs Union, commodities in the Manufactures with low skill and technology intensity section slightly lost their competitive advantages. In 1996 there were 8 competitive commodities and 6 commodities in 2010. While having a decrease in competitive commodities export volume constantly increase at major levels. It can be seen that export volume in 1996 increased 453,8 percent to the year of 2010.

#### **4.4.3 Manufactures with Medium Skill and Technology Intensity**

Commodities in Manufactures with medium skill and technology intensity section consisted a small part of Turkey's total manufacturing industry export to EU15 in 1996 even though it is second largest group in terms of commodity number in the UNCTAD's classification. After the Turkey's entrance to the Customs Union, it gradually has become the base of the Turkish manufacturing industry export by taking its place from the commodities under labour-intensive and resource-based manufactures section. There are 42 commodities in this section. In 1996, it represented 13,65 percent of the share of total manufacturing industry export to EU15. Turkey has competitiveness on only 8 commodities for this term. Their values were 583.775.567 Euro while the total value of all commodities in this section was 987.837.030,4 Euro for 1996.

In 2003, number of competitive commodities has slightly increased and became 9. Share of the commodities in this section increased to 27,33 percent from 13,65 percent. This increase nearly doubles the share of these commodities in 1996. When it is compared with 1996 in terms of export value, it increased more than 5 times to the year of 2003. Total export value become 5.238.462.401 Euro.

When the numbers of 2010 is examined, there are major increases in competitive commodities, share and export volume. Number of competitive commodities increased to 12 from 9 while export values increased 126 percent compared to year of 2003. Share from total manufacturing industry export to EU15 surpassed the Labour-intensive and



resource-based manufactures and become the base of Turkish industrial export with 40,76 percent of total manufacturing industry export to EU15.

When this section is generally examined, it can be seen that competitive commodities consist 59,1 percent in 1996, 47,63 percent in 2003, 85,54 percent in 2010 of the total export of this section. This can be an indicator of specialization on some sectors. Increasing shares in total manufacturing export to EU15 show that there is a shift of export composition to Manufactures with medium skill and technology intensity from other commodity sections especially Labour-intensive and resource-based manufactures.

#### **4.4.4 Manufactures with High Skill and Technology Intensity**

This section has the largest number of commodities which is 51 in total. Turkey has never competitive advantages on the commodities in this section. In the year of 1996, Turkey has competitive advantages on only 3 commodities out of 51. Share of these 51 commodities in the total manufacturing industry export to EU15 is 8,18 percent. In terms of export value, this share equals to 592.120.382 Euro. 38,96 percent of this value is generated by 3 competitive commodities which Turkey has.

In the year of 2003, number of competitive commodities decrease to 2 while export income from 51 commodities in this section increased nearly 2.5 times compared to value in 1996. Nearly 70 percent of this export income is generated by 2 competitive commodities. For this year Manufactures with high skill and technology intensity consisted the 10,78 percent of the export income.

In 2010, there are still 2 competitive commodities out of 51 in this section. Even though export revenue increased 21,7 percent, the share of commodities in Manufactures with high skill and technology intensity section fell to 8,65 from 10,78 percent. For this year, share of competitive commodities in the Manufactures with high skill and technology intensity section decreased to 49,1 from 69,86 compared to the year of 2003.

#### **4.4.5 Overall Review for UNCTAD's Classification**

When Turkey's export income is examined, it can be seen that Turkish manufacturing industry export income increased 301,5 percent since the beginning of Customs Union until the year of 2010. This increase wasn't reflected to all commodities and commodity groups equally.

Export income of Labour-intensive and resource-based manufactures increased 123,3 percent starting from the year of adoption of Customs Union, 1996, to the year of 2010. Even though there is a major increase, this increase is very low compared with the other commodity groups and it is under the total trend. Commodities in Labour-intensive and resource-based manufactures generated less export income than the other groups. In 1996, Labour-intensive and resource-based manufactures constituted the base of export income from manufacturing industry to EU15. However, lead position of this group in the manufacturing export composition to EU15 shifted to Manufactures with medium skill and technology intensity. When it is examined, it can be seen that manufacturing export income generated by commodities in manufactures with medium skill and technology intensity section increased 1098,8 percent by the year of 2010. It can be said that Customs Union might have effected the manufacturing export composition since it is shifted from Labour-intensive and resource-based manufactures to Manufactures with medium skill and technology intensity. Even though share of manufacturing income contribution of Labour-intensive and resource-based manufactures decreased, it still constitutes a big share of Turkish manufacturing export.

Export income from manufactures with low skill and technology intensity and Manufactures with high skill and technology intensity to EU15 increased 453,8 percent and 324,5 percent respectively for the term of reference years of the study which are 2003 and 2010. These two groups relatively followed the main trend and maintained their share and even slightly increased.

It can be clearly seen that, after Turkey adopted the Customs Union, manufacturing industry export income increased significantly for all commodity groups. Average increase in manufacturing industry export become 164,78 for the term of 1996-

2003. For this term, labour-intensive and resource-based manufactures group had stayed below the average of manufacturing industry export to EU15 while other commodity groups stayed above the average. For the term of 2003-2010, increase in average manufacturing industry export income become 51,6 percent. Only Manufactures with medium skill and technology intensity group stayed above the average by 126,1 percent while other commodities stayed below the average. It can be seen that the increase for this term decreased compared with the period of 1996-2003. This sudden increase for the term of 1996-2003 can be related with Turkey's market integration to EU countries and trade liberalization between European countries. Slow increase compared with the previous period can indicate that Turkish and EU markets become more integrated.

According to UNCTAD's classification, in terms of competitive commodity numbers, Labour-intensive and resource-based manufactures became more competitive in 2010 compared to 1996. Even though it became slightly competitive, its share in the manufacturing industry export composition decreased. On the other hand, Manufactures with medium skill and technology intensity became more competitive in terms of numbers and have increased its share significantly during the period of 1996-2010. Competitive manufactures with low skill and technology intensity decreased gradually from 8 to 6 in terms of numbers for the reference years while its share slightly increased to 8,64% in the total industrial export compared to 1996. There is no significant change in the number and share of competitive manufactures with high skill and technology intensity.

#### **4.5 Competitiveness During Sovereign Debt Crisis**

European sovereign debt crisis emerged in 2008 and left a deep impact on major European economies. Our study examines and compares Turkey with EU15 countries in terms of competitiveness in EU15 region, so sovereign debt crisis is an important case to examine. Total industrial export data of Turkey and EU15 countries to EU15 region were illustrated in Table 4.18.

**Table 4.18**  
**Total Industrial Export to EU15 Region**

Year	Industrial Export (Million Euro)	
	Turkey	EU15
2007	32.061	1.437.506
2008	30.635	1.401.214
2009	24.691	1.151.166
2010	29.054	1.290.873

Source: Eurostat and TÜİK Database  
<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>  
<http://www.tuik.gov.tr/>

Export to EU15 region increases year by year until 2008 when crisis started to show its affects on export. Turkish and EU15 export decreased 0,044% and 0,025% respectively compared to 2007. These changes were small but indicate a problem because export data are not consistent with the trend which is positive for the both sides until 2008. In 2009 export volumes of both sides decreased majorly compared with 2008. Turkish industrial export to EU15 decreased 19% while EU15 industrial export decreased 18%. However, in 2010 export trend became positive again for both parties. Ratios show that Turkish industrial export is slightly more susceptible to crisis than the EU15. It also recovers more quickly than the EU15. One of the reasons of the quick recovery is that Turkey can use monetary policy instruments, such as exchange rate mechanism while most of the EU15 countries in Eurozone cannot adjust exchange rates.

Competitiveness of industrial commodities is illustrated in Table 4.15. It can be observed that there is no significant change in competitiveness in overall and categories during the term of crisis. It can be said that both of the compared sides was affected negatively but this is not reflected to their export performance. Even though the industrial export volume decreased, there is no significant change in Turkey's number of competitive commodities in industrial trade to EU15.

#### **4.6 Overall Evaluation of Results**

Both of analyses show similar results. It is important to understand that Turkey has competitiveness on 44 commodities out of 166 in its trade with EU15. This case hasn't changed during the period of 1996-2010. Different technology categories also show that there is no significant evidence to prove the fact that an increase in commodities with higher technology in terms of both in number and share from total export. In other words there is no sign of convergence from commodities which involves basic, standard and intermediate technology towards high and/or advanced technology. Also there is a slight decrease in terms of number of competitive commodities after the adoption of customs union. In Foders classification there are 38 commodities and in UNCTAD classification there are 51 commodities listed as high or advanced technology. Both of the classifications show that in 1996 there were only 3 competitive commodities in this category and in 2010 this number is even lower.

In both Foders and UNCTAD classifications there is a slight shift towards competitive commodities with intermediate or medium technology from competitive commodities which involve standard or low technology in terms of commodity numbers. However in terms of industrial export share there is a major shift towards competitive commodities with intermediate or medium technology. These results are in parallel with results those stated in World Bank's report. According to World Bank (2014, p. 3, 14) there is a significant increase in medium technology exports however share of high technology exports in total is stagnant. In Foders classification competitive commodities with standard technology constitute base of industrial export with 70,91 percent while in UNCTAD classification labour intensive and resourced based manufactures were the base of industrial export with 68,64 percent in 1996. When the year of 2010 is examined, according to Foders classification competitive commodities in standard and intermediate technology became base of Turkish industrial export to EU15 with 42,11 and 38,61 percent respectively. Results in UNCTAD classification for the year of 2010 show that even though number of competitive commodities in Labour intensive and resource based manufactures category increase, industrial export share of manufactures with medium skill and technology intensity to

EU15 surpassed Labour intensive and resource based manufactures, their shares are 40,76 and 38,19 respectively.

Another important effect of customs union can be observed in change of competitive commodities after the following year of the adoption of the customs union. Even though only slight changes in number of competitive commodities can be observed by an overall evaluation when it is specifically examined it can be seen that export composition of Turkey to EU15 was changed. During the period of 1996-2003, in standard technology category 15, in intermediate technology 7 commodities lost their competitiveness however this uncompetitive situation is compensated by addition of new competitive commodities. This situation is indication of a structural break. For the period of 2003-2010, in standard commodity category 3, in intermediate category 2 commodities lost their competitiveness. This shows that there are only small fluctuations among categories for the period of 2003-2010 while there were major changes for the period of 1996-2003.

## 5. CONCLUSION

Entrance of Turkey to Customs Union in 1996 has changed the trade dynamics between EU and Turkey. Trade with EU has increased since and it constitutes almost half of Turkish trade today. The topic on how this change affected Turkish economy is controversial. This study examines this increase on industrial trade and its effects on industrial sector. This comparison provides the opportunity to examine the situation on trade with Turkey's biggest trade partner.

Subject of this study is to examine the trade performance of Turkey by comparing it with EU15 employing RCA Index after the adoption of Customs Union. This study aimed to measure export performance of Turkey to determine whether there is a change in industrial sector competitiveness against EU15 or not, after the adoption of Customs Union thus after the elimination of tariffs and other trade barriers. Besides general foreign trade and other analyses on competitiveness, an analysis, instead of a general one, on industrial trade commodities was made for the term of 1996-2010 by taking three reference years. In the analysis, Balassa's RCA Index is employed with SITC. Rev. 3 and 2 different classifications based on technology in the production of commodities.

In the first chapter, notion of Customs Union as a type of economic integration is given with other integration models along with definitions of different scholars and determinants of economic integration to attain a better perspective on the topic and European Integration process. Economic effects of Customs Union also were given in the theoretical concept.

Second chapter emphasizes Turkey -EU relations focusing especially on Customs Union. Process of establishing the EU is briefly explained historically. Turkey -EU relations have started with the Ankara Agreement which is based on Treaty of Rome. Ankara Agreement is a framework agreement and provided substantive provisions for the transitional period and gradual realization of four freedoms which are free movement of goods, services, capital and persons and later supported by Additional Protocol. In order to realize these freedoms, various institutions were created for

implementation. Some parts of these freedoms couldn't be realized mainly for political reasons and created various problems which harmed Turkish foreign trade with EU and even with the third countries. Nevertheless Turkey has adopted Customs Union starting 1 January 1996. Along with problems which are mainly caused because of the political reasons, this customs union only includes industrial commodities and some processed agricultural goods. Since the EU is not only an economical union, decisions are taken based on political reasons. It also can be seen that Customs Union with Turkey is not compatible with theory which was given in the first chapter of the study.

In the third chapter, notions of competition and competitiveness are given in a theoretical concept. There are different definitions on competition and there is no consensus on the notion but it can be elaborated by three different levels: National and international, industrial, firm competitiveness. In this study, our research is on the national and international level. Competitiveness is determined and affected by different factors. These factors are productivity, production factors, macro economic indicators, structure of public economy, foreign trade policy, infrastructure, quality, education and demographic structure and geographical location. Turkey has a young and large numbers in labour force but low labour productivity compared to EU15 even though average work hours are higher than the EU15 average. This is an indicator of lack of education and problems in the education system and unskilled labour force. When allocated share of R&D in GDP is examined Turkey again has the lowest rates compared with the EU15. R&D is one of the most important production factor in today's economies. At the Lisbon European Council in 2000 and Europe 2020 Strategy Document, it is stated that the new strategic goal of EU is to become the most competitive and dynamic knowledge-based economy in the world. In parallel with this goal, member states have given special emphasis on the R&D investments. Even though Turkey aimed transition to products with high-added value from sectors which involve low technology in the Turkish Industrial Strategy Document, investments on technology is below the EU average.

In the fourth chapter, before making an analysis on industrial export between Turkey and EU15 by employing RCA, a general foreign trade analysis which involves,



import, export shares, import coverage of export, foreign trade balance, commodity group and sectors are examined for the period of 1995-2010 in parallel with our research.

According to general trade analysis Turkey's trade volume to EU and the world increased significantly along with foreign trade deficit after the adoption of customs union. Since the beginning of Customs Union to 2010, there is a significant increase in trade volume between EU15 and Turkey and change in the export composition in terms of commodities. Change in export composition indicates a structural break in industrial trade which is caused with elimination of tariffs and trade barriers by the customs union. Increase in trade volume caused a bigger foreign trade deficit which is almost tripled in 2010 compared to 1995 with EU15 and almost 4 times with EU27. Composition change in export commodities also caused changes in Turkey's import composition. While export composition gradually shifted standard goods to intermediate goods, Turkey started to import resources to produce commodities becoming an intermediate good importer. This causes Turkey to import in order to export which makes Turkey depended on the resources from other countries and prevents to adjust exchange rates.

Adoption of common external tariff has also made an impact on trade. Since there is no adjustment of tariffs and barriers to third countries outside the customs union, in parallel with increasing trade volume with world, Turkey's foreign deficit with the world excluding EU15 increased 6 times between 1995 and 2010.

RCA approach which is used in analysis is based on comparative advantages. Comparative advantages determine the competitive power of a country compared to other countries in international area. In this context, fourth chapter of the study includes RCA analysis which concerns the term of 1996-2010. Two different classifications and SITC. Rev. 3 are used in the study. One of these classifications which is suggested by Foders, categorizes the commodities as standard, intermediate, advanced technology. Other classification is made by UNCTAD. UNCTAD splits the commodities into 5 categories. This categorization includes technology as in classification suggested by Foders and also labour skill level which is used in the production. It is estimated that

two different classification systems would give us more robust and sufficient output for the study. Results in both of these classifications show that there is a structural break in the export composition after the adoption of customs union while there is no change in the number of competitive commodities between 1996 and 2010. Turkey has competitiveness only on 44 commodities out of 166.

In both of the classifications Turkey has competitiveness on two commodities in advanced technology category in 2010. This shows that Turkey couldn't harness its strategic industrial sectors which involve advanced technology and added-value and assumed the role of production of commodities with standard and intermediate technology since 1996.

Study indicates that there is a gradual shift to commodities with intermediate technology from standard technology in terms of number of competitive commodities and their shares in total industrial export to EU15. During the term of 1996-2010, 24 commodities have lost their competitiveness while another 24 commodities which Turkey had no competitiveness become competitive products. More than half of industrial commodities changed during this period in terms of competitiveness. This is an indicator of structural break in export composition and transition in the industry sector.

In short, the empirical analysis between 1996 and 2010 for EU15 Countries shows that Turkey is in an uncompetitive situation in trade with Europe. This fact hasn't changed much since the adoption of customs union. An economic integration doesn't grant and/or promise any country a performance increase on competitiveness but elimination of tariff and quotas on imports has a major impact on Turkey's industrial export.

When it is examined Turkey has a young labour force, it lacks of skill and competence. This uneducated and unskilled labour force work with low productivity rate and long working hours. Education is one important factor which affects production and competitiveness. In order to increase productivity, it is important to give special

emphasis on vocational training in cooperation with University, private industry and public administrations. Education and training should be supported with job practice. EU has been given emphasis and support on this issue since the beginning of 1990's via Community grant programmes such as Life Long Learning Programme.

Austrian School suggested that innovation and R&D play important role in competition. When Turkey's investments on R&D is examined, it can be seen that even though since the 1996, there is an increase on the investments, it is behind the level of Europe which is Turkey's biggest trade partner. Lack of investments on R&D cause Turkey to produce commodities which involve standard and intermediate technology. Both of the classifications which were used in the empirical analysis in this study indicate that Turkey showed no development on the commodities which involves advanced technology, and manufactures with high skill and technology intensity. Turkey rather specialized on the commodities with standard and intermediate technology. After the adoption of the Customs Union, Turkey gradually begin to be more specialized on commodities with intermediate technology. In 2010, it can be seen that labour intensive and resource based manufactures and manufactures with medium skill and technology intensity consist Turkey's main export to EU15.

Adoption of common external tariff along with customs union prevents Turkey to adjust and follow its tariff policy independently. This situation causes Turkey to have major external trade deficits especially with third countries outside of the customs union. Turkey also excluded the free trade agreements with third countries made by EU. Due to this kind of bilateral agreements, a third country can export its commodity to Turkey without tariff while that third country can impose its tariff and trade barriers on Turkey. In this case, Turkey has to make free trade agreements with the countries which EU made an agreement. Along with trade deficit caused by these agreements, Turkey cannot follow an independent foreign trade regime with third countries due to customs union. Transportation quotas, free movement of people, principle of exhaustion and other problems within customs union also affects our competition with EU countries unfairly thus increase Turkey's foreign trade deficit.

In order to solve these problems arising from the Customs Union, Turkey might follow different policies. Turkey might leave the Customs Union and continue its economical relations with EU via a free trade agreement. This option would probably deteriorate the relations with EU which is Turkey's main trade partner. Turkey might find a chance to cut its losses in time. Other option might be to deepen the relations with EU. Deepening relations with EU can be realized by becoming an EU member but this choice is not Turkey's to make. If Turkey becomes a member of EU, problems arising from the customs union will be solved and Turkey will be eligible to use structural funds and grants given by the EU. Clearly this option is more beneficial for Turkey since in the current state the customs union only involves industrial goods and excludes agricultural production. Besides being an economical union, EU is also a political union and for the time being both sides show no strong will towards Turkey's full membership.

Turkey has to follow decisive policies on industrial policies as well as EU relations. In order to have a competitive economy with commodities with high added value and skill, it is important to give emphasis on innovation, technology, R&D, education for more skilled and competent labour force to increase productivity and competitiveness. Even though since the adoption of the customs union, there is a slight shift to commodities with the medium technology, this is not sufficient enough to become one of the most competitive economies in the world. Turkey should take European 2020 Strategy and objectives and aims in the Turkish Industrial Strategy Document as basis and become more competitive by giving incentives and grants to R&D to produce commodities with higher added value. Objectives and aims of Turkish Strategy Document should be followed and regularly evaluated in order to achieve and maintain a competitive economy with the trade partners.

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## **ANNEX**

SITC rev.3 products, Manufactured goods by degree of manufacturing groupings

Generation date : 02 October 2013

Code	Label
TDRA	Manufactured goods by degree of manufacturing
TDRB	Labour-intensive and resource-intensive manufactures
611	Leather
612	Manufactures of leather, n.e.s.; saddlery & harness
613	Furskins, tanned or dressed, excluding those of 8483
633	Cork manufactures
634	Veneers, plywood, and other wood, worked, n.e.s.
635	Wood manufacture, n.e.s.
641	Paper and paperboard
642	Paper & paperboard, cut to shape or size, articles
651	Textile yarn
652	Cotton fabrics, woven
653	Fabrics, woven, of man-made fabrics
654	Other textile fabrics, woven
655	Knitted or crocheted fabrics, n.e.s.
656	Tulles, trimmings, lace, ribbons & other small wares
657	Special yarn, special textile fabrics & related
658	Made-up articles, of textile materials, n.e.s.
659	Floor coverings, etc.
661	Lime, cement, fabrica. constr. mat. (excluding glass, clay)
662	Clay construction, refracto. construction materials
663	Mineral manufactures, n.e.s.
664	Glass
665	Glassware
666	Pottery
821	Furniture & parts
831	Travel goods, handbags & similar containers
841	Men's clothing of textile fabrics, not knitted
842	Women's clothing, of textile fabrics
843	Men's or boy's clothing, of textile, knitted, croche.
844	Women's clothing, of textile, knitted or crocheted
845	Articles of apparel, of textile fabrics, n.e.s.
846	Clothing accessories, of textile fabrics

### SITC rev.3 products, Manufactured goods by degree of manufacturing groupings

Code	Label
848	Articles of apparel, clothing access., excluding textile
851	Footwear
<b>TDRC</b>	<b>Low-skill and technology-intensive manufactures</b>
671	Pig iron & spiegeleisen, sponge iron, powder & granu
672	Ingots, primary forms, of iron or steel; semi-finis.
673	Flat-rolled prod., iron, non-alloy steel, not coated
674	Flat-rolled prod., iron, non-alloy steel, coated, clad
675	Flat-rolled products of alloy steel
676	Iron & steel bars, rods, angles, shapes & sections
677	Rails & railway track construction mat., iron, steel
678	Wire of iron or steel
679	Tubes, pipes & hollow profiles, fittings, iron, steel
691	Structures & parts, n.e.s., of iron, steel, aluminium
692	Metal containers for storage or transport
693	Wire products (excluding electrical) and fencing grills
694	Nails, screws, nuts, bolts, rivets & the like, of metal
695	Tools for use in the hand or in machine
696	Cutlery
697	Household equipment of base metal, n.e.s.
699	Manufactures of base metal, n.e.s.
785	Motorcycles & cycles
786	Trailers & semi-trailers
791	Railway vehicles & associated equipment
793	Ships, boats & floating structures
895	Office & stationery supplies, n.e.s.
899	Miscellaneous manufactured articles, n.e.s.
<b>TDRD</b>	<b>Medium-skill and technology-intensive manufactures</b>
TDRD1	Medium-skill: Electronics (excluding parts and components) (SITC 775)
TDRD2	Medium-skill: Parts and components for electrical and electronic goods (SITC 772)
TDRD3	Medium-skill: Other, excluding electronics
<b>TDRE</b>	<b>High-skill and technology-intensive manufactures</b>
TDRE1	High-skill: Electronics (excluding parts and components) (SITC 751 + 752 + 761 + 762 + 763)
TDRE2	High-skill: Parts and components for electrical and electronic goods (SITC 759 + 764 + 776)
TDRE3	High-skill: Other, excluding electronics