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AN ASSESSMENT OF THE IMPACT OF CUSTOMS UNION ON TURKISH BILATERAL TRADE FLOWS WITH THE EU: A GRAVITY MODEL APPROACH

Yüksek Lisans Tezi

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To my beloved wife and family…

ABSTRACT

There have been numerous studies discussing the advantages and disadvantages of a Customs Union with Turkey. With the establishment of the Customs Union agreement, Turkey's trade deficit increased through the consequent years. However there hasn't been sufficient empirical analysis on the effects of the Customs Union, but mainly discussions focusing on changes in the volume of bilateral trade between Turkey and the EU. This study attempts to analyze the impact of the Customs Union on Turkey's trade flows with the EU using two different specifications of the gravity model in a panel data framework. Although the total volume of trade has increased, this study will investigate the imports and exports separately to find whether the Customs Union agreement is really a cause for the increasing trade deficit or not. The regression results for both specifications suggest that although the Customs Union significantly increased the volume of Turkey's imports, this agreement's effect on the exports of Turkey is insignificant. The study's empirical findings suggest that the Customs Union agreement is one of the causes of the increasing trade deficit.

Keywords: Customs Union; Bilateral Trade Flows; Gravity Model; Panel Data; Turkey

ÖZET

Literatürde Gümrük Birliği'nin Türkiye üzerindeki etkilerini tartışan pek çok çalışma bulunmaktadır. Gümrük Birliği antlaşması ile birlikte Türkiye'nin dış ticaret açığının arttığı gözlemlenmiştir. Türkiye ile Avrupa Birliği arasındaki ticaret hacmi değişimleri ile ilgili pek çok görüş öne sürülürken, Gümrük Birliği'nin etkileri üzerinde yapılmış yeterli ampirik çalışma bulunmamaktadır. Bu çalışma, Gümrük Birliği'nin Türkiye'nin Avrupa Birliği ile ticaret akışının üzerindeki etkilerini iki farklı gravity model spesifikasyonu kullanarak panel data analizi çerçevesinde incelemektedir. Toplam ticaret hacmindeki artışa rağmen, Gümrük Birliği antlaşmasının artan dış ticaret açığının bir sebebi olup olmadığının açıkça görülmesi için, ithalat ve ihracat rakamları için ayrı analizler yapılmıştır. Her iki spesifikasyona ait regresyon sonuçları, Gümrük Birliği Antlaşması'nın Türkiye'nin ithalatını anlamlı bir şekilde arttırmasına rağmen, Türkiye'nin ihracatı üzerinde anlamlı bir etkiye sahip olmadığını göstermektedir. Bu çalışmanın ampirik sonuçları, Gümrük Birliği Antlaşmasının artan dış ticaret açığının sebeplerinden biri olduğunu işaret etmektedir.

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INTRODUCTION

Integration, in the most general sense, means combining something in such a way that it becomes fully a part of something else. If applied to the science of economics then the term economic integration should refer to any type of arrangement in which countries agree to coordinate their trade, fiscal, and/or monetary policies. The theory of Economic integration and its main principles were introduced by Balassa in his book "The Theory of Economic Integration" published in 1962.

Economic integration is probably the biggest phenomenon of today's world. It is the main step of creating new social dimensions, determining new physical boundaries between countries and most importantly, constituting different forms of economic transactions. The ultimate objective of economic integration is the creation of a single market, monetary union and harmonization of economic policies in a supra-national state. However to create a single market, common policies on product regulation and freedom of movement of all factors of production should be established within a customs union which is established by abolishing all barriers to trade with the addition of common external tariffs.

With respect to the paragraphs above, one can declare that European Union (EU) is the most successful form of economic integration embracing most of the requisites. The possible enlargement of the European Union with Turkey is a major issue of discussion. Turkey has already applied for membership in 1987. It agreed upon a Customs Union with the EU in 1995 that came into force in 1996. With the establishment of Customs Union, tariffs and other quantitative restrictions on trade has been gradually removed. Furthermore, Turkey aligned its trade policies with the EU with respect to third countries. Also Turkey began to implement common standards, rules and regulations in accord with the EU acquis.

This paper investigates the impact of Customs Union on Turkey's bilateral trade flows with the EU-15 member states within the principles of "gravity model". Gravity models have been used in various social sciences to describe and model certain behaviors containing some elements of mass and distance, inspired by Isaac Newton's

law of gravity. The gravity model of trade is used in international economics to predict bilateral trade flows based on the economic sizes and distance between a pair of countries. Tinbergen (1962) was the first economist to perform econometric studies separately on trade flows based on the gravity equation based on only the intuitive justifications. Theoretical justifications of the gravity model were performed by economists such as, Linnemann (1966), Leamer (1974), Anderson (1979) and Bergstrand (1985, 1989).

Econometric analyses have been performed using two different gravity model specifications to model Turkey's bilateral trade flows namely exports to and imports from the EU member states (EU-15) for the period 1980-2004 within panel framework. The first specification used is a log-linear form of the simple gravity model developed by Linneman (1966), Anderson (1979) and Bergstrand (1985). The second specification is an augmented version of the basic model formulated by Di Mauro (2000 as cited in Antonucci and Manzocchi, 2004).

The next section begins with a brief summary of EU objectives for the 21st century. It continues with the description of economic integration and its categories. Subsection 1.3 examines Customs Union; its recent history, common trade policy and its tools. Subsection 1.4 and further on examines Customs Union for the case of Turkey; historical background, effects on trade and other policy measures. Section 2 begins with explanation of the theoretical foundations of the gravity model and continues with investigation of recent studies done in this area. Empirical analysis; data set, model specification, regression results are presented in subsection 2.2. Conclusion is to be found in end.

SECTION 1

ECONOMIC INTEGRATION, CUSTOMS UNION AND THE CASE OF TURKEY

1.1 Economic Agenda of EU

From the economic perspective, Kaleağası (2003, pp.65) suggests that there are three major topics in the EU agenda in the 21st century, expansion, Euro and the single market and the international competitive power. It is an undeniable fact that the expansion of the Union will bring about heavier institutional structure, economic harmonization problems and adaptation of the Union's public opinion for the new members.

Not only the political support for the monetary union that has completed its transition process with the entrance of the Euro into the circulation continues; but also the geographical expansion of the Euro and which direction it will form a balance with the US Dollars are always in the EU agenda. To accomplish a healthy continuance of the monetary union the EU not only must develop a coordinated internal economic policy, but also must acquire her members to sustain continuous stability in macro economy while developing institutional mechanism that will be able to generate international monetary policies.

And finally the single market that constitutes the major pillar of the European integration process is still discordant with the "single" characterization. There are continuing efforts to strengthen the EU's common tax and employment policies. The most important difficulty that lies ahead of the European Single Market is the international economic competition power. In comparing with the USA and Japan, EU economy is behind with respect to employment, research and development (R&D) investments, and patents, tax burden on the companies and workers and fixed investments.

1.2 Economic Integration

Customs union is the third stage of a multinational economic integration. The degree of economic integration can be categorized into six stages;

I. Preferential trading area (PTA)

II. Free trade area (FTA)

III. Customs union (CU)

IV. Common market

V. Economic and monetary union

VI. Complete economic integration.

PTA, the weakest form of economic integration, is a trading bloc which gives preferential access to certain products from certain countries by reducing tariff rates but does not remove them completely.

The next stage of the economic integration process is the formation of a free trade area. FTA's are designated group of countries that have agreed to remove, tariffs, quotas and other forms of obstacles on most goods, except sensitive ones, between themselves.

One of the major problems of FTA's is the evasion of goods through their re-exportation. To overcome this situation, countries use the system of Rules of Origin. In this system goods must inherit a minimum extent of local input factor. In other words goods must have local value added. Goods that do not meet these requirements are not entitled for exclusive conduct that is envisioned in the FTA provisions.

The third stage of economic integration is the formation of a customs union. CU is a FTA in which member countries use a common external tariff for non-members. Here, member countries administer common external trade policy. However in most cases countries use different import quotas. The major difference between a

FTA and a CU is that, members of a FTA unlike members of a CU do not administer common policies with respect to non-members.

To enhance the economic activity within the union, countries use common competition policy. The aim of these policies is to remove national barriers to inter-state competition and to prevent private barriers to competition. In the case of the EU, the competition policy was designed to be consistent with national policies although individual states have the right to constitute competition policies for trade among their national borders. Yet, if the trade breaches the national borders, then the EU policy will come into effect.

The next stage of the economic integration process is the formation of a single market. A single market can be characterized as a customs union with common policies on product regulation and freedom of movement of all the four factors of production which are goods, services, labor and capital. Member countries require political stability and will to remove physical, technical and fiscal obstacles that obstruct the freedom of the movement of these goods. The European Union single market program was established in the late eighties and with the signing of the Maastricht Treaty became a single market in 1992.

Countries that take a step further will form an economic and monetary union. This next stage of the economic integration is a single market with a common currency. The only economic and monetary union that is present is the Eurozone which consists of the EU member states, which have completed the third stage of the EMU that began from 1st January 1999 and have adopted the Euro, in addition to some non-EU members.

In the final stage of the economic integration process, member states undertake the harmonization of economic policies in a super-national state in which decisions are taken on behalf of member governments. United Kingdom is an example of this kind where England, Scotland, Wales and Northern Ireland are fully integrated.

Economic integration can be categorized into two approaches; the traditional and deep integration. The traditional approach and the basics of this theory were written

by Balassa in 1960's. (Wikipedia a) The traditional approach places the main emphasis on border barrier controls while omitting the relevance of the regulatory and institutional determinants of the integration process. The emphasis on the border barrier controls such as tariff barriers were sufficient to explain the process of economic integration in the 60's.

However as the international conjuncture changed due to successive rounds of General Agreement on Tariffs and Trade (GATT) and World Trade Organization (WTO) that resulted in a more liberalized trade, the tariff barriers lost their vital role protection. Instead non-tariff barriers became more significant and essential, both as tools and both for the theory. Thus the scheme of the field went beyond the means of borders, to more complex and comprehensive methods of understanding.

Hoekman and Konan (1998) argue that the term integration was replaced by *deep integration* as the traditional approach changed. The term *deep integration* indicates the explicit policies used by governments to reduce the market segmentation caused by health and safety regulations, competition laws, licensing and certification regimes and etc.

Contrary to the traditional view, deep integration theory argues that the harmonization of different national regulations may bring strong welfare gains by facilitating the integration process and enhancing the effects of liberalization. The traditional theory on the other hand argues that integration has ambiguous effects on welfare. However the extent to which integration will benefit nations solely depends on the choices of policies and the degree of centralization and commitments that each partner is willing to give.(Zahariadis, 2005)

Progress in the EU Single Market, the Euro-Mediterranean Agreements and the EU-Turkey customs union are major issues that deep integration theory investigates. As mentioned above, deep integration theory argues that the integration process consists of policy measures, regulatory activities and tools that go beyond tariff reductions. One of the major tools that deep integration recognizes is the Technical Barriers to Trade.

These barriers include regulations concerning health and safety in both production and consumption.

These regulations can be grouped into two categories; *standardization* and *conformity assessment.* Standardization refers to the process of developing, coordinating and maintaining products standards in both internal and international markets. Conformity assessment on the other hand represents complex testing and assessment procedures done by manufacturers and regulatory authorities. These are used to ensure that products achieve high degree of conformity with given standards and regulations. (Zahariadis, 2005)

With the application of these standards consumers on one side enjoys the knowledge, guarantee of consuming products with higher standards while on the other hand producers enjoy the existence of a reference tool for production thus utilization of economies of scale. Although the intention of standards and the process of conformity assessment are to promote economics efficiency and enhance welfare, heterogeneity between national regulations may result in non-tariff barriers. That is, a difference in the perception of health and safety matters will subsequently result as barriers in international trade.

After the formation of WTO, authorities accelerated international efforts to develop and apply three important trade promotion devices; harmonization, equivalence and mutual recognition. Their major aim was to reduce the adverse effects of technical barriers posed by national regulations. Although these three mechanisms are closely related they are not identical.

Harmonization and equivalence are both concerned with bringing uniformity for standards. The process of harmonization involves the process of two different standards' conversion into one single standard. Harmonization process can be done in three different ways. (TACD, 2001) The first one, downward harmonization is the process where the country with higher standard weakens its standards to match the standards of the lower countries'. The opposite process, upward harmonization is done when the lower standards' country raises its standards to match to those of the higher

ones. The final process, compromised harmonization is the negotiation of the countries where they agree on an intermediate level of standards. Countries may harmonize their standards by bilateral or multilateral agreements or they may harmonize their standards with those that are determined by international authorities such as International Standards Organization (ISO).

The Equivalence on the other hand takes two different standards as intact but treats them as one since they will result the same. Thus equivalence does not necessarily involve adjustment process but rather it involves a determination process where in the end it is decided that the two standards attain the same regulatory objective.

However mutual recognition is completely different as it involves the cooperation of two or more parties in which they agree to recognize and accept each others' conformity assessment results, procedures, certificates and alike since they are harmonized to be equivalent. Mutual recognition can be based on harmonization, equivalence or an external criterion. (TACD, 2001)

As a result of mutual recognition countries sign mutual recognition agreements (MRAs) in which the parties agree to accept and recognize each other's conformity assessments performed by their conformity assessment bodies (CABs). The major objective of these agreements is to reduce the cost and time spent on the assessment process and thus to increase efficiency.

1.3 Customs Union

The first attempt of Customs Union was taken place in the confederation that was formed by the 38 autonomous German principalities. These principalities had abolished the internal customs between the years 1816-1818 and proceeded to common market. Friedrich List has advocated that closed economy of these principalities impeded their chances of development and that the customs union in between them would allow for their development. (Dedeoğlu, 2003, 36)

The purpose of the Customs Union lies with the EU's main goal of trade liberalization that EU pursued since its creation. This goal was accomplished by

reducing the internal trade barriers, widening the community and by constituting in regional trade agreements and multilateral trade liberalization efforts. The single market that was accomplished in 1993 is the deepest regional economic integration that the world has faced.

The major objectives of this regional integration were the implementation of the free movement of the goods, services, capital and people. These goals were impeded with the retaking of the non-tariff barriers and subsidies due to the slowing down of the growth in the seventies. However with the acceptance of the benefits of regional integration and trade liberalization in the early eighties, Single Act was ratified in 1987. The single market goes beyond the customs union as it abolishes the non-tariff barriers and allows the free movement of the factors of production.

1.3.1 Recent History of the Customs Union

Before the community agreements were put into force, all the European countries imposed customs tariffs to hinder importation of goods at lower prices and quantity restrictions in terms of quotas to impede importation of goods that exceeds the national demand. In this way national production and industry was protected and hence there were no large efforts to lower the costs of production. However from the demand side, this protected economy left the consumers with high priced low diversity goods. (Moussis, 2004, pp.86)

The first formation of the customs union comprised only of the steel and coal sectors due to the arrangement of the European Coal and Steel Community Agreement. With the European Economic Community Agreement this customs union widened to cover all goods and products. As a result European consumers gained access to diversity of low priced high quality goods. (Moussis, 2004, pp.86)

According to the Article 9 of the Treaty of Rome;

> *"The Community shall be based upon a customs union which shall cover all trade in goods and which shall involve the prohibition between Member States of customs duties on imports and*

exports and of all charges having equivalent effect, and the adoption of a common customs tariff in their relations with third countries."

The European Customs Union covers all of the goods' trade. That is, a good originating from a 3rd country whose formal import requirements are administered and customs duties and/or equivalent liabilities are collected by the member state, is free to move across the community. (Treaty of Rome, 1957, Article 10)

According to the 13th and 14th Articles of the Treaty of Rome, customs duties and charges having equivalent effect for imports were to be eliminated in three staged transition period with the flexibility of the percentage of reduction. However customs duties and charges having equivalent effect for exports were to be eliminated in the first stage-in four years-of the transition period. (Treaty of Rome, 1957, Article 16) The elimination of the tariff rates and the formation of the tariff union were completed in 1st July 1968. However charges having equivalent effects and quantity restrictions remained. Although the Treaty of Rome clearly mentioned the elimination of all obstacles against the movement of goods to the minimal extent, these trade obstacles remained hidden inside the member states' regulations in the form of standards.

Although the Customs Union's formation was not completed to that date, the free movement of goods intensely affected the trade among the member states resulting in the growth of both economic and social prosperity of the member states. With Customs Unions' success and with the Single European Act of 1987, customs formalities were eliminated. From the year 1993, Europe became a free zone with only the outer borders in which goods moved freely with the protection of ATA and TIR carnet licenses. (Moussis, 2004, pp.88)

A customs union not only grants the free movement of goods within the community but also obliges the member states to harmonize customs tariffs that shall be applied in trade with 3rd countries. In addition to administering a common external tariff, these must be adjusted to the international standards.

In order to do so, the EU has elaborated its tariff rates according to those of the General Agreement on Tariffs and Trade. Through the, Dillon, Kennedy and Tokyo

Rounds, many tariff and duty reductions were provided for many industrial products. In 1993, GATT treaty was replaced by the creation of the World Trade Organization. In this round tariff rates, export subsidies, import limits and quotas for the participating 117 countries were reduced. Since 1995, European Union adopts her tariff rates according to those required of GATT and WTO. However technical barriers are still present in the form of particular import regimes, standards and rules of origin, import quotas and technical annexes. (Moussis, 2004, pp.92)

For technical harmonization, member states applied a common standardization policy. Consequently technical standards among competing entities in the single market were established. European system for technical standardization is formed by European Committee for Electrotechnical Standardization (CENELEC), European Tele-communications Standards Institute (ETSI) and European Committee for Standardization (CEN). In order to state whether a certain good is apposite for the European standards, they are given the Conformité Européenne (CE) mark. It is mandatory that all regulated products carry such a mark. To permit the use of a CE mark on a product, proof that the item meets the relevant requirements must be documented. (Moussis, 2004, pp.106)

Another important aspect in removal of the technical barriers against the free movement of goods is the protection of intellectual and industrial property rights. Protection of patents and associated rights is seen as a key aspect for the value added and competition.

Common Customs Tariff policy not only implies a common customs policy but also a common foreign trade policy. Moreover, the application of the free movement of the goods is done autonomously from the good's origin and thus internal customs control is abolished. With regard to its aims, Customs Union was a strong pillar that Europe could build its political and economic union on.

1.3.2 Common Trade Policy and Its Tools

Common Trade Policy depends on a single type principles especially on topics like customs duties, establishment of tariffs, export policies and also precautions for

dumping and subsidy situations. Due to this, establishing a common trade policy goes in the scope of the Community's authority. Institutions of the Community prepare common customs tariffs, sign customs and trade treaties, establish export policies etc. When there is a necessity for an agreement with 3rd parties, the Commission presents suggestions to the Council. Thereupon the Council may give authority to the Commission to begin the meetings. However the Commission confers with a special committee that is appointed by the Council. (Moussis, 2004, pp.518)

Common Customs Tariff has the key role in the Common Trade Policy. As mentioned before, its preparation was done on the basis of GATT. For the liberalization of international trade, Common Customs Tariff's were held at low levels. Following a series of GATT sessions they were further lowered. As the Single Market was established in 1992, the Community did not become a "European Fortress" as it was thought so. Instead, for the completion of the Uruguay Round the Community gave more concessions. This was due to the main principle of GATT and WTO's balanced comparative advantages principle. (Moussis, 2004, pp.519)

Common Customs Tariff is not the only practice of the Common Trade Policy. The other main elements of the Common Trade Policy are import regulations and common protection precautions. Common import regulations were established with the 22 Dec. 1994 Council statutes. These, do not apply to the specific import regulations (such as for textiles) that are discussed in sectoral regulations and imports from 3rd parties with the inclusion of Russia, North Korea and China. With all the exceptions mentioned above, importations to the Community are free and are not limited by quotas. However if the imported good is found to be harming the producers in the Community, then simplified procedures are applied to overcome the problem. These procedures are founded in line with the Community's acquis. The main factors that are used in analyzing the possible threat and harm to the producers in the community are import volume, import price and effects of the imported goods on the producers. (Moussis, 2004, pp.520)

If the trend in the importation of a 3rd party originated product tends to harm the domestic producers then it may be subjected to the Community control. These goods

can be introduced to free circulation by obtaining an import license that is valid in all EU. If a good is imported by large amounts or conditions that will seriously harm the local producers then the Commission by own will or by on request may take protection precautions. These can be in the form of a limitation of the duration of the import license or by hardening the conditions for obtaining a license. WTO can take protection precautions on behalf of the member states if the above mentioned conditions are realized. However that won't be the case, if the goods' imported from a developing country do not exceed 3% of the Union's import of that particular good and the total import of that good from the developing countries do not exceed in total 9%, no protection can be put into practice. (Moussis, 2004, pp.521)

Also if the export price of a similar good is lower than its normal price (situation of a dumping) then the Community may apply anti-dumping duties as protection. Anti-dumping duties can be applied to any imports with dumping from non-members. To determine the dumping level, a good's normal price and its price with dumping should be defined and these two must be compared. These definitions and procedures became similar with the EU member states and members of the WTO after the Uruguay Round. After the recognition of the dumping situation the Commission may take temporary precautions. However the temporary anti-dumping duties cannot exceed the dumping margin. If a case of dumping and the resulting detriments are shown by concrete facts, than the Council may decide to apply permanent anti-dumping duty. These duties are applied in accordance with a statute. (Moussis, 2004, pp.522)

Protections against subsidized importation from non-member states are also determined by a statute. It should be kept in mind that the Unions legislation on this subject is harmonized with the regulations of the WTO. An anti-subsidy duty can be put in practice to compensate a subsidy that is given in the production, exportation or transportation of that good that will harm the Community. A government's or a private institution's financial aids (direct fund transfers, safeguards, subsidies etc.) are considered as subsidies. However subsidies that are not specific for an investment, industry or groups of these, are not subject to anti-subsidy precautions. Examples of these kinds of subsidies are those in purpose of research & development, regional

development or the replacement of equipment for environmental conditions and purposes. The procedure for the determination and application of the anti-subsidy duties are similar to those of the anti-dumping duties. (Moussis, 2004, pp.523)

In Dec 1994 the Council accepted a statute that aimed to improve the Community's procedures for trade protection. This statute gives the Community the ability to resist obstacles in front of trade due to 3rd party's international trade regulations. The Commission can apply political protections after applying the investigation procedures followed by conferring with the member states. These are the cancellation or suspension of the present trade privileges, increasing of the customs duties or applying trade quotas or direct barriers. (Moussis, 2004, pp.523)

Export regulations and aids of member states are harmonized to equate and balance the competitiveness of the community's exporters. The main tools of export aids, the export credits, are issued in the frame of Organisation for Economic Co-operation and Development's (OECD) regulations on the subject. Also the Commission uses budget aids for common research programs for developing exportation and enhancing member states' cooperation. Generally exportation from the EU to 3rd countries is free of quantity quotas with the exception of some goods like petroleum products and natural gas. However if a member state requests protectionist arrangements due to a market trend that may lead to scarcity of a certain good, then the Community may launch an orientation procedure that aims to inform the members. These procedures are held in a Committee and they include the probable export regulations and protection tools. (Moussis, 2004, pp.524)

1.4 Case of Turkey

The customs union between Turkey and the EU embodies both the elements of traditional and new approach to economic integration. Apart from the liberalization of tariffs and Turkey's appliance of EU's common external tariff for industrial products and the industrial components of processed agricultural products, the agreement also includes deep integration components. These include the harmonization of Turkey's legislation to that of the EU on issues such as competition policy, technical barriers and

standards. Ülgen and Zahariadis (2004) categorize the policy components of the EU-Turkish Customs Union into four groups;

I. Measures dealing with traditional integration;

Elimination of all customs duties and charges having an equivalent effect on industrial imports and the industrial components of processed agricultural products. Turkey also had to harmonize its external tariffs towards 3rd parties that do not participate in EU's common external tariff (CET) for industrial products.

II. Measures related to traditional integration that have non-traditional aspects;

Turkey had to adopt EU's customs provisions concerning the origin of goods, introduction of goods to customs authorities and customs declaration, the release of goods to free circulation etc. Turkey also had to eliminate all quantitative restrictions in bilateral trade of industrial products while adopting EU's commercial policy with regard to the administration of quantitative restrictions.

III. Measures related to deep integration;

Turkey had to adopt EU regulations that deal with the protection of competition. Also Turkey had to ensure adequate and effective protection of the intellectual rights specified by the agreement of Trade-Related Aspects of Intellectual Property Rights (TRIP).

IV. Measures related to exemptions and exclusions;

There are two major topics in this area. The first one is the agricultural products which are excluded from the agreement. The second one is the trade protection measures. That is, both EU and Turkey have the right to impose anti-dumping duties, in cases where the trade practice is not conventional with the customs union. Furthermore if these practices lead to serious disturbances in the markets of that particular good, then both parties have the right to take the necessary protective precautions.

Through out subsections 1.6 and 1.9 policy measures such as anti-dumping, safeguards, technical barriers to trade, competition policy and intellectual property rights are examined thoroughly.

Customs Union was a stage of the Association Agreement that had been signed between European Economic Community (EEC) and Turkey in 1963. Customs Union began with the one sided abolishment of the customs duties and quantities on the Turkish industrial products in line with the Supplementary Protocol that came into force in 1973, and finalized in 1st January 1996 as Turkey fulfilled her obligations. Besides being one of the main stages of Turkey's goal of uniting with the EU, Customs union is the broadest scoped economic and commercial integration that Turkey has had in the frame of her outward oriented enlargement strategy.

When Turkey applied for a common membership for the EEC, the community proposed a trade agreement while Turkey aspired for a Customs Union formation. As a result Ankara Agreement was signed and in this framework Customs Union was decided to be formed in a three stage process. (Çayhan, 2003, pp.478)

The first stage was the preparation period in which Turkey was not obliged to any commitments. The second stage, transition period, began with the validation of the Supplementary Protocol in 1973 which was signed in 1970. In this period, instead of acceleration, the Turkey EU relations slowed down and Turkey could not fulfill its responsibilities for EU. Due to the Community's internal affairs and some policies that were put in to practice, Turkey became complainant of the increase in her obligations for the industrial products and her loss of advantage in the agricultural products.

Although Turkey decided to suspend its obligations to the community for five years in 1979, due to the economic and political reasons, Turkey decided to revive its relations with the Community. However Turkey's lack of democracy and human rights resulted in criticism from the EU. As a result Turkey's full membership application in 1987 was evaluated in this frame and hence was refused.

With regard to these experiences, Community's proposal for the realization of the object of Customs Union, which was stated in the Ankara Agreement, in the planned

course is one of the affirmative steps. From the economic point the validation of the Customs Union is the completion of the process that began in 1964. For Turkey, formation of the Customs Union with the EU is a major step in the road of a full membership.

With the rejection of the full membership application, Turkey put full effort in accomplishing a Customs Union. On the other hand Turkey's efforts were criticized for that a customs union formation without the full membership would result in insufficient financial support from the Community and that the deprivation from the decision mechanism would result in the worsening of the relations with the third parties due to the Communities one-sided decisions. (Çayhan, 2003, pp.479)

The Customs Union process with Turkey is an economic integration model that concerns the free movement of the industrial products and processed agricultural products between the EU and Turkey. In this process Turkey obliged itself to harmonize its legislation in accordance with not only the EU's customs and trade policies but also the competition and intellectual and industrial property rights policies. This Customs Union process that concerns a far more deep integration process than the theory mentions has brought many institutional and structural changes due to the above mentioned harmonization efforts.

It should be kept in mind that Customs Union was only a stage of the Association Agreement whose ultimate goal was Turkey's full membership. With the emergence of Customs Union and the completion of the harmonization process, Turkey gained a transparent economic legislation base, industrial structure that copes with the international standards and qualities, a market that operates relatively effective and an economy that is open to external markets compared to the past years. (Kaleağası, 2003, pp. 153)

1.5 Customs Union's Effects on Turkish Foreign Trade

When considering the customs union membership of Turkey, the above mentioned time period should be kept in mind. That is, in response to Turkey's access to European markets for most of the industrial products in 1971, Turkey had a

significant amount of time to give the necessary concessions following the acceptance of Supplementary Protocol in 1973.

Another particularity that should be taken into consideration is the changes in both the world and Turkish economy during the period in which customs union came into effect. These are; the devaluation caused by the 1994 crises, Asian crises and the latter Russian crises of 1997, stagnation of the Turkish economy in 1998, earthquake in 1999, deviation from the economical stability program and devaluation of the currency due to the November 2000 and February 2001 crises'.

Finally it should be noted that customs union's effect on foreign trade is directly related with the harmonization of Turkey's statute with the EU technical statute. Thus completion of the ongoing harmonization arrangements and creation of a stable political and economic environment will enhance the yields of the customs union.

Table 1.1: Turkey's Foreign Trade and EU-15's Share

	Overall (in million USD)			EU-15 (in million USD)			EU's Share (%)		
	Imports	Exports	Total	Imports	Exports	Total	Imports	Exports	Total
1993	29.429	15.348	44.777	10.950	7.289	18.239	37,2	47,5	40,7
1994	23.270	18.105	41.375	10.279	8.269	18.548	44,2	45,7	44,8
1995	35.707	21.636	57.343	16.760	11.078	27.838	46,9	51,2	48,5
1996	43.627	23.225	66.852	23.138	11.556	34.694	53,0	49,8	51,9
1997	48.559	26.261	74.820	24.870	12.248	37.118	51,2	46,6	49,6
1998	45.921	26.974	72.895	24.075	13.504	37.579	52,4	50,1	51,6
1999	40.671	26.587	67.258	21.401	14.352	35.753	52,6	54,0	53,2
2000	54.503	27.775	82.278	26.610	14.510	41.120	48,8	52,2	50,0
2001	41.399	31.334	72.733	18.280	16.118	34.398	44,2	51,4	47,3
2002	51.554	36.059	87.613	23.321	18.459	41.780	45,2	51,2	47,7
2003	69.340	47.253	116.593	31.696	24.484	56.180	45,7	51,8	48,2
2004	97.540	63.167	160.707	42.359	32.589	74.948	43,4	51,6	46,6
2005	104.527	65.994	170.521	40.711	32.244	72.955	38,9	48,9	42,8

Source: Turkstat

Economic theory treats customs unions as double-edged swords. The positive side, the welfare gains, is the trade creation effect due to the replacement of high-cost domestic production by low-cost imports. However if the tariff rates for the rest of the world remains high then the lower-cost imports from the rest of the world would be replaced by higher-cost imports from members. Hence it causes trade diversion which in turn will result in welfare loses. (Ülgen and Zahariadis, 2004)

From table 1.1, it is seen that the creation of the customs union has not been at the expense of trade with the rest of the world since the EU's export share has remained roughly constant. On the other hand the overall bilateral trade of Turkey grew with the completion of the Customs Union. Thus it can be interpreted as welfare gains for Turkey.

It should also be noted that EU kept its best trading partner role after the completion of the customs union. The average share of the EU in Turkey's foreign trade was about 44,6 % which increased by 5,98 % on average for the six years following the Customs Union.

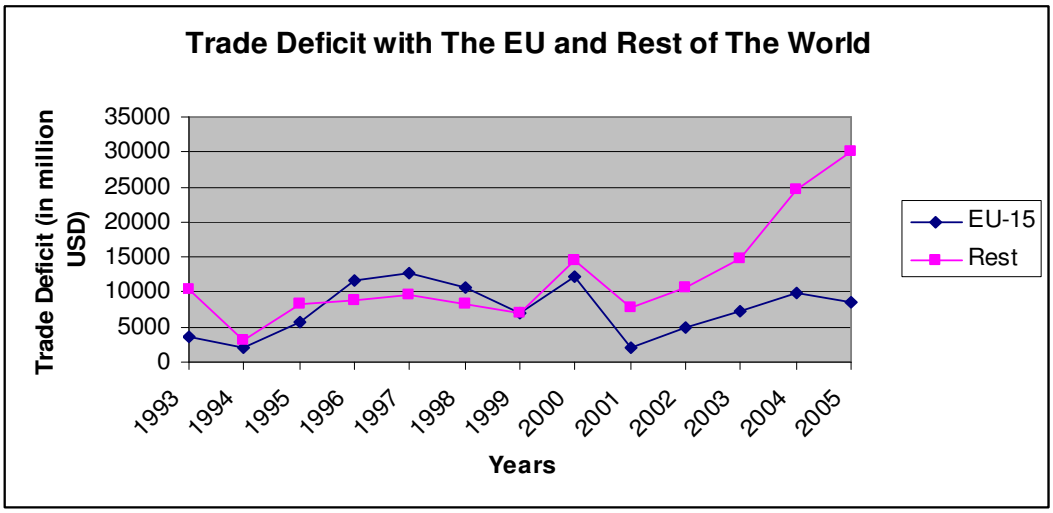
Table 1.2: Turkey's Foreign Trade Deficit (in million USD)

	EU-15	Rest	Total		EU-15	Rest	Total
1968	167	101	268	**1997**	12.622	9.676	22.298
1971	253	242	495	**1998**	10.571	8.376	18.947
1972	423	255	678	**1999**	7.049	7.035	14.084
1974	987	1.259	2.246	**2000**	12.100	14.628	26.728
1980	1.060	3.939	4.999	**2001**	2.162	7.903	10.065
1985	691	2.694	3.385	**2002**	4.862	10.633	15.495
1993	3.661	10.420	14.081	**2003**	7.212	14.875	22.087
1994	2.010	3.155	5.165	**2004**	9.770	24.603	34.373
1995	5.682	8.389	14.071	**2005**	8.467	30.066	38.533
1996	11.582	8.820	20.402				

Source: Calculated by using data from Turkstat

Even though both exports and imports increased following the customs union, the increase in imports has been larger than its counterpart. However when looked to the trade data starting from 1970, it is seen that Turkey has already had a trade deficit with an increasing trend. Thus foreign trade deficit is not a problem that commenced with the completion of the CU although the severe increase in imports in 1995 and 1996 is related to the completion of the Customs Union.

Figure 1.1



Source: Turkstat

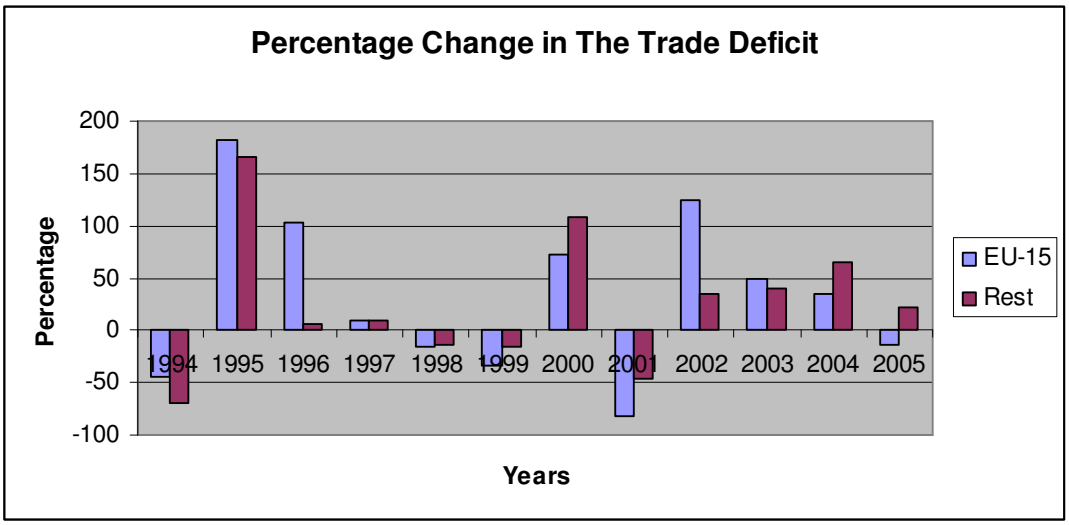
If trade deficit with both the EU and rest of the world is plotted in the same graph, it can be observed that with the completion of the CU, the trade deficit with the EU-15 exceeds the deficit with the rest. However after 1999 it fell behind. The main reason behind this is the harmonization of the Turkish regulations with the ones of the EU. As a result of this progress the gap between the deficit with the EU and rest widened.

Table 1.3: Percentage Change in Foreign Trade Deficit

	EU-15	Rest
1994	-45,10	-69,72
1995	182,69	165,90
1996	103,84	5,14
1997	8,98	9,71
1998	-16,25	-13,44
1999	-33,32	-16,01
2000	71,66	107,93
2001	-82,13	-45,97
2002	124,88	34,54
2003	48,33	39,89
2004	35,47	65,40
2005	-13,34	22,20

Source: Calculated by using data from Turkstat

Figure 1.2



Source: Turkstat

If the percentage changes in the trade deficit is plotted for the EU and rest of the world the situation becomes clearer. As seen from above, with the completion of the CU the deficit with the EU rose severely in 1996. But in the following years it fell back to the normally expected values. The increase in 2002 is due to the severe fell back caused by the 2001 crisis and it can be thought as the re-absorption of the potential trade capacity that Turkey had before the crisis. Again it can be concluded that foreign trade deficit is not a problem that commenced with the completion of the CU and administration of the CU.

Turkey had administered import substituting policies through out the seventies and imported most of the raw materials and goods that her industry required. Thus its import amounts exceeded export amounts. In the eighties, investment and export incentives, due to the outward oriented growth policies of Turkey, have increased importation. Even though the large increase in imports in 1996 is mainly caused by CU, Turkey suffers from foreign trade deficit for a long time due to the trade policies that were administered. Hence blaming only the CU for the large increases in the trade deficit would not be a reasonable conduct.

Besides the administered policies, one has to take a look in to the changes in the Turkish and global conjuncture for a healthy evaluation of the effects of the CU. Following the economic crisis and devaluation of the TL that took place in 1994, Turkey administered policies that were counter to those required by the CU and as a result the competitiveness of the price of the Turkish exported goods decreased.

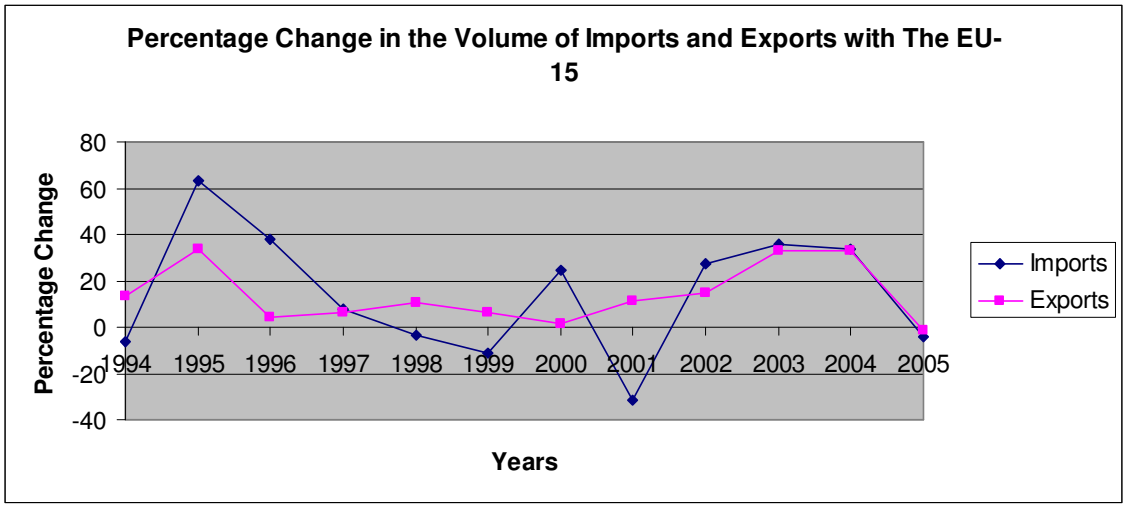
On the other hand, as a result of the Asian and Russian crises' of 1997, the European economies stagnated. In the meantime, the low cost and priced exports from Russia and Asian countries, due to their currency devaluation, lowered the price-competitiveness of the Turkish exports. Hence the three crises that took place in between 1994 and 1997 lowered the export income of Turkey and increased the trade deficit.

Table 1.4: Percentage Change in the Volume of Imports and Exports with The EU-15

	Imports (%)	Exports (%)
1994	-6,13	13,44
1995	63,05	33,97
1996	38,05	4,31
1997	7,49	5,99
1998	-3,20	10,25
1999	-11,11	6,28
2000	24,34	1,10
2001	-31,30	11,08
2002	27,58	14,52
2003	35,91	32,64
2004	33,64	33,10
2005	-3,89	-1,06

Source: Calculated by using data from Turkstat

Figure 1.3



Source: Turkstat

As seen from the table and figure above, imports have been much more fragile to the conjuncture than are exports. The crises of 1994 and 2001, stagnation in 1998 and the earthquake in 1999 have led to major drops in the volume of imports to the EU. Although the volume of imports decreased in those years, the volume of exports always shows an increasing profile through out the years except 2005.

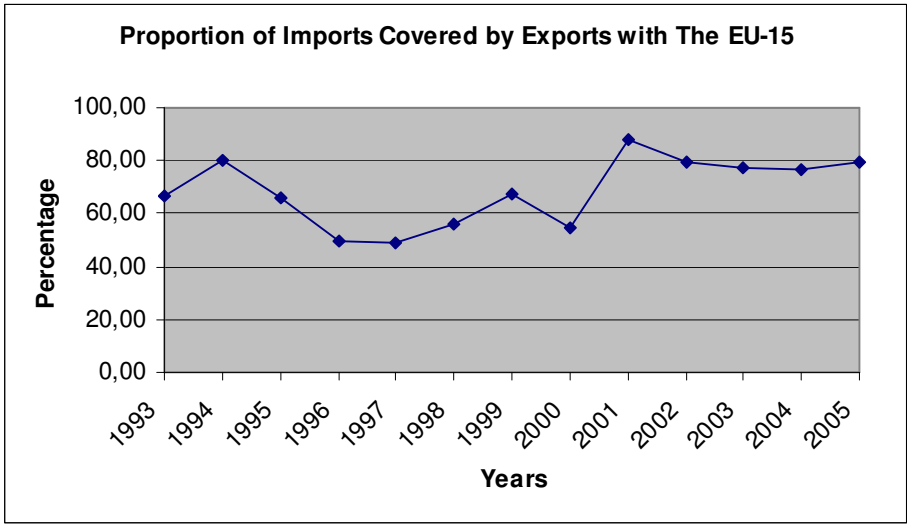
Following the completion of the CU, imports from the EU increased by approximately 143 % while exports to the EU increased by approximately by 191 %. This quick progress in the export capacity of Turkey is due to the structural developments in the Turkish industry. Harmonization of the Turkish regulations in accord with the EU regulations and technical statute positively affected the import-export balance with the EU.

Table 1.5: Proportion of Imports Covered by Exports with The EU-15

	Percentage
1993	66,90
1994	80,45
1995	66,10
1996	49,94
1997	49,25
1998	56,09
1999	67,06
2000	54,53
2001	88,17
2002	79,15
2003	77,25
2004	76,94
2005	79,20

Source: Calculated by using data from Turkstat

Figure 1.4



Source: Turkstat

To have a better opinion on the situation, proportion of imports covered by exports for the EU is given in the above table and graph. Again the large increases here are due to the changes in the Turkish conjuncture due to the above explained reasons. But besides these, it can be observed that the volume of imports covered by exports with the EU shows a stable trend after 2001.

Table 1.6: Distribution of Turkish Exports to the EU by Product Groups (in million USD)

	Investment Goods			Intermediate Goods			Consumption Goods			
	Volume	Share (%)	Change (%)	Volume	Share (%)	Change (%)	Volume	Share (%)	Change (%)	Total
1994	252	2,92	-	2.805	32,48	-	5.577	64,59	-	8.635
1995	318	2,87	26,19	3.528	31,85	25,78	7.232	65,28	29,68	11.078
1996	396	3,43	24,53	3.727	32,27	5,64	7.425	64,29	2,67	11.549
1997	423	3,45	6,82	4.105	33,52	10,14	7.721	63,04	3,99	12.248
1998	489	3,62	15,60	4.612	34,17	12,35	8.397	62,21	8,76	13.498
1999	631	4,40	29,04	4.981	34,72	8,00	8.737	60,89	4,05	14.348
2000	666	4,59	5,55	5.203	35,86	4,46	8.631	59,48	-1,21	14.510
2001	960	5,96	44,14	5.751	35,68	10,53	9.359	58,07	8,43	16.118
2002	1.274	6,90	32,71	5.834	31,61	1,44	11.330	61,38	21,06	18.459
2003	2.077	8,48	63,03	7.431	30,35	27,37	14.929	60,97	31,77	24.484
2004*	3.776	10,97	81,80	10.772	31,30	44,96	19.759	57,41	32,35	34.417

Source: Undersecretariat of the Prime Ministry for Foreign Trade *EU-25

If we look at the exports to EU by product groups, it is obvious that consumption goods have the largest share with an average of 62 %. Intermediate goods on the other hand constitute more or less one third of the total exports. The most significant point here is that although the shares of intermediate and consumption goods float around their average with no significant trend, the share of the investment goods rose with increasing trend. When volume of trade is examined, export volumes increased for all product groups.

Table 1.7: Distribution of Turkish Imports to the EU by Product Groups (in million USD)

	Investment Goods			Intermediate Goods			Consumption Goods			
	Volume	Share (%)	Change (%)	Volume	Share (%)	Change (%)	Volume	Share (%)	Change (%)	Total
1994	3.209	29,40	-	6.912	63,33	-	795	7,28	-	10.915
1995	4.831	28,65	50,54	10.539	62,51	52,48	1.491	8,84	87,50	16.861
1996	7.388	31,93	52,93	12.880	55,67	22,21	2.870	12,40	92,54	23.138
1997	7.327	29,46	-0,82	14.009	56,33	8,76	3.535	14,21	23,15	24.870
1998	7.182	29,83	-1,98	13.270	55,12	-5,28	3.622	15,04	2,47	24.075
1999	6.069	28,36	-15,50	11.823	55,25	-10,90	3.525	16,47	-2,68	21.401
2000	7.254	27,26	19,53	14.116	53,05	19,39	5.114	19,22	45,08	26.610
2001	4.317	23,62	-40,49	11.168	61,09	-20,88	2.595	14,20	-49,26	18.280
2002	5.361	22,99	24,18	14.417	61,82	29,09	3.196	13,70	23,16	23.321
2003	6.999	22,08	30,55	19.233	60,68	33,41	5.147	16,24	61,05	31.695
2004*	10.672	23,49	52,48	26.819	59,03	39,44	7.613	16,76	47,91	45.434

Source: Undersecretariat of the Prime Ministry for Foreign Trade *EU-25

For the imports by product groups the situation is reversed. Imports of consumption goods from the EU have the lowest share, yet have the highest growth rate of 858 % for the ten year period. It can also be observed that imports of consumption goods fluctuate more than total imports due to the change in consumer expectations and its certain effect on the demand. On the other hand the high share of the investment and intermediate goods is due to Turkey's investment promoting import policies that began with 1980's. It can also be observed that imports of intermediate goods fluctuate parallel to Turkey's economic growth.

Table 1.8: Sectoral Distribution of Turkey's Trade with the EU (in million USD)

	Agriculture		Textiles And Ready-to-wear Clothing		Iron and Steel	
	Exports	Imports	Exports	Imports	Exports	Imports
1996	1.616	667	4.914	1.258	420	2.080
1997	1.791	491	5.146	1.494	621	1.871
1998	1.719	468	5.690	1.355	702	1.465
1999	1.662	469	5.619	1.252	817	942
2000	1.354	458	5.764	1.334	907	1.331
2001	1.489	297	6.046	1.219	996	1.003
2002	1.479	431	6.947	1.529	936	1.495
2003	1.830	558	8.750	1.723	1.433	2.046
2004	2.542	636	10.501	2.048	2.592	3.034
	Chapters 84*, 85** and 87***		Industrial Products		Total	
	Exports	Imports	Exports	Imports	Exports	Imports
1996	1.503	10.153	3.096	8.980	11.549	23.138
1997	1.548	11.749	3.142	9.265	12.248	24.870
1998	2.082	11.696	3.305	9.091	13.498	24.075
1999	2.704	10.426	3.546	8.312	14.348	21.401
2000	2.864	13.693	3.621	9.794	14.510	26.610
2001	3.753	7.735	3.834	8.026	16.118	18.280
2002	4.923	9.890	4.174	9.976	18.459	23.321
2003	7.097	13.986	5.374	13.022	24.484	31.335
2004	11.593	21.958	7.189	17.758	34.417	45.434

Source: Undersecretariat of the Prime Ministry for Foreign Trade

***** Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof

****** Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles

******* Vehicles other than railway or tramway rolling stock, and parts and accessories thereof

Figure 1.5

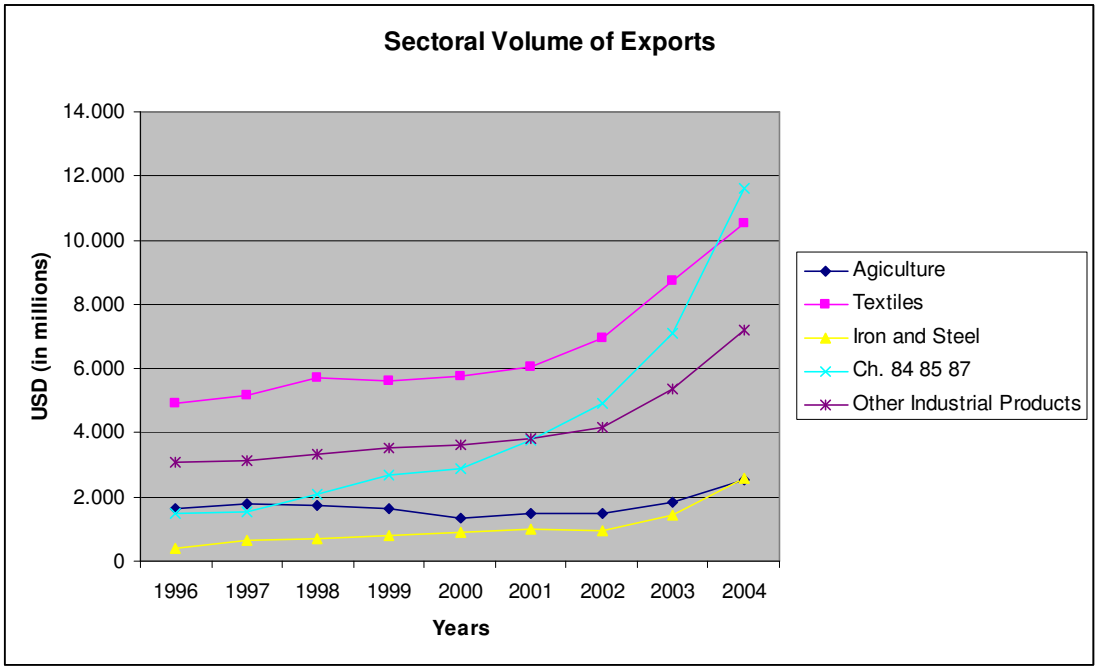
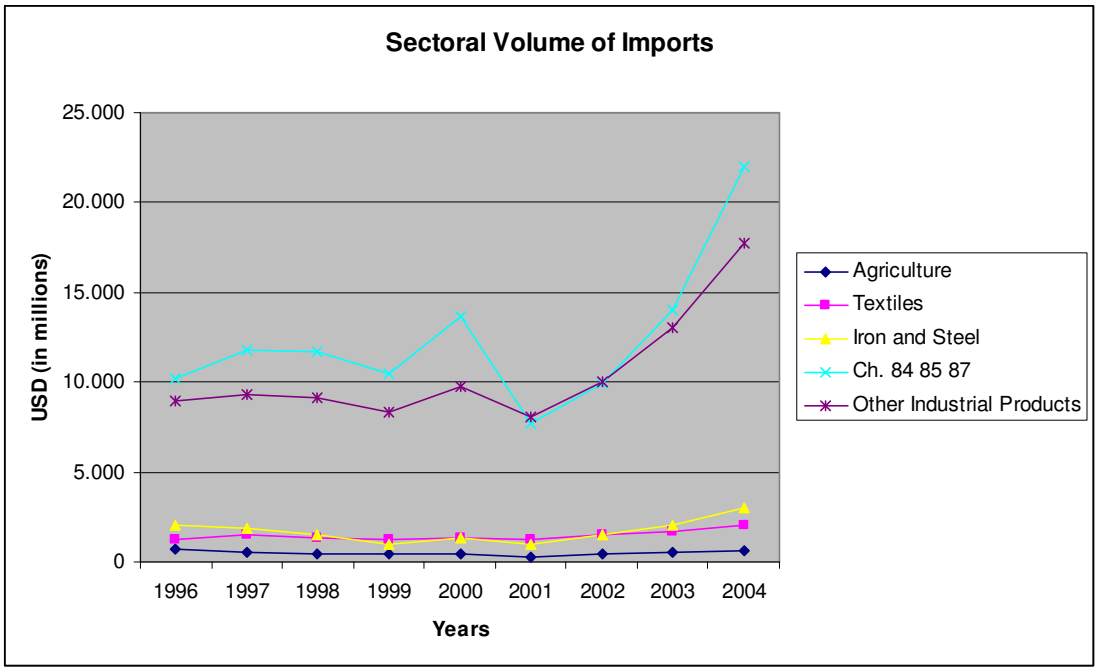


Figure 1.6



Source: Undersecretariat of the Prime Ministry for Foreign Trade

Examining table 1.8 and figures 1.5 and 1.6, it can be clearly stated that the total volume of exports concerning agricultural and industrial sectors' has increased

through 1996 to 2004. The situation is similar for the volume of imports with the exception of years 1999 and 2001 where the import volumes had decreased due to the crisis' the Turkish economy had faced. Exports of textiles, goods concerning chapters 84, 85, 87 and other industrial products have increased more compared to the other sectors. From the imports perspective goods in chapters 84, 85, 87 and other industrial goods have increased more.

Table 1.9: Sectoral Distribution of Turkey's Trade with the EU (percentage)

	Agriculture		Textiles And Ready-to-wear Clothing		Iron and Steel	
	Exports	Imports	Exports	Imports	Exports	Imports
1996	13,99	2,88	42,55	5,44	3,64	8,99
1997	14,62	1,97	42,02	6,01	5,07	7,52
1998	12,74	1,94	42,15	5,63	5,20	6,09
1999	11,58	2,19	39,16	5,85	5,69	4,40
2000	9,33	1,72	39,72	5,01	6,25	5,00
2001	9,24	1,62	37,51	6,67	6,18	5,49
2002	8,01	1,85	37,63	6,56	5,07	6,41
2003	7,47	1,78	35,74	5,50	5,85	6,53
2004*	7,39	1,40	30,51	4,51	7,53	6,68
	Chapters 84, 85 and 87		Industrial Products		Total	
	Exports	Imports	Exports	Imports	Exports	Imports
1996	13,01	43,88	26,81	38,81	100,00	100,00
1997	12,64	47,24	25,65	37,25	100,00	100,00
1998	15,42	48,58	24,49	37,76	100,00	100,00
1999	18,85	48,72	24,71	38,84	100,00	100,00
2000	19,74	51,46	24,96	36,81	100,00	100,00
2001	23,28	42,31	23,79	43,91	100,00	100,00
2002	26,67	42,41	22,61	42,78	100,00	100,00
2003	28,99	44,63	21,95	41,56	100,00	100,00
2004	33,68	48,33	20,89	39,09	100,00	100,00

Source: Calculated by using data from Undersecretariat of the Prime Ministry for Foreign Trade

Although the overall volume of bilateral trade has increased, the share and distribution of sectors has changed. Both the export and import share of agricultural products' has decreased in favor of industrial products. Textiles and ready-to-wear clothing has the largest export share in industrial products on average for years 1996-2004. One of the reasons behind this is that textiles are one of the few product groups

that enter the EU without customs duties and quota limitations. However EU has abolished customs duties in 1985 and quotas in 1996 for the textile sector. Due to this reason, the growth of the volume of textile exports is high.

Another reason of this high share is that, the EU's legislation concerning textiles does not have a broad scope and that Turkey unlike the high technology intensive sectors had the necessary infrastructure for production in accord with the EU standards. Also EU's quota practices to 3rd party exports gave advantage to Turkish manufacturers. On the other hand the high share of the textile product exports compared to the other industrial products show the weak competitive power of those other products. However their export shares also rose especially in automotive and electronics sector. This shows the swift adaptation of the Turkish manufacturers and the industrial sectors to EU legislations and required standards with the administered technical improvements and R&D procedures. The foreign investments in these sectors (such as automotive) also enhanced these developments.

Even though the customs union with the EU has been beneficial to Turkey in terms of the volume of bilateral trade especially in imports, there have been some drawbacks. Although Turkey's gains from the realization of the Customs Union have been estimated (depending on the complementary policies) between 1-1.5% of her GDP, Turkey also lost tariff revenue of about 1.4% of her GDP. It is also estimated that if value-added tax is used as a replacement tax then it will have to increase by 16.2% in each sector. However due to tax evasion problems vat application will not generate large revenue. On the other hand subsidy reductions will serve the dual purpose of increasing efficiency but also reduce the revenue needs of the state thus reduce the indirect distortions imposed by subsidies. (Harrison et al., 1996)

1.6 Anti-dumping and Safeguards

Dumping refers to predatory pricing[1] in situations where an enterprise supplies its products to an export market at very low prices. Article 2.1 of the WTO Agreement

[1] Predatory pricing is the practice of a dominant firm selling a product at a loss in order to drive some or all competitors out of the market, or create a barrier to entry into the market for potential new competitors.

on Implementation of Article VI of the General Agreement on Tariffs and Trade defines dumping as;

> *"a product is to be considered as being dumped, i.e. introduced into the commerce of another country at less than its normal value, if the export price of the product exported from one country to another is less than the comparable price, in the ordinary course of trade, for the like product when destined for consumption in the exporting country."*

This definition is often regarded as the price-discrimination definition based upon the traditional theory of dumping developed by Viner. (Viner, 1923, as cited in Zarnic, 2002) On the other hand the traditional theory regards an enterprise facing a higher price elasticity of demand in the foreign market as a normal-profit oriented firm rather than unfair practicing firm. Ethier developed an alternative model which highlights the need to abandon the price discrimination and monopoly from the traditional theory, involving a factor uncertainty and sluggish adjustment resolved by demand in national markets. (Ethier, 1982, as cited in Zarnic, 2002)

To clarify the practice of price-discrimination, WTO further states that in article 2.2 of the WTO Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade;

> *"When there are no sales of the like product in the ordinary course of trade in the domestic market of the exporting country or when, because of the particular market situation or the low volume of the sales in the domestic market of the exporting country, such sales do not permit a proper comparison, the margin of dumping shall be determined by comparison with a comparable price of the like product when exported to an appropriate third country, provided that this price is representative, or with the cost of production in the country of origin plus a reasonable amount for administrative, selling and general costs and for profits"*

This definition emphasizes the third-market test and the selling-below-cost criterion. The first one refers to situations where a firm is selling a good to country where there is no such domestic market for that good at lower prices than one of its exporting markets. In this situation the firm is deemed to be in price-discriminating practice. On the other hand, the latter refers to situations where a firm is selling those goods below its production costs. (Zarnic, 2002)

Customs Union between EU and Turkey enables contingent protections and safeguards. The 1/95 agreement allows both parties to retain and impose protection measures in cases of unfair practices in their bilateral trade. However there is no specific timetable for their elimination. Table 1.10 shows the anti-dumping measures that EU took against Turkey. Even tough the objective of the establishment of the Customs Union was to integrate Turkey to Europe, one could argue that the application of anti-dumping measures goes beyond their purpose. That is, instead of trying to avoid foreign producers' predatory practices, anti-dumping measures are used to protect domestic monopolies or cartels from fringe competition. (Ülgen and Zahariadis, 2004) Bearing in mind that Turkey's export share in the overall EU exports has been below 3%[2] on average, the motive behind the anti-dumping measures goes beyond avoiding foreign predation.

[2] Eurostat

Table 1.10: EU Anti-dumping Measures Taken Against Turkey

Product	Initiation	Provisional Measures	Definitive Measures	Type of Measures	Status
Polyester yarn	1995	No	Yes	Ad-valorem	Expired
Steel ropes and cables	2000	Yes	Yes	Ad-valorem	Withdrawn
Welded tubes and pipes	2001	Yes	Yes	Ad-valorem	Imposed
Polyester fibers and yarns	1989	Yes	Yes		Terminated
Polyester staple fibres	1988	No	Yes	Ad-valorem	Expired
Cotton fabrics (5208 11-12)	1997	No	No		Terminated
Cotton fabrics	1994	No	No		Terminated
Cotton fabrics (5208 5209)	1996	No	No		Terminated
Hollow sections	2002	Yes	No		Terminated
Hot-rolled coils	2001	No	No		Terminated
Paracetamol	2000	No	No		Terminated
Pentaerythritol	2008	No	No		Investigation
Steel wire rod	1999	No	No		Terminated
Television (colour)	2000	No	No		Terminated

Source: Directorate General Trade of the European Commission

Although the international community considers dumping as an unfair practice that hinders competition, economists such as Kerr and Khoman criticize this. Their main argument is that, a foreign firm selling dumped goods to a domestic market increase the welfare of domestic consumers and domestic producers using dumped products as inputs and that it forces domestic firms to produce efficiently. (Kerr, 2001 as cited in Zarnic, 2002; Khoman, 1998 as cited in Zarnic, 2002) It is also argued that both the presence of anti-dumping laws and ongoing anti-dumping investigations causes drawbacks in the international trade. The former one is referred to as “chilling effect” and the latter as “harassment effect”. Both of these effects reduce the amount of imports. (Zarnic, 2002)

When economic terms are considered, the application of the anti-dumping measures will have different impacts depending on the affected industry and the market. They will have negative impacts and severe social costs especially when applied against downstream inputs or when they are used to protect inefficient industries or cartels in a market. One can argue that the only possible use of anti-dumping measures that will benefit the economy as a whole would be the case against predatory price practices of foreign firms. (Barral, 2003)

Similar to anti-dumping measures, safeguards are another drawback of the Customs Union treaty. As stated in article 60 of the Additional Protocol of 1973;

> *"If serious disturbances occur in a sector of the economy of the Community or of more Member States, or prejudice the external financial stability of one or more Member States, or if difficulties arise which adversely affect the economic situation in a region of the Community, the Community may take, or authorize the Member State or States concerned to take, the necessary protective measures".*

The same claims also apply to Turkey. Although the mere aim of this article is to protect a certain home industry from foreign competition, its lack of explicitness may result in unfair practices. That is, a certain producer may induce authorities to obtain protection and safeguards for unfair competition. Or the authority may claim protective measures with rent-seeking interests rather than import-competing interests. To avoid this, the means of disturbances and the means of protection should be explicitly determined. It is also necessary for the authorities to be neutral and that the system and procedures be transparent.

1.7 Technical Barriers to Trade

With the gradual abolishment of customs duties, equivalent liabilities and quantity restrictions in world trade, countries applied technical barriers to protect domestic industries from international competition. On the other hand countries have also developed precautionary measurements in the frame of economic integrations to avoid the adverse effects of these technical barriers on international trade.

Standards and technical regulations differ fundamentally from the classical trade barriers like quotas and tariffs such that unlike classical barriers they do not raise indirect costs both to consumers and producers, and hence do not allocate resources inefficiently. Their main objective is to overcome market failures. (Maskus et al., 2000) And there is a straightforward distinction between standards and regulations. Regulations are mandatory requirements promulgated by governments or public

authorities. On the other hand standards are voluntary specifications originating from market sources. (Sykes, 1995 as cited in Maskus et al., 2000)

Although the use of standards by developed countries is debated, they are required for several reasons. First of all standards arise to overcome market failures and difficulties by; reducing transaction costs such as consumer assessments, improving information flows between suppliers and consumers regarding quality and inherent characteristics, facilitating production & exchange and guarantying quality. They also stipulate the precedence of public goods such as environmental and public health issues. (Maskus, et al., 2000) Standards can also promote economies of scale by permitting producers to agree on limited range of product characteristics or by organizing production processes. (Stephenson, 1997 as cited in Maskus et al., 2000) And finally standards will promote a country's integration with the global markets.

On the other hand these standards and technical regulations may impose costs which may in return restrain competition. The most obvious one is the compliance costs which may be higher for foreign firms than for domestic producers. The compliance costs include those of; alternation of production and administration, maintenance of quality control, testing and certification and indirect costs such as changing of the production inputs due to requirements. All the above and alike costs reduce producers' ability to compete as they will impose non-tariff barriers. (Maskus et al., 2000)

These incurring costs will also affect firm decisions. Large enterprises can handle the establishment of costly conversion programs which may then require slight modifications for certain markets while unaltered smaller firms will face costly modifications required for exporting to those certain markets. Thus compliance costs can be advantageous for large firms in global competition. (OECD, 2000)

Another drawback rises due to the different perceptions and applications of conformity assessments. First of all developing countries lack developed countries' capacity for effective certification, accreditation and testing facilities. (Stephenson, 1997) Thus developing countries cannot develop adequate standards and establish mutual recognition agreements (MRA) with developed countries. Nor developed

countries retain trust in conformity assessments in developing countries and hence they exclude them from MRAs. Even if countries facilitate conformity assessments by the same means, governments may refuse recognition of those assessments or conformity declarations and insist on performing their own inspections. Hence transaction costs will rise.

With all the above arguments it is plausible to argue that public authorities and large enterprises may establish and defend standards for; market power, restraining competition in favor of domestic firms or cartels and forcing market entry barriers. In other words they can be used as protectionist means rather than aiming to overcome market failures. However because of their nature, it is rather impossible to distinguish them as protectionist restraints. Standards do not directly generate tangible costs as do quotas and tariffs. Instead they influence production techniques, inputs used and so forth, which in turn are reflected in the price of the product. However if a standard or its enforcement is; purely cost-raising, set at a stronger level than required, discriminatory in application or effect between domestic and foreign parties or if it is not the least disruptive among the policy options, then the standard should be removed. (Maskus et al., 2000)

To renovate the technical harmonization in Europe, EU has developed "a new approach" in which harmonization of the essential necessities, application of "general reference to standards" formula and mutual recognition formula is required for the removal of the technical barriers in front of the free movement of goods. (SCADPlus a) The principle of mutual recognition is an integral part of the EU's trade policy however they differ in internal and external applications.

Article 30 and 34 of the Treaty of Rome restricts member states from imposing quantitative measures regarding imports and exports respectively. Also the European Court of Justice (ECJ) elaborated on this rule by holding that member states may not prohibit the sale of goods produced by other member states even if the technical or quality specifications are different. ECJ's decisions also require mutual recognition clauses in national legislations to ensure implementation of equivalence requirements. (TACD, 2001)

On the other hand Article 36 of the Treaty of Rome allows members to apply quantitative restrictions with regard to public policy, morality or security as long as they do not constitute means of arbitrary discrimination. This clause gave opportunity to the member states to show reluctance in accepting other national standards as equivalent. The resulting resistance to the process of equivalence caused the Union to take immense harmonization initiatives in the 1992 market program. Although the member states were not in favor of equivalence, they participated in EU-wide harmonization attempts. This is due to the recognition that states' unique experiences and hence needs are not reflected in other states' standards. (TACD, 2001)

As highlighted in the above paragraphs, EU's internal legislation requires mutual recognition and hence mutual recognition agreements are not used within the EU. As for the external policy, the EU Commission emphasizes the use of mutual recognition and efforts in plurilateralising MRAs on regional basis. The community's policy is also influenced by the WTO Agreement on Technical Barriers to Trade. According to Article 6.3 of Agreement on Technical Barriers to Trade,

> *"Members are encouraged, at the request of other Members, to be willing to enter into negotiations for the conclusion of agreements for the mutual recognition of results of each other's conformity assessment procedures"*.

Accordingly the EU has signed bilateral MRAs with Australia, Canada, Israel, New Zealand, Switzerland, the U.S., and Japan. EU also plans to sign a mutual recognition protocol with Turkey as an addition to Turkey-EFTA free trade agreement with negotiations planned to start in 2006. Although MRAs are beneficial since they will increase regulatory efficiency and effectiveness, provide regulatory cooperation and develop more transparent international regulatory system, they have some drawbacks.

First of all unless concrete authority is present to administer the regulations, MRAs may threat public safety and health due to loopholes. Another problem is that since MRAs will shift regulatory control to foreign bodies from domestic ones, lack of responsibility or transparency in foreign conformity assessment bodies (CAB) may

provoke foreign control mechanisms to act up. Also there is no guarantee of compromised interests between foreign and domestic CABs. To conclude MRAs will reduce the public participation in regulatory decision making and may reduce the levels of safety, health and environmental protections.

Turning back to the case of Turkey, the 1995 agreement that established the Customs Union with Turkey and EU, not only provides the removal of customs duties, equivalent liabilities and quantity restrictions to allow the free movement of goods and to enhance the trade relations but also requires the technical issues of the goods subject to trade to be in harmony with the criteria that are determined by EU's technical legislation.

As mentioned earlier these technical barriers are categorized into two groups; standardization and conformity assessment. The problem with the 1995 agreement is that it merely focuses on standardization but gives minor remark on conformity assessments. (Ülgen and Zahariadis, 2004) Due to this, a good produced under the correct EU specification may face technical barriers since the certification may not be recognized by the EU. Hence the technical regulations will act as non-tariff barriers due to duplicative conformity assessments and restrain trade growth and economic efficiency.

The list of EU directives that Turkey had to adopt was defined with the 2/97 common protocol. It was anticipated for Turkey to adopt technical directives on standardization, measurement, calibration, quality testing and documentation before the end of year 2000. However due to the changes in the technical legislation of the EU and nonfunctioning of the EU's stipulated technical support, the process of harmonization could not be finished by 2000. In addition to the 355 directives listed in the 2/97 common protocol, 236 directives were also added with Turkey's acceptance of candidate by the Helsinki Summit. With the acceptance of Turkey's candidate status, EU took concrete steps in the area of technical support. Turkey began to benefit from Technical Assistance Information Exchange Unit's (TAIEX) support. Another important development was the adoption of a new framework law on the preparation and implementation of technical legislation based on the EU's new and global

approaches in 2002. (SCADPlus b) This framework law has further progressed Turkey's harmonization with EU legislation. By the end of June 2005 273 of these directives were harmonized by Turkey. (IKV)

The current system of standardization and conformity assessment in Turkey is conducted by several governmental bodies that have the direct control of creation, application and control of the standards. The harmonization procedures have been conducted by Turkish Standards Institute (TSE) since 1993. Although TSE has an autonomous identity, the general assembly consists of attorneys of the relevant ministries. On the other hand the decision making authority is the Undersecretariat of the Prime Ministry of Foreign Trade's General Directorate of Standardization in Foreign Trade. Thus one can argue that TSE remains under heavy state influence bearing in mind that the situation is similar in most countries.

In case the of conformity assessment, several national bodies carry out the procedures. These include TSE, Undersecreteriat of the Prime Ministry of Foreign Trade's Presidency of Auditing Commission for Standardization, and several ministerial institutions depending on the type of product that is subject to conformity assessment. Products subject to mandatory standards must retain a Certificate of Conformity and a Certificate of Quality Conformance prior to their importation.

Another development is the foundation of the Turkish Accreditation Agency (TURKAK) in October 1999. Although TURKAK is subject to private law, like TSE, it is under state influence. In 2002 TURKAK became a member of the European Co-operation for Accreditation (EA). The purpose of the establishment of this institution is determined with article 1 of the Law on Establishment and Tasks of Turkish Accreditation Agency as;

> *"To accredit the local and international bodies rendering laboratory, certification and inspection services, ensure them to operate in accordance with established national and international standards, and thereby ensuring international recognition of product / service, system, personnel and laboratory certificates".*

Although the process of harmonization of EU directives and adaptation of the new legal framework are affirmative developments, Turkey still lacks efficient application. There are several drawbacks on this issue. The first one arises due to limited capacity and infrastructure of these institutions. Related to this issue "Project of Supporting Quality Infrastructure in Turkey" was initiated with the cooperation of the Prime Ministry of Foreign Trade's Presidency of Auditing Commission for Standardization and Quality Association (KALDER). The aim of this project is to facilitate the technical adaptation process by harmonizing Turkey's technical infrastructure with EU's provision. For the realization of this project, 13 million Euros is granted by the MEDA II program. Another problem arises due to the lack of assurance for products' congruency with EU's technical directives. This causes TSE to perform additional inspection which in turn results in inefficiency. To overcome these problems, authorities must improve the implementation of existing standards and enhance their testing capacities.

1.8 Competition Policy

European competition policy is one of the essential elements for the completion of the internal market and hence the free movement of goods. It aims to avoid anticompetitive practices by companies or national authorities. Due to the requirements of Customs Union with the EU, Turkey was stipulated to apply a competition policy similar to the one of the EU's. For this purpose, the Act on the Protection of Competition No. 4054 was put into force on December 1994. In 1997 the Competition Authority was established and commenced its operation. It swiftly adapted the EU legislation on competition with the Turkish legislation.

One of the major aims of the European competition policy is to harmonize undertakings such that, internal market operates without violation of competition. Article 85 of the Treaty of Rome forbids the agreements and intensive practices between firms which "may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the common market" applying both to horizontal and vertical agreements. Horizontal agreements refer to the agreements between actual or potential competitors. On the

other hand vertical agreements refer to the practices of two or more companies which operate at a different level of production.

However the same article lays down conditions under which an agreement may be exempted from general prohibition which are referred to as "block exemption" regulations. Horizontal agreements on R&D, production, purchasing, commercialization, standardization and environmental agreements which potentially generate efficiency gains, are exempted. On the other hand if a vertical agreement is posit to be improving production or distribution or to promoting technical or economic progress while allowing consumers a fair share of those benefits, then it is exempted from prohibition. (SCADPlus c)

In addition to block regulations, agreements that do not qualify for exemptions under block regulations may be exempted by and individual exemption if its restrictive effect on competition is posit to be counterbalanced by the contribution it makes to the general welfare. And finally some certain agreements which do not fulfill the requirements for exemption may not be considered violating competition. These are referred to as *de minimis*. More formally, companies which carry out anti-competitive practices, but which have a market share of fewer than 5% often escape censure by the Commission due to de minimis principle. (Wikipedia b)

Article 86 of Treaty of Rome aims to avoid a firm's abuse of dominant position in a market. The authority defines abusing as the influence of the structure of the relevant market or degree of competition and that the dominant position must be held with respect to the whole or a substantial part of the market. However the extent of the market to be taken into consideration depends on that specific good, namely its preferences. Unlike Article 85, there are no individual or block exemptions. Although the Treaty of Rome does not hold a provision for creation of a dominant position with mergers, the Community adopted a "Merger Regulation" in this regard. The objective of this act is to ensure that mergers do not violate competition. The Commission has the right to examine mergers caught by the Regulation which establishes a rapid decision-making procedures and a clear legal framework for industry. If however the merger

would affect several member states then the regulation avoids the application of different national rules.

Another major aim of the competition policy is to abolish public aids that support certain producers or products that distort competition. Article 92 of the Treaty of Rome states that,

> *"any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market".*

However related to state aids, an absolute ban is not possible. The reason behind is that the Treaty of Rome also promotes member states' economic activities for the harmony of the community with article 2. Thus specific government interventions for development purposes cannot be regarded in the scope of Article 92.

Thus several exemptions have been provided. These are those that; have a social character, granted to individual consumers, provided that it is granted without discrimination related to the origin of the products concerned; aids for disasters and exceptional occurrences. The Commission may also exempt; aids promoting regional development, promoting the execution of a project to the common interest, aid to remedy a member state's economy and finally aids for cultural purposes as stated in article 92. Although the overall level of state aids in the Community has been reduced there are still considerable differences between the members.

Although Turkey's progress in competition policy is affirmative there still remains some areas in which the alignment with the Community acquis must continue. Turkey must adopt legislation on de minimis and horizontal agreements. Another issue is that, Turkey has still not completed alignment with the Community's state aid policy. 1/95 Common Protocol required Turkey to adopt EU legislation on public aids in two years with the exception of Textiles which had to be harmonized simultaneously with the realization of the CU. In accordance with this, decision on public aids towards

exports came into force in 1995. Related to textiles sector, Turkey harmonized its legislation with EU's programs on public aids towards textiles in 1996. Studies related to other sectors were initiated in 1997 with legislation on regional aids and first findings were conveyed to the Commission. However the EU did not reply to this attempt yet. Another problem is that Turkey still lacks an autonomous body to supervise and control state aids. Thus the transparency of current and future state aid measures is not guaranteed. Hence there is still the risk of state aids' distortion of competition.

However there are some serious drawbacks of the European Competition Policy. The mere objective of the competition policy is to support the objective of European market integration. Hence this policy acts on a supranational level from this aspect. This conceptual problem exists in Turkey's adaptation of the competition law which hypothetically should be at a national level. Also Turkey as a developing country compared to EU members, has a meager institutional capacity and it is argued that competition policies of developed states are not appropriate for developing countries. (Singh and Dhumale, 1999) Thus the Competition Authority must consider and apply competition law considering Turkey's position.

1.9 Intellectual Property Rights

If we leave out the cost of transmission, then knowledge should be freely available since it is non-rival in nature. However if this was the case, then the market agents would not invest in producing new knowledge since they would not be able to recover their costs of production. On the other hand granting innovators exclusive rights will promote them. Thus Intellectual property rights (IPRs) act as static distortions that can be rationalized as incentives to produce knowledge. (Arrow, 1962 as cited in Fink and Braga, 1999)

However IPRs' effect on bilateral trade is theoretically ambiguous. An increase in IPRs may increase the volume of imports as foreign firms face increasing net demands due to markets' clearance from piracy. On the other hand the same firm may reduce its sales in the importing markets due to its stronger market power in imitation safe environments. (Maskus and Penubarti, 1995 as cited in Fink and Braga, 1999) Also

the increased IPRs may invert firms' choices of entry into a market. Due to high IPRs protection, firms may decide to enter the market with Foreign Direct Investments (FDI) or by licensing its assets rather than exporting to that market. Stronger IPRs reduces the risk of imitation and bargaining power of the licensor. Hence the profitability of licensing increases and so does licensing. (Yang and Maskus, 2001 as cited in Park and Lippoldt, 2004) However if the level of IPRs are not sufficient then the firm may decide to enter the market by FDI rather than licensing. The rationale behind this is that the risk of a competing firm's imitation of the affiliate producer would be less than the risk that a potential licensee will fail. Thus the firm will choose to enter the market by FDI rather than licensing. (Nicholson, 2003 as cited in Park and Lippoldt 2004)

IPRs' effect on welfare is also ambiguous. From a static partial equilibrium model, the source country is likely to gain from higher IPRs due to increased monopolistic profits while the destination country is likely to loose gains due to increased deadweight losses and reallocation of production worsening the terms of trade in favor of the source country. On the other hand from a dynamic point of view strengthening of the IPRs stimulates innovation in the source country and thus increase future trade flows. However the aggregate result of the dynamic and static effects on welfare is ambiguous. (Fink and Braga, 1999)

IPRs refers to a group of laws that include; patent laws, copyright laws, trademark laws and such which provide exclusive rights to certain parties. With the establishment of the Customs Union, Turkey was obliged to adopt legislation related to IPR and hence prevent them from acting as non-tariff barriers. In this context Turkey was expected to put The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) into practice in no more than three years following the establishment of the Customs Union as stated in the article 1 of annex 8 of decision 1/95. In addition Turkey was obliged to accede to Paris Act (1971), Rome Convention (1961), Stockholm Act (1967), Nice Agreement (1976) and Patent Cooperation Treaty.

TRIPs were administered by the World Trade Organization in the negotiations of Uruguay Round in 1994. It states the minimum standard of intellectual property regulation for the member states. Although it obliges all member states, developing

countries were allowed a transition period for the implementation of the required changes. For developing countries this transition period ended by 2005. On the other hand the least developed members' transition period has been extended to 2016. TRIPs are the most comprehensive agreement on IPRs at an international level. An important development related to TRIPs is the adaptation of the Doha Declaration in 2001. The provisions of this declaration provide governments to issue compulsory licenses on patents for medicines, or take other steps to protect public health.

With regard to adaptation and harmonization of legislation, Turkey made a considerable progress. Turkish Patent Institute was established in 1994 before the CU was established. Turkish Patent Institute acts with administrative and financial autonomy and is the exclusive authority to register and administer patents and IPRs. By November 2000 Turkey acceded with the legal framework of the European Patent Convention which is a multilateral treaty that institutes the European Patent Organization and provides an autonomous legal system for the granting of European patents. From the judiciary aspect, only after 2001 had Turkey established a specialized court for IPRs.

Although Turkey endeavors for the harmonization of its legislation on IPRs with the EU aqcuis, there are some serious drawbacks for Turkey. Turkey still remains on the Priority Watch List of The International Intellectual Property Alliance. (IIPA, 2006a) Turkey has been a regular on the Special 301 lists[3] and its legislation and practices on IPRs is in scrutiny. In 1997 USTR has emphasized six issues for Turkey to progress related to IPRs. These include, effective enforcement actions, issue of law amendments for compliance with TRIPs, amending laws to include higher and non-deferrable fines, issuing a directive to all government agencies lo legalize software, starting an anti-piracy campaign, training of enforcement officials and equalizing taxes on showing of foreign and domestic films. (IIPA, 2006b)

[3] Special 301 is a report preapered by the iipa in which the U.S. Trade Representative (USTR) is requested to identify those countries that deny adequate and effective protection for intellectual property rights or deny fair and equitable market access for persons that rely on intellectual property protection.

Turkey's progress of meeting these requests have been rather slow and alternating. In 2001 USTR had Turkey downgraded to Watch List due to Turkish Parliament's efforts in passing amendments to Copyright Law. However in 2002 IIPA recommended Turkey to be elevated to Priority Watch List due to the worsened situation in copyright industries and failure of the banderole system. Turkey was once again elevated to Priority Watch List in 2004 due to propagation of piracy in many areas including book and optical media. And Turkey remained to be in the Priority Watch List although there has been improvement in its copyright legislation.

The 2006 report clearly highlights Turkey's insufficient application of IPRs in spite of the increasing raids against criminal acts. Turkey is regarded as one of the world's worst book piracy markets. The business software industry also suffers from unfair practices. The Turkish judiciary system related to IPRs is not efficient due to the lack of sufficient specialized courts and the trained judges. The report also highlights customs' inefficiency in interdicting pirate imports. The use of fraudulent banderoles also remains as a serious drawback and the banderole system is not functioning as an efficient anti-piracy tool.

Table 1.11: Estimated Trade Losses Due To Piracy (in millions USD) and Levels of Piracy

	2005		2004		2003		2002		2001	
Industry	**Loss**	**Level**	**Loss**	**Level**	**Loss**	**Level**	**Loss**	**Level**	**Loss**	**Level**
Motion Pictures	NA	NA	50,0	45%	50,0	45%	50,0	45%	50,0	40%
Records & Music	18,0	80%	15,0	70%	15,0	75%	18,0	75%	3,5	35%
Business Sofware	119,2	64%	107,0	66%	81,0	66%	38,5	58%	22,4	58%
Entertainmet Software	NA	NA	NA	NA	NA	NA	NA	NA	23,7	90%
Books	23,0	NA	23,0	NA	25,0	NA	25,0	NA	27,0	NA
Totals	160,2		195,0		171,0		131,5		126,6	
	2000		**1999**		**1998**		**1997**		**1996**	
	Loss	**Level**	**Loss**	**Level**	**Loss**	**Level**	**Loss**	**Level**	**Loss**	**Level**
Motion Pictures	50,0	50%	50,0	85%	59,0	95%	59,0	95%	59,0	95%
Records & Music	4,0	40%	4,0	30%	4,0	30%	8,0	30%	7,0	30%
Business Sofware	78,6	63%	78,2	74%	44,5	87%	48,4	84%	85,7	87%
Entertainmet Software	116,2	96%	95,1	82%	92,3	80%	96,7	84%	98,0	89%
Books	28,0	NA	32,0	NA	28,0	NA	20,0	NA	20,0	NA
Totals	276,8		259,3		227,8		232,1		269,7	

Source: International Intellectual Property Alliance

International Intellectual Property Alliance estimates in table 1.11 shows that although Turkey progressed in harmonizing its legislation on IPRs with that of the EU and WTO, this progress is not sufficient. The major reduction of losses by 2001 is due to the establishment of specialized courts and amendments of the laws. The average level of piracy in motion pictures which was around 93 % for years 1996-1999 has been reduced to nearly half for the following years with the efforts of AMPEC. On the other hand the piracy of records and music severely rose. The main cause of this escalation is the propagation of broadband internet usage and peer to peer network systems in the last five years.

SECTION 2

MODELLING THE TURKISH BILATERAL TRADE FLOWS WITH THE EU-15 IN THE FRAMEWORK OF GRAVITY THEORY

2.1 Literature Review

This subsection will begin with the introduction of the theoretical backgrounds for the gravity theory. Subsection 2.1.1 will discuss how the theoretical foundations were established and what the rationales behind this theory are. Subsection 2.1.2 will present recent studies that are done in the frame of gravity theory including studies related to Turkey in this frame. Subsection 2.1.3 will give examples of other recent empirical studies related to Turkey's relations with the EU from a Customs Union point.

2.1.1 Theoretical Foundations of the Gravity Model

Gravity models have been used in various social sciences to describe and model certain behaviors containing some elements of mass and distance, inspired by Isaac Newton's law of gravity. The gravity model of trade is used in international economics to predict bilateral trade flows based on the economic sizes and distance between a pair of countries. Tinbergen and Pöyhönen were the first economists to perform econometric studies separately on trade flows based on the gravity equation based on only the intuitive justifications. Tinbergen explicitly included geographical dimensions in his analysis in which he treated countries as entities having physical location. (Tinbergen, 1962)

Linnemann was among the first who tried to theoretically justify the model with Walrasian general equilibrium system with what he called "trade-resisting factors". These are manmade obstacles to trade such as tariffs and natural obstacles such as distance. (Linnemann, 1966) His empirical analysis was based on cross-section data of trade flows which resulted in line with theoretical expectations that inspired the basic equation. (Ball, 1967) In 1974 Leamer used both the gravity equation and Hecksher-Ohlin model to construe explanatory variables in a regression analysis of bilateral trade

flows yet he has not integrated the two approaches theoretically. (Leamer, 1974 as cited in Deardorff, 1995)

Subsequent economists tried to derive the gravity equation from models that assumed product differentiation. Anderson (1979) derived the gravity equation assuming first Cobb-Douglas and in the appendix, constant elasticity of substitution preferences for all countries. He assumed that products differentiated by country of origin which was later called the Armington Assumption while modeled preferences over only traded goods. In his analysis he used the properties of expenditure systems with identical homothetic preference across regions where the gravity model constrains the pure expenditure system by specifying that the share of national expenditure spent on tradable goods is a reduced form function of income and population. In his analysis he used countries that had similar traded-goods preference, tax structures and transport cost structures.

Another economist who tried to justify the theoretical backgrounds of the gravity model was Jeffrey Bergstrand. He examined the theoretical determinants of bilateral trade while developing a microeconomic basis for the gravity model in a series of papers. In his paper Bergstrand (1985) presented a general equilibrium world trade model which he then derived the gravity equation from, assuming perfect international product substitutability. Like Anderson, he also used constant elasticity of substitution (CES) preferences over nationally differentiated products to derive the gravity equation, as a reduced form equation for bilateral trade involving price indices approximated using GDP deflators, from partial equilibrium subsystem of general equilibrium. His empirical findings supported the significance of incomes in gravity models and that price terms derived from underlying utility and production functions influence trade flows. His results also supported his assumption that products were nationally differentiated.

Bergstrand (1989), in his latter paper departed from his work by assuming a monopolistic competition and hence product differentiation among firms rather than countries. He also extended the microeconomic foundations for a generalized gravity equation to incorporate relative factor endowment differences and non-homothetic

tastes. In his work he showed that the gravity equation including importer and exporter incomes as well as populations fits with the Hecksher-Ohlin model of inter-industry trade and the Helpman-Krugman models of intra-industry trade. His model explains empirically between 40% and 80% of the variation across countries in one-digit SITC (Standard International Trade Classification) trade flows. On the other hand Helpman and Krugman had used a differentiated product structure with increasing returns to scale to justify the gravity model. Their work inserts imperfectly competitive market structures in a full equilibrium model with factor endowment effects. (Helpman and Krugman, 1985 reviewed by Brander, 1986)

Alan V. Deardoff (1995) also derived gravity equations for the value of bilateral trade from two extreme cases of Hecksher-Ohlin model. The first case was frictionless trade. Here producers and consumers are assumed to be indifferent among trading partners due to homogenous products and no barriers to trade. He derived the simple frictionless gravity equation with identical and homothetic preferences by random drawing. In his second case he has assumed that countries produced different goods. He derived gravity equations for both Cobb-Douglass and CES preferences. Thus he has proved that gravity equations characterizes many models and can be justified from standard trade theories. Yet the differences among these theories will cause some diversity in the results of empirical findings and explain various specifications.

Matyas (1997) suggested that a correctly specified gravity model should have separate constants for each year and also for exporter and importers thus proposed a triple-indexed gravity model. He argued that all gravity type models examining trading blocs and regional agreements were misspecified and the estimations leads to incorrect interpretation of trading bloc dummies and hence, wrong economic implications.

Bougheas et al. (1997) estimated a gravity model to examine effects of infrastructure on trade through its effect on transport costs. They used an extended form of the Ricardian Model of trade where transport costs and infrastructure formation is endogenised. However their work could not be used to address distributional issues due to the simplicity of their model. This simplicity also necessitated the use of two-country

static model and hence benefits of improving infrastructure have not been addressed. Their study shows that infrastructure reduces the transport costs for all trading partners and thus its benefits are multilateral. Also their empirical findings imply a positive relationship between infrastructure and volume of trade even though their theoretical model suggests that at high levels of infrastructure, benefits of additional investment regarding to the volume of trade is outweighed by the loss in final output.

Breuss and Egger (1999) provided insights into the prediction performance of cross-section gravity equations. They analyzed the East-West trading potentials that came into the economics agenda after the opening-up of the Eastern Europe in 1989. Their work suggests that there exists large forecast interval spans around predicted values. Due to the large size of the intervals, they argue that any inferences about absolute trade potentials are questionable. Thus they conclude that cross-section gravity analysis does not permit any judgments as to whether the East-West trading potentials have reached its limits.

Another issue related to the specification of the gravity model is whether the country specific effects should be modeled by random or fixed effects in panel approach. Peter Egger discusses problems associated with random effects gravity approaches and he argues for the superiority of fixed effects model both econometrically and intuitively based on Hausman specification test motivated by the explanation of country effects as widely predetermined. (Egger, 1999)

Van Beers studied the impact of distance variable specified in the standard gravity model on the estimates for regional dummy variables. He has shown that the standard specification of the distance variable affects the estimates of economic integration dummies. His findings results in a positive bias in the estimates of economic integration dummies for countries located at relatively large distances. On the other hand they result in negative bias for countries that are located at small distances from each other. Van Beers introduces a model that includes a distance measure that weighs the relative distance of importer from exporter countries with the weighted average of all demander's relative distances from the exporter country. As a result the distance measure takes into account the effect of a favorable location of the exporter. With this

distance variable he plausibly eliminates the bias' and the estimated economic integration dummies shows that intra-trade among high income countries that are relatively close to each other are at least not be significantly lower than the normal trade pattern while the intra-trade between high and low income countries that are located at large distances are not significantly higher than the normal pattern of trade. (Van Beers, 2000)

Anderson and van Wincoop derived an operational gravity model based on an estimated CES expenditure system to solve the so called border puzzle. The so called "border puzzle" was first introduced by McCallum's study on the impact of national borders on bilateral trade between Canada and the United States. His analysis showed that internal trade between Canadian provinces were far too much than its trade with the USA even though they shared many political and cultural similarities in addition to common border. Contradicting with the expected results he estimated the common border to have a large negative impact on bilateral trade. (McCallum, 1995) Anderson and van Wincoop (2001) argue that they have resolved the border puzzle and find that borders reduce bilateral trade levels by reasonable though substantial levels. Their reasoning for previous studies' implication for border effects is due to omitted variables' upward bias on the border effect and consideration of the border effect on the ratio of international to international trade. They also argue that border effect is inherently large for small countries.

Feenstra et al. (2001) have shown that although the theoretical foundations for the gravity equation are common, alternative theories will predict subtle differences in key parameter values depending on the preferences and assumptions such as whether the goods are homogeneous or differentiated. Their empirical findings for differentiated goods fit with the theoretical predictions of the monopolistic competition model or by a reciprocal dumping model with free entry. On the other hand homogeneous goods are explained by a nationally differentiated products model or by a reciprocal dumping model with barriers to entry.

Cheng and Wall (2005) showed that standard pooled cross section methods for estimating gravity models suffer from estimation bias due to omitted or misspecified

variables. They have eliminated this bias by using a two-way fixed effects model where country pair and period dummies are used. Their analysis resulted with the conclusion that physical distance, common borders and language and such factors that are constant over time are captured by the fixed effects. They also compared different specifications of gravity model as nested versions of a general specification which uses bilateral country-pair fixed effects to control for heterogeneity. They argue that alternative fixed effect models are special cases of their own model with restrictions that are not statistically significant.

2.1.2 Review of Recent Empirical Studies on Gravity Theory

Antonucci and Manzocchi (2004) performed an empirical analysis based on a balanced panel data with annual observations using non-deseasonalized yearly data to assess Turkey's trade patterns. They have chosen trading partners to have a significant diversification that accounted for 80% of Turkey's total exports and 85% of Turkey's total imports. They have constructed regional dummy variables as EU (European Union), MED (Mediterranean countries), CEECS (Central and Eastern European Countries) and CIS (Former Soviet Union). Although the standard gravity models generally use cross-section data to estimate trade effects for a particular time, they have chosen to use panel data to avoid the risk of choosing an unrepresentative year while enabling the monitoring of unobservable individual effects between the trading partners. Like mentioned in Cheng et al., this is done to control heterogeneous trading relationships in order to isolate time series dimension of the eventual impact of exchanges of EU-Turkey relations and leave out cross sectional variation. Due to this their procedure required a choice between fixed of random individual effects. Thus they carried out Hausmann specification test and as a result fixed effects model (FEM) equations are estimated.

They have investigated import and export equations separately with fixed effects through EGLS procedure. Although the standard gravity model is in multiplicative form, they have analysed the log-linear form and hence interpreted the estimated coefficients as elasticities. Autocorrelation of residuals have been detected and corrected by introducing an AR(1) error term. As a check for robustness they have

used two slightly different specifications. In the first one, a time-variant dummy for the customs union is included while the second specification included a trend variable. For a final specification the model included one-period lagged dependent variable to question the existence of past relations' effect on trade. For a final check of robustness they have estimated the same specifications for Turkish trade exchanges net of food and agricultural products focusing only on manufacturing imports and exports. Their rationale behind this is to eliminate the possible bias of the dynamics of aggregate trade caused by the influence of a sector loosely integrated with the Single Market.

They conclude that more time is required in order for Turkey to fully benefit from Customs Union. They point out to some of the sensitive products' exclusion from the agreement and state the requirement of further liberalization. Their estimations are in line with the predictions of gravity model and Turkey-EU bilateral trade is explained by the economic and geographical factors used in the model. They also point out that although Turkey's accession could lead to larger trade volumes it may also damage trade between MED and CIS countries if trade diversion and delocalization effects prevail.

Martinez-Zarzoso and Nowak-Lehmann (2003) applied gravity model to assess Mercosur-European Union trade, and trade potential following the agreements reached recently between both trade blocks. They tested the model for a sample of 19 countries, the four formal members of Mercosur (Southern Common Market) plus Chile and the fifteen members of the European Union. They used panel data analysis to disentangle the time invariant country-specific effects and to capture the relationships between the relevant variables over time. They used three different model specifications which the first one being the standard model. In the second specification, departing from the standard gravity model, they used an infrastructure index in addition to distance to capture the effects of transaction costs like Bougheas et al. (1997). In the last specification they added the difference of incomes between exporting countries and a real exchange rate variable to the model.

The models are estimated by ordinary least squares (OLS) with the application of cross-section means. F-test is performed to check the poolability of the data. Due to

the rejection of the null hypothesis they concluded that OLS estimates are biased and the individual effects are not equal. Hence they performed Hausmann specification test to decide whether the model is fixed effects model (FEM) or random effects model (REM). Due to the rejection of the null hypothesis, FEM model has been chosen. They also refined the model with the inclusion of time dummies to the former explanatory variables as the fourth specification. These are interpreted as a proxy for EU-Mercosur integration with addition to the effects of business cycle phenomena. The rationale behind this is that the time-dummies will pick up the effects of any variables affecting bilateral exports that vary over time, and are constant across trading-pairs which are not included in the explanatory variables. They performed Wald test to test the significance of time effects. The result is that, null hypothesis of insignificant time dummies cannot be accepted.

Since cross-section heteroskedasticity may be present, the same specification with time dummies is estimated but each pool equation is now down-weighted by an estimate of the cross-section residual standard deviation. As a sixth specification, the income difference variable is added to test the possible existence of Linder effect. To prevent multicollinearity between income variables and differences in incomes, the model is estimated without the exporter and importer incomes. In the seventh model specification, real exchange rates are also included. An alternative specification to the FEM is also done estimating the gravity equation in first differences. They have done this in order to prevent auto-correlated disturbances. Finally fixed effects from models four to seven are regressed on the distance variable and dummies which are fixed over time.

They have used the coefficients obtained from the gravity equations to forecast bilateral trade flows, thus calculating potential exports. The increasing and decreasing trade potentials that are obtained are explained by specific factors such as climate phenomena affecting the agricultural sector. Their analysis concludes that, exporter and importer incomes are as expected having a positive influence on bilateral trade. Exporter population has a large and negative effect in exports showing positive absorption effect whereas the large and positive effect on exports of importer population

shows that large countries import more than small countries. Their findings also support the hypothesis on the importance of the infrastructure variables. In addition both preferential dummy variables are statistically significant suggesting that preferential trade agreements do foster trade.

Mehanna (2003) analyzed an augmented gravity model to investigate the effects of politics and culture on intra Middle East trade for the period of 1996-1999. He used political freedom and corruption as politics proxies while for culture used religion and language affiliation as proxies. His sample encompasses 33 countries. Due to the specific nature of the area analyzed, methodological bias may occur as a result of inflating trade figures relative to non oil exporting countries. To overcome this, he extends the model by presenting the dependent variable as total trade, imports and exports. Import figures will shield the value from oil exports while for exports and total trade, two dummy variables representing the oil exporters in reporting and partner countries are added to isolate the oil bias.

He excluded Israel, Iraq and Libya for the past conflicts occurred. Mehanna also modified the standard model by adding a border dummy. His rationale behind is that the distance between countries' capitals could also be upwardly biased thus exaggerating the distance variable for large size countries. In his analysis he incorporated the three Middle East trade blocs; Gulf Cooperation Council, Arab Common Market and Arab Maghreb Union while based on the proximity feature of the gravity model included the two major regional blocs; EU and Association of Southeast Asian Nations (ASEAN).

In his analysis he offers six different specifications to estimate the effects of some aspects of politics and culture on Middle Eastern trade. The first specification tests for intra-Middle Eastern trade by encompassing the traditional determinants of the gravity model while controlling for the oil exporting countries. The second specification tests for the Middle Eastern trade blocs as well as the other major regional trade blocs. The third specification includes the traditional determinants of the gravity model with religion. In the fourth specification he also includes the language dummy to encompass both cultural aspects. In the fifth specification he includes both of the political variables

and in his final specification he encompasses all previous models to test the effects of intra Middle East trade, regional blocs and the effects of culture and politics.

The significance of his specifications is very high and is verified by error tests which show that all included variables are relevant. Detected Heteroskedasticity in the error terms are corrected following White's procedure. His estimation results support three main hypotheses. First, majority of Islamic countries appear to trade significantly less than their Christian etc. counterparts. Second British colonial ties tend to trade more and finally countries perceived to be more corrupt trade significantly less.

De Groot et al. (2004) analyzed the effects of variables that reflect institutional quality and similarity on trade by using a gravity model. They used six different institutional proxies for governance including; voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. They also argue that institutional homogeneity will result in a reduction of transaction costs and hence increase the volume of bilateral trade. To capture this similarity, they constructed dummy variables in accordance with the sample mean; dummy variable will take the value of "1" for the pair of countries if they are above the mean and will take the value "0" if below. Since these indicators of governance quality are interrelated they are introduced separately to the empirical analysis to avoid multicollinearity.

The first part of their analysis is performed with the standard variables that are included in the gravity model; gross domestic product, geographical distance and several variables that are effective controls for shared historical, political and cultural background. The latter are the dummy variables representing, common border, common language, common dominant religion, common colonial history and common trade block dummy. In this analysis it is focused on exports of individual countries rather than on total bilateral trade in order to examine whether the effect of GDP on trade differs for an exporter compared to an importing country. They used six different specifications in this part. In the first specification only the bilateral trade is regressed on the logarithms of GDP's to compare the elasticities. The second specification involved the logarithm of the geographical distance as a proxy for transportation costs. In the third

specification dummy variables are added to capture the effects of bilateral factors. The fourth specification involves only the dummy variables and the distance dummy. The fifth and sixth specification is the repetition of the third and fourth specification but with distance itself instead of the logarithm of the distance. This is due to the rationale that the natural logarithm of distance gives more weight to countries that are relatively close compared to the explanatory effect of variation in distance itself.

The second part of their analysis explores the explanatory role of institutional quality and homogeneity. To study this they used separate specifications that exclusively focus on quality and homogeneity of governance for each of the six proxies. They analyzed twelve regressions each indicating the different institutional proxies for governance, one for quality and one for similarity. Their estimation results support their argument that institutional quality has a significant, positive and substantial impact on bilateral trade flows. This result is also same for the similarity in the quality of governance although it depends slightly on the proxy that is used. It is also seen from their analysis that although bad governance substantially lowers the benefits of trade, countries that share this feature may partially offset these negative effects. However since they will trade less with countries with good institutional prospects, they will miss out the beneficial technology spillovers through trade.

Augier et al. (2004) examined the possible impact of rules of origin on trade patterns of European countries. Their estimations are carried out on the basis of total trade, manufacturing trade and intermediate goods trade for the years 1995 and 1999. They focus on determining whether trade is lower in cases where an importing country has a preferential trade agreement with the EU but there is no diagonal cumulation between that importing country and the exporting country. Thus they try to explore whether the lack of cumulation between countries act as a constraint on trade or not. To capture the effect of diagonal cumulation, they constructed a rules of origin dummy which takes the value “1” for importing countries that have a preferential trade agreement with the EU but lack diagonal cumulated rules of origin and takes the value “0” if not. They expect the estimated value for this dummy to be negative. They have also augmented the specification by introducing tariffs to the model. However due to

the complex system of tariffs and inadequacy of data they used simple tariff averages are for each country in which preferential and non-preferential tariff rates are distinguished so that tariff data is operational for the analysis. Finally, they grouped the countries into three sub-groups; Central European Free Trade Agreement (CEFTA) countries plus Baltic States, the Southern Mediterranean countries and European Free Trade Association (EFTA).

The first model they estimated is the standard model with the inclusion of the rules of origin dummy variable without the tariff data. The main result from this estimation is the negative sign and the statistical significance of the rules of origin dummy. Therefore they concluded that the lack of cumulation is one obvious explanatory factor. In their second specification they augmented the standard model both with the rules of origin coefficient and the tariff variables. They have also estimated the same specification with the variables of rules of origin dummy and tariffs disaggregated with respect to country groupings. By this interference they showed that the aggregate rules of origin dummy masked the variations across country groupings.

However due to a possible interrelation between cumulation and tariffs they divided the rules of origin matrix into two sub-matrices in respect to whether the tariff rate is equal or above a certain threshold or lower than that threshold. Their estimation proved that the level of tariffs significantly affects the impact of cumulation. In the final set of estimations they tried to compare the two periods that are analyzed. However since the Pan-European system of cumulation was introduced in 1997, they ran a regression on the 1999 data with an inclusion of a dummy variable which stands for all those countries that became part of the Pan-European system in 1997. As expected this dummy was estimated to be positive suggesting that trade has risen as a result of cumulation. They concluded that rules of origin restrict trade and that higher tariff rates reduce the impact of lack of cumulation.

Kandogan (2005) analyzed the trade creation and diversion effects of major regional liberalization agreements in Europe based on a modified triple-indexed gravity model suggested by Matyas. He uses a fixed effects model with separate constants for the year, importer and the exporter countries. Thus the model is augmented by time-

invariant bilateral interaction fixed effects as well as some other factors that explain bilateral trade flows. He analyzes the error terms for member country importer and exporter pairs against those of a member country importer and non-member countries to examine trade diversion and creation effects of liberalization agreements.

The model is regressed separately for imports based on the factor intensity of production. The sectors analyzed are; resource intensive, labor intensive, human-capital intensive low technology, human capital and labor intensive high technology and finally human and physical capital intensive high technology industries. In the second part of the analysis, the bilateral error terms from the regression model are averaged separately before and after the agreement for each of their partners in liberalization and non-partners for each agreement and each one of its members to compute the trade creation and diversion effects. These changes are scaled so that they will give changes relative to importer country's GDP. Majority of these agreements turn out to be welfare improving for European and its partner countries in all factor intensity sectors with few exceptions. He suggests that in accordance with his results that the impact of trade creation or diversion is bigger on smaller countries. The date of the agreement matters in terms of the impact. Finally similarity of factor endowments determines the partners that will experience trade creation in which sector and which non-partners will be hurt by trade diversion.

Nowak-Lehmann et al. (2005) examined Turkey's 16 most important sectors flows to the EU based on panel data from period 1988 to 2002. In the process of their analysis, the averages of the sectoral exports over the period 1988 to 2002 are considered in order to smooth peaks and valleys. Their gravity model deviates form the general model in few respects. First they use maritime transport costs to compute a transport cost index to use as a proxy for distance. This is done by scaling the geographical distance using a freight cost index to construct the new transport cost variable. Secondly, concerning economic distance, differences in incomes between trading countries are used which is constructed as the absolute difference in per capita incomes in purchasing power parity. This is done to capture the possible Linder effect and the relevance of Heckscher-Ohlin model. Also a real exchange rate variable is

included in the specification which is calculated taking into account protection. Thus average tariffs imposed by the EU and the EU subsidies enter the formula.

They have also added variables to the specification regarding to Turkey's main competitors China, Brazil and Poland. These variables are the real effective exchange rates of these competitors and difference in transport costs between them and Turkey. Finally they have partially adjusted these two specifications by including a lagged dependent variable. In the empirical analysis Seemingly Unrelated Regression technique is mainly applied to control the correlation between cross-sections. In the partially adjusted models the Generalized Method of Moments is used. In some cases Pooled Least Squares is applied due to the insufficient number of observations of to the lack of acceptable instruments. When the regression is ran for the sectors already participating in the Customs Union in 1996, a step dummy is plugged in to the specification to capture the possible upward shift in exports. This dummy is left out in cases where it is proved to be insignificant.

After the regression analysis Lehmann et al. ran simulations based on 1988-1995 data in sectors that became a part of the Customs Union in 1996 to derive the effects of a Customs Union on pre-Customs Union coefficients. On the other hand if the sectors were not yet integrated into Customs Union by 2002 then simulations are done according to the 1988-2002 data. They assumed that a change in tariffs has the same effect on exports as a change in subsides due to the construction of the real effective exchange rate variable. The coefficients used in simulating agricultural exports are based on fixed effects model. For the simulations concerning with industrial products, a common intercept is used. All simulations are based on the multiple-regression equations derived from the models used. They also tried to examine the impact of a change in protection by means of standardized real effective exchange rate coefficients thus they added these variables to the simulations for comprehensible results.

They concluded that an improvement in Turkish price competitiveness leaded to an improvement of exports in almost all sectors. Transport costs and differences in transport costs between trade competitors significantly influence exports in all sectors except cotton, iron and steal, machinery and the like. According to their simulations,

strengthening and expanding of the Customs Union to those products and sectors excluded would lead to a noticeable increase in export levels.

2.1.3 Review of Recent Empirical Studies on Turkey with Customs Union

Neyaptı et al. (2003) modeled imports and exports for the Turkish economy using a panel data analysis. Their analysis involves an unbalanced panel data set with more than 150 countries for the period between 1980 and 2001. Their rationale behind examining Turkey's trade with the EU countries along with other countries is to refrain from biases that could possibly rise from global trends. They use three different specifications for both imports and exports. In the first specifications they use Turkey's GDP and real exchange rates for exports and GDP of the trading partners and again real exchange rate for imports. In the second specifications they insert an interactive dummy of Customs Union and EU countries. In the final specifications they insert multiplications of the dummies with the first two main variables. Since their data set is panel, they performed Haussman specification test to determine whether to use fixed or random effects. With respect to its results, they have chosen to use fixed effects for five of the specifications and random effects model for the basic import specification.

Their estimations suggest that the value of the currency measured by the real exchange rate is negatively related with the exports and vice-versa for imports. They also confirmed that Turkish GDP is positively related with imports and trading partners' GDP with Turkish exports. With regard to real exchange rates, they argue that although its effect has been strong in the Customs Union period, it was not the case for earlier periods. The opposite is claimed for imports. They conclude that the Customs Union agreement has contributed to the increasing volumes of bilateral trade between Turkey and the EU.

Erzan and Filiztekin (1997) examined whether the effect of the Customs Union on small and medium scale enterprises be more severe compared to large scale ones. They used an error component panel data model. They regressed the growth rate of value added or productivity of size "n" in industry "i" at time "t" on a dummy variable for each size at each time common for all industries and on a dummy variable for each

industry at each time common to all sizes. They find that in both of the variations in the value added and productivity growth of the manufacturing sector, size of the enterprise matters. However the characteristics of the industry mainly explain the variations in both value added and productivity growth compared to the size of the industry. To examine the effect of Customs Union on the economic environment, they employed fixed effect models for level of protection, change of wage levels, exchange rate volatility, credit availability and similar variables. The results for the change in economic environment had significant effects on value added growth of small firms. On the other hand these variables had no significant effect on large firms with the exception of credit availability.

Mercenier and Yeldan (1997) used a general equilibrium model to analyze the effects of two different trade unions. The first one is the entrance to the Customs Union while the second one is to the European Single Market. They assumed imperfect competition and increasing returns to scale and their model includes seven partners, four of the major European Countries, Turkey and rest of the world. Each partner has nine sectors which four of them are perfectly competitive and the other five is non-competitive. They have incorporated the Customs Union with the model by setting most tariffs on European imports to zero while harmonizing most of the tariff rates on the imports from rest with the rates of the EU. On the other hand to capture the effect of Turkey's entrance to the Single Market, they also presumed that both firms in Turkey and Europe switch to a single pricing strategy rather than price discrimination. They argue that although Turkey will face a welfare cost with the implementation of the Customs Union, Turkey will obtain welfare gains by an entry to the Single Market according to their general equilibrium results.

De Santis (1998) also applied a general equilibrium model to examine the economic implications of the Customs Union with Turkey with respect to the impact on employment and the distribution of income. He used a multi; sector, household and labor model with constant elasticity of substitution production functions. For the import demands he assumed Armington specification. On the other hand he assumed Cobb-Douglas preferences for consumer utilities. Finally he assumed perfect competition and

constant returns to scale. De Santis based his analysis with respect to labor market on an input output table of 1990 with three different alternative labor market structures. These are full employment & flexible real wages, unemployment & flexible real wages and unemployment & fixed real wages. He suggests that the sectors Turkey has a comparative advantage will expand like textiles and leather despite the loss of protection. He also argues that due to the Customs Union, resources will be re-allocated in favor of manufacturing industries. He claims that indirect taxes or value added tax must increase by 41.7-46.7 % and 21.3-22% respectively for the budget deficit to remain constant. The impact of the Customs Union on welfare and income inequality is ambiguous depending on the alternative structure of the labor market. The inequality in income declines in the first and the third structures while increases in the second. From the welfare aspect, the model results in gains for the first and the third structures while for the second, welfare loss occurs.

Harrison et al. (1996) employed a simulation analysis to capture the effects of the Customs Union on Turkish economy. Their model is consists of goods that are produced using primary factors, including eight types of labor and five types of capital, and intermediate inputs. For the short-run, factors are sector specific, liberalization generates smaller welfare gains caused by sector specification and production structure is rigid. They assumed that production exhibits constant returns to scale and the market has a competitive structure. Outputs are classified between their destination as exports (for the EU and rest of the world) and imports. The relationship between EU and rest of the world is characterized by two-level constant elasticity of transformation frontier. The composite output is an aggregate of domestic output and composite exports. CES utility functions are assumed for the demand of private households. At the first stage of multistage budgeting, goods compete to the budget constraint of the consumer where all income elasticities are at unity. At the second stage the consumer decides on domestic or imported goods in each sector subject to the allocated income in the first stage. In the final stage the consumer allocates its expenditure on EU and rest of the world imports.

They presumed that tariff rates differ depending on the import origin. Government expenditures and investment demand are exogenous while government

funding is done by tax, tariff and indirect tax (value added tax) revenues. In addition to these the model also inherits a special tax levied on the consumption of specified goods. They argue that since the private consumption equals the income from primary factors plus net transfers, Walras law is satisfied. They fixed the world import and export prices although they can change so there are no endogenous changes in terms of trade. Import supply and export demand elasticities are infinitely elastic at the given world prices. Finally they assumed that the current account balances the value of the exports and imports taking the exogenously-fixed capital inflows into account. The key tax instruments they used are import tariffs and the value added tax. On the other hand the key subsidy instruments used are export subsidies and production subsidies. And all these are represented as a fixed ad valorem tax.

For calibration, elasticity estimations are assembled for primary factor substitution, import demand, import source and domestic demand. Since elasticity estimates are subject to a margin of error, systematic analysis is undertaken with respect to plausible bounds on these elasticities. Monte Carlo Simulations in which a wide range of elasticities are independently and simultaneously perturbed from their benchmark values are ran. Their estimates of the gains of Turkey are between 1-1.5 percent of its GDP per year depending on the complementary policies. The first important challenge they argue is the revenue replacement challenge. Turkey will lose tariff revenue equal to 1.4% of GDP. If value added tax is used as a replacement tax it will have to increase by 16.2% in each sector. However because of the tax evasion problems it will generate little revenue. Subsidy reductions will serve the dual purpose of increasing efficiency but would also reduce the revenue needs of the state thus reduce the indirect distortions imposed by subsidies. A second challenge they discuss is how Turkey will use the available trade and tax policies so that unintended distortions are not introduced. One possible sector for these distortions to occur is the highly protected agriculture sector unless unilateral action is taken. Similarly these distortions can occur due to the extensive use of export subsidies unless reductions in them are applied. In that case the value added tax has to increase only by 9.1%. For Harris et al. the development of a stable macroeconomic environment that will encourage foreign direct investment is another issue for Turkey. Also they argue that as a fourth challenge,

policies that will increase the competitive power of the Turkish industries must be applied.

They argue that, reduction of state subsidies and role of the state in production is the main solution for all these issues and challenges. The need to compensate for the revenue loss due to the tariff reductions, given limitations of the other taxes, suggests the necessity of reducing state subsidies. To encourage foreign direct investment, reduction in state aids will benefit in that; first since it will reduce the fiscal deficit, rate of inflation will drop and second foreign investors will be introduced to a more competitive environment. Finally an increasingly competitive industrial structure brought by the CU will further expose the inefficient state owned enterprises.

2.2 Empirical Analysis

2.2.1 Model Specification

In this study two different specifications of the gravity model will be applied for the empirical analysis of the Turkish foreign trade with EU-15 countries in respect to the Customs Union Agreement that has been signed between the sides in 1996. The first specification to be employed is the general gravity model that has been used as a base model for the augmented versions while the second specification uses augmented explanatory variables. The models will be used to analyze import and export flows separately. Although the gravity model has been originally formulated in multiplicative form, a specification in log-linear terms allows interpreting coefficients as elasticities.

2.2.1.1 Basic Model

In the general gravity model according to Linneman (1966), Anderson (1979) and Bergstrand (1985), bilateral trade flows between countries i and j is ordinarily specified as;

(1) $$T_{ij} = \beta_o Y_i^{\beta_1} Y_j^{\beta_2} N_i^{\beta_3} N_j^{\beta_4} D_{ij}^{\beta_5} A_{ij}^{\beta_6} u_{ij}$$

where T_{ij} is the bilateral trade flows from country i to country j; Y_i and Y_j are incomes in countries i and j; N_i and N_j are populations in countries i and j; D_{ij} is the distance between countries i and j ; A_{ij} represents any other factor aiding or preventing the bilateral trade between countries i and j; and u_{ij} is the lognormally distributed error term with $E(\ln u_{ij}) = 0$. An alternative formulation of model (1) uses per capita income instead of population,

(2) $$T_{ij} = \gamma_o Y_i^{\gamma_1} Y_j^{\gamma_2} YH_i^{\gamma_3} YH_j^{\gamma_4} D_{ij}^{\gamma_5} A_{ij}^{\gamma_6} u_{ij}$$

where YH_i and YH_j are the income per capita in countries i and j. Model (1) and model (2) are equivalent and the coefficients are expressed as; $\beta_3 = -\gamma_3; \beta_4 = -\gamma_4; \beta_1 = \gamma_1 + \gamma_3; \beta_2 = \gamma_2 + \gamma_4$

The second specification is usually chosen when the gravity model is applied to estimate bilateral trade flows for specific products, whereas the specification given in model (1) is often used to estimate aggregate bilateral flows.

Since aggregate flows are used, for estimation purposes model (1) in log-linear form is taken. Hence the gravity model becomes;

(3) $$lT_{ij} = \beta_0 + \beta_1 lY_i + \beta_2 lY_j + \beta_3 lN_i + \beta_4 lN_j + \beta_5 lD_{ij} + \sum_h \delta_h P_{ijh} + u_{ij}$$

where *l* denotes variables in natural logs. P_{ijh} is a sum of preferential trade dummy variables that takes the value one when a certain condition is satisfied (e.g. belonging to a trade bloc) and zero otherwise.

As mentioned before since the model will be used to analyze the import and export flows separately between EU-15 members and Turkey with only the Customs Union as a preferential trade agreement, the following two specifications will be used in line with model (3);

(4) $$lM_{it} = \beta_0 + \beta_1 lY_i + \beta_2 lY_t + \beta_3 lN_i + \beta_4 lN_t + \beta_5 lD_{it} + \beta_6 C_{it} + u_{it}$$

(5) $$lX_{it} = \beta_0 + \beta_1 lY_i + \beta_2 lY_t + \beta_3 lN_i + \beta_4 lN_t + \beta_5 lD_{it} + \beta_6 C_{it} + u_{it}$$

where t replaces j representing Turkey, M_{it}, X_{it} stands for the volume of imports and exports between the partner country i and Turkey respectively and C_{it} stands for the customs union dummy that takes the value zero for years before 1996 and takes the value one after 1996.

When model (4) is considered, where Turkey is the importer country, it is expected for the coefficient of Y_i to be positive since a high level of income in the exporting partners indicates a high level of production which increases the availability of goods for exports. Also a high level of income in the importing country, Turkey, suggests higher imports. Hence the coefficient of Y_t is also expected to be positive. The coefficient estimate for population of the exporting partners, β_3, may have a negative or a positive sign depending on whether the absorption effect or economies of scale is dominant or not. A larger population may indicate a large domestic market and large resource endowment, thus bigger absorption effect of this domestic market causes less reliance on international trade transactions. However a large domestic market also allows the advantages of economies of scale to be fully exploited. Thus the opportunities for trade with foreign partners increase. The coefficient of the importing country's population, Turkey, also has an ambiguous sign for similar reasons. The distance coefficient is expected to be negative since it is a proxy of trading costs.

For model (5) , where Turkey is the exporter country, it is expected for the coefficient of Y_i to be positive since a high level of income in the importing country suggests higher imports. Also a high level of income in the exporting country, Turkey, indicates a high level of production which increases the availability of goods for exports. Hence coefficient of Y_t is also expected to be positive. The coefficients of the importing partners and exporter country's, Turkey, populations have an ambiguous sign

for the same reasons explained for model (4). The distance coefficient is expected to be negative since it is a proxy for trading costs.

2.2.1.2 Augmented Model

The second specification that will be used is an augmented version of the original model using the same explanatory variables but in augmented versions. It is a suggested formulation of Di Mauro (2000 as cited in Antonucci and Manzocchi, 2004). According to this bilateral flows between countries i and j is specified as;

(6)
$$lT_{ij} = \beta_0 + \beta_1 SUMGDP_{ij} + \beta_2 SIMSIZE_{ij} + \beta_3 RELENDOW_{ij} + \beta_4 AGR_{ij} + \beta_5 EU_{ij} + \beta_6 DIST_{ij} + \varepsilon_{ij}$$

where l represents the natural log; T_{ij} represents the bilateral trade flow between countries i and j; ε_{ij} is the normally distributed error term with zero mean and constant variance; and the explanatory variables have the following definitions;

- $SUMGDP_{ij}$ represents the size of the economy of both the trading countries and is computed as follows;

$$SUMGDP_{ij} = \ln(GDP_i + GDP_j)$$

- $SIMSIZE_{ij}$ represents a measure of size similarity. It takes the values in the range of $-\infty$ (perfect dissimilarity) and -0.69 (perfect similarity) and is computed as follows;

$$SIMSIZE_{ij} = \ln\left[1 - \left(\frac{GDP_i}{GDP_i + GDP_j}\right)^2 - \left(\frac{GDP_j}{GDP_i + GDP_j}\right)^2\right]$$

- $RELENDOW_{ij}$ represents the difference in relative factor endowments. The proxy employed is the difference in per capita GDP and is aimed at capturing a possible Linder effect. (Arnon, Spivak and Weiblatt, 1996). It is computed as follows;

$$RELENDOW_{ij} = \left(\ln \frac{GDP_i}{POP_i} - \ln \frac{GDP_j}{POP_j} \right)$$

- AGR_{ij} is a trade agreement dummy that takes the value one when an agreement between country i and j exist and takes the value zero if not.

- EU_{ij} is the dummy for European Union.

- $DIST_{ij}$ is the distance between countries i and j

As mentioned before since the model will be used to analyze the import and export flows separately between EU-15 members and Turkey with only the Customs Union as a preferential trade agreement, the following two specifications will be used in line with model (6);

(7) $$lM_{it} = \beta_0 + \beta_1 SUMGDP_{it} + \beta_2 SIMSIZE_{it} + \beta_3 RELENDOW_{it} + \beta_4 CUS_{it} + \beta_5 DIST_{it} + \varepsilon_{it}$$

(8) $$lX_{it} = \beta_0 + \beta_1 SUMGDP_{it} + \beta_2 SIMSIZE_{it} + \beta_3 RELENDOW_{it} + \beta_4 CUS_{it} + \beta_5 DIST_{it} + \varepsilon_{it}$$

where t replaces j representing Turkey, M_{it}, X_{it} stands for the volume of imports and exports between the partner country i and Turkey respectively and CUS_{it} stands for the customs union dummy which takes the value zero for years before 1996 and takes the value one for years after 1996.

For both models (7) and (8), the coefficient of $SUMGDP_{ij}$ is expected to be positive. On the other hand the coefficient of $SIMSIZE_{ij}$ have an ambiguous sign. Countries similar in size could trade more if the nature of their exchanges is of an intra-industry one according to the theory of increasing returns to scale. On the other hand if their exchanges are of an inter-industry nature, the coefficient may be negative. (Helpman and Krugman, 1985 as cited in Antonucci and Manzocchi, 2004) $RELENDOW_{ij}$'s coefficient again may have a negative or a positive sign depending on the nature of the partners' exchanges. A positive coefficient would suggest an inter-industry trade structure while a negative coefficient would suggest intra-industry trade structure. Coefficient of $DIST_{ij}$ is expected to be negative since it is a proxy for the trading costs.

2.2.2 Regression Analysis

The empirical analysis considers the sample of 14 of the EU-15 countries (Belgium and Luxemburg data are aggregated) with Turkey. The time period under study goes from 1980 to 2004. Therefore the analysis consists of a balanced panel data of 14 cross-sections and 350 pool observations. Both trade and gdp data are in US dollars. The source of the gdp data is Unstat. Import and export data of Turkey with the EU-15 is from Tuik and are aggregate. Population data is retrieved from total economy data set prepared by Groningen Growth and Development Centre. Distance data is taken from Centre D'Etudes Prospectives et D'Informations Internationales. Eviews 5.1 is used for econometric analysis.

Although gravity models generally use cross-section data to estimate trade effects for a particular time or period such as one year or over averaged data, panel data is used in this analysis to capture relevant relationships over time while avoiding the risk of choosing an unrepresentative year. As argued by Cheng et al. cross section analysis of gravity models suffer from estimation bias due to omitted or misspecified variables. On the other hand panel analysis allows the monitoring of unobservable individual effects between trading partners. This feature of the panel analysis is

important because, the proper economic specification of gravity equation should control for the heterogeneous trading relations such that the time series dimension of the EU-Turkey relations are isolated and hence cross sectional variation is left out. (Antonucci and Manzocchi, 2004) Due to this, individual effects will be estimated. Hence the notation of the intercept β_0 in models (4) , (5) , (7) and (8) will change to β_i indicating the individual effects.

However one has to choose between fixed effects model (FEM) and random effects model (REM) to determine which individual effects model is to be used. REM is appropriate when the model is used to estimate typical trade flows between a randomly drawn samples of trading partners from a larger pool. On the other hand FEM is much more suitable when the estimated model considers typical trade flows between ex-ante predetermined selections of countries. (Egger, 1999) Also fixed country dummies such as distance, contiguity and language dummies should be eliminated since they are fixed over time even though they are not collinear with the country specific effects. Non elimination of these dummies will result in singularity.

As mentioned before the models will be applied to the sample of 14 EU countries and Turkey. Hence a choice of FEM would be appropriate for the analysis. However a formal selection must be performed between these two alternative specifications. The first method is done by testing the joint significance of the fixed effects estimates in least squares specifications. The second method is performed using Hausman specification test. The two models will be examined separately in the following section.

2.2.2.1 Basic Model

Before continuing the analysis of the first specification, the type of individual effects must be formally decided for both models (4) and (5). Both of the specification tests are performed in this context for each model.

In order to perform redundant fixed effects test, the distance variable in both models must be eliminated to avoid singularity. Hence the partially adjusted models will become;

(4`) $$lM_{it} = \beta_i + \beta_1 lY_i + \beta_2 lY_t + \beta_3 lN_i + \beta_4 lN_t + \beta_5 C_{it} + u_{it}$$

(5`) $$lX_{it} = \beta_i + \beta_1 lY_i + \beta_2 lY_t + \beta_3 lN_i + \beta_4 lN_t + \beta_5 C_{it} + u_{it}$$

To test the significance of fixed effects, the unrestricted specifications that include the fixed effects must be estimated. Following the estimation procedure the models have been tested for redundant fixed effects. Looking at the results of the probabilities in table 2.1, the statistical values and the associated p-values strongly reject the null hypothesis that the effects are redundant for both models. Thus choosing FEM for both models is not inappropriate. However to cross-check the results Hausman specification test is performed.

Table 2.1 Redundant Fixed Effects Tests

Test of cross-section fixed effects			
Pool: Model (4`)			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	33.988843	-13,331	0
Cross-section Chi-square	296.790558	13	0
Pool: Model (5`)			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	71.902833	-13,331	0
Cross-section Chi-square	469.451964	13	0

A central assumption in random effects estimation is that the random effects are uncorrelated with the explanatory variables. To test this assumption Hausman specification test is applied to compare the fixed and random effects estimates of coefficients. To perform the Hausman test, the models (4) (5)[4] are estimated with

[4] Due to random effects specification, the original models with distance variables are used.

random effects specification. Following the estimation procedure, the models have been tested for REM. Looking at the results of the probabilities in table 2.2, the statistical values and the associated p-values fail to reject the null hypothesis of misspecification for model (5). Hence according to Hausman test there is not enough statistical evidence found against the REM for model (5) while for model (4) null hypothesis of no misspecification for REM is rejected.

Table 2.2 Correlated Random Effects - Hausman Test

Test of cross-section random effects			
Pool: Model (4)			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.269763	5	0.0988
Pool: Model (5)			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.027423	5	1

According to the redundant fixed effects test and the hausman test, FEM fits better with the model for imports. However with both tests' results, it is ambiguous to reach a common conclusion to choose either FEM or REM. Recent empirical analysis of Cheng and Wall (2005)., Matyas (1997), Egger (1999), Antonucci and Manzocchi (2004).; show that FEM usually fits better to panel data sets, due to its capability of resolving unobserved heterogeneity thus giving consistent results. Also due to the particularity of the chosen data sample in this analysis, even if in the case of strict necessity of REM, it would violate the fundamental precondition of the REM, which is that the data set is to be randomly chosen from a larger pool. Hence FEM will be used for both models. In this context, the intercept term represent country-specific individual effects, while the slope coefficients are assumed to be the same for the whole sample of countries. Autocorrelation of residuals are detected for both models and are corrected by introducing an autoregressive error component of degree one.

The next step of the empirical investigation is the separate estimation of import and export equations (4`) and (5`) with fixed effects. However in order to correctly

specify the method of estimation a comparison between two different estimation methods will be done. The first method is the simple Pooled Least Squares using White cross section coefficient covariance matrix. The second method is the estimation of the models through Pooled Estimated Generalized Least Squares procedure with cross-section SUR weights to estimate a feasible GLS specification correcting for both cross-section heteroskedasticity and contemporaneous correlation.

Table 2.3 Comparison of the Estimation Methods

	Import Model (4`)		Export Model (5`)	
	Pooled LS	Pooled EGLS	Pooled LS	Pooled EGLS
R-Squared	*0.976819*	*0.996047*	*0.981121*	*0.997648*
F-statistic	*700.8277*	*4190.506*	*864.3256*	*7053.528*
Akaike info criterion	*0.224389*	*-1.19974*	*-0.0129*	*-1.27035*
Schwarz criterion	*0.451598*	*-0.97253*	*0.21431*	*-1.04314*

In table 2.3, a comparison of the two estimation methods is revealed with regard to estimation statistics. EGLS estimation presents better statistics in all aspects and hence is chosen.

Table 2.4 Panel Regression Results for Import Flows

Pool: Model (4`)
Dependent Variable: M (Imports of Turkey)
Method: Pooled EGLS (Cross-section SUR) with fixed effects
Adjusted Sample: 1981 2004
Cross-sections Included: 14
Total Pool (balanced) Observations: 336

Variable	Coefficient	t-Statistic	Probability
C	-6.471438	-1.65989	0.0979
Y (Partner Countries)	0.193326	5.808858	0
Y (Turkey)	1.028327	29.26041	0
N (Partner Countries)	1.6074	2.958101	0.0033
N (Turkey)	-1.905552	-8.547243	0
CUS	0.46513	18.98616	0
AR(1)	0.48313	16.17203	0

R-squared	*0.996047*
Adjusted R-squared	*0.995809*
F-statistic	*4190.506*
Probability of F-statistic	*0*
Durbin-Watson stat	*1.905845*

As indicated by the estimation results in table 2.4, import equation fit the data remarkably well, suggesting a high explicative power. All coefficients are statistically significant. Income elasticities for the partner countries and for Turkey have the expected sign although the effect of Turkey's GDP is noticeably higher than its partners' GDP which is a reasonable result since the model considers Turkey's imports from the EU-15 members. Exporter population has a large and positive effect indicating that Turkey's trading partners benefit economies of scale and Turkey exports form larger countries more than small ones. On the other hand Turkey's population has a large and negative effect suggesting that absorption effect prevails for Turkey's population on Turkish imports. Customs union with the EU has a positive and significant effect on Turkey's import trade flow with the EU-15.

Table 2.5 Panel Regression Results for Export Flows

Pool: Model (5`)
Dependent Variable: X (Exports of Turkey)
Method: Pooled EGLS (Cross-section SUR) with fixed effects
Adjusted Sample: 1981 2004
Cross-sections Included: 14
Total Pool (balanced) Observations: 336

Variable	Coefficient	t-Statistic	Probability
C	-72.98703	-15.71522	0
Y (Partner Countries)	0.458428	8.619229	0
Y (Turkey)	0.310802	6.904807	0
N (Partner Countries)	3.627572	6.226479	0
N (Turkey)	3.392832	11.97287	0
CUS	-0.038293	-1.290196	0.1979
AR(1)	0.406604	14.05356	0

R-squared	*0.997648*
Adjusted R-squared	*0.997506*
F-statistic	*7053.528*
Probability of F-statistic	*0*
Durbin-Watson statistic	*1.902701*

As indicated by the estimation results in table 2.5, export equation also fits the data remarkably well, suggesting a high explicative power. All coefficients are statistically significant with the exception of Customs Union dummy. Income elasticities for the partner countries and for Turkey have the expected sign and their effect on Turkey's exports is similar. Also both partner countries' and Turkey's populations have a large and positive effect suggesting that economies of scale prevail for both sides. Customs Union although statistically insignificant has a negative effect on Turkey's exports from the EU-15.

2.2.2.2 Augmented Model

Before continuing the analysis of the second specification, the type of individual effects must be formally decided for both models (7) and (8). Both of the specification tests are performed in this context for each model.

In order to perform redundant fixed effects test, the distance variable in both models must be eliminated to avoid singularity. Hence the partially adjusted models will become;

$$\textbf{(7`)} \quad lM_{it} = \beta_i + \beta_1 SUMGDP_{it} + \beta_2 SIMSIZE_{it} + \beta_3 RELENDOW_{it} + \beta_4 CUS_{it} + \varepsilon_{it}$$

$$\textbf{(8`)} \quad lX_{it} = \beta_i + \beta_1 SUMGDP_{it} + \beta_2 SIMSIZE_{it} + \beta_3 RELENDOW_{it} + \beta_4 CUS_{it} + \varepsilon_{it}$$

To test the significance of fixed effects, the unrestricted specifications that include the fixed effects must be estimated. Following the estimation procedure the models have been tested for redundant fixed effects. Looking at the results of the probabilities in table 2.6, the statistical values and the associated p-values strongly reject the null hypothesis that the effects are redundant for both models. Thus choosing FEM for both models is not inappropriate. However to cross-check the results Hausman specification test is performed.

Table 2.6 Redundant Fixed Effects Tests

Test of cross-section fixed effects			
Pool: Model (7`)			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	41.256031	-13,332	0
Cross-section Chi-square	336.502257	13	0
Pool: Model (8`)			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	66.732134	-13,332	0
Cross-section Chi-square	449.588968	13	0

As mentioned before of the central assumptions in random effects estimation is that the random effects are uncorrelated with the explanatory variables. To test this assumption Hausman specification test is applied to compare the fixed and random effects estimates of coefficients. To perform the Hausman test, the models (7) (8)[5] are estimated with random effects specification. Following the estimation procedure, the models have been tested for REM. Looking at the results in table 2.7, the statistical values and the associated p-values reject the null hypothesis of no misspecification for both models. Thus Hausman test suggests that REM is not appropriate for both models.

Table 2.7 Correlated Random Effects - Hausman Test

Test of cross-section random effects			
Pool: Model (7)			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	37.49905	4	0
Pool: Model (8)			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.616988	4	0.1576

According to the redundant fixed effects test and the Hausman test, FEM fits better with both models for imports and exports and hence individual effects are estimated with FEM. In this context, the intercept term represent country-specific individual effects, while the slope coefficients are assumed to be the same for the whole sample of countries. Autocorrelation of residuals are again detected in both models and are corrected by introducing an autoregressive error component of degree one.

Thus models (7`) and (8`) are separately estimated with fixed effects. Again similar to the procedure in subsection 2.2.2.1 a comparison between two separate estimation methods will be done to correctly specify the method of estimation. The first method is the simple Pooled Least Squares using White cross section coefficient covariance matrix. The second method is the estimation of the models through Pooled

[5] Due to random effects specification, the original models with distance variables are used.

Estimated Generalized Least Squares procedure with cross-section SUR weights to estimate a feasible GLS specification correcting for both cross-section heteroskedasticity and contemporaneous correlation.

Table 2.8 Comparison of the Estimation Methods

	Import Model (7`)		Export Model (8`)	
	Pooled LS	Pooled EGLS	Pooled LS	Pooled EGLS
R-Squared	*0.974977*	*0.995519*	*0.979461*	*0.997286*
F-statistic	*686.1985*	*3912.445*	*839.8246*	*6472.413*
Akaike info criterion	*0.294871*	*-1.189606*	*0.065438*	*-1.20496*
Schwarz criterion	*0.51072*	*-0.973758*	*0.281287*	*-0.98911*

In table 2.8, the comparison of the two different estimation methods is revealed with regard to estimation statistics. EGLS estimation presents better statistics in all aspects and hence is chosen.

Table 2.9 Panel Regression Results for Import Flows

Pool: Model (7`)
Dependent Variable: M (Imports of Turkey)
Method: Pooled EGLS (Cross-section SUR) with fixed effects
Adjusted Sample: 1981 2004
Cross-sections Included: 14
Total Pool (balanced) Observations: 336

Variable	Coefficient	t-Statistic	Probability
C	-9.885686	-15.20639	0
SUMGDP	1.150539	45.77474	0
SIMSIZE	0.766641	8.043259	0
RELENDOW	-0.283513	-4.218494	0
CUS	0.385051	17.68998	0
AR(1)	0.471235	15.83554	0

R-squared	*0.995519*
Adjusted R-squared	*0.995264*
F-statistic	*3912.445*
Probability of F-statistic	*0*
Durbin-Watson stat	*1.916857*

According to the estimation results in table 2.9, the import model fits the data very well with a high explicative power. All the coefficients are statistically significant. When the sum of the GDP's are considered, the coefficient has the expected sign. This implies that Turkey tends to trade more with larger economies. On the other hand the positive effect of size similarity on Turkey's imports suggests that Turkey's import structure with EU is of an intra-industry nature. This result is also partially supported by the negative relationship between import volumes and the difference in relative factor endowments. The Customs Union has a positive and noticeable effect on Turkey's import flows from the EU.

Table 2.10 Panel Regression Results for Export Flows

Pool: Model (8`)
Dependent Variable: X (Exports of Turkey)
Method: Pooled EGLS (Cross-section SUR) with fixed effects
Adjusted Sample: 1981 2004
Cross-sections Included: 14
Total Pool (balanced) Observations: 336

Variable	Coefficient	t-Statistic	Probability
C	-15.43326	-11.96977	0
SUMGDP	1.294278	25.37715	0
SIMSIZE	0.51324	8.679505	0
RELENDOW	0.291132	4.111193	0.0001
CUS	0.055194	1.251022	0.2118
AR(1)	0.366839	13.93435	0

R-squared	*0.997286*
Adjusted R-squared	*0.997132*
F-statistic	*6472.413*
Probability of F-statistic	*0*
Durbin-Watson stat	*1.882215*

According to the estimation results in table 2.10, the export model also fits the data very well with a high explicative power. All the coefficients are statistically significant with the exception of Customs Union Dummy. When the sum of Turkey's and its partners' economic masses are considered, the coefficient has the expected sign. This implies that Turkey tends to trade more with larger economies. On the other hand the positive effect of size similarity on Turkey's exports suggests that Turkey's export

structure with EU-15 is of an intra-industry nature. However the negative relationship between export volumes and the difference in relative factor endowments suggest that Turkey's export flows from the EU-15 is of an inter-industry nature concerning factor endowments. Customs Union has a positive but extremely small and statistically insignificant effect on Turkey's exports to the EU-15.

2.2.3 Estimation Results

The analysis presented in section 2.2.2 is an application of the gravity model to Turkey's trade flows with the EU-15 members over the period of 1980-2004. The analysis aims to model the Turkish trade flows and capture the possible effect of the Customs Union Agreement on the trade flows using two different specifications.

The rationale behind the application of two different specifications is twofold. First to correctly specify the model and secondly to find, how the effects of Customs Union justifies itself in different specifications. Although two different specifications have been used, both the import and export data fitted both specifications remarkably well. The first specification is the classical gravity model which explains the trade flows with Turkey's and its partners' income and populations. The second specification is an augmented version of the classical model which tries to capture the nature of the trade relations from Turkey's and its trading partners' similarity in size and similarity in relative factor endowments in addition to the effect of Turkey's and its partners' economic size.

For the import models, both specifications justify the expected outcomes of the gravity theory. As for the Customs Union, it is found to have a statistically significant positive effect on Turkish imports from the EU-15 member states. First specification's estimates suggest that Customs Union had a statistically significant effect of 59.22 percent $\left(e^{0.46513}-1\right)$. As for the second specification it is found that Customs Union had a statistically significant effect of 46.97 percent $\left(e^{0.385051}-1\right)$. On the other hand although the specifications justify the expected outcomes of the gravity theory for exports, both

of the specifications estimated statistically insignificant Customs Union for both export models.

Hence suggested by the regression results it can be concluded that Turkish bilateral trade flows with the EU-15 member states fit within the theoretical specifications of the gravity theory. Thus the first aim of the analysis has been satisfied. On the other hand Customs Union does only affect Turkey's import flows from the EU - 15 while it is found to be statistically insignificant for Turkey's export flows to the EU-15.

CONCLUSION

Economic integration in international economics has wide-ranging effects both on included and excluded countries and the case of Turkey's relations with the EU is not different in this respect. Turkey as a candidate for EU membership has taken many steps in its integration endeavors. However the most important development in Turkey-EU relations is the establishment of the Customs Union between the two sides. The effects of the Customs Union on Turkish economy, for the ten year period following its completion, have been argued substantively from Turkey's relations with the EU. However for a salutary assessment one has to explicate Customs Union's role in Turkey-EU relations and how it affected Turkey's EU candidacy.

The establishment of the Turkey-EU Customs Union brought about different policy components. These include traditional integration measures such as the elimination of all customs duties as well as deep integration measures such as policies dealing with competition policy and intellectual property rights. Another aspect of the Customs Union is that, it has been configured within the frame of rules imposed by the WTO to international trade. Thus Turkey by obliging to the requirements proposed by the Customs Union agreement has also fulfilled its requirements imposed by the WTO. Hence it can be concluded that Customs Union with the EU has accelerated Turkey's process for harmonizing its statute and standards with international standards which are mandatory for the global economy in which trade is rapidly liberalized. With the Customs Union Turkey has succeeded in both integrating with the international markets and with one of the most important economic blocs of today's world.

Although the trade balance of Turkey turned in favor for the EU after the completion of the Customs Union in 1996, to fully understand Turkey's conjuncture in this respect, the progress of Customs Union must be investigated thoroughly. First of all, Turkey gained free movement in the EU for its industrial products with the additional protocol in 1973 while it had a significant amount of time to lower its customs barriers to the European products. Thus EU became and was the best trading partner of Turkey long before the establishment of the Customs Union. Another particularity that should be taken into account is the major changes in both the world

and Turkey's conjuncture such as 94 and Asian crisis'. Finally it should not be forgotten that for Turkey to fully benefit a Customs Union with the EU, it must fully harmonize its statute with EU's technical statute.

However there are some serious drawbacks of the Customs Union agreement and its process. First of all, although it enables contingent protections and safeguards, there is no specific time table for their elimination. Also a debate exists on the application of anti-damping measures since they are used mainly to protect domestic monopolies instead of avoiding foreign predatory practices. The situation is similar for safeguards. Although the additional protocol explains the usage of protection and safeguards its not explicit. That is, the authority may claim protective measures with rent-seeking interests rather than competitive interests.

Another issue is the technical barriers to trade. These include standards and technical regulations that countries impose to protect domestic industries from international competition. With the establishment of the Customs Union, Turkey harmonized its statute with EU directives and adapted a new legal framework. However Turkey still lacks efficient application due to several reasons. First of all, Turkey's institutions to this regard have limited capacity and infrastructure. Secondly there is a lack of assurance for products' congruency with EU's technical directives. Due to this, Turkish institutions are forced to perform additional inspections which results in inefficiency. Thus the authorities must force and improve the implementation of existing standards while improving capacity and infrastructure of these institutions.

The Customs Union also obliged Turkey to apply a competition policy similar to that of the EU. Competition policy aims to harmonize undertakings such that internal market operates without violating competition. The same policy also stipulates the abolishment of public aids that will distort competition. Although Turkey's progress is affirmative it is not sufficient. Turkey still needs to adopt legislation on de minimis and horizontal agreements. Also Turkey has still not completed alignment with the Community's state aid policy and still lacks an autonomous body to supervise and control state aids. However European Competition policy has some serious drawbacks. First of all, this policy act on a supranational level since its mere aim is to support the

objective of market integration. On the other hand Turkey's adaptation of the competition policy should be hypothetically at a national level since Turkey is not in the Single Market. Another issue is that Turkey has a meager institutional capacity compared to EU member states and there is a criticism that EU competition policy is not appropriate for Turkey. Thus the Turkish Competition Authority must consider and apply competition laws with respect to Turkey's stance.

With regard to the adaptation and harmonization of legislation on Intellectual Property Rights, Turkey made considerable progress. However Turkey still remains on the priority watch list and its legislation and practices on IPRs are in scrutiny. In spite of Turkey's increasing raids against criminal acts, Turkey still lacks sufficient application of IPRs. Also Turkish judiciary system related to IPRs is not efficient due to lack of sufficient specialized courts and trained judges.

When the effects of the CU on Turkey's trade flows are considered several important conclusions are drawn. First, it is shown that the creation of the Customs Union has not been at the expense of trade with the rest of the world since the export and import share of the EU remained roughly constant while the overall bilateral trade volume increased which can be regarded as welfare gains for Turkey. On the other hand it is also seen that the increase in imports have been fairly larger than the increases in exports with the completion of the Customs Union. Yet it cannot be directly concluded that the Customs Union has been responsible for the large trade deficits since Turkey has already had an increasing trade deficit. Turkey's import substituting policies in seventies and outward oriented growth policies in eighties also caused Turkey's trade deficit to increase.

The empirical analysis in this study presents an application of the gravity model to Turkey's trade flows over the period 1980-2004 with the EU-15 member states, employing a panel framework which allows the multidimensionality of data. The aim is twofold; first, to model Turkey's trade flows with the EU and secondly to provide an assessment of the impact of the Customs Union established between Turkey and EU. Thus two different specifications have been used to correctly specify the

model. The first model is the loglinear form of the basic gravity model while the second model is an augmented version.

The regression results suggest that the volume of EU-Turkey bilateral trade have been in line with the theoretical predictions of the gravity model and that the sample span fits both specifications of the gravity model. The sample period also includes the recently established Turkey-EU customs union and an assessment of its effects is presented. Both specification regressions resulted in a significant impact of the customs union for the import flows from EU to Turkey. However, the results show that no significant impact is detected for the export flows from Turkey to the EU.

Thus the empirical analysis justifies the previous observation that the imports have increased more than the exports with the establishment of the Customs Union. Hence although the Customs Union cannot be criticized as the only factor widening the trade deficit, it acts as one of the causes behind it suggested by the regression results. There can be several reasons behind this.

First, it is possible that more time is needed in order to fully benefit from customs union. That is as mentioned before, when the time span of the customs union process is considered, Turkey has suffered from three domestic and two international economic crises. Also as explained before, Turkey has not fully harmonized its technical regulations with the ones of the EU. Even the ones that are harmonized are still not efficiently applied. Thus some of the Turkish exports are still not qualified in terms of European standards. Hence even if the customs duties and tariff barriers are lowered and in some cases abolished, technical barriers still remain which do hinder Turkey's capacity to export to the EU.

Second, if the value added for the factors of production, that are originated from 3rd countries, in the process of production are not found sufficient by the EU, then the produced goods does not gain the status of Turkish origination and they are treated as originated from 3rd countries. Thus these products cannot benefit from the Customs Union even if they enter to free circulation in Turkey. Hence they will face high tariffs and customs duties upon entering the EU. Also if the factors of production are

originated from 3rd countries such as China, no matter what the value added is, they are treated as originated from these countries and will face higher tariffs. This fact also renders some of the Turkish exports to be left out of the Customs Union.

Thirdly, some of the sensitive products such as textiles and agricultural products are partly excluded from the arrangement and further liberalization is needed. Even if further liberalization is established, Turkey still lacks strong competition power. The most obvious reason of this is that Turkey still uses labor intensive production techniques and due to this, its prices cannot compete with the ones in the Community. Yet with the infrastructure and the technology it has, Turkey is not very advantageous in technology and capital intensive productions. Another issue is Turkey's lack of brand products. Brand awareness in most of the European countries is very high and it strongly influences the market demand. This also hinders Turkish products competition power and as a result hinders the volume of exports.

Finally, even though the export numbers show an increasing trend there is serious uncertainty in them. First of all, many of the large exporting companies are multinational corporations or branches of these. Hence there are serious debates on whether Turkish economy really benefits from it. Second, Turkey still suffers from fictitious exports and unfortunately their share in aggregate exports is unknown. Thirdly, most of the Turkish exporters declare high product values to the Turkish authorities while their value declaration in the destination customs and earned revenues are fairly lower. This is done to increase the VAT returns from Turkish authorities. Thus one cannot really argue the real terms of exports in Turkey without bearing these in mind.

This study concludes that although the Customs Union agreement with the European Union has been beneficial in many aspects such as harmonization of regulations and legislations; it also widened Turkey's trade deficit by increasing the import flows while hindering the export flows. However one should be cautious in using the gravity model for several reasons. First of all gravity model theoretically assumes homogenous trading partners that fundamentally differ by economic size. Although this assumption may suit the members of the EU-15, there are major

differences between these members and Turkey besides their economic size. Thus further studies should bear these differences in mind and formulate the analyzed model in accordance with them. Secondly the analysis in this study is of a static type and does not investigate the dynamic aspects and impact of the Customs Union. To fully capture the impact of the Customs Union, the research area should not be restricted by import and export flows only. One should further analyze the dynamic impacts on production, demand, employment and such. On the other hand for a better understanding of the bilateral trade flows between Turkey and the European Union and the impact of Customs Union on trade flows, further studies must deepen their analysis' by investigating sectoral trade flows. Also these studies should investigate the impact of the Customs Union on the basis of trade creation and trade diversion effects. To evaluate Turkey's policy options for future arrangements and interventions, forecasting techniques and simulations should be addressed.

BIBLIOGRAPHY

Arnon A., Spivak A., Weiblatt J., 1996. "The Potential for Trade between Israel, the Palestinians and Jordan" *The World Economy* 19 (1) pp.113-134

Anderson, James E., 1979. "A Theoretical Foundation for the Gravity Equation" *American Economic Review* Vol 69 No 1 pp. 106-116

Anderson J.E., E. van Wincoop, 2001 "Gravity with Gravitas: a Solution to the Border Puzzle" NBER Working Papers No.8079

Antonucci Daniele, S. Manzocchi, 2004. "Could Accession to the EU Make a Difference? An Empirical Assessment of Turkey's Trade Patterns" LLEE Working Document No. 18

Arrow, K.J., 1962. "Economic Welfare and the Allocation of Resources for Invention" as cited in Fink, C., C.A.P. Braga, 1999"How Stronger Protection of Intellectual Property Rights Affects International Trade Flows" World Bank Policy Research Papers no.2051,

Augier Patricia, M. Gasiorek and C. Lai-Tong, 2004. "The Impact of Rules of Origin on Trade Flows" *EconWPA paper* No.0404001

Ball, R.J., 1967. "Review of an Econometric Study of International Trade Flows" The Economic Journal Vol 77 No 306 pp 366-368

Barral, W., 2003."Antidumping Measures: Prospects for Developing Countries" IRI/UFSC Working Paper no. 01/03,

Bergstrand, Jeffrey H., 1985. "The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence." *The Review of Economics and Statistics* vol 67 No:3 pp. 474-481

Bergstrand, Jeffrey H., 1989. "The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International Trade" *The Review of Economics and Statistics* vol 71 No:1 pp 143-153

Bougheas S., P.O. Demetriades and E.L.W. Morgenroth, 1997. "Infrastructure, Transport Costs and Trade" *Journal of International Economics* 47 169-189

Brander, James A., 1986. "Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition and the International Economy" *Journal of Economic Literature* Vol 24 No 2 pp. 713-715 1986

Breuss Fritz, P. Egger, 1999. "How Reliable are Estimations of East-West Trade Potentials Based on Cross-Section Gravity Analyses?" *Empirica* Vol.26 No:2 pp 81

Cheng I-Hui, H.J. Wall, 2005 "Controlling for Heterogeneity in Gravity Models of Trade and Integration" *Federal Reserve Bank of St. Louis Review* 87(1) pp. 49-63

Çayhan, E., 2003. "Türkiye'de Siyasal Partiler ve Avrupa Birliği," in Dedeoğlu, B.(Ed.) *Dünden Bugüne Avrupa Birliği* İstanbul: Boyut Yayıncılık, pp.477-488

De Groot Henri L.F., G. Linders, P. Rietveld and U. Subramanian, 2004. "The Institutional Determinants of Bilateral Trade Patterns" *Kyklos* Vol.57 pp.103-123

De Santis, R.A., 1998. "The Impact of a Customs Union with the EU on Turkey's Welfare, Employment and Income Distribution: An AGE Model with Alternative Labor Market Structures" *Journal of Economic Integration* Vol.15 No.2 pp.195-238

Deardoff, A.V., 1995. "Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World?" *Conference on Regionalization of the World Economy,* Vermont

Dedeoğlu, B., 2003. "Avrupa Birliği Bütünleşme Süreci I: Tarihsel Birikimler," in Dedeoğlu, B.(Ed.) *Dünden Bugüne Avrupa Birliği* İstanbul: Boyut Yayıncılık, pp.17-39

Di Mauro F., 2000. "The Impact of Economic Integration on FDI and Exports: a Gravity Approach" CEPS Working Document No.156 as cited in Antonucci Daniele, S. Manzocchi, 2004. "Could Accession to the EU Make a Difference? An Empirical Assessment of Turkey's Trade Patterns" LLEE Working Document No. 18

Egger, Peter, 1999. "A Note on the Proper Econometric Specification of the Gravity Equation" *Economic Letters* 66 (2000) 25-31

Erzan R, A. Filiztekin. 1997. "Competitiviness of Turkish SMEs in the Customs Union" *European Economic Review* No.41 pp.881-892

Ethier, W.J., 1982. "Dumping,", as cited in Z.,Zarnic, 2002. "Antidumping", *Seminar in Aussenwirtschaft* University of Kiel.

Feenstra Robert C., J.R. Markusen and A.K. Rose, 2001. "Using Gravity Equation to Differentiate among Alternative Theories of Trade" *The Canadian Journal of Economics* Vol 34 No. 2 pp 430-447

Fink, C., C.A.P. Braga, 1999. "How Stronger Protection of Intellectual Property Rights Affects International Trade Flows" *World Bank Policy Research Papers* no.2051

Harrison, G.W., T.F. Rutherford and D.G. Tarr, 1996. "Economic Implications for Turkey of a Customs Union with the European Union" Policy Research Working Paper No. 1599, World Bank, Washington, D.C.

Helpman E., P. Krugman, 1985. *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition and the International Economy* Cambridge MIT press as cited in Antonucci Daniele, S. Manzocchi 2004 "Could Accession to the EU Make a

Difference? An Empirical Assessment of Turkey's Trade Patterns" *LLEE Working Document* No. 18

Hoekman, B., and E. Konan., 1998. Deep Integration, Non-discrimination and European Free Trade, C*onference Regionalism in Europe: Geometries and Strategies after 2000.* Bonn.

Kaleağası, B.,2003. *Avrupa Yolunun Haritası* İstanbul: Dünya Yayıncılık.

Kadogan Yener, 2005. "Trade Creation and Diversion Effects of Europe's Regional Liberalization Agreements" William Davidson Institute Working Paper No.746

Kerr, W.A., 2001. "Dumping – One of Those Economic Myths", as cited in Z.,Zarnic, 2002. "Antidumping", *Seminar in Aussenwirtschaft* University of Kiel.

Khoman, S., 1998. "Antidumping,", as cited in Z.,Zarnic, 2002. "Antidumping", *Seminar in Aussenwirtschaft* University of Kiel.

Leamer, Edward E., 1974. "The Commodity Composition of International Trade in Manufactures: An Empirical Analysis," *Oxford Economic Papers* 26, pp 350-374 as cited in Deardoff, A.V., 1995. "Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World?" *Conference on Regionalization of the World Economy,* Vermont

Linnemann, Hans., 1966. *An Econometric Study of International Trade Flows,* Amsterdam: North Holland.

Martinez-Zarzoso I., D.F. Nowak-Lehmann, 2003. "Augmented Gravity Model: An Empirical Application to Mercosur-European Union Trade Flows" *Journal of Applied Economics* Vol 6(2003) pp.291-316

Maskus, E.K., J.S. Wilson and O. Tsunehiro, 2000."Quantifying the Impact of Technical Barriers to Trade" World Bank Policy Reasearch Papers no.2512

Maskus, K.E., M. Penubarti, 1995. "How Trade-Related are Intellectual Property Rights?", as cited in Fink, C., C.A.P. Braga, 1999. "How Stronger Protection of Intellectual Property Rights Affects International Trade Flows" World Bank Policy Research Papers no.2051

Matyas, Laszio, 1997. "Proper Econometric Specification of the Gravity Model" *World Economy* 20 (3) pp 363-368

McCallum, John, 1995. "National Borders Matter: Canada-US Regional Trade Patterns" *American Economic Review* 85(3) pp. 615-623

Mehanna, Rock-Antoine, 2003. "Do Politics and Culture Affect Middle East Trade? Evidence from the Gravity Model" *Reviewof Middle East Economics and Finance* Vol.1 Issue 2 pp.155-170

Mercenier, J. E. Yeldan, 1997. “On Turkey’s Trade Policy: Is a Customs Union with Europe Enough?” *European Economic Review* No.41 pp.871-880

Moussis, N., 2004. *Avrupa Birliği Politikalarına Giriş Rehberi* A. Fethi (Tr) İstanbul: Birleşim Dağıtım (Original Publication date 2000)

Neyaptı Bilin, F. Taskın, M. Üngör, 2003. “Has European Customs Union Agreement Really Affected Turkey’s Trade?” *Unpublished Manuscript*

Nowak-Lehmann D. Felicitas, D. Herzer, I. Martinez-Zarzoso and S. Vollmer, 2005. “Turkey and the Ankara Treaty of 1963: What can Trade Integration Do for Turkish Exports” Center for Globalization and Europeanization of the Economy (CeGE) Discussion Papers No.43

Nicholson, M., 2003. “Intellectual Property Rights, Internalisation, and Technology Transfer”, as cited in Park, W. and D. C. Lippoldt, 2004. “InternationalLicensing and the Strengthening of Intellectual Property Rights in Developing Countries”, OECD Trade Policy Working Papers, No.10

Singh, A. and R., Dhumale, 1999. "Competition Policy, Development and Developing Countries", South Centre,

Stephenson, S. M., 1997. “Standards and Conformity Assessment as Nontariff Barriers to Trade” as cited in E. K. Maskus, J.S. Wilson and O. Tsunehiro, 2000.“Quantifying the Impact of Technical Barriers to Trade” World Bank Policy Reasearch Papers no.2512

Stephenson, S. M., 1997. “Standards and Conformity Assessment and Developing Countries” World Bank Policy Reasearch Papers

Sykes, A.O., 1995. *Product Standards for Internationally Integrated Goods Markets* , as cited in E.K. Maskus, J.S. Wilson and O. Tsunehiro, 2000.“Quantifying the Impact of Technical Barriers to Trade” World Bank Policy Reasearch Papers no.2512

Tinbergen, J., 1962. *Shaping the World Economy: Suggestions for an International Economic Policy,* New York: The Twentieth Century Fund.

Ülgen, S., Y. Zahariadis, 2004. “The Future of Turkish-EU Trade Relations Deepening vs. Widening” Centre for European Policy Studies EU-Turkey Working Papers No.5/August

Van Beers, C., 2000. “Is the Gravity Model a Flawed Instrument in measuring Economic Integration Effects?” Department Delft University of Technology retrieved at http://www.tbm.tudelft.nl/webstaf/ceesb/gravityweb.pdf

Viner, J., 1923. “Dumping; A Problem in International Trade,”, as cited in Z.,Zarnic, 2002. “Antidumping”, *Seminar in Aussenwirtschaft* University of Kiel

Yang, G., K. Maskus, 2001. “Intellectual Property Rights and Licensing: An Econometric Investigation,”, as cited in Park, W. and D. C. Lippoldt, 2004. “InternationalLicensing and the Strengthening of Intellectual Property Rights in Developing Countries”, OECD Trade Policy Working Papers, No.10

Zahariadis, Y.,2005. “A CGE Assessment of Regulatory Integration between EU and Turkey” UK Department for International Development, London.

Zarnic, Z., 2002. “Antidumping”, *Seminar in Aussenwirtschaft.* University of Kiel.

Additional Protocol, 1973

Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade, 1994

Agreement on Technical Barriers to Trade, 1994

Decision No.1/95 of the EC-Turkey Association Council, 1995

International Intellectual Property Alliance (IIPA) 2006a. Special 301 Report: Turkey

International Intellectual Property Alliance (IIPA) 2006b. Appendix E: Historical Summary of Selected Countries’ Placement for Copyright-Related Matters on the Special 301 Lists

Law on Establishment and Tasks of Turkish Accreditation Agency, 1999

Organization for Economic Development and Cooperation (OECD) 2000. An Assessment of the Costs for International Trade in Meeting Regulatory Requirements

Treaty Establishing the European Community, 25 March 1957 Rome

Trans Atlantic Consumer Dialogue (TACD). 2001. Briefing paper on Mutual Recognition Agreements (MRA’S) retrieved at http://www.tacd.org/cgi-bin/db.cgi?page=view&config=admin/docs.cfg&id=193.

İktisadi Kalkınma Vakfı (IKV) Gümrük Birliği retrieved at http://www.ikv.org.tr/gumrukbirligi.php

SCADPlus a: A New Approach to Technical Harmonisation retreived at http://europa.eu/scadplus/leg/en/lvb/l21001a.htm

SCADPlus b: Turkey Summary retrieved at http://europa.eu/scadplus/leg/en/lvb/e07113.htm

SCADPlus c: Competition: Introduction retrieved at
http://europa.eu/scadplus/leg/en/lvb/l26055.htm

Wikipedia a: Economic Integration retrieved at
http://en.wikipedia.org/wiki/Economic_integration

Wikipedia b: De Minimis retrieved at http://en.wikipedia.org/wiki/De_minimis