THE DETERMINING ROLE OF EU IN TURKEY'S TRADE FLOWS:

A GRAVITY MODEL APPROACH

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ABSTRACT

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This thesis aims to determine the role of EU in Turkey's trade flows by using the gravity model. Turkey's Customs Union agreement without becoming a member of EU provides a laboratory to researchers to test whether the agreement was significant enough to cause any deviation in Turkey's trade flow. In the first part of the study, we shortly provide some descriptive statistics related to Turkey's trade flows with EU to see whether EU has gained any weight in the flows. In the second part, we first develop a gravity model that econometrically designates the determinants of Turkey's trade flows via panel data approach. Next, we use this equation to test the importance of EU countries in Turkey's trade flow and whether the flow has been subject to a deviation after the Customs Union agreement. Our findings indicate that EU countries have always been important in Turkey's trade flow and that Customs Union has not increased EU's importance marginally in determining Turkey's trade flow.

Keywords: Gravity model, Customs Union, EU, Turkey, Panel data approach,

ÖZET

TÜRKİYE'NİN DIŞ TİCARET AKIMINDA AB'NİN BELİRLEYİCİ ROLÜ: BİR ÇEKİM MODELİ YAKLAŞIMI

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Bu tezin amacı çekim modeli yaklaşımını kullanarak Türkiye'nin dış ticaret akımının belirleyicilerini ve Gümrük Birliği üyeliği sonrası dış ticaret akımında bir kırılma olup olmadığını panel veri analizi ile belirlemektir. Tezin ilk kısmında Türkiye'nin dış ticaretindeki gelişmeler 1923'den günümüze incelenmiş, Türkiye'nin Avrupa Birliği ile olan ticaret ilişkilerine ayrıntılı olarak yer verilmiştir. Daha sonra çekim modeli kullanılarak Türiye'nin dış ticaret akımlarının belirleyenleri ve bu belirleyenler içinde AB'nin önemi analiz edilmiştir. Analizler 1982-2008 dönemine ilişkin toplam ticaret, ihracat ve ithalat akımları için ayrı ayrı yapılmıştır. AB için yapılan analizlerde ise Gümrük Birliği'nin ticaret akımları üzerindeki etkleri üzerinde durulmuştur. Analizlerimiz AB ülkelerinin Türkiye'nin dış ticaretinde her zaman önemli yer tuttuğunu, Gümrük Birliği sonrası istatistiksel öneminin çok fazla artmadığını ve ticaret akınlarında ciddi bir kırılmaya yol açmadığını göstermektedir.

Anahtar Sözcükler: Çekim Modeli, Gümrük Birliği, AB, Türkiye, Panel veri yöntemi

To My Parents

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ABBREVIATIONS

ASEAN	Association of South East Asian Nations
BSEC	Black Sea Economic Cooperation
CAP	Common Agricultural Policy
CCT	Common Customs Tariffs
CTP	Common Trade Policy
CU	Customs Union
CUFTA	Canada United States Free Trade Agreement
EC	European Community
EEC	European Economic Community
EFTA	European Free Trade Association
EGLS	Estimated Generalized Least Squares
EPU	European Payments Union
EU	European Union
FEM	Fixed Effects Model
GDP	Gross Domestic Product
GLS	Generalized Least Squares
IMF	International Monetary Fund
LSDV	Least Square Dummy Variables
MERCOSUR	Southern Cone Common Market
NAFTA	North American Free Trade Agreement
OECD	Organization of Economic Cooperation and Development
OEEC	Organizaton for European Economic Cooperation
OIC	Organization of the Islamic Conference

OLS	Ordinary Least Squares
PCI	Per Capita Income
REM	Random Effects Model
TSI	Turkish Statistical Institute
TL	Turkish Lira
UAE	United Arab Emirates
UK	United Kingdom
USA	United States of America
WTO	World Trade Organization

1. INTRODUCTION

Open national economies to free trade has been a popular trend for decades. This trend is generally called globalization. However, national economies have also shown a contradicting trend to globalization: they increasingly join (regional) trade agreements, that is, they regionalize. NAFTA, EFTA, MERCOSUR and ASEAN are examples to this regionalization trend. The best (and extreme) example is European Union (EU). The European regionalization trend, which started in 1957, has reached 27 members and become comparable to USA in population, GDP and land size.

In some cases, economic integration supports free trade, and in others it causes diversion from free trade. Irrespective of whether the integration causes trade creation or trade diversion, it suggests that a country's trade flow may subject to a deviation after an economic integration. In this thesis, after identifying the determinants of Turkey's foreign trade flows via a gravity model, we aim to test via panel data analysis whether Turkey's trade flow has been affected by the EU predominantly.

Turkey is one of the first countries that started to open her economy to free trade in the globalization era. In 1980, Turkey has moved from import substitution to export promotion as its growth strategy and since then, its trade pattern gradually changed from exporting primary and agricultural products and importing manufactured goods to exporting manufacturing and intermediate goods. consequently, Turkey is a good laboratory of testing the impact of free trade.

Besides, Turkey has become member of Customs Union (CU) of EU in 31 December 1995 without full membership to EU. This decision practically meant the acceptance of regionalization by Turkey as Turkey was giving up her trade rules against third countries and adopting EU's trade rules. Intuition suggests that Turkey's trade pattern must experience deviation in favor of EU after the CU membership, minor or major.

This thesis aims to determine the trade flow determinants of Turkey by using a gravity model and whether the EU has significant impact on Turkey's trade flows.

To this end, in the second chapter of the thesis, foreign trade progress of Turkey has been analyzed. In this chapter, institutional and historical relations between Turkey and the EU have been evaluated after analyses about Turkey's foreign trade with the world. The third chapter gives information about theoretical background of gravity model and makes a literature review. Panel data analyses have been used on gravity equation of Turkey's trade flows in the chapter four. Analyses have indicated that the EU have significant impact on Turkey's total trade flows and export flows. But there is no evidence about significance of the EU on Turkey's import flows. The last chapter gives some concluding remarks.

2. FOREIGN TRADE PROGRESS OF TURKEY IN THE CONTEXT OF EU

This section of the thesis analyzes the progress of Turkish foreign trade policy since the establishment of the Turkish Republic in a historical perspective. To simplify the analyses, the history of Turkish foreign trade has been disaggregated into sub periods.

2.1. Turkish Foreign Trade Policy in a Historical Perspective

In this part of the study, historical progress of Turkish foreign trade policy has been analyzed beginning from 1923. The period has been divided into six sub-periods in accordance with the structural changes during the period. In particular, we divided the period into the following periods with respect to structural breaks in foreign trade policies:[1]

- Establishment Period: 1923-1929
- Protectionist Era: 1930-1950
- Partial Liberalization: 1950-1962
- Planned Economy: 1963-1980
- Export Promoted Development: 1980-1995
- Accession to CU and towards integration with EU: 1995 onwards

2.1.1. Establishment Period: 1923-1929

Foreign trade structure and progress of this period were under the influence of economical and social structure taken over from Ottoman Empire. At the late years, the Empire was an exporting country for raw materials and agricultural products and an importing country for manufactured products. Moreover, due to the World War I, a recession had been observed in Empire's industry and agriculture. After the

[1] This classification is a very common and well accepted one in the literature (see. Seymen, 2009).

collapse of Ottoman Empire, Republic of Turkey took over an economic structure that possessed an agricultural production based on traditional methods, import regime supporting importing goods instead of domestic manufacturing and some critical sectors such as rail ways and sea lanes belonging to foreign firms. So, in the early years of the Republic, Turkey has aimed at establishing and developing domestic industry. The Izmir Congress of Economics was assembled to this end (Altıntaş, 1986: 4-8). Table 1 shows the progress of Turkish foreign trade during 1923-1929 period.

Table 1: Turkish Foreign Trade: 1923-1929 Period

Years	Export		Import		Volume of Foreign Trade		X/(X+M)	M/(X+M)	Balance of Foreign Trade	Imports Covered by Exports
	Value million$	Change %	Value million$	Change %	Value million$	Change %	%	%	Value million$	%
1923	50.8	-	86.9	-	137.7	-	36.9	63.1	-36.1	58.5
1924	82.4	62.3	100.5	15.6	182.9	32.8	45.1	54.9	-18.0	82.1
1925	102.7	24.6	129.0	28.4	231.7	26.7	44.3	55.7	-26.3	79.6
1926	96.4	-6.1	121.4	-5.8	217.8	-6.0	44.3	55.7	-25.0	79.4
1927	80.7	-16.3	107.8	-11.3	188.5	-13.5	42.8	57.2	-27.0	74.9
1928	88.3	9.3	113.7	5.5	202.0	7.2	43.7	56.3	-25.4	77.6
1929	74.8	-15.2	123.6	8.7	198.4	-1.8	37.7	62.3	-48.7	60.6

Source: Constituted by using TSI data**.**
Note: X/(X+M) indicates export share in total trade flows; M/(X+M) indicates import share in total trade flows.

Table 1 indicates that Turkey's exports and imports, and therefore total trade, have increased from 1923 to 1929. But in 1926 and 1927, both of them have decreased. In these years, Turkey was suffered from extraordinary drought. Since the foreign trade was mostly depending on the agricultural products in those years, these decreases were reasonable (Tezel, 1994: 110). It is known that in these years, 75% of export incomes were depended on 5 agricultural products (tobacco, cotton, hazelnut, raisin and dry fig) and there was a decrease in the agricultural production by nearly 30%. Considering the importance of agricultural sector in GDP, there were decreases in imports as well (Kazgan, 2005: 34, 60). Although there was an increase in proportion

of imports covered by exports, the trade deficit has also increased in absolute value. The share of export in total trade has increased during the period. The share of import in total trade was higher than the export share. There was a slight decrease in import share as well.

The increasing trend of import in that period was the result of Treaty of Lausanne which suggested low tariff rates and the decrease in trade restrictions due to the world war. The increasing imports were the trigger of the trade deficit in this period and the trade deficits were the reason for the devaluation of the Turkish Lira. Moreover, the last year of this period was the first year of the great depression. All these reasons has caused structural changes in foreign trade policy (Tezel, 1994: 110).

2.1.2. Protectionist Era: 1930-1950

Republic of Turkey's intervention to general economy and foreign trade policies has started after 1929. Especially after 1929 crisis, a new period has started for Turkish foreign trade. Main features of this period were based on accelerating domestic industries. To this end, customs tariffs and foreign exchanges have been regulated. Bilateral trade agreements have been come into force and direct restrictions have been applied on import flows (Alpar, 1974: 62).

Table 2: Turkish Foreign Trade: 1930-1950 Period

Years	Export		Import		Volume of Foreign Trade		X/(X+M)	M/(X+M)	Balance of Foreign Trade	Imports Covered by Exports
	Value million$	Change %	Value million$	Change %	Value million$	Change %	%	%	Value million$	%
1929	74.8	-15.2	123.6	8.7	198.4	-1.8	37.7	62.3	-48.7	60.6
1930	71.4	-4.6	69.5	-43.7	140.9	-29.0	50.7	49.3	1.8	102.6
1931	60.2	-15.6	59.9	-13.8	120.2	-14.7	50.1	49.8	0.3	100.5
1932	48	-20.3	40.7	-32.1	88.7	-26.2	54.1	45.9	7.3	117.8
1933	58.1	21	45.1	10.7	103.2	16.3	56.3	43.7	13	128.8
1934	73	25.7	68.8	52.5	141.8	37.4	51.5	48.5	4.2	106.2
1935	76.2	4.4	70.6	2.7	146.9	3.6	51.9	48.1	5.6	107.9

1936	93.7	22.9	73.6	4.2	167.3	13.9	56.0	44.0	20.1	127.2
1937	109.2	16.6	90.5	23	199.8	19.4	54.7	45.3	18.7	120.6
1938	115	5.3	118.9	31.3	233.9	17.1	49.2	50.8	-3.9	96.7
1939	99.6	-13.4	92.5	-22.2	192.1	-17.9	51.8	48.2	7.1	107.7
1940	80.9	-18.8	50	-45.9	130.9	-31.9	61.8	38.2	30.9	161.7
1941	91.1	12.5	55.3	10.6	146.4	11.8	62.2	37.8	35.7	164.5
1942	126.1	38.5	112.9	103.9	239	63.3	52.8	47.2	13.2	111.7
1943	196.7	56	155.3	37.6	352.1	47.3	55.9	44.1	41.4	126.6
1944	178	-9.5	126.2	-18.7	304.2	-13.6	58.5	41.5	51.7	141
1945	168.3	-5.4	97	-23.2	265.2	-12.8	63.5	36.6	71.3	173.5
1946	214.6	27.5	118.9	22.6	333.5	25.8	64.3	35.7	95.7	180.5
1947	223.3	4.1	244.6	105.8	467.9	40.3	47.7	52.3	-21.3	91.3
1948	196.8	-11.9	275.1	12.4	471.9	0.9	41.7	58.3	-78.3	71.5
1949	247.8	25.9	290.2	5.5	538	14.0	46.1	53.9	-42.4	85.4
1950	263.4	6.3	285.7	-1.6	549.1	2.1	48.0	52.0	-22.2	92.2

Source: Constituted by using TSI data**.**
Note: X/(X+M) indicates export share in total trade flows; M/(X+M) indicates import share in total trade flows.

Due to the 1929 crisis and increasing tariffs, there were decreases in both exports and imports, as indicated in Table 2. These decreases took effect until 1932. To minimize the effects of crisis, currency controls and import restrictions have been applied in this period. Thus, foreign trade between 1930-1938 was lower than foreign trade between 1923-1929 (Pekin and Ergun, 1984: 2).

The most important feature of this period was that the trade balance was positive in almost all years. This was the natural result of significant increases in exports. There were two underlying forces of these increases. One of them was the good harvests in agricultural sector. The other was the increasing demand for agricultural and mining products of Germany due to the expansionary policies of Nazis in the Balkans and Middle East. Furthermore, the government made bilateral trade agreements in order to cover increasing import demand and accumulate gold and foreign exchange reserves for Central Bank in this period. In addition to this, the government has paid back foreign debts to Soviet Russia and UK via exports. This was another reason for the increasing exports. However, the World War II caused a reduction in Turkish foreign trade. Excluding military imports, there was trade surplus during the 1939-1946 period. Accoding to Tezel (1994: 114, 120), there were trade deficits, when military imports are also considered.

In 1946, the government has decided to make devaluation in order to deal with the difficulties of redemption of foreign debts. But, in spite of devaluation, imports have sustained its increasing trend and the exports have decreased. Therefore in 1948, the trade deficit became 78.3 million dollars. The failure of the devaluation can be explained by the inelastic supply of exporting goods and inelastic demand of importing goods (Pekin and Ergun, 1984:4).

2.1.3. Partial Liberalization: 1950-1962

The 1950 was the milestone in terms of foreign trade policies. In 1950 European Payments Union (EPU) has been established and the EPU members have removed the import restrictions (based on imports quantity in 1948). Turkey has decided to abide "list of free import goods" due to EPU. At that time, 60% of imports has been liberalized (Karluk, 1984: 62).

Nevertheless, these liberalization policies caused a decrease in foreign exchange reserves due to increases in import demand. So, some restrictions have been applied on this list. In 1955, this list has been entirely abolished. The aim of these restrictions was to prevent deficits in the balance of payment rather than to protect domestic industries. The second half of 1950s was the inflationary years due to increasing budget deficits. Moreover, the restrictions on imports caused deficit in supply of investment and intermediate goods used by domestic industries. This increased the inflation and domestic production became dependent on imports (Altıntaş, 1986: 64).

Due to the internal and external instabilities, a stability program monitoring by Organization for European Economic Cooperation (OEEC), International Monetary Fund (IMF) and US Government has been put into action in 1958. This program included policies about foreign trade, budget deficit, money and currency. By this program, import quotas have been extended and additional quotas have been created for compulsory importing goods (Alpar, 1974: 54-65).

Table 3 below shows the trade progress of Turkey under the main futures of the period that mentioned above. The balance of foreign trade was in deficit in all these years. The reason was that the growth in imports had surpassed the growth in exports in this period. Due to the liberal trade policies, import has increased until 1953. But decreases in the foreign exchange reserves have required setting restrictions on imports. The decline in the trend of import between 1953-1958 was the result of these restrictions, as can be seen from Table 3.

Table 3: Turkish Foreign Trade: 1950-1962 Period

Years	Export		Import		Volume of Foreign Trade		X/(X+M)	M/(X+M)	Balance of Foreign Trade	Imports Covered by Exports
	Value million$	Change %	Value million$	Change %	Value million$	Change %	%	%	Value million$	%
1950	263.4	6.3	285.7	-1.6	549.1	2.1	48.0	52.0	-22.2	92.2
1951	314.1	19.2	402.1	40.8	716.2	30.4	43.9	56.1	-88	78.1
1952	362.9	15.5	555.9	38.3	918.8	28.3	39.5	60.5	-193	65.3
1953	396.1	9.1	532.5	-4.2	928.6	1.1	42.7	57.3	-136.5	74.4
1954	334.9	-15.4	478.4	-10.2	813.3	-12.4	41.2	58.8	-143.4	70
1955	313.3	-6.4	497.6	4	811	-0.3	38.6	61.4	-184.3	63
1956	305	-2.7	407.3	-18.1	712.3	-12.2	42.8	57.2	-102.4	74.9
1957	345.2	13.2	397.1	-2.5	742.3	4.2	46.5	53.5	-51.9	86.9
1958	247.3	-28.4	315.1	-20.7	562.4	-24.2	44.0	56.0	-67.8	78.5
1959	353.8	43.1	470	49.2	823.8	46.5	42.9	57.1	-116.2	75.3
1960	320.7	-9.3	468.2	-0.4	788.9	-4.2	40.7	59.3	-147.5	68.5
1961	346.7	8.1	507.2	8.3	853.9	8.2	40.6	59.4	-160.5	68.4
1962	381.2	9.9	619.4	22.1	1000.6	17.2	38.1	61.9	-238.3	61.5

Source: Constituted by using TSI data**.**
Note: X/(X+M) indicates export share in total trade flows; M/(X+M) indicates import share in total trade flows.

2.1.4. Planned Economy: 1963-1980

After 1960s, there were radical changes in the Turkey's macroeconomic policies in general and foreign trade policies in specific. 1963-1980 was the planned economy period. In this period, economy has been controlled by five-year development plans. All plans came into force in this period were based on import substitution strategies. The main futures of these plans concerning foreign trade were as follows:

- First Five-Year Development Plan: The general future of this plan was protectionism in foreign trade policy. The purpose of the protectionism was to protect potential industries and to obtain international competitiveness (Alpar, 1974: 73). An important progress in this period was the Association Agreement with the European Economic Community (EEC).

- Second Five-Year Development Plan: The aim of this plan was to protect new industries. To this end, number of restrictions implemented on imports have been increased (relative to the first plan). But the temporariness of these restrictions has been stated in the plan.

The first stage of import substitution strategy has covered the non-durable goods. In the middle of the 1960s, domestic production of nondurable goods became sufficient for domestic demand as expected. The second stage of import substitution strategy suggested protection of domestic production of intermediate and investment goods. So export of manufactured goods has been ignored. But these industries were high technology, skilled labor and capital intensive industries. So the second stage of the strategy has failed. Failure of this stage caused development of an assembly industry, which increased foreign exchange demand, rather than the predicted industries (Serin, 1981: 389).

- Third Five-Year Development Plan: According to this plan, Turkey's industrialization was compulsory in terms of decreasing country's dependence to foreign resources. However, what was implied here was not to create a self-sufficient autarkic structure. In contrast, it was stated in the plan that liberal foreign policies are required to obtain international competitive power. The reason for following liberal policies was not only the belief that such policies could create an internationally competitive trade structure but also the effort on providing convenient trade policies with EEC. Indeed, the third plan period had overlapped with the transition period of Turkey-EEC Association Agreement, which had put restrictions on protective trade policies.

- Fourth Five-Year Development Plan: To produce investment goods and intermediate goods through manufacturing industry and to form a competitive

industrial structure were two main aims of the forth five-year development plan (Özateşler, 1998: 91). Similar to previous planning periods, it was expressed that young industries would be protected and consumption of luxury goods would be controlled during this planning period. As industrialization and foreign trade policies had to be run simultaneously and conveniently with each other, bureaucratic delays were eliminated and exports of industrial products were promoted. Table 4 indicates the pattern of foreign trade of Turkey during the time period:

Table 4: Turkish Foreign Trade: 1963-1980 Period

Years	Export		Import		Volume of Foreign Trade		X/(X+M)	M/(X+M)	Balance of Foreign Trade	Imports Covered by Exports
	Value million$	Change %	Value million$	Change %	Value million$	Change %	%	%	Value million$	%
1962	381.2	9.9	619.4	22.1	1000.6	17.2	38.1	61.9	-238.3	61.5
1963	368.1	-3.4	687.6	11	1055.7	5.5	34.9	65.1	-319.5	53.5
1964	410.8	11.6	537.2	-21.9	948	-10.2	43.3	56.7	-126.5	76.5
1965	463.7	12.9	572	6.5	1035.7	9.3	44.8	55.2	-108.2	81.1
1966	490.5	5.8	718.3	25.6	1208.8	16.7	40.6	59.4	-227.8	68.3
1967	522.3	6.5	684.7	-4.7	1207	-0.1	43.3	56.7	-162.3	76.3
1968	496.4	-5	763.7	11.5	1260.1	4.4	39.4	60.6	-267.2	65
1969	536.8	8.1	801.2	4.9	1338.1	6.2	40.1	59.9	-264.4	67
1970	588.5	9.6	947.6	18.3	1536.1	14.8	38.3	61.7	-359.1	62.1
1971	676.6	15	1170.8	23.6	1847.4	20.3	36.6	63.4	-494.2	57.8
1972	885	30.8	1562.5	33.5	2447.5	32.5	36.2	63.8	-677.6	56.6
1973	1317.1	48.8	2086.2	33.5	3403.3	39.1	38.7	61.3	-769.1	63.1
1974	1532.2	16.3	3777.5	81.1	5309.7	56.0	28.9	71.1	-2245.3	40.6
1975	1401.1	-8.6	4738.6	25.4	6139.6	15.6	22.8	77.2	-3337.5	29.6
1976	1960.2	39.9	5128.6	8.2	7088.9	15.5	27.7	72.3	-3168.4	38.2
1977	1753	-10.6	5796.3	13	7549.3	6.5	23.2	76.8	-4043.3	30.2
1978	2288.2	30.5	4599	-20.7	6887.2	-8.8	33.2	66.8	-2310.9	49.8
1979	2261.2	-1.2	5069.4	10.2	7330.6	6.4	30.8	69.2	-2808.2	44.6
1980	2910.1	28.7	7909.4	56	10819.5	47.6	26.9	73.1	-4999.2	36.8

Source: Constituted by using TSI data**.**

Note: X/(X+M) indicates export share in total trade flows; M/(X+M) indicates import share in total trade flows.

According to the table above, the balance of foreign trade yield deficits in all years because the rate of increase in import was higher than the rate of increase in export during the period. In order to invoke investments required for the development, import was inevitable. The total trade volume has increased in all years except 1964,

1967 and 1978. The increase in total trade was the characteristic of the third five-year plan.

During the first plan period, export was more stable than import. The imports have been realized at the predicted values during this plan. However exports have been realized 8% more than predicted value. Increase in exports was due to unexpected increases in agricultural products. Although exports were realized more than the expectations, there was no structural change in exporting goods. The share of industrial goods exported was lower than the share of agricultural goods exported throughout the five years (Seymen, 2009: 20). During the first five years, export has increased 38% from 1962 to 1967.

In the second plan period, import has increased 105%. It had an increasing trend in all years and has been realized over predicted values. The unexpected increases in remittances provide payment facility for imported goods. Furthermore, due to the supply deficit in raw materials and oil crisis in the world, the prices have increased and this caused an increase in payments of imports. Additionally, domestic economic conditions such as inflation, price policy and overvalued TL have increased imports as well (Pekin and Ergun, 1984: 7). During 1962-1967, export has increased due to the export incentives and 1970 devaluation. But world economic conditions (oil crisis and supply deficit) and domestic economic conditions (fixed exchange rates, increasing domestic demand and insufficient production) decreased the amount of exportable good.

The third five-year plan covers the 1973-1977 period. In the beginning of this period, export has increased due to the ongoing effect of 1970 devaluation. There were many factors that caused the decrease in exports in 1975. These were expansive domestic demand stem from inflationist policies, higher domestic prices than world prices and overvalued TL due to the fixed exchange rates. Besides, recession in the world economy has caused decreases in exports. Oil crisis during 1970s was another reason. A considerable amount of export income has been used to import oil. Furthermore, the embargo imposed on Turkey by US due to the Cyprus Peace Operation has affected Turkey's foreign trade negatively in this period. At the end of 1970s, the deficit in balance of payment has increased. Lack of foreign exchange

reserves slowed down domestic production. Consequently, economic and politic instability have increased.

The third plan has taken place in 1978-1983. Although, there was a decrease in imports by 20% in 1978, it has again increased 56% between 1979 - 1980. This increase was the result of high prices on imported goods. Due to economic and political crises in Turkey, exports have decreased in 1979 (Pekin and Ergun, 1984: 12). Despite the third five-year development plan covers 1978-1983, the plan was removed in practice after 24th January 1980 Decreees –and Turkish trade policy shifted to export-promotion strategy.

2.1.5. Export Promoted Development: 1980-1995

1980 was the turning point for Turkish economy and foreign trade policies. Following the world recession, there has been a slowdown in Turkish economy. To overcome these problems, a stabilization package known as January 24 1980 Decrees has been put into force. These decrees have aimed and led to structural changes in the economy. There were two main purposes in this package. First, price mechanism was aimed to replace centralized price determination in goods market. Second, development strategy was changed. Export promoted development strategy has been come into effect instead of import substitution development strategy. To achieve these aims, a new price policy has been adopted instead of price control policies. Changes convenient with liberal policies about foreign trade, currency policy and foreign exchange regime were taken (Krueger, 1992: 41-45).

Within the framework of January 24 Decrees, a devaluation has been implemented. Value of TL has been decreased by 49% against US dollar. The aim of devaluation was to accelerate exports by decreasing domestic demand. Flexible exchange rate regime has been started to use. Various incentives such as tax refund, dispensation of income tax and customs duties and currency allocations have been provided to increase exports.

By liberal trade policies and export incentives, trade flows has exhibited a change in both volume and structure. Table 5 shows the progress of foreign trade during 1980-1994.

Table 5: Turkish Foreign Trade: 1980-1994 Period

Years	Export		Import		Volume of Foreign Trade		X/(X+M)	M/(X+M)	Balance of Foreign Trade	Imports Covered by Exports
	Value million$	Change %	Value million$	Change %	Value million$	Change %	%	%	Value million$	%
1979	2261.2	-1.2	5069.4	10.2	7330.6	6.4	30.8	69.2	-2808.2	44.6
1980	2910.1	28.7	7909.4	56	10819.5	47.6	26.9	73.1	-4999.2	36.8
1981	4702.9	61.6	8933.4	12.9	13636.3	26.0	34.5	65.5	-4230.4	52.6
1982	5746	22.2	8842.7	-1	14588.6	7.0	39.4	60.6	-3096.7	65
1983	5727.8	-0.3	9235	4.4	14962.8	2.6	38.3	61.7	-3507.2	62
1984	7133.6	24.5	10757	16.5	17890.6	19.6	39.9	60.1	-3623.4	66.3
1985	7958	11.6	11343.4	5.5	19301.4	7.9	41.2	58.8	-3385.4	70.2
1986	7456.7	-6.3	11104.8	-2.1	18561.5	-3.8	40.2	59.8	-3648	67.1
1987	10190	36.7	14157.8	27.5	24347.9	31.2	41.9	58.1	-3967.8	72
1988	11662	14.4	14335.4	1.3	25997.4	6.8	44.9	55.1	-2673.4	81.4
1989	11624.7	-0.3	15792.1	10.2	27416.8	5.5	42.4	57.6	-4167.5	73.6
1990	12959.3	11.5	22302.1	41.2	35261.4	28.6	36.8	63.2	-9342.8	58.1
1991	13593.5	4.9	21047	-5.6	34640.5	-1.8	39.2	60.8	-7453.6	64.6
1992	14714.6	8.2	22871.1	8.7	37585.7	8.5	39.1	60.9	-8156.4	64.3
1993	15345.1	4.3	29428.4	28.7	44773.4	19.1	34.3	65.7	-14083.	52.1
1994	18105.9	18	23270	-20.9	41375.9	-7.6	43.8	56.2	-5164.1	77.8
1995	21637	19.5	35709	53.5	57346.1	38.6	37.7	62.3	-14072	60.6

Source: Constituted by using TSI data**.**
Note: X/(X+M) indicates export share in total trade flows; M/(X+M) indicates import share in total trade flows.

At the beginning of this period, the trade deficit has decreased thanks to increasing exports and devaluation. Consequently, there was a decrease in trade deficit by 15%, although total trade volume increased by 26% in 1981. Moreover, the predicted trade deficit was 5.5 billion dollars in the 1981 program but it was realized as 4.2 billion dollars (Pekin and Ergun, 1984: 9). Export has increased from 2.9 billion dollars to 21.6 billion dollars from 1980 to 1995. But increasing trend of export has decreased due to the recession in developed countries, especially in Europe. The share of agricultural goods has decreased. Besides, the share of industrial goods has increased from 36% to 80% in the 1980-1995 period (Seymen, 2009: 27).

World economic conditions (recession and Gulf crisis) and domestic economic conditions (high inflation rates, budget deficit and increasing internal and external debts) at the beginning of 1990s caused 1994 economic crisis. Thus, April 5 Decrees have come into effect. The most important implementation of these decrees was devaluation of TL by nearly 40% against US dollar. Subsequent to the devaluation, export has increased 18% and 19.5% in 1994 and 1995, respectively. The main aim of this period was to increase exports. However, the export share in total trade flows was always under the import share in total trade flows during the time period.

2.1.6. Accession to CU and towards integration with EU: 1995 onwards

In Turkey's foreign trade, one could evaluate the period after year 1995, as the period during which the dependency of international legal rules have increased, applications and legislation regulations have been performed in the light of international norms. In consequence the globalization phenomenon has been increasingly felt in terms of foreign trade. During this period, one of the two aspects taken into account while determining the foreign trade policy was WTO establishment agreement that entered into force in January 1, 1995. And the second was the decision of Customs Union membership of Turkey, which entered into force in January 1, 1996.

Table 6: Turkish Foreign Trade: 1995-2008 Period

Years	Export		Import		Volume of Foreign Trade		X/ (X+M)	M/ (X+M)	Balance of Foreign Trade	Imports Covered by Exports
	Value mil$	Chan. %	Value mil$	Chan %	Value mill$	Chan. %	%	%	Value mil$	%
1995	21637	19.5	35709	53.5	57346.1	38.6	37.7	62.3	-14072	60.6
1996	23224.5	7.3	43626.6	22.2	66851.1	16.6	34.7	65.3	-20402.2	53.2
1997	26261.1	13.1	48558.7	11.3	74819.8	11.9	35.1	64.9	-22297.6	54.1
1998	26974	2.7	45921.4	-5.4	72895.3	-2.6	37.0	63.0	-18947.4	58.7
1999	26587.2	-1.4	40671.3	-11.4	67258.5	-7.7	39.5	60.5	-14084	65.4
2000	27774.9	4.5	54502.8	34	82277.7	22.3	33.8	66.2	-26727.9	51
2001	31334.2	12.8	41399.1	-24	72733.3	-11.6	43.1	56.9	-10064.9	75.7

2002	36059.1	15.1	51553.8	24.5	87612.9	20.5	41.2	58.8	-15494.7	69.9
2003	47252.8	31	69339.7	34.5	116592.5	33.1	40.5	59.5	-22086.9	68.1
2004	63167.2	33.7	97539.8	40.7	160706.9	37.8	39.3	60.7	-34372.6	64.8
2005	73476.4	16.3	116774.2	19.7	190250.6	18.4	38.6	61.4	-43297.7	62.9
2006	85534.7	16.4	139576.2	19.5	225110.9	18.3	38.0	62.0	-54041.5	61.3
2007	107271.7	25.4	170062.7	21.8	277334.5	23.2	38.7	61.3	-62791	63.1
2008	132002.6	23.1	201960.8	18.8	333963.4	20.4	39.5	60.5	-69958.2	65.4

Source: Constituted by using TSI data**.**
Note: X/(X+M) indicates export share in total trade flows; M/(X+M) indicates import share in total trade flows.

Table 6 presents trade indicators of Turkey from 1995 onwards. According to the table, export of Turkey has increased from 1995 to 2005 except 1999, the year in which a strong earthquake had hit Turkey. There is no certain effect of CU agreement on both export and import flows. However, in 1996, rate of import covered by export was 53%. This rate reached its minimum value in 2000. But after 2001 crisis, due to the high rate devaluation, this rate reached its maximum as 75.7%. In this period, trade balance was in deficit. Considering 2008, trade deficit has become 69.9 billion dollars.

Since the progresses of this period has eventuated under the effects of CU, and thus EU, the next section focus on trade relations between Turkey and the EU. However, a brief analysis about most recent developments will be given in the next section before analyzing the development of trade relations between Turkey and EU.

2.1.7. Recent Developments

Beginning from the establishment of the Turkish Republic, there have been several factors that determine Turkish trade flows. In the recent decades, the most important ones have been the globalization process and Turkish accession to the CU (without full EU membership). However, in recent years, there has been another factor that has affected Turkey's trade flow. Turkey found itself on the middle of world's new energy corridor from Caspian Sea to Europe after the collapse of Soviet Union due to geographical, historical, and political reasons. Turkey itself has also experienced increasing need for energy and signed significant long-term energy contracts with

gas-exporting countries such as Iran and Russia in the late 1990s. Such developments have changed the trading partners of Turkey in recent years. Figures 1 and 2 below present the first 10 countries for the period 2000-2008 in Turkey's export and import flows[2]. We took 2008 as the base year, without loss of generality.

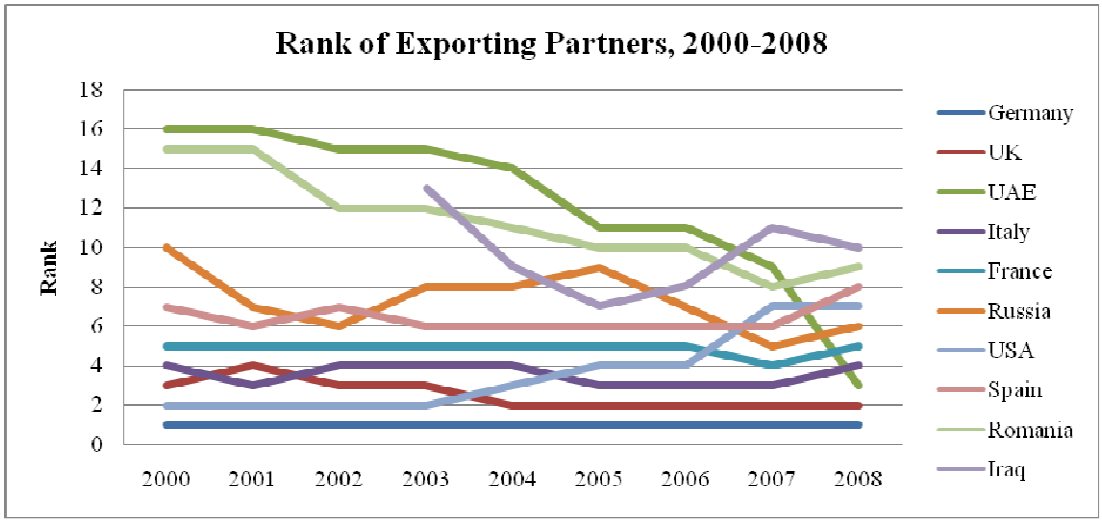

Figure 1: Country Ranks in Turkish Export, 2000-2008

Figure 1 above plots country ranks of Turkish exports between the 2000-2008 period for the 10 countries that have the highest rank in 2008. The illustration shows that some countries such as United Arab Emirates (UAE) and Romania have become significant exporting partners of Turkey. Although the composition of export to UAE consists of textile products to a large extent, it is thought that increasing export to UAE indicates a strategic change in Turkish export flows (Yetkiner, 2009: 3).

[2] We present the same analysis for the 1982-2008 period in Appendices 11 and 12.

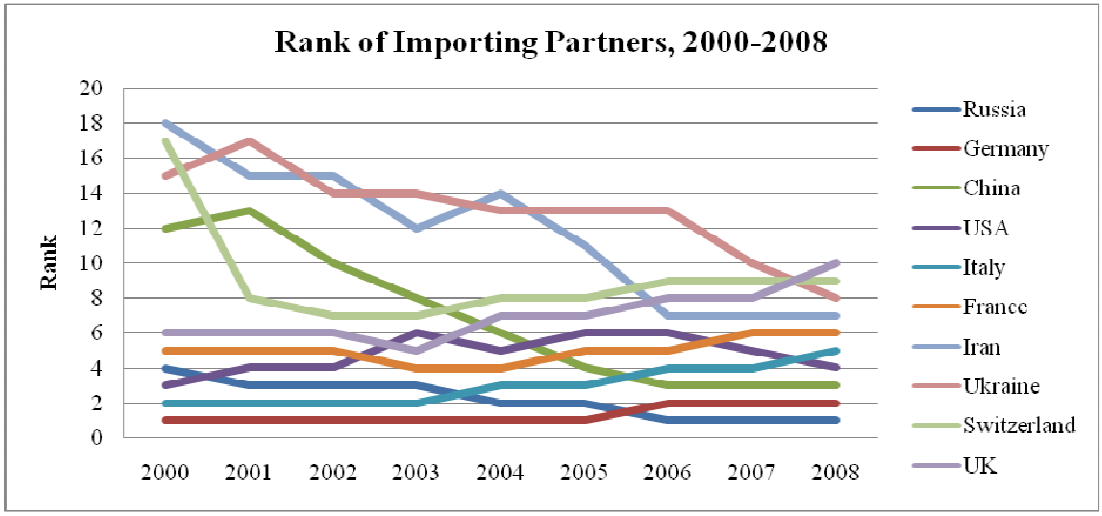

Figure 2: Country Ranks in Turkish Import, 2000-2008

Figure 2 above plots country ranks of Turkish imports between the 2000-2008 period for the 10 countries that have the highest rank in 2008. The illustration shows that some countries such as Russia, China, Iran, and Switzerland have become significant import sources of Turkey. Increasing import flows with China, Iran and Russia designate two important strategic changes in Turkish import flows. The former is Turkey's energy dependency due to growing manufacturing and service industries. This fact is the main reason of increasing import with Russia. On the other hand, the upward importance of China as a source country for the world and for Turkey as well, is the reason of second change in Turkish import flows (Yetkiner, 2009: 1).

2.2. The Development of Foreign Trade between Turkey and EU

The EU is the main consideration of this thesis. To this end, in this section, the relationship between Turkey and the EU has been discussed. In the next section, the relationship is analyzed from a historical perspective. Next, the foreign trade relationship between Turkey and the EU is evaluated using the trade data.

2.2.1. History

The relationship between Turkey and the EU has started by Turkey's application for membership in 1959, just after the establishment of the EEC. However, Turkey's application for membership was rejected due to the argument that Turkey's level of development was insufficient to meet the requirements for the full membership. But, the EEC proposed Turkey to sign an association agreement that will regulate the Turkey-EU relationship, until the time full membership conditions are met. Then, in 12 September 1963, Ankara Agreement, which gave way to the possibility for full membership, was signed in Ankara and this agreement entered into force in 1 December 1964 (Seyidoğlu, 2003, 268). This agreement brought association membership of Turkey to EEC.

The aim of association membership was to increase agricultural and industrial export to the EEC market. Ankara Agreement has foreseen a gradual completion of Customs Union. The Agreement defined three stages: "preparatory stage", "transitional stage" and "final stage". At the end of the transitional stage, the Customs Union has been aimed for. The details of the three stages are as follows.

Preparatory stage: In this stage, the Community has aimed at developing Turkey's economy for CU membership by giving unilateral financial assistance. A five-year period has been foreseen for this stage. By the annexed protocols to the agreement, it has been decided to decrease tariffs in certain goods and to offer financial assistance. The stage has been completed at the proper time. On 16 May 1967, Turkey has applied for transitional stage. (Seymen, 2009: 33)

Transitional stage: This stage has started by the Additional Protocol that was signed in 13 November 1970 and entered into force on 1 January 1973. A Twelve-year period (which was subject to change) has been determined for this stage. The Additional Protocol determined the provisions of the transitional stage and the obligations of both parties and aimed transitional completion of the Customs Union. The protocol has foreseen a customs union for industrial goods but for agricultural goods, and a preferential trade regime has been approved. Additionally, the protocol

undertook the issues such as free movement of labor, services, capital and adaptation of economy policies, competitiveness and state aids.

Both Turkey and the community have undertaken bilateral obligations in this stage. The community has reduced the customs duties in industrial goods to zero within the scope of the Customs Union and Turkey committed to reduce the customs duties to zero transitionally within a 12 or 22 years time frame, starting from 1973. The industrial goods with high competitive power were considered in the 12 years time frame and others (i.e., low competitive power) were involved in 22 years time frame. Agricultural goods have been excluded from the transitional stage, but it has been foreseen that Turkish agricultural policies would be adapted with the community's Common Agricultural Policy (CAP).

Until 1976, the tariff reductions in 12 years list have reached 20% and the tariff reductions in 22 years list have reached 10%. However, due to negative developments in Turkey and around the world, the political and institutional relationship between Turkey and the Community has deteriorated. On 25 December 1976, Turkey has frozen her obligations. Due to the 1980 military intervention, the relations have been frozen by both parties. In 16 September 1986, the Association Council for Turkey and the Community has met, and the relations re-began. During this stage, the second enlargement of the Community has occurred and Spain, Portugal and Greece became member of the community. Since the economic structure of Turkey was similar to the Greek economy, Turkey applied for full membership in 1987. The European Commission replied Turkey's full membership application in 1989. The Commission recommended that Turkey needed to wait until the European Community (EC) completes its deepening process and until the next enlargement of the Community and the completion of the Turkey-EC Customs Union during this time (Güran, 2002: 183-185).

In 8 November 1993, a comprehensive program has been approved in the Association Council. This program has accelerated relations between Turkey and the Community. In 1994, the tariff reductions in 12 years list have reached 90% and the tariff reductions in 22 years list has reached 80%. In 1992, European Community gained union identity by Maastricht Agreement, and became European Union (EU).

Then a guidance committee has been constituted to accelerate CU process until 1995. This committee has decided free movement of industrial goods between the parties, adaption of Common Agrigultural Policy (CAP), Common Customs Tariffs (CCT) and Common Trade Policy (CTP), reduction in restrictions on service trade and legal and institutional regulations for the issues such as competition, state aids, anti-dumping laws and intellectual property rights. In January 1995, the tariff reductions in 12 years list have reached 95% and the tariff reductions in 22 years list have reached 90%. Consequently, beginning from 1 January 1996, Turkey-EU Customs Union has entered into force. (Seymen, 2009: 38).

Final stage: The beginning of CU process was also the beginning of the last stage. Although CU is evaluated as trade integration, it did not only provide clear off customs duties but also required structural changes. It has foreseen free movement of goods and CCT against third countries. Turkey has committed harmonization of its tariffs and equivalent charges on the importation of industrial goods from the third countries in accordance with the EU's Common External Tariff and progressively adapted itself to the EU's commercial policy and preferential trade arrangements with specific third countries.

CU was involving industrial and processed agricultural good. For agricultural products, Turkey has implemented a tariff in line with CU members and a tariff different from CCT against the third countries. After CU, an increase in both imports and exports had been expected. But due to the deceleration in the rate of growth in the Union, the increase in exports realized was less than the increase in imports (Karluk, 2002: 637, 666).

2.2.2. Foreign Trade between Turkey and EU

The EU is a significant trade partner of Turkey with a significant share in total trade flows. One of the main reasons of trade relations is geographical closeness. The EU has been the main trade partner of Turkey before and after the CU. The long-term

process of association relationship has made the EU an important partner for exports and imports.

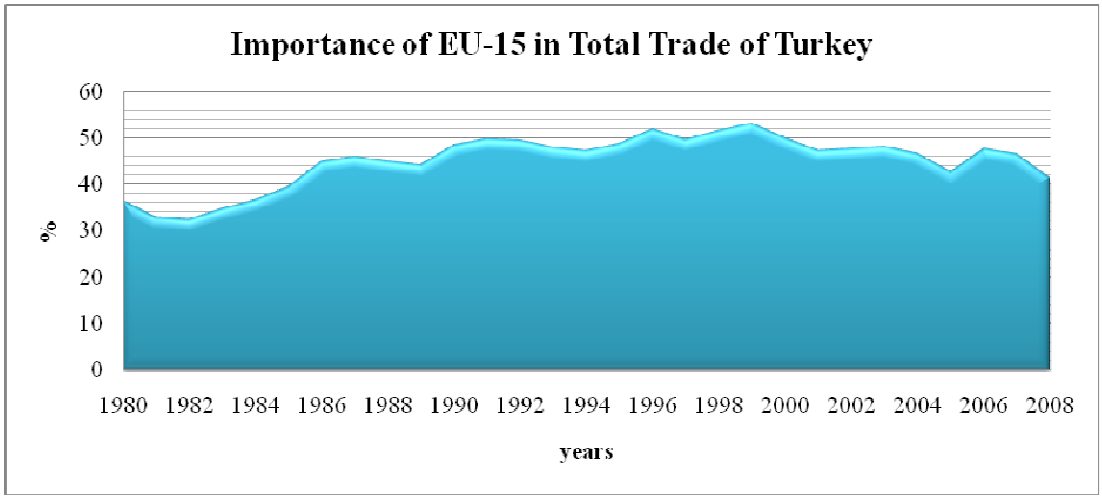

Figure 3: Share of EU-15 in Total Trade Volume of Turkey

Figure 3 demonstrates Turkey's total trade actualized with EU-15 during the 1980-2008 period. According to the figure, the trade share of EU-15 in Turkey's total trade has always been greater than 40% since 1986.

The next figure indicates the share of EU in Turkey's total trade flows by considering enlargement process of the Union. Beginning from 2007, the EU market has enlarged with 27 members. In 2008, 41.4% of Turkey's total trade has been with EU-27. The Union's income level, free trade agreements of the Union with third countries and protectionist policies for intra Union industries has become of great importance for Turkey's trade strategies.

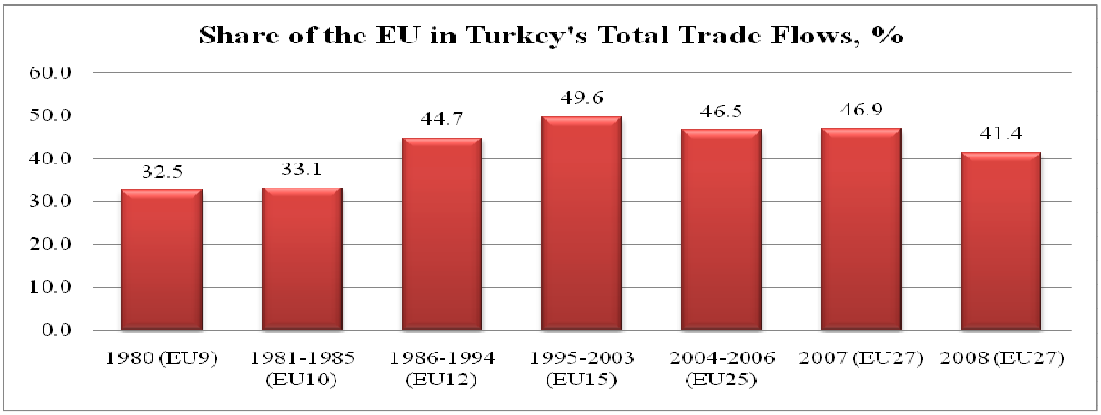

Figure 4: The Share of EU in Total Trade considering Enlargement Process of EU

Following Figure 5, it is clear that trade balance with the EU is negative since 1980. Especially after CU agreement, in consequence of the reductions in import restrictions (and lack of any compensating policy), there has been increase in trade deficit, mainly due to unproportional increases in imports. However, during 1994 and 2001 crises, imports decreased and exports increased, and the deficit has decreased in favor of Turkey. After 2002, there have been increases in trade flows and trade deficit. Furthermore, it is obvious from the figure that import is more dominant on total trade and trade balance than export. Total trade has similar pattern with import where trade balance has opposite pattern with imports.

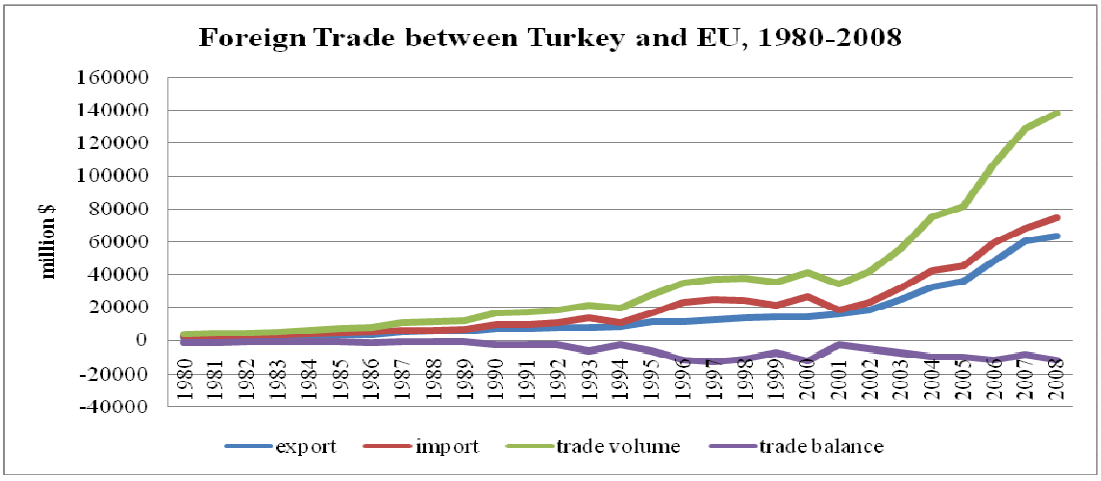

Figure 5: Developments in Foreign Trade between Turkey and EU

In recent years, the rate of increase in imports has decreased due to new trade partners and cheaper input facilities. Overvalued TL against dollar has also contributed to this trend. Thus, the share of EU in trade deficit of Turkey's total trade deficit has decreased.

After reviewing the recent trade relations between Turkey and the EU, Table 7 and Table 8 below present a more detailed analysis of trade relations between Turkey and the EU since 1969, which can be taken as informal end of the preparatory stage of the CU. As mentioned above the transitional stage started in 1970 by subscription of the Additional Protocol.

Table 7: Trade between Turkey and the EU, 1969-2008, US dollar and %

Years (Considering Enlargement Process)	Export to the EU	**Share of Export to EU** (%)	Import from the EU	**Share of Import from EU** (%)	Trade Balance with the EU	**Share of Trade Balance in Total Balance** (%)
1969 (EU-6)	214857005	40.0	284462117	35.5	-69605112	26.3
1972 (EU-6)	347016639	39.2	652519220	41.8	-305502581	45.1
1973 (EU-9)	611642495	46.4	1142339858	54.8	-530697363	69.0
1980 (EU-9)	1242199614	42.7	2203032590	27.9	-960832976	19.2
1981 (EU-10)	1504771093	32.0	2519337095	28.2	-1014566002	24.0
1985 (EU-10)	3133498015	39.4	3546678978	31.3	-413180963	12.2
1986 (EU12)	3263148689	43.8	4564956481	41.1	-1301807792	35.7
1994 (EU-12)	8269090698	45.7	10278758913	44.2	-2009668215	38.9
1995 (EU-15)	11078005104	51.2	16860583671	47.2	-5782578567	41.1
2003 (EU-15)	24484137402	51.8	31695935968	45.7	-7211798566	32.7
2004 (EU-25)	34451047375	54.5	45443719572	46.6	-10992672197	32.0
2006(EU-25)	44004199350	51.4	55068396166	39.5	-11064196816	20.5
2007 (EU-27)	60390661097	56.3	68611437605	40.3	-8220776508	13.1
2008 (EU-27)	63398551869	48.0	74767987950	37.0	-11369436081	16.3

Source: Constituted by using TSI data**.**

Table 7 demonstrates a summary presentation of trade progress between Turkey and the EU. A detailed table is given in Appendix 1. According to the table, as from 1969, there are increases in both exports and imports. The CU, milestone in trade relations with the EU, has affected trade flows. Increase in imports has actualized

more than increase in exports after CU. On the other hand, since the EU has decreased the customs duties since 1971, there is no significant effect of CU on exports. In 2008, share of export to the EU in total exports was 48% while share of imports from the EU was 37%.

Table 8: Trade between Turkey and the EU, 1969-2008

Years (Considering Enlargement Process)	Growth Rateof Export to EU			Growth Rateof Export from EU			(1)/(2)	(3)/(4)	Turkey's Total Trade			
	Change	Comp. Growth* (1)	After CU	Change	Comp. Growth* (3)	After CU.			Comp. Growth* Export.. (2)	After CU.	Comp. Growth* Import (4)	After CU
1969 (EU6)	-	-		-	-		-	-	-		-	
1970	11.3	11.3		14.3	14.3		1.2	0.8	9.6		18.3	
1971	11.5	11.4		40.1	26.6		0.9	1.3	12.3		20.9	
1972	30.2	17.3		43.2	31.9		1.0	1.3	18.1		24.9	
1973 (EU9)	76.3	29.9		75.1	41.6		1.2	1.5	25.2		27.0	
1974	17.3	27.3		49.5	43.1		1.2	1.2	23.3		36.4	
1975	-14.2	19.2		36.9	42.1		1.1	1.2	17.3		34.5	
1976	55.9	23.8		0.2	35.1		1.2	1.2	20.3		30.4	
1977	-9.5	19.1		5.5	31.0		1.2	1.1	15.9		28.1	
1978	25.6	19.8		-24.2	23.3		1.1	1.1	17.5		21.4	
1979	0.7	17.7		-2.5	20.4		1.1	1.0	15.5		20.3	
1980	13.2	17.3		20.7	20.5		1.0	0.9	16.6		23.1	
1981 (EU10)	21.1	17.6		14.4	19.9		0.9	0.9	19.8		22.3	
1982	16.7	17.5		-2.1	18.1		0.9	0.9	20.0		20.3	
1983	14.5	17.3		5.3	17.1		0.9	0.9	18.4		19.1	
1984	35.9	18.5		14.7	16.9		1.0	0.9	18.8		18.9	
1985	14.7	18.2		19.1	17.1		1.0	0.9	18.4		18.0	
1986 (EU12)	4.1	17.4		28.7	17.7		1.0	1.1	16.7		16.7	
1987	49.2	18.9		24.1	18.1		1.1	1.0	17.8		17.3	
1988	4.7	18.1		4.0	17.3		1.0	1.1	17.6		16.4	
1989	6.1	17.5		2.7	16.5		1.1	1.0	16.6		16.1	
1990	27.5	18.0		54.1	18.1		1.1	1.1	16.4		17.2	
1991	2.2	17.2		-1.1	17.1		1.1	1.1	15.8		16.0	
1992	7.9	16.8		9.0	16.8		1.1	1.1	15.5		15.7	
1993	-4.1	15.8		28.9	17.2		1.1	1.1	15.0		16.2	
1994	13.5	15.7		-20.6	15.4		1.0	1.1	15.1		14.4	
1995 (EU15)	34.0	16.4		64.0	17.0		1.1	1.1	15.3		15.7	
1996	4.3	15.9	4.3	37.2	17.7	37.2	1.1	1.1	15.0	7.3	16.0	22.2
1997	6.0	15.5	5.1	7.5	17.3	21.5	1.0	1.1	14.9	10.2	15.8	16.6
1998	10.2	15.3	6.8	-3.2	16.5	12.6	1.1	1.1	14.5	7.6	15.0	8.7
1999	6.3	15.0	6.7	-11.1	15.5	6.1	1.1	1.1	13.9	5.3	14.0	3.3
2000	1.1	14.6	5.5	24.3	15.8	9.6	1.1	1.1	13.6	5.1	14.6	8.8
2001	11.1	14.4	6.4	-31.3	13.9	1.4	1.1	1.1	13.6	6.4	13.1	2.5
2002	14.5	14.4	7.6	27.6	14.3	4.7	1.1	1.1	13.6	7.6	13.4	5.4
2003	32.6	14.9	10.4	35.9	14.9	8.2	1.1	1.1	14.1	10.3	14.0	8.6
2004 (EU25)	40.7	15.6	13.4	43.4	15.6	11.6	1.1	1.1	14.6	12.6	14.7	11.8
2005	11.4	15.5	13.2	8.3	15.4	11.3	1.1	1.0	14.6	13.0	14.8	12.6

2006	14.6	15.5	13.4	11.9	15.3	11.4	1.1	1.0	14.7	13.3	15.0	13.2
2007 (EU27)	37.2	16.0	15.2	24.6	15.5	12.4	1.1	1.0	15.0	14.3	15.1	13.9
2008	5.0	15.7	14.4	9.0	15.4	12.1	1.0	1.0	15.2	14.9	15.2	14.3

Source: Constituted by using TSI data**.**

***** Comp. Growth denotes Compound Annual Growth Rate. A detailed explanation of this rate has been given in Appendix 4.

According to Table 8, export to EU has increased in most years since 1969. But the increases were not smooth through the years. According to data, the largest increases has happened in 1970s. The two reasons for these unprecedented increases were perhaps the tariff reductions of EU to industrial goods imported from Turkey and the first enlargement of the Union. After 1973, the export share of EU in total exports has increased, too. Although the 1974 and 1979 oil crises had negative impact on exports to EU, the transitional stage of CU had trade creation effect on Turkey's exports. This result can be followed from Table 8 column 8 above in which EU export growth to total export growth ("(1)/(2)" column) is compared.

On the other hand, import from EU has increased in 1970s, especially in 1973 because of first enlargement process. Similarly, import share of EU in total import has increased. In this period, import was also under the influence of 1974 and 1979 oil crises.

January 24 Decrees and accessions of Greece, Spain and Portugal to the Union are the major changes (developments) of 1980s. Until third enlargement, compound growth rate for total export was higher than compound growth rate for export to EU. Accession of Greece having a similar competitive structure like Turkey in exports and the frozen of association relations due to the military intervention led to a decrease in export share of EU in the total exports. In the second half of 1980s, on the other hand, there were slight increases in both EU export growth rate and export share of EU in the total export.

January 24 Decrees was a turning point for the import sturucture of Turkey. According to compound growth rate of import, there were no significant impact of liberalization process and enlargements. Conversely, import from EU has decreased in 1982 and compound growth rate of import from EU was lower than compound

growth rate of total import during the first half of the 1980s. In this period, share of import from EU in total import was between 27% and 31%. In consideration of whole period, these values were below the average of the whole period. Import from EU has demonstrated increases from year to year through 1986-1994. But when compound growth rate is considered, import growth rate has exhibited a decreasing pattern. However, compound growth rate of import from EU was higher than compound growth rate of total import. There was a ten point increase in the share of import from EU in total import from 1985 to 1986 and this trend has continued until 1990.

From 1990 to 1995, both growth rates have demonstrated decreasing pattern. Especially in 1994, due to the economic crisis in Turkey, export growth rate became negative. However, the growth rate of export to EU was greater than growth rate of total export during 1986-1994 period. In 1995, there were accessions of three countries to the Union. Then number of members increased to 15. In that year, there were certain increases in both EU export growth rate and export share of EU in the total export. But, this improvement was due to the devaluation after the 1994 crisis, to some extent. Similarly, a similar increasing pattern has been observed for imports from EU. When comparing growth rate of import from EU with total export growth rate, it was obvious that growth rate of import from EU was higher. The share of import from EU in total import has increased from 1995 to 1999.

Beginning from January 1996, a new period has started in trade relations between Turkey and the EU, thanks to the Customs Union (CU) Agreement. We calculated compound annual growth rate, taking 1996 as the base year in order to reveal the trade creation/diversion effects of the CU agreement. Our calculations have shown that there was no prominent increase in exports to EU due to CU. Moreover, the export share of EU in total export decreased between 1995 to 1996, and EU export growth rate was realized as 4.3% which was lower than total export growth rate. In these years, the growth rate has never reached to any level that accrued in 1970s and 1980s. Until 1998, EU export growth rate was lower than total trade growth rate. Beginning from 1998, the share of export to EU in total export has increased until 2008 and it has never fell below 50%.

CU Agreement has affected imports as well. The annual growth rate has reached 37.2%. However, this rate is below the growth rate in 1995 (64%). This can be interpreted as that import increases were due to enlargement of EU rather than the CU Agreement in 1996. According to compound growth rate based on CU Agreement year (1996), EU import growth rate was 37.2%, which was above the total import growth rate (22.2%). This pattern of import has continued until 2001. Beginning from 2001, this pattern has reversed. In 2001, imports from EU decreased by 31.3% because of demand contraction due to the economic crisis in Turkey.

Considering 2004 and 2007 enlargement processes, new accessions to EU have caused trade creation effects on export to and import from EU. These can be seen from compound growth rate based on 1996. Nevertheless, the demand contraction due to the global crisis has slowed down the positive impacts of these enlargement process. Furthermore, in 2004, EU import growth rate was below the total import growth rate. Due to the new trade partners such as China and Russia and overvalued TL against US dollar, the share of import from EU in total imports has decreased since 2004.

It is clear that the EU is very important trade partner for Turkey. From a different point of view, it is essential to determine the share of Turkey in EU's trade flows. Total trade actualized in the EU is generally intra-union trade. Intra-union trade share in EU's total trade is nearly 70%. Thus, to see the importance of Turkey in foreign trade of the EU, Table 9 has been constructed.

Table 9: Importance of Turkey in Foreign Trade of the EU

	Exports of EU to Turkey		**Imports of EU from Turkey**	
	Billion ECU/EURO	**%**	**Billion ECU/EURO**	**%**
1980-EU9	**1.8**	**0.8**	**1**	**0.4**
1981-EU10	2.2	0.8	1.3	0.4
1985	5	1.3	3.1	0.8
1986-EU12	4.7	1.4	3.1	0.9
1990	7.7	1.9	5.9	1.3
1991	8.2	1.9	6.2	1.3
1992	8.3	1.9	6.6	1.4
1993	11.8	2.4	6.5	1.4
1994	8.9	1.7	7.5	1.4

1995-EU15	13.4	2.3	9.2	1.7
2000	30	3.2	17.5	1.7
2001	20.3	2.1	20.2	2
2002	24.3	2.4	22.1	2.2
2003	28.2	2.9	24	2.4
2004-EU25	36	3.4	29.1	2.7
2005	41.9	3.9	33.5	3,1
2006	46.6	3.9	38.6	2.8
2007-EU27	**52.6**	**4.2**	**46.9**	**3.3**

Source: EUROSTAT, External and Intra-European Union Trade, Statistical Year Book, Date 1958-2005, pp. 25, 27 and EUROSTAT web page (http://epp.eurostat.ec.europa.eu/portal)
* Billion ECU/Euro.

According to Table 9, export from EU to Turkey increased from 1.8 billion $ in 1980 to 52.6 billion $ in 2007 and Turkey's share in EU total export increased from 0.8% to 4.2% during the time period. Following Table 9, import to EU from Turkey was increased from 1 billion $ in 1980 to 33.5 billion $ in 2007 and Turkey's share in EU total import increased from 0.4% to 3.1%. With these shares, Turkey takes place among first 10 trade partners of EU in both EU export and import in 2007.

3. THEORETICAL BACKROUND OF GRAVITY MODEL AND LITERATURE REVIEW

To clarify the determining role of EU in Turkey's total trade flow, The Gravity Model has been used in this study. The Gravity model is based on Newton's Gravity Law. Main argument of this model is that foreign trade is determined by demographic and economic factors. The gravity model was first applied to international trade by Tinbergen (1962) and Pöyhönen (1963) to explain trade flows between countries, but it has a long story in the social sciences. Since the latter half of the nineteenth century, it has been used to explain social flows, primarily migration, in terms of the gravitational forces of the human interaction (Wall, 1999: 33). The simplest form of the gravity model for international trade suggests that trade flows between two countries are depend on their national incomes and physical distance between them. Since countries' national incomes are proxies of the economic size of countries, volume of trade is an increasing function of their national incomes. On the other hand, volume of trade is a decreasing function of physical distance between the countries. Remoteness between countries causes more transportation costs. Thus it has negative impact on trade flows. The simplest form of the gravity model is as follows:

$$F_{ij} = G\frac{Y_i\ Y_j}{D_{ij}} \qquad (1)$$

In Equation (1) F_{ij} denotes a trade flow such as export, import or total trade from i (origin) to j (destination); Y_i and Y_j are economic size of two countries (GDP). G denotes all the other variables that can be included in this equation and D_{ij} denotes physical distance between two countries.

Many researchers used different gravity models and they obtained consistently similar results; so it has become one of the widely used models to explain trade flows in the literature[3]. As mentioned above, Tinbergen (1962) and

[3] A concise summary of gravity literature is given in Appendix 7.

Pöyhönen (1963) are the pioneer studies that applying gravity equation to analyze international trade flows. They improved an empirical model lacking robust theoretical foundations. According to results of studies, trade flows have a positive relationship with economic sizes of countries and a negative relationship with physical distance between countries. After the first studies of Tinbergen (1962) and Pöyhönen (1963), Linneman added the population variable into the model. Population variable was employed as a proxy variable for consumer preferences in terms of importer and for capital–labor intensity in terms of exporter. Theoretical foundations of the empirical model are firstly formed by Anderson (1979). He made theoretical contributions to gravity model. Similarity of preferences, cost structures and tax regulations between trading partners are factors that affect trade flows positively. Some other works which contributed to gravity models are Bergstrand (1985; 1989; 1990), Deardorff (1998), Helpman and Krugman (1985), and Helpman (1987).

There are many applications of gravity model concerning economic integrations. For instance, Frankel (1997) used the model to explain determinants of inter and intra integration trade of EC, EU, EFTA, CUFTA, MERCOSUR and ASEAN. The purpose of study was to analyze effects of factors such as common language, common culture and common border on trade flows. Soloaga and Winters (1999) conducted a similar study for EU, EFTA, NAFTA, MERCOSUR and ASEAN during the 1980-1996 period. Common language, common culture and common border variables proxy by dummy variables inserted to standard gravity model. The results are proper to theoretical expectations. But according to analyses, new regional integration process has no trade creation effect. Likewise, Kruger (1999) used the gravity model for NAFTA. He determined that constitution of NAFTA in 1994 has a significant positive effect on Mexico's trade.

Wall (1999) used gravity model to estimate cost of protections on countries' welfare. Including 1994-1996 period and 85 trade partners of US, he used simple gravity equation by adding a new variable as trade policy index. This index shows the customs policy of a country and gives country a degree about her protectionism on trade flows. Although he found a negative correlation between trade flows and

trade policy index, he did not find a significant relationship between these two variables. Brülhart and Kelly (1999) analyzed Ireland's trading potential with Central and Eastern European Countries for 1994 by using gravity model. They added language and adjacency dummies and per capita incomes of countries to simple form of gravity model. All coefficients that they estimated have the expected signs and statistically significant at different confidence levels. Using 1995-1997 period and 46 trade partners of Estonia, Paas (2000) applied gravity model to trades flows of Estonia. He used four dummy variables for EU membership, EU candidacy, Commonwealth of Independent States and countries in the region of Baltic Sea. He run the regression for export and import separately. He found that trade with Commonwealth of Independent States and countries in the region of the Baltic Sea have increasing impacts of Estonia's trade flows. Another study made by Cheng and Wall (2002) used OECD country pairs and analyzed econometrical foundations of gravity model. An augmented model with different dummy variables was estimated by heterogeneous panel data approach. Martinez-Zarzoso and Nowak-Lehmann (2003) used panel data approach for MERCOSUR-EU countries during the 1988-1996 period. They plugged real exchange rates, infra-structures of exporter-importer and differences in per capita income in standard model. The results are proper to theoretical expectations.

Oh (2004) employed gravity model to estimate potential trade of North Korea with South Korea and US. In order to show effects of trade barriers, he used trade policy index in this study. He found significant negative relationship between trade flows and trade policy index for trade between North Korea and South Korea. But he found insignificant negative relationship between trade flows and trade policy index for trade between North Korea and US. Rojid (2006) used gravity model in order to analyze trade creation and diversion effects of COMESA for 147 countries during 1980-2001 period and got results consistent with theoretical expectations. A recent study made by Spies and Marques (2009) developed a new version of a theory-based gravity equation to properly account for relative price indices. Applying the augmented gravity equation to the process of EU integration during the 1990s, they found that trade agreements have substantially increased intra-group trade.

Gravity model is also used to clarify determinants of Turkey's trade flows and reasons of changes in these flows[4]. Antonucci and Manzocchi (2006) used gravity model in a panel data set to explain Turkey's trade flows during 1967-2001 period. They followed Cheng and Wall's two step fixed effect model procedure because of time invariant variables in their model. They first demonstrated that their gravity model explains Turkey's trade pattern. Next, they used the model to explain whether EU has a special role concerning the commodity trade between Turkey and EU. According to their analysis, CU has no significant role in Turkey's trade with EU. The main critique on Antonucci and Manzocchi (2006) is that the time coverage of the study is too broad to determine determinants of trade flow of Turkey and too narrow to measure the impact of CU (just five years)[5]. Lejour and Mooij (2005) simulated economic effects of Turkey's full membership to EU. Lejour and Mooij (2005) first determined potential trade between Turkey and EU for 15 sectors by the gravity model. Next, they determined custom equivalence of trade barriers by comparing numbers of potential trade and actualized trade. Then they calibrated 2001 world data in order to simulate computable general equilibrium model and analyzed economic effects of Turkey's full membership to EU after removal of foreign trade barriers. Lejour and Mooij (2005) showed that Turkey's foreign trade would be positively affected by Turkey's affiliation to EU. Likewise, they proposed that foreign trade of EU-15 and EU-25 countries would be affected positively by this affiliation although at marginal level. The main critique on Lejour and Mooij (2005) is that the time coverage of the study is again too narrow to cover the impact of CU on Turkey's trade flow. In that respect, this thesis should be considered as an extension of previous studies with a newer data and a longer time interval to capture the impact of CU on Turkey's trade flows. A recent study made by Bilici et al. (2009) used gravity equation to test the importance of EU countries in Turkey's total trade flows and the importance of CU Agreement in Turkey's trade flows with the EU. Findings have indicated that EU countries have always been important in

[4] A concise summary of gravity literature on Turkish foreign trade is given in Appendix 8.
[5] As we mentioned at the very beginning, Turkey has experienced a change in its trade regime after 24 January 1980 in years; therefore, (i) pre-1980 period is completely irrelevant, (ii) 1980-1990 period is rather the transition period.

Turkey's total trade flows and that Customs Union has increased EU's importance in Turkey's total trade flows.

There is one more study which analyzes trade flows in Black Sea Economic Cooperation (BSEC) in which Turkey is already a member. The first one is made by Sayan (1998). He analyzed BSEC from the perspective of globalization efforts in the Middle East and the Balkans, the regions that future expansion scenarios are most likely to cover. To this end, he investigated the economic rationale behind the desire to seek/maintain membership, with special reference to the trade creation and diversion effects it could generate. He used inter and intra regional export flows as a dependent variable. Different versions of the model were estimated using a combination of variables using pooled data over the 1992-1994 period with 48 cross-section observations for each year. According to analyses, the BSEC has increased export flows of inter and intra region. The other study about the BSEC is made by Genç, Berber and Artan (2007). They applied gravity model to explain determinants of trade flows in the BSEC region. For this purpose, panel data analysis is used for the 1997-2004 and 1997-2000, 2001-2004 sub-periods. The results are consistent with theoretical expectations.

4. ECONOMETRIC ANALYSIS: PANEL DATA APPROACH

In this section of the thesis, we presented a brief explanation about methodology which has been used in our estimations. In this thesis, panel data approach is used in order to estimate gravity equation. Reasons of this choice have been stated as well. Descriptions and sources of data have been given after the methodology. In the last part of this section we presented our estimation results.

4.1. Methodology and Data

Panel data approach allows monitoring unobserved individual effects of countries (countries are the cross-section units here) on trade flows. To ignore these individual effects is an econometric specification problem if these effects have correlations with independent variables. Ordinary least squares (OLS) estimators become biased by such a problem. For this reason, panel regression has been used in this study. In the next section, a brief information about panel data analysis has been given.

4.1.1. Methodology

In this thesis, panel data approach is used in order to estimate gravity equation. Panel data analysis endows regression analysis with both a cross-sectional and a periodic dimension. Cross-sectional units of observations could be countries, states, counties, firms, commodities, groups of people, or even individuals. Periodic observations are the set of variables characterizing these cross-sectional units over a particular time span. Panel data involve two dimensions: a cross-sectional dimension *N*, and a time-series dimension *T* (Greene, 2003: 283).

A panel data regression differs from a regular time series or cross-section regression in that it has a double subscript on its variables. A basic regression estimated by panel data can be defined as follows:

$$y_{it} = X_{it}^{'}\beta + Z_{it}^{'}\alpha + \varepsilon_{it} \qquad (2)$$

There are *K* regressors in X_{it}, not including a constant term. The heterogeneity, or individual effect is $Z_{it}^{'}\alpha$ where Z_i contains a constant term and a set of individual or group specific variables. These variables may be observed variables such as race, sex, location, and or unobserved variables such as family specific characteristics, individual heterogeneity in skill or preferences, and so on, all of which are taken to be constant over time *t*. As it stands, this model is a classical regression model. If Z_i is observed for all individuals, then the entire model can be treated as an ordinary linear model and fit by least squares (Greene, 2003: 285). ε_{it} is the disturbance term which includes unobservable effects.

$$\varepsilon_{it} = \mu_i + \lambda_t + \nu_{it} \qquad (3)$$

where μ_i denotes unobservable cross-sectional effects, λ_t denotes unobservable time effects and ν_{it} denotes the remainder disturbance. If a model covers both cross-sectional and time effects, it is called two-way error component model. Alternatively, a model may include only one type of effect, then it is called one-way error component model (Baltagi, 2005: 11):

$$\varepsilon_{it} = \mu_i + \nu_{it} \text{ or } \varepsilon_{it} = \lambda_t + \nu_{it} \qquad (4)$$

There are two estimating methods in panel data approach: Fixed Effects Model (FEM) and Random Effects Model (REM). FEM assumes that each cross-section has a different effect on the model, but these effects do not change during the time period in question; whereas REM assumes that each cross-section has different and changeable effect on model. If Z_i is unobserved, but correlated with X_{it} , then the least squares estimator of β is biased and inconsistent as a consequence of an omitted variable. To estimate such a model, Least Square Dummy Variables (LSDV) estimators should be used (Hsiao, 2003: 33). It should be noted that the term “fixed” as used here indicates that the term does not vary over time, not that it is non-stochastic, which need not be the case (Greene, 2003: 285). If Z_i is unobserved, but uncorrelated with X_{it}, to prevent loss of degree of freedom in FEM, REM should be

used. Generalized Least Square (GLS) estimators are used in REM (Hsiao, 2003: 35).

From theoretical perspective, if the sample represents whole population, then FEM is used; whereas REM is used if the sample does not exactly represent population (Baltagi, 2001:12). But, also the test proposed by Hausman (1978) can be employed to clarify which model should be used. The null hypothesis of the test suggests that there is no correlation between explanatory variables and disturbance term.

$$H_o : E(\varepsilon_{it} \mid X_{it}) = 0 \qquad (5)$$

If H_o can be rejected FEM should be used, if H_o cannot be rejected REM should be used (Greene, 2003: 301-302).

Panel data involve time-series dimension as well as cross-sectional dimension involving different individuals. Thanks to panel data set, one can follow a given sample of individuals over time, and thus it provides multiple observations on each individual in the sample. Panel data allows us to construct and test more complicated behavioral models than purely cross-sectional or time-series data. Thus, it is important to determine benefits and limitations of panel data.

First of all, panel data usually give the researcher a large number of data points, increasing the degrees of freedom and reducing the collinearity among explanatory variables – hence improving the efficiency of econometric estimates. Panel data also provide the possibility of generating more accurate predictions for individual outcomes than time-series data alone. In cross-sectional data and time series data, measurement errors can lead to unidentification. However, the availability of multiple observations for a given individual or at a given time may allow a researcher to identify an otherwise unidentified model. More importantly, panel data allow a researcher to analyze a number of important economic questions that cannot be addressed using cross-sectional or time-series data sets. If panel data are available, one can utilize the inter-individual differences in independent variables values to reduce the problem of collinearity. Furthermore, panel data have also

become increasingly available in developing countries. In these countries, there may not have a long tradition of statistical collection. It is of great importance to obtain original survey data to answer many significant and important questions (Hsiao, 2003:1-7).

Besides its advantages, panel data bear some limitations. Data collection problem is the common problem in the panel data sets. Especially in big panels, it is difficult to reach all observations. Another limitation is distortions of measurement errors. Measurement errors may arise because of faulty responses due to unclear questions, memory errors, deliberate distortion of responses, inappropriate informants, misrecording of responses and interviewer effects. Moreover, in macro panels on countries or regions with long time series that do not account for cross-country dependence may lead to misleading inference (Baltagi: 2001, 7-8) .

In this work, we used FEM because the countries that we have chosen have a high share in Turkey's total trade. Hausman test has also been used to support this choice[6]. The main problem with the FEM is that we cannot estimate directly the time invariant variables such as dummies and physical distance. Cheng and Wall (2003) have suggested a two step procedure. Accordingly, a regression for time variant variables is run by standard FEM.

$$F_{ijt} = \alpha_j + \beta_{1-7} X_{ijt} + \varepsilon_{it} \qquad (6)$$

where F_{ijt} denotes trade flows (export, import or export plus import) between Turkey (i) and her trading partner (j) in time t and X_{ijt} denotes time variant variable set. After regressing this model individual cross-section effects obtained from this model are used as a dependent variable and time invariant variables are used as explanatory variables in a cross-section analysis.

$$IE_i = \sigma_0 + \sigma_1 \ln(D_{ij}) + \sigma_{2-4} DUMs + \vartheta_{it} \qquad (7)$$

[6] Hausman Test results has been given in Appendix 10.

where, IE_i denotes individual cross-section effects obtained from Standard FEM. Via the equation (7), one can estimate coefficients of time invariant variables.

4.1.2. Data

The general form of the gravity equation used in this thesis is as follows:

$$F_{ij} = G\frac{Y_i^{\beta_1} Y_j^{\beta_2} P_i^{\beta_3} P_j^{\beta_4}}{D_{ij}^{\theta}} \qquad (8)$$

In Equation (8) F_{ij} denotes a trade flow such as export, import or total trade from i (origin) to j (destination); Y_i and Y_j are economic size of two countries (GDP); P_i and P_j are population of home country and trading partner, respectively. G denotes all the other variables that can be included in this equation and D_{ij} denotes physical distance between two countries. Through linearizing Equation (8) by natural logarithm, Equation (9) has been obtained:

$$\begin{aligned} F_{ijt} &= \alpha_j + \beta_1 \ln(Y_i) + \beta_2 \ln(Y_j) + \beta_3 \ln(P_i) + \beta_4 \ln(P_j) + \beta_5 \ln(\Delta Y_{ij}) + \beta_6 \ln(D_{ij}) \\ &+ \beta_7 DUM\_CU + \beta_8 DUM\_EU + \beta_9 DUM\_OECD \\ &+ \beta_{10} DUM\_OIC + \beta_{11} DUM\_BORD + \varepsilon_{it} \end{aligned} \qquad (9)$$

In Equation (9):

F_{ijt}: Trade flow such as export, import or total trade (export plus import) between Turkey (i) and her trading partner (j) in time t,

Y_j: GDP of Turkey's trading partner, as a proxy for economic size of trading partner,

Y_i: GDP of Turkey, as a proxy for economic size of Turkey,

P_j: Population of Turkey's trading partner,

P_i: Population of Turkey,

ΔY_{ij}: Development difference between Turkey and her trading partner,

D_{ij}: Physical distance between Turkey and her trading partner,

DUM_CU: Dummy variable for CU membership,

DUM_EU: Dummy variable for EU membership,

DUM_OECD: Dummy variable for Organization for Economic Cooperation and Development (OECD)[7] membership,

DUM_OIC: Dummy variable for Organization of the Islamic Conference (OIC)[8] membership, and

DUM_BORD: Dummy variable for common border between Turkey and her trading partner[9].

GDP and demographic data are obtained from World Economic Outlook Database of IMF. Data concerning physical distances between countries are obtained from indo.com as the crow flies in terms of km. DUM_EU variable takes 1 for EU countries and 0 for other countries among the countries in question. DUM_OECD variable takes 1 for countries which are member of OECD and 0 for others among the countries in question. DUM_OIC variable takes 1 for countries which are member of OIC and 0 for others. DUM_BORD variable takes 1 for countries having common border with Turkey and 0 for others. Finally, an index proposed by Balassa and Bauwens (1987) has been used as a proxy variable to signify development level differences between Turkey and her trading partner instead of absolute difference of GDP per capita between countries[10].

Theory suggests that (i) import depends on GDP and, (ii) a country's export capacity is dependent on its potential production. Therefore, we assume that the sum of export and import should depend on the country's GDP positively. Likewise, a

[7] We used dummy variable for OECD membership to isvestigate Turkey's trade relations with developed countries.
[8] We used dummy variable for OIC membership as an alternative to EU by similarities in cultures.
[9] More details about explanations of variable has been given in Appendix 2.
[10] To show difference in development level, relative difference of countries' per capita income (PCI) has been used. More details about calculation of this variable has been given in Appendix 3.

positive relationship should be expected between GDP of partner and the sum of export and import (the dependent variable), by analogy.

Theory does not suggest a clear-cut relationship between population and trade flows. First starting with export, the relationship between export and population is not clear. According to Bergstrand (1989), the positive (negative) sign of β_3 indicates that export of the trading partner is labor (capital) intensive and the negative (positive) sign of β_4 indicates that export is mostly composed of luxury (necessities) goods. Theory suggests that an increase in the domestic country's population leads to an increase in import and an increase in the population of the trading partner may affect domestic country's export positively in absolute terms. In conclusion, with some ambiguity, it is more likely that populations of domestic country and her trading partner will affect trade flows positively.

A positive sign for difference in country's development level implies that conventional trade theories work (according to Heckscher-Ohlin Theorem, an increase in factor endowment differences increases total trade). Otherwise, new trade theories work (According to new trade theories - for example intra-industry trade – increasing trade is expected between similar countries in terms of development level) (Helpman, 1981).

Physical distance variable is used as a proxy for transportation costs. Theory suggests a negative sign between distance and trade flow. We expect that affiliation to an economic union and having a common border with a trading partner have positive effects on trade flows. Positive signs for dummy variables are expected showing that membership to an organization or union, to have common border with a country and have similar cultures will affect trade flows between Turkey and her trading partners.

4.2 Estimations

In this part of the study, results of regression analyses have been presented. The analyses for determining role of the EU on Turkey's total trade flows include 53

trading partners of Turkey. These countries have been chosen as first 53 countries in first 90% of Turkey's total trade flows. The analyses for determining role of the EU on Turkey's import and export flows include 43 and 48 trading partners respectively. The selection of these countries is similar to the selection of trading partners of total trade. Due to the data unavailability for Iraq and Russian Federation, these countries have been removed from analyses although they take place in first 90% of trade flows.

4.2.1 Gravity Model on Total Trade Flows

In this part of the thesis, the determining role of the EU has been analyzed for Turkey's total trade flows. The analyses have been made for the 1982-2008 period for 53 trading partners[11]. All monetary variables are deflated by using GDP deflator of US with a base year 2000. Before regression analyses, panel unit root test proposed by Im, Pesaran and Shin (2003) has been applied for all variables. The results have been given on Table 10. According to the test results, all variables are stationary in the given lagged numbers.

Table 10: Unit Root Test Results for Total Trade Analyses

	IPS-Wstat	**Prob.**	**Lag value**
LN(TT)	-4.137***	0.0000	3
LN(GDP_PRT)	-2.391***	0.0084	7
LN(GDP_TR)	-9.726***	0.0000	3
LN(POP_PRT)	-3.559***	0.0002	7
LN(POP_TR)	-11.366***	0.0000	3
LN(DPCI)	-4.501***	0.0000	3

Note: Selection of lags are based on Akaike Information Criteria.
* denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

[11] A list of countries that used in the empirical analyses has been given in Appendix 9.

Since there is no evidence for non-stationarity in variables, all variables have been used in levels in regressions. As there exists time invariant variables in the model, i.e., distance, two-stage procedure has been applied. In the first stage, the model has been run under fixed effects with time variant variables. To avoid autocorrelation problem, EGLS estimators (cross-section weights) have been employed. Then, individual cross-sectional effects obtained from this model have been used as dependent variable in a cross-sectional model to see the effects of time invariant variables on cross-sections.

Table 11: Gravity Model for Turkey's Total Trade Flows

	First Stage of Fixed Effect Model					
C	-5.249** (-2.064)					
LN(GDP_PRT)	1.052*** (5.990)					
LN(GDP_TR)	1.993*** (8.407)					
LN(POP_PRT)	-0.710 (-1.396)					
LN(POP_TR)	-0.446 (-0.692)					
R^2.	0.98					
adj. R^2.	0.97					
# of obs.	1431					
# of countries	53					
	Second Stage of Fixed Effect Model					
	Model-1	**Model-2**	**Model-3**	**Model-4**	**Model-5**	**Model-6**
LN(DIST)	-0.539*** (-3.881)	-0.533*** (-2.724)	-0.529*** (-3.374)	-0.526*** (-3.772)	-0.466*** (-3.035)	-0.327** (-2.142)
DUM_EU		0.392* (1.989)			0.489** (2.021)	0.259 (0.826)
DUM_OECD			-0.078 (-0.299)			
DUM_OIC				0.110 (0.368)	0.2361 (0.635)	0.257 (0.723)
DUM_BORD						1.001*** (3.061)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

Table 11 presents the estimation results for total trade flows. Since DPCI variables are statistically insignificant, it has been excluded from the model. But estimations with this variable have been presented in Appendix 5. According to the table above, only GDP_PRT and GDP_TR variables are statistically significant at 1% significance level. Both of these variables have positive signs. Following Table 11, 6 different models are estimated for different combinations of time invariant variables. In Model-1, the significance of DIST variable has been tested. According to our test result, DIST is statistically significant at 1% level and has negative sign as expected. In the second, third and fourth models, DUM_EU, DUM_OECD and DUM_OIC have been tested one-by-one, respectively. We found that all but DUM_EU have insignificant coefficients. This shows that there is no significant effect of OECD and OIC membership on Turkey's total trade flows. But EU membership has positive impact on Turkey's total trade flows. The fifth model uses DUM_EU and DUM OIC together. Again only dummy for EU is statistically significant and has positive effects on Turkey's total trade flows. But it can be followed from the table that both coefficients and their significance levels have increased after adding DUM_OIC. It can be interpreted that when we exclude total trade due to the cultural similarities, DUM_EU becomes more significant. The last model has been run by adding DUM_BORD to Model-5. We found that DUM_EU and DUM_OIC are insignificant. Since the DUM_BORD is significant and has positive effect on total trade flows, this can be interpreted as having common border with the trading partner is important for Turkey's total trade flows.

In the analysis above, the data set covers 53 countries. In order to uncover whether (regional) economic integration had any effect on Turkey's trade flow, the same analyses have been repeated for two different country groups: EU countries and non-EU countries. Results are shown in Table 12.

Table 12: Gravity Model for Turkey's Total Trade: EU and Non-EU Countries

	First Stage of Fixed Effect Model						
	EU			**Non-EU**			
C	-0.247 (-0.087)			-3.385 (-1.380)			
LN(GDP_PRT)	0.743*** (3.059)			1.382*** (6.035)			
LN(GDP_TR)	2.244*** (14.724)			1.689*** (8.467)			
LN(POP_PRT)	-3.691*** (-3.473)			-0.227 (-0.404)			
LN(POP_TR)	0.238 (0.509)			-1.234* (-1.877)			
DUM_CU	0.011 (0.309)						
R^2.	0.98			0.97			
adj. R^2.	0.98			0.96			
# of obs.	540			891			
# of countries	20			33			
	Second Stage of Fixed Effect Model						
	EU			**Non-EU**			
	Model-1	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-4**
LN(DIST)	-0.007 (-0.048)	-3.596 (-1.345)	-4.032 (-1.221)	-1.191*** (-7.429)	-1.047*** (-5.804)	-1.011*** (-6.019)	-1.003*** (-4.945)
DUM_OECD		7.276 (1.701)	7.334 (1.677)		-0.546 (-1.209)		-0.342 (-0.652)
DUM_BORD			-0.965 (-0.271)				-0.136 (-0.401)
DUM_OIC						0.554 (1.501)	0.338 (0.853)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

First column of Table 12 demonstrates the effects of explanatory variables on trade flows realized between Turkey and EU countries. According to these estimations, GDP_PRT, GDP_TR and POP_PRT variables are statistically significant at 1% significance level. GDP of trading partners and GDP of Turkey have positive effects on total trade flows between Turkey and EU. On the other hand, population of trading partners has negative effect. To see the effect of CU on Turkey's total trade with EU, DUM_CU has been used. Unexpectedly its coefficient is statistically insignificant meaning that there is no significant impact of CU Agreement on

Turkey's total trade with EU. In the second stage of FEM three models with time invariant variables have been run. It has been found that there are no significant relationship between total trade and time invariant variables. The second column in Table 12 displays the estimation results for non-EU countries. According to these estimations, trade flows between Turkey and 33 non-EU member countries is significantly positively affected by Turkey's GDP and partners' GDP. In non-EU analysis, POP_TR variable is significant instead of POP_PRT. POP_TR has a negative impact on total trade flows between Turkey and non-EU countries. There are four sub-models for non-EU countries. In all models, only the distance variable is statistically significant and has expected sign. The dummy variable for economic integration and common border have no significant effects. When we compare the coefficients of time variant varibles for both country groups, GDP_PRT is more effective on total trade with non-EU countries and GDP_TR is more effective on EU countries.

4.2.2 Gravity Model on Export Flows

In this part of the thesis, the determining role of the EU has been analyzed for Turkey's export flows. The analyses have been made for the 1982-2008 period for 48 exporting trading partners. All monetary variables are deflated by using GDP deflator of US with a base year 2000. Before regression analyses, panel unit root test proposed by Im, Pesaran and Shin (2003) has been applied for all variables. The results have been given on Table 13. According to the test results, all variables are stationary in the given lagged numbers.

Table 13: Unit Root Test Results for Export Analyses

	IPS-Wstat	Prob.	Lag value
LN(EXP)	-3.2436***	0.0006	3
LN(GDP_PRT)	-2.6908***	0.0036	7
LN(GDP_TR)	-9.2559***	0.0000	3
LN(POP_PRT)	-2.0332**	0.0210	5
LN(POP_TR)	-10.8169***	0.0000	2
LN(DPCI)	-4.4041***	0.0000	3

Note: Selection of lags are based on Akaike Information Criteria.
* denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Since there is no evidence for non-stationarity in variables, all variables have been used in level in regressions. Due to the time invariant variables, two-stage procedure has been applied to export analyses as well. In the first stage, the model has been run under fixed effects with time variant variables. To avoid autocorrelation problem, EGLS estimators have been employed. Then, individual cross-sectional effects obtained from this model have been used as dependent variable in a cross-sectional model to see the effects of time invariant variables on cross-sections.

Table 14: Gravity Model for Turkey's Export Flows

	First Stage of Fixed Effect Model					
C	-11.366*** (-4.968)					
LN(GDP_PRT)	1.622*** (6.529)					
LN(GDP_TR)	0.913*** (6.489)					
LN(POP_PRT)	0.865* (1.684)					
LN(POP_TR)	0.073 (0.148)					
R^2.	0.98					
adj. R^2.	0.97					
# of obs.	1296					
# of countries	48					
	Second Stage of Fixed Effect Model					
	Model-1	**Model-2**	**Model-3**	**Model-4**	**Model-5**	**Model-6**

LN(DIST)	-2.276*** (-4.311)	-2.406*** (-4.698)	-1.913*** (-3.538)	-2.001*** (-3.790)	-1.743*** (-3.157)	-1.979*** (-3.155)
DUM_EU		-0.601 (-0.835)			1.361* (1.814)	1.567* (1.786)
DUM_OECD			1.724** (2.179)			
DUM_OIC				1.423* (1.912)	1.981*** (3.572)	2.906*** (3.554)
DUM_BORD						-1.500 (-1.389)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

Table 14 represents the estimation results for export flows. Since DPCI variables are statistically insignificant, it has been excluded from the model. But estimations with this variable have been presented in Appendix 5. According to the table above, the main variables of gravity equation except population of Turkey are statistically significant at different significance level. GDP_PRT, GDP_TR and POP_PRT variables have positive signs while DIST variable has negative sign as expected. Following Table 14, there are 4 different models estimated for different combinations of dummy variables. In the second, third and fourth models, only DUM_EU, only DUM_OECD and only DUM_OIC have been used respectively. Accordingly, DUM_EU has insignificant coefficients while DUM_OIC and DUM_OECD have significant coefficients and expected signs. This shows that there is no significant effect of EU on Turkey's export flows. However, as a set of developed countries, OECD membership has positive impact on Turkey's export flows. The fifth model uses DUM_EU and DUM OIC together. Both dummies have statistically significant and positive effects on Turkey's exports. It can be interpreted that when we exclude exports due to the cultural similarities, DUM_EU becomes significant. The last model has been run by adding DUM_BORD to Model-5. DUM_EU and DUM_OIC are still significant at 10% and 1% significance level respectively, and their effects on export have been increased. But there is no significant effect of having common border on export flows.

In order to uncover whether (regional) economic integration had any effect on Turkey's export flow, the same analyses has been repeated for two different country groups: EU countries and non-EU countries. Results are shown in Table 15.

Table 15: Gravity Model for Turkey's Export Flows: EU and Non-EU Countries

	First Stage of Fixed Effect Model						
	EU			**Non-EU**			
C	-6.553 (-1.726*)			-8.683*** (-2.655)			
LN(GDP_PRT)	2.206*** (6.833)			1.458*** (4.877)			
LN(GDP_TR)	1.384*** (6.813)			0.418* (1.792)			
LN(POP_PRT)	-3.028** (-2.193)			1.821*** (3.718)			
LN(POP_TR)	1.141* (1.873)			-1.090 (-1.399)			
DUM_CU	-0.095*** (-4.237)						
R^2.	0.98			0.96			
adj. R^2.	0.98			0.96			
# of obs.	540			756			
# of countries	20			28			
	Second Stage of Fixed Effect Model						
	EU			**Non-EU**			
	Model-1	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-4**
LN(DIST)	-0.942 (-1.203)	-1.634 (-1.237)	-1.973 (-1.294)	-3.109*** (-3.628)	-2.533** (-2.213)	-2.326** (-2.249)	-2.528** (-2.101)
DUM_OECD		1.428 (0.709)	1.474 (0.715)		-1.749 (-0.672)		-0.966 (-0.317)
DUM_BORD			-0.752 (-0.438)				4.252*** (2.539)
DUM_OIC						3.399*** (3.945)	3.683*** (3.749)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

Exports in both country groups have affected by GDP_PRT, GDP_TR and POP_PRT variables significantly. POP_TR is significant at 10% significance level for only EU countries. It effects Turkey's export to EU countries positively showing that Turkey exports labor intensive goods to EU countries as theory suggested.

Effects of all significant variables for EU countries are higher than effects of all significant variables for non-EU countries. However the sign of POP_PRT variable is different in the two analyses. Theoretically this indicates that, Turkey's export to EU countries is composed of luxury goods while her export to non-EU countries is composed of necessity goods. Moreover POP_TR variable is significant for EU countries. To see the effect of CU on Turkey's export with EU, DUM_CU has been used. It has statistically significant. Nevertheless, CU Agreement has trade diversion impact on Turkey's export with EU. In the second stage of FEM employed for Turkey's export with EU three models with time invariant variables have been run. We found that there are no significant relationship between export and the time invariant variables. In the second stage of FEM employed for Turkey's export with non-EU four models with time invariant variables were run. The DIST variable –the main variable of the gravity model- is statistically significant in all models with different significance levels. The sign of the variable is negative, indicating that there is negative relationship between Turkey's export flows and her physical distance from exporting partners. Model-3 searches for the significance of OIC membership on export flows. According to test results, countries with OIC membership (among non-EU countries) have positive and significant effect on export flows between Turkey and non-EU. DUM_OIC has positive and significant impact on export flows in Model-4 as well. In this model, having common border with exporting partner is also statistically significant. The sign of DUM_BORD is positive as expected.

4.2.3 Gravity Model on Import Trade Flows

In this part, the determining role of the EU has been analyzed for Turkey's import flows. The analyses have been made for the 1982-2008 period for 43 importing trading partners. All monetary variables are deflated by using GDP deflator of US with a base year 2000. Before regression analyses, panel unit root test proposed by Im, Pesaran and Shin (2003) has been applied for all variables as well. The results have been given on Table 16. According to the test results, all variables are stationary in the given lagged numbers.

Table 16: Unit Root Test Results for Import Analyses

	IPS-Wstat	Prob.	Lag value
LN(IMP)	5.836***	0.0000	3
LN(GDP_PRT)	1.355*	0.0877	7
LN(GDP_TR)	-8.761***	0.0000	3
LN(POP_PRT)	-4.6091***	0.0000	7
LN(POP_TR)	-10.238***	0.0000	2
LN(DPCI)	3.520***	0.0002	3

Note: Selection of lags are based on Akaike Information Criteria.
* denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Since there is no evidence for non-stationarity in variables, all variables have been used in level in regressions. To avoid autocorrelation problem, EGLS estimators have been employed. Again, two-step procedure has been applied. The summary of the regression results is shown on Table 17.

Table 17: Gravity Model for Turkey's Import Flows

	First Stage of Fixed Effect Model					
C	-0.662 (-0.281)					
LN(GDP_PRT)	0,824*** (3.575)					
LN(GDP_TR)	2.654*** (16.412)					
LN(POP_PRT)	-1.793*** (-3.039)					
LN(POP_TR)	-1.040** (-2.089)					
R^2.	0.97					
adj. R^2.	0.96					
# of obs.	1161					
# of countries	43					
	Second Stage of Fixed Effect Model					
	Model-1	**Model-2**	**Model-3**	**Model-4**	**Model-5**	**Model-6**
LN(DIST)	0.612 (1.107)	0.436 (0.759)	0.636 (1.155)	0.581 (1.048)	0.633 (1.108)	0.782 (1.182)
DUM_EU		-0.456			0.138	0.220

		(-0.425)			(0.099)	(0.156)
DUM_OECD			-0.509 (-0.595)			
DUM_OIC				1.212* (1.756)	1.282 (1.084)	1.224 (1.056)
DUM_BORD						0.971 (0.986)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

Table 17 represents the estimation results for import flows. Since DPCI variables are statistically insignificant, it has been excluded from the model. Estimations with this variable have been presented in Appendix 5. According to the table above, all main variables of gravity equation are statistically significant at different significance level. GDP_PRT and GDP_TR have positive signs while POP_PRT and POP_TR variables have negative signs. Following Table 17, there are 4 different models estimated for different combinations of dummy variables. Except Model-4, there is no significant effect of distance and dummies on import flows. In fourth model, DIST is statistically insignificant but DUM_OIC is significant at 10% significance level. Results show that gravity model cannot work on import flows of Turkey. Also any significant effect of the EU has not been found from the analyses.

To uncover whether (regional) economic integration had any effect on Turkey's import flow, the same analyses have been repeated by dividing 43 countries into two sub groups: EU and non-EU countries. Results are shown in Table 18.

Table 18: Gravity Model for Turkey's Import Flows: EU and Non-EU Countries

	First Stage of Fixed Effect Model	
	EU	**Non-EU**
C	3.178 (0.943)	-0.241 (-0.070)
LN(GDP_PRT)	0.306 (0.953)	1.239*** (3.649)
LN(GDP_TR)	2.784*** (13.699)	2.523*** (6.437)
LN(POP_PRT)	-3.527*** (-2.893)	-2.445*** (-2.628)

LN(POP_TR)	-0.936 (-1.525)			-0.547 (-0.563)			
DUM_CU	0.054 (1.017)						
R^2.	0.98			0.96			
adj. R^2.	0.97			0.96			
# of obs.	540			621			
# of countries	20			23			
	Second Stage of Fixed Effect Model						
	EU			**Non-EU**			
	Model-1	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-4**
LN(DIST)	0.865 (0.322)	-2.829 (-0.909)	-3.768 (-0.976)	0.760 (0.888)	1.189 (1.264)	1.129 (1.319)	1.477 (1.481)
DUM_OECD		7.629* (1.979)	7.756* (1.959)		-1.843 (-0.995)		-1.329 (-0.652)
DUM_BORD			-2.079 (-0.432)				3.398*** (3.142)
DUM_OIC						1.859 (1.253)	0.564 (0.504)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

First column of Table 18 demonstrates the effects of explanatory variables on import flows between Turkey and EU countries. According to these estimations, GDP_TR and POP_PRT variables are statistically significant at 1% significance level. These variables have positive and negative effects respectively. GDP_PRT and POP_TR variables are statistically insignificant. To see the effect of CU on Turkey's import with EU, DUM_CU has been used. Unexpectedly its coefficient is statistically insignificant meaning that there is no significant impact of CU Agreement on Turkey's import with EU. In the second stage of FEM three models with time invariant variables were run. It has been found that only DUM_OECD is statistically significant at 10% significance level. The second column in Table 18 displays the estimation results for non-EU countries. According to these estimations, import flows between Turkey and 23 non-EU member countries were significantly affected by all time variant variables except POP_TR. GDP_PRT and GDP_TR have positive effect while POP_PRT has negative effect on import flows between Turkey and her non-EU importing partners. Although GDP_TR and POP_PRT are significant variables in both country groups, coefficients of these two variables are higher for EU countries meaning that the impact of these variables is more effective on Turkey's import with EU countries. There are four sub-models for non-EU countries.

In all models, no significant impact of distance variable on import has been determined, showing that the gravity equation does not operate on Turkey's import flows in both country groups. There is only one significant time invariant variable among the four models. Having common border has positive and significant effect on import flows between Turkey and her non-EU trading partners.

5. CONCLUSION

This thesis aims to determine the trade equation of Turkey and to pinpoint whether the recent EU has significant impact on Turkey's trade flows. While on the one hand the globalization trend has been welcomed by many economies, regional economic integration agreements seem to be also popular. Taking these two trends into account, this study analyzes the determinants of the Turkish trade flow, which is under the influence of both globalization and regionalization.

In the econometric analyses, panel data approach has been employed by using the 1982-2008 trade data of Turkey to determine significant effect of EU on Turkey's trade flows. The analyses have been repeated for total trade flows, export flows and import flows. The preliminary results indicate that EU was always important in Turkish trade flows.

More econometric results of panel data analysis about total trade flows show that the gravity equation used for trade data with fixed effects yield that while the economic size of Turkey and its trading partners are positive and significant in determining Turkey's trade flows, population variables are insignificant. According to the second stage of fixed effects shows that physical distance between countries is significant and has negative impact on trade flows as gravity model suggests and that dummy variable for EU is positive and significant. Analyses for comparison of EU countries with non-EU countries indicate that physical distance is insignificant for EU countries and CU Agreement has no significant impact on Turkey's total trade with EU countries. We believe that our results may be interpreted as reinforcing the importance of EU in Turkey's trade flow, but has not caused any significant change.

Econometric results obtained from export analyses shows that there are no significant effect of EU and OIC membership on Turkey's export flows. But as a set of developed countries, OECD membership has positive impact on Turkey's trade export flows. In one of the models in the regression analyses, by adding OIC membership dummy to the model, dummy for EU becomes significant. Both dummies have statistically significant and positive effects on Turkey's exports. It can be interpreted that when we exclude exports due to the cultural similarities, dummy

for EU membership becomes significant. According to analyses which decompose the countries into two groups as EU and non-EU countries, physical distance is significant for non-EU countries and OIC countries are significant exporting partners among non-EU countries. In export to EU analysis, statistically significant effect of CU dummy is obtained. However its sign is negative showing that CU Agreement has trade diversion impact on Turkey's export to EU countries.

In import analyses, there are no significant effects of distance and dummies on import flows. Results show that gravity model cannot work on import flows of Turkey. Also any significant effect of the EU has not been found from the analyses. According to analyses which decompose the countries into two groups as EU and non-EU countries, physical distance is insignificant for both EU and non-EU countries showing that Turkey's dependency on import of intermediate and investment goods. Estimation that searchs the significance of CU dummy indicate that CU Agreement has no significant impact on Turkey's import from EU countries. To explain insignificance of distance variable in import models, the analyses have to be repeated on disaggregate industrial trade data.

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APPENDICES

Appendix 1: Trade between Turkey and the EU, 1969-2008, US dollar and %

Years (Considering Enlargement Process)	Export to the EU	**Share of Export to EU** (%)	Import from the EU	**Share of Import from EU** (%)	Trade Balance with the EU (billion dollars)	**Share of Trade Balance in Total Balance (%)**
1969 (EU6)	214857005	40.0	284462117	35.5	-69.6	26.3
1970	239081409	40.6	325238509	34.3	-86.2	24.0
1971	266560260	39.4	455660424	38.9	-189.1	38.3
1972	347016639	39.2	652519220	41.8	-305.5	45.1
1973 (EU9)	611642495	46.4	1142339858	54.8	-530.7	69.0
1974	717275550	46.8	1708072669	45.2	-990.8	44.1
1975	615142426	43.9	2338254249	49.3	-1723.1	51.6
1976	958929096	48.9	2342031592	45.7	-1383.1	43.7
1977	868032946	49.5	2470084308	42.6	-1602.1	39.6
1978	1090081992	47.6	1872672021	40.7	-782.6	33.9
1979	1097548087	48.5	1825409933	36.0	-727.9	25.9
1980	1242199614	42.7	2203032590	27.9	-960.8	19.2
1981 (EU10)	1504771093	32.0	2519337095	28.2	-1014.6	24.0
1982	1755468975	30.6	2466232702	27.9	-710.8	23.0
1983	2010025296	35.1	2595991546	28.1	-586.0	16.7
1984	2732087129	38.3	2976694423	27.7	-244.6	6.8
1985	3133498015	39.4	3546678978	31.3	-413.2	12.2
1986 (EU12)	3263148689	43.8	4564956481	41.1	-1301.8	35.7
1987	4867731027	47.8	5665874181	40.0	-798.1	20.1
1988	5098352437	43.8	5895124598	41.1	-796.8	29.8
1989	5407791295	46.5	6055272396	38.3	-647.5	15.5
1990	6892863288	53.2	9328282708	41.8	-2435.4	26.1
1991	7041937611	51.8	9221627497	43.8	-2179.7	29.2
1992	7600458917	51.7	10048960957	43.9	-2448.5	30.0
1993	7287404419	47.5	12948873018	44.0	-5661.5	40.2
1994	8269090698	45.7	10278758913	44.2	-2009.7	38.9
1995 (EU15)	11078005104	51.2	16860583671	47.2	-5782.6	41.1
1996	11549426327	49.7	23138060734	53.0	-11588.6	56.8
1997	12247788408	46.6	24869690730	51.2	-12621.9	56.6
1998	13498026701	50.0	24074702605	52.4	-10576.7	55.8
1999	14348348404	54.0	21400776992	52.6	-7052.4	50.1
2000	14510383595	52.2	26610306931	48.8	-12099.9	45.3
2001	16118231737	51.4	18280398659	44.2	-2162.2	21.5
2002	18458533096	51.2	23321035440	45.2	-4862.5	31.4
2003	24484137402	51.8	31695935968	45.7	-7211.8	32.7
2004 (EU25)	34451047375	54.5	45443719572	46.6	-10992.7	32.0
2005	38394518482	52.3	49220092611	42.1	-10825.6	25.0
2006	44004199350	51.4	55068396166	39.5	-11064.2	20.5
2007 (EU27)	60390661097	56.3	68611437605	40.3	-8220.8	13.1
2008	63398551869	48.0	74767987950	37.0	-11369.4	16.3

Appendix 2: Detailed Explanation of Variables Used in the Model

Variable	Explanations	Definitions	Sources
Fijt	Turkey's total trade with her jth trading partner in time t	TOTAL_TRADE	TSI
	Turkey's export to her jth trading partner in time t	EXPORT	TSI
	Turkey's import from her jth trading partner in time t	IMPORT	TSI
Y_i	Turkey's GDP as a proxy for economic size	GDP_TR	IMF
Y_j	GDP of Turkey's trading partner as a proxy for economic size	GDP_PRT	IMF
P_i	Turkey's population as a proxy for market size and labor force	POP_TR	IMF
P_j	Population of Turkey's trading partner as a proxy for market size and labor force	POP_PRT	IMF
ΔY_{ij}	Difference in per capita GDPs of countries as a proxy for development difference between Turkey and her trading partner	DPCI	
D_{ij}	Physical distance between Turkey and her trading partner as a proxy for transportation costs	DIST	indo.com
DUM_CU	Dummy variable for CU membership; takes value 1 after 1996 and takes value 0 for others	DUM_CU	
DUM_EU	Dummy variable for EU membership; takes value 1 for members and takes value 0 for others	DUM_EU	
DUM_OECD	Dummy variable for OECD membership; takes value 1 for members and takes value 0 for others	DUM_OECD	
DUM_OIC	Dummy variable for OIC membership; takes value 1 for members and takes value 0 for others	DUM_OIC	
DUM_BORD	Dummy variable for common border; takes value 1 if there is a common border between Turkey and her trading partner; 0 otherwise.	DUM_BORD	

Appendix 3: Calculation of Relative Difference in Development Differences between Countries.

$$DPCI = 1 + \left[\frac{w \cdot \ln(w) + (1-w) \cdot \ln(1-w)}{\ln(2)} \right]$$

$DPCI$ denotes relative difference in per capita income of countries by using a weight coefficient w. Calculation of this coefficient is as follows:

$$w = \frac{PCI_{Türkey}}{PCI_{Türkey} + PCI_{partner}}$$

Where PCI_{Turkey} is GDP per capita of Turkey and $PCI_{partner}$ is GDP per capita of Turkey's trading partner.

Appendix 4: Calculation of Compound Annual Growth Rate.

Compound Annual Growth Rate (CGR) of trade for a certain year is calculated as follows. Here, X_{t0} and X_{t1} are beginning and ending trade data for a certain period respectively. n is the number of years in the period being considered. This rate gives the compound growth rate of a year depending on a base year. If n is equal to 1, then CGR will show the simple growth rate year to year. (World Bank, 2009:2).

$$CGR = \left[\left(\frac{X_{t1}}{X_{t0}} \right)^{\left(\frac{1}{n} - 1 \right)} - 1 \right] * 100$$

Appendix 5a: Gravity Model for Turkey's Total Trade Flows with all Variables

	First Stage of Fixed Effect Model					
C	-5.213** (-2.029)					
LN(GDP_PRT)	1.047*** (5.906)					
LN(GDP_TR)	2.002*** (8.307)					
LN(POP_PRT)	-0.706 (-1.403)					
LN(POP_TR)	-0.455 (-0.703)					
LN(DPCI)	0.007 (0.553)					
R^2.	0.98					
adj. R^2.	0.97					
# of obs.	1431					
	Second Stage of Fixed Effect Model					
	Model-1	**Model-2**	**Model-3**	**Model-4**	**Model-5**	**Model-6**
LN(DIST)	-0.539*** (-3.891)	-0.532*** (-3.476)	-0.529*** (-3.749)	-0.526*** (-3.779)	-0.466*** (-3.044)	-0.326* (-2.142)
DUM_EU		0.388* (1.871)			0.423** (2.002)	0.260 (0.832)
DUM_OECD			-0.080 (-0.309)			
DUM_OIC				0.109 (0.366)	0.236 (0.635)	0.257 (0.724)
DUM_BORD						1.006*** (3.092)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used.
*** denotes 1% significance level, ** denotes 5% significance level,
* denotes 10% significance level.

Appendix 5b: Gravity Model for Turkey's Export Flows with all Variables

	First Stage of Fixed Effect Model					
C	-11.3376*** (-2.567)					
LN(GDP_PRT)	1.621*** (4.803)					
LN(GDP_TR)	0.917*** (2.653)					
LN(POP_PRT)	0.866 (1.579)					
LN(POP_TR)	0.065 (0.056)					
LN(DPCI)	0.004 (0.362)					
R^2.	0.98					
adj. R^2.	0.97					
# of obs.	1296					
	Second Stage of Fixed Effect Model					
	Model-1	**Model-2**	**Model-3**	**Model-4**	**Model-5**	**Model-6**
LN(DIST)	-2.279*** (-4.314)	-2.409*** (-4.700)	-1.916*** (-3.540)	-2.004*** (-3.793)	-1.746*** (-3.161)	-1.982*** (-3.159)
DUM_EU		-0.603 (-0.835)			1.694* (1.982)	1.567* (1.931)
DUM_OECD			1.728** (2.182)			
DUM_OIC				1.424* (1.913)	2.982*** (4.572)	2.906*** (4.554)
DUM_BORD						-1.498 (-1.387)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used.
*** denotes 1% significance level, ** denotes 5% significance level,
* denotes 10% significance level.

Appendix 5c: Gravity Model for Turkey's Import Flows with all Variables

	First Stage of Fixed Effect Model					
C	-0.647 (-0.166)					
LN(GDP_PRT)	0,823*** (3.181)					
LN(GDP_TR)	2.656*** (6.251)					
LN(POP_PRT)	-1.794*** (-2.974)					
LN(POP_TR)	-1.043 (-0.858)					
LN(DPCI)	0.001 (0.119)					
R^2.	0.97					
adj. R^2.	0.96					
# of obs.	1161					
	Second Stage of Fixed Effect Model					
	Model-1	**Model-2**	**Model-3**	**Model-4**	**Model-5**	**Model-6**
LN(DIST)	0.613 (1.259)	0.437 (0.759)	0.637 (1.356)	0.582 (1.189)	0.633 (1.108)	0.783 (1.183)
DUM_EU		-0.457 (-0.425)			0.138 (0.099)	0.221 (0.156)
DUM_OECD			-0.512 (-0.596)			
DUM_OIC				1.214* (1.895)	1.284 (1.085)	1.226 (1.057)
DUM_BORD						0.974 (0.988)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used.
*** denotes 1% significance level, ** denotes 5% significance level,
* denotes 10% significance level.

Appendix 6a: Gravity Model for Turkey's Total Trade Flows: EU and Non-EU Countries

	First Stage of Fixed Effect Model						
	EU			**Non-EU**			
C	-0.289 (-0.101)			-3.348 (-1.359)			
LN(GDP_PRT)	0.732*** (3.075)			1.381*** (5.972)			
LN(GDP_TR)	2.251*** (14.736)			1.695*** (8.526)			
LN(POP_PRT)	-3.652*** (-3.424)			-0.226 (-0.401)			
LN(POP_TR)	0.2276 (0.482)			-1.239* (-1.883)			
DUM_CU	0.011 (0.319)						
LN(DPCI)	0.004 (0.191)			0.009 (0.791)			
R^2.	0.98			0.97			
adj. R^2.	0.98			0.96			
# of obs.	540			891			
	Second Stage of Fixed Effect Model						
	EU			**Non-EU**			
	Model-1	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-4**
LN(DIST)	-0.081 (-0.034)	-3.578 (-1.090)	-4.008 (-1.172)	-1.190*** (-7.472)	-1.045*** (-5.789)	-1.008*** (-6.015)	-0.999** (-4.437)
DUM_OECD		7.221** (2.124)	7.279* (2.075)		-0.553 (-1.224)		-0.345 (-0.657)
DUM_BORD			-0.953 (-0.223)				-0.127 (-0.382)
DUM_OIC						0.562 (1.517)	0.343 (0.859)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

Appendix 6b: Gravity Model for Turkey's Export Flows: EU and Non-EU Countries

	First Stage of Fixed Effect Model						
	EU			**Non-EU**			
C	-6.644* (-1.756)			-8.636*** (-2.634)			
LN(GDP_PRT)	2.213*** (6.784)			1.462*** (4.882)			
LN(GDP_TR)	1.374*** (6.571)			0.421* (1.807)			
LN(POP_PRT)	-3.013** (-2.187)			1.815*** (3.701)			
LN(POP_TR)	1.152* (1.887)			-1.097 (-1.406)			
DUM_CU	-0.095*** (-4.221)						
LN(DPCI)	-0.759 (-0.211)			0.004 (0.333)			
R^2.	0.98			0.96			
adj. R^2.	0.98			0.96			
# of obs.	540			756			
	Second Stage of Fixed Effect Model						
	EU			**Non-EU**			
	Model-1	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-4**
LN(DIST)	-0.938 (-1.212)	-1.613 (-1.240)	-1.946 (-1.294)	-3.111*** (-3.633)	-2.534** (-2.215)	-2.327** (-2.251)	-2.528** (-2.103)
DUM_OECD		1.396 (0.703)	1.441 (0.709)		-1.751 (-0.674)		-0.967 (-0.318)
DUM_BORD			-0.738 (-0.437)				4.245** (2.541)
DUM_OIC						3.005** (3.949)	3.687*** (3.752)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

Appendix 6c: Gravity Model for Turkey's Import Flows: EU and Non-EU Countries

	First Stage of Fixed Effect Model						
	EU			**Non-EU**			
C	3.079 (0.894)			-0.222 (-0.063)			
LN(GDP_PRT)	0.291 (0.924)			1.248*** (3.946)			
LN(GDP_TR)	2.783*** (13.485)			2.523*** (9.414)			
LN(POP_PRT)	-3.498*** (-2.845)			-2.404*** (-2.970)			
LN(POP_TR)	-0.928 (-1.505)			-0.587 (-0.696)			
DUM_CU	0.055 (1.032)						
LN(DPCI)	-0.002 (-0.048)			0.005 (0.302)			
R^2.	0.98			0.96			
adj. R^2.	0.97			0.96			
# of obs.	540			756			
	Second Stage of Fixed Effect Model						
	EU			**Non-EU**			
	Model-1	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-4**
LN(DIST)	0.874 (0.515)	-2.810 (-0.848)	-3.745 (-1.010)	0.722 (0.861)	1.148 (1.247)	1.089 (1.302)	1.431 (1.467)
DUM_OECD		7.609 (1.469)	7.735 (1.464)		-1.828 (-1.008)		-1.312 (-0.658)
DUM_BORD			-2.070 (-0.479)				3.329*** (3.151)
DUM_OIC						1.850 (1.276)	0.576 (0.530)

Note: White's heteroskedasticity-consistent covariance matrix estimator has been used. *** denotes 1% significance level, ** denotes 5% significance level, * denotes 10% significance level.

Appendix 7: A Concise Literature Survey on Gravity Model Applied on Trade

Paper	**Explanations**
Tinbergen(1962) and Pöyhönen(1963)	This study is the first study that applying gravity equation to analyze international trade flows. They improved an empirical model lacking robust theoretical foundations. According to results of studies, trade flows have a positive relationship with economic sizes of countries and a negative relationship with physical distance between countries.
Linnemann (1966)	A population variable was inserted to standard gravity equation improved by Timbergen and Pöyhönen. Population variable was employed as a proxy variable for consumer preferences in terms of importer and for capital–labor intensity in terms of exporter.
Anderson (1979)	He made theoretical contributions to gravity model. Similarity of preferences, cost structures and tax regulations between trading partners are factors that affect trade flows positively.
Frankel (1997)	He used the model to explain determinants of inter and intra integration trade of EC, EU, EFTA, CUFTA, MERCOSUR and ASEAN. The purpose of study was to analyze effects of factors such as common language, common culture and common border on trade flows.
Soloaga and Winters (1999)	They conducted gravity model for EU, EFTA, NAFTA, MERCOSUR and ASEAN during 1980-1996 period. Common language, common culture and common border variables proxy by dummy variables inserted to standard gravity model. The results are proper to theoretical expectations. But according to analyses, new regional integration process has no trade creation effect.
Krueger (1999)	He used gravity model for NAFTA. He determined that constitution of NAFTA in 1994 has a significant positive effect on Mexico's trade.
Wall (1999)	He used gravity model to estimate cost of protections on countries' welfare. Including 1994-1996 period and 85 trade partners of US, he used simple gravity equation by adding a new variable as trade policy index (degree about her protectionism on trade flows). He did not find a significant relationship between these two variables.
Brülhart and Kelly (1999)	They analyzed Ireland's trading potential with Central and Eastern European Countries for 1994 by using gravity model. They added language and adjacency dummies and per capita incomes of countries to simple form of gravity model. All coefficients that they estimated have the expected signs and statistically significant at different confidence levels.
Paas (2000)	Using 1995-1997 period and 46 trade partners of Estonia, he applied gravity model to trades flows of Estonia. He used four dummy variables for EU membership, EU candidacy, Commonwealth of Independent States (CIS) and countries in the region of Baltic Sea. He run the regression for export and import separately. He found that trade with CIS and countries in the region of the Baltic Sea have increasing impacts of Estonia's trade flows.
Cheng and Wall (2002)	They used OECD country pairs and analyzed econometrical foundations of gravity model. An augmented model with different dummy variables was estimated by heterogeneous panel data approach.
Martinez-Zarzoso and Nowak-Lehmann (2003)	This study was used panel data approach for MERCOSUR-EU countries during 1988-1996 period. They plugged real exchange rates, infra-structures of exporter-importer and differences in per capita

	income in standard model. The results are proper to theoretical expectations.
Oh (2004)	employed gravity model to estimate potential trade of North Korea with South Korea and US by adding trade policy index (effects of trade barriers). He found significant negative relationship between trade flows and trade policy index for trade between North Korea and South Korea. But he found insignificant negative relationship between trade flows and trade policy index for trade between North Korea and US.
Rojid (2006)	He used model in order to analyze trade creation and diversification effects of COMESA for 147 countries during 1980-2001 period and got results consistent with theoretical expectations.
Spies and Marques (2009)	They developed a new version of a theory-based gravity equation to properly account for relative price indices. Applying the augmented gravity equation to the process of EU integration during the 1990s, they found that trade agreements have substantially increased intra-group trade.

Appendix 8: A Literature on Gravity Model Studying Turkish Trade

Paper	**Explanations**
Lejour and Mooij (2005)	They determined potential trade between Turkey and EU for 15 sectors by the gravity model. Then, they determined custom equivalence of trade barriers by comparing numbers of potential trade and actualized trade. According to analyses, CU increased Turkey's bilateral trade with EU by 34%.
Antonucci and Manzocchi (2006)	This study used gravity model to explain Turkey's trade flows during 1967–2001 period. Firstly, they demonstrated that the model explains Turkey's trade pattern statistically. Then, they used the model to explain whether EU has a special role concerning the commodity trade between Turkey and EU. According to analyses, CU has no significant effect on Turkey's bilateral trade with EU.
Sayan (1998)	He analyzed BSEC to investigated the economic rationale behind the desire to seek/maintain membership, with special reference to the trade creation and diversion effects it could generate. He used inter and intra regional export flows as a dependent variable. Different versions of the model were estimated using a combination of variables using pooled data over the 1992-1994 period with 48 cross-section observations for each year. According to analyses, the BSEC has increased export flows of inter and intra region.
Genç, Berber and Artan (2007)	They applied gravity model to explain determinants of trade flows in Black Sea Economic Cooperation (BSEC) region. For this purpose, panel data analysis is used for the 1997-2004 and 1997-2000, 2001-2004 sub-periods. The results are consistent with theoretical expectations.

Appendix 9: Countries used in the Empirical Analyses

	Total Trade		Export		Import
1	Algeria	**1**	Algeria	**1**	Algeria
2	Australia	**2**	Australia	**2**	Australia
3	Austria	**3**	Austria	**3**	Austria
4	Belgium-Luxembourg	**4**	Belgium-Luxembourg	**4**	Belgium-Luxembourg
5	Brazil	**5**	Bulgaria	**5**	Brazil
6	Bulgaria	**6**	Canada	**6**	Bulgaria
7	Canada	**7**	China	**7**	Canada
8	China	**8**	Czech Republic	**8**	China
9	Czeck Rep.	**9**	Denmark	**9**	Czech Republic
10	Egypt	**10**	Egypt	**10**	Denmark
11	Denmark	**11**	Finland	**11**	Finland
12	Finland	**12**	France	**12**	France
13	France	**13**	Germany	**13**	Germany
14	Germany	**14**	Greece	**14**	Greece
15	Greece	**15**	Hungary	**15**	Hungary
16	Hungary	**16**	Iceland	**16**	Iceland
17	Iceland	**17**	India	**17**	India
18	India	**18**	Iran	**18**	Indonesia
19	Indonezia	**19**	Ireland	**19**	Iran
20	Iran	**20**	Israel	**20**	Ireland
21	Ireland	**21**	Italy	**21**	Israel
22	Israel	**22**	Japan	**22**	Italy
23	Italy	**23**	Jordan	**23**	Japan
24	Japan	**24**	Korea	**24**	Korea
25	Jordan	**25**	Kuwait	**25**	Libya
26	South Korea	**26**	Lebanon	**26**	Malaysia
27	Kuwait	**27**	Libya	**27**	Malta
28	Lebanon	**28**	Malta	**28**	Mexico
29	Libya	**29**	Mexico	**29**	Netherlands
30	Malaysia	**30**	Morocco	**30**	New Zealand
31	Malta	**31**	Netherlands	**31**	Norway
32	Mexico	**32**	New Zealand	**32**	Poland
33	Morocco	**33**	Norway	**33**	Portugal
34	Netherland	**34**	Poland	**34**	Romania
35	New Zealand	**35**	Portugal	**35**	Saudi Arabia
36	Norway	**36**	Qatar	**36**	South Africa
37	Poland	**37**	Romania	**37**	Spain
38	Portugal	**38**	Saudi Arabia	**38**	Sweden
39	Qatar	**39**	Singapore	**39**	Switzerland
40	Romania	**40**	South Africa	**40**	Taiwan Province of China
41	Saudi Arabia	**41**	Spain	**41**	Thailand
42	Singapore	**42**	Sweden	**42**	United Kingdom
43	South Africa	**43**	Switzerland	**43**	United States
44	Spain	**44**	Syrian Arab Republic		
45	Sweden	**45**	Tunisia		
46	Switzerland	**46**	United Arab Emirates		
47	Syrian	**47**	United Kingdom		
48	Taiwan	**48**	United States		
49	Thailand				
50	Tunisia				
51	UAE				
52	UK				
53	USA				

Appendix 10: Hausman Test Results

With DPCI				
	Test Summary	*Chi-Sq. Statistic*	*Chi-Sq. d.f.*	*Prob.*
Total Trade	Cross-section random	53.178	5	0.0000
Export		40.871	5	0.0000
Import		31.780	5	0.0000
Without DPCI				
	Test Summary	*Chi-Sq. Statistic*	*Chi-Sq. d.f.*	*Prob.*
Total Trade	Cross-section random	53.346	4	0.0000
Export		39.286	4	0.0000
Import		32.019	4	0.0000

$H_o : E(\varepsilon_{it} \mid X_{it}) = 0$, random effects are uncorrelated with the explanatory variables.

Since the p-values for the tests are less than 1%, indicating that the random effects model is not appropriate and that the fixed effects specification is to be preferred.

Appendix 11: Rank of first 10 Countries in Turkish Export, 1982-2008

	Germany	*UK*	*UAE*	*Italy*	*France*	*Russia*	*USA*	*Spain*	*Romania*	*Iraq*
1982	2	10	30	5	9	14	7	29	22	3
1983	2	7	29	3	10	17	8	24	21	5
1984	1	8	29	4	9	14	6	27	23	2
1985	1	4	15	6	8	10	5	24	26	3
1986	1	7	31	2	8	15	5	25	29	4
1987	1	5	31	3	6	15	4	23	29	2
1988	1	5	34	3	7	10	4	25	29	2
1989	1	5	27	2	6	4	3	20	33	8
1990	1	4	30	2	5	6	3	16	27	14
1991	1	5	30	2	4	6	3	14	25	24
1992	1	5	30	2	4	9	3	10	21	17
1993	1	3	25	5	4	9	2	19	24	21
1994	1	4	20	3	5	6	2	17	25	28
1995	1	5	24	3	6	4	2	10	11	35
1996	1	5	26	4	6	3	2	10	12	28
1997	1	4	23	5	6	2	3	10	13	
1998	1	3	24	4	6	5	2	9	14	
1999	1	3	14	4	5	9	2	7	18	
2000	1	3	16	4	5	10	2	7	15	
2001	1	4	16	3	5	7	2	6	15	
2002	1	3	15	4	5	6	2	7	12	
2003	1	3	15	4	5	8	2	6	12	13
2004	1	2	14	4	5	8	3	6	11	9
2005	1	2	11	3	5	9	4	6	10	7
2006	1	2	11	3	5	7	4	6	10	8
2007	1	2	9	3	4	5	7	6	8	11
2008	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***

Appendix 12: Rank of first 10 Countries in Turkish Import, 1982-2008

	Russia	*Germany*	*China*	*USA*	*Italy*	*France*	*Iran*	*Ukraine*	*Switzerland*	*UK*
1982	15	2	47	4	8	11	5	65	10	7
1983	11	2	44	5	6	12	1	65	10	7
1984	10	2	44	3	6	11	1	65	12	7
1985	13	1	26	3	5	7	2	65	15	9
1986	8	1	25	2	3	6	13	65	11	7
1987	12	1	19	2	4	8	5	65	11	7
1988	10	1	22	2	4	5	7	65	12	6
1989	7	1	33	2	4	5	17	65	12	6
1990	5	1	20	2	3	4	13	56	11	8
1991	7	1	22	2	3	5	32	65	11	6
1992	8	1	24	2	3	5	14	74	10	6
1993	7	1	21	2	3	4	11	14	12	6
1994	7	1	19	2	3	4	10	11	13	6
1995	4	1	16	2	3	5	13	11	12	6
1996	6	1	18	3	2	4	13	14	12	5
1997	6	1	16	3	2	4	18	14	11	5
1998	6	1	15	3	2	4	20	14	12	5
1999	5	1	12	4	2	3	17	14	15	6
2000	4	1	12	3	2	5	18	15	17	6
2001	3	1	13	4	2	5	15	17	8	6
2002	3	1	10	4	2	5	15	14	7	6
2003	3	1	8	6	2	4	12	14	7	5
2004	2	1	6	5	3	4	14	13	8	7
2005	2	1	4	6	3	5	11	13	8	7
2006	1	2	3	6	4	5	7	13	9	8
2007	1	2	3	5	4	6	7	10	9	8
2008	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***