DO REGIONAL TRADE AGREEMENTS ACTUALLY INCREASE
TURKEY'S FOREIGN TRADE?

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Approval of the Graduate School of Social Sciences

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ABSTRACT

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Regional trade agreements (RTAs) have important role in Turkey's foreign trade. Turkey, which has a customs union with the European Union (EU), has to apply the Common Commercial Policy of the EU in line with obligations arisen from the Customs Union Decision. Within this framework, attempts to sign free trade agreements (FTAs) with countries which have a FTA with the EU have been maintained. In the current situation, Turkey has FTAs with 20 countries and Turkey's foreign trade with the EU members is conducted under provisions of the Customs Union Decision. The aim of this study is to analyze whether the RTAs of Turkey are an increasing factor in her foreign trade or not. In the study, Turkey's foreign trade with 126 countries or country groups is analyzed using the gravity model. Impacts of the RTAs on Turkey's foreign trade are measured through panel data estimations of the classical gravity model extended by variables defined for RTAs and fixed effects. In this regard, empirical evidences reveal that the Customs Union does not affect Turkey's export but

it is an increasing factor in import of Turkey. Also, it is obtained that the FTAs do not have any impact on either export or import of Turkey.

Keywords: Gravity model, customs union, free trade agreements, foreign trade, Turkey.

ÖZ

BÖLGESEL TİCARET ANLAŞMALARI TÜRKİYE'NİN DIŞ TİCARETİNİ ARTIRIYOR MU?

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Haziran 2015, 110 Sayfa

Türkiye'nin dış ticaret politikasında bölgesel anlaşmalar önemli bir yere sahiptir. Avrupa Birliği ile Gümrük Birliğine sahip olan Türkiye, bu anlaşmadan doğan sorumlulukları doğrultusunda Avrupa Birliği ile ortak dış ticaret politikası uygulamakla yükümlüdür. Bu politika kapsamında Avrupa Birliği'nin serbest ticaret anlaşmasına (STA) sahip olduğu ülkelerle STA imzalama girişimleri sürdürülmektedir. Türkiye, mevcut durumda 20 ülke ile STA'ya sahip olup Avrupa Birliği ülkeleri ile olan dış ticaretini de Gümrük Birliği Kararı kapsamında yürütmektedir. Bu çalışmanın amacı, Türkiye'nin taraf olduğu bölgesel ticaret anlaşmalarının Türkiye'nin dış ticaretini artırıcı bir unsur olup olmadığını araştırmaktır. Çalışmada, 1992-2013 yılları arasında Türkiye'nin 126 ülke veya ülke grupları ile gerçekleştirdiği dış ticaret çekim modeli üzerinden incelenmektedir. Çekim

modeli denklemi geleneksel değişkenlerin yanında bölgesel ticaret anlaşmaları ve sabit etkiler değişkenleri ile genişletilip panel veri analizi yöntemleri ile tahmin edilerek bölgesel ticaret anlaşmalarının Türkiye'nin dış ticareti üzerindeki etkisi tespit edilmektedir. Bu kapsamda, elde edilen bulgular Gümrük Birliği'nin Türkiye'nin ihracatını etkilemediğini ancak ithalatında artırıcı bir unsur olduğunu ortaya koymaktadır. STA'ların ise Türkiye'nin hem ihracatı hem de ithalatı üzerinde etkisi bulunmadığı sonucuna ulaşılmaktadır.

Anahtar Kelimeler: Çekim modeli, gümrük birliği, serbest ticaret anlaşmaları, dış ticaret, Türkiye.

To Samet

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CHAPTER 1

INTRODUCTION

Turkey's official foreign trade policy was import substitution until 1980. Policy makers had aimed to increase the domestic production instead of foreign trade. In this framework, Turkey had applied high tariff rates and quotas in order to protect domestic industries.

Due to economic instabilities and unintended results of the policies, economic policies applied until 1980 was abandoned by the Stabilization Program of 24 January 1980. The program suggests implementation of more liberalized open economy policies such as the switch in the exchange rate regime, liberalization of the foreign trade and export incentive schemes. In line with this shift, Turkey applied to the European Community for full membership in 1987 (Republic of Turkey Ministry of EU Affairs, 2015). The application of Turkey was not accepted due to several reasons. However, the completion of customs union (CU) between the European Community and Turkey as the Additional Protocol of 13 November 1970 set out was emphasized and suggested by the European Community. Then, Turkey accelerated the process by fulfilling the obligations towards the completion of the Customs Union.

After the significant attempts and efforts of Turkey, the Customs Union Decision between the European Union (EU) and Turkey which is one of the

most important milestones in the Turkey's foreign trade policy entered into force on 31 December 1995.

The EU-Turkey Customs Union Decision contains vital articles which restrict and determine Turkish foreign trade policy. Elimination of some types of tariff barriers and application of common customs tariffs to third countries are not the only obligations that Turkey undertook to meet but also Turkey accepted to apply the Common Commercial Policy of the European Union. In other words, Turkey is obligated to adopt both common customs tariffs and preferential trade regime of the European Union. In this context, according to 16th article in the Decision (Official Journal of the European Union, 1996), Turkey accepted to sign free trade agreements (FTAs) with non-EU countries which had already have a FTA with the EU within five years starting from the date of entry into force of the Customs Union Decision (31 December 1995). In addition to the existing FTAs on the date of entry into force, Turkey has to sign FTAs with non-EU countries which sign a new FTA with the EU. Moreover, Turkey accepted not to sign any RTAs without knowledge of the EU according to the 57th article of the Customs Union Decision. This means that Turkey cannot sign any FTAs with third countries without permission of the EU. As a result of these obligations, Turkey cannot sign a FTA with her trade partners without permission of the European Union; albeit, Turkey has to sign FTAs with the trade-agreement-partners of the EU with a good or bad grace.

In the light of this information, it is possible to conclude that Turkey does not have independence in determining her foreign trade policy. In contrast, Turkey applies the foreign trade policy of the EU. Therefore, the partners of Turkey in her FTAs are not chosen according to her trade relations with those countries but according to preferences of the EU. Hence, these agreements are expected not to be beneficial for Turkey's foreign trade.

This paper investigates whether Turkey's regional trade agreements (RTAs)[1] including the EU-Turkey Customs Union and the FTAs of Turkey are beneficial to increase Turkey's export. In addition to the impacts of the RTAs on export, impacts on Turkey's import are also investigated.

In the literature, gravity model estimations are widely accepted and used in order to measure impacts of RTAs on trade flows. In line with the literature, gravity model and recent developments in estimation techniques are applied in this study.

There are several studies using gravity model about Turkey. However, only the EU-Turkey Customs Union is taken into consideration in those studies. None of them focus on FTAs of Turkey independently or together with the Customs Union. To the best of our knowledge, this study is the first attempt to analyze impacts of all RTAs of Turkey on the foreign trade.

Empirical results show that Turkey's RTAs do not affect Turkey's export. In other words, both the EU-Turkey Customs Union and the FTAs could not be a driving force for Turkey's export. However, the European Customs Union is significantly important on Turkey's import despite the fact that the FTAs do not affect Turkey's import. As a result, the FTAs of Turkey affect neither export nor import of Turkey in line with the expectations arisen from the fact that Turkey could not choose her FTA partners due to obligations of the Customs Union Decision. However, the EU-Turkey Customs Union affects Turkey's import positively but no effect on Turkey's export.

The remainder of the study is organized as follows. The next chapter presents the Turkish foreign trade policy and state of foreign trade in Turkey. Chapter 3 gives literature review covering both gravity model and its empirical applications. Chapter 4 shows details about the dataset, the methodology used and empirical results. Chapter 5 concludes the study.

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[1] The term of RTAs used in this study refers customs unions and free trade agreements.

CHAPTER 2

TURKISH FOREIGN TRADE

2.1   A Brief Look at Turkey's Foreign Trade Policy

Turkey's official foreign trade policy was import substitution policies until 1980. Policy makers had aimed to promote increase in domestic production instead of foreign trade. In this framework, Turkey had applied high tariff rates and quotas in order to protect domestic industries. However, import substitution policies including high tariff barriers applied in Turkey until 1980 could not prevent Turkey from deterioration in the ratio of exports to imports (Figure 1).
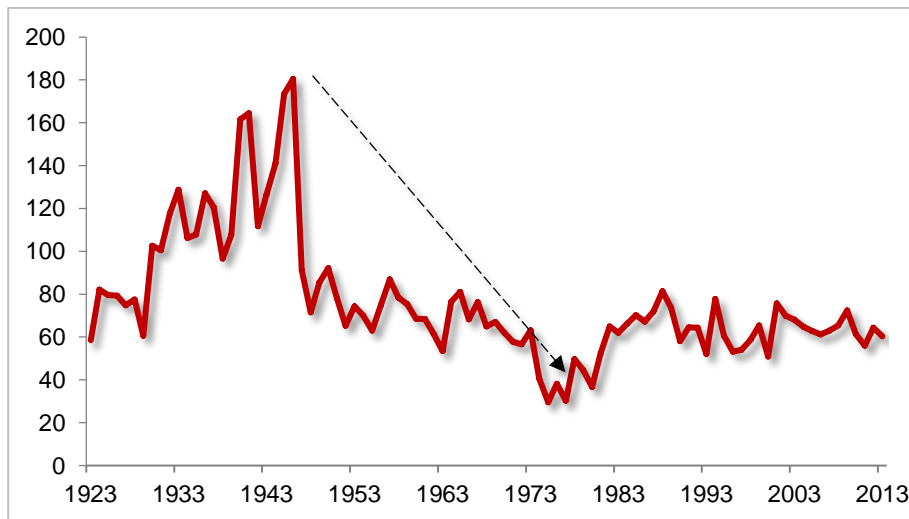
Figure 1: Ratio of Exports to Imports in Turkey (%)

Source: Turkish Statistical Institute

Due to fact that economic policies applied until 1980 resulted in economic instabilities and unintended results such as deteriorations in the balance of payment, higher dependence on imported inputs, foreign exchange gap and worsening terms of trade, the policies was abandoned by the decisions of 24 January 1980 (Savrul, Özel, & Kılıç, 2013). The decisions included implementation of more liberalized open economy policies such as the switch in the exchange rate regime, liberalization of foreign trade and implementation of export incentive schemes. The shift in the Turkish economy was observed through the implementation of these decisions towards more liberalized economy especially after the elections in 1983. In line with this shift, Turkey applied to the European Community for full membership in 1987 (Republic of Turkey Ministry of EU Affairs, 2015). The application of Turkey was not accepted due to several reasons. However, the completion of Customs Union between the European Community and Turkey as the Additional Protocol of 13 November 1970 set out was emphasized and suggested by the European Community. Then, Turkey accelerated the process by fulfilling the obligations towards the completion of the Customs Union.

After the significant attempts and efforts of Turkey, the Customs Union Decision between the EU and Turkey which is one of the most important milestones in the Turkish foreign trade policy entered into force on 31 December 1995. The Customs Union Decision provides elimination of custom tariffs and quantitative restrictions in industrial goods and processed agricultural products but not in unprocessed agricultural products and coal and steel products. Moreover, Turkey and the EU countries apply common custom tariffs and preferential tariff policies to third countries.

The Customs Union Decision contains vital articles which restrict and determine Turkish foreign trade policy. Besides the elimination of some types of tariff barriers and application of common customs tariffs to third countries, Turkey also accepted to implement the Common Commercial

Policy of the European Union. In other words, Turkey is obligated to adopt both common customs tariffs and preferential trade regime of the European Union. In this context, according to 16th article in the Decision (Official Journal of the European Union, 1996), Turkey accepted to sign RTAs with non-EU countries which had already have a RTA with the EU within five years starting from the date of entry into force of the Customs Union Decision (31 December 1995). In addition to the existing FTAs on the date of entry into force, Turkey has to sign FTAs with non-EU countries which sign a FTA with the EU. Moreover, Turkey agreed to not signing any RTAs without the permission of the EU according to the 57th article of the Customs Union Agreement. As a result of these obligations, Turkey cannot sign a FTA with her trade partners without permission of the European Union; however, Turkey has to sign FTAs with the trade-agreement-partners of the EU with a good or bad grace.

In the light of this information, it is possible to conclude that Turkey cannot promote a foreign trade policy independently; thus, Turkey applies the foreign trade policy of the European Union. Therefore, the FTA partners of Turkey are not chosen according to her trade relations with those countries but according to preferences of the EU. Hence, these agreements are expected not to be beneficial for Turkey's foreign trade.

In addition to the provisions mentioned above, it is important to emphasize that each RTA of the EU poses a risk for Turkish economy due to unwillingness of some trade agreement partners of the EU in signing FTA with Turkey such as the USA, Canada, Thailand, India, Indonesia and Algeria. The reason behind being a risk for Turkey is arisen from different principles of customs union and free trade agreements: free movement and rule of origin. Since the agreement between the EU and Turkey is a customs union agreement, the goods covered in the EU-Turkey Customs Union are traded freely between Turkey and the EU without any internal frontier. In this free movement, origins of goods do not affect any process. For instance,

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any member countries of the Customs Union Decision can export a good made in a third country (outside of the European Customs Union) to Turkey under the same conditions of export of a good made in any member countries to Turkey. However, the rule of origin is applied in FTAs in order to avoid tariff evasions. In this case, any European Customs Union member cannot export a good made in Turkey to a FTA partner of the EU under special treatments defined in FTAs. In the light of this information, each FTA of the EU of which Turkey could not be a part of generates asymmetric special treatment to the disadvantage of the Turkish economy.

In order to be more specific, the case of the EU-Mexico FTA is considered as an example. A good produced in Mexico can be exported from Mexico to the EU under special provisions due to the EU-Mexico FTA (Figure 2). Then, this good can be re-exported to Turkey regardless of origin due to free movement principle defined in the Customs Union. Hence, Mexico can export her products to Turkey through the EU without any tariff barriers. On the other hand, although Turkey can export her products with special provision to the EU due to the Customs Union, those goods -made in Turkey- cannot be re-exported from the EU to Mexico since the EU-Mexico FTA requires rule of origin. Thus, Turkish markets become vulnerable due to this asymmetry. This illustration exhibits only an example and this asymmetric situation is also valid for each FTA-partners of the EU which Turkey could not sign an agreement with.
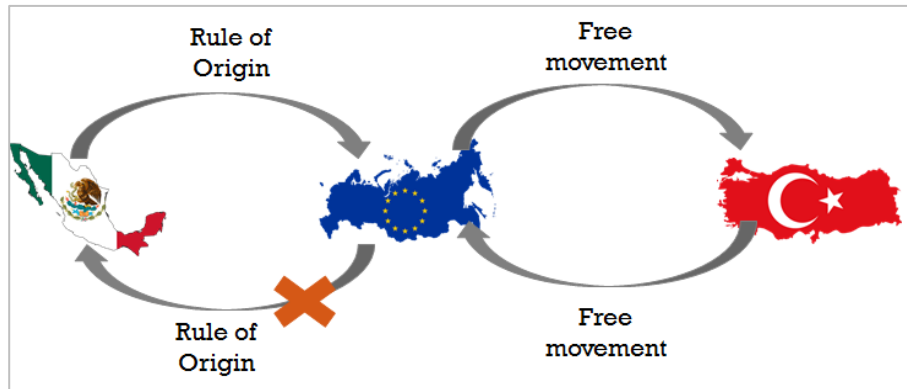
Figure 2: Asymmetry between Mexico and Turkey: An Example

Turkey has FTAs in force with 20 countries (Table 1). There is only one FTA of Turkey signed before the Customs Union Decision: the FTA with four member states of the European Free Trade Association (EFTA). This agreement is in line with obligations of the Customs Union Decision since the EU has also a FTA with those four member states of the EFTA. After the Customs Union Decision, Turkey signed FTAs with 27 countries in line with obligations mentioned above; however, 11 of them are repealed due to membership of those countries in the EU (Table 2).

Table 1: Free Trade Agreements of Turkey in Force

Countries	Date of Entry into Force	Countries	Date of Entry into Force
Liechtenstein[2]	01.04.1992	Syria[3]	01.01.2007
Norway[2]	01.04.1992	Egypt	01.03.2007
Switzerland[2]	01.04.1992	Albania	01.05.2008
Iceland[2]	01.09.1992	Georgia	01.10.2008
Israel	01.05.1997	Montenegro	01.03.2010
Macedonia	01.09.2000	Serbia	01.09.2010
Bosnia-Herzegovina	01.07.2003	Chile	01.03.2011
Palestine	01.06.2005	Jordan	01.03.2011
Tunisia	01.07.2005	South Korea	01.05.2013
Morocco	01.01.2006	Mauritius	01.06.2013

Source: The Ministry of Economy of the Republic of Turkey, 2014

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[2] FTA is signed in the context of the Turkey-EFTA states FTA.

[3] The Association Agreement Establishing a Free Trade Area between the Republic of Turkey and the Syrian Arab Republic was suspended by the member states on 6 December 2011.

Table 2: Repealed Free Trade Agreements of Turkey

Countries	Date of Entry into Force	Date of the Repeal
Romania	1 February 1998	1 January 2007
Lithuania	1 March 1998	1 May 2004
Hungary	1 April 1998	1 May 2004
Estonia	1 July 1998	1 May 2004
Czech Republic	1 September 1998	1 May 2004
Slovakia	1 September 1998	1 May 2004
Bulgaria	1 January 1999	1 January 2007
Poland	4 October 1999	1 May 2004
Slovenia	1 June 2000	1 May 2004
Latvia	1 July 2000	1 May 2004
Croatia	1 July 2003	1 July 2013

Source: The Ministry of Economy of the Republic of Turkey, 2014

In addition to FTAs in force, Turkey has completed FTA negotiations with six countries displayed in Table 3. The negotiations with Ghana are completed at the end of 2013 and the agreement is expected to be signed in 2015. Although the agreements between Turkey and the rest of the five countries were signed, the domestic ratification processes continues to be entered into force. Besides, Turkey continues her FTA negotiations with other 13 countries or country groups provided in Table 4. Moreover, Turkey has attempts to launch FTA negotiations with ten other countries or country groups: Algeria, the African, Caribbean and Pacific Group of States, Canada, Central American Countries, India, Indonesia, South Africa, Thailand, the USA and Vietnam.

Table 3: Completed FTA Negotiations of Turkey

Countries	Current Situations
Lebanon	Signed on 24 November 2010 and under domestic ratification process of Lebanon
Malaysia	Signed on 17 April 2014 and under domestic ratification process of both Turkey and Malaysia
Faroe Islands	Signed on 16 December 2014 and under domestic ratification process of both Turkey and Faroe Islands
Ghana	Negotiations are completed on November 2013 and the agreement is expected to sign in 2015.
Kosovo	Signed on 27 September 2013 and under domestic ratification process of both Turkey and Kosovo
Moldova	Signed on 11 September 2014 and under domestic ratification process of both Turkey and Moldova

Source: The Ministry of Economy of the Republic of Turkey, 2014

Table 4: Continuing FTA Negotiations of Turkey

Countries	
Cameroon	MERCOSUR[4]
Colombia	Mexico
Democratic Republic of Congo	Peru
Ecuador	Seychelles
Gulf Cooperation Council (GCC)[5]	Singapore
Japan	Ukraine
Libya	

Source: The Ministry of Economy of the Republic of Turkey, 2014

Table 5 depicts the regional trade agreements of the EU. Although the Customs Union Decision requires the completion of all trade agreements of the EU by Turkey, the EU has more regional trade agreements than Turkey has signed since 1995. The reason behind this fact is not due to unwillingness of Turkey to sign these FTAs, but it is because of unwillingness of FTA partners of the EU. The unwillingness of those countries can arise from that they are not obligated to sign FTAs with Turkey. Turkey has only one different trade agreement than the EU's FTAs with Mauritius with the approval of the EU. In addition to existing FTA partners of the EU listed in Table 5, the EU conducts FTAs negotiations with other countries provided in Table 6. Those countries can be evaluated as potential FTA partners of Turkey.

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[4] MERCOSUR whose members are Argentina, Brazil, Uruguay, Paraguay and Venezuela is a regional bloc in The South America.

[5] The GCC, whose members are United Arab Emirates, Saudi Arabia, Qatar, Oman, Kuwait, and Bahrain, suspended all trade agreements negotiations with third countries including Turkey.

Table 5: The EU's Regional Trade Agreements in Force

Customs Union Agreements	
Countries	**Date of Entry into Force**
Andorra	01.07.1991
Turkey	31.12.1995
San Marino	01.12.1992
Faroe Islands	01.01.1997
Free Trade Agreements	
Albania	01.04.2009
Algeria	01.09.2005
Bosnia and Herzegovina	01.07.2008
Cameroon	Pending
CARIFORUM States[6]	Provisionally applied since 01.12.2008
Central America	Provisionally applied since 01. 08.2013
Chile	01.02.2003
Colombia	01.08.2013
Egypt	01.06.2004
Georgia	Under ratification
Iceland	01.04.1973
Iraq	Provisionally applied since 01. 08.2012
Israel	01.06.2000
Ivory Coast	Pending
Jordan	01.05.2002
Lebanon	01.03.2003
Liechtenstein	01.01.1973
Macedonia	01.05.2004
Mexico	01.07.2000

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[6] CARIFORUM States are Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, The Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, Saint Christopher and Nevis, Suriname, Trinidad and Tobago.

Table 5 (cont'd): The EU's Regional Trade Agreements in Force

Montenegro	01.05.2010
Morocco	01.03.2000
Norway	01.07.1973
Palestinian Authority	01.07.1997
Serbia	01.02.2010
South Africa	01.01.2000
South Korea	01.07.2011
Switzerland	01.01.1973
Syria	01.07.1977
Tunisia	01.03.1998
Ukraine	Provisionally applied since 01. 11.2014

Source: EU Trade Commission

Table 6: The EU's Free Trade Agreement Negotiations

Countries		
ASEAN[7]	India	Moldova
African, Caribbean and Pacific Countries	Iran	Russia
Andean Community	Iraq	Singapore
Azerbaijan	Japan	Thailand
Belarus	Kazakhstan	USA
Canada	Libya	Vietnam
China	Malaysia	
Gulf Cooperation Council (GCC)	MERCOSUR	

Source: EU Trade Commission

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[7] ASEAN countries are Brunei, Cambodia, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam, Indonesia, and Laos.

2.2 State of Foreign Trade in Turkey

Export and import of Turkey have an upward trend both in nominal and real terms (Figure 3 and 4). The increases in trade flows become higher especially after 2000s. As of 2014[8], Turkey has 158 Billion US Dollar export and 242 Billion US Dollar import in nominal terms.

As a characteristic of Turkish foreign trade, Turkey can be classified as a country having trade deficit. Moreover, trade deficit has been widening in general except some certain years.
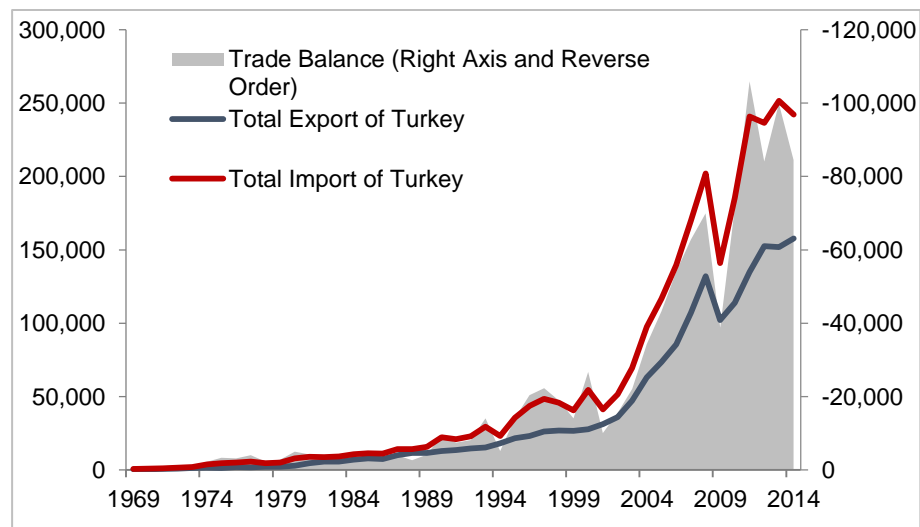
Figure 3: Nominal Trade Flows and Trade Balance in Turkey (Million US Dollar)

Source: Turkish Statistical Institute

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[8] The data for 2014 is still provisional in Turkish Statistical Institute.
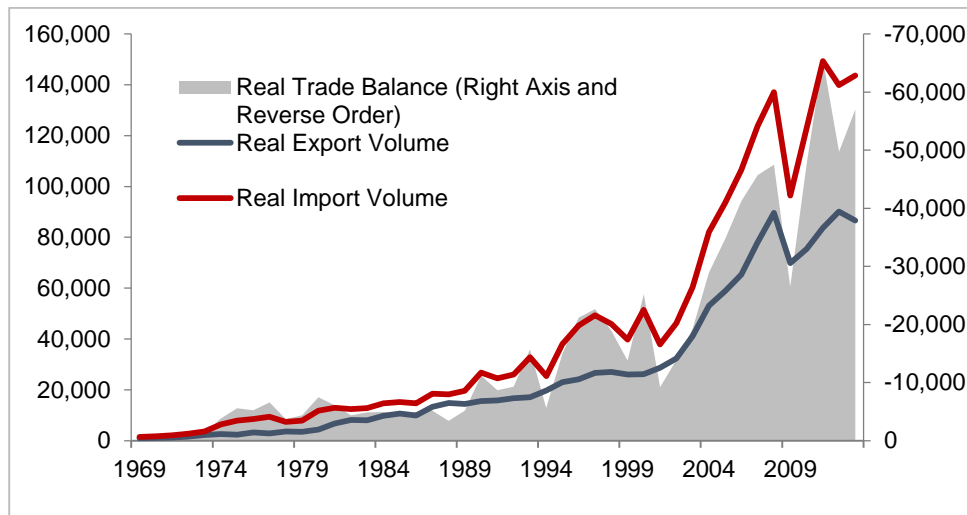
Figure 4: Real Trade Flows and Real Trade Balance in Turkey (Million,

1998 US Dollar)

Source: Turkish Statistical Institute

Figure 5 provides export volume index of Turkey. It is shown that the rate of increase in the export volume has been increased especially after 2000. This period coincides with the periods that global world trade volume has also been increased and post-crisis period in 2001. Parallel to this increment in the export volume, unit value of export also has an upward trend since 2000 (Figure 6).
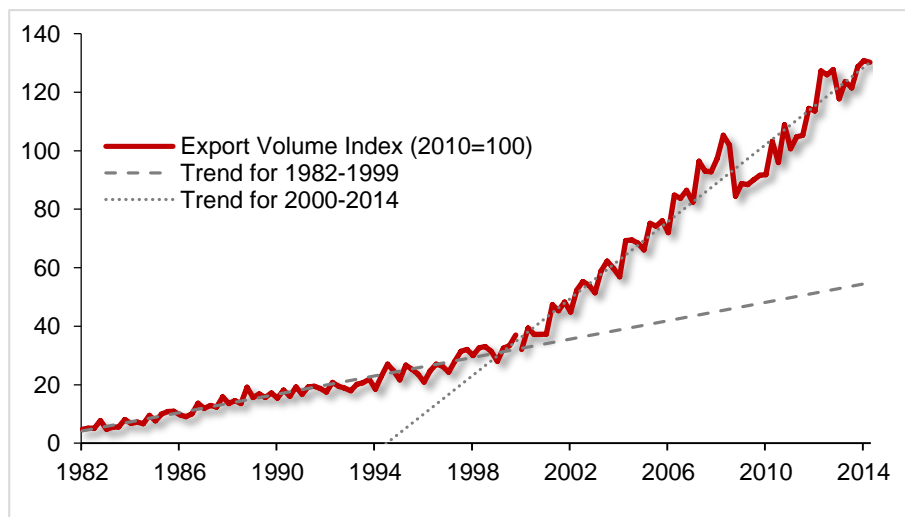
Figure 5: Turkey's Export Volume Index (2010=100)

Source: Turkish Statistical Institute
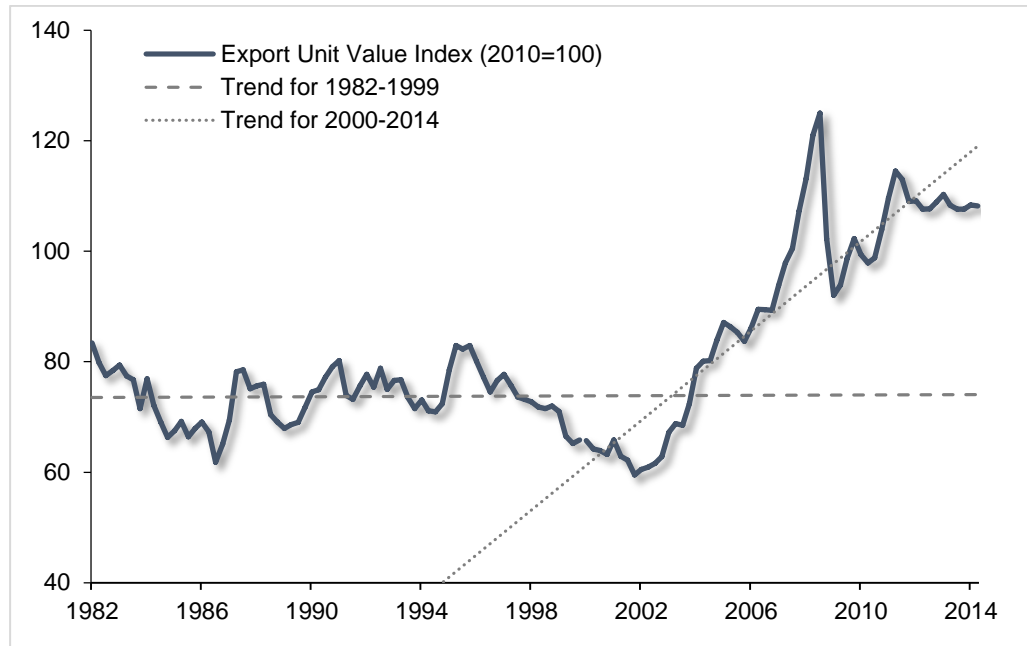
Figure 6: Turkey's Export Unit Value Index (2010=100)

Source: Turkish Statistical Institute

In addition to increases in volume and unit value of export in Turkey, shares of export and import of goods and services in GDP has risen since 1987[9] (Figure 7). Therefore, importance of trade flows has increased as contributions of export and import become higher.

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[9] Since Turkish Statistical Institute does not provide GDP series before 1987, the shares of export and import of goods and services could not be calculated for the period before 1987.
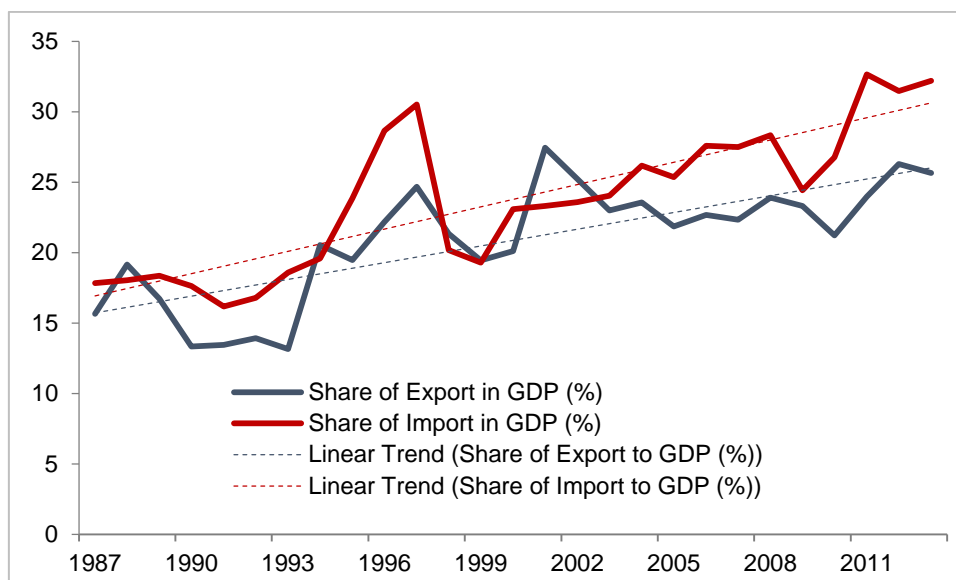
Figure 7: Export and Import of Goods and Services to GDP (%)[10]

Source: Turkish Statistical Institute

Most important trade partner of Turkey in 1980 and 2013 are provided in Table 7 and 8. In both years, the highest portion of Turkey's export is to Germany but her share has decreased from 20,75 percent to 9,03 percent through 1980 to 2013. In the case of export, although Germany, Italy, Russia, France, USA and United Kingdom sustained their position in top 10, Switzerland, Syria and Poland are replaced with United Arab Emirates, Spain and Iran. In the case of imports, top traded partner countries changes a bit compared to that of export. Germany, Iran, the USA, France, Switzerland, Italy sustains their positions in top 10 in import but Iraq, Libya, United Kingdom and Romania are replaced by Russia, China, Spain and India.

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[10] Export and import of goods and services are from components of expenditure on the GDP at current prices.

Table 7: Top 10 Trade Partners of Turkey in 1980

Export		Import	
Country	**Share (%)**	**Country**	**Share (%)**
Germany	20,75	Iraq	15,64
Italy	7,51	Germany	10,59
Union of Soviet	5,81	Iran	10,15
France	5,63	Libya	9,84
Iraq	4,63	USA	5,59
USA	4,38	France	4,76
Switzerland	4,31	Switzerland	4,40
United Kingdom	3,59	United Kingdom	4,01
Syria	3,54	Italy	3,79
Poland	3,23	Romania	3,30

Source: Turkish Statistical Institute

Table 8: Top 10 Trade Partners of Turkey in 2013

Export		Import	
Country	**Share (%)**	**Country**	**Share (%)**
Germany	9,03	Russia	9,96
Iraq	7,87	China	9,81
United Kingdom	5,79	Germany	9,61
Russia	4,59	Italy	5,12
Italy	4,43	USA	5,01
France	4,20	Iran	4,13
USA	3,72	Switzerland	3,83
UAE	3,27	France	3,21
Spain	2,86	Spain	2,55
Iran	2,76	India	2,53

Source: Turkish Statistical Institute

Descriptive statistics show that the importance and volume of trade flows in Turkish economy has risen especially by economic liberalization policies since 1980. The role of regional trade agreements of Turkey in this increase is the main research question of this thesis.

In order to analyze importance of regional trade agreements of Turkey, firstly, real export index of Turkey is calculated using quarterly data for yearly export. Nominal export values in US Dollar are converted to real terms using the US consumer price index. Real export value of Turkey to her agreements partners are calculated in terms of US Dollar in the first quarter of 1998. Then, the quarters that RTAs of Turkey become effective are denoted as "quarter 0". The quarters before and after the quarter that those agreements become effective –quarter 0– are denoted using negative and positive numbers respectively. For instance, "-5" shows five quarters earlier than an agreement becomes effective and similarly "10" shows ten quarters after an agreement enters into force. Then, real export of Turkey to

her trade agreement partners are equalized to 100 at quarter 0 and real export index of Turkey is obtained. Those indexes are displayed in Figure 8 to 12. Figure 8 illustrates that Turkey's real export to Iceland has increased especially after 20 quarters later than the Turkey-EFTA FTA. However, there exists a dramatic upward and downward movement during the whole period. The real export to Norway and Israel shows more stable upward trend. As can be seen from Figure 8, the real export to Switzerland does not change for a long period of time after effectiveness of the FTA.
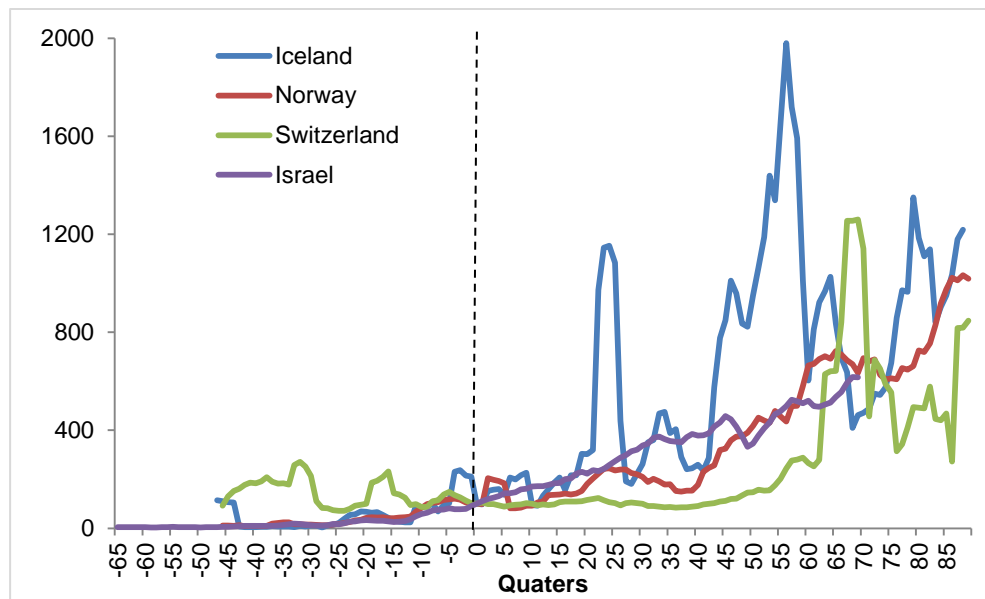
Figure 8: Real Export of Turkey to Iceland, Norway, Switzerland and Israel (Index)

Source: Turkish Statistical Institute and Author's Calculations

Real export index of Turkey calculated for Macedonia, Bosnia-Herzegovina, Palestine and Tunisia are shown in Figure 9. Although real export to Macedonia does not show a significant jump after the FTA, the real export with other three partners increases after the FTA. The export to Bosnia-Herzegovina rises rapidly between quarters 15 to 20 but it could not be sustained in later periods. Also, the export with Palestine significantly increases.
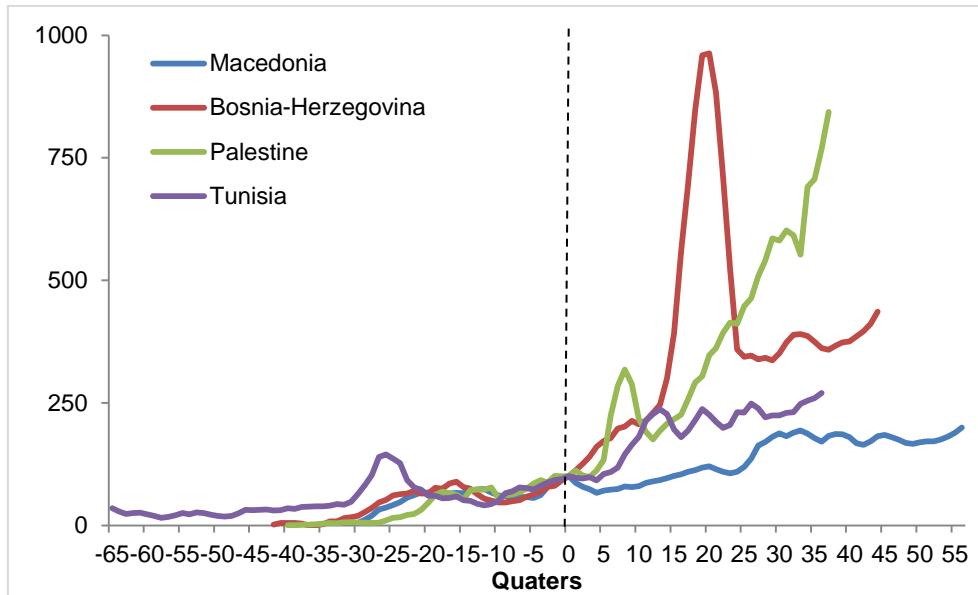
Figure 9: Real Export of Turkey to Macedonia, Bosnia-Herzegovina,

Palestine and Tunisia (Index)

Source: Turkish Statistical Institute and Author's Calculations

The export of Turkey to Albania seems like that the Agreement could not be a driving force for the trade flow (Figure 10). However, the export to Morocco and Egypt has an upward trend despite fluctuations in some quarters. The export with Syria also fluctuates around quarter 24 and shows higher export volume compared to the quarter 0.

Export to recent FTA partners of Turkey is shown in Figure 11. Despite the fact that it is early to interpret the impacts of recent FTAs, as it is clear from the Figure 11, real export to South Korea shows a downward movement rather than upward. Export to Georgia also decreases after the entry into force of the Agreement but then it recovers. The highest jump among these six countries in the Figure 11 is observed in Chile.
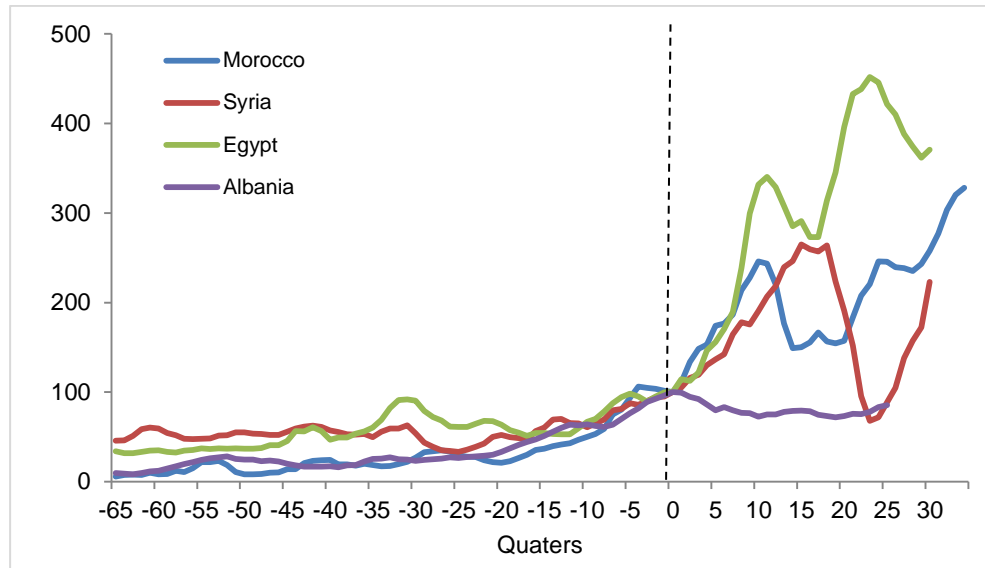
Figure 10: Real Export of Turkey to Morocco, Syria, Egypt and Albania (Index)

Source: Turkish Statistical Institute and Author's Calculations
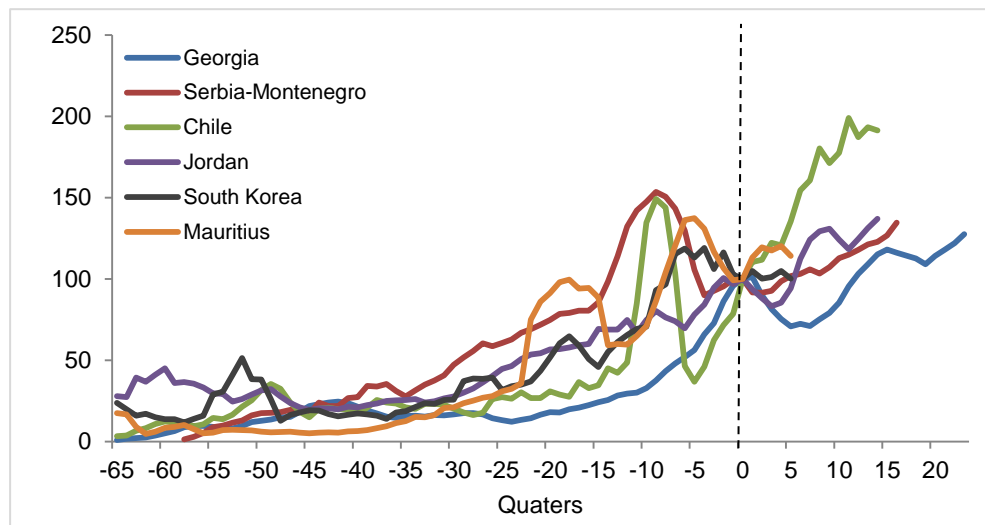
Figure 11: Real Export of Turkey to Georgia, Serbia-Montenegro, Chile, Jordan, South Korea and Mauritius (Index)

Source: Turkish Statistical Institute and Author's Calculations

In Figure 12, real export index of Turkey for fifteen EU members, which constitute the EU when the Customs Union Decision became effective at the

end of 1995, are shown. Trend of real export index of Turkey to the EU-15 does not change until 30 quarters later than the Decision but it shows significant increase between 30th and 55th quarter. This period corresponds to the years between 2003 and 2009 in which Turkey has a high growth performance. After reaching highest level in 55th quarter around 2009, it fluctuates and could not reach the highest level achieved in 2009. This observation in Turkish export to the EU after 2009 is in line with the global crisis emerged at the end of 2008 and European debt crisis observed starting from 2010.
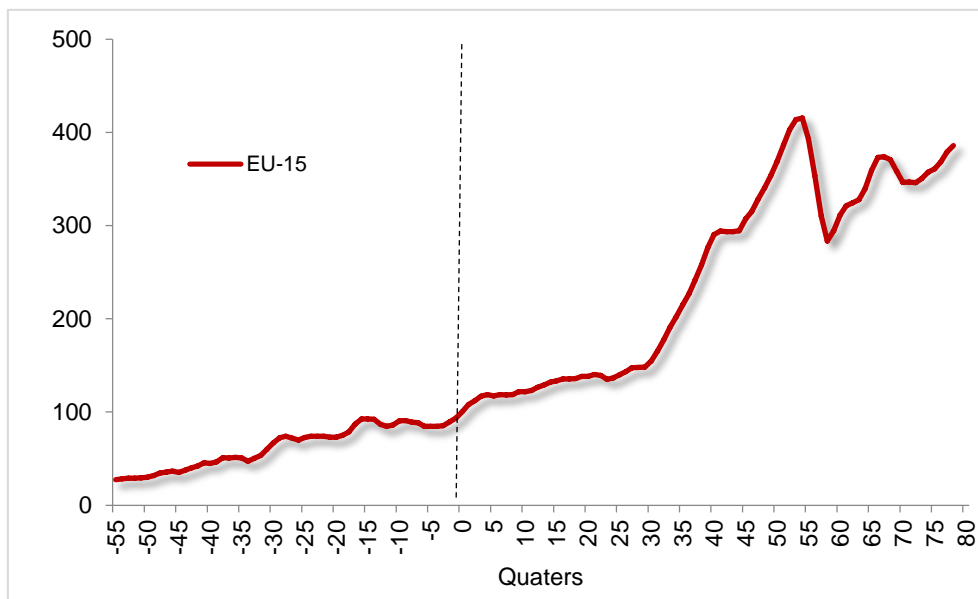
Figure 12: Real Export of Turkey to EU-15 (Index)
Source: Turkish Statistical Institute and Author's Calculations

In most of the cases displayed from Figure 8 to 12, real export to the RTA partners increases. However, Turkey's real export also increases through this period. Hence, it is substantial and more meaningful to analyze whether share of export from Turkey to the RTA partners in total export of Turkey increases after the Agreements become effective or not. In order to observe this impact, yearly export to RTA partners in total export are calculated using quarterly data. In line with the previous analysis displayed in Figure 8

to 12, the shares are equalized to 1 in the quarter 0 – the quarter of entry into force –for each agreement and then series are clustered.

Exports of Turkey to four RTA partners –Iceland, Norway, Switzerland and Israel- in total export of Turkey are illustrated in Figure 13. Export to Switzerland increases slightly after the Agreement but the upward movement loses its momentum. Export shares of other three countries does not increase; in contrast, it decreases to low levels and do not increase trough whole time period after quarter 0.
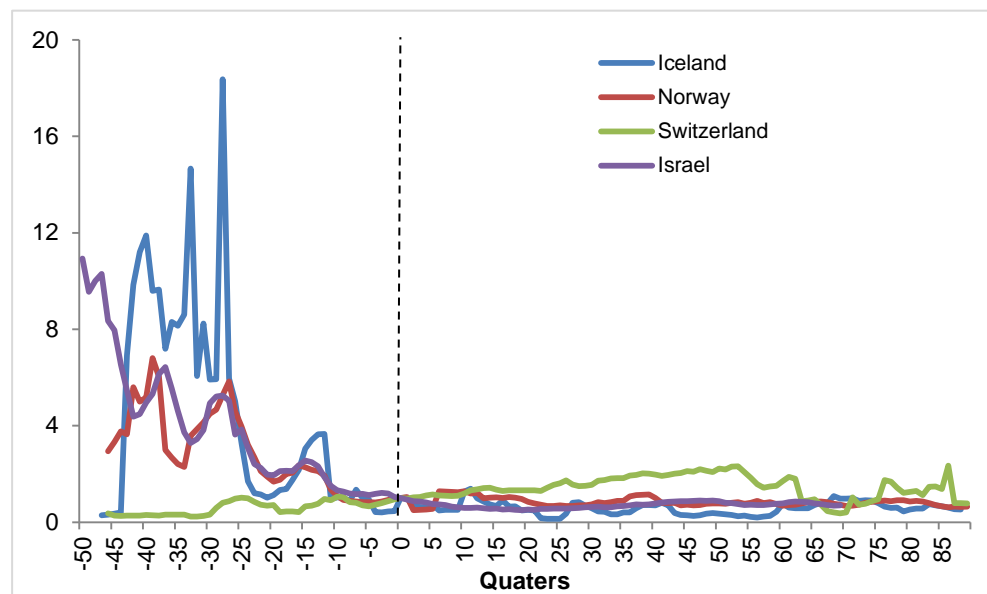
Figure 13: Export Shares of Iceland, Norway, Switzerland and Israel in Total Export (Index)

Source: Turkish Statistical Institute and Author's Calculations

Export shares of another four RTA partners – Macedonia, Bosnia-Herzegovina, Palestine and Tunisia- are provided in Figure 14. Similar to Switzerland in previous figure, increments on export shares are observed in Macedonia. However, shares of the other RTA partners declines after the agreements.
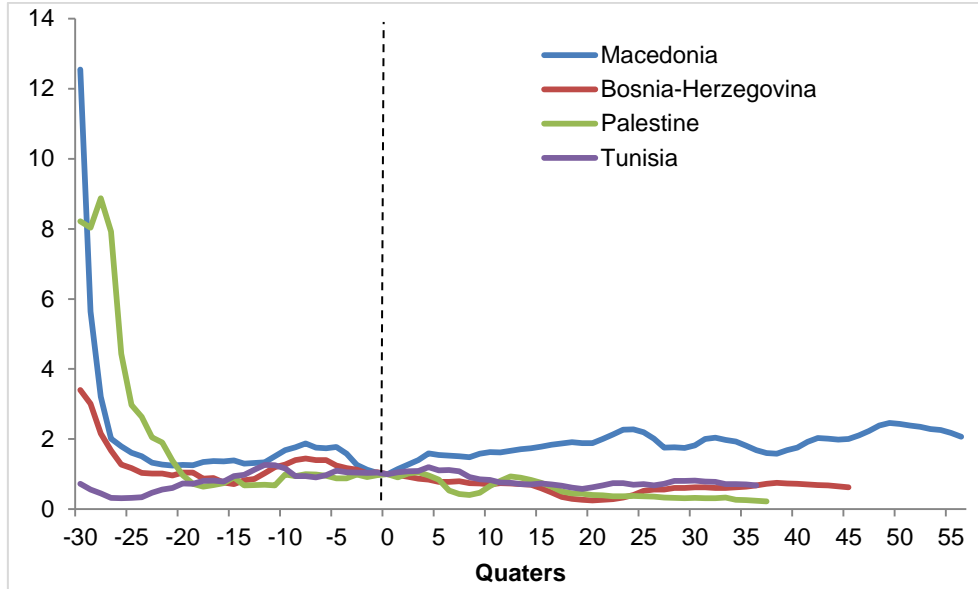
Figure 14: Export Shares of Macedonia, Bosnia-Herzegovina, Palestine and
Tunisia in Total Export (Index)

Source: Turkish Statistical Institute and Author's Calculations

In Figure 15, the index is computed for Morocco, Syria, Egypt and Albania.
According to the latest data available, only Albania has a higher share
compare to the date of entry into force of the agreements. Export shares of
three FTA partners of Turkey have a downward trend despite the
fluctuations.
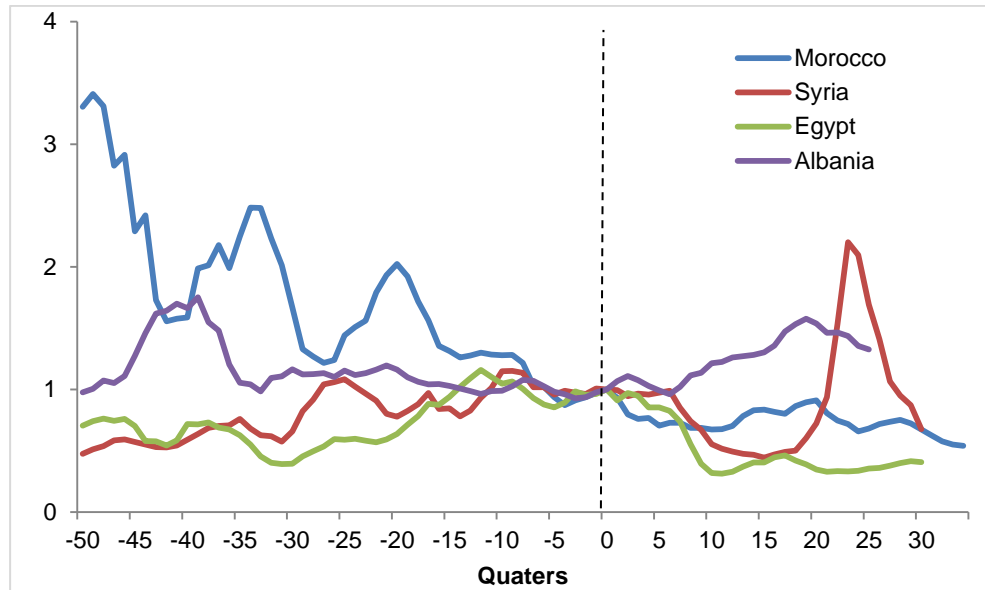
Figure 15: Export Shares of Morocco, Syria, Egypt and Albania in Total
Export (Index)
Source: Turkish Statistical Institute and Author's Calculations

The same index is calculated for the last FTA partners of Turkey in Figure
16. Although it is early to conclude that those FTAs could not create
additional shares in Turkey's export, the data available shows that Turkey
could not increase exports to those countries except Serbia-Montenegro in
total export.
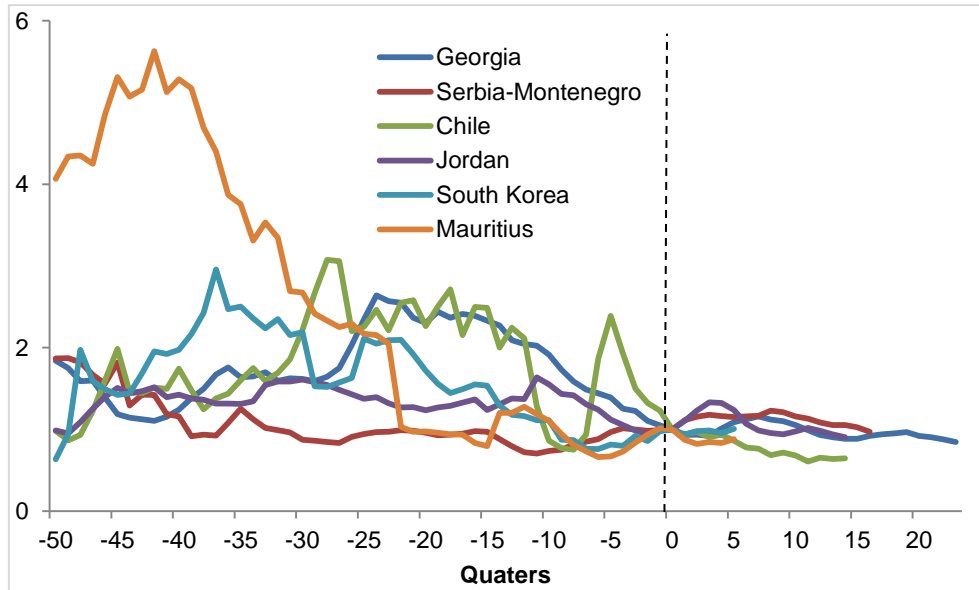
Figure 16: Export Shares of Georgia, Serbia-Montenegro, Chile, Jordan,
South Korea and Mauritius in Total Export (Index)
Source: Turkish Statistical Institute and Author's Calculations

Finally, share index for RTAs partners of Turkey is also computed for fifteen European Union countries and reported in Figure 17. As is shown in the figure, share of exports to EU-15 in total export show an increment throughout the period especially 45 quarters later. The last value of the index takes value of around 1.4. This means that share of EU-15 increases almost 40 percent compared to the date of entry into force of the Customs Union Agreement.
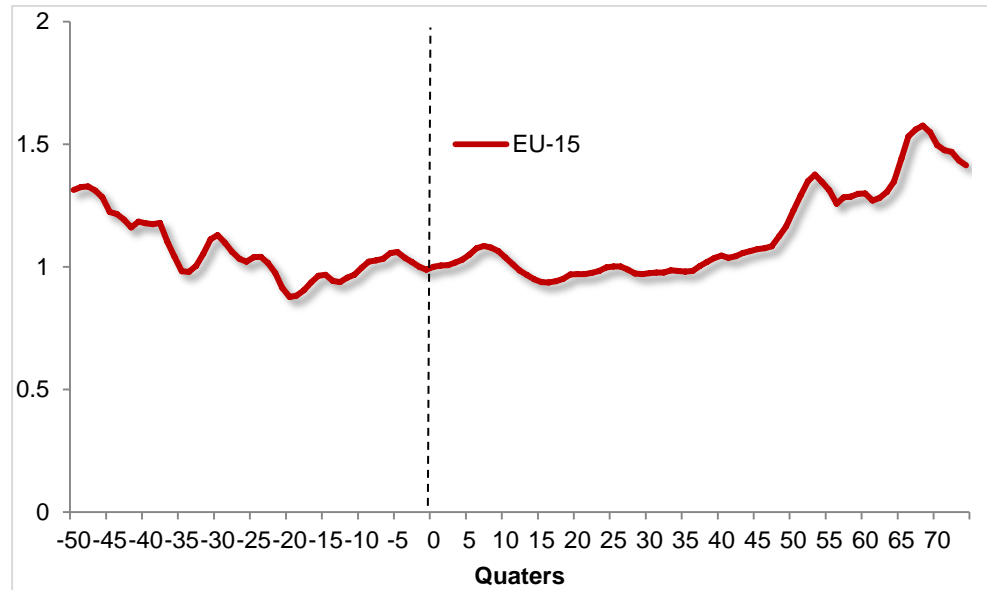
Figure 17: Export Shares of EU-15 in Total Export (Index)

Source: Turkish Statistical Institute and Author's Calculations

In the light of share indexes calculated for all RTAs partners of Turkey, it can be considered that exports to the FTAs of Turkey does not increase significantly in overall assessment except outliers. However, exports to the EU-15 shows an increase compared to the other RTAs partners.

In this section, analysis provided above covers overall trade flows between Turkey and her RTA partners. Moreover, exports and imports of covered goods in RTAs between Turkey and her partners can provide additional information regarding coverage of special provisions of each RTA. Hence, trade flows of covered goods in the agreements between Turkey and her trade partners are calculated for Turkey's RTA partners. In general, FTAs generally provides removal of custom tariffs for manufactured goods and limited elimination of custom tariffs for restricted agriculture products. The share of manufactured products in total export and import constitute high portion of the total trade. Approximate shares of trade in manufactured goods with RTA partners of Turkey are calculated and provided in Appendix.A. The statistics show that high portion of Turkey's trade flows with her RTA partner is non-agriculture products. In general, it can be

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claimed that share of manufactured goods in export and import of Turkey with her RTA partners is more than 80 percent in almost all cases. Hence, the scope and coverage of the agreements is broad enough and there is no need for special attention in product differentiation instead of interpretation of total trade.

In conclusion, general information about Turkey's foreign trade policy and importance of the Customs Union Decision is emphasized in this section. Obligation arisen from the Customs Union Decision is introduced and the details about FTA partners of Turkey are provided. Then, some indices related to export flows of Turkey are calculated in order to understand whether Turkey's export to her RTA partners increased or not. The empirical evidences in general show that Turkey's export to her FTA partners does not increase as policy makers expected. However, this result is not surprising due to the fact that Turkey does not own any right to choose her FTA partners as mentioned above.

CHAPTER 3

LITERATURE REVIEW

3.1   Literature on the Gravity Model

The name of the Gravity Model in international economics actually comes from Newton's universal gravitation law which came up in 17th century. According to the Newton's law, the gravity force between any two bodies is positively related to the product of the masses of bodies and negatively related to the square of their distance between them (Cohen, 1999). In line with Newton's law, the size of economies positively affects the trade between two countries, and trade costs including distance affect it negatively.

In most of the empirical studies, the gravity equation is estimated using cross sectional data as follows:

$$X_{ijt} = \beta_0 Y_{it}^{\beta_1} Y_{jt}^{\beta_2} D_{ij}^{\beta_3} e^{\beta_4 L_{ij}} e^{\beta_5 CB_{ij}} e^{\beta_6 RTA_{ijt}} \varepsilon_{ijt} \qquad (1)$$

where X_{ijt} denotes trade flow from exporter country i to importer country j at time t, Y_{it} is gross domestic product (GDP) of exporter country i at time t, Y_{jt} is GDP of importer country j at time t, D_{ij} denotes the distance between exporter country i and importer country j, L_{ij} is a dummy variable for common language as stated in Equation (2).

$$L_{ij} = \begin{cases} 1, & country\ i\ and\ j\ share\ a\ common\ language \\ 0, & otherwise \end{cases} \qquad (2)$$

Similarly, another dummy variable CB_{ij} is a dummy variable for common land border as in Equation (3).

$$CB_{ij} = \begin{cases} 1, & country\ i\ and\ j\ share\ a\ common\ land\ border \\ 0, & otherwise \end{cases} \qquad (3)$$

Moreover, RTA_{ijt} is another binary variable which provides the information whether country i and j have a regional trade agreement such as preferential trade agreement, free trade agreement and customs union at time t (Equation 4).

$$RTA_{ijt} = \begin{cases} 1, & country\ i\ and\ j\ has\ a\ RTA\ at\ time\ t \\ 0, & otherwise \end{cases} \qquad (4)$$

The idea behind this model is that a country's export supply and import demand depends on its economic size (Y_i, Y_j respectively) and trade flow between any country is affected by trade costs such as distance as a proxy for transportation costs, dummy variables for common language, common border and regional trade agreements as proxies for other types of trade costs.

The gravity equation to analyze trade flows is econometrically estimated firstly by Jan Tinbergen (1962). The equation utilized in his study is similar to Equation (1) without any time dimension and the dummy variable for a common language. He investigated the impacts of inclusion in the British Commonwealth and the Benelux Economic Union. Empirical results suggest that the model is very powerful to explain trade flows. Moreover, he obtained statistically insignificant impact of membership in the Benelux Economic Union and statistically significant but too low (5%) impact of involvement in the British Commonwealth on trade flows.

After the introduction of gravity equation by Tinbergen (1962), gravity model has been used in empirical studies in international economics. One of the early studies belongs to Pöyhönen (1963). He analyses foreign trade between ten European countries in a particular year, specifically 1958. In the analysis, exports are explained by national incomes of exporter and importer countries and trade costs which is measured in terms of distances. In contrast to the Tinbergen, Pöyhönen does not investigate effects of common characteristics of trade partners or agreements. Another early study of gravity-based trade models is conducted by Linnemann (1966). In his book, he tries to figure out export and import demand elasticities. He estimates both export and import separately using 80 countries for a particular year, 1959. In addition to national incomes of exporter and importer countries, he uses populations of trade partners in order to capture national income per capita. Distance among trade partners are also used as an explanatory variable and average effects of trade blocs -British Commonwealth and French trade bloc- on trade flows are tried to be measured. After these studies in 1960s, a few other examples of gravity-based empirical trade models are used such as by Aitken (1973) and Sapir (1981). Despite high explanatory powers of those empirical studies with the gravity model, they lacked of theoretical backgrounds. Theoretical foundations of gravity model are developed in later studies.

The study of Anderson (1979) can be classified as the first significant attempt to provide theoretical foundations of the gravity model that can be easily understood from the name of his article. In the study, a model with Armington assumption is constructed. In other words, the model allows discrimination of products according to origin –where they are produced-. In line with this assumption, demands of consumer are allowed to be different for a product produced in different places. In the model, there are no non-tradable goods or no country which do not participate in international trade.

Hence, national income is equal to the summation of domestic and international demand for all goods.

Following the attempt of Anderson (1979), other approaches to introduce theoretical background of gravity-based trade models are provided by Bergstrand with two different studies in 1985 and 1989. He presents the gravity model as a version of monopolistic competition trade model developed by Krugman (1980). After the contributions of Bergstrand in 1980s, Deardorff (1998) refuses that the Heckscher-Ohlin model can be a theoretical basis for the gravity model as suggested by Krugman (1980) and Bergstrand (1985 and 1989). Deardorff (1998) add constant elasticity of substitution price indices in order to capture price levels of countries to Anderson (1979)'s distance definition. He shows that trade relations between countries with similar proportions of factor endowments are stronger compared to other countries with different factor proportions.

Studies to provide a theoretical explanation for the gravity model continue in the 2000s. Eaton and Kortum (2002) introduce a trade model based on Ricardian theory with different production technologies in countries. Hence, they provide a theoretical basis for the gravity model using comparative advantage approach.

In addition to those studies, another important contribution in the gravity model literature is introduced by Anderson and van Wincoop (2003). Their study is widely accepted in international economics which can be considered as a continuation of the study of Anderson (1979) since main assumptions and derivations are kept. The most important contribution of Anderson and van Wincoop (2003) is the introduction of multilateral resistance terms (MRT). Using MRT notion, they show that relative trade costs instead of absolute one are important in determination of trade flow between countries. The term of MRT can also be classified as multilateral price indices in order to capture different price level in different countries.

Moreover, Anderson and van Wincoop (2003) show that inclusion of MRT solves the bias in estimation arisen from omitted variables of price levels of countries.

In line with the theoretical developments in the literature, considerable amount of empirical studies are conducted using the gravity model in different areas other than trade flows such as foreign direct investments, portfolio investment and migration. For instance, Head and Ries (2008) apply gravity model approach with contributions of Anderson and van Wincoop (2003) to explain foreign direct investment. Empirical results in the study show that development level in the home country which makes foreign direct investment in another –destination- country is highly significant and important factor in explaining outflows of foreign direct investments.

The study of Portes and Rey (2005) is one of the early studies using gravity model in explanation of portfolio investment. They use a panel data of 14 countries starting from 1989 until 1996 to estimate gravity equation. They conclude that application of gravity model in portfolio investment strongly explains equity flows like trade flow. Their empirical results suggest that international portfolio flows are mainly determined by geographical components. They also show that market size in home and partner countries, trading costs and distance also play important role in portfolio investment.

The gravity model is also applied in explanation of migration. The study of Karemera, Oguledo and Davis (2000) utilize the gravity model in order to explain migration flows to North America, specifically the USA and Canada. Based on gravity equation estimations, they argue that income and population are among major influential components on migration to North America but the most important factor is population in the home country from which people migrate to destination country. In addition to these findings, foreign financial investment and economic growth in the home

country have negative impacts on migration from home country to destination country. Furthermore, the study incorporates political variables in gravity model estimation. They conclude that freedom is positively related with migration flows; in other words, home countries with less freedom result in lower migration flows. In general, authors argue that characteristics in home country are highly significant on migration flows to North America.

In addition to those studies, the gravity model is widely used to answer a particular question that is ex-post effects of regional trade agreements on trade flows like in the case of first example of gravity model estimation by Tinbergen (1962). For instance, Fukao, Okubo and Stern (2003) use gravity-based trade model in order to analyze trade diversion effect of the North American Free Trade Agreement (NAFTA)[11]. They estimate trade flows in different sectors and product groups using fixed-effect panel data analysis estimations for 7 years between 1992 and 1998. Their findings represent that the most substantial diversion in trade is observed in sectors of textile and apparel products in the US's imports from rest two partners of the NAFTA, Canada and Mexico, but especially from Mexico. Moreover, authors in their study emphasize importance of product disaggregation.

Tang (2005) also uses gravity-based trade model in his empirical work but he analyzes three FTAs: NAFTA, Australia New Zealand Closer Economic Relations Trade Agreement (ANZCER)[12] and Association of Southeast Asian Nations (ASEAN)[13]. He shows that these three trade agreements have positive and significant trade creation effects on member states but these

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[11] The NAFTA is a FTA between the USA, Canada and Mexico which became effective on 1 January 1994.

[12] ANZCER is a FTA between New Zealand and Australia. The agreement is effective since 1 January 1983.

[13] The ASEAN is an economic and political association of Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar Philippines, Singapore, Thailand, and Vietnam. The association was established in 1967 with five countries then number of members increased to ten with enlargements.

effects are higher in the case of the ANZCER and ASEAN members. In trade diversion analysis, it is calculated that the ANZCER tends to decrease trade with non-member countries in contrast to the ASEAN where trade with non-member countries increases. Moreover, trade diversion effect of the NAFTA is estimated as insignificant; in other words, the NAFTA does not affect trade with non-member countries.

On impacts of RTAs on agriculture sector, Grant and Lambert (2008) conducted an empirical study. They make two-pillar sector disaggregation: agriculture and non-agriculture sector. They analyze impacts of trade agreements on these two sectors. Despite the fact that agriculture is the more protective sector, it is found that trade agreements are more beneficial for the agriculture sector compared to the non-agriculture. They suggest that average treatment effect of RTAs on members' agriculture trade is around 72 percent whereas it is only 27 percent in non-agriculture trade.

Another study on impacts of trade agreements is conducted by Egger and Larch (2011). They analyze impacts of trade agreements among 15 EU members which constitute the European Community –former structure of the EU- on both existing members and potential member countries[14]. The gravity model proposed by Anderson and van Wincoop (2003) is used in the study. Bilateral trade information of 167 countries between 1990 and 2001 is covered. Empirical results obtained by Egger and Larch (2011) show that both internal agreement among 15 EU members and trade agreements with potential member countries result in positive trade creations. Authors also claim that these agreements cause increase in GDP and welfares of trade agreement partners.

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[14] Authors analyze trade agreements of European Union with Potential Member Countries which are Hungary, Poland, Czech Republic, Romania, Slovak Republic, Estonia, Latvia, Lithuania and Slovenia.

However, the results in many studies can be inconsistent about the effects of the regional trade agreements on trade flows; in other words, the significant and positive impacts of regional trade agreements on trade flows are not a common and usual consequence in empirical studies using gravity equation. For instance, the studies about the effects of the European Free Trade Association (EFTA)[15] are conflicting. Bayoumi and Eichengreen (1997) found that the EFTA is a strongly trade promoting agreement as a result of the empirical analysis utilizing gravity equation for 42 years between 1956 and 1992. On the other hand, another study conducted by Soloaga and Winters (2001) shows statistically insignificant and negative impact of the EFTA on trade flows among member states in the period from 1980 to 1996.

Another conflicting result appears in the European Economic Community (EEC). The study of Bayoumi and Eichengreen (1997) suggests that although there is significant trade diversion effects of the EEC, trade creation effects are also significant during the period of 1956-1992. Similar to the study of Bayoumi and Eichengreen (1997), empirical results in the study of Endoh (1999) indicates that there is positive and statistically significant trade creation effects of the EEC in the period of 1960-1994. However, he also finds positive trade diversion effects which shows significant trade promotion between the EEC member and non-member countries. Opposite to the findings of these two studies, Soloaga and Winters (2001) observe significantly negative impacts of EU membership on trade flows among member countries during 1980-1996.

Considering the ASEAN, empirical results suggest different results. The research of Soloaga and Winters (2001) presents that impact of the ASEAN on total import from and export to rest of the world of all members is

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[15] The EFTA –an alternative trade bloc to the European Union (Formerly European Economic Community and The European Community) is a free trade agreement which was established in 1960 by seven European member states for the time being, it consists of four European countries which are Iceland, Liechtenstein, Norway and Switzerland

positive and significant in gravity model analysis covering 1980-1996. Despite the positive effects on trade flows as a bloc, the study suggests that the ASEAN FTA has negative impacts on trade among member states. On the other hand, another study conducted by Carrère (2006) examines effects of RTAs on trade flows between 1962 and 1996 and it provides evidence that shows positive trade creation effects are observed in the case of the ASEAN FTA. In other words, trade flows among members states are positively affected by this FTA.

These three regional trade agreements are a few examples among studies which show conflicting results using gravity equation. The conflicting results appear due to endogeneity bias of RTAs and differences in estimation techniques. Baier and Bergstrand (2007) aim to solve estimation problems related to the effects of RTAs in the gravity model. Their study is accepted by most of the researchers and their techniques are applied in most of the studies. Details to the technique applied in the study of Baier and Bergstrand (2007) is introduced in the next chapter and applied in this thesis. They show that panel data analysis solves the endogeneity problem of RTAs contrast to approaches using instrumental variables and control function. Then, they analyze trade flows among 96 countries covering 52 RTAs between 1960 and 2000. The study suggests that bilateral trade of RTA members increases 100 percent after 10 years.

3.2   The gravity model and Turkey

There exist empirical studies which uses different versions of gravity equations with different estimation approaches and data about the Customs Union Decision between the EU and Turkey. However, to the best of our knowledge, there is not any study which includes the FTAs of Turkey in the analysis.

The study of Antonucci and Manzocchi (2006) investigates whether the Customs Union Decision provides additional foreign trade for these two

parties –Turkey and the EU members. They use a balanced panel data for 45 countries starting from 1967 until 2001. Firstly, the study shows that the gravity model approach is an appropriate method in order to explain international trade flows of Turkey. Moreover, the empirical results in this study show that there is not enough evidence to claim that the Customs Union Decision between the EU and Turkey provided additional foreign trade between parties of this agreement.

Adam and Moutos (2008) investigate the effects of the EU-Turkey Customs Union on manufacturing export of both Turkey and 15 EU member countries. They use a gravity model covering 24 countries for 17 year up to 2004. Empirical results in their study suggest that inclusion of Turkey in the European Customs Union decreases export among 15 European countries; however, it has a positive impact on export of Turkey to the EU and export of the EU to the Turkey (Turkey's import from the EU).

Bilici, Erdil and Yetkiner (2008) also utilize gravity model in order to evaluate effects of the Customs Union between the EU and Turkey on Turkey's trade flow. The study estimates the gravity equation using panel data with 42 countries starting from 1992 until 2006. The estimated results suggest the EU has been important in trade flow of Turkey both before and after the Customs Union Decision. They conclude that the distance between the EU and Turkey has lost importance after the Customs Union Decision which leads authors to conclude that the European Customs Union has increased the EU's importance in Turkey's trade flow. However, they suggest that the Decision did not cause a significant change in foreign trade of Turkey.

In addition to those studies, Nowak-Lehmann, Herzer, Martinez-Zarzoso and Vollmer (2007) investigate trade flows between Turkey and the EU in 16 important export sectors of Turkey using gravity equation and panel data for the period starting from 1988 until 2002. The estimation results suggest

that trade in industrial goods –only some of them covered in the study- has increased too little after the Customs Union. However, it is indicated that if agricultural products are covered in the EU-Turkey Customs Union, authors expect significant increase in Turkey's agricultural product exports to the EU.

All of those studies are provided in this section uses gravity model to estimate Turkey's trade flows and the role of the Customs Union Decision. In this thesis, gravity model is also used since the gravity model is the most preferred model in explanation of trade flows and impacts of regional trade agreements. However in this study, recent techniques developed by Anderson and van Wincoop (2003) and Baier and Bergstrand (2007) are used in order to solve endogeneity bias of RTAs. In addition to this, the most important contribution of this study is to evaluate impacts of all RTAs of Turkey – the Customs Union with the EU and all FTAs in force or revealed-. In other words, this study does not only concentrate on the Customs Union Decision since the FTAs are one of the important part of the Customs Union due to obligations mentioned in Chapter 2. In addition, using broader data set, higher number of countries and larger time period is another contribution of this study.

3.3   Studies related to Turkey's regional trade agreements without gravity model

Alongside the studies using gravity model, there exist other empirical papers which try to figure out the impacts of the Custom Union Decision on Turkish economy. One of the studies is of Neyaptı, Taşkın and Üngör (2007). They use an econometric model including conjectural variables other than the gravity model for Turkey's foreign trade over the period 1980-2001. They conclude that the Customs Union Decision between Turkey and the EU affected Turkey's trade flow positively.

In addition to the econometric studies about the impacts of the Customs Union, there are also computable general equilibrium (CGE) analyses for ex-ante forecasts. In the study of Mercenier and Yeldan (1997), an intertemporal general equilibrium model is applied. They indicate that negative consequences for Turkish economy can be observed since the Custom Union Decision can deteriorate terms of trade of Turkey arisen from removal of custom tariffs of Turkey against the EU. On the other hand, the study of Mercenier and Yeldan (1997) also argues that if Turkey becomes a member of the EU, then the overall impact on Turkish economy becomes positive since membership of the EU brings elimination of non-tariff barriers together with removal of customs tariffs.

Another ex-ante study is conducted by Harrison, Rutherford and Tarr (1997). They use a computable general equilibrium model and forecast possible impacts of the Turkey-EU Customs Union on Turkish economy. The study shows that the European Customs Union can generate positive impacts on Turkish economy; specifically welfare gains which is equal to 1 - 1,5 percent of GDP. Authors also argue that this dramatic increase in welfare of Turkey is arisen from small trade diversion effect faced by Turkey.

Table 9: Summary of Quantitative Studies about the Customs Union between Turkey and the EU

Study	Aim	Estimation Method	Result
Antonucci and Manzocchi (2006)	The impact of the CU Agreement on trade flows between Turkey and EU members	Gravity Model with panel data for 45 countries between 1967 and 2001	The study does not support that additional trade between the EU and Turkey are observed after the CU.
Adam and Moutos (2008)	The impact of the CU Agreement on manufacturing trade flows between Turkey and EU members	Gravity Model with panel data for 24 countries between 1988 and 2004	The study supports that the CU has a positive impact on both Turkey's and the EU's manufacturing export to each other.
Bilici, Erdil and Yetkiner (2008)	The impact of the CU Agreement on Turkey's trade flow with the EU	Gravity Model with panel data for 42 countries between 1992-2006	The study supports that the importance of the EU in Turkey's trade flow increased after the CU but the CU does not cause any significant change.
Nowak-Lehmann, Herzer, Martinez-Zarzoso and Vollmer (2007)	The impact of the CU Agreement on Turkey's trade flow with the EU in 16 specific sectors	Gravity Model with panel data between 1988-2002	Trade in industrial goods –only some of them covered in the study- has increased too little after the CU.
Neyaptı, Taşkın, and Üngör (2007)	The impact of the CU Agreement on Turkey's trade flow	Panel data estimation with 150 countries between 1980-2001	The Customs Union Decision between Turkey and the EU affected Turkey's trade flow positively.
Mercenier and Yeldan (1997)	Economic impacts of the CU on Turkish economy	Intertemporal general equilibrium analysis	The CU could cause negative impacts on Turkish economy.
Harrison, Rutherford and Tarr (1997)	Economic impacts of the CU on Turkish economy	Computable general equilibrium analysis	The CU could create welfare gains equal to 1 to 1,5 percent of GDP in Turkey.

CHAPTER 4

MODEL, DATA AND EMPIRICAL RESULTS

In previous sections, it is shown that Turkey's export and import volume have increased. The purpose of this chapter is to examine the role of the RTAs in the expansion of trade flows in Turkey. Due to the fact that the topic of this study is an ex-post question, gravity model estimation is preferred in order to analyze whether the RTAs has a positive or negative role in Turkey's trade flows.

A frequently used baseline gravity equation is displayed in Equation (5) which is the logarithmic form of Equation (1) displayed in previous section.

$$lnX_{ijt} = \beta_0 + \beta_1(lnY_{it}) + \beta_2(lnY_{jt}) + \beta_3(lnDIST_{ij}) + \beta_4(L_{ij}) + \beta_5(CB_{ij})$$
$$+ \beta_6(RTA_{ijt}) + \varepsilon_{ijt} \tag{5}$$

X_{ijt} is the real trade flow[16] from country i to partner country j at time t. Moreover, Y_{it} and Y_{jt} is the real GDP levels of country i and j at time t, respectively. $DIST_{ij}$ denotes the distance between country i and partner country j, L_{ij} is a dummy variable for common language of country i and partner country j. Similarly, another binary variable CB_{ij} is for common land border of country i and her partner country j. RTA_{ijt} is another dummy variable which provides the information whether country i and country j has

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[16] Real trade flow can be real export, real import or real total trade level.

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a regional trade agreement or not. In other words, RTA_{ijt} takes the value of 1 when both country i and country j are members of a regional trade agreement such as a FTA or customs union.

Due to the fact that this study only focuses on the RTAs of Turkey and their impacts on Turkey's trade flows, namely export and import, country i denotes Turkey. The gravity equation is modified for in this study is shown in Equation 6.

$$lnX_{TRjt} = \beta_0 + \beta_1(lnRGDP_{TRjt}) + \beta_2(lnDIST_{TRj}) + \beta_3(L_{TRj}) + \beta_4(CB_{TRj}) + \beta_6(RTA_{TRjt}) + \varepsilon_{ijt}$$
(6)

X_{TRjt} is real trade flow from Turkey to partner country j at time t. Instead of separate real GDP of two trade partners (Y_{it} and Y_{jt}), total real GDP levels of Turkey and country j is used and denoted as $lnRGDP_{TRjt}$. The reason behind this is the fact that Turkey's real GDP is same for all cross section; in other words, it is not cross-variant variable. Hence, perfect multicollinearity problem arises when fixed effects are included in the model. Therefore, total real GDP of Turkey and her trade partner are used in Equation 6. Similar to the Equation 5, $DIST_{TRj}$ denotes the distance between Turkey and her trade partner country j, L_{TRj} is a dummy variable taking value of 1 (one) when Turkey and her trade partner country j share a common language[17]. Similarly, another binary variable CB_{TRj} takes value of 1 (one) when Turkey and her trade partner country j share a land border. RTA_{TRjt} is the last dummy variable which provides the information whether Turkey and country j has a regional trade agreement or not. In other words,

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[17] Common language variable do not fit in Turkish case due to the fact that Turkey has a common language only with Bulgaria and Cyprus. Since Turkey has limited trade relations with Cyprus after the EU membership due to political reasons, the dummy variable defined for a common language does not show economically meaningful results. Therefore, the binary variable for a common language is not used in estimations.

RTA_{TRjt} takes the value of 1 when Turkey and country j are members of a regional trade agreement.

In an attempt to analyze impacts of Turkey's FTAs and European Customs Union separately, RTA_{TRjt} is split into two: CU_{TRjt} and FTA_{TRjt} as explained in Equation (7) and (8).

$$CU_{TRjt} = \begin{cases} 1, & Turkey\ and\ country\ j\ are\ members\ of\ a\ CU \\ 0, & otherwise \end{cases} \tag{7}$$

$$FTA_{TRjt} = \begin{cases} 1, & Turkey\ and\ country\ j\ has\ a\ FTA \\ 0, & otherwise \end{cases} \tag{8}$$

In estimation of the model in (6), the time period is determined starting from 1992 to 2013. Since yearly data is used in the analysis the time span is 22 years. Also, trade flows with 126 trade partners of Turkey[18] are used in the data set. There are missing trade flows for some countries in some years. For example, some countries do not exist in certain period of time, or there are zero trade flow in specific years. In the estimation, non-zero trade flows are taken into consideration similar to the methodology of Baier and Bergstrand (2007). Therefore, the unbalanced panel data is obtained for 126 country or country groups in 22 years.

In addition those variables, four binary variables for crisis periods are defined in order to capture impacts of those periods on trade flows. Firstly, a dummy variable for the world crisis in 1998 and 1999 is defined as explained in Equation (9). $Wcrisis_{1998\&1999}$ takes the value of 1 only during the crises period of 1998-1999 for all partner countries. Similar to the world crisis, two binary variables for Turkey's domestic crisis in 1994 and 2001 is defined (Equation (10) and (11)). The variables $TRcrisis_{1994}$ and $TRcrisis_{2001}$ is equal to 1 when years is 1994 and 2001 respectively for all partner countries. Another dummy variable is defined for European crisis starting from 2010 (Equation (12)). The variable is equal to 1 during 2010-

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[18] The list of countries is provided in Appendix.B.

2013 only when partner country is one of the European Union countries. Finally, another dummy variable is also defined for the recent world crises similar to the world crises defined for 1998 and 1999 (Equation (13)).

$$Wcrisis_{1998\&1999} = \begin{cases} 1, & \text{if year is 1998 or 1999 for all countries} \\ 0, & otherwise \end{cases} \quad (9)$$

$$TRcrisis_{1994} = \begin{cases} 1, & \text{if year is 1994 for all countries} \\ 0, & otherwise \end{cases} \quad (10)$$

$$TRcrisis_{2001} = \begin{cases} 1, & \text{if year is 2001 for all countries} \\ 0, & otherwise \end{cases} \quad (11)$$

$$EUcrisis_{2010-2013} =$$
$$\begin{cases} 1, & \text{if year is 2010, 2011, 2012 or 2013 for the EU countries} \\ 0, & otherwise \end{cases} \quad (12)$$

$$Wcrisis_{2008\&2009} = \begin{cases} 1, & \text{if year is 1998 or 1999 for all countries} \\ 0, & otherwise \end{cases} \quad (13)$$

In the analysis, not only export of Turkey to her trade partners but also import from them is used. Nominal export and import statistics of Turkey is taken from Turkish Statistical Institute in terms of US Dollar. In order to obtain real series, nominal export and import values are transformed using the US consumer price index taken from the Federal Reserve Bank of St. Louis. Moreover, real GDP series of Turkey and her trade partners are taken from World Bank - World Development Indicators. Real GDP series are measured in 2005 US Dollar.

The Center for International Prospective Studies (Centre d'Études Prospectives et d'Informations Internationales, CEPII) provides variables of distance and dummies for common language and border. Bilateral distance is calculated according to great circle formula using geographic coordinates of the most important and crowded cities of those countries. Information about the FTAs of Turkey is taken from Turkish Ministry of Economy.

The initial versions of gravity equation do not have theoretical basis. However, the studies after 1979 provided theoretical grounds for the gravity model. First notable study which improves this empirically accepted model in terms of economic theory is conducted by Anderson (1979). The following studies are Bergstand (1985), Bergstrand (1985), Deardorff (1998), Baier and Bergstrand (2001), Eaton and Kortum (2002), and Anderson and van Wincoop (2003). Most of the studies which provided theoretical explanations for the gravity model emphasized the role of some kind of price levels (2007). Furthermore, as mentioned in the third chapter, the estimation methodology is critical in determination the effects of RTAs on trade flows. Therefore, the methodology suggested by Baier and Bergstrand (2007) is applied in this study, so that estimation techniques integrate the information provided by the missing price terms in the gravity model: using both time and country specific fixed effects. Moreover, Baier and Bergstrand (2007) claim that implementation of country specific fixed effects in gravity model estimation can be used to capture multilateral price terms introduced by Anderson and van Wincoop (2003) similar to the studies of Redding and Venables (2000), Rose and van Wincoop (2001) and Eaton and Kortum (2002). Moreover, Baier and Bergstrand (2007) summarize other attempts to solve endogeneity bias problem in gravity equation estimations. They discuss use of probit function to predict FTAs and instrument variables or control functions. It is informed that using instrument variables or control function in determination of impacts of FTAs is not reliable.

In order to show results of different estimation techniques, first of all pooled gravity equation estimation results in line with Equation (6) for export and import of Turkey are provided in Table 10 and 11, respectively.

Table 10 provides pooled gravity model estimation results for real export of Turkey. The base line gravity equation without any RTA dummies is provided in the first column. In all estimations provided in eight columns,

coefficients of major gravity variables $lnRGDP_{TRjt}$, lnD_{TRj} and CB_{TRj} are statistically significant and economically meaningful. The coefficients of total real GDP of Turkey and her trade partners have positive and significant impacts on Turkey's real export to those partner countries. The bilateral distance between Turkey and her trade partners has negative and significant impacts on export of Turkey to her partners as expected. In other words, when the distance between Turkey and her trade partner increases, export of Turkey to those countries decreases in line with expectations. The dummy for shared common border seems to be positive and significant factor in export of Turkey. In other words, export of Turkey to countries which have common border with Turkey is higher compared to other countries. RTA_{TRjt} is included in estimation in column 2. Results show that the RTAs do not have a significant impact on Turkey's export to her RTA partners. In other words, export is not significantly higher to RTA partners than non-RTA partners. The dummy variable for RTA is split into two: one for the European Customs Union and one for the FTAs in column 3. However, coefficients of these two variables CU_{TRjt} and FTA_{TRjt} are still insignificant. The estimation results provided in column 3 indicates that both the European Customs Union and the FTAs of Turkey do not create extra or additional export for Turkey. In other words, export of Turkey to those countries is not significantly higher compared to the other countries in the data set. In column 4, impact of world crisis in 1998 and 1999 is captured using the dummy variable. Since the coefficient of the variable is negative and significant, it suggests that Turkey's export is significantly lower in the world crisis period. Similarly, negative and significant impacts of Turkish crises in 1994 and 2001 on Turkey's export are observed in column 5 and 6. Although the coefficient of the dummy variable for European crisis is negative, it is statistically insignificant. The results in column 7 indicate that Turkey's export to the EU countries during European crisis does not change significantly. The last column shows the impacts of recent world crisis on

Turkey's export. It seems that Turkey's export is not affected negatively during the recent global world crisis.

The pooled estimation results for import of Turkey are provided in Table 11. Estimation using only major explanatory variables of Turkey is displayed in the first column. The coefficients of those variables, $lnRGDP_{TRjt}$, lnD_{TRj} and CB_{TRj}, are statistically significant and economically meaningful. Similar to the previous estimation results calculated for export of Turkey, total real GDP and shared border affects import of Turkey positively and bilateral distance affects negatively. In the second column, dummy variable for RTAs of Turkey is included as an explanatory variable for import of Turkey. Results indicate that coefficient of RTAs is positive and significant at 95 percent confidence level. In other words, RTAs are one of the driving forces of import of Turkey. When RTAs are split, it is observed that coefficient for the Customs Union is positive and significant whereas the one for the FTAs is not statistically significant (third column of Table 11). Hence, results suggest that the European Customs Union has positive and significant impact on Turkey's import and equivalently, the export from EU members to Turkey is higher compared to the export from other countries. In column 5, it is observed that the world crisis during 1998 and 1999 do not affect Turkey's import significantly. Although both Turkish crises in 1994 and 2001 have a significant impact on Turkey's import, the crisis in 1994 affect Turkey's import positively in contrast to the crisis in 2001. Similar to the export case summarized in Table 10, the coefficient of the variable for European crisis is negative but it is statistically insignificant. Finally, the results displayed in the last column shows that the recent world crisis do not have a significant impact on Turkey's import.

In short, Table 10 and 11 show gravity equation estimation using pooled OLS estimation technique. The results in this technique indicate that RTAs do not have a significant impact on Turkey's export but they have a positive

impact on Turkey's import and this impact is arisen from the European Customs Union not from the FTAs.

In the second estimation technique, time specific fixed effects are included in the model in attempt to capture time variant effects. Table 12 shows estimation results of Turkey's real export using time specific fixed effects. First column of the table shows estimation results with major gravity model explanatory variables. Total real GDP and the dummy for common border is positive and significant indicating that they have positive impacts on Turkey's export. Bilateral distance between Turkey and her trade partners has also significant and negative impact on Turkey's export. In the second column of Table 12, variable for the RTAs are included in the model. The coefficient of RTA_{TRjt} is not significant similar to the estimation results displayed in Table 10. Third column of the table shows individual impacts of the Customs Union and the FTAs. They have also insignificant impacts on Turkey's export. Hence, estimation results for Turkey's export provided in Table 10 and Table 12 suggest a consistent result: the RTAs of Turkey do not have a significant impact on Turkey's export. Since the model includes time specific fixed effects, only the dummy variable defined for the European crisis is included in the model. The results shown in column 4 indicate that European crisis has a negative and significant impact on Turkey's export.

Table 13 shows gravity model estimation for Turkey's real import using time specific fixed effects similar to the case in Table 12. The baseline estimation results provided in the first column show that major explanatory variables are both economically meaningful and statistically significant on Turkey's import. The dummy variable for the RTAs of Turkey is also significant and positive. This result suggests that the RTAs have increasing effect on Turkey's import despite the case of export. In other words, Turkey's import from her RTA partners is higher than the other countries. Third column of the table shows impacts of the European Customs Union

and the FTAs on Turkey's import, independently. Both have significant and positive impacts on Turkey's import but the impact of the Customs Unions is more significant and higher compared the FTAs. Hence, estimation results for Turkey's import provided Table 11 and Table 13 suggest a consistent result: the EU-Turkey Customs Union has a significant and positive impact on Turkey's import. Moreover, the variable for European crisis during 2010-2013 has an insignificant impact on Turkey's import as shown in column 4.

Another estimation technique is applied in gravity model estimation: standard fixed effect estimation with country specific fixed effects. The estimation results for using country specific fixed effects are provided in Table 14 and Table 15. The explanatory variables of distance and common border could not be used in this estimation due to the fact that country specific fixed effects creates perfect multicollinearity with these time-invariant explanatory variables. Therefore, baseline gravity model estimation includes only total real GDP of Turkey and her trade partner.

Gravity model estimation for export of Turkey using country specific fixed effects are illustrated in Table 14. Baseline estimation in the first column suggest a consistent result which indicates that total real GDP of Turkey and her trade partner has a positive and significant impact on Turkey's export. The second one shows estimation results with inclusion of the variable for the RTAs. Results introduce that the RTAs of Turkey do not have a significant impact on Turkey's export. When the Customs Union and the FTAs are included in the model separately, the results do not change and they suggest that impacts of the Customs Union and the FTAs are not significant on Turkey's export (third column of Table 14). Moreover, columns 4 to 8 show the coefficient of the variables defined for crises periods. It is observed that the impacts of world crisis and Turkish crisis in 2001 on Turkey's export are insignificant (column 4 and 6). However, the Turkish crisis in 1994 has a positive impact on Turkey's export. This

observation can be observed due to the fact that economic recovery is observed through the end of the same year. On the other hand, European crisis affects Turkey's export to the EU members negatively similar to the pervious estimations. In addition, the impact of the recent world crisis on Turkey's export is positive and significant similar to Table 10. Hence, estimation results for Turkey's export provided in Table 10, Table 12 and Table 14 suggest a consistent result: RTAs do not have a significant impact on Turkey's export.

The estimation with country specific fixed effects for Turkey's import is displayed in Table 15. Similar to the previous tables, first column includes estimation results of baseline model. Total real GDP of Turkey and her trade partners has a positive and significant impact on Turkey's import. The second column shows impacts of the RTAs on Turkey's import. It is observed that the RTAs including the EU-Turkey Customs Union and the FTAs of Turkey have insignificant effects on Turkey's import. However, when the dummy variable for the RTAs is split into two as the Customs Union and FTAs, the results change such that the Customs Union has a positive impact on Turkey's import whereas the coefficient of the FTAs is still insignificant. Opposite to the case of export in Table 14, world crisis and Turkish crisis in 2001 have a significant impact on Turkey's import, the domestic crisis in 1994 and the European crisis do not have any significant impact. It is observed that the world crisis in 1998 and 1999 has a decreasing effect but the domestic crisis in 2001 has an increasing effect. In addition, the impact of recent world crisis on Turkey's import is not significant. Hence, estimation results for Turkey's import provided Table 11, Table 13 and Table 15 suggest a consistent result: the EU-Turkey Customs Union has a significant and positive impact on Turkey's import.

The final estimation technique as suggested by Baier and Bergstrand (2007) is implementation of both time and country specific fixed effects. In this model, both country specific heterogeneity and time specific effects are

controlled. Therefore, estimation results provided in Table 16 and Table 17 are considered as an ultimate estimation in evaluation of importance of RTAs on Turkey's export and import.

Table 16 shows estimations for Turkey's export. First column shows that total real GDP has a positive impact on Turkey's export. This coefficient can be interpreted as a total income elasticity of Turkey's export. In the second column, the dummy variable for the RTAs of Turkey is included in the model. It is obtained that effects of the RTAs are insignificant on Turkey's export. In other words, trade agreements that Turkey has established up to today have not created any additional export in Turkey. In addition, Turkey's export to her RTA partners has not been higher compared to other countries. The third column includes the results when the dummy variable for the RTAs is split into two. The results do not change and the estimations suggest that both the EU-Turkey Customs Union and the FTAs of Turkey do not have a significant impact on Turkey's export. Since the model includes time specific fixed effect, only the dummy variable defined for the European crisis can be used. The results shown in column 4 suggest that the European crisis during 2010-2013 affect Turkey's export to the EU members negatively. Also, this result is supported by the previous estimation results. Hence, estimation results for Turkey's export provided in Table 10, Table 12, Table 14 and Table 16 suggest a consistent result: RTAs are ineffective on Turkey's export.

Estimations for Turkey's import using time and country specific fixed effects are provided in Table 17. Baseline estimation in the first column suggests that total real income of Turkey and her trade partner positively affect Turkey's import. The real income elasticity of Turkey's import in the baseline estimation is calculated as 2.80 which is the same as the real income elasticity for Turkey's export. In the second column, the RTAs are taken into consideration. It is observed that coefficient of the dummy variable for the RTAs is significant at 90 percent confidence level. This

observation suggests that Turkey's import from her RTA partners is significantly higher than the import from other countries. In the third column of the Table 17, the dummy variable for the RTA is split into two as the Customs Union and the FTAs. In line with the previous estimation, it is observed that the EU-Turkey Custom Union has a significant impact on Turkey's import whereas Turkey's FTAs are not one of the driving forces of Turkey's import. Average treatment effect of the EU-Turkey Customs Union can be calculated from column 4 of Table 17. The coefficient of the dummy variable for the European Customs Union is 0,357 and it is significant at 95 percent confidence level. This means that Turkey's import from the EU members has been increased 43 percent ($e^{0,357} = 1,43$). In addition, the dummy variable for the European crisis suggest that it does not have any impact on Turkey's import from the EU members in line with the previous estimations.

Table 10: Export: Gravity model estimation without any time and country specific fixed effects[19]

lnX_{TRjt}	1	2	3	4	5	6	7	8
$lnRGDP_{TRjt}$	2,566*** (0,284)	2,502*** (0,298)	2,505*** (0,310)	2,556*** (0,283)	2,554*** (0,285)	2,564*** (0,284)	2,569*** (0,295)	2,537*** (0,280)
lnD_{TRj}	-1,197*** (0,115)	-1,119*** (0,135)	-1,119*** (0,134)	-1,196*** (0,115)	-1,196*** (0,115)	-1,197*** (0,115)	-1,199*** (0,113)	-1,195*** (0,115)
CB_{TRj}	1,152*** (0,398)	1,207*** (0,425)	1,207*** (0,424)	1,149*** (0,397)	1,151*** (0,397)	1,151*** (0,398)	1,151*** (0,397)	1,148*** (0,396)
RTA_{TRjt}		0,318 (0,282)						
CU_{TRjt}			0,304 (0,319)					
FTA_{TRjt}			0,338 (0,369)					
$Wcrisis_{1998\&1999}$				-0,247*** (0,073)				
$TRcrisis_{1994}$					-0,273** (0,131)			
$TRcrisis_{2001}$						-0,133** (0,039)		
$EUcrisis_{2010-2013}$							-0,043 (0,289)	
$Wcrisis_{2008\&2009}$								0,522*** (0,071)
RMSE	1,4071	1,4031	1,4033	1,4056	1,4063	1,4071	1,4074	1,3993
R^2	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62
Number of Observation	2697	2697	2697	2697	2697	2697	2697	2697

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[19] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 11: Import: Gravity model estimation without any time and country specific fixed effects[20]

lnM_{TRjt}	1	2	3	4	5	6	7	8	9
$lnRGDP_{TRjt}$	3,329*** (0,378)	3,159*** (0,378)	3,146*** (0,389)	3,179*** (0,396)	3,172*** (0,397)	3,193*** (0,404)	3,170*** (0,395)	3,180*** (0,397)	3,185*** (0,401)
lnD_{TRj}	-0,948*** (0,194)	-0,740*** (0,218)	-0,737*** (0,218)	-0,830*** (0,200)	-0,830*** (0,200)	-0,829*** (0,199)	-0,830*** (0,200)	-0,832*** (0,200)	-0,830*** (0,200)
CB_{TRj}	1,384*** (0,492)	1,530*** (0,524)	1,529*** (0,528)	1,451 (0,521)	1,450*** (0,522)	1,454*** (2,79)	1,448*** (0,522)	1,451*** (0,522)	1,453*** (0,521)
RTA_{TRjt}		0,847** (0,390)							
CU_{TRjt}			0,911** (0,444)	0,742* (0,418)	0,743* (0,418)	0,754* (0,418)	0,743* (0,417)	0,779* (0,409)	0,746* (0,417)
FTA_{TRjt}			0,758 (0,496)						
$Wcrisis_{1998\&1999}$					-0,164 (0,102)				
$TRcrisis_{1994}$						0,387** (0,176)			
$TRcrisis_{2001}$							-0,421*** (0,122)		
$EUcrisis_{2010-2013}$								-0,139 (0,168)	
$Wcrisis_{2008\&2009}$									-0,126 (0,118)
RMSE	2,2318	2,2126	2,2128	2,221	2,2209	2,2201	2,2197	2,2213	2,2211
R^2	0,47	0,48	0,48	0,47	0,47	0,47	0,47	0,47	0,47
Number of Observation	2643	2643	2643	2643	2643	2643	2643	2643	2643

[20] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 12: Export: Gravity model estimation with time specific fixed effects[21]

lnX_{TRjt}	1	2	3	4
$lnRGDP_{TRjt}$	2,317*** (0,265)	2,284*** (0,272)	2,284*** (0,284)	2,332*** (0,271)
lnD_{TRj}	-1,180*** (0,115)	-1,132*** (0,139)	-1,132*** (0,138)	-1,206*** (0,116)
CB_{TRj}	1,116*** (0,384)	1,151*** (0,404)	1,151*** (0,404)	1,099*** (0,376)
RTA_{TRjt}		0,195 (0,274)		
CU_{TRjt}			0,196 (0,293)	
FTA_{TRjt}			0,194 (0,388)	
$EUcrisis_{2010-2013}$				-0,511* (0,273)
RMSE	1,3368	1,3655	1,3657	1,3642
R^2	0,64	0,65	0,65	0,65
Number of Observations	2697	2697	2697	2697

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[21] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 13: Import: Gravity model estimation with time specific fixed effects[22]

lnM_{TRjt}	1	2	3	4
$lnRGDP_{TRjt}$	3,438*** (0,482)	3,273*** (0,465)	3,264*** (0,481)	3,262*** (0,483)
lnD_{TRj}	-0,956*** (0,193)	-0,713*** (0,216)	-0,712*** (0,215)	-0,712*** (0,215)
CB_{TRj}	1,393*** (0,491)	1,568*** (0,530)	1,567*** (0,532)	1,566*** (0,533)
RTA_{TRjt}		0,995** (0,398)		
CU_{TRjt}			1,038** (0,454)	1,063** (0,466)
FTA_{TRjt}			0,934* (0,501)	0,933* (0,502)
$EUcrisis_{2010\text{-}2013}$				-0,090 (0,228)
RMSE	2,2278	2,2018	2,2021	2,2025
R^2	0,47	0,49	0,49	0,49
Number of Observations	2643	2643	2643	2643

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[22] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 14: Export: Gravity model estimation with country specific fixed effects estimation[23]

lnX_{TRjt}	1	2	3	4	5	6	7	8
$lnRGDP_{TRjt}$	3,844*** (0,172)	3,844*** (0,195)	3,838*** (0,197)	3,839*** (0,175)	3,899*** (0,172)	0,385*** (0,175)	3,904*** (0,184)	3,761*** (0,172)
RTA_{TRjt}		-0,002 (0,103)						
CU_{TRjt}			0,043 (0,126)					
FTA_{TRjt}			-0,048 (0,101)					
$Wcrisis_{1998\&1999}$				-0,023 (0,054)				
$TRcrisis_{1994}$					0,215*** (0,074)			
$TRcrisis_{2001}$						0,065 (0,05)		
$EUcrisis_{2010-2013}$							-0,323*** (0,100)	
$Wcrisis_{2008\&2009}$								0,261*** (0,031)
R^2-within	0,66	0,66	0,66	0,66	0,66	0,66	0,67	0,67
Number of Observations	2697	2697	2697	2697	2697	2697	2697	2697

[23] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 15: Import: Gravity model estimation with country specific fixed effects[24]

lnM_{TRjt}	1	2	3	4	5	6	7	8	9
$lnRGDP_{TRjt}$	3,230*** (0,194)	3,192*** (0,222)	3,167*** (0,223)	3,154*** (0,211)	3,095*** (0,210)	3,187*** (0,216)	3,098*** (0,212)	3,148*** (0,216)	3,137*** (0,208)
RTA_{TRjt}		0,102 (0,112)							
CU_{TRjt}			0,269* (0,142)	0,29** (0,142)	0,303** (0,140)	0,299** (0,142)	0,302** (0,139)	0,276** (0,125)	0,288** (0,142)
FTA_{TRjt}			-0,069 (0,154)						
$Wcrisis_{1998\&1999}$					-0,237** (0,071)				
$TRcrisis_{1994}$						0,140 (0,096)			
$TRcrisis_{2001}$							0,462*** (0,093)		
$EUcrisis_{2010-2013}$								0,047 (0,106)	
$Wcrisis_{2008\&2009}$									0,055 (0,060)
R^2-within	0,4033	0,4037	0,4054	0,4053	0,4081	0,4057	0,4112	0,4053	0,4054
Number of Observations	2643	2643	2643	2643	2643	2643	2643	2643	2643

[24] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 16: Export: Gravity model estimation with time and country specific fixed effects estimation[25]

lnX_{TRjt}	1	2	3	4
$lnRGDP_{TRjt}$	2,804*** (0,970)	2,793*** (0,968)	2,803*** (0,973)	2,359** (0,939)
RTA_{TRjt}		-0,029 (0,107)		
CU_{TRjt}			-0,012 (0,13)	
FTA_{TRjt}			-0,046 (0,108)	
$EUcrisis_{2010\text{-}2013}$				-0,475*** (0,130)
R^2-within	0,6772	0,6772	0,6772	0,6811
Number of Observations	2697	2697	2697	2697

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[25] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 17: Import: Gravity model estimation with time and country specific fixed effects estimation[26]

lnM_{TRjt}	1	2	3	4	5
$lnRGDP_{TRjt}$	2,799*** (0,360)	2,876*** (0,354)	2,967*** (0,371)	2,964*** (0,373)	2,885*** (0,362)
RTA_{TRjt}		0,215* (0,121)			
CU_{TRjt}			0,377** (0,150)	0,357** (0,145)	0,385*** (0,126)
FTA_{TRjt}			0,059 (0,152)		
$EUcrisis_{2010\text{-}2013}$					-0,099 (0,146)
R^2-within	0,4191	0,4204	0,4219	0,4219	0,4220
Number of Observations	2643	2643	2643	2643	2643

[26] The values in parenthesis are robust standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

In addition to estimations provided in Table 10 to 17, other alternative estimations using different gravity model explanatory variables are carried. For instance, a binary variable for a common language is used. However, common language variable do not fit in Turkish case due to the fact that Turkey has a common language only with Bulgaria and Cyprus[27]. Since Turkey has limited trade relations with Cyprus after the EU membership due to political reasons, the dummy variable defined for a common language does not show economically meaningful results. Therefore, the binary variable for a common language is not used in estimations. Instead of a common language, a dummy variable for common ethnic origin is used. In this case, similar ethnic origin appears in Germany, Holland and France due to the fact that Turkish citizens mostly live in these European countries. The binary variable created for common ethnic origin also created bias in estimations since Turkey has strong trade relations with these countries and the number of observation (three) is quite small in the total sample of 126 countries. In addition to those variables, other explanatory variables are used to capture relative endowments and similarity of country sizes. However, those variables are not shown as they do not contribute to the model.

As mentioned earlier, the study of Baier and Bergstand *(2007)* suggest that fixed effects model should be used in gravity model in order to assess the impacts of RTAs. To support this idea, Hausman test in conducted. The null hypothesis which is difference in coefficients are not symmetric are rejected. Hence, the Hausman test supports fixed effects model in export estimation and it supports random effects model in import estimation.[28] The fixed effects model is continued to be used since the data set in this study cover high portion of export and import of Turkey.

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[27] Greek Cypriot Administration of Southern Cyprus

[28] Stata output for Hausman test is provided in Appendix.C.

The test for heteroskedasticity suggested by Poi and Wiggins (2001) is used. The test result suggests that there is heteroskedasticity in the model[29]. The existence of heteroskedasticity also requires the usage of heteroskedasticity consistent estimators.

In addition, Wooldridge autocorrelation test for panel data is used. Other autocorrelation tests suggested by modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI are also used.[30] The null hypothesis suggests that there is no first order autocorrelation in the model. The obtained results indicate that the null hypothesis could not be rejected. Hence, the usage of robust standard errors is certainly supported and only robust standard errors are used in the model interpretations.

Pesaran's test for cross sectional dependences is also used in the estimated models[31]. Test results suggest that there is no cross sectional dependence for export at 90% confidence level but cross sectional dependence for import is observed for import. In line with this fact, the estimation results using Driscoll-Kraay standard errors are also reported in Appendix.D. These estimations also suggest the same results.

In unit root tests, Fisher-type unit root test for time variant variables (*lnX, lnM, lnRGDP*) suggest that variables are stationary.

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[29] Stata outputs for tests are provided in Appendix.C.

[30] Stata outputs for tests are provided in Appendix.C.

[31] Stata outputs for tests are provided in Appendix.C.

CHAPTER 5

CONCLUSION

The Customs Union Decision between the EU and Turkey which is one of the most important milestones in the Turkish foreign trade policy entered into force on 31 December 1995.

The EU-Turkey Customs Union Decision contains vital articles which restrict and determine Turkish foreign trade policy. Elimination of some types of tariff barriers and application of common customs tariffs to third countries are not the only obligations that Turkey undertook to meet but also Turkey accepted to apply the Common Commercial Policy of the European Union. In other words, Turkey is obligated to adopt both common customs tariffs and preferential trade regime of the European Union. In this context, Turkey accepted to sign FTAs with non-EU countries which had already have a FTA with the EU within five years starting from the date of entry into force (31 December 1995). In addition to the existing FTAs on the date of entry into force, Turkey has to sign FTAs with non-EU countries which sign a new FTA with the EU. Moreover, Turkey accepted not to sign any FTAs without knowledge of the EU. This means that Turkey cannot sign any FTAs with third countries without permission of the EU. As a result of these obligations, Turkey cannot sign a FTA with her trade partners without permission of the European Union; however, Turkey has to sign FTAs with the trade-agreement-partners of the EU with a good or bad grace.

In the light of this information, it is evident that Turkey could not apply an independent foreign trade policy. In contrast, Turkey has to comply with the foreign trade policy of the EU. Therefore, the partners of Turkey in her FTAs are not chosen according to her independent trade relations with those countries but according to the preferences of the EU. Hence, these agreements are expected not to be beneficial for Turkey's foreign trade.

In the light of these facts, this dissertation investigates whether Turkey's RTAs including the EU-Turkey Customs Union and the FTAs of Turkey are beneficial to Turkey's export. In addition, impacts of the RTAs on not only export but also import of Turkey is investigated as well.

In the literature, gravity model estimations are widely accepted and used in order to measure impacts of RTAs on trade flows. In line with the literature, gravity model and recent developments in estimation techniques are applied in this study.

There are several studies using gravity model in Turkey's trade flows. However, only the EU-Turkey Customs Union is taken into consideration in those studies. None of them focus on the FTAs of Turkey independently or together with the Customs Union. To the best of our knowledge, this study is the first attempt which analyzes impacts of all RTAs of Turkey on Turkey's export and import.

Empirical results show that Turkey's RTAs do not affect Turkey's export. In other words, both the EU-Turkey Customs Union and the FTAs are not the driving force for Turkey's export. However, the European Customs Union is significantly important on Turkey's import despite the fact that the FTAs do not affect Turkey's import. As a result, the FTAs of Turkey affect neither export nor import of Turkey in line with the expectations arisen from the fact that Turkey could not choose her FTA partners due to obligations of the Customs Union Decision. However, the EU-Turkey Customs Union affects Turkey's import but not export.

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APPENDICES

APPENDIX.A

The share of export and import of Turkey with her RTA partners are provided for non-agricultural products in the following figures. The shares of non-agriculture products show approximate coverage of RTAs. The reason behind this fact is that agricultural products are generally defined as sensitive products and tariff and non-tariff reduction are provided restrictedly. In this calculation, agriculture products are the goods in Harmonized System (HS) between 1 and 24.

Figure 18: Share of Non-Agriculture Products in Total Trade of Turkey with Norway (%)

Source: Turkish Statistical Institute

Figure 19: Share of Non-Agriculture Products in Total Trade of Turkey

with Switzerland (%)

Source: Turkish Statistical Institute

Figure 20: Share of Non-Agriculture Products in Total Trade of Turkey

with Iceland (%)

Source: Turkish Statistical Institute

74

Figure 21: Share of Non-Agriculture Products in Total Trade of Turkey

with Israel (%)

Source: Turkish Statistical Institute

Figure 22: Share of Non-Agriculture Products in Total Trade of Turkey

with Macedonia (%)

Source: Turkish Statistical Institute
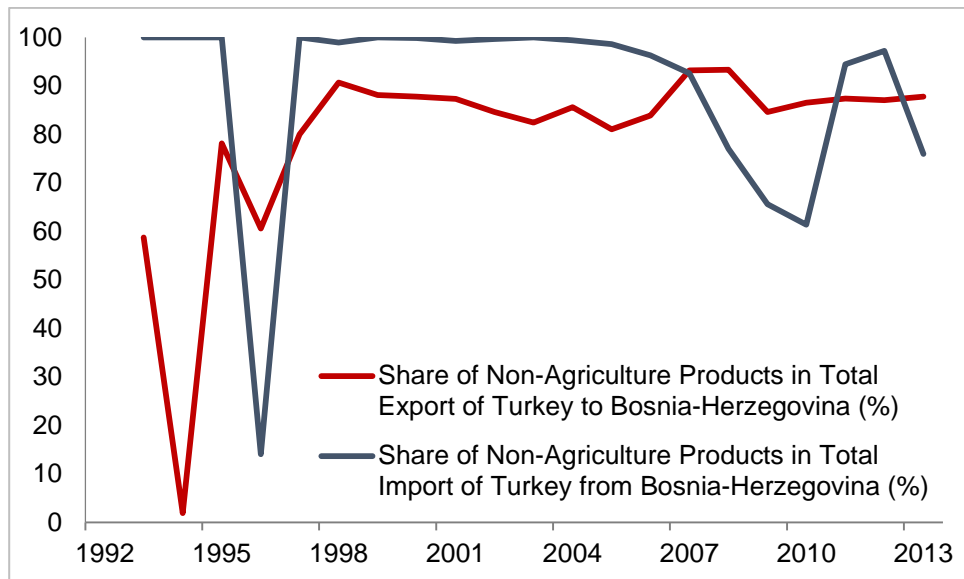
Figure 23: Share of Non-Agriculture Products in Total Trade of Turkey
with Bosnia-Herzegovina (%)

Source: Turkish Statistical Institute
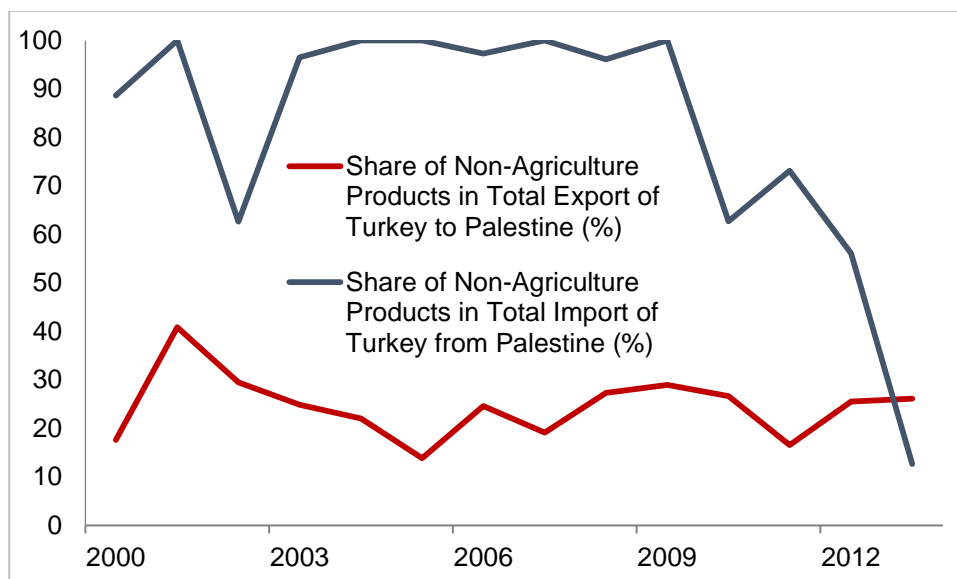
Figure 24: Share of Non-Agriculture Products in Total Trade of Turkey
with Palestine (%)

Source: Turkish Statistical Institute
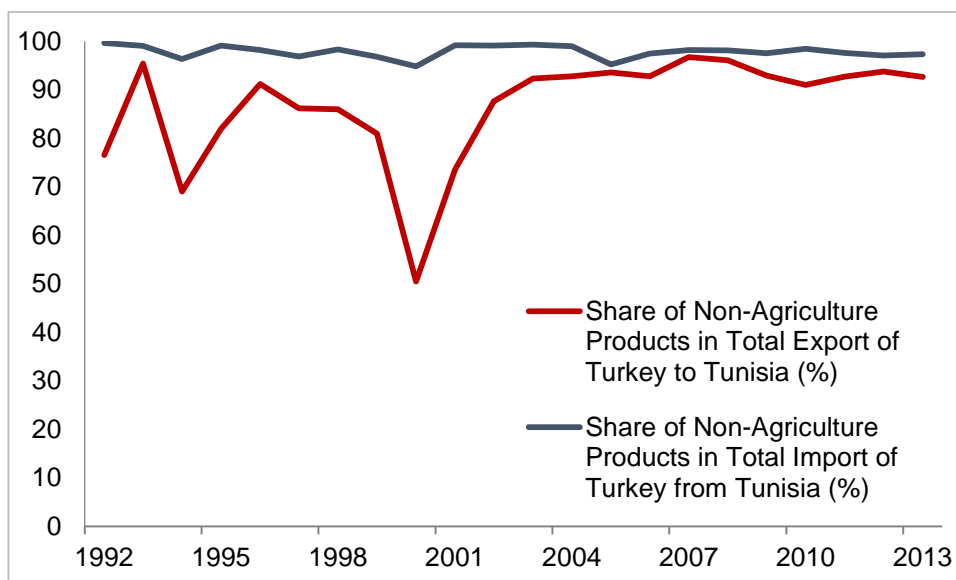
Figure 25: Share of Non-Agriculture Products in Total Trade of Turkey

with Tunisia (%)

Source: Turkish Statistical Institute
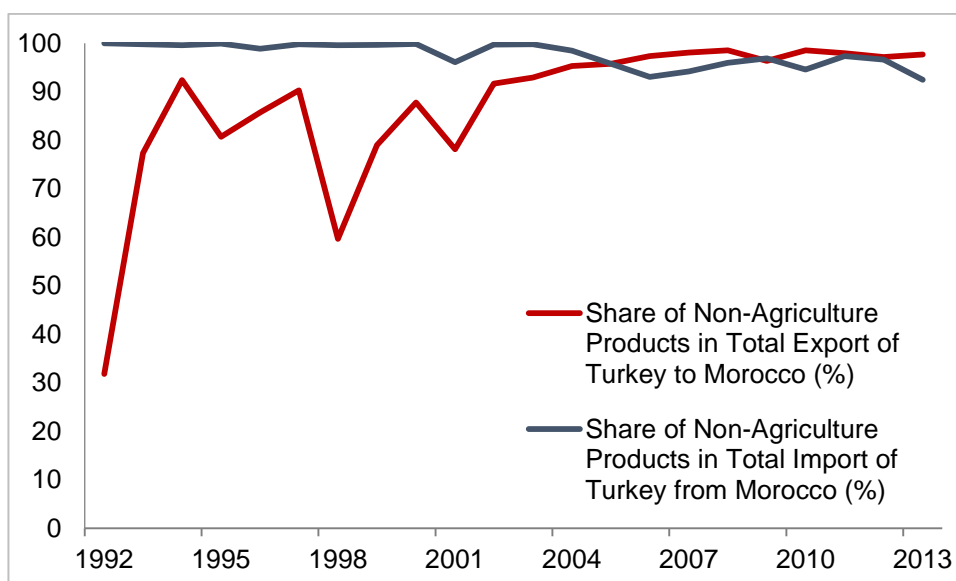
Figure 26: Share of Non-Agriculture Products in Total Trade of Turkey

with Morocco (%)

Source: Turkish Statistical Institute
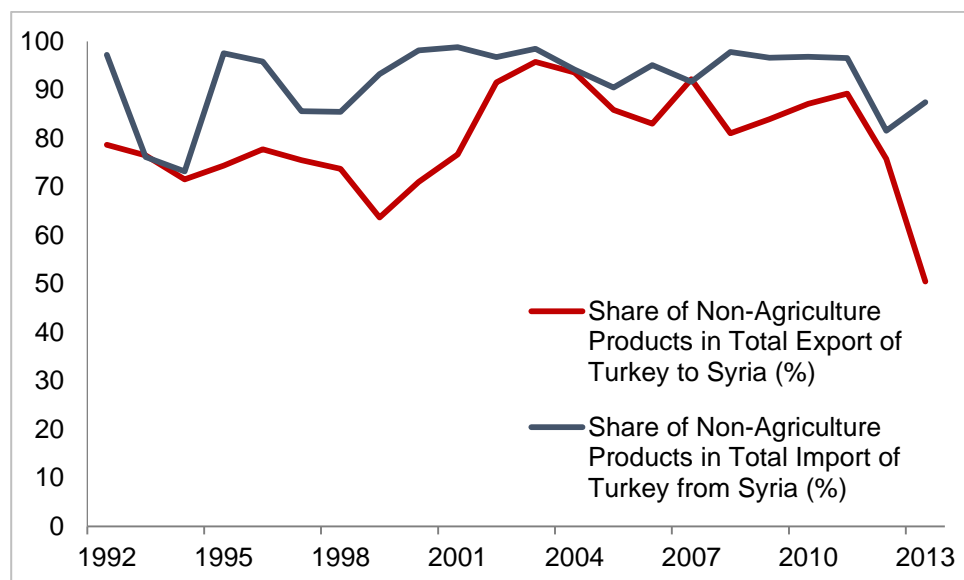
Figure 27: Share of Non-Agriculture Products in Total Trade of Turkey

with Syria (%)

Source: Turkish Statistical Institute
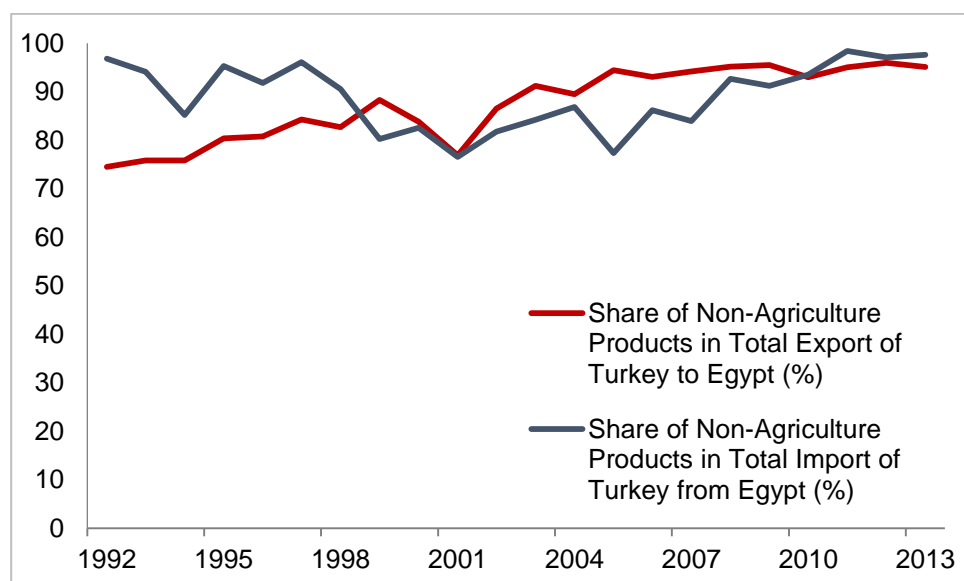
Figure 28: Share of Non-Agriculture Products in Total Trade of Turkey

with Egypt (%)

Source: Turkish Statistical Institute
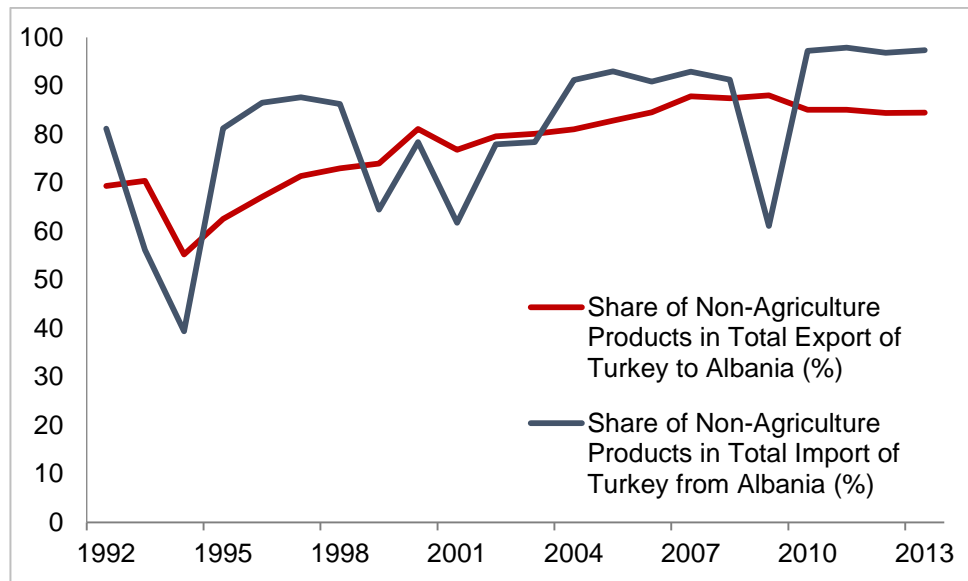
Figure 29: Share of Non-Agriculture Products in Total Trade of Turkey

with Albania (%)

Source: Turkish Statistical Institute
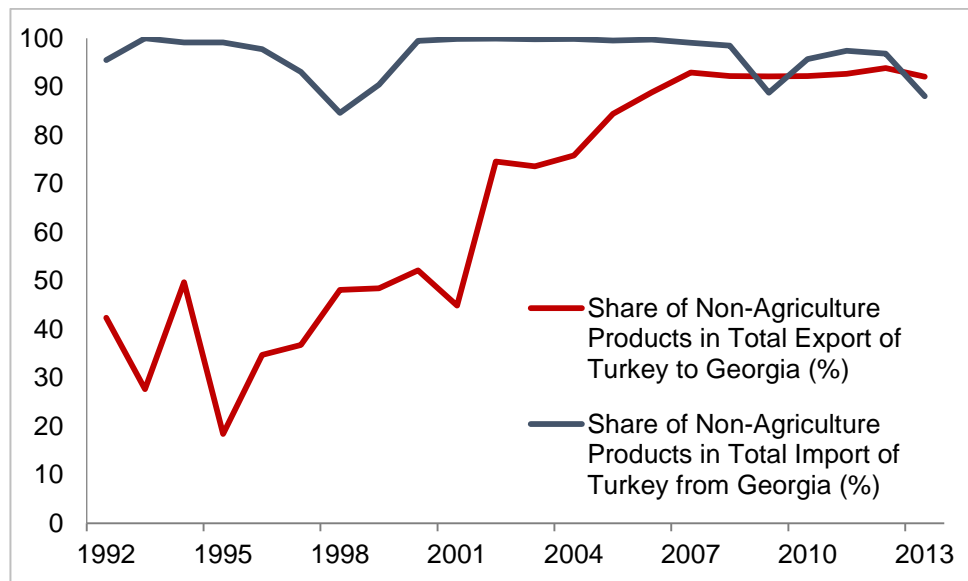
Figure 30: Share of Non-Agriculture Products in Total Trade of Turkey

with Georgia (%)

Source: Turkish Statistical Institute
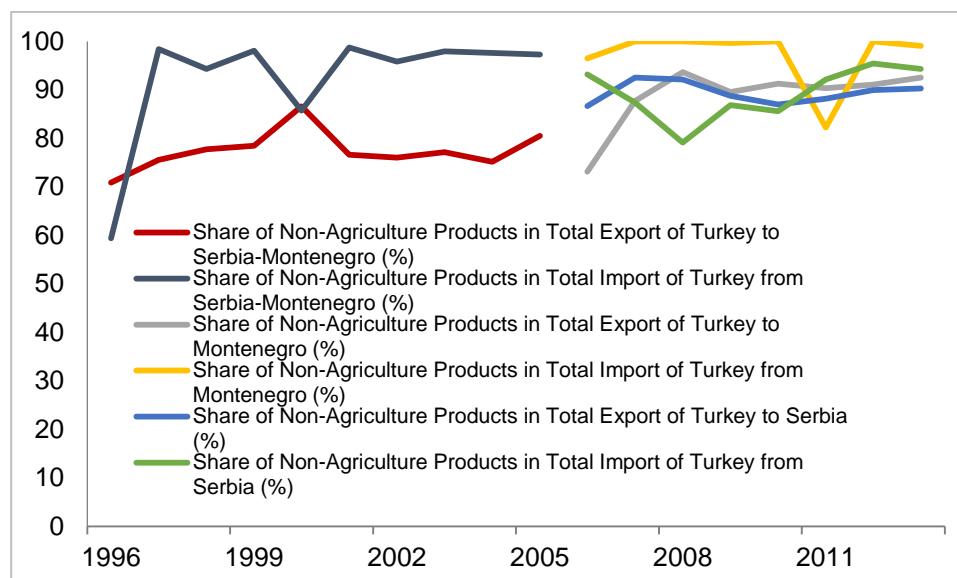
Figure 31: Share of Non-Agriculture Products in Total Trade of Turkey
with Serbia and Montenegro (%)

Source: Turkish Statistical Institute
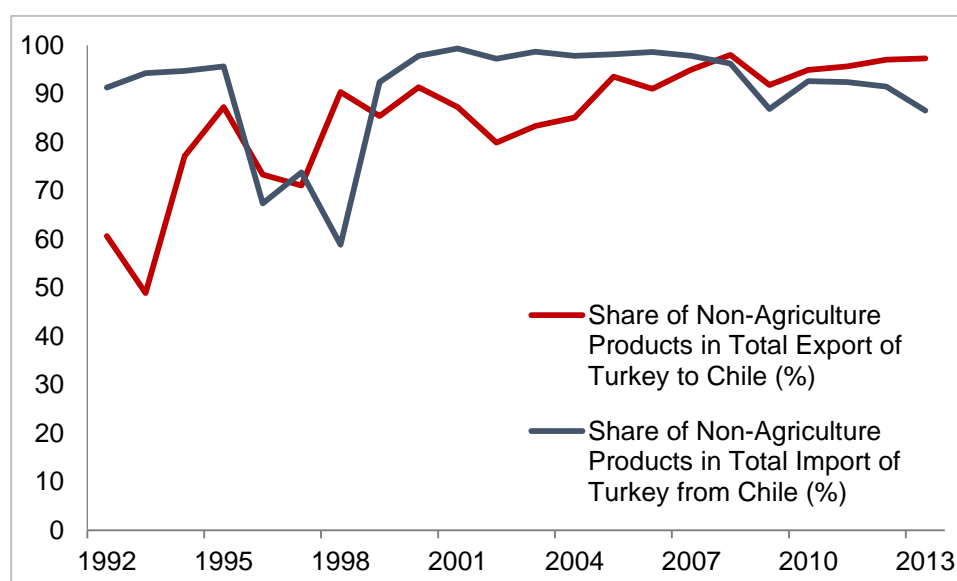
Figure 32: Share of Non-Agriculture Products in Total Trade of Turkey
with Chile (%)
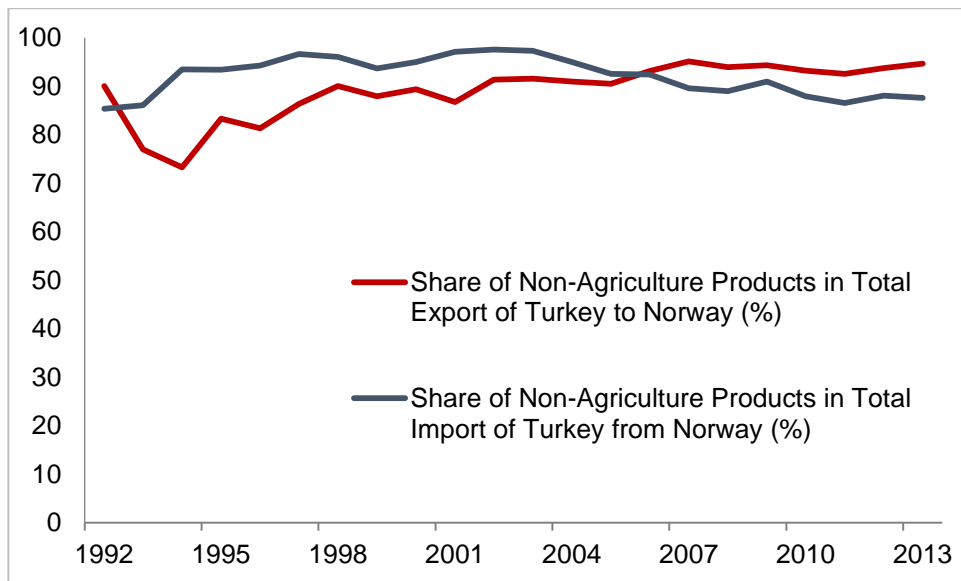
Source: Turkish Statistical Institute
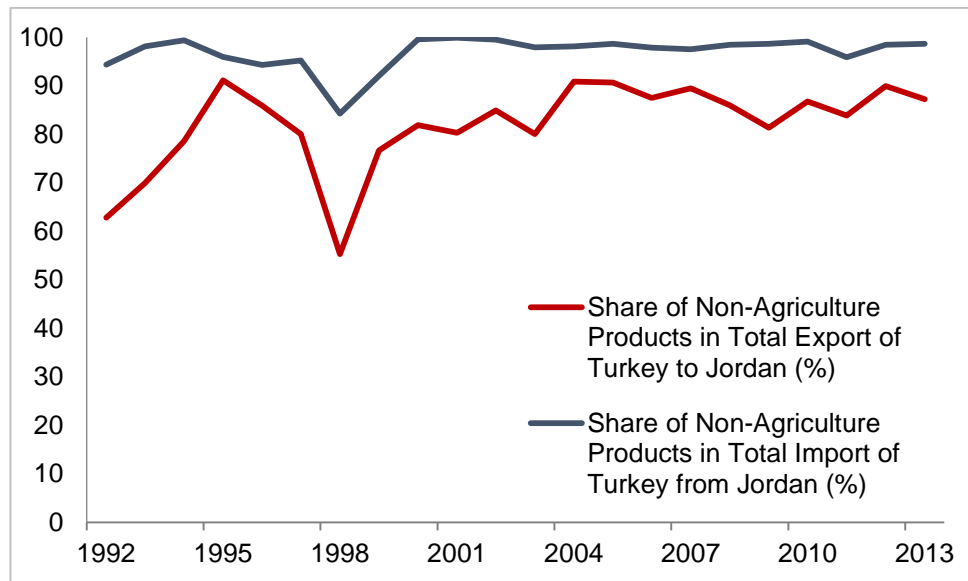
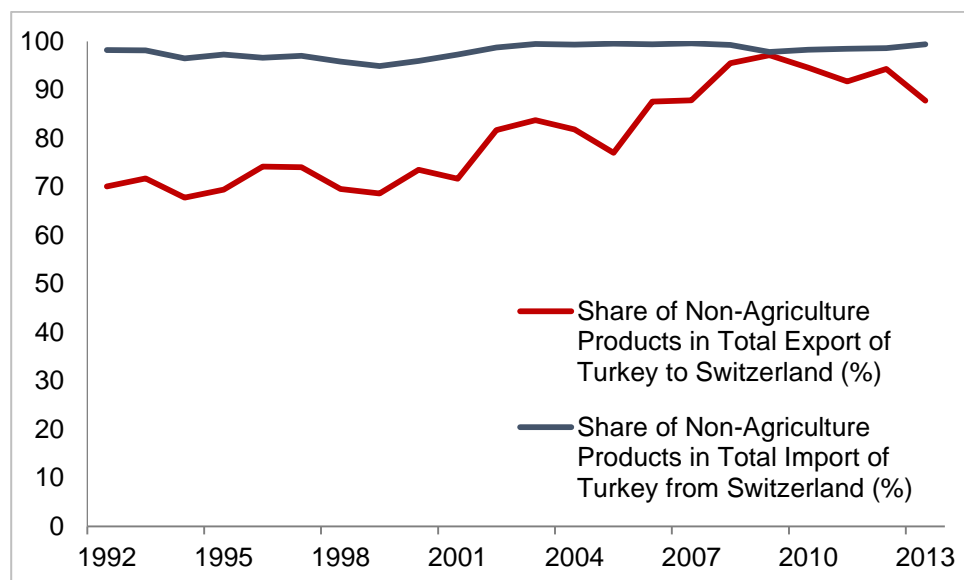**Figure 33:** Share of Non-Agriculture Products in Total Trade of Turkey

with Jordan (%)

Source: Turkish Statistical Institute
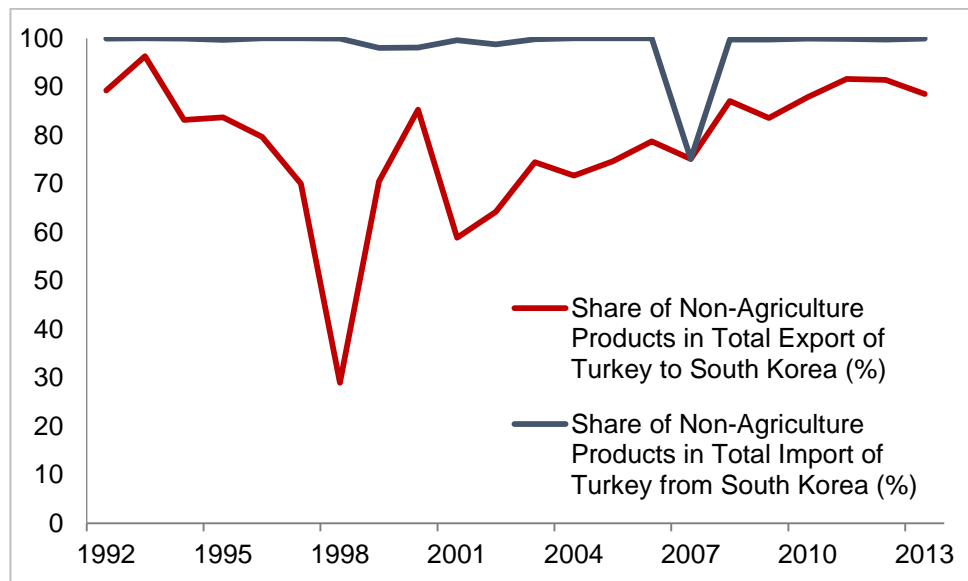
Figure 34: Share of Non-Agriculture Products in Total Trade of Turkey

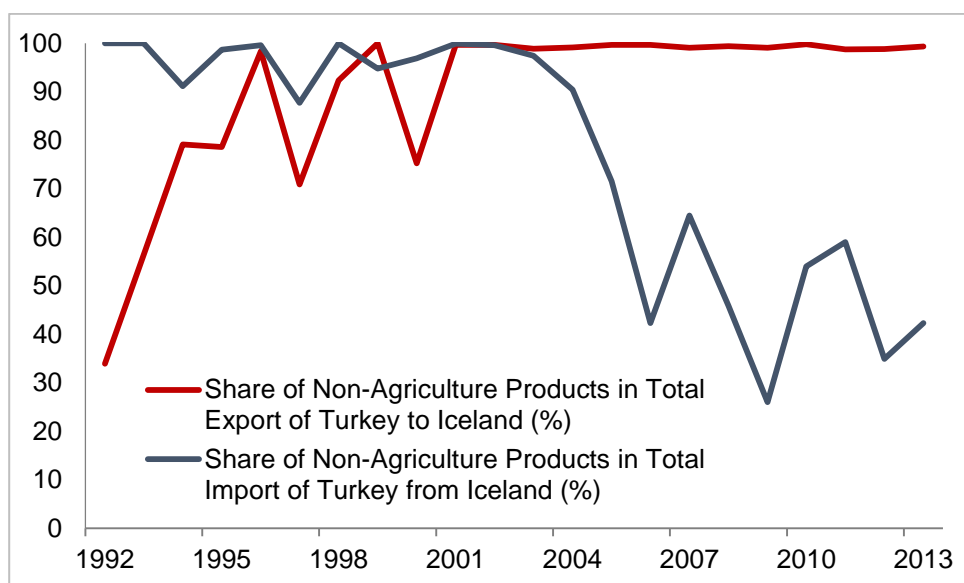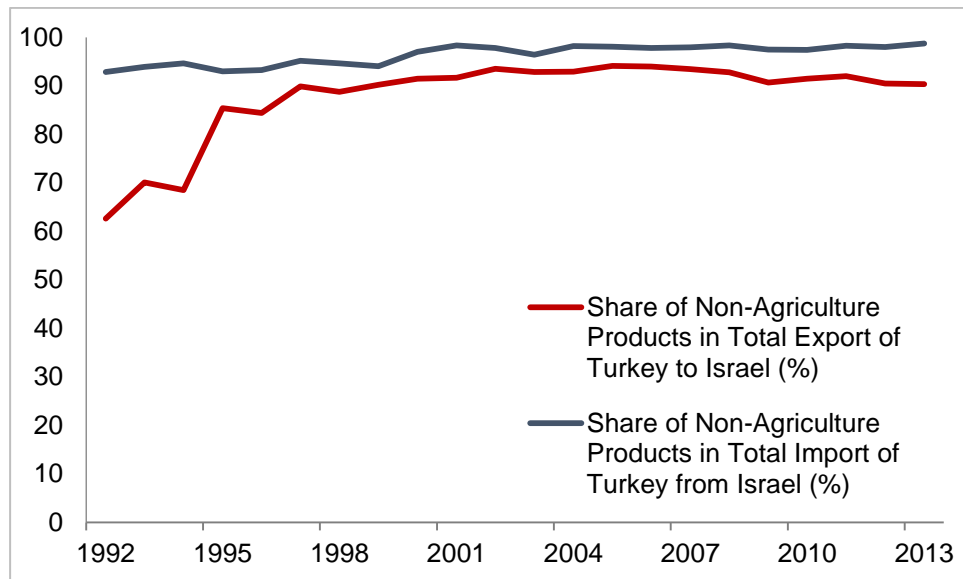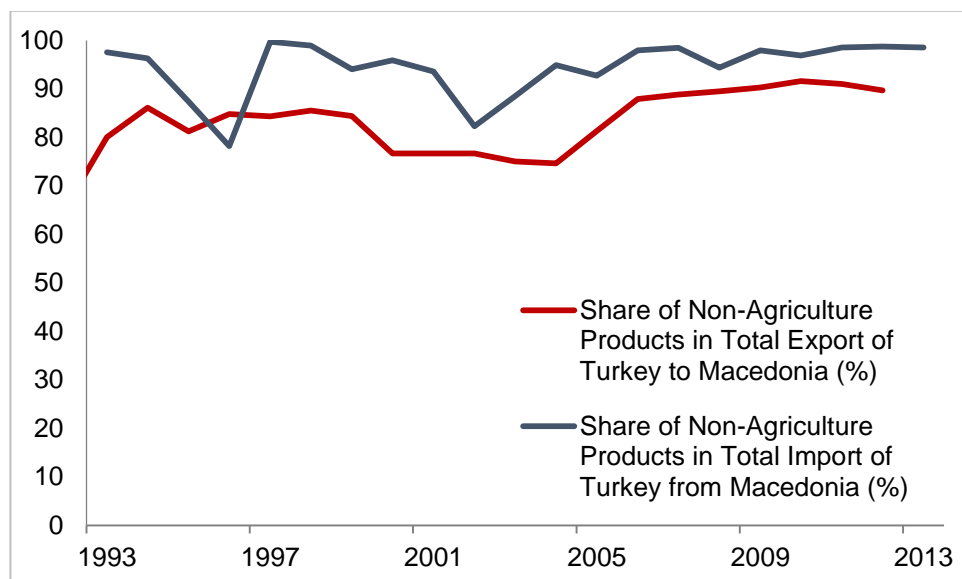with South Korea (%)

Source: Turkish Statistical Institute
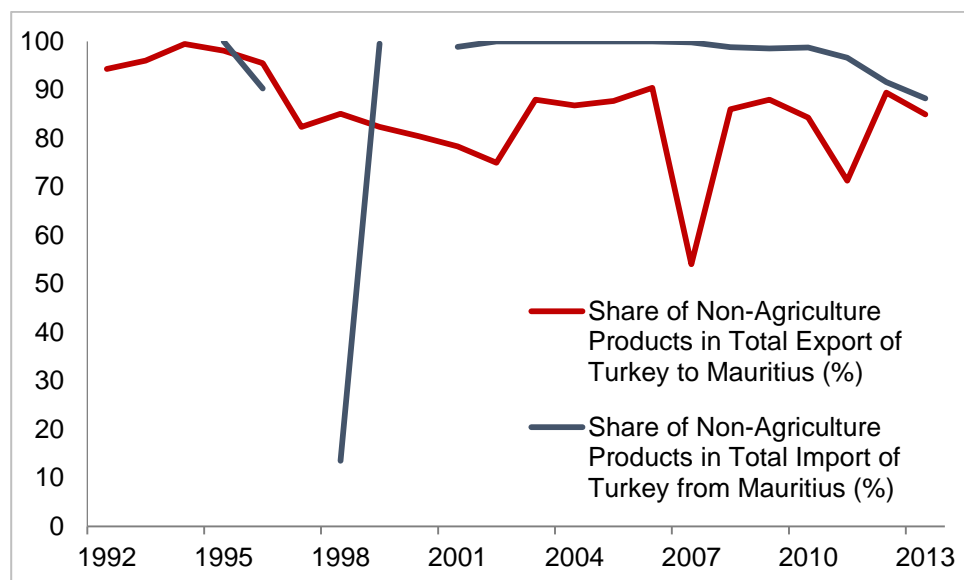
Figure 35: Share of Non-Agriculture Products in Total Trade of Turkey

with Mauritius (%)

Source: Turkish Statistical Institute

Table 18: List of Countries Covered in the Data Set

Albania	Equator	Kirghizstan
Algeria	Equatorial Guinea	Kuwait
Angola	Estonia	Latvia
Argentina	Ethiopia	Lebanon
Australia	Finland	Liberia
Austria	France	Libya
Azerbaijan	Gabon	Lithuanian
Bahrain	Gambia	Macedonia
Bangladesh	Georgia	Madagascar
Belarus	Germany	Malaysia
Belgium-Luxembourg	Ghana	Malta
Benin	Greece	Marshall Islands
Bosnia and Herzegovina	Guatemala	Mauritania
Brazil	Guinea	Mauritius
Bulgaria	Haiti	Mexico
Cameroon	Hong Kong	Moldova
Canada	Hungary	Mongolia
Chile	Iceland	Morocco
China	India	Mozambique
Colombia	Indonesia	Netherlands
Congo	Iran	New Zealand
Costa Rica	Iraq	Niger
Croatia	Ireland	Nigeria
Czech Republic	Israel	Norway
Democratic Republic of Congo	Italy	Oman
Denmark	Ivory Coast	Pakistan
Djibouti	Japan	Panama
Dominican Republic	Jordan	Paraguay
Egypt	Kazakhstan	Peru
England	Kenya	Philippines

Table 18 (cont'd): List of Countries Covered in the Data Set

Poland	South Africa	Trinidad and Tobago
Portugal	South Cyprus	Tunis
Qatar	South Korea	Turkmenistan
Rumania	Spain	Uganda
Russian Federation	Sri Lanka	Ukraine
Saudi Arabia	Sudan	United Arab Emirates
Senegal	Sweden	United States of America
Serbia-Montenegro-Kosovo	Switzerland	Uruguay
Sierra Leone	Tajikistan	Uzbekistan
Singapore	Tanzania	Venezuela
Slovakia	Thailand	Vietnam
Slovenia	Togo	Yemen

APPENDIX.C

```
. hausman fixed random

                   ——— Coefficients ———
                 |    (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
                 |   fixed        random      Difference         S.E.
-----------------+-----------------------------------------------------------
      lnSUMRGDP  |  3.844465     3.742594      .1018708          .0126706
           RTA   | -.0018784     .0236268     -.0255052          .0045973

                       b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

               chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                       =        72.26
             Prob>chi2 =       0.0000
```

Figure 36: Stata Output for Hausman Test for Export

```
                   ——— Coefficients ———
                 |    (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
                 |   fixed        random      Difference         S.E.
-----------------+-----------------------------------------------------------
      lnSUMRGDP  |  3.192154     3.196957     -.004803           .0182886
           RTA   |  .1021311     .1156229     -.0134918          .0111179

                       b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

               chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                       =         2.74
             Prob>chi2 =       0.2545
```
Figure 37: Stata Output for Hausman Test for Import

```
. lrtest hetero homosk , df(`df')

Likelihood-ratio test                                LR chi2(125)=   1695.01
(Assumption: homosk nested in hetero)                Prob > chi2 =    0.0000
```

Figure 38: Stata Output for Test for Heteroskedasticity of Poi and Wiggins

(2001) for Export

```
Likelihood-ratio test                                LR chi2(125)=   2659.52
(Assumption: homosk nested in hetero)                Prob > chi2 =    0.0000
```

Figure 39: Stata Output for Test for Heteroskedasticity of Poi and Wiggins

(2001) for Import

```
Linear regression                                    Number of obs =     2568
                                                     F(  2,   125) =    69.24
                                                     Prob > F      =   0.0000
                                                     R-squared     =   0.0607
                                                     Root MSE      =     .579

                        (Std. Err. adjusted for 126 clusters in countrynumtuik)

                              Robust
         D.lnX      Coef.    Std. Err.      t    P>|t|     [95% Conf. Interval]

     lnSUMRGDP
          D1.    2.605225   .2236752    11.65   0.000     2.162544    3.047906

        lnDIST
          D1.           0   (omitted)

           ADJ
          D1.           0   (omitted)

           RTA
          D1.   -.0377698   .0365244    -1.03   0.303    -.1100561    .0345164
```

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,    125) =     72.069
          Prob > F =      0.0000
```

Figure 40: Stata Output for Wooldridge Test for Autocorrelation for

Export

```
Linear regression                              Number of obs =     2489
                                               F(  2,   125) =    88.58
                                               Prob > F      =   0.0000
                                               R-squared     =   0.0632
                                               Root MSE      =   .91461

                    (Std. Err. adjusted for 126 clusters in countrynumtuik)

                             Robust
        D.lnM       Coef.    Std. Err.      t     P>|t|    [95% Conf. Interval]

     lnSUMRGDP
         D1.     4.209489    .3213429    13.10    0.000    3.573511    4.845466

        lnDIST
         D1.            0    (omitted)

           ADJ
         D1.            0    (omitted)

           RTA
         D1.     .0183317     .081982     0.22    0.823   -.1439208    .1805843


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
   F(  1,    125) =       6.880
          Prob > F =      0.0098
```

Figure 41: Stata Output for Wooldridge Test for Autocorrelation for Import

```
_____⌐_____
F test that all u_i=0:     F(125,2429) =     24.04            Prob > F = 0.0000
modified Bhargava et al. Durbin-Watson = .71971442
Baltagi-Wu LBI = .96752339
```

Figure 42: Stata Output for Autocorrelation Tests for Export

```
_____⌐_____
F test that all u_i=0:     F(125,2374) =     26.87            Prob > F = 0.0000
modified Bhargava et al. Durbin-Watson = .91452314
Baltagi-Wu LBI = 1.1108666
```

Figure 43: Stata Output for Autocorrelation Tests for Import

```
Pesaran's test of cross sectional independence =     1.884, Pr = 0.0596

Average absolute value of the off-diagonal elements =     0.356
```

Figure 44: Stata Output for Pesaran's Test of Cross Sectional Independence

for Export

```
Pesaran's test of cross sectional independence =      1.017, Pr = 0.3090

Average absolute value of the off-diagonal elements =      0.323
```

Figure 45: Stata Output for Pesaran's Test of Cross Sectional Independence
for Export

Table 19: Export: Gravity model estimation without any time and country specific fixed effects[32]

lnX_{TRjt}	1	2	3	4	5	6	7	8
$lnRGDP_{TRjt}$	2,566*** (0,089)	2,502*** (0,089)	2,505*** (0,096)	2,556*** (0,097)	2,554*** (0,087)	2,564*** (0,092)	2,569*** (0,088)	2,537*** (0,090)
lnD_{TRj}	-1,197*** (0,048)	-1,119*** (0,042)	-1,119*** (0,040)	-1,196*** (0,049)	-1,196*** (0,048)	-1,197*** (0,048)	-1,199*** (0,045)	-1,195*** (0,048)
CB_{TRj}	1,152*** (0,084)	1,207*** (0,081)	1,207*** (0,082)	1,149*** (0,082)	1,151*** (0,083)	1,151*** (0,083)	1,151*** (0,081)	1,148*** (0,085)
RTA_{TRjt}		0,318*** (0,074)						
CU_{TRjt}			0,304** (0,120)					
FTA_{TRjt}			0,338*** (0,099)					
$Wcrisis_{1998\&1999}$				-0,247* (0,130)				
$TRcrisis_{1994}$					-0,273* (0,135)			
$TRcrisis_{2001}$						-0,133 (0,126)		
$EUcrisis_{2010-2013}$							-0,043 (0,084)	
$Wcrisis_{2008\&2009}$								0,522*** (0,106)
RMSE	1,4071	1,4031	1,4033	1,4056	1,4063	1,4071	1,4074	1,3993
R^2	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,62
Number of Observation	2697	2697	2697	2697	2697	2697	2697	2697

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[32] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 20: Import: Gravity model estimation without any time and country specific fixed effects[33]

lnM_{TRjt}	1	2	3	4	5	6	7	8	9
$lnRGDP_{TRjt}$	3,329*** (0,088)	3,159*** (0,062)	3,146*** (0,062)	3,179*** (0,067)	3,172*** (0,068)	3,193*** (0,064)	3,170*** (0,065)	3,180*** (0,067)	3,185*** (0,065)
lnD_{TRj}	-0,948*** (0,031)	-0,740*** (0,046)	-0,737*** (0,046)	-0,830*** (0,031)	-0,830*** (0,031)	-0,829*** (0,031)	-0,830*** (0,031)	-0,832*** (0,031)	-0,830*** (0,031)
CB_{TRj}	1,384*** (0,063)	1,530*** (0,093)	1,529*** (0,093)	1,451 (0,071)	1,450*** (0,072)	1,454*** (0,070)	1,448*** (0,071)	1,451*** (0,072)	1,453*** (0,071)
RTA_{TRjt}		0,847** (0,114)							
CU_{TRjt}			0,911*** (0,107)	0,742*** (0,066)	0,743*** (0,066)	0,754*** (0,061)	0,743*** (0,065)	0,779*** (0,084)	0,746*** (0,063)
FTA_{TRjt}			0,758*** (0,130)						
$Wcrisis_{1998\&1999}$					-0,164* (0,096)				
$TRcrisis_{1994}$						0,387*** (0,097)			
$TRcrisis_{2001}$							-0,421*** (0,122)		
$EUcrisis_{2010\text{-}2013}$								-0,139 (0,104)	
$Wcrisis_{2008\&2009}$									-0,126 (0,081)
RMSE	2,2318	2,2126	2,2128	2,221	2,2209	2,2201	2,2197	2,2213	2,2211
R^2	0,47	0,48	0,48	0,47	0,47	0,47	0,47	0,47	0,47
Number of Observation	2643	2643	2643	2643	2643	2643	2643	2643	2643

[33] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 21: Export: Gravity model estimation with time specific fixed effects[34]

lnX_{TRjt}	1	2	3	4
$lnRGDP_{TRjt}$	2,317*** (0,083)	2,284*** (0,084)	2,284*** (0,086)	2,332*** (0,077)
lnD_{TRj}	-1,180*** (0,050)	-1,132*** (0,043)	-1,132*** (0,042)	-1,206*** (0,036)
CB_{TRj}	1,116*** (0,077)	1,151*** (0,070)	1,151*** (0,071)	1,099*** (0,068)
RTA_{TRjt}		0,195** (0,098)		
CU_{TRjt}			0,196 (0,152)	
FTA_{TRjt}			0,194*** (0,063)	
$EUcrisis_{2010\text{-}2013}$				-0,511*** (0,059)
RMSE	1,3368	1,3655	1,3657	1,3642
R^2	0,64	0,65	0,65	0,65
Number of Observations	2697	2697	2697	2697

[34] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 22: Import: Gravity model estimation with time specific fixed effects[35]

lnM_{TRjt}	1	2	3	4
$lnRGDP_{TRjt}$	3,438*** (0,052)	3,273*** (0,035)	3,264*** (0,037)	3,262*** (0,038)
lnD_{TRj}	-0,956*** (0,029)	-0,713*** (0,041)	-0,712*** (0,041)	-0,712*** (0,042)
CB_{TRj}	1,393*** (0,059)	1,568*** (0,081)	1,567*** (0,082)	1,566*** (0,082)
RTA_{TRjt}		0,995*** (0,052)		
CU_{TRjt}			1,038** (0,050)	1,063*** (0,070)
FTA_{TRjt}			0,934*** (0,070)	0,933*** (0,069)
$EUcrisis_{2010-2013}$				-0,090 (0,082)
RMSE	2,2278	2,2018	2,2021	2,2025
R^2	0,47	0,49	0,49	0,49
Number of Observations	2643	2643	2643	2643

[35] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 23: Export: Gravity model estimation with country specific fixed effects estimation[36]

lnX_{TRjt}	1	2	3	4	5	6	7	8
$lnRGDP_{TRjt}$	3,844*** (0,112)	3,844*** (0,119)	3,838*** (0,118)	3,839*** (0,116)	3,899*** (0,113)	0,385*** (0,116)	3,904*** (0,114)	3,761*** (0,098)
RTA_{TRjt}		-0,002 (0,088)						
CU_{TRjt}			0,043 (0,102)					
FTA_{TRjt}			-0,048 (0,086)					
$Wcrisis_{1998\&1999}$				-0,023 (0,040)				
$TRcrisis_{1994}$					0,215*** (0,052)			
$TRcrisis_{2001}$						0,065* (0,037)		
$EUcrisis_{2010-2013}$							-0,323*** (0,069)	
$Wcrisis_{2008\&2009}$								0,261*** (0,028)
R^2-within	0,66	0,66	0,66	0,66	0,66	0,66	0,67	0,67
Number of Observations	2697	2697	2697	2697	2697	2697	2697	2697

[36] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 24: Import: Gravity model estimation with country specific fixed effects[37]

lnM_{TRjt}	1	2	3	4	5	6	7	8	9
$lnRGDP_{TRjt}$	3,230*** (0,173)	3,192*** (0,194)	3,167*** (0,176)	3,154*** (0,169)	3,095*** (0,154)	3,187*** (0,181)	3,098*** (0,136)	3,148*** (0,172)	3,137*** (0,171)
RTA_{TRjt}		0,102 (0,078)							
CU_{TRjt}			0,269*** (0,066)	0,29*** (0,060)	0,303*** (0,061)	0,299** (0,063)	0,302*** (0,057)	0,276*** (0,072)	0,288*** (0,060)
FTA_{TRjt}			-0,069 (0,079)						
$Wcrisis_{1998\&1999}$					-0,237*** (0,067)				
$TRcrisis_{1994}$						0,140 (0,118)			
$TRcrisis_{2001}$							0,462*** (0,054)		
$EUcrisis_{2010-2013}$								0,047 (0,065)	
$Wcrisis_{2008\&2009}$									0,055 (0,061)
R^2-within	0,4033	0,4037	0,4054	0,4053	0,4081	0,4057	0,4112	0,4053	0,4054
Number of Observations	2643	2643	2643	2643	2643	2643	2643	2643	2643

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[37] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 25: Export: Gravity model estimation with time and country specific fixed effects estimation[38]

lnX_{TRjt}	1	2	3	4
$lnRGDP_{TRjt}$	2,804*** (0,509)	2,793*** (0,522)	2,803*** (0,535)	2,359** (0,463)
RTA_{TRjt}		-0,029 (0,109)		
CU_{TRjt}			-0,012 (0,143)	
FTA_{TRjt}			-0,046 (0,090)	
$EUcrisis_{2010-2013}$				-0,475*** (0,098)
R^2-within	0,6772	0,6772	0,6772	0,6811
Number of Observations	2697	2697	2697	2697

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[38] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

Table 26: Import: Gravity model estimation with time and country specific fixed effects estimation[39]

lnM_{TRjt}	1	2	3	4	5
$lnRGDP_{TRjt}$	2,799*** (0,214)	2,876*** (0,173)	2,967*** (0,165)	2,964*** (0,166)	2,885*** (0,161)
RTA_{TRjt}		0,215*** (0,054)			
CU_{TRjt}			0,377*** (0,067)	0,357*** (0,061)	0,385*** (0,0711)
FTA_{TRjt}			0,059 (0,048)		
$EUcrisis_{2010\text{-}2013}$					-0,099* (0,054)
R^2-within	0,4191	0,4204	0,4219	0,4219	0,4220
Number of Observations	2643	2643	2643	2643	2643

[39] The values in parenthesis are Driscoll-Kraay standard errors. Coefficients for time and country specific fixed effects are not included in the table. *significant at 90% confidence level, **significant at 95% confidence level, ***significant at 99% confidence level.

APPENDIX.E TURKISH SUMMARY

Türkiye, 1980 yılına kadar dış ticarette uyguladığı ithal ikameci politikalarla, dış ticareti artırmak yerine yerli üretimi teşvik etmiş ve bu doğrultuda yüksek gümrük vergileri ve düşük ticaret kotaları uygulamıştır. Ancak uygulamaya konan ithal ikameci politikalar beklenen sonuçları doğurmamış, 1950'li yılların başında yüzde 180 seviyesinde olan ihracatın ithalatı karşılama oranı 1980'li yılların başında yüzde 50 - 60 seviyesine gerilemiştir.

1980 öncesi uygulamaya konan ekonomi politikaları öngörülenin aksine ödemeler dengesi hesabının kötüleşmesine, ithal girdi bağımlılığının artmasına ve ticaret hadlerinin kötüleşmesine yol açmıştır. Yaşanan bu gelişmeler sonrasında uygulanan ekonomi politikalarında değişikliğe gidilerek 24 Ocak 1980 kararları açıklanmış ve mevcut politikalar terk edilmiştir (Savrul, Özel, & Kılıç, 2013). 24 Ocak Kararları ile kur rejiminin değiştirildiği, dış ticaretin serbestleştirildiği ve ihracat teşvik programlarının uygulandığı daha liberal ve açık bir ekonomiye geçiş hedeflenmiş ve bu yöndeki ekonomi politikalarına özellikle 1983 seçiminden sonra hız verilmiştir. Türkiye dış ticaretinde yaşanan bu eksen değişikliği sonrasında 1987 yılında Avrupa Birliğine tam üyelik başvurusunda bulunmuştur (Republic of Turkey Ministry of EU Affairs, 2015). Türkiye'nin başvurusu çeşitli nedenlerden dolayı reddedilse de, 13 Kasım 1970 tarihinde taraflar arasında imzalanan Katma Protokol'ün öngördüğü gümrük birliği yeniden gündeme gelmiş ve Türkiye ile Avrupa Birliği arasında imzalanan Gümrük Birliği süreci hız kazanmıştır. Türkiye dış ticareti açısından bir dönüm noktası olacak olan Avrupa Birliği ile Türkiye arasındaki Gümrük Birliği Kararı 31 Aralık 1995 tarihinde yürürlüğe girmiştir.

Uygulamaya konan Gümrük Birliği Kararları ile iki ekonomi arasında sanayi ve işlenmiş tarım ürünlerine uygulanan gümrük vergileri ve miktarsal kısıtlamalar kaldırılmış; ancak tarım ürünleri ve demir-çeliğe yönelik uygulamalar devam ettirilmiştir.

Avrupa Birliği - Türkiye Gümrük Birliği Kararı, Türkiye'nin dış ticaret politikasını etkileyen ve sınırlandıran önemli maddeleri içermektedir. Bazı ticaret engellerinin ortadan kaldırılması, üçüncü ülkelere ortak gümrük tarifesi uygulanması tarafların uyması gereken koşullardandır. Bunun yanında, Türkiye Avrupa Birliğinin Ortak Ticaret Politikasını uygulayacağını da taahhüt etmektedir. Bu taahhüt kapsamında, Türkiye Avrupa Birliği ile hem ortak bir gümrük vergisi uygulamakla yükümlü olmakta hem de Avrupa Birliğinin tercihli ticaret anlaşmalarını uygulamak zorunda kalmaktadır. Bu doğrultuda, Gümrük Birliği Kararının 16.maddesi uyarınca (Official Journal of the European Union, 1996) Türkiye Gümrük Birliği Kararının yürürlüğe girdiği tarihten itibaren 5 yıl içinde Avrupa Birliği ile Gümrük Birliği anlaşması olan ülkelerle serbest ticaret anlaşması imzalamayı kabul etmektedir. Benzer şekilde, Gümrük Birliği Kararına göre Türkiye, Avrupa Birliğinin serbest ticaret anlaşması imzalayacağı ülkelerle serbest ticaret anlaşması imzalamak zorundadır. Ayrıca, Gümrük Birliği Kararının 57. maddesi uyarınca Türkiye Avrupa Birliğinin bilgisi olmadan herhangi bir üçüncü ülkeyle tercihli ticaret anlaşması imzalayamayacaktır.

Türkiye'nin Gümrük Birliği Kararları ile uymayı taahhüt ettiği zorunluluklar doğrultusunda, Türkiye aslında kendi dış ticaret politikasını bağımsız olarak belirleyemeyeceği şeklinde çıkarım yapılabilmektedir. Zira Türkiye serbest ticaret anlaşması imzalayacağı ülkeleri kendi ticari ilişkilerine göre seçememekte yalnızca Avrupa Birliğinin serbest ticaret anlaşması imzaladığı ülkelerle ortak bir dış ticaret politikası oluşturma imkânına sahip olmaktadır. Bu da Türkiye'nin aslında Avrupa Birliğinin dış ticaret politikasını uygulamakla yükümlü olması anlamına gelmekte ve Türkiye'nin ekonomik ve politik tercihlerine göre belirlenemeyen bu ticaret

anlaşmalarının Türkiye'nin dış ticaretini olumsuz etkileyebileceği beklentisini oluşturmaktadır.

Gümrük Birliği, Türkiye'nin bağımsız dış ticaret politikası uygulamasını engellemesinin yanı sıra Avrupa Birliğinin serbest ticaret anlaşması imzaladığı ülkelerin Türkiye ile serbest ticaret anlaşması imzalamak istememesi durumunda Türkiye ekonomisini olumsuz etkileyebilecek riskler ortaya çıkmaktadır. Avrupa Birliği ve Türkiye arasında kurulan Gümrük Birliği, malların serbest dolaşımı esas almışken, Avrupa Birliğinin imzaladığı serbest ticaret anlaşmaları menşei kuralına göre işlemektedir. Buna göre, Gümrük Birliği altında Birliğe üye bir ülke tarafından sınıra alınan ürünler Birlik içerisinde serbestçe dolaşabilmektedir. Diğer bir deyişle, Birlik üyesi bir ülke herhangi bir üçüncü ülkeden (Birlik dışı bir ülkeden) ithal ettiği ürünü herhangi bir gümrük engeliyle karşılaşmadan Türkiye'ye ihraç edebilmektedir. Ancak imzalanan serbest ticaret anlaşmaları vergi kaçağına yol açmamak için menşei kuralına göre düzenlendiğinden Avrupa Birliği üyesi ülke tarafından Türkiye'den ithal edilen bir ürün serbest ticaret anlaşması imzalanan üçüncü bir ülkeye ihraç edilememektedir. Bu duruma göre, Türkiye Avrupa Birliğinin serbest ticaret anlaşması imzaladığı ancak Türkiye'nin taraf olamadığı her anlaşmada dezavantajlı duruma düşmekte ve Türkiye piyasası oluşan asimetri ile dış piyasalara karşı daha kırılgan duruma gelmektedir. Örneğin, Avrupa Birliği'nin Meksika ile bir serbest ticaret anlaşması bulunmakta ancak Türkiye'nin Meksika ile mevcut durumda bir serbest ticaret anlaşması bulunmamaktadır. Bu durumda, Meksika serbest ticaret anlaşması kapsamında Avrupa Birliğine ihraç ettiği bir ürünü malların serbest dolaşımını esas alan Avrupa Birliği – Türkiye Gümrük Birliği Kararı kapsamında Türkiye'ye düşük maliyetle ihraç edebilmektedir. Diğer bir ifade ile Meksika'da üretilen bir ürün Türkiye tarafından uygulanan herhangi bir gümrük engeline maruz kalmadan daha düşük bir maliyet ile ihraç edilebilmektedir. Ancak, bu durumun tersi geçerli değildir. Bu

kapsamda, Türkiye'de üretilen bir ürün Gümrük Birliği kapsamında herhangi bir Avrupa Birliği ülkesine malların serbest dolaşımı prensibi çerçevesinde ihraç edilirken aynı ürün Avrupa Birliğinden Meksika'ya ihraç edilememektedir. Çünkü Avrupa Birliği ve Meksika arasındaki serbest ticaret anlaşması menşei kuralı ile çalışmaktadır.

Mevcut durumda Türkiye'nin 20 ülke (Lihtenştayn, Norveç, İsviçre, İzlanda, İsrail, Makedonya, Bosna ve Hersek, Filistin, Tunus, Fas, Suriye, Mısır, Arnavutluk, Gürcistan, Karadağ, Sırbistan, Şili, Ürdün, Morityus ve Güney Kore) ile yürürlükte bulunan serbest ticaret anlaşması bulunmaktadır. Yalnızca Avrupa Serbest Ticaret Birliği (EFTA) ülkeleri ile yapılan serbest ticaret anlaşması Gümrük Birliği öncesinde imzalanmıştır. Avrupa Birliğinin de EFTA ülkeleri ile serbest ticaret anlaşması bulunması nedeniyle bu anlaşma Gümrük Birliği Kararlarına aykırı bir durum yaratmamış ve yürürlükte kalmıştır. Diğer yandan Gümrük Birliği Kararları sonrasında Türkiye 27 ülke ile serbest ticaret anlaşması imzalamış ancak serbest ticaret anlaşması imzalanan 11 ülkenin AB'ye üyeliği nedeniyle imzalanan serbest ticaret anlaşmaları genişletilerek Gümrük Birliğine dönüşmüştür. Diğer yandan, Lübnan, Malezya, Fildişi Sahilleri, Gana, Kosova ve Moldova ile de serbest ticaret anlaşması görüşmeleri tamamlanmıştır. Gana ile yapılacak serbest ticaret anlaşması imza aşamasında olup, diğer 5 ülke ile yapılacak STA ülkelerin iç onay süreçlerine sunulmuştur. Bu anlaşmaların yanında, Türkiye'nin farklı ülkelerle serbest ticaret anlaşması müzakereleri ve müzakere girişimleri sürmektedir.

Gümrük Birliği Kararlarına göre Türkiye'nin AB'nin serbest ticaret anlaşması imzaladığı tüm ülkelerle anlaşma imzalama yükümlülüğü bulunduğu halde üçüncü ülkelerin Türkiye ile serbest ticaret anlaşması imzalama konusunda isteksizlikleri nedeniyle Türkiye'nin AB'den daha az serbest ticaret anlaşması bulunmaktadır.

Türkiye'de ihracat ve ithalat hem nominal hem de reel olarak artan bir trend izlemektedir. Özellikle 2000'li yılların başından itibaren ticaret akımlarında hızlı artışlar meydana gelmiş ve 2014 sonu itibarıyla ihracat 158 milyar dolara, ithalat 242 milyar dolara yükselmiştir. Türkiye dış ticaret açığı veren ülkeler arasında değerlendirilmekte ve bazı yıllar dışında ticaret açığının sürekli genişlediği görülmektedir. 2014 yılsonu itibarıyla Türkiye'nin yaklaşık 84 milyar dolar dış ticaret açığı bulunmaktadır.

Nominal ve reel verilerin yanında, ihracat hacim endeksi ve birim değer endeksleri de incelendiğinde, özellikle 2000'li yıllarda gözlenen artışlar öne çıkmaktadır. İhracat ve ithalatta yaşanan hızlı artışlar dış ticaretin GSYİH içindeki payında da artışa yol açarak, Türkiye ekonomisi için dış ticaretin önemini artırmıştır. 1987 yılında yüzde 16 ve yüzde 18 civarında olan sırasıyla ihracat ve ithalatın GSYİH içindeki payı 2014 sonu itibarıyla %26 ve %33 seviyesine yükselmiştir.

Türkiye'nin ticaret ortakları incelendiğinde, Almanya, İtalya, Rusya, Fransa, ABD ve İngiltere hem 1980 yılında hem de 2013 yılında Türkiye'nin en fazla ihracat yaptığı ilk 10 ülke arasında yer alırken; Almanya, İran, ABD, Fransa, İsviçre ve İtalya Türkiye'nin en fazla ithalat yaptığı ilk 10 ülke içindeki yerini korumuştur.

Betimleyici istatistikler, liberal ekonomi politikalarının uygulamaya konduğu 1980 yılından günümüze Türkiye ekonomisi içinde ticaret akımlarının hacminin ve öneminin arttığını ortaya koymaktadır. Bu artışta bölgesel ticaret anlaşmalarının rolü bu tezin ana araştırma sorusunu oluşturmaktadır.

Bölgesel ticaret anlaşmalarının önemini analiz etmek amacıyla öncelikle çeyreklik veriler kullanılarak elde edilen yıllık ihracat için reel ihracat endeksi hesaplanmıştır. ABD doları cinsinden nominal ihracat değerleri ABD tüketici fiyat endeksi kullanılarak reel hale dönüştürülmüştür. Türkiye'nin her bir ticaret ortağına yaptığı reel ihracat değeri 1998 yılı ilk

çeyrek ABD doları cinsinden hesaplanmış ve Türkiye'nin dış ticaret ortağı ülkeler ile imzaladığı bölgesel ticaret anlaşmalarının yürürlüğe girdiği tarihler "çeyrek 0" olarak belirlenmiştir. Buna göre, anlaşmaların yürürlüğe girdiği çeyrek öncesinde ve sonrasında reel ihracat değerleri hesaplanmıştır. Ülkeler arasında karşılaştırmanın yapılabilmesi amacıyla da anlaşmanın yürürlüğe girdiği tarihteki reel ihracat değeri 100 olarak belirlenmiştir. Hesaplanan reel ihracat endeksleri Türkiye'nin ticaret ortaklarına yaptığı ihracatın anlaşma sonrası dönemde birçok örnekte arttığını göstermektedir. Ancak bu dönemde Türkiye'nin genel anlamda ihracat hacminde de bir artış gözlendiği için bölgesel ticaret anlaşması imzalanan ülkelerin Türkiye'nin dış ticareti içindeki payının artış sağlayıp sağlamaması daha önemli bir bilgi vermektedir. Bu nedenle, Türkiye'nin ticaret ortakları için aynı veriler kullanılarak dış ticaret içindeki payları için farklı bir endeks daha hesaplanmıştır. Bu endeks de ilkine paralel olacak şekilde, anlaşmanın yürürlüğe girdiği tarihte 1 değerini almaktadır. Hesaplamalar, Türkiye'nin ihracatında serbest ticaret anlaşması ortaklarının payının anlaşma sonrasında belirgin bir artış göstermediğini ortaya koymaktadır. Gümrük Birliğinin ise Avrupa Birliği ülkelerinin Türkiye'nin dış ticareti içindeki payının artışına neden olduğuna ulaşılabilmektedir.

Bu aşamaya kadar analiz ülkeler arasında gerçekleşen tüm ticaret akımlarının incelenmesi üzerine kurulmuştur. Ancak bölgesel ticaret anlaşmaları ile ülkeler arasında tüm ürünlerin serbest dolaşımı söz konusu olmamakta sadece taraflar arasında belirlenen ürünlerin serbest dolaşımına izin verilmektedir. Bu kapsamda, bölgesel ticaret anlaşmaları ile kapsanan ürünlerin analizinin değerlendirmeye katkı sağlayacağı düşünülmektedir. Bu doğrultuda, Türkiye'nin ticaret ortağı ekonomilerle imzaladığı bölgesel ticaret anlaşmalarına konu olan ticaret akımları hesaplanmıştır. Genel olarak, bölgesel ticaret anlaşmaları sanayi ürünlerine ve sınırlı olarak tarımsal ürünlere uygulanan gümrük engellerini kaldırılmaktadır. Nitekim toplam ihracat ve ithalatın önemli bölümü de sanayi ürünlerinden

oluşmaktadır. Türkiye özelinde de durum geneli yansıtmaktadır. Türkiye'nin bölgesel ticaret anlaşması imzaladığı ülkelerle ticareti incelendiğinde neredeyse bütün ülkelerle ticaretin yüzde 80'den fazlası işlenmiş ürün ticaretinden gelmektedir. Bu nedenle, anlaşmaların ölçeği ve kapsamı ürün farklılaşmalarını incelemeden genel ticareti yorumlayacak ölçü de büyüklüğe sahiptir.

Uluslararası ekonomi de kullanılan Çekim Modeli aslında Newton'un küresel yer çekimi kanununa dayanmaktadır. Newton'un kanununa göre, kütleler arasında çekim gücü kütlelerin büyüklüğü ile doğru aralarındaki uzaklığın karesi ile ters orantılıdır (Cohen, 1999). Benzer şekilde, uluslararası ticarette ülkelerin büyüklükleri ticareti pozitif etkilerken, iki ülke arasında mesafe ticaret maliyetleri yaratarak ticareti olumsuz etkilemektedir.

Ampirik çalışmaların çoğunda yatay kesit verileri kullanılarak oluşturulan çekim modeli eşitliği şu şekildedir:

$$X_{ijt} = \beta_0 Y_{it}^{\beta_1} Y_{jt}^{\beta_2} D_{ij}^{\beta_3} e^{\beta_4 L_{ij}} e^{\beta_5 CB_{ij}} e^{\beta_6 RTA_{ijt}} \varepsilon_{ijt} \qquad (1)$$

Bu eşitlikte X_{ijt} t zamanında ihracatçı i ülkesinden ithalatçı j ülkesine gerçekleşen ticaret akımını, Y_{it} t zamanında ihracatçı i ülkesinin Gayri Safi Yurtiçi Hasılası'nı (GSYİH), Y_{jt} t zamanında ithalatçı j ülkesinin GSYİH'sini, D_{ij} ihracatçı i ülkesi ile ithalatçı j ülkesi arasındaki mesafeyi, L_{ij}'de (2) numaralı eşitlikte belirtildiği gibi ortak dil kukla değişkenini temsil etmektedir.

$$L_{ij} = \begin{cases} 1, & i \ ve \ j \ ülkesi \ ortak \ dili \ paylaşıyorlarsa \\ 0, & aksi \ takdirde \end{cases} \qquad (2)$$

Benzer şekilde, CB_{ij} (3) numaralı eşitlikte belirtildiği gibi diğer bir kukla değişken olarak ortak karasal sınırı temsil etmektedir.

$$CB_{ij} = \begin{cases} 1, & i \ ve \ j \ \ddot{u}lkesi \ ortak \ karasal \ s\imath n\imath r\imath \ payla\c{s}\imath yorlarsa \\ 0, & aksi \ takdirde \end{cases} \quad (3)$$

RTA_{ijt}'de t zamanda i ve j ülkesi arasında serbest ticaret anlaşması veya gümrük birliği gibi bölgesel ticaret anlaşması bulunup bulunmamasına göre değişen ikili değişkeni göstermektedir (Eşitlik 4).

$$RTA_{ijt} =$$
$$\begin{cases} 1, & t \ zaman\imath nda \ i \ ve \ j \ \ddot{u}lkesi \ aras\imath nda \ b\ddot{o}lgesel \ ticaret \ anla\c{s}mas\imath \\ & varsa \\ 0, & aksi \ halde \end{cases}$$
(4)

Ticaret akımlarında çekim modeli ekonometrik olarak ilk kez Jan Tinbergen tarafından kullanılmıştır (1962). Bu çalışmada kullanılan model Eşitlik (1)'e benzer ancak ortak dil ve zaman boyutunu analize dahil etmemiştir. Tinbergen (1962) çalışmasında İngiliz Millet Topluluğu ve Benelüks Ekonomik Birliği birleşmesini incelemiştir. Ampirik bulgular modelin ticaret akımlarını açıklamada çok güçlü olduğunu göstermektedir. Elde edilen bulgulara göre, Benelüks Ekonomik Birliği'ne üyeliğin istatistiksel olarak anlamlı bir etki göstermediği ve İngiliz Milletler Topluluğu'na üyeliğin çok sınırlı (%5) etkide bulunduğunu ortaya koymaktadır. Tinbergen (1962) çalışmasından sonra çekim modeli kullanılarak yapılan çalışmalar sürdürülmüştür. Bu kapsamda, Pöyhönen (1963), Linnemann (1966), Aitken (1973) ve Sapir (1981) erken dönem çekim modeli çalışmaları arasında yer almaktadır.

Çekim modelinin ortaya çıkmasından sonra, birçok akademik çalışma ile çekim modelinin arkasında yatan bir teori oluşturulmaya çalışılmıştır. Anderson (1979), Deardorff (1980), Bergstrand (1985 ve 1989), Eaton ve Kortum (2002) ve Anderson ve van Wincoop (2003) çalışmaları çekim modeli teorisine katkı sağlayan temel çalışmalar arasında yer almaktadır.

Çekim modeli, ortaya çıktığı 1962 yılından bu yana dış ticaret alanında kullanılmaya devam edilmiştir. Özellikle, ticaret anlaşmalarının ülkeler üzerindeki etkisinin incelendiği çalışmalarda çekim modeli sıklıkla tercih edilmektedir. Ancak bu alandaki çalışmalar incelendiğinde, aynı anlaşma için farklı etkiler bulan çalışmaların mevcut olduğu, bu nedenle de tahmin yönteminin seçilmesinin sonuçları etkilediği gözlenmektedir. Örneğin Bayoumi ve Eichengreen (1997)'e ait EFTA anlaşmasının etkilerinin incelendiği çalışmada, EFTA'nın dış ticaret hacimlerini artırıcı bir etkiye sahip olduğu ortaya konarken Winters (2001)'ın çalışmasında EFTA'nın üyeler arasındaki ticareti etkilemesinde istatistiksel olarak anlamsız ve olumsuz etkilere sahip olduğu sonucuna ulaşılmıştır. Çekim modelinin dış ticaret alanında sıklıkla kullanılmasının yanında, göç, doğrudan yabancı yatırımlar ve portföy yatırımlarının açıklanmasında da kullanılmaktadır.

Türkiye'nin dış ticaretinin çekim modeli ile incelendiği çalışmalar sadece Avrupa Birliği - Türkiye Gümrük Birliğini konu almaktadır. Diğer bir ifade ile Türkiye'nin imzaladığı serbest ticaret anlaşmalarını bağımsız olarak ya da Gümrük Birliği ile ele alan çalışma bulunmamaktadır. Bildiğimiz kadarıyla, bu çalışma Türkiye'nin imzaladığı bölgesel ticaret anlaşmalarının tamamını ele alan ilk çalışma olacaktır.

Türkiye üzerine yapılan çalışmalar Gümrük Birliğinin Türkiye üzerindeki etkisi konusunda ortak bir sonuca ulaşamamaktadır. Çekim modeli kullanan çalışmalardan olan Antonucci ve Manzocchi (2006) Gümrük Birliğinin Türkiye ve Avrupa Birliği arasında ilave bir ticaret hacmi yarattığını desteklememektedir. Bu çalışmaya paralel olarak, Bilici, Erdil ve Yetkiner (2008) de Gümrük Birliğinin önemli bir yapısal değişikliğe yol açmadığı sonucuna ulaşmışlardır. Buna karşın, yine çekim modeli kullanılmış olan Adam ve Moutos (2008) çalışmasında Gümrük Birliğinin Türkiye ve Avrupa Birliğinin sanayi ürünleri ihracatını artırdığı sonucuna ulaşılmıştır.

Çekim modeli kullanmayarak Gümrük Birliğinin Türkiye ekonomisini inceleyen çalışmalar incelendiğinde ise, Neyaptı, Taşkın ve Üngör (2007)'ün Gümrük Birliğinin Türkiye ve Avrupa Birliği arasındaki ticareti olumlu olarak etkilediği sonucuna ulaştıkları görülmektedir. Genel denge modeli yaklaşımı kullanarak Gümrük Birliğinin analizini yapan Mercenier ve Yeldan (1997) Gümrük Birliğinin Türkiye ekonomisini olumsuz etkileyeceği sonucuna ulaşırken Harrison, Rutherford ve Tarr (1997) ise Gürmrük Birliğinin refah artışına neden olacağı sonucuna ulaşmışlardır.

Literatürde, bölgesel ticaret anlaşmalarının, ticaret akımları üzerinde etkisinin incelenmesi amacıyla sıklıkla başvurulan yöntem çekim modelidir. Bu nedenle, bu çalışmada mevcut olan dış ticaret literatürü doğrultusunda çekim modeli ve bu modele ilişkin tahmin yöntemlerindeki güncel yaklaşımlar kullanılmıştır.

Çekim modeli kapsamında, Türkiye'nin ihracatı ve ithalatı Türkiye'nin ve ticaret ortağının toplam ekonomik büyükleri (reel gayri safi yurtiçi hasıla), Türkiye ve ticaret ortağı ülke arasındaki mesafe, ortak karasal sınır ve bölgesel ticaret anlaşmalarının varlığı değişkenleri ile açıklanmıştır. Tahmin yöntemi olarak, Baier ve Bergstrand (2007)'ın çalışmasında önerildiği gibi hem yatay kesit hem de zaman kesit sabit etkileri kullanımı benimsenmiştir. Analizde, Türkiye'nin 126 ticaret ortağı ülke veya ülke grubu kapsanmıştır. Bu kapsamda, Türkiye'nin 1992-2013 yılları arasındaki ticareti yıllık veriler kullanılarak analiz edilmiştir. Verilerin elde edilmesinde, Türkiye Cumhuriyeti Ekonomi Bakanlığı, Türkiye İstatistik Kurumu, Federal Reserve Bank of St. Louis ve Center for International Prospective Studies'den yararlanılmıştır.

Tahmin sonuçlarına geçildiğinde, ilk olarak ne yatay kesit ne de zaman kesitinde sabit etkiler kullanılmayarak elde edilen havuzlanmış en küçük kareler yöntemi kullanılmıştır. Bu yöntem ile ihracat üzerinde temel çekim modeli değişkenleri olan ekonomik büyüklük, mesafe ve ortak karasal

sınırın ekonomik ve istatistiki olarak anlamlı olduğu sonucuna ulaşılmıştır. Bölgesel ticaret anlaşmalarının rolü incelendiğinde ise, bölgesel ticaret anlaşmalarının Türkiye'nin ihracatını etkilemediği sonucuna ulaşılmıştır. Anlaşmalar gümrük birliği ve serbest ticaret anlaşmaları olarak ayrıştırıldığında da sonuç değişmemiş; her iki anlaşmanın da Türkiye'nin ticaretini artırıcı bir unsur olmadığı gözlenmiştir. Aynı tahmin, ithalat için de tekrarlanmış olup Türkiye'nin ithalatını açıklamada temel çekim modeli değişkenlerinin ekonomik ve istatistiki olarak anlamlı olduğu gözlenmiştir. Bölgesel ticaret anlaşmalarının Türkiye'nin ithalatı üzerindeki etkisi incelendiğinde ise bölgesel ticaret anlaşmalarının toplu olarak ithalat üzerinde etkili olduğu bu olumlu etkinin Gümrük Birliği ülkelerinden olan ithalattan kaynaklandığı sonucuna ulaşılmıştır. Sonuç olarak, ilk tahmin yöntemine göre bölgesel ticaret anlaşmaları Türkiye'nin ihracatını etkilemezken ithalatında artırıcı bir etki oluşturmaktadır.

İkinci tahmin yöntemi olarak zaman kesitinde sabit etkiler kullanılmıştır. Bu tahminde de temel çekim modeli değişkenleri Türkiye'nin hem ihracatını hem de ithalatını açıklamada ekonomik ve istatistiki olarak anlamlı çıkmıştır. Bölgesel ticaret anlaşmalarının (gümrük birliği ve serbest ticaret anlaşmaları özelinde de) Türkiye'nin ihracatını etkilemediği gözlenmektedir. Buna karşın, söz konusu anlaşmaların Türkiye'nin ithalatını olumlu etkilediği sonucuna ulaşılmaktadır. Bu sonuçlar birinci tahmin yöntemi olarak tutarlı olarak, bölgesel ticaret anlaşmalarının Türkiye'nin ihracatını artırıcı bir unsur olmadığını ancak ithalatını artırıcı bir unsur olduğunu ortaya koymaktadır.

Üçüncü tahmin yönteminde ise yatay kesitte sabit etkiler kullanılmıştır. Diğer bir ifade ile standart panel veri sabit etkiler modeli kullanılarak Türkiye'nin ihracat ve ithalatı tahmin edilmiştir. Bu kapsamda, bölgesel ticaret anlaşmalarının Türkiye'nin ihracatını artırıcı bir etki doğurmadığı gözlenmiştir. Bölgesel ticaret anlaşmaları, gümrük birliği ve serbest ticaret anlaşmaları olarak iki farklı değişkene ayrıldığında da sonuç değişmemiştir.

Türkiye'nin ithalatında da bölgesel ticaret anlaşmaları toplu incelendiğinde olumlu bir etki doğurmazken, gümrük birliği ve serbest ticaret anlaşmaları olarak ayrıştırıldığında Gümrük Birliğinin Türkiye'nin ithalatını artırıcı bir unsur oluşturduğu sonucuna ulaşılmıştır. Sonuç olarak, ilk üç tahmin yöntemi birbiri ile tutarlı sonuçlar doğurmuştur. Bu kapsamda, bu üç tahmin yöntemi de Türkiye'nin ihracatının anlaşmalardan etkilenmediğini ancak ithalatının etkilendiğini ortaya koymaktadır.

Son tahmin yöntemi olarak hem zaman kesitinde hem de yatay kesitte sabit etkiler kullanılmıştır. Böylece, hem ülkeler arası ölçülemeyen farklılaşmalar modele, hem de zaman içerisinde değişen ancak gözlenemeyen etkiler modele dahil edilmiştir. Bu nedenle, nihai olarak referans alınan tahmin sonuçları bu yöntem ile elde edilenlerdir. Bu modelde de, diğer üç yönteme paralel olarak bölgesel ticaret anlaşmalarının Türkiye'nin ihracatını artırmadığı sonucuna ulaşılmıştır. Anlaşmalar, gümrük birliği ve serbest ticaret anlaşması olarak ayrıştırıldığında da sonuçlar değişmemiştir. Diğer bir ifade ile Türkiye'nin ticaret anlaşmasına yaptığı ihracat diğer etkiler kontrol edildiğinde istatistiki olarak diğer ülkelerden farklı değildir. İthalat tarafında ise, bölgesel ticaret anlaşmalarının Türkiye'nin ithalatını artırıcı bir etki olduğu gözlenmiştir. Anlaşmalar, gümrük birliği ve serbest ticaret anlaşması olarak ayrıştırıldığında aslında bu artırıcı etkinin Gümrük Birliğinden kaynaklandığı ve serbest ticaret anlaşmalarının Türkiye'nin ithalatını etkilemediği sonucuna ulaşılmıştır. Bu sonuçlar da ilk üç tahmin yöntemi ile birbiri ile tutarlıdır.

Sonuç olarak, Türkiye ve Avrupa Birliği arasında 31 Aralık 1995 tarihinde kurulmuş olan Gümrük Birliği Türkiye'nin dış ticaretinde çok önemli bir yere sahiptir. Ancak bu Karar, Türkiye'nin aleyhine yükümlülükler içermektedir. Bu doğrultuda, Türkiye serbest ticaret anlaşması ortaklarını seçme hakkına sahip değildir. Türkiye'nin serbest ticaret anlaşması ortakları Avrupa Birliği'nin dış ticaret politikası tercihleri ile belirlenmektedir. Bu nedenle, serbest ticaret anlaşmaları Türkiye tarafından seçilmediği için bu

anlaşmaların Türkiye'nin ihracatı üzerindeki etkisinin anlamlı olmaması beklenmektedir.

Bu tezin konusu da bölgesel ticaret anlaşmalarının, gümrük birliği ve serbest ticaret anlaşmaları özelinde de incelenerek, Türkiye'nin ihracat ve ithalatını artırıp artırmadığının analiz edilmesidir. Dış ticaret literatürü ile uyumlu olarak çekim modeli ve bu modele ilişkin güncel tahmin yöntemleri kullanılmıştır.

Analizde, 126 ülke veya ülke grubunu kapsayan Türkiye'nin dış ticaret verileri kullanılmış olup veri seti 1992 – 2013 yıllarını kapsamaktadır. Elde edilen tahmin sonuçları, bölgesel ticaret anlaşmalarının Türkiye'nin ihracatını artırıcı bir unsur olmadığını ortaya koyarken Türkiye'nin ithalatını artırıcı bir etkiye sahiptir. Diğer bir ifade ile Türkiye'nin bölgesel ticaret anlaşması imzalamış olduğu ülkelerden yapmış olduğu ithalat diğer ülkelere kıyasla daha fazladır. Bölgesel ticaret anlaşmalarında, gümrük birliği ve serbest ticaret anlaşmaları olarak ayrıma gidildiğinde ise; Türkiye ve Avrupa Birliği arasında kurulmuş olan Gümrük Birliğinin Türkiye'nin ihracatını etkilemediği gözlenirken ithalatını artırdığı ortaya çıkmaktadır. Öte yandan, beklentilere paralel olarak serbest ticaret anlaşmalarının Türkiye'nin ihracat ve ithalatında bir etkiye sahip olmadığı sonucuna ulaşılmaktadır.

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü	☐
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YAZARIN

Soyadı   : MAVUŞ KÜTÜK
Adı   : Merve
Bölümü : İktisat

TEZİN ADI: DO REGIONAL TRADE AGREEMENTS ACTUALLY INCREASE TURKEY'S FOREIGN TRADE?

TEZİN TÜRÜ: Yüksek Lisans X   Doktora ☐

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐

2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐

3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. X

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: