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EUROPEAN UNION AND EUROPEAN REGIONAL INTEGRATION AGREEMENTS: TRADE CREATION AND TRADE DIVERSION EFFECTS

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1.Introduction

Proliferation of regional trade agreements (RTA) has become a global phenomenon during the last 15 years. The number of RTAs reported to the GATT (General Agreement on Tariffs and Trade) since its foundation in 1948 up to 1990 was 25. During the 1990s this number significantly increased to report 91 in 2000 and the accelerated to reach 194 as of March 1, 2007. Various factors attribute to the rapid expansion of number of RTAs. One important reason is the stalemate in the on-going multinational trade negotiation under World Trade Organization (WTO). Faced with this situation, countries interested in promotion of trade liberalization have pursued bilateral or multilateral trade liberalization.

Today, it is difficult to identify any country that does not participate in some kind of RTA. Over one-third of world trade takes place within different kinds of trade blocs. Despite the proliferation process of RTAs, the debate about the costs and benefits still exists. One of the main issues is whether regional agreements serve as a barrier or “stepping stone” in the process towards global free trade. On the one hand, the opponents consider RTAs as fostering protectionism and encouraging governments to look inward rather then outward, which undermines the multilateral trading system. On the other hand, supporters maintain that regional economic grouping have not restricted the development of world free trade market and have even helped to promote it. The economic effects of the regional agreements on welfare of the RTA members are not clear.

In this paper I would like to consider the regional trade agreements that have influenced the European Union integration and the degree of neighboring partners’ integration. The paper consists of four sections. Section 1 explores the evolution of integration of European Union and its Regional Trade Agreements with other countries and briefly considers the effects that are expected from such integration. Section 2 illustrates the main theoretical foundations of the gravity model, its assumptions and implications and observes the most interesting researches made with the model on regional integration. Section 3 contains the description of the data used, estimation methodology and the evaluated models as well as the choice of the dependent variable. Section 4 summarises and interprets our findings.

2. Evolution of integration process in Europe

2.1. Economic Integration

Trade is one of the main sources for the realization and evaluation of the gains from integration and the costs of disintegration. Economic integration is a term used to describe how different aspects between economies are integrated. As economic integration increases, the trade barriers between markets diminish, transaction costs and exchange rates uncertainty eliminate. The opposite is the effect of disintegration; it brings about new national borders and with them the creation of trade barriers, it becomes harder for the countries to trade. Europe and North America, which together account for two thirds of the world trade, have both liberalized their regional trade substantially more than they have liberalized trade with the rest of the world. As a result of initiatives in these two areas alone, 40 percent of world trade is now directly affected by regional integration agreements. The importance of regional economic integration is self evident. The most integrated economy today, between independent nations, is the European Union and its euro zone.

Geographically discriminatory trade policy is the defining characteristic of a regional integration agreement (RIA). Traditionally, the degree of economic integration can be categorized into six stages or forms of RIAs:

1. Preferential Trading Area.
2. Free Trade Area (FTA).
3. Customs Union.
4. Common Market.
5. Economic and monetary union.
6. Complete economic integration.

2.2. Trade liberalization effects

Economic literature on effects of regional integration distinguishes between two kinds of effects – static and dynamic effects. The dynamic effects are much more important in the long run and very difficult to estimate qualitatively. Dynamic effects concern with the impact of the increased market size, effects on investments, economies of scale and scope, competition, growth, technology, allocation of R&D and other common policies. The present work is focused on the static effects which deal with trade diversion and trade creation. The two trade effects work in opposite directions, therefore, the total effect depends on the relative magnitude of the two conflicting effects.

Trade creation refers to the new trade relations that emerge as a result of the reduction of trade barriers between RTA members. Trade creation takes place when a member country of the RTA (Country 1) increases its imports from its partner country (Country 2) without a reduction in Country 1's imports from the rest of the world. This happens because the tariffs are removed between member

countries and Country 2's products have become cheaper than those of Country 1. The increase in cheaper imports results in an increase in domestic consumption and a reduction in output level in Country 1. Trade creation is beneficial, this means it is generally considered to have a positive effect, both from the perspective of consumer welfare (since market prices fall) and allocative efficiency (because more efficient producers replace less efficient ones).

Trade diversion occurs when the increase in regional trade comes at the expense of imports from more efficient producers located outside the RIA. Trade diversion takes place when imports from the rest of the world are replaced in Country 1 by more expensive imports from Country 2. Goods from Country 2 do not pay the import tariff, while the rest of the world goods do. Trade diversion is typically harmful. The welfare effects of trade diversion may be negative, since less efficient regional producers capture market shares from more efficient outsiders: the possible gains in consumer welfare and producer surplus within the RIA must be compared with the losses made by the outside producers.

Both trade creation and trade diversion are likely to occur in every RTA, hence the aggregate effect depends on their relative magnitudes. Classical theory says that third countries are adversely affected by the advancement of RTAs.

2.3. European Union integration

European trade has expanded rapidly during the last 50 years as has the international trade in general. Europe has benefited from the increased regional integration along with falling trade and information costs and the positive effects of WTO multilateral trade liberalization. Formation of two blocs, the European Economic Community (or otherwise EU) in 1957, and the European Free Trade Area (EFTA), could be considered as a start of regional integration efforts in Europe. European integration has been the most important feature of European economic development for this period. The number of countries participating in the European Union increased from 6 in the 1950s to 27 in 2007. Among all regions in the world Europe now surely has the most elaborate network of liberalization agreements. These agreements are made with many countries and they differ in the reciprocity of the liberalization process and the degree of integration intensity.

European integration started earlier and has proceeded much further than any other in the world. European integration process could be considered in few general phases. The first phase is the period between the early 1950s and 1973. The period is characterized by the establishment of the EEC in 1957 (Treaty of Rome) and by 1968 the European Community (EC) completed its common market. Thus, the EEC was essentially a customs union and represents an example of regional integration, where the main effects come from the reduction of formal tariff barriers between the member states and a common external trade policy. By that date, protection measures on trade within the union

were forbidden and free capital and labor mobility were instituted. Besides industrial products, the common market replaced duties and quotas on food trade with a complex system of subsidies, price supports and external trade barriers.

The second integration phase spans from 1974 to 1986, and there were three main involvements: consolidation of the customs union agreement, the first enlargement phase and the first stages of monetary integration. The first enlargement of the EC took place in 1973, when Denmark, Ireland and the United Kingdom joined the community. The enlargement of the EC coincided with a difficult period in European development. The collapse of the Bretton-Woods system of fixed exchange rates and the uncertainty created by several oil price shocks exacerbate the transition. The EC introduced several measures to promote monetary integration and stability in an attempt to handle with this uncertainty. As a result the European Monetary System (EMS) was established in 1979. This construction aimed to fix the exchange rates between the member states, but it also entailed some coordination of fiscal policy to maintain these fixed rates. The several attempts to deepen the degree of trade integration had limited success. The main trade related achievement was instead a bilateral free trade agreement with the European Free Trade Area (EFTA) in the mid-1970s. The enlargement of the EC also continued in the 1980s, when Greece (1981) and Portugal and Spain (1986) joined the community. By that time, the EC-EFTA free trade area covered 18 countries: the twelve EC countries and the EFTA countries (Iceland, Norway, Sweden, Finland, Austria, and Switzerland).

The third stage, from 1987 to the 2000, deepened trade integration process leading to the Single European Market. This process can be characterized as an example of “new” integration. The aim was to create a truly single market which implied removal of non-tariff barriers, the harmonization and mutual recognition of product standards and other rules and regulations with an impact on trade. This further development was the result of a general feeling that the European integration process had come to a standstill towards the mid-1980s. The economic growth in the EC fell behind that in the US and Japan which was considered as a signal for stagnation. To revive the European economy, the EC launched the so called Single Market Program (SMP), which was intended to be completed by the end of 1992. Many of Europe’s trade partners fear that the emergence of a “Fortress Europe” with an internal trade expansion would bear the expense on trade partners from the rest of the world. As a result several former EFTA member countries (Austria, Finland and Sweden) joined in the EU 1995. Simultaneously, the EU had taken further steps to deepen and widen the integration process. The Maastricht Treaty from 1992 set the aim to increase the degree of political integration in Europe and pointed the establishment of a European Monetary Union (EMU) by 1999 and the introduction of a common currency by 2002.

A fourth phase of integration could be illustrated by the accession of ten new member states in 2004 further enlarging EU – Estonia, Latvia, Lithuania, Poland, Hungary, the Czech Republic, Slovakia, Slovenia, Malta, and Cyprus. This enlargement differed in character not only because it involved a larger number of countries than earlier enlargements, but also because the income levels and economic structures of the new members were notably different from those of the 15 earlier incumbents. The last enlargement took place in 2007, when two East European countries become part of EU: Bulgaria and Romania.

2.4. Regional Integration Agreements and European Union

The European Union is providing strong neighboring polity to expand and deepen its trade relationships with partner countries. According to some authors granting trade preferences is the most effective foreign policy instrument of the EU. The efforts involved are the European Economic Area (EEA) with EFTA countries in 1994, the Europe Agreements (EA) with 10 Central and Eastern European Countries (CEEC) in the early 1990s. Some of the CEEC countries create the Central European Free Trade Area (CEFTA) in 1993. Turkey entered into the European Community's Customs Union (ECCU) in 1996. The cooperation agreements with the North African countries of mid-1970s were reorganized and eventually create the Euro-Mediterranean Free Trade Agreement (EMA) in 2010. Associated Agreements with a number of Mediterranean countries were signed in the late 1990s or early 2000s. EEA, EMA, and Turkey's accession to the ECCU can be considered as a evidence that the EU is now seeking to deepen rather than enlarge its regional trade agreements. The European Union also signed free trade agreements other than EA and the EMA at various dates. Similar agreements were also signed by EFTA with other countries of the region.

Bilateral Europe Agreements with the European Community were signed between 1991 and 1996 and entered into force between 1994 and 1999. Similar are the Association Agreements in place with Cyprus, Malta and Turkey. However, the scope and degree of liberalization under the Association Agreements were narrower than those of the more integrationist European Agreements (EA). The Interim Agreement is the component of the EA that covered trade liberalization. This important component started even earlier than the EA: in 1992 with Poland, Czech Republic, Slovakia and Hungary, in 1993 with Romania and in 1994 with Bulgaria. The provisions in the agreement concerned gradual and asymmetric trade liberalization by the end of a 10 year transition period measured since 1992.

First of all the European Union is interested in elimination of all tariffs and quotas on most CEECs' imports ever since the entering into force of the Interim Agreements. The process does not involve all sectors simultaneously. Mainly agricultural products were excluded, while other sectors were

progressively liberalized: steel, coal, textile and clothing. The progressive liberalization consisted mainly in annual reductions within four or five years from the entry into force of the Interim Agreements. The results come from gradually elimination of customs duties and quantitative restrictions by 1997 on most products and by 2002 on sensitive products.

Country	Europe Agreement signed	Europe Agreement came into force	Interim Agreements	Official application for EU Membership	CEFTA[3]	BFTA[4]
Bulgaria	March 1993	February 1995	February 1994	December 1995	January 1999	
Czech Rep.	October 1993	February 1995	May 1992	January 1996	March 1993	
Estonia	June 1995	February 1998		November 1995		April 1994
Hungary	December 1991	February 1994	May 1992	March 1994	March 1993	
Latvia	June 1995	February 1998		October 1995		April 1994
Lithuania	June 1995	February 1998		December 1995		April 1994
Poland	December 1991	February 1994	May 1992	April 1994	March 1993	
Romania	February 1993	February 1995	May 1993	June 1995	January 1997	
Slovakia	October 1993	February 1995	May 1992	June 1995	March 1993	
Slovenia	June 1996	February 1999		June 1996	January 1996	

Source: European Commission and OECD data.

Table 1. CEECs bilateral relations with the EU, previous to 2004 EU enlargement

Moreover, the accessing countries opened up their markets to the EU products at a slower pace. For example, Poland relaxed trade barriers for most industrial products within seven years after the implementation of the Interim Agreements. Czech Republic, Hungary and Slovak Republic did as much only within nine years. However, duties and quantitative restrictions on sensitive products were phased out by the end of 2002 in all the CEECs.

Euro-Mediterranean Partnership or Barcelona Process started in 1995 with the Barcelona Euro-Mediterranean Conference. The European Union main goal was to strengthen its relations with the countries in the Mashriq and Maghreb regions. The European Union enlargement of 2004 brought two Mediterranean countries (Cyprus and Malta) into the Union, within the total of 10 added to the number of Member States. The Euro-Mediterranean Partnership

today comprises 37 members: 27 EU Member States and 10 Mediterranean Partners (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Palestinian Authority, Syria, Tunisia and Turkey). Libya has had observer status since 1999.

There are a number of similarities among European Agreements (EA) and Euro-Mediterranean Free Trade Agreement (EMA). All aim at dismantling of trade barriers in manufacturing sectors, but no such goal is stated for the agriculture or services industries. Furthermore, the liberalization processes for all are asymmetric which means that the EU is going to liberalize faster than its partners.

However, there are some important differences that should also be mentioned: tariff elimination in EMA is more gradual than EA. The liberalization process is spread over a period over of 8 years in the EAs as opposed to 12 years in EMAs. The intensity of agreements is also different. The early cooperation agreements were nothing more than non-reciprocal preferential market access arrangements, so they opened up the European markets to the partners, but a reciprocal liberalization was not expected from the partners. The Europe and the Mediterranean agreements aim on forming a free trade area, which involves bilateral liberalization, although they are asymmetric in terms of liberalization process. EA declared trade aspects, political dialog and other areas of cooperation, such as industry, environment and customs tariff rates. The main goal of these agreements was to create free-trade areas between member states of the EU and associated countries on bilateral basis. However, special notion states that trade liberalization from the EU member countries side is more intensive and fast. European Agreements give to the associated countries the same trade preferences as full-pledged members of the EU. During the accession period the new member states partially harmonized their external tariffs towards third countries to the EU level. The Customs Union agreement with Turkey is a result of bilateral liberalization process from 1963, which exercised common external tariffs. Lastly, the European Economic Area is the most intense form of liberalization and allows free movement of capital and labor.

The differences concerned not only in the agreements but also the characteristics of the partners involved. The CEEC, EFTA countries and Turkey are considered as prospective members of the EU. In fact, these liberalization agreements ended with full membership for three former EFTA countries in 1995, for most CEEC countries in 2004 and the rest (Romania and Bulgaria) in 2007. There is no such prospective for the North African countries. These differences will also be essential in estimating the trade creation and diversion effects of the liberalization agreements and also in determining which non-partner countries are going to be adversely affected.

Trade liberalization process directly influences the tariff rates. At the time of EEA creation the average tariff rates were almost zero in EU countries and less than 2% in EFTA countries. Relatively low tariffs with CEEC countries

were established at the time of EA gradually reduced to less than 2% afterwards. The fastest liberalization was observed in Hungary, Poland, Slovenia, Romania and Bulgaria. Significant drop in average tariff rates in other Europe comes as a result from liberalization. However, relatively higher are rates in the remaining European countries and significantly higher in Mediterranean countries from 6% to 18%. The bigger the reduction in average tariff rates over the short period, the bigger the trade creation and diversion effects.

3. Theoretical foundations of the Gravity Model

Tinbergen (1962) and Pöyhönen (1963) independently developed the first in a series of econometric models of bilateral trade flows. The model explained the bilateral trade between two countries in terms of their GDPs and the distance between them, but it was more intuitively theorized. The initial specification of the model is (Anderson, 1979):

$$= \quad (\quad) \quad 1+ \qquad (1)$$

where X_{ij} is total exports from country i to country j, Y_i and Y_j are countries' respective GDPs, and D_{ij} are distances between their economic centers; other parameters are constant coefficients. Due to the similarity of equation (1) to the law of gravity in physics, models of this type have come to be called "gravity models", and are commonly used to estimate the effects of common membership in a free trade area, trade creation and trade diversion effects (e.g. Fidrmuc and Fidrmuc, 2000; Rose e.a., 2000; Kokko e.a., 2006). So far it is probably the most successful empirical trade device of the last twenty-five years. It has been long recognized for its empirical success in explaining many different types of flows. Typically, the log-linear equation interpretation is that a flow from origin i to destination j can be explained by economic forces at the flow's origin, economic forces at the flow's destination, and economic forces either aiding or resisting the flow's movement from origin to destination. The model specifies that the share of national expenditure on tradable goods is stable reduced form function of income and population. The share of total tradable goods expenditure accounted for by each tradable good category across regions is a function of transit cost variables.

4. Empirical evaluation

4.1. Data

Dataset used in the following research includes 157 countries over the 1990-2005 period. The export trade value was provided from the United Nations Commodity Trade Statistics Database (COMTRADE) estimated in current US dollars and GDP and population value from the World Development Indicators of the World Bank estimated in PPP international dollars for 2000. The total number

of observation is 235 941. Missing values are taken out and as such the number of observations varies among the estimations.

4.2. Estimation

For all models estimated in the paper was used the same linear regression method for panel data. Following the results of Cheng and Wall (2005) on specification of the gravity model of trade, in this paper for all models estimated I used two-way fixed-effects model in which country-pair and period dummies are used to consistently represent the bilateral relationships between partners. Thus, there are two fixed effects for each pair of countries, one for each direction of trade. Fixed effects would capture the impact of physical distance, length of border, common history, culture and language which are constant over the whole period and correlated with the volume of bilateral trade. If these effects are not captured from the equation the estimates would suffer from heterogeneity bias. Prohibiting this pair effect suggests that in the gravity model with FTA dummy it is the agreement that is responsible for the high trade effects rather than the specific relationships.

Moreover, for each of the two models represented in my paper I generated standard gravity equation and augmented gravity equation in order to check for possible omitted effects. Bergstrand (1989) argues that augmented models are to allow for non-homothetic preferences in the importing country and to proxy for the capital/labor ratio in the exporting country (Bergstrand (1989) from Cheng and Wall (2005)). In fact, the difference in the coefficients estimated using both specifications turned out to be much closed to each other, therefore, for the interpretation of the estimates I would used the standard gravity without population.

4.3. Model of trade creation of FTA in Europe

Models of trade creation of RTA in Europe (2-5) below were estimated to measure the impact of the Regional Free Trade Agreements that were created in the 1990s. In-depth information and characteristics of each of the agreements has already been covered in Section 1. The detailed information on the specific dates of entrance of each country in the each agreement is showed in Table 3. Table 2 represents the calculated coefficients for each of the following four specifications of the model.

$$\_ \quad = 0+ \ 1\cdot \ \_ \ 1\_ \ \_ \quad + 2 \cdot \ \_ \ 2\_ \ \_ \quad + 3\cdot \ \_ \ 1\_ \quad + 4\cdot \ \_ \ 2\_ \quad + \ 5\cdot \ \_ \ h \quad + 6\cdot \quad + 7\cdot \quad + 8\cdot \quad + 9\cdot \quad + \quad (2)$$

$$= 0+ 1\cdot \_ \quad 1\_ \quad \_ \qquad + 2\cdot \_ \quad 2\_ \quad \_ \qquad (3)$$
$$+ 3\cdot \_ \quad 1\_ \qquad + 4\cdot \_$$
$$2\_ \qquad + 5\cdot \_ \qquad /\!/ \qquad + 6\cdot \qquad + 7\cdot$$
$$+ 8\cdot \qquad + 9\cdot \qquad + =19912005 \qquad +$$

$$= 0+ 1\cdot \_ \quad 1\_ \quad \_ \qquad + 2\cdot \_ \quad 2\_ \quad \_ \qquad + 3\cdot \quad \_ \qquad (4)$$
$$h \qquad + 4\cdot \qquad + 5\cdot \qquad + 6\cdot \qquad + 7\cdot$$
$$+$$

$$= 0+ 1\cdot \_ \quad 1\_ \quad \_ \qquad + 2\cdot \_ \quad 2\_ \quad \_ \qquad (5)$$
$$+ 3\cdot \quad \_ \qquad /\!/ \qquad + 4\cdot \qquad + 5\cdot \qquad +$$
$$6\cdot \qquad + 7\cdot \qquad + =19912005 \qquad +$$

Variables in equations 2 through 5 are defined as follows:
L_export – Export amount for the year *t* from country *i* to country *j* (logarithm value, initial data from UN COMTRADE database in current USA dollars).
L_ct1_gdp_ppp – Exporter country GDP (logarithm value, initial data in PPP international dollars for 2000).
L_ct2_gdp_ppp – Importer country GDP (logarithm value, initial data in PPP international dollars for 2000).
L_ct1_population –Exporter country population for the year *t* (logarithm value).
L_ct2_population –Importer country population for the year *t* (logarithm value).
pairid –pair of country independent of flow, used for the Fixed Effect.
PTA_others –Dummy for the pair of member countries in the active preferential trade area agreement in the year t except for those already used in the model (EC, BAFTA, CEFTA, EFTA), where 1 means both country are members in the current year, 0 – at least one of the countries is not member.
EC- Dummy for the pair of member countries of the European Union in the year *t*, where 1 means both country are members in the current year, 0 – at least one of the countries is not member.
CEFTA –Dummy for the pair of member countries of the CEFTA in the year *t*, where 1 means both country are members in the current year, 0 – at least one of the countries is not member.
BAFTA –Dummy for the pair of member countries of the BAFTA in the year t, where 1 means both country are members in the current year, 0 – at least one of the countries is not member.

EFTA –Dummy for the pair of member countries in EFTA in the year *t*, where 1 means both country are members in the current year, 0 – at least one of the countries is not member.
Dt – Dummy for the year *t*, where 1 means year *t*, 0 – any other year from the sample.

Estimation results for the above coefficients (except for year dummies) are provided in Table 2 of the Appendix; interested readers may also refer to the full version of the paper. Main findings are summarized below.

EC

According to the calculated results, the dummy for the trade relationship between two European Union member countries is significant and positive: if both countries are EU members the export from country *i* to country *j* increase by 83.49% ($e^{0.607}$-1). The results are significant at 1% confidence level in all specifications.

CEFTA

CEFTA member countries export is also positively impacted from the existence of the agreement. The coefficient is significant in all specifications. The agreement seems to be responsible for 91.55% ($e^{0.650}$-1). increase of the export between members.

BAFTA

The only agreement between the considered in this model that shows to have insignificant effect on the bilateral trade flow is BAFTA. The coefficient does not hold even at the 5% confidence level.

EFTA

EFTA coefficients are significant at 5% confidence level and showed 60.64% ($e^{0.474}$-1) increase in export within its members.

PTA_others

In fact, the overall effect of the Free Trade Agreements in the rest of the world represented in our model is positive and significant, but is less trade creating. The export between members increases by only 49.03% ($e^{0.399}$-1). compared with 83.49% within the EU.

4.4. Model of trade creation and trade diversion effects of the European RIAs

The model of trade effects of the European RIAs were generated to capture separately the patterns of export and import for the countries that are part of the different degree trade integration processes with European Union. I focused my attention on the three different kinds of agreements European Union

has signed during 1990s and early 2000s and tried to estimate the impact of each of them on the member countries. In-depth information and characteristics of each of the agreements has already been covered in Section 1. Detailed information on the specific dates of entrance of each country in each agreement is shown in Table 4; coefficients are those from Table 3, equations 6-9.

(6)

(7)

(8)

(9)

_ _ 1_ + 10· 1_ _ _ 2_
+ 11· 2_ _ _ 1_ + =19912005 +

where again, L_export – Export amount for the year *t* from country *i* to country *j* (logarithm value, initial data from UN COMTRADE database in current USA dollars).
L_ct1_gdp_ppp – Exporter country GDP (logarithm value, initial data in PPP international dollars for 2000).
L_ct2_gdp_ppp – Importer country GDP (logarithm value, initial data in PPP international dollars for 2000).
L_ct1_population –Exporter country population for the year t (logarithm value).
L_ct2_population –Importer country population for the year t (logarithm value).
FTA_others –Dummy for the pair of member countries in the active preferential trade area agreement in the year t except for those already used in the model (EA, EMA, EU and OE), where 1 means both country are members in the current year, 0 – at least one of the countries is not member.
ct1_EC_and_ct2_non_EC –Dummy for an export from EU member to the rest of the world in current year.
ct2_EC_and_ct1_non_EC –Dummy for an import from the rest of the world to the EU member in current year.
ct1_EA_and_ct2_EC – Dummy for an export from CEEC country member to EC country member in current year.
ct2_EA_and_ct1_EC –Dummy for an import from EC country member to CEEC country member in current year.
ct1_Med_and_ct2_EC – Dummy for an export from EMA country member to EC country member in current year.
ct2_Med_and_ct1_EC - Dummy for an import from EC country member to EMA country member in current year.
ct1_OE_and_ct2_EC –Dummy for an export from OE country member to EC country member in current year.
ct2_OE_and_ct1_EC –Dummy for an import from EC country member to OE country member in current year.

European Agreements (EA)

Both variables used in the model for the relationships of the European Union and the member countries of the European Agreements turned to be significant even at the 1% confidence level. Moreover, the model shows that countries becoming members of this agreement has increased their export to EU by 105% ($e^{0.716}$-1). Whereas the export from EU members to the countries in EA increased by only 28.7% ($e^{0.253}$-1). As I have already noticed, the EU enlargement process consists from different stages and continues for years. Thus, it is not surprising that the both variables representing the export and import changes from entering the agreement for the prospective members are significant.

Moreover, it has been mentioned at Part 1 that European Agreements concerned gradual and asymmetric trade liberalization. Associated countries opened their markets to EU products at a lower pace.

Euro-Mediterranean Free Trade Area (EMA)

The results from the exports changes influenced from the EMA agreement are quite interesting. According to the model the amount of exports from EMA member to the EU members decreases by 34.4% ($e^{-0.423}$-1). However, the amount of export from EU to EMA increases by 38.8% ($e^{0.329}$-1), which means that agreement simultaneously decreases the exports from EMA to EU and increases the imports from EU to EMA. Such a result could be explained by the historical pre-EMA agreements that EU had with the Mediterranean countries.

Other Europe (OE)

The effects on the group of countries determined in this paper as OE are both positive and significant. The export to EU is increased by 51.89% ($e^{0.418}$-1), whereas the imports from EU to OE are up by 50.38% ($e^{0.408}$-1). These group's agreements are supposed to be make a strong foundation for the further integration of the countries, since they are considered potential members of EU.

European Union (EU)

The two variables added in the model to evaluate the trade patterns of the EU members with the rest of the world turned out to be insignificant. This means that there is no evidence that the export from EU member with the non-EU member neither decreases nor increases. The same is true for the exports from non-EU member to the EU member. Such results show that there is no trade diversion in general for countries joining the Union.

5. Results and conclusions

The main goal this paper seeks for was to show the trade effects different European regional agreements have on bilateral trade. The models evaluated represent the significant effects on trade creation from the EC, CEFTA and EFTA agreements. Moreover, the second model considered shows how different degrees of integration with the EU influence the export and import patterns for countries-members of the corresponding agreements.

References

1. Anderson J. (1979) "A theoretical foundation for a gravity equation". American Economic Review, 69, pp.106-116.
2. Bergstrand J.H. (1989) "The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International trade". Review of Economics and Statistics, 71, pp.143-153.

3. Cheng I-H., Wall H.J. (2005) ”Controlling for heterogeneity in gravity models of trade and integration”. Federal Reserve Bank of St. Louis Review, 87, pp. 49-63.
4. Fidrmuc Jarko, Fidrmuc Jan (2000). “Integration, disintegration and trade in Europe: evolution of trade relations during the 1990s”. Working Paper, Center for European Integration Studies.
5. Kokko A., Matha T., Tingvall P.G. (2006) “Regional integration and trade diversion in Europe”. Working Paper 231 December 2006.
6. Pöyhönen P. (1963) ”A Tentative Model for the Volume of Trade between Countries”, Weltwirtschaftliches Archiv, 90, pp. 93-100.
7. Rose A.K., Lockwood B., Quah D. (2000) “One money, one market: the effect of common currencies on trade”. Economic Policy, 15, pp.7-45
8. Tinbergen J. (1962) “Shaping the World Economy: Suggestions for an International Economic Policy”. New York: The Twentieth Century Fund.

Appendix

	Equation 2	**Equation 3**	**Equation 4**	**Equation 5**
L_ct1_gdp_ppp	1.4380	1.4170	1.2210	1.2150
t-statistic	**61.39**	**40.85**	**100.76**	**42.54**
L_ct2_gdp_ppp	0.8890	0.8690	0.8630	0.8580
t-statistic	**38.22**	**25.10**	**72.33**	**30.09**
L_ct1_population	-1.0810	-1.0980		
t-statistic	**18.35**	**16.35**		
L_ct2_population	-0.8170	-0.8350		
t-statistic	**13.86**	**12.42**		
FTA_others	0.3650	0.3110	0.4840	0.4970
t-statistic	**10.25**	**8.64**	**23.39**	**23.85**
ct1_EU_and_ct2_non_EU	-0.0220	-0.1050	0.1390	0.0690
t-statistic	0.93	**4.41**	**6.29**	**3.10**
ct1_non_EU_and_ct2_EU	0.0610	-0.0240	-0.0740	-0.1390
t-statistic	*2.48*	0.96	**3.14**	**5.85**
ct1_EA_and_ct2_EU	0.5610	0.6070	0.7160	0.8200
t-statistic	**9.35**	**10.04**	**11.51**	**13.13**
ct2_EA_and_ct1_EU	0.2560	0.3010	0.2530	0.3620
t-statistic	**4.31**	**5.03**	**4.11**	**5.85**
ct1_Med_and_ct2_EC	-0.4500	-0.4290	-0.4230	-0.4300
t-statistic	**6.68**	**6.38**	**5.90**	**6.01**
ct2_Med_and_ct1_EC	0.3590	0.3790	0.3290	0.3120
t-statistic	**5.39**	**5.70**	**4.94**	**4.68**

ct1_OE_and_ct2_EC	0.3600	0.3700	0.4180	0.4060
t-statistic	**3.96**	**4.08**	**4.36**	**4.24**
ct2_OE_and_ct1_EC	0.3680	0.3770	0.4080	0.4020
t-statistic	**4.05**	**4.16**	**4.25**	**4.19**
Constant	-11.9080	-10.3510	-37.2010	-36.8740
Observations	125006	125006	182561	182561
Number of pair of	8554	8554	11518	11518
R-squared	0.16	0.17	0.15	0.15

Table 2. Dependent variable in all models is L_export. In **bold –** significant at 1%, in *italics* – significant at 5%. *t*-statistics are provided under the coefficients.

	Equation 6	Equation 7	Equation 8	Equation 9
L_ct1_gdp_ppp	1.4110	1.3990	1.2240	1.2200
t-statistic	**60.47**	**40.34**	**103.24**	**42.65**
L_ct2_gdp_ppp	0.8780	0.8650	0.8520	0.8490
t-statistic	**37.94**	**24.99**	**73.08**	**29.73**
L_ct1_population	-1.0410	-1.0560		
t-statistic	**17.52**	**15.58**		
L_ct2_population	-0.7890	-0.8050		
t-statistic	**13.29**	**11.87**		
PTA_others	0.2310	0.2310	0.3990	0.4220
t-statistic	**8.90**	**8.83**	**21.89**	**22.98**
EC	0.5030	0.4240	0.6070	0.5290
t-statistic	**9.92**	**8.20**	**11.77**	**10.20**
CEFTA	0.4890	0.5430	0.6500	0.7210
t-statistic	**4.29**	**4.75**	**5.18**	**5.75**
BAFTA	0.0480	0.1790	0.4060	0.4520
t-statistic	0.08	0.30	0.74	0.83
EFTA	0.3770	0.4330	0.4740	0.4850
t-statistic	*2.25*	**2.59**	**2.95**	**3.02**
Constant	-12.0380	-10.9540	-36.9700	-36.7590
Observations	125006	125006	182561	182561
Number of pair of countries	8554	8554	11518	11518
R-squared	0.16	0.17	0.14	0.15

Table 3. . Dependent variable in all models is L_export. In **bold –** significant at 1%, in *italics* – significant at 5%. *t*-statistics are provided under the coefficients.

Country\Union	EU	OE	EA	EMA	BAFTA	CEFTA	EFTA
Algeria				2002			
Austria	1995						1960-1995
Belgium	1958						
Bulgaria	2007		1993-2007			1999-2007	
Croatia		2002					
Cyprus	2004						
Czech Republic	2004		1992-2004			1994-2004	
Denmark	1973						
Egypt				2004			
Estonia	2004		1995-2004		1994-2004		

Table 4 continued

Finland	1995						1960-1995
France	1958						
Germany	1958						
Greece	1981						
Hungary	2004		1992-2004			1994-2004	
Iceland							1970
Ireland	1973						
Israel				2000			
Italy	1958						
Jordan				2002			
Latvia	2004		1995-2004		1994-2004		
Lebanon				2003			
Lithuania	2004		1995-2004		1994-2004		
Luxemburg	1958						
Macedonia		2001					
Malta	2004						
Morocco				2000			
Netherlands	1958						
Norway							1960
Palestine				1997			
Poland	2004		1992-2004			1994-2004	
Portugal	1986						
Romania	2007		1993-2007			1997-2007	
Slovak Republic	2004		1992-2004			1994-2004	
Slovenia	2004		1997-2004			1996-2004	
Spain	1986						
Sweden	1995						1960-1995
Switzerland							**1960**
Tunisia				**1998**			
Turkey		**1996**					
UK	1973						

Table 4. Dates of participation in trade agreements for specific countries.