



**SCHOOL OF ECONOMICS
AND MANAGEMENT**
Lund University

Masters' Thesis
August 2010

**EU-expansion effects on the SEE export to EU –
Possible trade diversion**

Supervisor:
Karin Olofsdotter

Author:
Lumnie Gashi

Lund 2010

Abstract

The future of EU lies in the SEE or to rephrase, the future of the SEE lies in the EU. This is considered to be the case as the SEE countries that are not yet EU-members have been promised future membership and are therefore considered the next potential EU members. As this scenario lies in the future of an EU expansion an interest of what lies in the past of these two regions rises. This interest increases with consideration of existing research putting forth empirical evidence that suggest the EU expansion causes trade to divert away from non-members. In addition to this, a decrease of the SEE export to EU has been suggested to exist. In this paper I therefore ask if the EU expansion has affected this SEE export to EU in any way. This information is not important just in itself but also because of the long EU membership process, which differs with years between the SEE countries due to their different development stages. Different EU accession dates may cause further trade diversion for individual SEE countries as the EU expands further.

To be able to answer the question in this paper an empirical research is performed with the frequently used gravity model. The gravity equation is estimated through the OLS procedure. In aim of receiving the best regression results from the OLS an alternative version of the standard gravity equation, a fixed effect equation, is calculated and run as well. The quantitative study is performed on panel data from 1995 to 2008. By analyzing the export flows from 8 SEE countries to the 27 EU members a search for possible trade diversion effects reflecting the SEE export to EU is pursued.

Based on the analysis pursued an indication of trade diversion could be found and concluded to exist despite lack of significance of many estimates. The trade diversion reflects an export decrease from SEE to EU as an effect of every expansion year of the union. This indicates that further EU expansion may very well cause further export diversion from individual SEE countries to EU. However since the results are not completely clear cut, there is still room for further research as it may bring further support for these findings or further counter argument to these results.

Keywords: EU enlargement, Gravity model, SEE export, trade diversion

Abbreviations

CEEC	Central Eastern Economic Countries
EC	European Community
ECSC	European Coal and Steel Community
EEC	European Economic Community
EFTA	European free trade agreement
EIA	Economic Integration Agreement
ETC	Economic Trade Creation
EU	European Union
Euromat	European Federation of Coin Machine Associations
FDI	Foreign Direct Investment
GATT	General Agreement on Trade and Tariffs
MoU	Memorandum of Understanding
OLS	Ordinary Least Squares
PTA	Preferential Trade Agreement
RTA	Regional trade agreement
RTI	Regional Integration agreement
SAA	Stabilization and association agreement
SAP	Stabilization and association process
SEE	Southeast Europe (includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR Macedonia, Greece, Kosovo, Montenegro, Romania, Serbia, Slovenia)
SEE-5	Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia
SEE-7	Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Romania, Serbia
SEEC	Southeast European Countries
SP	Stability Pact
WTO	World Trade Organization

Contents

1. INTRODUCTION	6
1.2 Delimitation	7
1.3 Disposition	8
2. THEORETICAL FOUNDATION	9
2.1 Trade creation vs. trade diversion	10
3. BACKGROUND	12
3.1 EU expansion	12
3.2 SEEC disruptions	13
3.3 Endowment differences	15
3.4 Trade relations	16
4. PREVIOUS RESEARCH	20
5. EMPIRICAL METHODOLOGY	22
5.1 The gravity equation	23
5.2 Econometrical model	25
5.3 Data	28
6. EMPIRICAL RESULTS	30
6.1 Regression estimations	30
6.1.1 OLS regression	30
6.1.2 Fixed Effect regression	32
6.2 Heteroscedasticity and Autocorrelation	35
6.2.1 Panel Corrected Standard Error regression	35
6.3 Multicollinearity	37
7. DISCUSSION	38
8. CONCLUSION	41

REFERENCES

43

APPENDIX

48

1. Introduction

The ongoing enlargement of the EU is expected to gain the whole international economic community through increased exports, investments and an increased domestic market. In the process the expansion is also expected to lead to a more democratic and prosperous Europe. The EU today is a membership of 27 countries with Albania, Montenegro and Serbia as the newest EU membership applicants since April 2009, December 2008 and December 2009 respectively, all waiting to become EU candidate countries. Croatia, Iceland, Macedonia and Turkey are candidate countries since 2005, 2010, 2005 and 1999 respectively, waiting to sign a formal membership agreement (BBC, 2010).

In May 26, 1999, while the NATO bombings were still trying to end the war in Kosovo, the EU suggested a new aim at cooperation with the five countries of Western Balkan¹ suggesting the SAP. Marked as a historic point this became the first time EU prospects were offered to Western Balkan making them potential EU candidates. The summit in Zagreb, Croatia, in November of 2000 launched SAP. In June 21, 2003, in the EU-Western Balkan summit in Thessaloniki, Greece, the EU prospects were enhanced as EU representatives formally declared in a consensus that “the future of the Balkans is within the European Union” (10229/03, Presse 163), implying first and foremost economic integration with EU as well as re-integration of the Balkan countries with each other. However, because EU accession means immediate disablement of old agreements, simultaneous disintegration and integration effects are indicated in this integration process. While EU membership provides the integration effects the separation from intra-regional agreements, which came about from the signing of the MoU on trade liberalization and facilitation on June 27 2001 in Brussels aiming at further regional cooperation (Pjerotic, 2008), indicates trade diversion effects reducing the intra-regional trade and therefore disintegration effects. This redistribution of trade is a consequence discussed in many research papers like Bechev (2006), Kaminski and De la Rocha (2003), Soloaga and Winters (2001), Cernat (2003), Bartlett (2008), Papazoglu, Pentecost & Marques (2006). Carrera (2006), Cernat (2003) and Soloaga and Winters (2001) all suggest that EU has indeed caused trade diversion effects during its enlargement process so far. This means that in addition to generating a higher trade level within the union, EU membership may very well generate trade pattern changes such that trade is diverted away from non-members leaving them worse off. This also means that as further expansion of EU lies ahead further trade diversion may as well.

There is no current research which examines the direct EU expansion effects on the SEE trade between them. However, Bussière, Fidrmuc and Schnatz (2008) discovered that while new EU members² have engaged themselves in a relatively high trade level with existing EU members, non-members and especially the smaller SEE countries are found to trade below their potential. Christie (2003 & 2004) found similar results suggesting there may be significant room for trade growth between EU and SEEC, especially with Western Balkan which composes the smaller countries of SEE. Simultaneously Uvalic (2003) noticed that the total SEE export to EU has actually decreased lately. In this paper I therefore ask if the EU expansion has affected the SEE export to EU in any way so far? I examine the export as it is considered to be the durable economic growth generator of the SEE countries. By answering this question one can also see if the suggested trade diversion caused by the EU-expansion has been present in the SEE trade. Finding the expansion effects on the SEE export so far can help to understand what waits the rest of the SEEC from further expansion of EU. I will

¹ Albania, BiH, Croatia, Montenegro and Serbia

²E.g. Poland, Czech Republic and Slovak Republic

therefore provide an empirical research where I examine the period from 1995 to 2008 looking for SEE export changes to EU with a gravity model and a fixed effect model. The gravity model is an instrument which enables statistical analysis of flows and patterns with bilateral trade flow data. The model is convenient as an examination tool for many reasons such as simplicity, high explanatory ability and improved econometrics. Lately the model has been advanced to examine trade diversion and trade creation effects as well which has enhanced the models use. The model is frequently used in trade pattern researches. However only few papers exist where the gravity model examines the Balkan trade (Christie, 2001; Bussière, Fidrmuc and Schnatz, 2008; Montanari, 2005; Papazoglou et. al., 2006).

Integration research of this kind is important because it contributes to integration policy debates where past experience, trade links and model specification examination can contribute with real economic advice to countries outside PTAs.

1.2 Delimitation

The empirical research in this essay is done on the export development of SEE to EU, in the aim of detecting the EU enlargement effects on the SEE export to EU so far. As Western Balkan is next on line to join EU, all western Balkan countries with sufficient trade data will be included. The inclusion of all Balkan countries enhances the possibility of detecting the EU-enlargement effects on SEE as gradually more and more SEE countries such as Bulgaria, Greece, Romania, Slovenia and Slovakia were granted accession to EU.

The Balkans now exist of Albania, Bosnia and Herzegovina (BiH), Bulgaria, Croatia, Greece, Kosovo, Macedonia, Montenegro, Romania, Serbia, Slovenia and Turkey. In this essay I will have to exclude Kosovo and Montenegro from the research because these new nations³ lack sufficient trade data for this research. Some research highlights the fact that trade results in SEE trade relations may depend a lot on which SEE countries are taken into account. Uvalic (2003) suggests that including SEE countries, such as Greece, may alter the trade results that would otherwise prevail because intra-regional trade is not as important to Greece as it is to the rest of SEEC. I have followed this suggestion and excluded Greece from the SEE here. Due to the fact that only 3% of the Turkish territory lies on the Balkan surface and because of the same analogues reason as used for Greece, Turkey shall be treated as in other papers and therefore be excluded from this examination. Including Turkey can change the results due to its size and therefore give a bias conclusion of SEE export for the countries that lie completely in SEE.

It has become evident to me that both Croatia and Slovenia often wish to be treated as Central European countries rather than SEE countries. However both Croatia and Slovenia were republics in the Federation of Yugoslavia as late as 1991 which lied in the center of the Balkans. So as other authors (Uvalic, 2003; Wittich, 2005; World trade, 2004) I too will treat them as able to be part of more than one region and therefore include them in the essay. Except for a common historical past as federations in Yugoslavia many of the Balkan countries share a similar language as well. Bulgaria, Macedonia, BiH, Serbia and Montenegro all speak slavic languages.

³ Independent since 2008 and 2006 respectively.

Examining the Balkans is difficult because of lack of research data with unregistered data statistics and different territorial definitions. However this may be, the region is an important part of the puzzle in the future of the EU and the EU is an important part of the stability of the region.

The research period includes the years 1995 to 2008 because this period defines the Balkans as we know it today and also constitutes the most important years of the EU expansions to date.

1.3 Disposition

The disposition of this essay starts with an introduction where an insight to the SEE export and EU-expansion is given. Section two in the essay constitutes of economic theory while section three presents a background of the existing SEE situation in relation to EU. Section four presents previous research on the SEE trade relations with EU. The empirical methodology used to pursue the research in this essay is described in section five. There one can also read about the data and the difficulties of using this data. Further on in section six a presentation of the empirical results from the regression estimates is outlined. These results are further analyzed in section 7 where a further discussion is pursued trying to explain the estimated outcomes of the regressions. Finally a conclusion with final remarks is summarized in section 8.

2. Theoretical foundation

The number of international economic integration agreements (EIAs) has constantly been rising ever since the early 90s, integrating developing countries into the global economy with potential large trade creation effects. Of the approximately 300 agreements that have been notified by GATT/WTO since 1947, around half of them are notified to have come about in the last 15 years (Bergstrand, 2008). EIAs indicate removing trade barriers between countries and enabling an enlargement of the trading market which in turn enables economies of scale but also a higher level of FDI due to the increased opportunities (Oecd.org, 2001). Economic gains which are made feasible are product diversity, higher productivity and lower unit costs from economies of scale. Tariff reduction between members indicates relative product prices falling which tend to increase their bilateral trade. Recent findings suggest that the estimated effects from liberalized international trade policies may be bigger on growth and welfare than previously thought. The reason is considered to be national governments pursue of EIAs as well as the proliferation of such agreements which has created a “market” for regionalism (Bergstrand, 2008).

Since Viner’s (1950) groundbreaking paper on customs union issues which drew attention to trade creation and trade diversion as real possibilities, an interest to analyze the RIA effects and consequences has awakened. Naturally this interest has grown with the increased number of agreements. With the increase of RIA grew the interest and aim of explaining this RIA increase, questioning whether it was trade creation or trade diversion which was the inducing factor.

Greenway and Milner (2002) discuss how RTAs are suggested to increase due to its use as a protection device against possible trade diversion followed by existing RTAs. This indicates that RTAs bring negative trade effects to non-members which in turn create their own RTA. This rationale which gives rise to the creation of new RTAs also gives rise to the application for membership in existing ones. Membership application is encouraged by the benefits of membership where further trade creation is enabled after entering the agreement while staying outside increases the costs brought by trade diversion. This process of membership application is called the domino effect. It describes how the incentive to join a RTA rises due to the increasing costs of staying outside the agreement. The increasing costs come from the negative effect in export sectors in countries outside the agreement where their exports will be discriminated against export products from member countries⁴ (Baldwin, 2006). This indicates a redistribution of trade flows away from non-members. This in turn means that members gain income both from the new open countries with cheaper products due to the stronger trade relations but also from diverting new members’ trade away from non-members and redistributing it to themselves (Krishna, 1998). This happens as accession to a RTA

⁴ The domino effect can also be detected in trade blocs who can act as nations in their interaction with other blocs. The interaction between trade blocs results in tariff lowering and ultimately it can increase the export sector in each bloc while decreasing the import sector in respective bloc (Baldwin, 2006). This process is called the Juggernaut effect. The size a trade bloc can take through expansion is uncertain. However there exists theory implying that the expansion of an external tariff union has a limit of member countries, before it begins to foster loss instead of gains from the expansion (Panagariya, 2000).

means liberalization of trade between members, making relative prices in partner countries cheaper through the tariff reduction and products from non-members more expensive, making non-members less attractive as trade partners. This implies that the non-members either decrease their trade level or lose their trading partners through this trade redistribution that takes place.

The *trade creation* emerges between members within a RTA through the trade liberalization while *trade diversion* emerges through the incentive not to trade as much with the non-member countries. So in the process of economic integration where a common external tariff is one aim and where countries have to reduce their tariffs to the outside world as well, Economic Trade Creation (ETC) is possible. If the net effect is positive or not depends on if the ETC then exceeds trade diversion or not (Aitken, 1973). Trade creation is considered positive only if the trade liberalization has a bigger trade inducing effect in the union in comparison to the trade loss with outside members. This makes the total effect of RTA ambiguous (Lamy, 2002).

These effects are considered to be important to the increase and creation of new RTAs and the enlargement of existing ones, including the enlargement of the EU (Greenway and Milner, 2002). In addition to the incentive of non-members to seek membership in existing unions, expansions of RIAs also depend on the willingness of members to open up to further countries (Panagariya, 2000).

However, RTAs are not always pure economic. EU itself is not pure economic but rather geo-political international economic integration agreement which itself has been involved in creating other geo-political agreements. Lately EU has been involved in the Balkans creating agreements with a stabilizing purpose rather than with pure economic objectives.

2.1 Trade creation vs. trade diversion

To determine whether a trade agreement between countries has positive welfare gains or losses one needs to evaluate the level of trade creation compared to the level of trade diversion. This refers to the amount of trade level increase for the new member country in relation to the trade level prior the agreement. The increase than is compared to the amount of trade decrease with non-members as a result of the membership agreement. The two effects are depended on different economic factors such as geographic circumstances, intra-industry determinants or inter-industry determinants. From the geographic perspective, trade creation is thought to be bigger if the countries participating in the agreement lie close to each other. From the intra-industry and inter-industry perspective, two countries with similar endowments give a higher level of trade creation just as participating countries being bigger with similar economies give a higher level of trade creation (Bergstrand and Baier 2004). Due to comparative advantages, a higher difference of labor and capital endowment between country pairs participating in an agreement, will give a higher trade level and welfare gains for both countries as well.

However the cheaper products which are supposed to generate a higher trade level only visually can seem to be cheaper, because new members in the RIA do not necessarily pay a cheaper price for the products. Membership and absence of tariffs will cause a new member to think it will receive cheaper products. However membership may merely have led new members to commit to pay a more expensive price for products relative to the price non-members were offering in the absence of

tariffs. So the new member gets tariff reduction or elimination benefits rather than a product price decreasing benefits.

While the RIA implies reduction or total elimination of tariffs, reciprocity is demanded and new members must reduce their tariffs as well. This leaves them without tax revenue for their own goods they export. This implies the possibility of two losers; where the new member pays for more expensive products and loses tax revenues and the non-member loses a trade partner. The new member may even experience a bigger revenue loss compared to the possible gain from the tariff reduction which leaves the new member in a worse situation compared to prior the agreement (Bergstrand and Baier, 2004). Developing countries are at a higher risk of losing in welfare when entering North-South RIAs because they tend to have a higher level of tariffs compared to industrialized north countries. Agreement to cut down tariffs in trade agreements may therefore have a bigger effect on developing countries as there is more at stake for them.

As membership application and creation of new RIAs are actions of protection against trade diversion and as the SEE countries are next on line for EU membership where most of them have already handed in their membership application, it is interesting to examine if it is in fact trade diversion due to the expansion of EU which has enhanced their encouragement to EU membership. This would be evident if SEE export deviation was found to be a direct cause of the EU expansion.

3. Background

3.1 EU expansion

The European cooperation started its formation in 1950 through the signing of the Coal and Steel Community as a response to the end of world war two in 1945 in hope of preventing possibilities of similar future wars. The signing countries, Belgium, France, Luxemburg, Netherlands and West Germany was aiming to achieve this by controlling the coal and steel industry together and therefore also the weapon production. By the 7 February, 1992, these countries signed the Maastricht treaty which in 1993 launched the EU encompassing prior European cooperation, which included the so far developed cooperation in the EC, ECSC, EEC and Euromat. While the customs union was created in 1957 in the EEC the EU now creates the inner market and the four freedoms with free movement of services, goods, capital and people (Europa.eu, 2010). By 1993 several European countries had joined the European cooperation such as Denmark, Ireland, and UK in 1973, Greece in 1981, Spain and Portugal in 1986 and East Germany in 1990 which shortly become one with West Germany. By 1995 EU experienced an expansion of the union where Austria, Finland and Sweden joined existing members into becoming EU-15 (Eu-upplysningen.se, 2010). In 2004 Slovenia joined Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland and Slovakia in to becoming EU-25 during EUs largest expansion to date. Bulgaria and Romania entered EU later in 2007. Expansion of the union is expected to gain the whole international economic community through increased exports, investments and an increase in the domestic market. The expansion is also expected to lead to a more democratic and prosperous Europe.

But being granted membership in the EU is a long process which includes countries to adjust to EU and its framework of rules, the *acquis communautaire*, which includes practice of democracy, rule of law, a market economy and adherence to EUs political and economical goals. Countries that the EU Council of ministers has approved as EU candidate countries are Turkey in 1999, Croatia in 2004, Macedonia in 2005 and Iceland in 2010 (EUupplysning.se; World News, 2010). At the fulfillment of EUs Copenhagen criteria which were created during an EU top meeting in Copenhagen in 1993 and which all candidate countries must fulfill, the whole Balkan was promised future EU membership in 2004. Thus all the Balkan countries that aren't members yet are formally considered potential candidate countries (EU upplysning.se, 2010). Out of the potential candidate countries, Albania, BiH, Kosovo, Montenegro and Serbia only BiH and Kosovo remain not having sent in a membership application to the EU Council of ministers. Montenegro handed in their EU membership application in December 2008, Albania in the 28th of April 2009 and Serbia in 22 of December in 2009 (BBC, 2010). However, all countries do not have the same length on their EU membership process due to the different development degree between countries giving them different starting ground. It didn't take long for Iceland to become a candidate country who applied membership in July 16 of 2009 and was approved as a candidate country the 17th of June 2010 (WorldNews, 2010). However in other cases the membership process can take over 10 years if the EU considers it necessary. This was the case for Turkey who applied for full EU membership in 1987 but was approved as a candidate country only in 1999, due to lack of respect for human rights but also possible economical and social difficulties, according to EU (EU upplysningen.se, 2010). It only took Croatia one year to become a candidate country, but the EU membership negotiations that started in 2005 are still not completed. Possibly the negotiations will come to an end this year with full EU membership admission in 2011 (BBC, 2010). These are examples describing that the more undeveloped the applying countries are,

where democracy, political and economical stability is not present, the longer the EU membership process. With this background I cannot exclude that other SEE countries will experience the same membership procedure since several of the potential candidate countries, such as Albania, BiH and Montenegro, have great problems with organized crime, corruption and practice of rule of law (BBC, 2010).

3.2 SEEC disruptions

As the SEEC are next in line for EU membership the regional environment in the SEE is of great importance for these countries' futures. EU prospects offered to SEE have come to increase EUs position in the region and by year 2000 the EU became the biggest driver of regional cooperation in attempt to stabilize the Balkans (Bechev, 2006). However the EU has been involved in the Balkans for a long time since the Regional Approach towards SEE-5 which was presented in 1995 after the UN sanctions were lifted from Former Republic of Yugoslavia. These sanctions were imposed as an attempt to stop the war Serbia led in BiH after BiHs independence declaration in 1992. BiH was the third Yugoslav republic to proclaim independence after Slovenia and Croatia in 1990 aiming to leave the federation of Yugoslavia behind which since 1918 consisted of BiH, Croatia, Macedonia, Montenegro, Serbia and Slovenia including the two provinces Kosovo and Vojvodina. In the aim of maintaining control the Yugoslav Serbian lead army responded with a military attack in all three proclaimed countries and whereas the Slovenian war ended the same year it proclaimed independence, the war in Croatia didn't end until December 1991 and the BiH war in 1995 resulting in the Dayton Peace Agreement. As the territory borders were changing the federation of Yugoslavia changed its name to Serbia and Montenegro in 1992. While the Macedonian proclamation of independence in the 17th of November 1991 was the only proclamation without a Serbian military attack the risk for a spread of violence to Kosovo was a constant concern as the Serbian regime continuously repressed the Albanian majority amounting to 90% of the Kosovo population and their wishes to independence. The repression and continues dissatisfaction finally triggered off a Serbian military attack in 1998 in Kosovo which had up to 1989 been an autonomous province (Encyclopedia, 1993). The NATO bombings against the Serbian army between March-June in 1999 finally ended the war in Kosovo. In the 17th of February 2008, Kosovo proclaimed independence which has so far been recognized by 70 countries around the world including 22 EU member countries.

In 26 May, 1999, indeed during the NATO bombings EU suggested SAP for the five western Balkan countries⁵. The process was confirmed and launched in 24 November, 2004 in the Zagreb summit in Croatia. This was the first time EU prospects were offered to western Balkan. SAP aimed at stabilizing and preparing the region in the transition to a market economy by enhancing regional cooperation and preparing for EU membership through constructive help on political, financial and human resources. The process was to deepen and establish new individual contractual relationships between EU and SEE-5 offering a more open EU market to SEE exports (Bechev, 2006). The conditions to SEE-5 were to upgrade institutions and governance to EU standards and also to engage in further cooperation and mutual trade within the region (Kaminski and De La Rocha, 2003).

⁵ Albania, BiH, Croatia, Macedonia, Serbia and Montenegro

Simultaneously, the SP which was suggested in 1998 and adopted in June 1999 at the G-8 summit in Cologne, was aiming at developing a long-term conflict prevention strategy for SEE. The SP is an international cooperation with more than 40 partner countries, organizations and international institutions such as the World Bank. With time the SP has come to complement the SAP (stabilitypact.org). While SP produced 32 bilateral trade agreements between the SEE countries, SAP gave origin to individual contractual relations taking the form of Stabilization and Association Agreements (SAAs) which were developed with country specific consideration. EU signed SAAs with Croatia and Macedonia in 2001, with Albania in 2006, Montenegro in 2007 and Serbia and BiH in 2008. While Kosovo is involved in SAP there exists no such agreement between EU and Kosovo due to Kosovo's status issue where Cyprus, Greece, Romania, Slovakia and Spain have not yet recognized their independence proclamation (Bartlett, 2008). Any Autonomous Trade Preference (ATP) agreements that were signed between SEE and the EU prior to the SAAs automatically got disabled (The World Bank, 2008). As a complement to SAP and under the guidance of it, the SEE-7 signed a Memorandum of Understanding on trade liberalization and facilitation in 2001, aiming at further regional cooperation through commitment of reduction or total elimination of tariff barriers (Pjerotic, 2008). To avoid a "spaghetti bowl" of FTAs, the SEE countries were granted membership in CEFTA⁶ signed in the Bucharest declaration in 2006. This induced all prior signed SAAs into one FTA where Albania, Kosovo, FYR Macedonia, Montenegro, BiH and Serbia all joined earlier members Slovenia (1996), Romania (1997), Bulgaria (1999) and Croatia (2003) into one general FTA (The World Bank, 2008). Since EU accession means abrupt disablement of other trade agreements, Bulgaria, Romania and Slovenia are no longer CEFTA members.

However, caution has been recommended in acceptance of the agreements offered from the EU to the SEE because potential hub-and-spoke effects might be present. Such effects indicate the presence of unequal market access due to trade agreements. The effects indicate trade distortion where "hubs", referring to industrialized countries, have better market access to "spokes", referring to less developed countries, relative to what other spokes have. This indicates a great disadvantage for regional partners in the SEE because of the presence of different trade barriers between trade partners giving an advantage to the more developed markets (Kaminski and De La Rocha, 2003). The concern here is that access to SEE countries markets offered to EU may exceed access offered to other SEE countries. The hub is the EU countries profiting from low cost production due to economies of scale when new markets open up, while the spoke are the Balkan states ending up with less market access to the same markets and less competitive market ability in the EU market (The World Bank, 2008). However, EU's relation to the Balkans is more complex than this. The bilateral trade agreements that EU signed with the western Balkan contradict the SEE promotion of regional cooperation due to the country specific policies offered (Bechev, 2006). The SEE regional integration process which EU has strongly promoted is expected to experience further divergence in the future as stabilized SEEC such as Croatia enter EU and leave old regional agreements behind. However this is not a contemporary concern for individual SEECs due to the knowledge of the lively economic development the CEEC experienced after their EU accession which has indicated similar prospects for SEE

⁶ CEFTA was originally composed by former Czechoslovakia, Hungary and Poland in 1992 in Krakow Poland, aiming to create a free trade area between them in accordance with article XXIV of GATT. CEFTA now serves as preparation for full EU membership.

3.3 Endowment differences

SEE resembles CEEC prior to their EU accession in their endowment distribution. SEE offers cheap labor which together with the low technology accessibility makes the region a basic manufacturing exporter of textiles and basic metals (Pjerotic, 2008). CEEC was also distinguished by cheap labor, bad transportation, slow administration and advantages in the technology manufacturing sector, much like how SEE is distinguished today. The CEEC differentiate from the Balkans through having both cheap and skilled labor. However this characteristic was indicated to change after their EU accession through increased wage costs (Sowinski, 2003). In the SEE case a comparative advantage has been detected in labor-intensive and resource based exports in all SEE countries except for Albania, BiH and Greece (Wittich, 2005). Production consists of textiles, clothing and footwear products which with low skilled and cheap labor is common in less developed countries.

Since the 90s the export structure of SEE to EU has changed where food and raw material export has decreased while manufactured products have increased. The manufacturing items amount to three quarters of total SEE export⁷, while the EU manufacturing import from SEE⁸ amounts to 2.1% out of total manufacturing import. In addition to this, the product variety of SEE export to EU has declined (Jovicic, Zdravkovic and Mitrovic, 2001). By 2000, Serbia was one of the countries who noticed the export structure change where export to EU in manufacture of textiles, clothes and footwear increased and agriculture and basic metals export declined. In the Serbian import Petroleum from EU increased and manufactured products decreased (Jovicic et. al., 2001). Similarly Croatia and Romania were noticed to move away from food and raw material export towards machinery and transport equipment exports. Labor-intensive and resource based manufacturer production dominated in particular between 1996-2004 in Croatia, Romania, but also in Bulgaria (Wittich, 2005).

In 1998 the clothing export to EU from Albania, FYR Macedonia and BiH amounted to one third of their total EU export. Out of Albania's total export to EU approximately 64% consists of leather, footwear and clothing products. In addition to this, Albania also has a favorable condition for fish products in export while Serbia has great potential for berry export and other greenhouse fruit and vegetables (Bartlett, 2008). In 1998 Croatia's clothing export amounted to one quarter of their total EU export (Brenton and Manchin, 2003).

Exports between SEE countries usually consist of industrial products which are not qualified to compete with EU products. It is worth to comment that in contrast to SEE, the EU has comparative advantages in capital-intensive products as well as in R&D-intensive products. Table 1 shows the export development for important products as a share of total export from SEE to EU between 2001 and 2008. A clear trend can be distinguished in the table where all countries with available data exhibit an increase of machinery exports to EU, while both footwear and textiles and clothes exhibit a decline. Greece is included in the table for comparison purpose and exhibits the same trend as the other SEE countries with increased machinery exports and decreased textile and clothing export.

⁷ Excluding Greece.

⁸ Excluding Greece.

Table 1. Share of product export from total export to EU

Countries	Product category	Year	
		2001	2008
Albania	-Footwear	31%	21%
	-Textiles & clothing	80%	66%
	-Machinery	7%	18%
BiH	-Footwear	-	10%
	-Textiles & clothing	-	14%
	-Machinery	-	45%
Bulgaria	-Footwear	5%	2%
	-Textiles & clothing	51%	30%
	-Machinery	11%	35%
Croatia	-Footwear	5%	2%
	-Textiles & clothing	32%	14%
	-Machinery	55%	76%
Greece	-Footwear	0,3%	0,5%
	-Textiles & clothing	35%	15%
	-Machinery	11%	13%
FYR Macedonia	-Footwear	4%	-
	-Textiles & clothing	41%	-
	-Machinery	10%	-
Romania	-Footwear	11%	5%
	-Textiles & clothing	63%	24%
	-Machinery	41%	76%
Slovenia	-Footwear	1%	0,5%
	-Textiles & clothing	11%	4%
	-Machinery	83%	90%
Serbia⁹	-Footwear	7%	3%
	-Textiles & clothing	33%	15%
	-Machinery	13%	36%

Source: Own calculations based on ITC statistics, 2010.

3.4 Trade relations

During the communist period Albania experienced an almost complete isolation from the rest of the world. But in 1992, an attempt to open up Albanian markets was made and Albania signed a Trade and Economic Cooperation Agreement with the EU (Uvalic, 2006). The Albanian economy has thereafter experienced growth and in the process made EU its main trading partner also making itself

⁹ (Serbia and Montenegro until 2006)

one of the Balkan countries with the highest trade level with EU. Albania's main trading partners include Greece, Germany and Italy which are all EU members. Albanian export to EU is expected to reach 98% of their total export, while import figures reach between 78% - 86% (Bartlett, 2008; Montanari, 2005). Taking into consideration that two of Albania's main trading partners are their neighbors and that intra-regional trade is very important in SEE it is worth to comment that the SEE trade relations also reflect the importance of the geographical, cultural and historical aspect of trade.

Despite signs of export increase in 2005, BiH has experienced a constant level of trade deficit (Bartlett, 2008). For BiH the import level from EU reaches digits around 39% (Montanari, 2005) and only one of their three most important trading partners, Italy, Croatia and Serbia, is an EU members.

Because Serbia and Montenegro are Macedonia's main trading partners, the UN sanctions on Serbia during 1992-1995 which decreased Serbian exports had a high impact on the Macedonian economy as well. Export levels to EU for FYR Macedonia reach digits around 40% (Montanari, 2005). Serbia's main trading partners however are BiH, Germany and Italy (Bartlett, 2008). The Serbian export declined again in 1999 due to the NATO bombings.

In table 2 beneath it can be seen how the development of export share from total SEE export to EU has evolved between years 2001, 2004 and 2008. The table indicates relatively big changes for Western Balkan countries like Albania, BiH, Croatia and Macedonia.

Table 2. SEE exports share to EU

Country	2001	2004	2008
Albania	91%	91%	80%
BiH	-	46%	55%
Bulgaria	61%	62%	60%
Croatia	68%	66%	61%
Greece	60%	65%	64%
FYR Macedonia	53%	60%	-
Romania	76%	75%	71%
Slovenia	71%	68%	69%
Serbia ¹⁰	54%	58%	54%

Source: Own calculations based on ITC statistics, 2010.

After EU accession, both Romania and Bulgaria increased their extra trade, but mostly with EU than with any other part of the world (Baourakis, Lakato and Xepapadeas, 2008). However table 2 displays that Romania's export sector to EU has actually decreased since 2001. The decrease of exports is

¹⁰ (Serbia and Montenegro until 2006)

greater between 2004 and 2008, indicating that the decrease of exports continued after Romania's EU accession. This in turn indicates that if there was a trade increase in Romania it must reflect an import increase. This trade increase is visible in the SEE import table 3 beneath where the Romanian import level from EU exhibits a positive trend. Prior to its EU accession, Bulgaria showed an import level above 50% from EU which has thereafter increased to above 60%. The export level to EU however exhibits puzzling statistics showing a small export increase to EU before accession but a decline of export level after accession in 2007.

The Greek export towards the rest of the Balkans is bigger than their import from the region but Greece still remains an important trading partner for SEE, especially for Western Balkan. The most important trading partner for the majority of SEEC however is Germany (Bussier et. al., 2005) accounting for 25% of the total EU trade with SEE. Italy is, if not the most important, the region's biggest trading partner in terms of export value, accounting for 43 % of total EU imports from SEE, and 33 % of total exports. EUs most important trade partners from SEE are Bulgaria and Romania, if one excludes Greece (Bussier et. al., 2005; Montanari, 2005).

Table 3 below provides information about the development of the SEE import from EU between 2001, 2004 and 2008. The table exhibits both increasing and decreasing import levels from EU. In some cases like in the Albanian import case the change in import level is quite drastic and has fallen with approximately 20% between 2001 and 2008. The Croatian import exhibits a decrease as well with a 9% decrease between 2001 and 2008. Serbia exhibits a clear decline of import from EU as well showing that between 2001 and 2008 the import from EU decreased by 6%.

Table 3. SEE imports share from EU

Country	2001	2004	2008
Albania	80%	71%	61%
BiH	-	44%	48%
Bulgaria	57%	57%	62%
Croatia	72%	71%	64%
Greece	59%	60%	54%
FYR Macedonia	59%	61%	-
Romania	67%	65%	69%
Slovenia	77%	82%	77%
Serbia ¹¹	59%	55%	53%

Source: Own calculations based on ITC statistics, 2010.

¹¹ (Serbia and Montenegro until 2006)

In the table above one can distinguish that Bulgaria and Romania both experienced an increase of import from EU between 2004 and 2008. Bulgarian import increased with 5% while Romanian import increased with 4%. In Slovenia's case we can see that in 2004 when the country joined EU, the import from the union was 5% higher than in 2001. However, between 2004 and 2008 a decrease of imports is detected as well.

The trade level with Western Balkan for EU is almost insignificant. Table 4 below shows the EU exports to SEE as a share of total EU export during 2001 and 2008. The percentage numbers indicate a positive trend development where the export to SEE exhibits an increase. Excluding Greece from SEE highly alters the export numbers which indicates that Greece stands for a big part of the SEE trade with EU. The table exhibits an increase of exports to SEE with 1% between 2001 and 2008. The export increase is just below 1% when Greece is excluded. This means that even though the Greece import from EU amounts to around 0,8% and 0,9% of SEE import from EU, the increase of EU import seems to be biggest for the rest of the SEE which corresponds to members in table 3. The Greece import alone is noticed to have increased 0,1%.

Table 4.

Years	EU exports share to SEE		EU imports share from SEE	
	2001	2008	2001	2008
SEE	2,4%	3,4%	1,3%	1,6%
SEE (excluding Greece)	1,6%	2,5%	1,0%	1,3%

Source: Own calculations based on ITC statistics, 2010.

The EU imports from SEE are provided in percentage as well where it can be viewed that the imports from SEE as a share of total EU imports are much smaller and have experienced a much smaller increase relative to the EU export to SEE. Table 4 exhibits that the EU import from SEE increased between 2001 and 2008. The table also exhibits that Greece in this case does not alter the numbers in the same extent as the EU exports. These big trade share differences between EU and SEE indicate on the importance of the EU trade for the Balkans and the irrelevance of the SEE trade for EU.

4. Previous Research

While there is some research on trade potential between EU and SEE there is almost none considering the direct EU-enlargement effects on the SEE. Cernat (2003), Soloaga and Winters (2001) and Carrera (2006) are three of the few who examine potential EU-enlargement trade diversion effects and they all suggest that EU has indeed caused trade diversion during its enlargement process. This means that in addition to generating a higher trade level within the union, which according to Baier, Bergstrand, Egger and McLaughlin (2008) after 10 to 15 years reaches levels between 127-146% of trade increase, EU accession has also generated trade pattern changes such that trade is diverted away from non-members. This is also confirmed by Papazoglou et al. (2006) who concludes that the EU-enlargement not only generates but also redirects trade flows. After a gravity model research Papazoglou et al. also suggested that the EU accession of the new members in 2004 would in fact increase new member exports to EU-15 while decrease the export level to the rest of the world. Bussier et al., (2008) confirms these implications and suggests that Bulgaria and Romania have both experienced strong trade increase with EU between 1993 and 2007 while Papazoglou et al. goes further into suggesting that Bulgaria and Romania decreased their export to Turkey after their EU accession depicting this change as trade diversion. Papazoglou et al. also discover that the Baltic countries¹² redirected their trade after their EU accession as well, where the trade level with Russia was noticed to change. The import from Russia was suggested to have fallen with 1% while the export had fallen with 2%. Trade diversion is suggested to be bigger the further away the trade partners are from the new EU members.

In Montanari (2005) one can read about the EU-SEE trade growth during 1995-2002 and how EU agreements offered to SEE indicate positive effects on the EU-SEE trade, especially on the EU export. Earlier research by Soloaga and Winters (2001) suggests however that EU had a significantly lower propensity to import from SEE between 1995-96 than between 1980-82, indicating a decrease in EU import from SEE. However, this time span is very short and cannot be taken as a conclusion for EU import from SEE today. In later research, Uvalic (2006) finds no such negative trend between 1999 and 2003, but instead recognizes a general positive increase of SEE exports to EU, despite a lot of variation between the countries. Uvalic also recognizes a stable SEE import level from EU indicating EUs importance to the region while Pjerotić (2008) discusses a potential increase in SEE imports from the EU relative to their exports. While Montanari (2005) suggested that the EU export increase was an effect from EU agreements with SEE, Pjerotic suggests that this increase may depend on the lack of competitiveness in the EU market indicating EU market access hinders. As trade imbalances due to difference in competitiveness are found in EU-members as well, Papazoglou et al. (2006) discusses how lack of competitiveness within the EU can result to the higher level of imports for accession countries relative to the exports from members.

Regardless of competitiveness the tables of trade statistics in section 3 already show that SEE is already involved in a high trade level with EU. Both import from and export to EU is significant and important for SEE. Despite these trade statistics the few gravity model papers that have examined the SEE-EU trade have put forth results indicating significant room for trade growth between EU and SEE and especially with Western Balkan. Research shows that both SEE imports and exports have potential for increase. In some countries like Bulgaria and Romania the import potential from EU is

¹² Estonia, Latvia and Lithuania

bigger than the export potential to EU. This is considered to be the case as EU may still have export potential to attain (Montanari, 2005). The EU import potential from the western Balkan countries is considered to be bigger than the export potential to them. Since EU import from SEE is already very small and there is potential for EU import from western Balkan it is suggested that EU should reduce or completely eliminate the trade barriers between them. This would bring a great positive effect to western Balkan while the EU would not be effected much as their import and export reliance on SEE is very small already. Gravity model results indicate similar possibilities where Bussière et al. (2008) found that during 1980-2003 new EU members¹³ engaged themselves in a relatively high level of trade with other EU members but countries outside the union, especially the smaller countries in SEE trade below their potential. These smaller countries refer to the countries which compose western Balkan. Bussier et al. concluded that the EU trade with Albania, BiH, Croatia and Macedonia still has potential for strong intensification just as Montanari (2005) suggested.

¹³ E.g CEE countries.

5. Empirical methodology

The gravity model is a frequently used tool in trade relationship researches and has long been noted for its empirical strength when measuring bilateral trade potential and exploring trade patterns. It is also frequently used in examining trade enhancing or hindering factors between countries. Its use has been relevant in many other flow analysis as well, such as migration, tourism and communication (Bergstrand, 1985). In fact it is the successful empirical results that induced researcher's interest to find theoretical foundation for the model.

The gravity model is based on the implication that the volume of trade between two countries increases with the size of their GDP and decreases with their distance. This makes the model analogous to the Newton attraction theory. Leamer and Levinsohn (1995) formulated this as the volume of trade between two countries being proportional to their gross domestic products and inversely related to trade barriers between them. The model is applicable to any pair of countries and can also account for trade volume variation over time.

Newton's Law of universal gravitation:

$$F_{ij} = G \frac{M_i M_j}{D_{ij}^2}$$

where F= attractive force; M= mass; D=distance; G = gravitational constant

The earliest attempts to apply an estimation equation according to the gravity model were made by Tinbergen (1962), Pöyhönen (1963) and Linnemann (1966). By 1979, Anderson successfully derived an equation using the Armington assumption of goods differentiated by country of origin. By 1990 Bergstrand continued on Anderson's footsteps but added monopolistic assumptions in his derivation of the gravity model. Helpman and Krugman (1985) and Deardorff (1997) followed Bergstrand's path and derived their gravity models from an intra-industry trade theory. In the process of finding theoretical foundation Evenett and Keller (2002) found that factor endowments and increasing returns do explain different components in international variation of production patterns and trade volumes using versions of the Heckscher-Ohlin theory and increasing returns to scale theory. Evenett and Keller also found that specialization and trade increases as the share of intra-industry trade increases but also that trade volumes increase with great differences in factor proportions. This research has led to the model being proved to be successfully derived from many different theoretical backgrounds, such as the Ricardo model, the Heckscher-Ohlin theory, increasing returns to scale and the new trade theory.

The theory based research has led to conclusions of two important building blocks of the gravity model. The first block presents all goods being differentiated by place of origin and the second block represents identical preferences across countries. The first block describes the supply side which also represents the export where firms produce differentiated products in a monopolistic competition environment where firms are also capable of achieving economies of scale. The second building block represents the importer side and consumer demand which loves variety and has homothetic preferences which are identical across countries.

In studies of regionalism the gravity model has become quite a “workhorse” (Bayoumi and Eichengreen, 1997). The ability to measure policy issues, political blocs, regional trading partners and trade distortions with the gravity equation has caused widespread use of the gravity model. To be able to measure trade effects from preferential agreements or customs unions, gravity models are designed such where *ex post* trade flow effects can be taken into account. The models have the ability to take account to what is perceived as normal trade expectation under no integration but also trade relations after integration. In the purpose of measuring PTA effects approaches by Linnemann (1966) and Tinbergen (1962) introduced a cross-sectional model where a dummy was added to measure preference membership effects.

By 1973, Aitken introduced the model to PTAs examining the European trade relations and how the European Economic Community (EEC) and European Free Trade Agreement (EFTA) contributed to changing EUs trade patterns. To take account to possible trade creation and trade diversion effects from PTAs Atkin used three methods. By including dummy variables of EEC and EFTA, member trade as a result from the agreement is taken account to. By running a regression before and after the formation of the European cooperation agreements, integration effects could be detected easier. Atkin also derived an equation which took account to both trade creation and possible trade diversion effects. By performing a cross-section regression Atkin looked at trade free from integration effects and compared to actual trade with integration effects. The comparison between the two regressions provides results showing the degree of increased or reduced trade due to trade creation or diversion should such results be found. Since Atkins others like Bussier et. al. (2008), Solaga and Winters (2001) and Carrera (2006) all have implemented the gravity model to PTA examining the EU. During the 90s a lot of gravity model research encompassed trade analysis between the EU and CEEC which became an important benchmark for other European countries, such as SEEC, and their prospects in EU membership.

5.1 The gravity equation

The gravity equation is derived from the gravity model offering explanation of countries’ bilateral trade flow variation by using different economic factors. The equation is set up by similar economic factors between the exporting and importing country such as GDP and population but also includes important variables affecting trade bilaterally such as distance and other trade costs (Anderson and van Wincoop, 2004; Baier and Bergstrand, 2006, 2007).

When Anderson (1979) successfully derived the gravity equation from a two-good and two-country expenditure model with perfect specialization through a Cobb-Douglas function, it looked as follows;

$$M_{ij} = Y_i * Y_j / \sum Y_j$$

The depended variable M_{ij} represents the total consumption or imports of country i from country j and Y_i and Y_j represents the income of country i and j respectively. The equation shows how the import volume of country i from country j is depended on the economic mass of both countries and on the economic distance between the two nations. Even though the equation has advanced since Anderson’s first derivation a simplified version of the one commonly used today is very similar and looks as follows,

$$T_{ij} = A * Y_i * Y_j / D_{ij}$$

T_{ij} is the value of trade between country i and j

A is a constant

Y_i is the GDP of country i

Y_j is the GDP of country j

D_{ij} is the distance between country i and j

T_{ij} represents total trade but can measure export and import individually as well. The GDP variables in the gravity equation are used as representing the importer demand and exporter supply potential, which also indicates that the size of an economy has direct relation to the volume of imports and exports as indicated by the equation. Larger economies produce more goods and services which means they have more to sell in the export market. Larger economies also generate a higher income enabling a higher import level. Distance measures transport costs between countries and indirectly also takes account to poor infrastructure as it is a component that impairs transport and increases costs as mountains, seas and sea harbors complicate trade and makes it difficult. Distance also effects personal contact and communication which affects trade as well.

Research has resulted in additional explanatory variables being added to the equation. The population variable is one example which can function as proxies of countries sizes as well, where they indicate that a bigger population value induces a higher production possibility and therefore also a higher level of export. Population variables can also pick up economies of scale effects where a bigger population in intra-trade gives a higher level of scale effects (Krugman and Obstfeld, 2006). However, it can also indicate that the larger the domestic market in relation to the foreign market the smaller the potential export supply (Aitken, 1973).

Dummy variables are added to the gravity equation to capture abstract features and differences between country pairs that may play a determining role in trade relations. Common dummy variables that are included in the equation are language and borders which take consideration to cultural affinity and historical and economic ties between countries. They indicate lower transaction costs and possibly a more open market between countries with similar cultures. Aitken (1973) mentions how these dummies may pick up similar taste and common interest between neighboring countries. But borders can also reflect a hinder to trade because crossing borders involves formalities that take time and tariff costs which contribute to reduction of trade. In addition borders can indicate different languages and different currencies which impede trade as well (Krugman and Obstfeld, 2006).

Dummy variables can also capture for RTA effects. Through a set of dummies one can analyze if the propensity to import and export in total with their propensity to import and export between specific partners has changed because of a RTA. Due to sensitivity of misspecification of these dummies however caution is recommended. Anderson and Wincoop (2003) discuss how estimations might suffer from omitted variable bias because of lack of theoretical foundation in this case.

Today research has experienced much progress and the Linnemann and Tinbergen perspective of capturing RTA effects has developed even further. Bayoumi and Eichengreen (1995) and Frankel (1997) discuss three common dummy variables that can be added to the gravity equation in this purpose. The first dummy that can be added takes account to intra-bloc trade which indicates reduced trade barriers and tariffs. A second dummy takes account to import from all countries and a

third dummy takes account to exports to all countries. These measure the propensity to trade with members within a RTA, in comparison to the propensity to export or import from non-members, e.i. the rest of the world. Solaga and Winters (2001) used two dummies in this respect, where one took account to member import, indicating bloc openness, and the other took account to import from countries both within and outside the membership, which is total import. If a falling propensity to import from all countries relative to an increased propensity to import from member countries is found then a trade diversion effect is indicated. Trade creation is indicated if propensity to import from member countries is bigger than the falling propensity to import from non-member countries.

The models validity is enhanced because the model is symmetric and enables examination in trade flows in both directions. Today separated equation estimations for imports and exports are a common procedure as total trade as the depended variable was questioned to be insufficient. Greenway and Milner (2002) discuss how the gravity model is superior to other ex post trade evaluation methods because it can simultaneously take account to both import and export countries in PTA research. Other ex post calculating methods usually takes account to the importing country but not the exporting country. By estimating separated trade flows, differences between the flows of the countries can be taken account to which offer valuable information.

5.2 Econometrical model

One further advantage of the gravity model is the high level of freedom when deciding which explanatory variables will be included in the equation. Adding more explanatory variables increases the probability of explaining the variation in the trade flows. So in correspondence to a standard gravity model equation and in purpose to capture trade diversion the logarithm equation used in this essay will look as follows:

$$\ln X_{ijt} = \beta_0 t + \beta_1 \ln Z_{it} + \beta_2 \ln Y_{it} + \beta_3 \ln Y_{jt} + \beta_4 \ln N_{it} + \beta_5 \ln N_{jt} + \beta_6 \ln D_{ij} + \delta_7 \text{Comlang} + \delta_8 \text{CB} + \delta_9 \text{CEFTA} + \delta_{10} \text{Exporter EU memb} + \delta_{11} \text{Importer EU memb} + \delta_{12} 95 + \delta_{13} 96 + \delta_{14} 97 + \delta_{15} 98 + \delta_{16} 99 + \delta_{17} 00 + \delta_{18} 01 + \delta_{19} 02 + \delta_{20} 03 + \delta_{21} 04 + \delta_{22} 05 + \delta_{23} 06 + \delta_{24} 07 + \delta_{25} 08 + U_{ijt}$$

X_{ijt} is total export from country i to j in year t.

β_0 is a constant.

Z_{it} is total export from country i in year t.

Y_{it} is GDP in country i in year t.

Y_{jt} is GDP in country j in year t.

N_{it} is population in country i in year t.

N_{jt} is population in country j in year t.

D_{ij} is the distance between country i and j 's economic capitals.

Comlang is a dummy taking value 1 if a similar language is spoken by at least 9% of the population of two trade partners and 0 otherwise.

CB is a dummy taking value 1 if two countries share a common border and 0 otherwise.

CEFTA is Central European Free Trade Agreement taking value 1 if the country is a member and 0 otherwise.

Exporter EU memb is a dummy variable taking value 1 when an export country becomes member of the EU and 0 otherwise.

Importer EU memb is a dummy variable taking value 1 when an importer country becomes member of the EU and 0 otherwise.

95 is a dummy variable taking value 1 for year 1995 and 0 otherwise. The dummy variables after 95 represent the following years up to 2008.

u_{ij} is a log normal distribution error term.

u_{ij} takes into account all the possible factors that may have affected the trade but were not included in the equation and therefore is $E(\ln U_{ij}) = 0$ (Hill, Griffiths and Judge, 2001). The variable Z is included and will take account to the SEE export to the world in aim of detecting a general export trend of the region. In turn this variable will help to analyze any deviations in the export to EU, if present, when relating with each other.

The estimated GDP coefficients β_2 and β_3 are expected to have positive estimated signs as higher GDP values indicate a higher production possibility and also a higher import possibility. The population coefficients β_4 and β_5 can have either positive or negatives signs depending on if the country's export size decreases or increases with the population size. Ricchiuti (2004) suggested that these signs also vary between developing and developed countries. When emerging countries are importers a negative population sign can indicate a substitution effect, where a bigger population generates a larger domestic production and decreases imports. But when the emerging country is the exporter, a negative population sign can indicate a substitution effect such that the exporter can reduce its export to compensate for the increase of population. However, a market effect may be present as well, where an increase in population can also indicate a need of more differentiated goods and therefore give a negative sign.

The distance that measures transport costs between countries and indirectly accounts for poor infrastructure and other geographic variables like mountains, seas and harbors is a variable that may have an important impact in the Balkan trade due to the regions poor infrastructure which is especially severe in Macedonia and Albania (Jovicic et. al., 2001). Albania is considered to have most mountains of all Balkan countries which are considered to hinder the countries transportation and exports significantly. The coefficient β_6 is therefore expected to have a negative sign where distance and distance related hinders decrease the ability to export.

The coefficient of common language, δ_7 , which takes consideration to historical and cultural affinity, indicates lower transaction costs as trade processes are made easier from using the same language and is therefore expected to have a positive estimated sign. The reason the common language dummy will take account to a similar language spoken in at least 9% of the population of two trade partners and not a national language spoken in two countries in this essay is because that dummy variable would give no or very little variance which would preclude the regression procedure from giving an estimated value. Even at this percentage level, the common language coefficient should indicate positive effects on trade between partners.

The common border coefficient, δ_8 , is expected to have a positive estimated sign because I expect the effects of economic ties between the countries due to geographic closeness to be stronger than the time and tariff costs due to the border formalities.

I expect the CEFTA coefficient, δ_9 , to be positive as well due to the findings discussed in Montanari (2005) which indicate that the EU agreements offered to SEE so far have had positive trade effects between the participants.

With regards to the findings of Papazoglou et. al., (2006) where Bulgaria and Romania were found to decrease their trade with the non-member Turkey after their EU accession, I expect the coefficient of EU membership of export country to take a negative estimated sign. The negative sign indicates that the SEE countries which came to join EU experienced a reduction of trade with non-members, including the rest of SEE. As Cernat (2003) and Carrera (2006) suggest that EU has experienced trade diversion during its enlargement, I assume that this diversion may very well have effect the SEE export which has been noticed to decrease and therefore I expect the estimated coefficient of EU membership of importers to take a negative sign as well.

The time dummies account for common shocks, general trends towards globalization or integration and ultimately account for any variable which may affect the trade but which has not been included in the function as an explanatory variable. The coefficient signs of all the year dummies cannot be assumed from start. However following the same reason as used in the EU membership coefficient predictions I expect the coefficients of years 1995, 2004 and 2008 to have negative estimated signs. This is because these are the expansion years of EU which I expect gave rise to trade diversion and therefore have a negative effect to SEE export. I expect the coefficient of year 1998 to take a negative estimated sign due to the Kosovo war in the SEE which is expected to have reduced the export from the region. The coefficient for year 1999 is expected to be positive reflecting the end of the Kosovo war enabling an increase in export.

The estimated sign of the total export coefficient in relation to the year coefficients estimates and the EU membership coefficients estimates help to determine whether trade diversion effects in SEE export are present. If SEEs total export coefficient is positive while the expansion years and EU membership coefficients take on negative estimated signs, one can conclude that the EU-enlargement did have a negative effect on SEE export to EU countries and the negative signs are not just depicting a general negative trend.

The examination of the gravity equation will be performed through an OLS regression. The regression estimations will be performed in the Stata program. Through the derivation of the normal probability distribution the OLS method allows statistical examination of t-tests and X^2 -tests which are

probability distributions approximate to normal (Hill et al., 2001; Maddala, 2001). Furthermore, the coefficient analysis on the OLS estimations will be performed looking at both the p-values and t-statistics under the t-distribution. The t-values will be evaluated through two-sided tests at the 1%, 5% and 10% significance level while the p-value will be evaluated at the significance level of 5%.

5.3 Data

There are few issues to have in mind when preparing the data in this essay. The Balkan countries statistics collection is relatively unreliable due to lack of proper registration, especially during some periods with important historic events. Examples are the UN sanctions in Yugoslavia which ended in 1995 but caused diversion of trade leading EU and Yugoslavia trade to take other paths to reach each other, instead of the direct transportation paths prior to the sanctions. This meant that registration of the traded goods occurred in other countries than their final destination. Jovicic et. al. (2001) explains how the NATO bombings in Serbia in the late 90s are another example of trade diversion and unregistered trade. Other explanations to poor trade statistics within the Balkans are reasons such as corrupted customs service, smuggling between borders, or even trade travelling issues through Brcko, which lies between, but belongs to neither of the two entities of BiH¹⁴. Due to underrated trade statistics, gravity models tend to overestimate trade potential between countries giving distorted trade results (Kaminski and De La Rocha, 2003).

Some research highlights the fact that trade results may depend a lot on which SEE countries are taken into account. As is already mentioned inclusion of SEE countries such as Greece may alter the trade results that would otherwise prevail¹⁵. I have therefore excluded Greece and Turkey from the SEE in this essay.

There is one more thing to have in mind when preparing the data. Because Yugoslavia does not exist anymore resulting in seven successor states including Serbia, one needs to have in mind how the export registration have been affected. The export data representing Serbia here will therefore correspond to Serbian trade statistics according to its territorial and therefore economic appearance for respective year.

The data that I have gathered for this research is panel data on a yearly basis consisting of export flows from 8 SEE countries to 27 EU countries, which include three of the SEE countries, over the period of 1995-2008. Total observations amount to 2982. This period is important because it takes account to the important expansion years of EU and the years that tend to characterize SEE as we know it today.

The GDP/cap statistics and the population statistics are gathered from the World Economic Outlook Database in the International Monetary Fund in April 2009. GDP/cap is accumulated in billions of US dollars at current prices while the population statistics is calculated in millions. The distance between the economic capitals measured in kilometers, common border and common language information is gathered from CEPII, www.cepii.fr. Bilateral export statistics is gathered from OECD.org and is counted in US dollars while total country export is taken from the World Bank database

¹⁴ The two entities are The Federation of Bosnia and Herzegovina and Republika Srpska.

¹⁵ As would inclusion of Turkey do due to its size.

(databank.worldbank.org) and is counted in total US dollars at current prices as well. A summary of the descriptive statistics of the data can be found in appendix 1 in the back.

6. Empirical results

6.1 Regression estimations

The OLS regression is performed on the gravity equation specified in section 5.2. What distinguishes this random effects model is the fact that the intercept, β_0 , is allowed to vary across time.

In aim of receiving better estimation results a Panel Corrected Standard Error (PCSE) regression and a Fixed Effect (FE) regression will be performed as well. Both approaches will be discussed further in the essay.

6.1.1 OLS regression

The coefficient estimates of the OLS regression are shown in table 6 below. Many of the estimates fulfill the variable expectations. All coefficients except for exporter population, common language, importer EU membership, year 2004 and 2007 exhibit statistical significance, while year 2008 is completely dropped. Except for total export, exporter GDP and common border which exhibit a significance level of 5%, all other statistically significant coefficients have a high significance level of 1%, which means that there is a 99% probability of the estimated outcomes to be true.

The estimated coefficient of *total export* is positive and significant at the 5% significance level but has a very low value ($\beta_1 = 0,08$). *Exporter GDP* and *importer GDP* are positive as expected and significant at 5% and 1% respectively. The importer GDP has a significantly higher coefficient estimate relative to the exporter GDP. The importer GDP indicates that the SEE export to EU increases with 25,4% every time the EU member GDP increases with 1%. The exporter GDP increases the SEE export by only 3,7% every time exporter GDP increases 1%.

The estimated coefficient of *exporter population* is positive but has no significance. The *importer population* however exhibits a negative estimated coefficient value with a significance level of 1%. The coefficient value for importer population is -9,5% which is rather big compared to the exporter population coefficient of 0,6%. The *distance* coefficient exhibits the expected negative value with an estimate of -0,84. The coefficient is found to be highly significant at the 1% significance level.

Surprisingly the coefficient of *common language* exhibits a negative sign indicating that when at least 9% of the population in two countries share a common language the export to EU will decrease. However, this coefficient is not statistically significant at any significance level. The *common border* coefficient however fulfills the expectations and exhibits a positive sign with a relatively high estimated value of 0,82. The coefficient is significant at the 5% significance level.

The estimated *CEFTA* coefficient is positive as expected with a high significance level of 1%. The estimated value is high as well indicating an 18% increase of export due membership in the agreement. The estimated coefficient of *exporter EU membership* is positive and has a very high estimated value of 3,29. The coefficient is also statistically significant at the 1% level. This indicates that the total SEE export to EU has increased as membership of SEE countries was granted. Surprisingly the *importer EU membership* coefficient exhibits a positive estimated value as well indicating a positive SEE export effect as other non-SEE countries in Europe were granted EU membership. However this coefficient is not statistically significant at any significance level.

Table 6. Regular OLS regression

Variables	Coefficients	t-stat	p-level
Intercept	5.97	4.70***	0.00
Total export	0.08	2.13**	0.03
Exporter GDP	0.37	2.75**	0.01
Importer GDP	2.54	24.70***	0.00
Distance	-0.84	-5.02***	0.00
Exporter population	0.06	0.38	0.71
Importer population	-0.95	-7.62***	0.00
Common language	-0.30	-0.42	0.67
Common border	0.82	2.15**	0.03
CEFTA	1.84	7.84***	0.00
Exporter EU membership	3.29	7.77***	0.00
Importer EU membership	0.29	1.44	0.15
1995	-3.16	-6.21***	0.00
1996	-3.10	-6.16***	0.00
1997	-3.31	-6.52***	0.00
1998	-3.55	-7.05***	0.00
1999	3.58	7.18***	0.00
2000	3.69	7.46***	0.00
2001	3.78	7.68***	0.00
2002	3.51	7.18***	0.00
2003	2.58	5.39***	0.00
2004	-0.03	-0.06	0.95
2005	1.38	3.02***	0.00
2006	1.42	3.13***	0.00
2007	-0.22	-0.50	0.61
2008	-	-	-
N			2982
R ²			0,56

***, **, * indicate that the estimated coefficients are statistically significant with 1, 5 and 10 percent respectively.

The *time dummy* coefficients exhibit much differentiated estimates between the years. All the year coefficients are significant at the 1% significance level except for 2004 and 2008. 2004 is not significant at all in the table and 2008 is completely dropped. The coefficient of year 1995 has a negative coefficient with a high estimated value of -3,16. The 1996 coefficient has a negative sign with a slightly smaller estimated value of -3,10. The coefficient for year 1997 displays a negative coefficient as well but exhibits a larger estimated value of -3,31. The 1998 coefficient does not deviate from the trend and displays a negative coefficient as well with the largest estimated value so far, -3,55. However, the 1999 coefficient does break the trend and exhibits a positive coefficient with a high estimated value of 3,58. The three upcoming years after 1999 display positive coefficients as well ($\delta_{17} = 3,69$, $\delta_{18} = 3,78$, $\delta_{19} = 3,51$). The 2003 coefficient sign is positive as well but the estimated value has decreased significantly compared to 2002. In 2004 the positive trend is broken where the estimated coefficient displays a negative value of -0,03. However, the 2004 coefficient appears to lack statistical significance. The coefficients of years 2005 and 2006 display positive estimated signs again where both have a high significance level of 1%. The 2007 coefficient exhibits a negative sign with a relatively small estimated value of -0,22. However this coefficient lacks significance level just

as year 2004. Despite their lack of significance their signs indicate a negative effect on the export evolution of SEE to EU during these years.

The OLS regression produces an R^2 of 0,56 which in general is a low value. This value indicates that the explanatory variables included in the regression equation only explain 56% of the SEE export to EU. These results indicate that there are many other, both unobservable and most probably omitted variables, which play a determining role in the SEE export to EU.

However, since estimated values from a regular in sample approach from a regular OLS can lead to distorted results, even though this approach is commonly used in literature, a Fixed Effect (FE) model has been recommended by Cheng and Wall (2005), Bussière et. al., (2008) and Egger and Pfaffermayr (2003). Standard OLS regressions have been found to give significant heterogeneity of trade across countries with biased results and overestimated trade volumes and integration effects. The distorted estimates are a result from unobservable factors that affect trade flows and influence EIAs (Bergstrand, 2008) but which are not captured from a regular OLS.

6.1.2 Fixed Effect regression

The FE model is considered as a less restrictive model than a random effect model and is therefore much more likely to give more realistic data estimates. The FE model allows one to take account for the unobserved country heterogeneity which is otherwise not captured. Cheng and Wall (2005) even suggested that the country-pair FE model is statistically preferred to all other specifications of the gravity model.

The FE model is able to account for unobservable factors, which are considered especially important when examining transition countries (Bussière et. al., 2008; Egger and Pfaffermayr, 2003), including omitted variables (Cheng and Wall, 2005) which are indicated to be a concern suggested by the RESET test done in appendix 5. This is done through imposing the intercept α_{ij} which takes account to individual country-pair effects and is treated as a set of fixed parameters which varies only across countries and not across time. The FE model does not measure the actual between-country effects but rather controls and fixes them, because the individual country-specific variation which is stable over time, should not affect the conclusion of the research. Unfortunately this also means that constant factors like distance, common language and common borders cannot be estimated for which the model will drop. However, the reasons for a performance of a country-pair fixed effect regression overshadow this shortcoming. A FE regression is therefore performed on the data simultaneous to the regular OLS. This is done through inclusion of individual country-pair dummies in the gravity model function. The econometric function which takes account to country specific effects and includes time dummies looks as follows:

$$\begin{aligned} \ln X_{ijt} = & \alpha_{ij} + \beta_1 \ln Z_{it} + \beta_2 \ln Y_{it} + \beta_3 \ln Y_{jt} + \beta_4 \ln N_{it} + \beta_5 \ln N_{jt} + \beta_6 \ln D_{ij} + \delta_7 \text{Comlang} + \delta_8 \text{CB} + \\ & \delta_9 \text{CEFTA} + \delta_{10} \text{Exporter EU memb} + \delta_{11} \text{Importer EU memb} + \delta_{12} 95 + \delta_{13} 96 + \delta_{14} 97 + \\ & \delta_{15} 98 + \delta_{16} 99 + \delta_{17} 00 + \delta_{18} 01 + \delta_{19} 02 + \delta_{20} 03 + \delta_{21} 04 + \delta_{22} 05 + \delta_{23} 06 + \delta_{24} 07 + \delta_{25} 08 \\ & + \sum d_{ij} + u_{ijt} \end{aligned}$$

When examining panel data with a FE model, inclusion of time dummies is considered to provide better results where complete panel dimensions are taken account to. In the equation I represents the country-pair dummies. The regression results of the FE model can be seen in table 7 below which exhibits drastically different estimates compared to the previous table. The first difference noted is the intercept which here is negative and has a much larger value than in the OLS results. The intercept lacks statistical significance here in contrast to the OLS results where a 1% significance level is displayed.

The estimated value of total export is approximately the same in the two tables, with the same significance level of 5%. Exporter GDP ($\beta_2 = -0,52$) exhibits a negative coefficient sign which is different from the previous tables. The significance level of 1% is the same for both the FE and OLS. The importer GDP coefficient has the same positive sign in the FE results as the previous table. However, the FE results exhibit a much higher estimated value of 10,24 which is drastically bigger than previous estimate of this coefficient. This indicates that an increasing EU GDP has a tremendous effect on the SEE export to EU. The coefficient exhibits a significance level of 1% here as in the OLS results. These results indicate a great impact from the EU countries. The coefficient estimate indicates that an increase of 1% in the EU GDP will increase the SEE export to EU by 102%.

The distance coefficient which is negative in the OLS results is completely dropped in the FE results indicating a fixed effect that doesn't change with time.

The estimated value of the exporter population coefficient ($\beta_4 = 1,63$) is positive in table 7 as in the previous table. While the OLS results indicate no statistical significance, the FE results exhibit a significance level of 1%. The importer population coefficient is negative ($\beta_5 = -16,56$) in table 7 as in the previous table. The coefficient has a statistical significance level of 1%. The FE results produce a very large estimated value of importer population which differs drastically from the previous results. Once again the importance of the importer role is displayed in the determination of the SEE export to EU.

The common language coefficient, which displays a negative estimated sign and lacks statistical significance in the OLS, is completely dropped in table 7 indicating its fixed effect and time independence. The common border coefficient, while positive and significant in the OLS table, is also dropped by the FE model.

The CEFTA coefficient ($\delta_9 = 0,82$) is positive and statistically significant at the 5% level. The coefficient for exporter EU membership exhibits a positive sign with an estimated value of 1,65. The coefficient has a significance level of 1% here as in the OLS results. The coefficient for importer EU membership exhibits a positive sign with an estimated value of 0,41 which is bigger than the estimated value of previous regression. However, the coefficient lacks statistical significance in table 7 just as it did in table 6.

Table 7. Fixed Effect regression

Variables	Coefficients	t-stat	p-level
Intercept	-8.01	-0.92	0.36
Total export	0.09	2.27**	0.02
Exporter GDP	-0.52	-2.79***	0.01
Importer GDP	10.24	17.46***	0.00
Distance	-	-	-
Exporter population	1.63	2.99***	0.00
Importer population	-16.56	-5.06***	0.00
Common language	-	-	-
Common border	-	-	-
CEFTA	0.82	2.78**	0.01
Exporter EU membership	1.65	2.98***	0.00
Importer EU membership	0.41	1.31	0.19
1995	1.93	2.02**	0.04
1996	1.64	1.81*	0.07
1997	1.78	1.96*	0.05
1998	1.20	1.37	0.17
1999	8.43	9.84***	0.00
2000	9.14	10.69***	0.00
2001	9.09	10.91***	0.00
2002	8.10	10.47***	0.00
2003	5.87	8.89***	0.00
2004	2.25	4.02***	0.00
2005	3.19	6.06***	0.00
2006	2.79	5.81***	0.00
2007	0.67	1.63	0.10
2008	-	-	-
N			2982
R ²			0,51

***, **, * indicate that the estimated coefficients are statistically significant with 1, 5 and 10 percent respectively.

The year coefficients exhibit very different estimated values in the FE regression compared to the results from the previous regression. One important characteristic which can be noted in table 7 is the fact that none of the year coefficients exhibit negative estimated signs. However, the variation of the estimated values between the years, indicating the increase and decrease of the year coefficients estimates, which responds to the propensity to export from the SEE, has much resemblance to the previous table.

The year coefficient of 1995 depicts an estimated value of 1,93 and has a significance level of 5%. The 1996 coefficient is only significant at the 10% level and exhibits an estimated value of 1,64 which is smaller than the 1995 estimated value. Thereafter, the 1997 coefficient displays a higher estimated value with a significance level of 10%. Between the 1997 and 1998 coefficient a significant decrease of the estimated value is noticed but lacks statistical significance. Dramatic value decreases are noticed between 2002, 2003 and 2004, where the estimated value decreases from 8,10 to 5,87 to 2,25. After a slight recovery in 2005, where the estimated value is noticed to increase to 3,19 a significant drop in value is noticed in 2007 ($\delta_{24} = 0,67$). While year coefficients between 1999 and

2006 all exhibit statistical significance at the 1% level, 2007 exhibits no significance at all and as in the OLS regression, 2008 is completely dropped here.

The R^2 from the FE regression is a value of 0,51 which is still low and indicating that the explanatory variables in the equation explain only 51% of the SEE export to EU.

6.2 Heteroscedasticity and Autocorrelation

After performing the White test on the data which tests one of the first assumptions that the OLS makes, heteroscedasticity is found. The presence of heteroskedasticity, that is a non-constant residual variance in the data where the variance for all observations is not the same, can result in incorrect computed standard errors from an OLS regression giving biased results. Performing other hypothesis tests on these standard errors can be misleading giving biased results.

The White test performed on the data in this essay gives the following value: 1669,62 ($2982 * 0,5599$) which comes from $R^2 * N$. Since the critical χ^2 -distribution value of 36,415 is smaller than the white test value, the null hypothesis indicating homoscedasticity must be rejected and the alternative hypothesis indicating heteroscedasticity is accepted.

Existence of autocorrelation in the data causes the same biased outcomes as heteroskedasticity does, which is incorrect standard errors misleading hypothesis tests and confidence intervals. Finding autocorrelation indicates that the OLS is not the best unbiased estimator anymore. This is also a first indication of a model misspecification. To test if autocorrelation is present and see if the standard error terms are correlated with each other a Durbin-Watson test is performed.

The Durbin-Watson test on my data gives the following value,

d-stat: 0,644289

Testing the Durbin-Watson statistics at the 5% significance level gives the following critical values, dL: 1,554 and dU: 1,991. Since the durbin statistics is 0,644 which is smaller than the critical values I reject the null hypothesis of no autocorrelation. After autocorrelation is detected it is not common to continue analysis with these estimates. Instead a better estimation procedure is employed. Usually the performance of a PCSE regression corrects for both heteroscedasticity and autocorrelation.

6.2.1 Panel Corrected Standard Error regression

Because regular OLS estimations are considered inefficient giving biased standard errors alternative estimators are proposed. According to Beck and Katz (1995) a good alternative estimator based on the OLS is the PCSE, which produces accurate coefficient standard errors without any loss in efficiency in real "practical research situations". However, lately these suggestions have encountered some counter arguments. For example Reed & Webb (2010) concludes that PCSE does in fact improve the standard errors but that the procedure may not be as free of loss as Beck & Katz suggested. Chen, Lin and Red (2006) go further than this and state that the PCSE may actually cause a considerable loss of efficiency. Despite this, the PCSE is still a standard procedure in any econometrics program, seen as a better version of the regular OLS. The PCSE regression is

constituted of two steps where data first is transformed to eliminate serial correlation and then an OLS is applied where the standard errors are corrected for cross-sectional correlation. The regression is considered to take care of all standard error caused problems such as heteroscedasticity and autocorrelation.

The PCSE regression which is performed here produces drastically different estimated coefficient values as well as different estimated signs compared to both the OLS in table 6 and FE in table 7. The PCSE estimates can be viewed in table 8 below. The PCSE results display estimations suggesting that only importer GDP, importer population, distance, exporter membership in EU, year 2000 and 2001 are statistically significant. This is different from both previous tables where almost all coefficients exhibited some statistical significance level. Importer GDP has the highest significance level of 1%, importer population has a significance level of 5% while distance, exporter membership in EU, 2000 and 2001 all exhibit significance levels of 10%. The importer GDP and population indicate that most of the SEE export decisive power falls on the importers.

The estimated signs for the coefficients of total export, GDP, distance, population, common border and language, CEFTA and EU membership in table 8 are similar to the estimated signs of these coefficients in table 6. The difference lies in the estimated values between the two tables. However, the coefficients of 2004 and 2007 in table 8 do exhibit positive estimated signs which are different from the outcomes of these coefficients in table 6. Nonetheless, there is still significant information to gather from these results. The estimated values of the year coefficients 1995-1998 are negative just as they are in table 6. However there exists a great difference in the estimated values of these coefficients between the two tables. In table 8 the values lie between -0,53 and -0,85. The 1998 coefficient is still distinguished by experiencing a big value decline ($\delta_{15} = -0,85$) from an otherwise positive export development trend after 1995. The decline indicates a decreased propensity to export this particular year, which corresponds to the table 6 indication of this coefficient. The resemblances between the tables continue as the estimates from 2000 and on forth exhibit continuously declining values. However, the estimate of the 2004 coefficient marks an extraordinary decrease in value. The coefficient indicates a decline in propensity to export as is indicated by the OLS results and the FE results as well. Both the 2005 and 2006 coefficients exhibit an increase in the estimated values here similar to the OLS results. But once again the estimated coefficient of 2007 marks a significant decline in value in table 8 as it did in table 6 and 7. These results indicate a decline of propensity to export this particular year. While the coefficient for 2008 in table 6 and 7 is completely dropped, in table 8 the coefficient marks a slight increase in propensity to export again through an increase in the estimated value.

Important similarities to notice in all three regression tables are the value decreases between 1995 and 1996, between 2003 and 2004 and between 2006 and 2007. Their change of value in direction is similar in all three tables despite the different value size between them.

The PCSE regression produces an R^2 of 0,49 which is even lower than the value produced by both the OLS and FE regression. The low value indicates once again that the explanatory variables included in the regression equation only explain 49% of the SEE export change to EU.

Table 8. Panel Corrected standard error regression

Variables	Coefficients	t-stat	p-level
Intercept	2.92	0.42	0.67
Total export	0.07	0.55	0.58
Exporter GDP	0.63	0.89	0.37
Importer GDP	2.81	3.52***	0.00
Distance	-0.92	-1.80*	0.07
Exporter population	0.21	0.27	0.79
Importer population	-1.23	-2.32**	0.02
Common language	-0.64	-0.34	0.73
Common border	0.46	0.73	0.47
CEFTA	0.77	1.51	0.13
Exporter EU membership	1.69	1.87*	0.06
Importer EU membership	0.35	0.99	0.32
1995	-0.61	-0.16	0.87
1996	-0.59	-0.16	0.87
1997	-0.53	-0.14	0.89
1998	-0.85	-0.23	0.82
1999	5.94	0.99	0.32
2000	6.49	1.78*	0.07
2001	6.39	1.72*	0.09
2002	5.87	1.56	0.12
2003	4.68	1.23	0.22
2004	2.41	0.63	0.53
2005	3.34	0.86	0.39
2006	3.61	0.93	0.36
2007	2.73	0.70	0.49
2008	2.75	0.69	0.49
N			2982
R ²			0,49

****, ***, * indicate that the estimated coefficients are statistically significant with 1, 5 and 10 percent respectively.

6.3 Multicollinearity

To cope with the lack of statistical significance and to try to understand it a multicollinearity test is performed. The performance of the test checks for perfect linear combinations among the variables. If the test indicates the presence of an increasing degree of multicollinearity for the variables the regression estimates may result in unstable outcomes with inflated standard errors. If economic data is collinear where explanatory variables move together in a systematic way, the data is considered to be non-experimental. This means that the data does not compose of the amount of information as one might have thought.

The multicollinearity test performed through the Variance Inflation Factor shows no signs of multicollinearity. None of the variables examined in the model have a VIF value higher than 10 and none of the variables have a value lower than 0,1 which measures the degree of collinearity. These results do not indicate any collinearity problems to explain the lack of significance of the coefficient estimates in table 8. These results can be seen in appendix 2 in the back of the paper.

7. Discussion

The produced FE results exhibit some interesting values for importer GDP and importer population. Both two coefficients have the biggest estimated values in relation to the other coefficient values in the table but they are also the biggest values compared to both the OLS and PCSE results. Importer GDP in the FE table indicates that when the total GDP of EU members increases with 1%, the capacity to import from SEE increases leading to an SEE export increase of 102,4%. The PCSE results however indicate a 28,1% increase every time the EU GDP increases with 1%. Importer population indicates a similar important role on the SEE export. The population coefficient has the largest value in the FE table, which indicates that it produces the, individually, biggest effect on the SEE export. The fact that this coefficient exhibits a negative sign indicates that a growing EU-member population has a negative effect on the SEE export to EU. Another reason that makes this coefficient interesting is the fact that it indicates a decreasing SEE export of 165% with every 1% population increase in EU in the FE results. None of the OLS table or PCSE table shows such a big effect from importer population. A population effect of such a magnitude can be suggested to depict a market effect which means that with the growing population in EU a need for more differentiated goods grows as well. This causes greater import from non-SEE countries which offer a higher level of variety. This in turn indicates a decrease of import from SEE countries and therefore a smaller export from SEE to EU. The large estimated values of importer GDP and population indicate on the great determining effect that EU itself has on the SEE export to EU. The SEE characteristics seem to not play as big of role for the time being.

The EU membership coefficients are important and interesting to this work as well. Both coefficients of importer and exporter EU membership exhibit positive estimated values which are not expected. As e.g. Cernat (2003) suggested that trade diversion is one outcome from the EU-expansion I too expected that as more countries become EU members these coefficients would exhibit negative estimated signs indicating on a negative SEE export effect as a consequence. Instead all 3 regressions show positive estimations of the exporter EU-membership coefficients which suggest that the Bulgarian, Romanian and Slovenian EU-membership actually has increased the total SEE export to EU. The importer EU-membership exhibits the same positive sign but has a much smaller estimated value in all three regression tables. These coefficients suggest that the EU trade diversion found by Cernat (2003), Carrera (2006) and Solaga and Winters (2001) may not necessarily have affected the SEE export to EU. However, these results go against the year coefficient results which indicate a decreasing propensity to export from SEE to EU as a consequence of every EU expansion year. Since the positive signs of the EU membership coefficients go against both expectations and the year coefficients I feel obligated to search for alternative explanations in addition to their possible positive effect on the SEE export. One possible explanation is that perhaps one should have considered Bulgaria, Romania and Slovenia as not belonging to SEE anymore after their EU accession. Then, this assumption would most probably have caused a decrease of the SEE export to EU for the rest of the regions countries. However, since there is no such assumption made in this work another explanation to these results can be that the Bulgarian, Romanian and Slovenian export increase to the union as they accessed the union may be so great that it overshadows the export decrease from the rest of the SEE countries. This is a real possibility because of the big economies of Bulgaria and Romania in relation to the rest of the SEE countries. However, there is no such rationale explanation to the importer EU membership and its positive estimated sign. The only explanation would seem to be the possibility of an actual positive effect on the SEE export as more member countries would be

enabled to trade more and therefore also import more from the SEE countries as a result from economic prosperity. Due to the difficulties in explaining these results I leave an open mind about possible misspecification of the integration dummy variables. As caution is recommended when specifying the dummy variables due to sensitivity of misspecification it may very well be possible that the phenomenon has been present in this essay. The RESET test has indeed indicated that a model or variable misspecifications might very well exist in the equation.

When studying the propensity to export from the SEE indicated by the year coefficients one can observe that after 1995 the SEE export to EU is indicated to drop. This is the first indication that the EU-expansion in 1995 may have caused a decrease of the SEE export and therefore is responsible for trade diversion. The estimated value of the 1998 coefficient which exhibits the next decreased value indicates a decreasing propensity to export to EU this year as well. As it is notified this decrease is surly to depend on the Kosovo war in 1998. However, it is hard to explain why the estimated coefficients between 2001 and the following years indicate a decreasing propensity to export, especially considering the SAP agreements that came about during this period. The decreasing values indicate on a decreasing propensity to export continued in on 2004 which marks an even greater value fall. It is hard to draw a conclusion from these results, but the significantly lower value of the 2004 coefficient can be an indication of another EU expansion effect, since EU experienced its biggest enlargement year to date this particular year with accession of the 10 new members in the union. This explanation indicates trade diversion reflecting the SEE export decrease to the union due to the EU-expansion as well. Another significant value fall is notified again in 2007 which resembles the significant value fall in 2004. Since both Bulgaria and Romania joined EU in 2007, I cannot rule out that these memberships are the cause of the decreased propensity to export during this period as indicated. In turn these results indicate once again that the EU expansion may have caused the export to divert further, reflected by the value drop between 2006 and 2007.

It is difficult to compare these results to anything because no earlier research examines the direct effect on the SEE export in relation to the EU-expansion. So difficulties arise when trying to draw any clear cut conclusions from these results. However, one can still notice that the year coefficients in general exhibit a trend of a decreasing propensity to export to EU with only four years exhibiting an increasing propensity to export. These increasing propensity coefficients constitute some years following the two first EU-expansions in 1995 and 2004. These years portray some kind of recovery in the export to EU which could be suggested to depend on other year specific factors.

The negative export trend after 2001 can be suggested, but not concluded, to be a long term effect of the EU-expansion. However, why this effect would start to be visible in 2001 particularly cannot be explained by any knowledge in this essay. To add to the frustration of explaining the continuously decreasing propensity to export from 2001 until 2005 is the presence and formation of the SAAs during this period. These year coefficients do not seem to reflect any positive effects from these SAAs. Nonetheless, the results support e.g. Solaga and Winters (2001) findings of a decreasing export to EU from SEE. These notions are enhanced when comparing the results with the statistics from table 2 in the trade relation section which depicts a general decreasing export trend between the years of 2001, 2004 and 2008. There is one more significant coefficient that should be considered and that is the positively denoted total export coefficient which suggests that the total SEE export is positive relative to the SEE export to EU. The fact that the total export trend is positive in relation to a decreasing propensity to export to EU, suggests that the decreasing export to EU is not a result

based on a total export decrease trend from SEE, but rather a consequence of other existing factors, such as the diversion caused by an EU expansion.

Even though the results are not completely clear cut, which is to be expected as trade statistics is assumed to be a problem but also since dummy variable specification errors may be present, they still do implicate a trade diversion caused by the EU expansion which is especially noticed every expansion year. This would implicate that the EU member countries redistribute their trade in such a way that they import from other EU members more after EU accession, decreasing their import from SEE. Researchers like Baldwin (2006) suggest that this possible trade diversion depends on the trade generation created by the eliminated tariffs between members within trade blocs. Trade with non-members is indicated to become more expensive in relation to trade within the members. This redistribution that occurs causes non-members, the SEE, to decreased trade opportunities. Integration theory and Greenway and Milner (2002) suggests that it is this trade diversion that has given rise to the increase of RTA and the expansion of existing ones including unions like EU. Because SEE is a special case where EU prospects were given to the region in a stabilizing purpose, it cannot directly be concluded that the SEE country applications for EU membership arose as a consequence of this trade diversion as theory would suggest. However, future membership of the SEE countries in EU can be discussed further if the SEE export to EU has in fact decreased due to the EU-expansion. Further expansion of the union can come to affect the non-members of the SEE and their export to EU in the future as well. As individual SEE countries are granted EU accession non-members from SEE still waiting for their membership will then be hit from two sides of this affair. The first hit will come from the loss of intra-trade as SEE countries leave their CEFTA memberships. The other hit will come after the SEE countries can call themselves EU members. Well in the union, the new union trade relations can redistribute new SEE EU member's trade away from non-members, other SEE countries, leaving them worse off. Papazoglue et al. (2006) suggested that this happened to the Baltic countries after their EU accession. This outcome is possible in the SEE as well due to the long membership procedure and considering the fact that neither BiH nor Kosovo has applied for membership yet. Since this process varies amongst the SEE countries due to their different country development stages different EU accession years for individual SEE countries will be offered. This slow disintegration effect of the region does not only go against the stabilizing EU approach towards the SEE but also causes individual countries left behind in waiting to experience worse trade possibilities. In practice this means that the SEE economies that already are in a bad economic state due historical problems will most probably experience more trade diversion which reduces their economic development as the EU very slowly expands further. This fact suggests that before the trade possibilities become better for all SEE countries within EU, they will possible become worse for a lot of countries outside the union. This trade diversion can come to increase as EU grants membership to candidate countries outside of SEE like Turkey and Iceland, which are assumed to be granted membership very soon.

8. Conclusion

I started this essay by questioning if the EU-expansion has been the cause of any trade diverting effects in the Balkans resulting in a lower SEE-export to EU. I wanted to see how the EU-expansion has effected the SEE export to EU itself so far and how further expansion may effect the SEE countries export in the future as they are the next promised members of EU. In the aim of answering this question a regional integration theory is employed as foundation for the empirical examination that is performed. With the use of the gravity model and its theoretical base an analysis of the export flows from SEE to the EU member countries was outlined. The results which exhibit some drastic trade changes in some years indicate of trade diversion especially noticed between the years of 1995-1996, 2003-2004 and 2006-2007. These periods include all the the expansion years of the EU as it is known today. This leads to suggest that the EU expansion may be the cause of these drastic trade changes. I therefore cannot eliminate the possibility that the EU trade diversion also reflects a decreased SEE export to the EU members.

These results confirm what earlier research has already found regarding the EU-expansion causing trade diversion. The results in this essay however also demonstrate that this trade diversion has affected the SEE export to EU as well. This means that the more countries that accessed the EU the more the intra-bloc trade within the union increased and was redirected away from the SEE. So export between members within the bloc increases leaving the SEE export to the bloc to decrease. The EU prospects promised to the SEEC do indicate a positive development for the countries' future economies. However because it is going to take a long time until all the SEE countries are benefited by EU accession, due to the long membership procedure, but also considering that neither BiH or Kosovo have applied for membership yet, it is possible for the SEE countries to experience more negative trade diversion as Croatia, Macedonia and other SEE countries leave the CEFTA agreement behind and are admitted to access the union. In practice this means that the SEE economies that already are in a bad state and that desperately are trying to recover from the economically devastating past will most probably experience additional trade diverting effects which slows down their economic development as the EU very slowly expands towards the region. The existence of contradicting integration and economic development effects pushed by EU become evident as the integration effects of SAP get interrupted when EU expands and leaves non-members worse off disintegrating them once again. These results are important for the SEE as their economies developments are at stake. These results provide foundation for suggestion of preparation of future trade development problems. In the EU attempt to stabilize and prepare the SEE for EU integration, the EU should also consider some element to protect the countries outside the membership and their economies until these are admitted to the union as well.

Further research in this field that can improve these results and enhance these indications is examination where export flows from both the EU and the SEE between each other is in consideration. An even bigger research could encompass both import and export flows in both directions to examine how these have reacted to the expansion of EU. If trade diversion would be found again the results of this essay would be both confirmed and strengthened. Other future research that can improve these results is such where possible better examination variables are included. The inclusion of the proposed regional dummy variables such as, intra-bloc trade, import to all countries and export to all countries, where all countries could encompass the SEE countries that

are not yet EU members, could also result to a possible more clear-cut conclusion of the existence or inexistence of trade diversion in SEE.

References

10229/03, Presse 163

Aitken, D. N. (1973). The Effect of the EEC and EFTA on European Trade: A Temporal Cross-Section Analysis. *The American Economic Review*. Vol. 63 No. 5

Anderson, J. E. (1979). A Theoretical Foundation for the Gravity Equation. *The American Economic Association*, 69 (1), 106-116

Anderson, J., and Wincoop, E. (2003). Gravity with Gravitas: A Solution to the Border Puzzle
Author(s): *The American Economic Review*, 93 (1), 170-192

Anderson, J. E., and Wincoop, E. (2004). "Trade Costs", *Journal of Economic Literature*, 62 (3), 691-751

Baier, S. L., and Bergstrand, J. H. (2004). Economic determinants of free trade agreements. *Journal of International Economics*. 64, 29– 63

Baier, S. L. and Bergstrand, J.H. (2006). "Bonus Vetus OLS: A simple Approach to Addressing the border 'border puzzle' and other Gravity-Equation Issues". Manuscript

Baier, S. L. and Bergstrand, J.H. (2007). "Do Free Trade Agreement Actually increase Members' International Trade?". *Journal of International Economics*, 71(1), 72-95

Baier, S. L., Bergstrand, Egger, J.H P., and McLaughlin, P. (2008). "Do Economic Integration Agreements Actually Work? Issues in understanding the Causes and Consequences of the Growth of Regionalism". *The World Economy*, 31 (4), 461-497

Baldwin, R. E. (2006). Multilateralising Regionalism: Spaghetti Bowls as Building Blocs on the Path to Global Free Trade. *The World Economy*, 29 (11), 1451-1518

Bartlett, W. (2008). Regional integration and free-trade agreements in the Balkans: opportunities, obstacles and policy issues. *Springer Science*, 42:25–46

Baourakis, G., Lakatos, C. and Xepapadeas, A. (2008). Economic implications of the EU accession of Bulgaria and Romania: a CGE approach. *Working Paper*, 08/1

Bayoumi, T., and Eichengreen, B. (1997). "Is Regionalism Simply a Diversion? Evidence from the Evolution of the EC and EFTA," in Takatoshi Ito and Anne O. Krueger, eds., *Regionalism versus Multilateral Trade Arrangements*. University of Chicago Press, pp. 141-64.

Bechev, D. (2006). Carrots, sticks and norms: the EU and regional cooperation in Southeast Europe. *Journal of Southern Europe and the Balkans*. Volume 8, Number 1, April 2006

Beck, N. and Katz, J. (1995). What to do (and not to do) with time-series cross-section data. *American Political Science Review*, 89:634–47.

- Bergstrand, J. H. (1985). The Gravity Equation In International Trade: Some Microeconomic Foundations and Empirical Evidence. *The Review of Economics and Statistics*, 67 (3), 474-481
- Bergstrand, J.H. (1990). "The Heckscher-Ohlin-Samuelson model, the Linder Hypothesis, and the Determinants of Bilateral Intra-industry Trade". *Economic Journal*, 100(4):1216-1229
- Bergstrand, J.H., (1989). The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade. *The Review of Economics and Statistics*, 71, 143–153.
- Bergstrand Jeffrey H. (2008). How much has the European economic integration actually increased members' trade? www.voxeu.org
- Bussière, M., Fidrmuc, J., and Schnatz, B. (2008). EU Enlargement and Trade Integration: Lessons from a Gravity Model. *Review of Development Economics*, 12(3), 562–576
- Brenton, P., and Manchin, M. (2003). Making EU trade agreement work: The role of Rules of Origin. *The World Economy* 26 (5): 755-769(15)
- Carrère, C. (2006). Revisiting the effects of regional trade agreements on trade flows with proper specification of the gravity model, *European Economic Review*, (50), 223-247
- Cernat, L. (2003). Assessing South-South regional integration: same issues, many metrics. *Policy Issues in International Trade and Commodities Study Series*, No. 21, United Nations Conference on Trade and Development, 17.
- Chen, X.; Lin, S., and Reed W. R. (2006). A Monte Carlo evaluation of the efficiency of the PCSE estimator. *Applied Economics Letters, Taylor and Francis Journals*, vol. 17(1), pages 7-10.
- Cheng, I-H. and Wall, H. J. (2005). Controlling for Heterogeneity in Gravity Models of Trade and Integration. *Federal Reserve Bank of St. Louis Review*, 87(1), pp. 49-63.
- Christie, E. (2002). "Potential trade in Southeast Europe: a gravity model approach." Working Paper No. 21, The Vienna Institute for International Economic Studies, Vienna.
- Christie, E. (2003). "Foreign direct investment in South-East Europe". *Working Paper*, No. 24
- Christie, E. (2004). "Trade flows in Southeast Europe." *Mimeo, The Vienna Institute for International Economic Studies*, Vienna.
- Deardorff, A. (1997). "Determinants of Bilateral Trade: Does Gravity Work in a Classical World?" In *The Regionalization of the World Economy* ed. by Jeffrey Frankel. Chicago: University of Chicago Press.
- Egger, P., and Pfaffermayr, M. (2003). The proper panel econometric specification of the gravity equation: A three-way model with bilateral interaction effects. *Empirical Economics*, 28:571–580
- Encyclopedia, 1993. *Bokförlaget Bra Böcker AB*
- Evenett, S. J.; Keller, W. (2002). On theories Explaining the Success of the Gravity Equation. *The Journal of Political Economy*, 110 (2), 281-316

- Frankel, J. A. (1997). *Regional Trading Blocs in the World Economic System*. Washington, DC: Institute for International Economics.
- Greenaway, D. and Milner, C. (2002). Regionalism and Gravity. *Scottish Journal of Political Economy*, 49 (5), 574-585
- Helpman, E., and Krugman, P. (1985). *Market Structure and Foreign Trade*. Cambridge, Mass.: MIT Press.
- Hill, R.C., Griffiths, W. E. & Judge, G. G. (2001). *Undergraduate Econometrics*. Danvers, MA: 2th ed.
- Kaminski, B. and De La Rocha, M. (2003). Stabilization and Association Process in the Balkans: Integration Options and their Assessment. World Bank Policy Research Working Paper 3108.
- Krishna, P. (1998). Regionalism and Multilateralism: A Political Economy Approach. *The Quarterly Journal of Economics*, 113 (1): 227-251
- Krugman, P. R., & Obstfeld, M. (2006). *International Economics: Theory & Policy*. Boston, MA: 7th ed.
- Lamy, P 2002. Stepping Stones or Stumbling Blocks? The EU's Approach Towards the Problem of Multilateralism vs Regionalism in Trade Policy. *Blackwell Publishers Ltd*.
- Leamer, E. E., and J. Levinsohn (1995). International Trade Theory: The Evidence. In G. Grossmann and K. Rogoff (eds.), *Handbook of International Economics*. Vol. 3. New York: Elsevier
- Linnemann, H. (1996). *An Econometric Study of International Trade Flows*. Amsterdam: North-Holland
- Maddala, G.S. (2001). *Introduction to Econometrics*. Chichester, 3th ed.
- Montanari, M., (2005). EU Trade with the Balkans-Large Room for Growth? *Eastern European Economics*, vol. 43, no. 1, pp. 59–81.
- Panagariya, A. (2000). "Preferential Trade Liberalization: The Traditional Theory and New Developments". *Journal of Economic Literature*, vol. 38(2), pages 287-331, June.
- Papazoglou, C.;Pentecost, E. J., and Marques, H. (2006). A Gravity Model Forecast of the Potential Trade Effects of EU Enlargement: Lessons from 2004 and Path-dependency in Integration. *The World Economy*
- Pjerotić, L., (2008). Trade Liberalization in the South East Europe – Effects and Controversial Issues. *PANOECONOMICUS*, 4, str. 497-522, UDC 339.54(4-12)
- Pöyhönen, P.A. (1963). A Tentative Model for the Volume of Trade Between Countries. *Weltwirtschaftliches Archiv*, 90 (1) , 93-99
- Ricchiuti, G. (2004). Empirical Evidence on the North-South Trade Flows: an Augmented Gravity Model. *MPRA Paper*, No. 1326

Reed W. R., and Webb, R. (2010). The PCSE estimator is good, just not as good as you think. *Working Papers in Economics*

Sarver, E., (2004). Expansion of European Union means unprecedented currency challenges. *Policy perspective*. World Trade.

Soloaga, I. and Winters, L. A. (2001). "Regionalism in the Nineties: What Effect on Trade?" *The North American Journal of Economics and Finance*, 12(1), pp. 1-29.

Sowinski L. L., (2003). The two faces of Eastern Europe –What EU accession really means for US Manufacturers. *Global Sourcing*. World Trade.

The World Bank, (2008). Western Balkan Integration and the EU - An Agenda for Trade and Growth. The International Bank for Reconstruction and Development

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

Uvalic, M., (2003). "Trade liberalisation in the Balkans – A blessing in disguise?", in ACIT (Albanian Centre for International Trade), *Trade and Economic Integration of Western Balkan Countries in the European Union*, ACIT Symposium, ASD Press, Tirana, pp. 7-38.

Uvalic, M., (2006). Trade in Southeast Europe: recent trends and some policy implications. *The European Journal of Comparative Economics*. Vol. 3, n. 2, pp. 171-195

Viner, J. (1950). *The Customs Union Issue*, New York, Carnegie Endowment for International Peace.

Jovicic, M.; Zdravkovic, M., and Mitrovic, R.D. (2001), 'Federal Republic Yugoslavia: Trade Potentials and Comparative Advantages', Vienna, WIIW projects on 'Long-Term Development in Southeast Europe' and 'Regionalism in Southeast Europe' (<http://www.wiiw.ac.at/balkan/>)

Winters, L. A. (1999). Regionalism vs Multilateralism, pp. 7-49 in Baldwin E. Richrads; Cohen Daniel; Sapir Andre and Venables Anthony, *Market Integration, regionalism and the Global Economy*. Centre for economic Policy research

Wittich, V. G., (2005). Some Aspects of Recent Trade Developments in South-East Europe. United Nations Economic Commission for Europe. *Discussion Paper Series*. United nations

Internet Based Resources

BBC -www.news.bbc.co.uk/2/hi/europe/7529707.stm

2010-07-26

CEPII -www.cepii.fr

2009-04-05

EU-upplysning -www.Eu-upplysningen.se

2010-07-24

Europa -Gateway to the European union - http://europa.eu/about-eu/eu-history/index_en.htm

2010-07-18

International Monetary Fund -World Economic Outlook Database -
<http://www.imf.org/external/ns/cs.aspx?id=28>

2009-04-15

International Trade Centre -<http://www.intracen.org/tradstat/>

2010-06-10

OECD - REGIONAL INTEGRATION AGREEMENTS, 2001 -www.oecd.org/dataoecd/39/37/1923431.pdf

2010-04-09

Stabilitypact -www.stabilitypact.org

2010-07-26

World Bank -www.databank.worldbank.org

2010-06-19

World News -
http://article.wn.com/view/2010/06/17/EU_summit_approves_membership_talks_for_Iceland_1st_Lead/

2010-07-26

Durbin-Watson table -<http://www.stanford.edu/~clint/bench/dw05c.htm>

2010-04-05

Appendix

Appendix 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev	Min	Max
Total export	2982	15,02	2,78	0	17,91
Exporter GDP	2982	2,68	1,12	0	5,30
Importer GDP	2982	4,76	1,79	1,28	8,21
Distance	2982	6,99	0,61	4,74	7,99
Exporter population	2982	1,78	0,66	0	3,16
Importer population	2982	2,05	1,45	-0,99	4,41
Common language	2982	0,01	0,12	0	1
Common border	2982	0,07	0,26	0	1
CEFTA	2982	0,37	0,48	0	1
Exporter EU membership	2982	0,08	0,27	0	1
Importer EU membership	2982	0,71	0,46	0	1
1995	2982	0,71	0,26	0	1
1996	2982	0,71	0,26	0	1
1997	2982	0,71	0,26	0	1
1998	2982	0,71	0,26	0	1
1999	2982	0,71	0,26	0	1
2000	2982	0,71	0,26	0	1
2001	2982	0,71	0,26	0	1
2002	2982	0,71	0,26	0	1
2003	2982	0,71	0,26	0	1
2004	2982	0,71	0,26	0	1
2005	2982	0,71	0,26	0	1
2006	2982	0,71	0,26	0	1
2007	2982	0,71	0,26	0	1
2008	2982	0,71	0,26	0	1

Appendix 2. Variance Inflation Factor

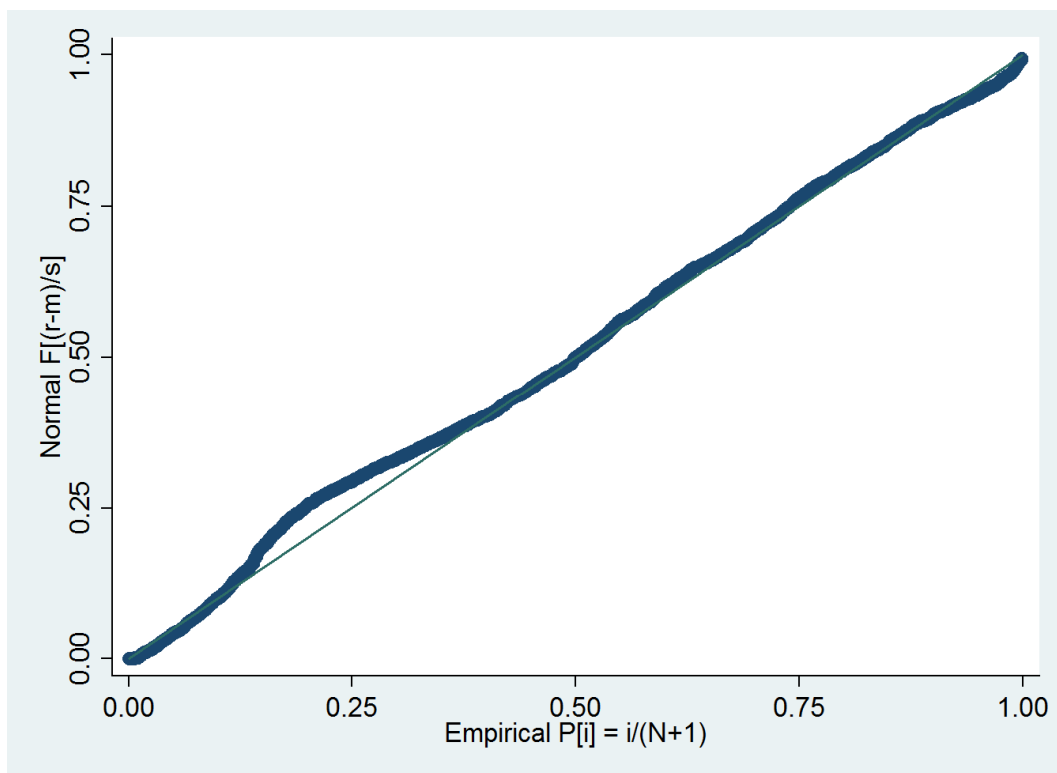
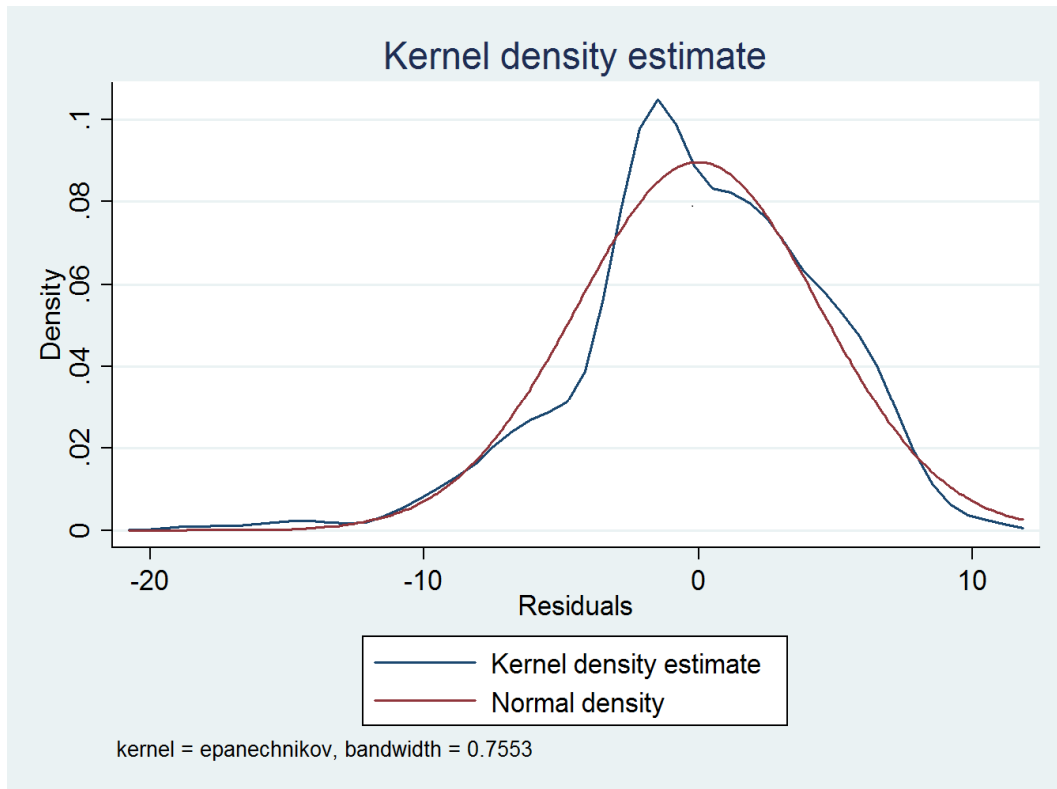
Variable	VIF	1/VIF	Mean VIF
Total export	1,74	0,58	2,31
Exporter GDP	3,37	0,29	
Importer GDP	5,03	0,19	
Distance	1,56	0,64	
Exporter population	1,44	0,69	
Importer population	4,80	0,21	
Common language	1,07	0,94	
Common border	1,43	0,70	
CEFTA	1,93	0,52	
Exporter EU membership	1,94	0,51	
Importer EU membership	1,32	0,76	
1995	2,58	0,39	
1996	2,51	0,39	
1997	2,55	0,39	
1998	2,51	0,39	
1999	2,47	0,41	
2000	2,42	0,41	
2001	2,41	0,42	
2002	2,37	0,42	
2003	2,27	0,44	
2004	2,09	0,48	
2005	2,08	0,48	
2006	2,03	0,49	
2007	1,96	0,51	
2008	1,94	0,52	

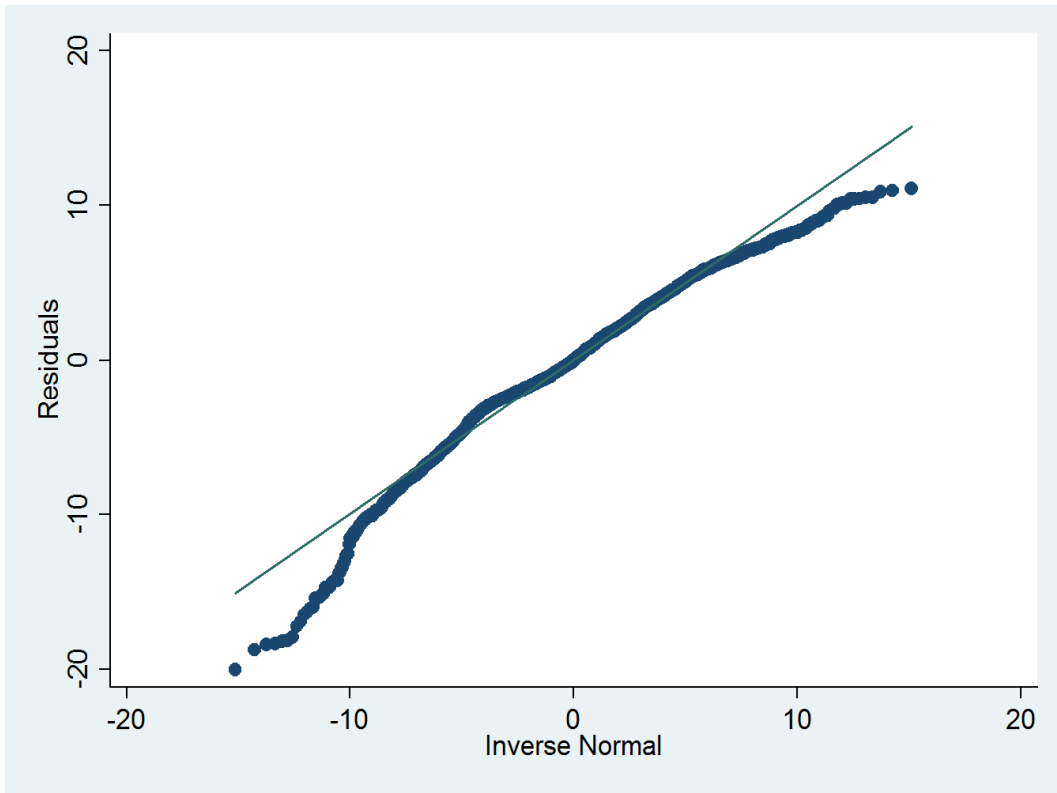
Appendix 3. Correlation matrix

	ln y	ln tot exp	ln gdp x	ln gdp m	ln dist	ln n x	ln n m	com lang	cb	cefta	EU memb X	EU memb M
ln y	1.0000											
ln tot exp	0.2236	1.0000										
ln gdp x	0.3377	0.5489	1.0000									
ln gdp m	0.5310	0.0417	0.1029	1.0000								
ln dist	0.0021	-0.0108	-0.0505	0.1320	1.0000							
ln n x	0.0827	0.1542	0.4353	0.0051	0.0320	1.0000						
ln n m	0.3807	0.0002	0.0024	0.8493	-0.0482	-0.0115	1.0000					
com lang	-0.0188	0.0647	0.1142	-0.0897	-0.0466	0.1889	-0.0686	1.0000				
cb	0.0305	0.0074	0.0395	-0.0586	-0.5213	0.0224	0.0626	0.1228	1.0000			
cefta	0.2741	0.3493	0.4945	0.0680	-0.0040	0.2649	0.0016	0.0849	0.0272	1.0000		
EU memb X	0.1912	0.0327	0.3728	0.0922	-0.0111	0.0011	0.0073	0.0286	0.0318	-0.1571	1.0000	
EU memb M	0.1038	0.0840	0.1969	0.0749	0.0470	0.0156	0.0981	0.0211	0.0831	0.1223	0.1722	1.0000
year 1995	-0.2470	-0.2151	-0.1917	-0.0549	-0.0000	-0.0623	-0.0028	-0.0000	-0.0000	-0.2131	-0.0809	-0.0863
year 1996	-0.2274	-0.2064	-0.1487	-0.0484	-0.0000	0.0201	-0.0027	-0.0000	-0.0000	-0.1430	-0.0809	-0.0863
year 1997	-0.2228	-0.0139	-0.1533	-0.0518	0.0000	0.0059	-0.0024	-0.0000	-0.0000	-0.0730	-0.0809	-0.0863
year 1998	-0.2247	-0.0073	-0.1272	-0.0425	0.0000	0.0032	-0.0022	-0.0000	-0.0000	-0.0730	-0.0809	-0.0863
year 1999	0.0808	-0.0053	-0.1239	-0.0410	0.0000	0.0040	-0.0018	-0.0000	-0.0000	-0.0029	-0.0809	-0.0863
year 2000	0.0850	0.0077	-0.0586	-0.0477	0.0000	0.0025	-0.0014	-0.0000	-0.0000	-0.0029	-0.0809	-0.0863
year 2001	0.0936	0.0144	-0.0403	-0.0426	0.0000	0.0029	-0.0008	-0.0000	-0.0000	-0.0029	-0.0809	-0.0863
year 2002	0.0965	0.0231	-0.0088	-0.0249	0.0000	0.0032	-0.0002	-0.0000	-0.0000	-0.0029	-0.0809	-0.0863
year 2003	0.0949	0.0500	0.0467	0.0091	0.0000	0.0033	0.0005	-0.0000	-0.0000	0.0699	-0.0809	-0.0863
year 2004	0.0195	0.0757	0.0918	0.0345	0.0000	0.0033	0.0012	-0.0000	-0.0000	-0.0002	0.0450	0.1393
year 2005	0.0884	0.0909	0.1167	0.0473	0.0000	0.0035	0.0020	-0.0000	-0.0000	-0.0002	0.0450	0.1393
year 2006	0.1119	0.1093	0.1473	0.0622	-0.0000	0.0036	0.0029	-0.0000	-0.0000	0.0726	0.0450	0.1393
year 2007	0.1211	0.1364	0.2021	0.0906	0.0000	0.0035	0.0037	-0.0000	-0.0000	0.2208	0.2968	0.1793
year 2008	0.1303	-0.0593	0.2479	0.1101	-0.0000	0.0035	0.0041	-0.0000	-0.0000	0.1507	0.2968	0.1793

	year 1995	year 1996	year 1997	year 1998	year 1999	year 2000	year 2001	year 2002	year 2003	year 2004	year 2005	year 2006	year 2007	year 2008
year 1995	1.0000													
year 1996	-0.0769	1.0000												
year 1997	-0.0769	-0.0769	1.0000											
year 1998	-0.0769	-0.0769	-0.0769	1.0000										
year 1999	-0.0769	-0.0769	-0.0769	-0.0769	1.0000									
year 2000	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000								
year 2001	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000							
year 2002	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000						
year 2003	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000					
year 2004	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000				
year 2005	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000			
year 2006	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000		
year 2007	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000	
year 2008	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	-0.0769	1.0000

Appendix 4. Normal distribution





Appendix 5. The RESET test

The RESET test checks if the model specification in this essay is adequate or if improvement is needed. The test checks for model specification errors such as important variables being omitted, inclusion of irrelevant variables or incorrect functional form. Misspecification errors affect the regression estimates of the coefficients.

Results from the RESET test results give,

p-value = 0,000

$0,000 < 0,05$

⇒ rejection of the null hypothesis which assumes an adequate model is present.

However the test does not provide indication of what is misspecified, whether it is the equation or the variables.

