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INSTITUTIONS AND INTRA-REGIONAL TRADE IN CEFTA 2006: A GRAVITY APPROACH

ИНСТИТУЦИЈЕ И ИНТРА-РЕГИОНАЛНА ТРГОВИНА У ЦЕФТИ 2006: ГРАВИТАЦИОНИ ПРИСТУП

Summary: *The purpose of this paper is to identify factors that had an influence on bilateral trade flows among the CEFTA countries with special emphasize: 1) on the role of CEFTA agreement and its preceding network of bilateral free trade agreements, and 2) on the role of institutions in facilitating intra-regional trade. In order to assess the impact of these variables on trade, we employed an augmented gravity model based on panel data of the CEFTA countries in fifteen years period (2000-2014). The results of the research suggest that there was a positive and statistically significant role of the CEFTA agreement on trade between its parties but the influence of the preceding bilateral free trade agreements was even higher. Results also showed that institutions can play an important role as trade facilitators, but mainly in the importing country while in the exporting country only three of six variables showed to have a positive sign.*

Keywords: CEFTA 2006; institutions; gravity model of trade

JEL classification: F14, F15

Резиме: *Циљ у овом раду јесте да идентификује факторе који су имали утицај на билатералне трговинске токове између земаља ЦЕФТА са посебним нагласком на: 1) улогу ЦЕФТА 2006 споразума и билатералних споразума који су му претходили, и 2) улогу институција у олакшавању интра-регионалне трговине. У циљу процјене утицаја ових варијабли на трговину, користили смо проширени гравитациони модел базиран на панел подацима земаља ЦЕФТЕ у петнаестогодишњем периоду (2000-2014). Резултати истраживања упућују на закључак да постоји позитивна и статистички значајна улога ЦЕФТА споразума на трговину између њених чланица али и да је утицај претходних билатералних трговинских споразума чак и већи. Резултати, такође, показују да институције могу играти значајну улогу у олакшавању трговине, али понајвише у земљи увозници, док су за земље извознице само три од шест варијабли имале позитиван предзнак.*

Кључне ријечи: ЦЕФТА 2006, институције, гравитациони модел трговине.

JEL класификација: F14, F15

1. INTRODUCTION¹

The network of bilateral free trade agreements between countries of the region of South-East Europe has been replaced by a single free trade (and investment) agreement in December 2006 by signing of the so-called CEFTA 2006 agreement (*Central European Free Trade Agreement*)². After the accession of Bulgaria and Romania to the EU in 2007, and

¹ The paper has been awarded with the runner-up award by the Research Unit on South Eastern Europe at the London School of Economics (LSEE) and CEFTA Secretariat in the framework of the CEFTA-LSEE Best Paper competition “CEFTA in 10 years on: its contribution to the CEFTA economies” on the occasion celebrating 10 years of the CEFTA agreement.

<http://www.lse.ac.uk/LSEE-Research-on-South-Eastern-Europe/Assets/Documents/Publications/Annual-Newsletter/2017-LSEE-Newsletter-FINAL.pdf> (page 5)

² Original CEFTA Agreement previously existed between countries of the Central Europe but ended by their membership in the European Union. The “new” CEFTA Agreement remained under the same name differing from the previous one by adding a year of 2006, and is often used as a phrase “CEFTA 2006”.

Croatia in 2013, CEFTA 2006 today consists of 7 signatories: Albania, Bosnia and Herzegovina, Macedonia, Moldova, Serbia, Montenegro and UNMIK/Kosovo³. All tariff barriers were thus removed while removal of non-tariff barriers is still carried out in the framework of CEFTA 2006. What is particularly important is that CEFTA trade agreement mostly complies with the rules of the WTO (*World Trade Organization*) and the EU trade rules, although some of these countries are not members of the WTO. However, WTO membership is a precondition for accession to the EU which is an ultimate goal of all CEFTA countries.

CEFTA 2006 is a project of the European Union aimed at strengthening of economic cooperation, but also at contributing to the lasting peace in the region. Experience of the previous CEFTA agreement showed that trade cooperation on a lower regional level is a good strategy for countries that aspire to become full members of the EU (Herderschee and Qiao 2007).

Trade in the South East Europe was in focus of many researches especially in the context of regional cooperation and free trade arrangements (EBRD 2003; World Bank 2008; Mehić and Babić-Hodović 2011). As regional cooperation in this region, in contrast to Central Europe, lasted several years with different pace of individual countries, authors mainly devoted their analysis to the bilateral trade flows of one country, more likely their home country (Miljovski and Uzunov 2002; Bjelić and Dragutinović Mitrović 2012).

Usage of the gravity model for purposes of intraregional trade in South-East Europe started with Christie (2002) and was followed by many others (Kaminski and de la Rocha, 2003; Bussière et al. 2005; Damijan et al. 2006; Kernohan 2006; Herderschee and Qiao 2007; Trivic and Klimczak 2015), but recently very few analysed especially regional trade cooperation in the framework of the CEFTA 2006 agreement (Begovic 2011). Instead of it, most of the analysed samples have been formed on the basis of author's preferences only predicting what should or could be happening in the future CEFTA 2006 regional trade cooperation. Thus, Herderschee and Qiao (2007) based on experience of trade cooperation in the Central Europe, predicted rise of intraregional trade among future CEFTA 2006 by 38-49 per cent, as well as the rise of trade with the EU.

As for our knowledge, however, only two papers analysed a quantitative impact of institutional variables on international trade in the region of South-East Europe (Kucharčuková et al. 2010; Adam et al. 2003) still focusing on potential rise of trade based on experience of former-CEFTA and BAFTA countries and not on actual data of all CEFTA 2006 countries.

In that context, the aim of this paper is twofold: 1) to assess the impact of CEFTA 2006 agreement and its predecessor free-trade bilateral agreements on the expansion of intra-regional trade, and 2) to assess direction and quantitative specific impact of certain variables of institutions/governance on bilateral trade between CEFTA 2006 parties.

Institutions and institutional environment in this paper are most simply defined as the "rules of the game" and are proxied by the concept of *Governance* as their core element. The rationale behind the assumption that good governance can enhance international trade is in the view that good institutions reduce transaction costs and uncertainty related to trade across borders while ineffective governance can produce costs higher than tariffs or other trade barriers. Six variables of governance in our analysis include: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. Governance and its sub-components are measured by the *World Governance Indicators* produced by Kaufman et al. (2010) and supported by the World Bank. Econometric estimation is based on augmented gravity model and bilateral trade flows.

³ UNMIK (United Nation Interim Mission in Kosovo). Following the OECD (2012, 4), this designation is without prejudice to positions on the status of Kosovo in the international law but corresponds with the UNSCR 1244.

Thus the main hypothesis that we test in the research states that CEFTA 2006 agreement enhanced trade among its parties'. Auxiliary hypothesis directs our attention to test the statement that better institutional environment of individual countries (or good governance) opens potential room for trade expansion.

2. REVIEW ON INSTITUTIONS: DEFINING INSTITUTIONS AND THEIR ROLE IN INTERNATIONAL TRADE

Institutions and institutional quality have gathered a great attention of many authors, researches and studies, especially after Douglas North had established a well-known concept of institutions and institutional environment. Relying mostly on his definition, various authors explored a role of institutions in economic growth and development (Hall and Jones 1998; La Porta et al. 1998; World Bank 1998; Rodrik et al. 2002; Dollar and Kraay 2003; Knack and Keefer 2005; Eicher and Leukert 2009; Acemoglu and Robinson 2010). For these authors, institutions are regarded as one of the main determinant of economic growth and development, beside physical and human capital accumulation and technological change (Rodrik et al. 2002). So what are institutions?

North explained institutions in his capital work „*Institutions, Institutional Change and Economic Performance*“ in 1990 for which he won the Nobel Prize in Economics. North and other authors of the New Institutional Economics (NIE), define institutions “as the rules, regulations (humanly devised constraints) that structure political, economic and social interaction; they consist of both: formal rules - constitution, laws, property rights, and informal constraints - sanctions, taboos, customs, tradition and codes of conducts” (North 1990, 3). Organization or individuals are entities which devise and implement these institutions. Institutional environment comprises institutions and an enforcement mechanism. World Bank, following the path of New Institutional Economics defines institutions “as formal and informal rules and their enforcement mechanisms that shape the behaviour of individuals and organizations in the society (World Bank 1998, 11). One practical definition of institutions is given by Lin and Nugent (1995, 2306-2307) who define institutions as a set of humanly devised behavioural rules that govern and shape the interactions of human beings, in part by helping them to form expectations of what other people will do.

The late 1990s was the period in which institutions have moved to the heart of the debate on economic development. In parallel with the growth of role of institutions in academic research, their importance was especially highlighted and understood in the period of institutional change in newly formed transition economies (North 1997). Important conclusion of scholars who explored a role of institutions in transition process is that institutions do change over time (Campos 2000), which means that they are rather dynamic factor of the economic growth. In other words, there is an ample room for policy choices in attempt to create good institutional context in one country.

There is a growing trend of research of the role of institutions in international trade, beginning with pivotal work of Anderson and Marcouiller (2002), followed by Babetskaia-Khukharchuk and Maurel (2004), de Groot et al. (2004), Jansen and Nordås (2004), de Groot et al. (2005), etc.

The rationale behind this assumption is that good institutions or good governance reduce uncertainty costs and transactional costs related to the cross border trade. Bad institutions represent a likely barrier to trade of the same relevance as tariffs and quotas. These “unobserved” barriers to trade are often related to incomplete or asymmetric information and uncertainty in exchange (de Groot et al. 2004).

According to Anderson and Marcouiller (2002, 342) “corruption and imperfect contract enforcement dramatically reduce international trade“. In other words, high transactions costs related to insecure exchange considerably hamper trade across borders.

These authors tested the hypothesis that insecurity constrains trade by raising the price of traded goods. Using a very valuable gravity model with institutional quality data, authors proved: 1) that by lowering transactions costs, institutional support for secure exchange significantly increases trade, 2) share of total expenditure devoted to traded goods declines as income per capita rises, and 3) answering the question why high-income countries trade disproportionately so much among themselves, authors concluded it is because these countries also have strong institutions that support trade which is relatively unhampered by security-related transaction costs (Anderson and Marcouiller, 2002, p. 351).

By using a gravity model developed in Hausman and Taylor (1981), Babetskaia-Khukharchuk and Maurel (2004) estimated potential for trade increase between the Commonwealth of Independent States (CIS) and the EU. Gravity equation in their model encompassed institutional variables in terms of property rights, share of black market and corruption, while the estimation also included joining Russia to the WTO and potential of trade increase in that context. Authors concluded that there is a surely positively role of institutional variables on trade increase while, the vice-versa relationship is also evident – trade openness impacts institutions and these two are interrelated. In the context of WTO membership, they argue that the membership itself does not provide trade increase and better integration into the world market if good institutions are not enforced.

De Groot et al. (2004) on the rich sample of 175 countries, using the gravity model based on bilateral trade flows, also proved substantial impact of institutions on international trade. They found that overall increase in institutional quality of one standard deviation from the mean leads to an estimated increase of 30–44% in bilateral trade⁴. Moreover, authors estimated also a specific impact of certain governance variables on trade and found for example, that lower corruption, accounts for 19–34% extra trade. Similarly to Anderson and Marcouiller (2002), authors showed that “high-income countries support high quality institutional systems that reduce transaction costs”, which could be a possible solution for the missing theoretical explanation why rich countries trade more (de Groot et al. 2004, 115). Apart from this, with self-constructed dummy variable of institutional similarity, they estimated that with a cut-off criterion of two standard deviations, similarity raises trade by an estimated 13%.

On a very rich sample of countries using a cross-section analysis, focus of Dollar and Kraay (2003) was on the impact of institutions and trade on difference in growth rates among countries. Authors concluded that in the long run, more trade and good institutions go hand in hand with rapid growth rates, while in the shorter period it is very hard to assess a specific impact of each individual variable on growth. However, using institutional quality variables of a various kind - from rule of law, property rights, number of revolutions, political freedom - to number of people killed in wars, Dollar and Kraay in their mainstream paper indirectly proved that countries with better institutions also tend to trade more.

Duc et al. (2008, 96) started their paper saying that “good institutions and good governance are crucial for international trade”. However, authors in their analysis included only two specific and according to them, very important aspects of governance - democracy and corruption. Using the gravity model on the sample of 145 countries and 20.880 bilateral trade flows authors raised some doubts on positive impact of good governance on international trade as they found the following: 1) institutional proximity does not reduce trade costs in every case/pair of countries, 2) thus, two democratic countries do not trade more between each other compared to less democratic countries, while 3) reverse is true for the fight against corruption – countries with less corruption tend to trade more between them.

Similarly, Dutt and Traca (2010) analysed effects of corruption of custom officials on trade but only in the context of tariff rate level. They empirically proved that corruption

⁴ Overall institutional quality is measured by average of World Governance Indicators produced by Kaufmann et al. (2002) and comprises six components which will be explained further in this paper.

hampers trade in the framework of low tariffs but when tariffs are quite high, corruption can have trade-promoting effect. This is very valuable policy related to conclusion in the context of our countries where level of regulatory protectionism is relatively low, thus we could expect for our model to show positive impact of lowering corruption on intra-regional trade.

By using a gravity model with OLS, De Groot et al. (2005) assessed quantitative impact of institutions and institutional proximity on the sample of around 109 countries dividing them in two broad groups - OECD and non-OECD countries. Data on institutions are proxied with *World Governance Indicators* and six dimensions of governance put into one overall score. Moreover, authors calculated also a dummy variable for institutional quality between each country pair in their sample. First, authors proved that good governance positively influence trade – both – statistically and economically; second, following their previous work, authors proved that richer and wealthier countries, especially OECD countries trade more and econometric explanation for this, as they calculated, comes from institutions – countries that respect “rules of the game” decrease insecurity and transaction costs and trade with them becomes more profitable.

Using also a gravity approach and three of six governance indicators found in Kaufmann et al. (2002) database - Government Effectiveness, Rule of Law and Control of Corruption, Jansen and Nordås (2004) found that good governance has a positive impact on overall trade flows in terms of countries’ openness, while reduction of tariffs has no statistical impact on openness to trade. Furthermore, authors proved that quality of institutions has a significantly positive impact on bilateral trade flows. But when controlling for “infrastructure” variable, model showed somewhat surprising results of no statistical significance between institutions and bilateral trade flows. Thus, authors suggest more research to be done in order to come to a firm conclusion on institutions-trade relationship⁵.

3. HOW TO MEASURE INSTITUTIONS? OR IMPORTANCE OF GOVERNANCE

Maybe the best way to answer this question is to determine which are the data and variables that indicate a quality of institutions. In the theoretical and empirical work of scholars and researchers, several data sources and indicators become more frequent as measures of institutions:

- 1) Aggregate index of governance called *World Governance Indicators*, supported by the World Bank, stemming from Kaufmann et al. (1999) and Kaufmann et al. (2010) composed by six sub-indices: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. The last publication included variables for 215 economies and measures the quality of institutions (better to say *governance*) from 1996 to 2014. In the empirical works, these governance indicators are used in Beck and Laeven (2005); Rodrik (2000); Dollar and Kraay (2003); Jansen and Nordas (2004); de Groot et al. (2004); de Groot et al. (2005); Zhuang et al. (2010); Trivic and Petkovic (2015);
- 2) *International Country Risk Guide* developed by Political Risk Service in 1980 which monitors political, economic and financial risk. Some of the variables include measures of institutional quality such as government repudiation of contracts, risk of expropriation, corruption, law and order, and bureaucratic quality. These were used in empirical works of Knack and Keefer (1995); Hall and Jones (1998); La Porta et al. (1998); Campos (2000); Dutt and Traca (2007); Duc et al. (2008);
- 3) *Index of Economic Freedom* developed by Heritage Foundation; composite index consists of several indices such as property rights, freedom from corruption, business

⁵ However, authors have not explained why they used only three of six variables found in *World Governance Indicators* and have not explained the difference between the three ones used in terms of policy implications.

freedom, monetary freedom, trade freedom, labour freedom, financial freedom, investment freedom, fiscal freedom and government spending; authors while exploring institutional quality usually use some of the components (freedom from corruption or property rights) of this composite index; it is used in Babetskaia-Khukharchuk and Maurel (2004); de Groot et al. (2005);

- 4) *Economic Freedom of the World* developed by Fraser Institute;
- 5) *Corruption Perception Index* developed by Transparency International.

Some authors like Campos (2000), World Bank (1994; 1998), Beck and Laeven (2005); Dollar and Kraay (2003); Rodrik (2000) in their analysis of institutional quality put emphasize on one of its elements and that is *governance*. As Acemoglu (2008, p. 1) states “governance refers to essential parts of the broad cluster of institutions”. Truly, in the comprehensive World Bank book on governance from 2008 *Governance, Growth and Development Decision-Making*, leading authors of institutional economics (North, Acemoglu, Rodrik and Fukuyama) reflected on governance as the central part of institutional building in one society.

Governance can be defined in various ways. According to some of its first definitions, governance is defined as the manner in which power is exercised in the management of a country's economic and social resources for development (World Bank 1992, 1). Similarly, OECD (2001, 28) defines governance as “the exercise of authority in government and the political arena”. Kaufmann et al. (2010, 4) define *governance* as traditions and institutions by which authority in a country is exercised.

By Acemogly (2008, p. 1) there are three elements of governance: 1) *political institutions* of a society (the process of collective decision-making and the checks on politicians, and on politically and economically powerful interest groups), 2) *state capacity* (the capability of the state to provide public goods in diverse parts of the country), and 3) *regulation of economic institutions* (how the state intervenes in encouraging or discouraging economic activity by various different actors).

Very similarly to these three aspects of governance, Kaufmann et al. (2010) developed six measures of governance, belonging to three broad areas mentioned above, which are used in this research.

Table 1. Six measures of governance in World Governance Indicators Dataset

A) The process by which governments are selected, monitored, and replaced	
<i>1. Voice and Accountability (VACC)</i>	Captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
<i>2. Political Stability (PS)</i>	Measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
B) The capacity of the government to effectively formulate and implement sound policies	
<i>3. Government Effectiveness (GE)</i>	Captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
<i>4. Regulatory Quality (RQ)</i>	Captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

C) The respect of citizens and the state for the institutions that govern economic and social interactions among them	
<i>5. Rule of Law (ROL)</i>	Captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
<i>6. Control of Corruption (COC)</i>	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests.

Source: World Governance Indicators 2014

4. DATA AND METHODS

In order to assess an impact of both CEFTA 2006 agreement and institutional changes that were taking place in the CEFTA countries we employed a gravity model of international trade. This model has been frequently used since 1960s due to its high explanatory power. The first concepts formed by Tinbergen (1962), Pöyhönen (1963) and Linneman (1966) referred to the Newtonian gravity in physics. A theoretical background of the gravity model of international trade was formed over a decade later with the works of Anderson (1979), and then Bergstrand (1985), Helpman (1981) and Helpman and Krugman (1985). Nowadays the gravity model is a developed tool used mostly for assessing impact of different potential factors on trade and estimating trade potential.

In this research we worked on panel data of CEFTA countries⁶ in fifteen years, 2000 – 2014. The beginning of this period was limited by the availability of the institutional data. The fifteen years period seems long enough to capture the impact of the investigated factors, though.

In the gravity model explanatory variables belong to one of two categories, named after the Newtonian model “a mass” and “a distance”. The first category encompasses all country-specific variables, like GDP or population. In our research six institutional variables specific for either exporter or importer were also representing this group. All country-pair specific variables belong to the latter category, “distance”. They can be further divided into six main groups or types of “distance” (see Klimczak 2014): 1) physical, 2) economic, 3) political, 4) communicational, 5) cultural and 6) historical type.

In this research we employed an augmented gravity model in a log-linearized form, with the dependent variable being the value of export⁷ in a certain year to a certain CEFTA country. In the standard part of the model, GDPs of both exporter and importer were estimated, as well as distance between their capital cities. We also added a relatively short number of other “distance” variables, as presented in the Table 2. Apart from the distance between capital cities, physical distance was also represented by a frequently used BORDER variable, which captures effects of contiguity. A common official language is also a very popular variable, reflecting easiness of communication between trading partners. We used however a much more sophisticated index developed by Klimczak (2014) and used in Trivić and Klimczak (2015) which takes into account shares of the main spoken languages (not only the official ones) and also similarity between them. The latter feature is very important when measuring communication easiness between the CEFTA countries, where languages are often very similar and in the same time officially different. Further on, a difference in GDP *per capita* was employed as a proxy of difference in economic development of the countries.

⁶ Due to lack of comparable data UNMIK/Kosovo was not taken into account.

⁷ In the literature there can be also found value of import or overall bilateral trade as dependent variables.

Finally, the last two variables represented political distance. FTA represented bilateral free trade agreements, which CEFTA countries signed in the period 2000 – 2005. They were then replaced by the CEFTA 2006 agreement, a continuation of the process of regional integration (see Molendowski 2010).

Table 2. Additional distance-type variables

Variable	Type of a “distance”	Description	Data source
BORDER	physical	Bilateral variable taking the value of “1” when countries share a common border	Geographical atlas
LANG	communicational	Index representing probability that two randomly chosen individuals will be able to communicate, weighted by similarity of languages	www.ethnologue.com
PERCAP_DIFF	economic	Difference in GDP per capita	UNCTAD
FTA	political	Binary variable taking value of “1” in instances when countries have a free trade agreement	different sources
CEFTA	political	Binary variable taking value of “1” in instances when in both countries the CEFTA agreement is in force	www.cefta.int

Source: own concept

On the other hand, six institutional variables which were taken directly from the *World Governance Indicators* (see Table 1) were added to the model one by one in order to assess the impact of broadly understood institutions on the intra-regional trade of the CEFTA countries. Including all the six variables together would cause collinearity problem, so such a model was not estimated.

Finally, the estimated model took the following form:

$$\begin{aligned} \log(EXP_{ijt}) = & \alpha + \beta_1 \log(GDP_X_{it}) + \beta_2 \log(GDP_M_{jt}) + \beta_3 \log(DIST_{ij}) + \\ & + \beta_4 BORDER_{ij} + \beta_5 LANG_{ij} + \beta_6 \log(GDPpc_Diff_{ijt}) + \\ & + \beta_7 FTA_{ijt} + \beta_8 CEFTA_{ijt} + \beta_9 INST_X_{it} + \beta_{10} INST_M_{jt} + \varepsilon_{ij}, \end{aligned} \quad (1)$$

where EXP_{ijt} = export from i to j in year t ; GDP_X_{it} / M_{jt} = country's i/j GDP in year t ; $DIST_{ij}$ = great circle distance between capital cities of countries i and j ; $BORDER_{ij}$ = adjacency of i and j ; $LANG_{ij}$ = communication easiness between i and j ; $GDPpc_Diff_{ijt}$ = difference of GDP per capita between i and j in year t ; FTA_{ijt} = free trade agreement between i and j ; $CEFTA_{ijt}$ = functioning CEFTA 2006 agreement between i and j ; $INST_X_{it} / M_{jt}$ = one of the six institutional variables for exporter/importer; α = constant; β_{1-10} = coefficients; ε_{ij} = error term. The symbols $INST_X_{it} / M_{jt}$ stand for variables: VA = Voice and Accountability; PS

= Political Stability; *GE* – Government Effectiveness; *RQ* – Regulatory Quality; *RoL* = Rule of Law; *CoC* = Control of Corruption, all of them for country *i* and *j*.

The model was estimated as the *random effects* model (RE) in six specifications, one for each institutional variable. The RE model was chosen as it estimates time-invariant country-pair variables, like DIST, BORDER or LANG, which is not the case of the *fixed effects* model (FE). However, the FE together with the *pooled* model estimated by OLS constituted the robustness check part. In the second part of the robustness check the model was extended by two variables. Firstly, a binary variable taking the value of “1” in the year 2009 was added in order to capture the effects of the World economic crisis⁸. Secondly, a time trend was added to control constant changes of macroeconomic environment. Finally, in the pooled model six observations with a leverage point were diagnosed, so they were excluded from the three extended models.

5. RESULTS AND DISCUSSION

The obtained results showed a positive impact of the Central European Free Trade Agreement on the intra-regional trade. The values of the coefficient ranged from 0.24 to 0.56 and in five out of six specifications they were statistically significant at 1% level. Unsurprisingly, higher values of the coefficients were recorded by FTA variable, which reconfirmed our previous findings (Trivić and Klimczak 2015). Apparently, the bilateral agreements based on which countries of the region lowered majority of their tariff barriers prior to signing the CEFTA agreement had a higher impact on trade values.

The second finding of this research was that institutions can play an important role as trade facilitators, but mainly in the importing country. When referring to importer, all institutional variables had a positive impact, the coefficient values ranged from 0.27 to 4.35, and in three cases they were statistically significant. Unexpected results were obtained for institutional variables in the exporting country, as half of them showed a negative impact.

Coming to specific institutional variables, in the case of Voice and Accountability, Political Stability and Government Effectiveness positive and significant (apart from PS) coefficients of their values in the importing country were in a contrary to their negative and not significant values in the exporting country. It could be interpreted in the way that it is much harder to export if there is a lack of democracy or an ineffective government in the importing country. On the other hand, coefficients of Regulatory Quality showed relatively high values in the case of both partners. In the importing country it was statistically significant, proving that it is hard to export if the quality of the importer’s regulations is low. Just the opposite result was obtained for Rule of Law. It suggested that Rule of Law must be applied in the exporting country in order to let it export effectively. However, in the case of the importer the value of the coefficient was also positive and relatively high. Unexpectedly, Control of Corruption seems not to play the main role in the institutional aspects – coefficients for both exporter and importer were positive, but insignificant.

Finally, all other variables in all six models had expected signs and all except for BORDER were statistically significant. In a short overview, the typical “masses” of trading partners – their GDPs – influenced positively their bilateral trade, with the exporter’s GDP value being more important. On the other hand, the higher the physical “distance” between countries, the lower the trade. Sharing a common border, as mentioned earlier, didn’t have almost any impact on trade. The easiness of communication between citizens of trading countries seems to be a very important trade factor. The complex index which was used took into account the mostly spoken languages and their similarity, and showed a very high impact

⁸ This was the year of a sharp downturn of the GDP, exports and imports in all the CEFTA countries.

on trade. Expectedly, difference in economic development impeded trade, to a relatively small extent, though.

Table 3. Estimation results for the random effects model

Institutional variable:	Voice and Accountability	Political Stability	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption
const	-10.82*** (3.36)	-10.24*** (3.31)	-8.72** (3.54)	-11.37*** (3.38)	-9.21*** (3.14)	-10.34*** (3.27)
GDP_E	1.55*** (0.19)	1.44*** (0.18)	1.46*** (0.21)	1.35*** (0.19)	1.27*** (0.18)	1.42*** (0.19)
GDP_M	1.06*** (0.19)	1.21*** (0.18)	0.93*** (0.21)	1.10*** (0.19)	1.10*** (0.18)	1.17*** (0.19)
DIST	-1.05** (0.41)	-1.06*** (0.40)	-1.12*** (0.41)	-0.95** (0.42)	-1.11*** (0.38)	-1.04*** (0.40)
BORDER	0.06 (0.47)	0.03 (0.46)	0.08 (0.48)	0.25 (0.48)	0.34 (0.44)	0.11 (0.47)
LANG	3.97*** (1.06)	4.04*** (1.02)	4.04*** (1.06)	4.12*** (1.06)	3.76*** (0.98)	3.92*** (1.03)
GDPpc_DIFF	-0.10* (0.05)	-0.08 (0.05)	-0.09* (0.05)	-0.13** (0.05)	-0.12** (0.05)	-0.09* (0.05)
FTA	0.60*** (0.15)	0.68*** (0.14)	0.62*** (0.14)	0.60*** (0.14)	0.54*** (0.15)	0.64*** (0.15)
CEFTA	0.54*** (0.11)	0.56*** (0.12)	0.49*** (0.12)	0.24 (0.16)	0.36*** (0.13)	0.54*** (0.12)
INST_X	-1.86 (1.33)	-0.20 (0.80)	-0.92 (1.29)	2.28 (1.52)	3.75*** (1.43)	0.37 (1.22)
INST_M	4.15*** (1.33)	0.27 (0.81)	4.35*** (1.29)	3.69** (1.52)	2.21 (1.43)	1.32 (1.23)
No. of observations:	446	446	446	446	446	446
S.E. of regressiom	1.36	1.35	1.39	1.35	1.31	1.36

Notice: * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Own calculations

The robustness of the results was checked in order to confirm whether they hold in different model specifications. The institutional variables were not taken into account in order not to multiply all results in this section by six (number of institutional variables). The model was estimated as pooled data, with fixed and with random effects. Coefficients of almost all variables in all three specifications of the model – *pooled*, FE and RE – kept the same signs, with the only one exception being CEFTA in the FE model. The sign of its coefficient changed to negative, although it was insignificant.

Table 4. Estimation results for pooled, fixed effects and random effects model, in two specifications

Model:	pooled	FE	RE	pooled no leverage crisis and trend	FE no leverage crisis and trend	RE no leverage crisis and trend
const	-6.87*** (1.85)	-46.19*** (6.00)	-10.73*** (3.39)	-6.47*** (1.93)	-51.06*** (8.34)	-10.65*** (4.10)
GDP_E	1.12*** (0.09)	3.70*** (0.56)	1.47*** (0.18)	1.11*** (0.09)	3.96*** (0.65)	1.47*** (0.22)
GDP_M	0.94*** (0.09)	2.31*** (0.56)	1.26*** (0.18)	0.92*** (0.09)	2.59*** (0.65)	1.23*** (0.22)
DIST	-0.75*** (0.24)	n/a	-1.08*** (0.42)	-0.81*** (0.25)	n/a	-1.08** (0.50)
BORDER	0.22 (0.22)	n/a	0.00 (0.47)	0.16 (0.22)	n/a	0.01 (0.58)
LANG	5.09*** (0.51)	n/a	3.93*** (1.06)	5.14*** (0.51)	n/a	4.02*** (1.30)
GDPpc_DIFF	-0.12* (0.06)	-0.11** (0.05)	-0.08 (0.05)	-0.10 (0.07)	-0.10* (0.05)	-0.07 (0.05)
FTA	1.05*** (0.20)	0.08 (0.16)	0.67*** (0.14)	0.94*** (0.22)	0.09 (0.17)	0.52*** (0.15)
CEFTA	0.57*** (0.15)	-0.08 (0.16)	0.55*** (0.11)	0.41 (0.26)	0.00 (0.17)	0.27 (0.17)
No. of observations:	446	446	446	440	446	446
S.E. of regression	1.31	0.78	1.35	1.31	0.78	1.35

Notice: * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Own calculations

As mentioned earlier, in the *pooled* model influential observations were diagnosed. After omitting them, a CRISIS variable and a time trend were added. Again, all coefficients kept their signs, the coefficient of CEFTA in the FE model showed 0.00 value. Thus, it can be assumed that the results of the first estimation were robust.

6. CONCLUSIONS

In our research we employed the augmented gravity model and analysed which factors determined intra-regional trade in the CEFTA 2006 region for the fifteen years period from 2000 to 2014. The focus of our research was to determine the impact of CEFTA 2006 free trade agreement and institutions/governance on bilateral trade flows in the CEFTA countries.

The presented results of our analysis proved the main working hypothesis which stated that CEFTA 2006 agreement enhanced trade among its parties. However, our gravity model revealed that free-trade bilateral agreements preceding CEFTA had a higher quantitative impact on trade values. As previously showed in Trivić and Klimczak (2015), this was not so surprising result because the majority of tariff barriers in the region were removed within the framework of these bilateral trade agreements. Policy implication of these findings suggests that for the future, the main benefits from the CEFTA 2006 would come from the removal or

decreasing of the most important non-tariff barriers, which some researches proved to be the major obstacle in intra-regional trade (Bjelić 2013; OECD 2012).

Because bad institutions or bad governance could represent important informal barrier to trade, as they may raise price of the traded goods or services due to higher transaction costs, the second aspect of our research was to answer the question: “do institutions matter for trade?”. The results of the research showed that, at least for this region, institutions do matter for trade, but to a different extent, depending on the trade side – importer or exporter.

All six aspects of governance that were measured in the research proved to have a positive sign for the importing country. On the other hand, as for the exports, only three out of six variables proved to have a positive sign - Regulatory Quality, Rule of Law and Control of Corruption - which was more or less an expected finding. However, the estimated value of the coefficient standing by the Control of Corruption had no statistical significance which was in a contrary to results of Dutt and Traca (2010) and Duc et al. (2008).

However, similarly to Duc et al. (2008) we discovered that institutional proximity does not necessarily reduce trade costs in every case, as some of the governance variables proved to have positive signs and statistical importance for the importing but reverse signs for the exporting country and vice versa. For example, we found that in the case of Voice and Accountability, Political Stability and Government Effectiveness positive and significant values of their coefficients in the importing country were in a contrary to their negative and not significant values in the exporting country. This leads us to a conclusion that if there is a lack of good institutions from these three aspects of governance in the importing country, it is much harder to export to such a country.

Among all six variables, Regulatory Quality showed relatively highest values in the case of both, importing and exporting country and in the importing country it was also statistically significant. This leads to a conclusion that it is hard to export to a country if the ability of its government to formulate and implement sound policies and regulations is low.

A similar conclusion can be drawn for the variable Rule of Law as one of the most analysed governance variables but from a perspective of the exporting country. As it proved to be statistically significant in the exporting country, this suggests that Rule of Law must be applied in the exporting country in order to let it export effectively. Indirectly, it shows that in order to become more competitive in the foreign markets, government must work on good rules in society, and in particular on the quality of contract enforcement and property rights, as suggested in Rodrik (2000).

Control of Corruption proved to be with no statistical significance, although with a positive sign for both, exporter and importer. Intuitively, from its positive coefficient, it seems that lowering corruption could lead to a higher trade but corruption in some of its special aspects, in this region still may serve as a trade promoting factor as officials in the region are accustomed to be “donated”.

Finally, besides concluding that good governance does matter for trade, our paper opened a broader question *which* governance variables or *which* institutions matter for trade. As for the informal barriers to trade in terms of bad governance, we still need an additional analysis in order to precisely determine stable conclusions on certain aspects of governance and their impacts on intra-regional trade. This opens the room for further research on institutions – trade relationship. Moreover, it would be interesting to assess how much CEFTA contributed, not only as trade facilitator but also as the framework of institutional harmonisation and institutional approximation in the region. At least for now, we can firmly say that lowering formal trade barriers, as was the case with CEFTA 2006 agreement, has helped to boost the trade.

REFERENCES

- Acemoglu, Daron. 2008. *Interactions between Governance and Growth: What World Bank Economists Need to Know*. In *Governance, Growth and Development Decision-Making*. Washington: World Bank
- Acemoglu, Daron and James Robinson. 2010. „The role of institutions in growth and development”. *Review of Economics and Institutions*, 1(2): 1-33
- Adam, Adam, Teodora Kosma and Jimmy McHugh. 2003. „Trade-Liberalization Strategies: What Could Southeastern Europe Learn from the CEFTA and BFTA?”. *IMF Working Paper, No 03/239*
- Anderson, James E. 1979. „A Theoretical Foundation for the Gravity Equation”. *American Economic Review*, 69(1): 106-116
- Anderson, James E. and Douglas Marcouiller. 2002. „Insecurity and the pattern of trade: an empirical investigation”. *Review of Economics and Statistics* 84: 342–352.
- Babetskaia-Koukhartchouk, Oxana and Mathilde Maurel. 2003. „Accession to the WTO and EU enlargement: what potential for trade increase?”. *CEPR Discussion Paper 3944*.
- Beck, Thorsten and Luc Laeven. 2005. „Institution building and growth in transition economies”. *World Bank Policy Research Working Paper 3657*.
- Begović, Selena. 2011. „The Effect of Free Trade Agreements on Bilateral Trade Flows: The Case of CEFTA”. *Zagreb International Review of Economics and Business*, 14(2): 51–69.
- Bergstrand, Jeffrey. H. 1985. „The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence”. *Review of Economics and Statistics*, 1985, 67(3): 474-481.
- Bjelić, Predrag and Radmila Dragutinović Mitrović. 2012. „The effects of competing trade regimes on bilateral trade flows: case of Serbia”. *Zbornik Radova Ekonomskog fakulteta u Rijeci – Proceedings of Rijeka Faculty of Economics*, 30(2): 267–294.
- Bussière, Mathieu, Jarko Fidrmuc and Brend Schnatz. 2005. „Trade Integration of Central and Eastern European Countries: a Lesson from a Gravity Model”. *ECB Working Paper No 545*
- Campos, Nauro. 2000. „Context is everything: Measuring institutional change in transition economies”. *World Bank Policy Research Working Paper 2269*
- Christie, Edward. 2002. „Potential Trade in Southeast Europe: a Gravity Model Approach”. *WIIW Working Papers No 21*
- Damijan, Jose, Jose Sousa and Oliver Lamotte. 2006. „The Effect of Trade Liberalization in South-Eastern European Countries”. *The Vienna Institute for International Economic Studies Working Paper No 070*
- De Groot, Henry L.F., Gert-Jan Linders and Pier Rietveld. 2005. Institutions, Governance and International trade: Opening the Black Box of OECD and GDP per Capita Effects in Gravity Equations, *IATSS Research* vol. 29(2): 22-29
- De Groot, Henry L.F., Gert-Jan Linders, Pier Rietveld and Uma Subramanian. 2004. „The institutional determinants of bilateral trade patterns”. *Kyklos* 57: 103-123.
- Dollar, David and Aart Kraay. 2003. „Institutions, trade, and growth: Revisiting the Evidence”. *World Bank Policy Research Working Paper 3004*
- Duc, Cindy, Emmanuele Lavallée and Jean Marc Siroën. 2008. The gravity of Institutions, *Économie internationale* 113: 95-113.
- Dutt, Pushan and Daniel Traca. 2010. „Corruption and Bilateral Trade Flows: Extortion or Evasion?”. *The Review of Economics and Statistics*, November 92(4): 843–860
- EBRD. 2003. *Transition report 2003: Integration and regional cooperation*. London
- EBRD. 2015/2016. *Transition Report-Rebalancing finance*, London
- Eicher, Theo and Andreas Leukert. 2009. Institutions and economic performance: Endogeneity and parameter heterogeneity, *Journal of Money, Credit and Banking*, 41(1): 197–219.
- Hall, Robert and Charles Jones. 1998. „Why do some countries produce so much more output per worker than others?”. *NBER Working Paper 6564*
- Helpman, Elhanan. 1981. „International trade in the presence of product differentiation, economies of scale and monopolistic competition: A Chamberlin - Heckscher - Ohlin approach”. *Journal of International Economics*, 11: 305-340.
- Helpman, Elhanan and Paul Krugman. 1985. *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy*. Cambridge, MA: MIT Press

- Herderschee, Johannes and Zhaogang Qiao. 2007 “Impact of Intra-European Trade Agreements, 1990–2005: Policy Implications for the Western Balkans and Ukraine”, *IMF Working Paper, No 07/126*
- Jansen, Marion and Hildegunn Kyvik Nordås. 2004. „Institutions, Trade Policy and Trade Flows” *WTO Staff Working Paper ERSD-2004-02*
- Kaminski, Bartolomej and Manuel de la Rocha. 2003. „Stabilization and Association Process in the Balkans: Integration Options and their Assessment” *World Bank Policy Research Working Paper No 3108*
- Kaufman, Dael, Aart Kraay and Massimo Mastruzzi 2010. „The worldwide governance indicators methodology and analytical issues” *World Bank Policy Research Working Papers 5430*
- Kaufmann, Daniel, Aart Kraay and Pablo Zoido-Lobaton. 1999. „Aggregating Governance Indicators” *World Bank Policy Research Working Papers 2195*
- Kernohan, David. 2006. „Reverse Balkanisation? Trade Integration in South-East Europe” *The Center for European Policy Studies Working Document No. 249*
- Klimczak Łucas. 2014. „The gravity model as a tool for the international trade analysis – a case study of the Western Balkans” In: *Proceedings of the 8th Professor Aleksander Zelias International Conference on Modelling and Forecasting of Socio-Economic Phenomena*, May 6-9, Zakopane, Poland 67-76.
- Knack, Stephen and Philip Keefer. 1995. „Institutions and economic performance: Cross country test using alternative institutional measures.” *Economics and Politics* 7(3): 208–227.
- Kucharčuková Oxana, Jan Babecký and Martin Raiser. 2010 “A Gravity Approach to Modelling International Trade in South-Eastern Europe and the Commonwealth of Independent States: The Role of Geography”, *CNB Working Paper No. 4*
- La Porta, Rafael, Florencio de Silanes, Andrei Schleifer and Robert Vishny. 1998. „The quality of government” *NBER Working Paper 6727*
- Lin, Justin and Jeffrey Nugent. 1995. *Institutions and economic development*, in *Handbook of Development Economics* 3, DOI: 10.1016/S1573-4471(05)80010-5
- Linneman, Hans. 1966. *An econometric study of world trade flows*, Amsterdam: North-Holland Publishing Co.
- Mehić, Enes and Vesna Babić-Hodović. 2011. “Izravna strana ulaganja i trgovina u zemljama Jugoistočne Evrope”. In: *Trgovina kao pokretač razvoja Srednje i Jugoistočne Evrope*, Zagreb: Ekonomski fakultet, 139–155.
- Miljovski, Jane and Vanco Uzunov. 2002. „International and Regional Economic Integration in South East Europe: The Case of Macedonia” *WIIW Working Papers No.019*
- Molendowski, Edward. 2010. “The Role of the „CEFTA-2006” Agreement in Preparation of the Balkan Countries Towards European Union Integration”. In: Bukowski, S.I. ed. *Global Economy Challenges of the XXI Century*, Radom: Technical University of Radom.
- North, Douglass. 1990. *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press
- North, Douglass. 1997. „The contribution of the new institutional economics to an understanding of the transition problem” In *1st Annual lecture at UNU/WIDER*.
- OECD. 2001. *Governance in the 21st Century*. Paris and London
- OECD, CEFTA 2012. *Elimination of Non-Tariff Barriers in CEFTA*. CEFTA Issues Papers No 4. Paris
- Pöyhönen, Pentti Kalevi. 1963. „Towards a General Theory of International Trade” *Ekonomiska Samfundet Tidskrift*, 16: 69–78
- Rodrik, Dani. 2000. „Institutions for high-quality growth: what they are and how to acquire them” *NBER Working Paper No 7540*
- Rodrik, Dani, Arvind Subramanian and Francesco Trebbi. 2002. „Institutions rule: The primacy of institutions over geography and integration in economic development” *NBER Working Paper 9305*
- Tinbergen, Jan. 1962. *Shaping the World Economy Suggestions for an International Economic Policy*, New York: The Twentieth Century Fund
- Trivić, Jelena and Łucas Klimczak. 2015. “The determinants of intra-regional trade in the Western Balkans”, *Proceedings of Rijeka Faculty of Economics*, Volume 33, 1: 37-66

- Trivic, Jelena and Saša Petkovic. 2015. „Different features of transition economies – institutions matters“, In Ramadani, V. and Dana, L.P. (eds.) *“Family Businesses in Transition Economies”*, Springer, 71-96.
- World Bank. 1992. *Governance and Development*. Washington
- World Bank. 1994. *Governance. The World Bank’s experience*. Washington
- World Bank. 1998. *Beyond the Washington consensus: Institutions matter*. Washington Bank.
- World Bank. 2008. *Western Balkan Integration and the EU: An Agenda for Trade and Growth*, Washington
- Zhuang, Juzhong, Emmanuel de Dios and Anneli Lagman-Martin. 2010. „Governance and Institutional Quality and the Links with Economic Growth and Income Inequality: With Special Reference to Developing Asia” *ADB Economics Working Paper Series No 193*