# TRADE CREATION AND TRADE DIVERSION EFFECTS FOR ALBANIA IN THE FRAMEWORK OF CEFTA MEMBERSHIP: A PANEL DATA ECONOMETRIC ANALYSIS

**Arjola Mitaj** ✉

Eqrem Cabej University, Faculty of Economy, Gjirokaster, Albania

a_mitaj@yahoo.com


**Myslym Osmani**

Agricultural University of Tirana, Faculty of Economy & Agribusiness, Tirana, Albania

mosmani@ubt.edu.al

**Abstract**

*This paper analyzes possible effects of trade-creation or diversion that result for Albania from CEFTA agreement signing. We used Gravity model using panel data. Fixed effect models (FEM) and random effects models (REM) are used. The analysis includes a wide range of variables that allow full discussion and contributing at the same time to the improvement of existing approaches used to assess the effects of Free Trade Agreements signed by Albania. The empirical analysis of total products trade by Albania to 21 partner countries showed that trade exchanges were not intensified beyond what is considered as normal level. The variable of trade creation resulted statistically insignificant. We also didn't find any evidence of Albanian imports or total trade diversion, from EU to CEFTA countries.*

*Keywords: CEFTA, Gravity Model, Trade Creation, Trade Diversion, Albania*

## INTRODUCTION

The Albania trade with countries of the region is not sufficiently empirically studied. On the other hand, this is very important because it is related to trade with our closest partners and these trade exchanges are presumed to have important effects on the development of economies.

Since 2007 has entered into force a free trade agreement with the countries of the region, but its effects on economic development in Albania have not been sufficiently studied. FTAs are considered as an instrument that can increase the potential for technology transfer between firms as well as institutional and human capacity building, this being important especially for less developed countries.

There are strong economic reasons and experiences of other countries indicate conditions under which FTAs can provide trade creation. This is considered a direct and effective benefit to member countries (because the member country imports more from a country where the cost of production is lower) and trade diversion that results to be detrimental to countries because now the country, Albania in this case, imports its products from a country that is part of FTA possibly produced at a higher production cost (Viner, 1950).

Based on the above mentioned issues, this paper aims to empirically assess the impact that Central European Free Trade Agreement (CEFTA) has in trade balance and trade diversion or creation for Albania.

The application of the Gravity model in its improved form with additional variables enables us to test the following hypotheses:

**Hypothesis 1:** The net benefit from CEFTA and trade integration in general will be higher, the smaller the distance between Albania and the partner country, and the larger and more similar the countries in terms of size / economic similarity (GDP, SIM) are.

**Hypothesis 2**: Albania's membership in CEFTA is important for promoting trade exchanges but with more effects in trade diversion than in trade creation.


## LITERATURE REVIEW

What is known for sure is that after the early 1990s, the number of regional trade agreements has experienced a breakthrough evolution worldwide. But the question is whether the countries involved in these regional integration agreements benefit or lose. Bhagwati's phrase: "Regional Integration Agreements, are building blocks, constitute obstacles, or are the cornerstone of multilateralism?" - is well-known and leads to a more comprehensive question for economists in recent decades. Reasons and consequences of regional integration have initiated a dynamic debate among scholars and policymakers. In a World Bank volume summary regarding Regionalization and Development (1998), it is noted that these agreements give reciprocal trade preferences to participating countries, resulting in discrimination against non-members (World Bank, 1998).

Article 24 of GATT (paragraph 8) explains: in the context of customs unions or free trade zones, taxes and other trade-related duties are eliminated between all territories which

constitute the union for the products originating from these countries, but are applied by all member countries of the Customs Union, opposed to other countries not included. In the context of trade liberalization, different countries are engaged in a process of regional integration. We are referring here to SEE countries, which in addition to the orientation of this integration to EU countries, are cooperating by establishing free trade agreements between them. Kovac, 1998; Uvalic, 2001, have supported the creation of a free trade zone between the successive states of the former Yugoslavia. They argue that their poor export performance towards the EU can be offset by an increase of exports between them.

Other authors emphasize the importance of regional integration among SEE countries arguing that the orientation of these economies only towards EU enables EU firms to benefit at the expense of SEE firms (Kaminski and de la Rocha, 2003). They continue their argument in favor of extending FTAs between SEE countries based on the fact that the latter face barriers to their exports to EU in the form of strong rules of origin. Bartlett and Prica (2012, 2013) argue that SEE countries that have made progress towards EU integration and have adopted institutions compatible with the EU, are likely to be more vulnerable to crises as long as they are more opened to transmission effects through financial flows and demand decrease for exports.

The list of authors that have measured the effect of FTAs on trade diversion or creation is vast (Haveman and Hummels, 1996; Wilhelmsson 2006; Kwentua, 2006; Magee, 2007; Baier dhe Bergstrand, 2007; Stack and Pentecost, 2010; Muhammad and Yucer, 2010; Gauto, 2012; Ducháčová, 2013; Yang and Martínez-Zarzoso, 2013). Viner (1950) is the main contributor to the analysis of the difference between these two definitions. He argues that: "If trade growth in the framework of an agreement is done at the expense of trade formerly with third countries now outside the agreement, in this case outsider countries suffer, unless countries that constitute the new FTA are small enough in the international economy to influence world prices of traded goods regardless their behavior." Anne O. Krueger (1999) studied the change of bilateral trade patterns between countries of North America Free Trade Agreement (NAFTA) and concluded that trade relations between members had significantly intensified after the 1990s. Preliminary results showed that the expansion of trade resulted insignificantly in trade "creation" rather than its "diversion". While Romalis (2001), as well as Fukao and Okubo (2002) through econometric analyzes found that NAFTA most likely had resulted in trade diversion rather than trade creation.

Other authors who have studied trade flows among SEE countries have come to the conclusion that these flows are underreported. According to them, the main reasons for these unreported flows are: high level of trade taxes and corrupted customs (Kaminski and de la Rocha, 2003).

Xhepa and Agolli (2003) used the Gravity model to study trade flows of Albania and its 21 main partner countries for the period 1994-2002. The model results proved that the volume of exports and imports is positively correlated with the country's economic mass and negatively with the geographic distance and the nominal exchange rate.

Pllaha (2012) in his study on trade flows among nine Southeast European countries, through Gravity Model estimates, found that most of SEE-9 countries traded below their potentials. Bartlett and Prica (2013) have contributed in assessing trade flows of the Balkan region with EU. They proved that exports to the euro area dropped for most of the countries in the region during 2011-2012. An exception to these results is Albania, whose exports to EU increased in this period. The reason for this, according to them, is that most of Albania's exports go to Italy and other factors might have affected exports toward Italy (such as inelasticity of particular exports).

**METHODOLOGY**

In order to investigate about factors that have effect on trade, and to test our hypotheses, we make use of econometric modeling; more exactly, we use the so called gravity model of trade, which examines the relationship between trade volume of a country to another country, on one side, and distance to that country and GDP of that country, on the other side. The expectation is that the trade volume of a country with another one is reduced if the latter is well distant, and if its GDP is lower, compared with trade to another country which is less distant and its GDP is larger. In practice and many empirical researches, the gravity model has been developed and expanded by encompassing more factors than the classical gravity model.

In this paper, besides econometric modeling, descriptive statistics have been used to investigate about the research hypotheses. Descriptive statistics are used to describe the basic features of the data used in this study. The use of graphs and the construction of derivative tables based on basic data provide summaries about the sample and the measures as well as the qualitative data analysis. Data used in this study have secondary character. For the gravity analysis, the secondary data panel format is used. The panel consists of time series for 14 different EU or non-EU countries (Italy, Greece, Germany, Turkey, USA, China, France, Spain, Switzerland, Malta, Russia, England, Romania, Bulgaria) as well as 7 countries of CEFTA agreement for period 2001-2014 (Macedonia, Serbia, Montenegro, Bosnia and Herzegovina, Moldova, Croatia, and Kosovo. For the sake of data Serbia and Montenegro are considered a single country).

Initially the analysis is done on the basis of general panel model or otherwise said: pool model. The general panel model has a problem, as long as it does not take into account the

bilateral heterogeneity that is present in bilateral trade flows. Put another way, the model does not allow the difference in trade flows between different time periods or different states.

For these reasons, many studies have used the fixed effects model with and random effects model (Fukao, Okubo and Stern, 2002, Kandogan, 2005, Baier and Bergstrad, 2006, Magee, 2007, Bussière, Fidrmuc, and Schnatz, 2008; Gashi 2010, Muhammad and Yucer 2010, etc.) and have come to the conclusion that the fixed-effect model provides better results compared to pool model and is therefore preferred in most studies (Kepaptsoglou et al, 2010).

The reason for this is that bilateral effects take into account unobserved and unchangeable factors (that may be cultural, historical, political, etc.) and thus lead to deviations from the "normal" tendency of trade, so these factors may be controlled by including dummy variables in Fixed Effects Models (FEM).

Another way to measure such variables would be that of using random effects models, REM. In these models, unlike FEM, the error variance is not the same for each individual, so the difference between individuals (countries in this case) lies in the variance of the error term rather than in the intercept (Osmani, 2013).

In this paper we are interested in measuring the effect of CEFTA agreement not only on trade flows of Albania with other participating countries, but mostly on the empirical verification of its trade creation or diversion effect. Gravity models can be used to evaluate the effects of FTAs including a dummy variable in the Gravity equation to show whether two countries are participating in a FTA or not. This variable actually captures the difference between current and potential flows. If the coefficient before the dummy variable is significant and positive, it is concluded that FTA has had a positive effect on trade flows, with a size that depends on this coefficient. This has been the way of using and the purpose of adding dummy variable / variables to the basic gravity equation that has been applied by the above-mentioned studies for Albania so far.

The use of this variable, however, gives the opportunity to come to conclusions on the FTA's effect on overall trade and does not answer the question whether this statistically significant effect comes as a result of trade creation, its diversion, or both of them. To evaluate these effects specifically, another binary variable should be included. On basis of this specification, the binary variable in relation to the observations where both importing and exporting countries are members of a FTA at the time $t$ would capture the effect of trade creation. If the coefficient of this variable is positive and significant, it indicates that trade between members states of the trade bloc is growing more than trade with countries outside the bloc. While a second binary variable for observations where only one of the trading partners is not part of FTA at time $t$, would capture the effect of trade diversion. The use of these variables

and other variables explained below serves to verify the hypotheses formulated. Based on the arguments set out above, the initial form of the Trade Gravity model is:

$$In(TOTALTRADE)_{ijt} = \beta_0 + \beta_1*InGDP_{ijt} + \beta_2*InDIST_{ij} + \beta_3*RFE_{ijt} + \beta_4*SIM_{ijt} + u_{ijt} \quad (1)$$

Where, *TotTrade* represents Albania's total trade towards the top partner countries (exports and imports are also used); $GDP_{ijt}$ is the Gross Domestic Product of Albania and the partner countries at time *t*; $DIST_{ij}$ represents the distance in kilometers between the capitals of countries *i* and *j*; $RFE_{ijt}$ and $SIM_{ijt}$ represent the difference in the relative factor endowment and the similarity concerning economic size between countries. These two variables are calculated according to the following equations:

$RFE_{ijt} = \left| InGDP_{it} / L_{it} - InGDP_{jt} / L_{jt} \right|$, shows the difference in the relative factors endowment represented by GDP per capita of countries *i* and *j* ($L_{it}$ and $L_{jt}$ represent the population of countries *i* and *j* in year *t*). This variable takes the value of 0 for countries that have the same level of factors ownership.

$SIM_{ijt} = (1 - (GDP_{it} / (GDP_{it} + GDP_{jt})^2) + (GDP_{jt} / (GDP_{it} + GDP_{jt})^2)$ represents the similarity between countries in terms of their GDP. This index gets the value from 0 (absolute divergence in size) to 0.5 (countries with equal size) and captures trade patterns within the same industry across similar countries. The more similar the two countries, the higher the percentage of trade within the industry (inter industry trade).

For the analysis of two CEFTA effects, two dummy variables are added to the above equation. The first one, *Trade Creation*, takes value 1 when both countries are members of CEFTA and the second, named *Trade Diversion* for observations where only one of the countries is a member of CEFTA in year *t*. The first variable will capture the creative effect of trade if it is positive and statistically significant and the second one, the diversion effect if it is negative. In addition to these two dummy variables we enrich the initial equation with other variables as in equation 2:

$$In(TOTALTRADE)_{ijt} = \beta_0 + \beta_1*InGDP_{ijt} + \beta_2*InDIST_{ij} + \beta_3*RFE_{ijt} + \beta_4*SIM_{ijt} + \beta_5*CEFTA_{ijt} + \beta_6*TRADECREATION_{ijt} + \beta_7*TRADEDIVERSION_{ijt} + \beta_8*DEU_{ijt} + \beta_9*BORDER_{ij} + u_{ijt} \quad (2)$$

Where, *CEFTA* is a dummy variable that takes the value 1 from 2007 and onwards for trade flows between Albania and Macedonia, Serbia and Montenegro, Bosnia and Herzegovina, Moldova, Croatia, Kosovo and 0 otherwise.

*DEU* – is a dummy variable that takes value 1 if one of the countries is a member of European Union at time t and 0 otherwise. This variable serves to measure the stimulating effect of Albania's trade with EU member states.

*BORDER*- dummy variable that takes the value 1 for countries that Albania shares a common BORDER and 0 otherwise.

Data for Gravity models belong to the period 2001-2014 and include 21 top partner countries of Albania where our country exports over 90% of total exports and imports over 80% of total imports. Regarding model 2, which will be the model applied in this analysis, the data are found from these main sources: data on Albania's exports, imports and trade to the countries of analysis are obtained from statistical basis of UN Comtrade; GDP and population data refer to the IMF statistics base, World Economic Outlook, while data for Kosovo are obtained from the Kosovo Agency of Statistics. The geographical distance is ensured from the CEPII database (Center d'Etudes Prospectives et d'Informations Internationales), apart from the distance between Tirana and Pristina.

To expand our models and get more information, we have also created and used a number of dummy variables and also some interaction variables, to see whether and how pair of combinations between some variables has effect on trade.

In summary, table 1 list all the variables, direct, dummies and interaction, used in the analysis, their type as well as the measurement unit.

Table 1: The list of variables

| Variable Acronyms | Name of variable | Measure scale | Type of variable | Measurement units |
|---|---|---|---|---|
| GDP | Gross Domestic Product | Ratio | Continuous quantitative | Billion dollars |
| DIST | Distance | Ratio | Continuous quantitative | Kilometers |
| RFE | Relative Factor Endowment | Ratio | Continuous quantitative | 0 for no difference in factor endowment, >0 if there are differences |
| SIM | Similarity | Ratio | Continuous quantitative | 0 for no similarity  to 0.5 for perfect similarity |
| CEFTA | Membership in CEFTA | Nominal | Dummy | 0 for no CEFTA countries or 1 for CEFTA countries |
| TRADECREATION | Trade created | Nominal | Dummy | Value 0 if no trade creation, or 1 if there is trade creation |

| | | | | | |
|---|---|---|---|---|---|
| TRADE DIVERSION | Trade diverted | Nominal | Dummy | Value 0 if no trade diversion, or 1 if there is trade diversion | Table 1... |
| DEU | Membership in EU | Nominal | Dummy | Value 0 for no EU countries or 1 for a EU countries | |
| BORDER | Common BORDER with Albania | Nominal | Dummy | Value 0 if Albania has not a common BORDER or 1 if common BORDER | |
| TOTALTRADE | Total volume of international trade | Ratio | Continuous quantitative | Thousand dollars | |
| TOTALEXPORTS | Total volume of exports | Ratio | Continuous quantitative | Thousand dollars | |
| TOTALIMPORTS | Total volume of imports | Ratio | Continuous quantitative | Thousand dollars | |
| Interac(DEU*GDP) | Interaction between membership in EU and GDP | Ratio | Continuous quantitative | 0 if no member of EU, GDP value otherwise | |
| Interac(DEU*DIST) | Interaction between membership in EU and DIST | Ratio | Continuous quantitative | 0 if no member of EU, DIST value otherwise | |
| Interac(CEFTA*GDP) | Interaction between membership in CEFTA and GDP | Ratio | Continuous quantitative | 0 if no member of CEFTA, GDP value otherwise | |
| Interac(CEFTA*DIST) | Interaction between membership in CEFTA and DIST | Ratio | Continuous quantitative | 0 if no member of CEFTA, DIST value otherwise | |
| Interac(DEU*BORDER) | Interaction between membership in EU and BORDER | Ratio | Dummy | 1 if member of EU and Bordering Albania, 0 otherwise | |
| Interac(GDP*DIST) | Interaction between GDP and DIST | Ratio | Continuous quantitative | No real unit | |
| Interac(SIM*DEU) | Interaction between SIM and DEU | Ratio | Continuous quantitative | 0 if a country is not EU member and >0 otherwise | |
| Interac(REF*DEU) | Interaction between RFE and DEU | Ratio | Continuous quantitative | 0 if a country is not EU member and >0 otherwise | |
| Interac(SIM*CEFTA) | Interaction between SIM and membership in CEFTA | Ratio | Continuous quantitative | 0 if a country is not CEFTA member and >0 otherwise | |
| Interac(RFE*CEFTA) | Interaction between RFE and membership in CEFTA | Ratio | Continuous quantitative | 0 if a country is not CEFTA member and >0 otherwise | |

## ANALYSIS AND RESULTS

The elimination of trade barriers in the context of free trade between the partner countries of regional agreements becomes even more important since the evidences from international literature prove that their effects on trade flows start some time before these agreements come into force. Frankel (1997) argues that: "There is a tendency regarding trade flows to be affected in advance compared to the date when they enter into force, as firms prepare the environment for future markets."

Graph 1 presents data on annual rate change of Albanian exports and imports respectively for the period 2002-2014. This period is taken into account to see exactly the effects before and after the CEFTA entry into force on trade flows of Albania towards the countries participating in this free trade agreement. Time period 0 on graph corresponds to year 2007, when this agreement entered into force for Albania, Bosnia and Herzegovina, Croatia, Kosovo, Moldova, Serbia and Montenegro; period -1 is the year before its entry into force, i.e. 2006, and so on. Likewise, time period 1, shows the first year after the entry into force, namely 2008.

Graph 1: Average annual change in % of Albania's exports
and imports to CEFTA countries
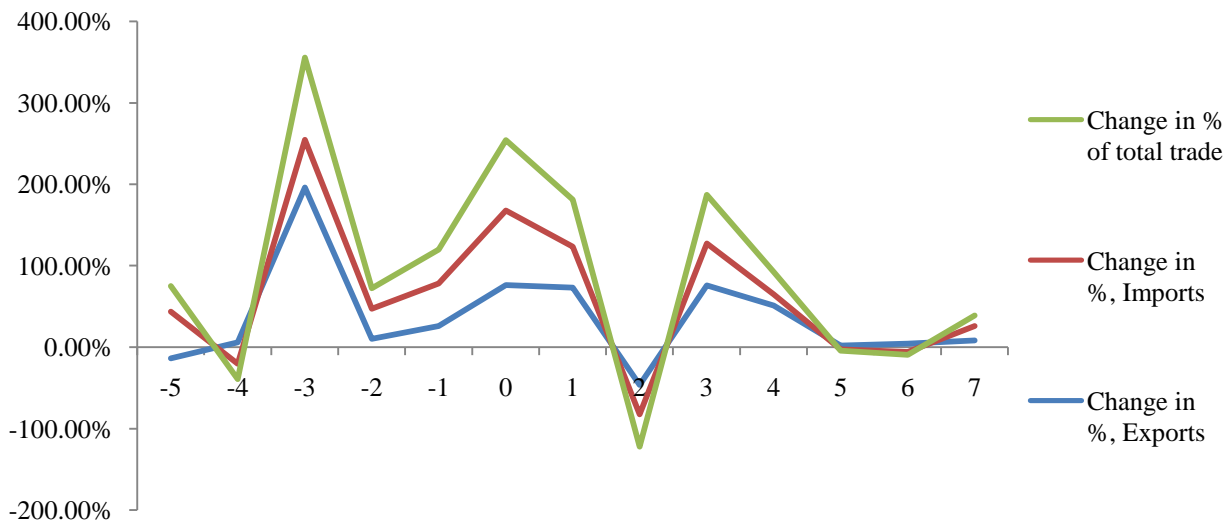


*Source: UN Comtrade and authors calculations, (Bank of Albania for Kosovo 2003-2014)*

As it can be seen, there is a slight tendency of Albania's exports and imports increase towards the countries of the region before 2007. This is more noticeable in the case of exports which after a fall in 2005 have increased for 3 upcoming years until 2008, reaching to 75.99%.

The real decline of Albania's trade flows with CEFTA countries is noted during 2009, when the effects of the global financial crisis affected the South East Europe region as well.

To conclude, regarding the hypothesis that trade flows tend to intensify in advance, prior to the year of entry into force of regional trade agreements, it cannot be found a strong confirmation for Albania. What is more important is that during 2009, trade has fallen considerably in percentage reaching to -39.8%, and after 2010 the fluctuations have been irregular, until 2011-2012 when the decrease has started again. Only after this period trade flows restart the upward trend. This requires a broader analysis of Albania's foreign trade with its main partners, which not only during 2001-2014, but also before 2002 are EU member states. The effect of Albania's trade with the EU countries is taken into account in the empirical model, through the inclusion of a dummy variable.

The analysis is further deepened, dividing the time period into two sub-periods, 2001-2006 and 2007-2014.

Taking in consideration table 2, the dynamics of Albania's trade towards CEFTA countries is presented on graph 2. The decline during 2009 is noticeable both for imports and exports. But what should be emphasized in this case is the positive trend of trade flows since 2007.

Table 2: Albania's trade flows with CEFTA countries

| Year | TOTAL EXPORTS | TOTAL IMPORTS | TOTAL TRADE |
|------|---------------|---------------|-------------|
| 2001 | 24,017 | 42,325 | 66,342 |
| 2002 | 20,655 | 66,681 | 87,336 |
| 2003 | 21,876 | 49,120 | 70,996 |
| 2004 | 64,729 | 77,911 | 142,640 |
| 2005 | 71,235 | 106926 | 178,161 |
| 2006 | 89,786 | 162698 | 252,484 |
| 2007 | 158,014 | 312053 | 470,067 |
| 2008 | 273,485 | 468546 | 742,031 |
| 2009 | 146,584 | 300122 | 446,706 |
| 2010 | 257,790 | 454578 | 712,368 |
| 2011 | 389,535 | 517265 | 906,800 |
| 2012 | 396,717 | 494536 | 891,253 |
| 2013 | 413,494 | 445225 | 858,719 |
| 2014 | 447,882 | 523449 | 971,331 |

*Source: Author's calculations based on UN Comtrade data*

Graph 2: The dynamic of Albania's trade flows with CEFTA countries
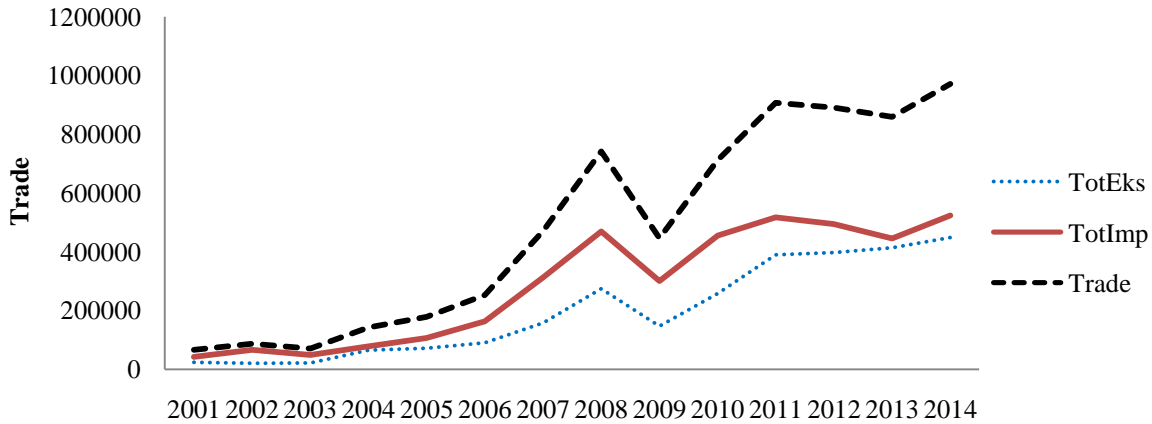


*Source: Based on table no. 2 data*

Based on the above data, a derivative statement can be constructed which provides information on the average growth rates of trade flows divided into two periods, the average annual increment and the average increment for 1% of the increment rate.

Table 3: Average growth rates, annual average increment and average increment

for 1% of the increment rate

| Period | Annual growth rates (%) | | | Annual average increment | | | Average increment for 1% of the increment rate | | |
|---|---|---|---|---|---|---|---|---|---|
| | Exp. | Imp. | Trade | Exp. | Imp. | Trade | Exp. | Imp. | Trade |
| **2001-2006** | 130.18 | 130.91 | 130.64 | 13153.8 | 24074.6 | 37228.4 | 435.87 | 778.98 | 1214.87 |
| **2007-2014** | 122.25 | 115.73 | 118.34 | 44762 | 45093.9 | 89855.9 | 2011.89 | 2867.20 | 4898.71 |

*Source: Authors calculation based on UN Comtrade data*

After 2006 it is easy to ascertain a significant increase of Albania's trade with CEFTA countries. In terms of speed it is noted a decrease (growth rates for the period 2006-2014 are lower), while the absolute annual increase is significant. A combination of two indicators (average increment for 1% of the increment rate) shows, however, a growth 3-4 times higher during 2006-2014. The increase in imports is bigger. What should be analyzed after this conclusion is whether the increase of trade exchanges with the region countries, participating in CEFTA, is a result of trade creation or diversion.

In the empirical model of dependent variable explanation from some independent variables, other variables can often be added that imply interactions between independent variables already involved in regression. One reason for the inclusion of these additional variables is that the interaction between the factors may represent factors on their own and shows how the effect of a particular factor is strengthened or weakened when the other factor changes. In these cases, leaving these interacting variables outside the equation would be expressed in the error term.

Three types of gravity models are used: pool or general models, fixed effect models (FEM) and random effects models (REM). In the following steps are presented the results of each model for total trade, imports and exports.

Table 4: Fixed effect model, random effect model and
time lagged dynamic panel model for trade volume

| Variables | Fixed Effect Model | Random Effect Model | Dynamic Panel Model |
|---|---|---|---|
| Constant | 15.3696*** | 13.4351*** | 0.0208398 |
| ln_TotTrade(-1) | | | -0.0694333** |
| BORDER | 0.636689** | 0.94456*** | 0.974008*** |
| DEU | -0.995839*** | -0.697542*** | -0.791139*** |
| ln_GDP | 0.917094*** | 0.737788*** | 0.93331*** |
| ln_DIST | -1.35281*** | -0.958765*** | -1.28616*** |
| CEFTA | 1.46233*** | 1.41452*** | 0.928822*** |
| RFE | -0.146098*** | -0.171916*** | -0.18139** |
| TRADEDIVERSION | 0.868936*** | 1.00708*** | 0.88943*** |
| Interac(RFE*CEFTA) | 2.25451*** | 2.33388*** | 2.30534*** |
| Interac(CEFTA*DIST) | -0.00488089*** | -0.00511303*** | -0.00435213*** |
| Interac(DEU*BORDER) | 1.08322*** | 1.11905*** | |
| R square | 0.784818 | | |
| F(29, 248) | 31.19010 | | |

Gravity model for trade volume according panel access with random effects, including only significant variables, has the following form:

$$ln(TOTALTRADE)_{ijt} = 13.43 + 0.737*lnGDP_{ijt} - 0.958*lnDIST_{ij} - 0.17*RFE_{ijt} + 1.41*CEFTA_{ijt} + 1.00*TRADEDIVERSION_{ijt} - 0.697*DEU_{ijt} + 0.94*BORDER_{ij} + 2.33*Interac(RFE*CEFTA) - 0.005*Interac(CEFTA*DIST) + 1.119*Interac(DEU*BORDER)+e \quad (3)$$

If GDP increases by 1%, trade is expected to be increased by 0.74%, ceteris paribus. If the distance increases by 1%, trade is expected to decrease by 0.958%. Being a member of CEFTA brings a positive difference in Albania's trade of around 4.1 million.

Regarding trade diversion variable, which is significant, it can be said that Albania's trade volume with non-member countries (outside CEFTA) has an average margin in trade of around 2.7 million.

The coefficient next to the RFE variable has a negative sign, which means that the increase of factor ownership difference with 1 unit reduces Albania's total trade by 0.17%.

The positive coefficient of BORDER variable shows that sharing a common BORDER has positive effects on Albania's trade.

In relation to 3 interacting variables that are part of the equation, we can state the following comments:

Increasing the difference in factor ownership, increases Albania's trade, more when this difference is between CEFTA countries.

If Albania's trading partner is an EU member, this positively affects Albania's trade and the impact is further intensified if Albania shares a common BORDER with it. Regarding the Interac(CEFTA*DIST) interaction variable, we can say that among all CEFTA countries, Albania's trade is reduced more for longer distances between Albania and CEFTA countries.

The positive coefficient of Interac(DEU*BORDER) variable indicates that Albania's trade is larger when the country it trades with is an EU member and shares with it the BORDER.

Finally, time lag effects indicate that the current level of trade has a significant negative effect on its level the next year.

For imports, based on table 5, the random effect model would be:

$$ln(IMPORT)_{ijt} = 15.82 + 0.638*lnGDP_{ijt} - 1.078*lnDIST_{ij} - 0.195*RFE_{ijt} + 1.017*CEFTA_{ijt} + 4.52*DEU_{ijt} + 1.27*BORDER_{ij} - 0.74*Interac(DEU*DIST) - 5.18*SIM + e \quad (4)$$

According to the model, if GDP increases by 1%, it is expected that imports will increase by 0.63%, *ceteris paribus*. If the distance increases by 1% it is expected that imports will be decreased by 1.078%. Thus imports are oriented towards countries with larger GDP and countries that are closer to Albania.

Being a CEFTA member country has positive effects on Albanian imports, but more effects has the fact of being an EU member country, in other words the imports mostly come from EU countries.

The positive coefficient near BORDER variable shows that Albanian imports are larger from countries which it shares the same BORDER compared to countries with which it has not a

common BORDER. The significant and negative coefficient of Interac(DEU*DIST) shows that between DEU and Dist variables there is interaction in the meaning that if a country is a member of EU and away from Albania, the negative effect on Albania's trade is greater.

In contrast to the trade volume model, the DEU variable for imports has a positive sign, which notes the importance of Albania's trade intensification with European Union countries along 2001-2014. Concerning SIM variable, the expectations for its effect on Albania's trade with the countries of the analysis were positive, it is noted that it is important for imports but has negative sign. From these results it can be said that increasing the similarity in terms of GDP, between Albania and partner countries significantly reduces its imports. Meanwhile, the results of a time lag dynamic panel model show that the level of current year imports has a significant negative effect on their level after a year.

Table 5: Fixed effect model, random effect model and time lagged dynamic panel model for imports

| Variables | Fixed Effect Model | Random Effect Model | Dynamic Panel Model |
|---|---|---|---|
| Constant | 17.2602*** | 15.8271*** | -0.0161922 |
| ln_IMPORT(-1) | | | -0.0681712* |
| BORDER | 0.902253*** | 1.27481*** | 0.613695*** |
| DEU | 4.88452*** | 4.52473*** | -1.17142*** |
| ln_GDP | 0.891754*** | 0.638491*** | 1.06331*** |
| Interac(DEU*DIST) | -0.845745*** | -0.741949*** | |
| ln_DIST | -1.49305*** | -1.07875*** | -1.47542*** |
| CEFTA | 1.09149*** | 1.01748*** | 0.525588* |
| SIM | **-4.0894*** | **-5.18194*** | |
| RFE | -0.154861*** | -0.195586*** | -0.258845*** |
| TRADEDIVERSION | | | 0.787317*** |
| Interac(RFE*CEFTA) | | | 2.49924*** |
| Interac(CEFTA*DISTt) | | | -0.00334564*** |
| R square | 0.799931 | | |
| F(27, 250) | 37.02111 | | |

Random effect model for exports including significant variables only would be:

*ln(EXPORT)=8.14+1.38*lnGDP-1.385*lnDIST+3.65*BORDER+0.905*CEFTA*

*+1.383*TRADEDIVERSION+ 1.707*DEU+5.84*SIM-0.315*Interac(DEU*GDP)+e     (5)*

Table 6: Fixed effect model, random effect model and time lagged dynamic panel model for exports

| Variables | Fixed Effect Model | Random Effect Model | Dynamic Panel Model |
|---|---|---|---|
| Constant | 10.4553*** | 8.14171*** | 0.298228*** |
| ln_EKSPORT(-1) | | | -0.00810193 |
| ln_EKSPORT(-2) | | | -0.0703958 |
| BORDER | 3.06023*** | 3.65274*** | 2.7542*** |
| CEFTA | 0.936276*** | 0.904894** | 2.27215*** |
| TRADEDIVERSION | 1.09596*** | 1.38341*** | |
| ln_GDP | 1.8328*** | 1.38142*** | 1.12955*** |
| ln_DIST | -2.06687*** | -1.38518*** | -1.02669** |
| DEU | 1.51238** | 1.7072** | 12.8006*** |
| SIM | **7.71026*** | 5.84176*** | |
| Interac(DEU*GDP) | -0.350453*** | -0.314874*** | |
| Interac(DEU*DIST) | | | -1.81222*** |
| Interac(CEFTA*DIST) | | | -0.00589209*** |
| Interac(DEU*BORDER) | | | -1.43368* |
| R square | 0.690377 | | |
| F(27, 238) | 19.65471 | | |

*Note: *** show statistical significance at level 1%, ** importance at level 5%, * importance at level 10%*

From the table results it can be noticed that a number of interactions are insignificant and not included in the model. Regarding the exports, we would highlight the following comments for the differences in coefficient estimation:

The coefficient near BORDER variable is positive, which means that exports to countries that Albania shares the same BORDER are relatively higher compared to those countries that it doesn't share a BORDER. In absolute terms, the average difference is estimated at about 38 million exports.

The CEFTA coefficient is positive, which means that exports to CEFTA countries are larger than those with non-CEFTA countries. In absolute terms, the average difference is estimated at around 2.5 million exports.

Trade diversion variable has a positive sign and we can say that Albania's exports to non-member countries (outside CEFTA) are higher. In absolute terms, the average difference is estimated at about 4 million exports.

The positive coefficient near the DEU variable indicates that being an EU country has a positive effect on Albania's exports against that country. The average difference of exports to a non-member EU country is about 5.5 million exports.

Concerning SIM variable, it is noted that it is important both for imports and exports, but only for the latter it results with a positive sign. This means that increasing the similarity in terms of GDP between Albania and partner countries from one hand considerably reduces its imports on the other hand, but significantly increases Albania's exports.

In summary, related to the SIM variable, it can be said that the increase in similarity reduces the volume of imports and increases the volume of exports.

The reason for this can be explained if we take into account the fact that Albanian exports suffer from lack of competitiveness and need to fulfill some standards before they are ready for the European market, which on the other hand is a developed countries community with a considerably economical size compared to Albania. Therefore, the tendency: the increase of similarity level -> increase of trade level, in the case of Albania implies that the more similar it becomes from economic size viewpoint with these countries, the more Albania's exports towards them will increase.

The interaction between DEU and GDP is significant but negative; being an EU country with a large GDP has a negative effect on Albanian exports, in other words, exports are more oriented towards EU countries with smaller GDP or to non-EU countries.

## DISCUSSION AND CONCLUSIONS

From the academic viewpoint, the purpose of this paper was to discuss and improve the existing approaches for effects assessment of a Free Trade Agreements signed by Albania, based on the Gravity Models. The use of additional variables attached to the classic Gravity model, allow the  discussion of a broader range of issues related to the integration and liberalization process. Concerning SIM variable, the results showed that the increase of the similarity in GDP terms between Albania and partner countries substantially reduces its imports on one hand, but significantly increases Albania's exports (more than imports) .

RFE variable in the twenty-one country analysis resulted with a negative sign, highlighting the fact that the increase of the factor ownership difference reduces the imports of Albania and its total trade. In other ways, differences in consumption preferences / tastes between Albania and partner countries have a negative impact on its imports and total trade.

In relation to our variables of interest, trade creation or deviation, two important results are distinguished. Firstly, both for imports and exports, the variable of trade creation was statistically insignificant. This means that Albania's trade with CEFTA countries is not increased

significantly beyond the level of trade considered as normal. Thus, the elimination of tariffs with countries of this trade block has not resulted in trade creation trade. Secondly, a negative trade diversion coefficient which would suggest that trade with countries outside CEFTA agreement is declining, did not find support from the results generated in any of the models applied above. On the contrary, this variable proved to be positive and statistically significant suggesting that Albania's exports to non-member countries (outside CEFTA) are higher. In absolute terms, the average difference resulted in about 4 million exports (2.7 million for total trade). This means that despite the preliminary finding of intensification of trade flows with CEFTA countries, which showed a 3 to 4 times higher growth during 2007-2014, model results suggest that the growth of trade within the region has not been made "at the expense" of its deviation from countries outside CEFTA.

An explanation for this is the fact that EU has been and still remains Albania's main trading partner and the existence of preferential trade agreements with this region has not allowed a diverting trade effect against it. The effect of revenues on rising the demand for products as a result of trade agreements with the EU exceeds any deviating trade effects, which has resulted in a high volume of imports with countries outside CEFTA, as long as Albania's partners are also considered countries like: USA, Turkey, China or Russia, with which trade cannot be ignored, as a result of the FTA's existence with Turkey.

As a conclusion, it can be said that: concerning the CEFTA agreement, the empirical analysis of total products trade did not prove an intensification of exchanges beyond what is considered as a normal level. The trade creation variable was statistically insignificant. On the other hand, the existence of preferential trade agreements with the EU region as well as the fact that this region has been and still continues to be the main trading destination for Albania, has not allowed trade diversion against it.

In Gravity models, the positive and significant effect of GDP confirms that the level of bilateral trade is significantly affected by the partner country's income. The negative and significant distances in these models show the impact of trade barriers in the form of transport costs, but trade flows intensify with countries with which Albania shares a common BORDER. Thus the first hypothesis as the theory and previous evidences have shown is proved even in this study for Albania.

In relation to the second hypothesis the expectations were for a diversion effect rather than a trade creation one, it is not proved in our case. The positive effects of trade diversion variable suggest that trade growth, as a result of the free trade agreement, does not lead to trade diversion with non-member countries (EU countries). While the lack of importance of the dummy trade creation variable implies that for CEFTA Albania does not create trade

opportunities beyond what is considered normal. The creative effect of trade with CEFTA countries in this respect will depend on economic reforms undertaken not only in Albania, but within a regional trade and economic design. Moreover, in addition to bilateral trade, CEFTA should make progress in some directions like as: the reduction of non-tariff barriers, free trade in services, foreign direct investment, labor mobility, etc. In order to achieve a deeper economic integration in the region, CEFTA should be oriented not only on tariff barriers, but also on improving productiveness, product competitiveness and trade structures. Meanwhile, trade facilitation needs to get more attention, citing here: coordinating product standards and simplifying customs procedures.

Finally it should be emphasized that this empirical study answered the question whether a FTA brings the desired effect or not for an economy like Albania. Although the analysis was complete, as it included the entire range of products and main trading partners it would be of interest to further research the study of trade creation or diversion effects that other free trade agreements already signed by Albania might have, except CEFTA agreement.

These two important effects were analyzed on a macro level, but on future research we could expand or deepen the research problem with a specific analysis that can be done at the product or firm level.

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