

Liberalization of Trade with the EFTA Countries Some Evidence from Bosnia and Herzegovina

Safet Kurtovic • Sead Talovic • Blerim Halili • Nehat Maxhuni

Abstract This paper's main objective is to study the effect of the liberalization of trade with EFTA countries on trade balance of B&H. It analyzes the time series data for the period 2005 – 2014. Our theoretical framework includes the gravity model and the econometric technique system of simultaneous equations: Three-Stage Least Squares.

The research results show that the liberalization of trade with the EFTA countries has led to an increase of trade flows; however, it has not resulted in a significant convergence in exports and imports i.e. in an equable trade balance. We have concluded that the increase in export from B&H to the EFTA countries is positively affected by the consumer price index, population, signed bilateral agreements and geographical distance between the EFTA countries, while the reduction in import of products to B&H is positively affected by signed bilateral agreements with the EFTA countries. Finally, we have found that the reduction in B&H trade deficit is positively affected by reduced gross domestic product (GDP) of B&H. In the case of other analyzed independent variables affecting trade balance, no positive effects have been registered.

Keywords Trade agreements - Liberalization - Trade - Export - Import - Trade balance

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Introduction

Reducing trade barriers enables free trade globally and increases the welfare of companies and consumers. Free trade enables end consumers to purchase the same or greater quantity of products for less money. Also, companies get access to cheaper inputs and technologies and

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achieve cost savings (Bhagwati and Panagariya 1996; Srinivasan 1998; Robinson and Thierfelder 1999; EFTA Team 2004).

The establishment of regional trade agreements has been supported by GATT, General Agreement on Trade in Services (GATS) and the Most-Favored-Nation (MFN) principle (Mihashi 2009). In 2015, the World Trade Organization (WTO) reported that there were 619 regional trade agreements, of which 413 were in force. Of the total number of signed agreements, 428 pertained to free trade and customs union, i.e. were regulated by Article XXIV of the GATT 1947 or GATT 1994 (WTO 2015). Preferential trade agreements are the agreements through which the signatory countries remove mutual discriminatory trade barriers and introduce trade barriers towards third countries (Mukunoki 2005). Trade partners can choose between the unilateral and preferential trade liberalization. Both of these trade liberalization options lead to economic welfare. However, preferential trade is more acceptable than the unilateral trade liberalization (EFTA Team 2004). We differentiate between the following forms of preferential trade: customs union, free trade area and common market. Customs union removes internal trade barriers and imposes common external customs tariff toward third countries (e.g. EC, the Central American Common Market (CACM) and MERCOSUR). Free trade area (FTA) eliminates internal trade barriers, but each country retains special customs policy toward third countries. Finally, common market abolishes customs duties between the member countries and introduces a common customs policy toward third countries (e.g. EU) (Baldwin and Venables 2004; Mansfield and Milner 1999; Mihashi 2009).

EFTA (European Free Trade Agreement) was established in 1960 by Austria, Denmark, Norway, Portugal, Sweden, Switzerland and the United Kingdom. It was joined by Finland in 1961, Iceland in 1970 and Liechtenstein in 1991. However, the United Kingdom and Denmark (in 1973), Portugal and Austria (in 1986), Finland and Sweden (in 1995) left EFTA and joined the EU. After the accession to the EU, Iceland, Liechtenstein, Norway and Switzerland remained EFTA members (Ferreira 1990; Avery 1995; Ahearn 2011; Fundira 2007; Schmieding 1989; EFTA Team 2004). Norway, Iceland and Liechtenstein together with the EU make up the European Economic Area (EEA), while they signed a bilateral agreement with Switzerland that entered into force in 2002 (Baldwin 2011; EFTA Team 2004; Trocan 2010). Apart from this, EFTA signed bilateral agreements with over 50 countries including B&H (Van Randwyck 2011; Matta 2014; Baudenbacher 2005; Službeni Glasnik BiH – Međunarodni ugovori 2014). EFTA Agreement mainly covers trade in industrial, agricultural and fish products. This agreement, like the other EU agreements, potentiates asymmetric trade liberalization (Ciešlik and Hagemer 2001; Ahearn 2011).

Preferential agreements lead to trade creation and trade diversion. Trade creation is considered a desirable process, whereas trade diversion is deemed an undesirable process negatively affecting multilateral trade flows (Viner 1950). Trade creation is a more efficient process since it represents the replacement of inefficient domestic production with cheaper imports from trade partner countries (Zahariadis 2007; Robinson and Thierfelder 1999). Trade diversion represents the replacement of cheap imports from the world market with more expensive imports from partners (Lipsey 1957; Park and Park 2008; Stevens et al. 2015; Dee and Galí 2005; Snorrason 2012; Spies and Marques 2006).

Free trade agreements lead to the complementarity effect. Countries that sign free trade agreements increase mutual imports and drastically reduce imports from third countries. This trade diversion leads to a reduction of their influence in the manipulation of terms of trade with third countries, which results in the reduction of their external tariffs. If the production costs increase, signatory countries will see a rise in mutual trade with the countries with which they

signed bilateral free trade agreements, while the exports to third countries will be reduced. This situation results in reduced manipulation of terms of trade by the third countries, which eventually leads to decrease in customs duties towards FTA member countries (Saggi et al. 2015).

This paper's main objective is to find out whether liberalization of trade between B&H and the EFTA countries positively affects levelling off of trade balance. To that effect, we attempted to prove theoretical settings and numerous empirical studies stating that trade liberalization leads to an increase in trade flows between trade partners, but that it results neither in convergence in welfare nor in levelling off of trade balance in less developed industrial countries. Namely, less industrialized countries register higher imports than exports, i.e. they fail to reduce trade deficit as compared to developed industrial countries. Finally, we concluded that the main reason for this is the low competitiveness of the national economy of the less industrialized country, in this case of B&H.

The paper consists of sections as follows: Section 2 provides an overview of literature or research closely related to this paper's research subject; Section 3 describes the economic model; Section 4 describes econometric techniques and databases used in the research; Section 5 provides the empirical results of the research and, finally, Section 6 contains the conclusion.

2. Literature review

Aitken (1973) studied the effect of the European Economic Community (EEC) and EFTA on the increase in European trade. He applied gravity model and concluded that trade integrations positively affected the increase in gross domestic trade, especially in the case of EEC. Apart from this, he studied the positive effect of trade diversion of EFTA as compared to five EEC countries. Finally, EEC achieved the external effect of trade creation with EFTA, but this effect remained in the shadow of the trade diversion effect. Bhagwati (1993) explored the relationship between regional and multilateral trade. Primarily, he emphasized an increasing presence of regional trade agreements compared to multilateral agreements. Regional trade agreements represent a threat to multilateral trade because they give an advantage to member countries in the sense of enhancing their economic welfare, whereas, on the other hand, they block world trade and impoverish non-member countries. Krishna (1998) also studied the relationship between regionalism and multilateralism. To that effect, he applied Brander-Krugman model and concluded that preferential trade agreements lead to reduction in world trade flows and that they had a destimulating effect on multilateral liberalization. Regional preferential agreements cause trade diversion and thus stimulate the trade among the signatory countries, i.e. block the trade with a third party.

Carrere (2003) used the sample of 130 countries to study the effect of trade agreements on trade flows enhancement. She applied gravity model to explain the effects of trade diversion and trade creation using the example of seven regional trade agreements. The study results showed that regional agreements had a significant effect on the increase in trade flows between the member countries, whereas they contributed to a reduction in trade flows in the rest of the world – thus proving trade diversion. Furusawa and Konishi (2003) studied the factors affecting the establishment of free trade agreements. In the case when an agreement consists of symmetrical countries and when products and services cannot be substituted, then the integration structure and global trade network are stable. Baldwin and Venables (2004) studied the effect of regional economic integrations using the example of EC92 and NAFTA. Their research covered three effects of regional economic integrations: allocation, accumulation and location effect. In the case of EC92 all three effects have been observed, whereas these same effects were less present in NAFTA.

Spies and Marques (2006) researched the effect of the European free trade agreements on the Central and Eastern European countries. They applied the gravity model in order to study the effect of agreements with respect to exports and imports within the established trade bloc. They concluded that the trade exchange within the group had grown, while Slovakia and Czech Republic achieved increase in trade at the expense of import from third countries. Magee (2007) studied the effect of all regional agreements on trade flows in member countries. He applied the fixed effect technique and the gravity model. The study has shown that regional trade agreements lead to an increase in trade by 26 percent in the first four years, while in the long run or after more than 11 years there is an 89 percent increase in trade. Free trade agreements cause slower growth in intra-bloc trade compared to the customs union. Caporale et al. (2008) studied the effect of the Free Trade Agreement between the EU-15 countries and four Central and Eastern European countries. For the purpose of measurement, they used a control variable i.e. three countries such as the Russian Federation, Ukraine and Belarus, which had not signed trade agreements with the EU. They applied FEVD econometric technique, which showed that there was a positive growth trend in the trade between the countries under analysis. Trade between EU-15 and CEEC-4 countries increased by 37 percent in 1990, by 60 percent in 2000 and by 74 percent in 2005. On the other hand, Belarus, the Russian Federation and Ukraine registered a growth of 33 percent in 1992 and 38 percent in 2005. Coulibaly (2009) studied the effect of NAFTA on trade flows between member countries and with third countries. He concluded that NAFTA increased imports from non-member countries, while, in turn, exports decreased. Cieřlik and Hagemeyer (2011) studied trade liberalization of the Central and Eastern European countries in the time period from 1993 to 2004. Having applied the gravity model, they concluded that the variables had a positive effect on the increase in trade flows with the EU. This effect varied among the countries because they differ in economic strength and competitiveness. Cipollina and Salvatici (2012) researched the effect of regional free trade agreements on the increase in bilateral trade flows. They applied meta-analysis as well as random and fixed effect method and statistically presented 1827 estimates collected from the sample of 85 studies.

The research results showed that regional free trade agreements positively affected the increase in trade by 11 percent. Barbalet et al. (2015) studied the effect of 27 regional and bilateral trade agreements on Australian economy. They applied the gravity model and Poisson regression and concluded that preferential trade agreements lead to an increase in trade between trade partners, but cause negative trade balance with third countries. On the other hand, non-preferential trade agreements lead to an increase in trade both between the members and with third countries.

3. The Economic Model

The gravity model of trade bears a strong similarity to Newton's formula of gravitation. In this model, the two trading areas could be viewed as celestial objects and the value of trade could be viewed as the gravitational pull. Gravity models utilize the gravitational force concept as an analogy to explain the volume of trade, capital flows, and migration among the countries of the world. Jan Tinbergen used an analogy with Newton's universal law of gravitation to describe the patterns of bilateral aggregate trade flows between two countries A and B as "proportional to the gross national products of those countries and inversely proportional to the distance between them,"(Chaney 2011). The trade (~gravitational pull) is dependent on the GDPs (~mass) of the two trading areas, and their physical distance. The bigger the GDP (~mass) between the two trading areas (~celestial objects) the greater is the trade (~gravitational pull). The trade between

the two areas decays exponentially as distance increases (\sim decrease in gravitational pull by the square of distance).

The similarities end there as GMT can take other variables like infrastructure (\sim sources of friction) (Beronilla et al. n.d.). Thus a mass of goods or labor or other factors of production supplied at origin i , Y_i , is attracted to a mass of demand for goods or labor at destination j , E_j , but the potential flow is reduced by the distance between them, d_{ij} . Strictly applying the analogy

$$X_{ij} = Y_i E_j / d_{ij}^2 \quad (1)$$

gives the predicted movement of goods or labor between i and j , X_{ij} (Anderson 2010).

The gravity model is based on the assumption that trade between countries depends positively on their size and inversely on distance. Economically rich and geographically close countries trade more together than with third countries. In its simplest form, the gravity equation states that the bilateral trade between two countries is directly proportional to the product of the countries' GDPs. Thus, larger countries will tend to trade more with each other, and countries that are more even in their relative sizes will also trade more (Braha et al. 2014). The basic form of the gravity equation is as follows (Batra 2004)

$$Trade_{ij} = A \frac{(GDP_i GDP_j)^{b_1}}{(Distance_{ij})^{b_2}} \quad (2)$$

where $Trade_{ij}$ is the bilateral trade between country i and j ; A is a constant; GDP_i and GDP_j are the respective real domestic products of the countries; $Distance_{ij}$ is the distance in kilometers between country i and j (Gjipali et al. 2012).

In trade-theory, the gravity equation in its most basic and frequently used form is specified as (Gao 2009)

$$\ln X_{ij} = \beta_0 + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln D_{ij} + \beta_4 \ln F_{ij} + \mu_{ij}. \quad (3)$$

where X_{ij} is the amount of trade between country i (host) and country j (home), Y is the nominal GDP of each country, D_{ij} is the distance between the two countries, and F_{ij} represents any other factors that might affect the amount of trade conducted between country i and j . Miscellaneous F_{ij} factors are frequently represented by dummy variables. This is because more often than not, these factors tend to remain constant for each individual country. In conjunction with the economic size N_i of a country is its market size, meaning larger countries have greater potential markets which would attract more firms to export to that country. To account for this possibility, some theories have suggested an extension of the gravity model to include the population size of each country into the equation

$$\ln X_{ij} = \beta_0 + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln N_i + \beta_4 \ln N_j + \beta_5 \ln D_{ij} + \beta_6 \ln F_{ij} + \mu_{ij}. \quad (4)$$

4. Econometric issues

Our sample contains data relating to B&H and the EFTA countries (Iceland, Norway, Liechtenstein and Switzerland). The data used in the study are considered at annual level and pertain to the time period 2005 - 2014. They have been taken from the data bases of the Agency for Statistics

of B&H, the Central Bank of B&H, EFTA, Statistics Iceland, Amt für Statistik Liechtenstein, Statistics Norway, Swiss Statistics, Eurostat, World Bank (World Data Indicators). Amounts relating to variables are expressed in thousands of dollars.

In order to measure the effect of export and import from the EFTA countries on B&H trade balance, we applied the gravity model and the econometric technique system of simultaneous equations: Three-Stage Least Squares. We introduced three regression equations based on gravity model equation. These pertain to imports, exports and trade balance of B&H:

$$Export_{ijt} = \beta_0 + \beta_1 GDP_{jt} + \beta_2 REER_{jt} + \beta_3 CPI_{jt} + Dis_{ij} + Acc_{ijt} + Pop_{jt} + \varepsilon_{ijt} \quad (5)$$

$$Import_{ijt} = \beta_0 + \beta_1 GDP_{it} + \beta_2 REER_{it} + \beta_3 CPI_{it} + Dis_{ij} + Acc_{ijt} + Pop_{it} + \varepsilon_{ijt} \quad (6)$$

$$Trade\ Balance_{ijt} = \beta_0 + \beta_1 GDP_{it} + \beta_2 GDP_{jt} + \beta_3 REER_{it} + \beta_3 REER_{jt} + \varepsilon_{ijt} \quad (7)$$

$Export_{ijt}$ - denotes exports respectively between countries i and j at time t with $i \neq j$ (thousands of dollars) – independent variable;

$Imports_{ijt}$ - denotes exports respectively between countries i and j at time t with $i \neq j$ (thousands of dollars) – independent variable;

$Trade\ Balance_{ijt}$ - stands for the trade balance as a proportion of GDP – independent variable;

GDP_{it} , GDP_{jt} - represents the gross domestic product of country i and country j at time t – dependent variable;

$REER_{it}$, $REER_{jt}$ - represents the real effective exchange rate between i and j at time t – dependent variable;

CPI_{it} , CPI_{jt} - represents Consumer Price Index of country i and country j at time t – dependent variable;

Dis_{ij} - represents distance between the two largest or capital cities of countries i and j – dummy variable;

Acc_{ijt} - represents a dummy variable that equals 1 if country i and country j have signed a regional agreement, and zero otherwise – dummy variable;

x – represents the population of country i and country j at time t – dummy variable;

ε_{ijt} - is an error term.

The 2SLS method does not exploit the correlation of the disturbances across equations. You saw in the case of systems of regression equations that using FGLS to account for such correlations improved efficiency. This will also be true here (McFadden 1999). If the disturbances are contemporaneously correlated, a feasible generalized least squares (FGLS) version of the two-stage least squares estimation leads to consistent and asymptotically more efficient estimates (Henningsen and Hamann 2007). If the entire simultaneous equations model is to be estimated, then one should consider system estimators rather than single equation estimators. System estimators take into account the zero restrictions in every equation as well as the variance-covariance matrix of the disturbances of the whole system (Baltagi 2008). We turn to consider a system of g equations (Arellano 2003).

$$\begin{aligned} y_{1i} &= x'_{1i} \theta_1 + u_{1i} \\ &\vdots \\ y_{1i} &= x'_{1i} \theta_1 + u_{1i} \end{aligned} \quad (8)$$

whose errors are orthogonal to a common $\times 1$ vector of instruments . Thus, in this example there are moment conditions given by

$$\begin{aligned} E(z_i u_{1i}) &= 0 \\ &\vdots \\ E(z_i u_{gi}) &= 0 \end{aligned} \quad (9)$$

Convenient compact notations for these moments are (Arellano 2003)

$$E(u_i \otimes z_i) \equiv E(Z_i' u_i) \equiv E(Z_i'(y_i - X_i \theta)) = 0 \quad (10)$$

where $u_i = (u_1, \dots, u_{g_i})'$, $Z_i = I_g \otimes z_i' y_i = (y_{1i}, \dots, y_{gi})'$, $\theta = (\theta_1', \dots, \theta_{g'}')$, and

$$X_i = \begin{pmatrix} x_{1i}' 0 \\ \vdots \\ 0 x_{g_i}' \end{pmatrix}$$

Accordingly, the sample orthogonality conditions are

$$\begin{aligned} b_N(c) &= \frac{1}{N} \sum_{i=1}^N Z_i' (y_i - X_i c) = \frac{1}{N} \sum_{i=1}^N \begin{pmatrix} z_i(y_{1i} - x_{1i}' c_1) \\ \vdots \\ z_i(y_{gi} - x_{gi}' c_g) \end{pmatrix} \\ &= \frac{1}{N} \begin{pmatrix} z'(y_1 - X_1 c_1) \\ \vdots \\ z'(y_g - X_g c_g) \end{pmatrix} = \frac{1}{N} (I_g \otimes Z')(y - X_C) \end{aligned} \quad (12)$$

where $Z = (z_1, \dots, z_N)'$ is an $N \times r_0$ matrix similar to that used in the 2SLS example, and we analogously define y_1, \dots, y_g and X_1, \dots, X_g . Moreover, $y = (y_1', \dots, x_g')$ and X is a block diagonal matrix with blocks X_1, \dots, X_g . The 3SLS estimator of θ minimizes the GMM criterion

$$b_N(c)' A_N b_N(c) \quad (13)$$

with weight matrix given by

$$A_N = \left(\frac{1}{N} \sum_{i=1}^N Z_i' \hat{\Omega} Z_i \right)^{-1} = \left(\frac{1}{N} \sum_{i=1}^N \hat{\Omega} \otimes Z_i Z_i' \right)^{-1} = N(\hat{\Omega} \otimes Z'Z)^{-1} \quad (14)$$

where $\hat{\Omega}$ is the residual covariance matrix (Arellano 2003)

$$\hat{\Omega} = \frac{1}{N} \sum_{i=1}^N \hat{u}_i \hat{u}_i' \quad (15)$$

and $\hat{u}_j = y_j - X_j \hat{\theta}_{3SLS}$.

Therefore:

$$\hat{\theta}_{3SLS} = [(\sum_i X_i' Z_i) A_N (\sum_i X_i' Z_i)]^{-1} (\sum_i X_i' Z_i) A_N (\sum_i X_i' Z_i) \quad (16)$$

or

$$\hat{\theta}_{3SLS} = [(\sum_i X_i' Z_i) A_N (\sum_i X_i' Z_i)]^{-1} X' (\hat{\Omega}^{-1} \otimes Z(Z'Z)^{-1} Z') y. \quad (17)$$

Moreover, in parallel with the earlier development for , the formula can be written as

$$\hat{\theta}_{3SLS} = (\sum_i \hat{X}_i \hat{\Omega}^{-1} \hat{X}_i)^{-1} \sum_i \hat{X}_i \hat{\Omega}^{-1} y_i \tag{18}$$

where is a block diagonal matrix with blocks .

$$\hat{x}_i = \hat{\Pi}_j Z_i (j = 1, \dots, g) \tag{19}$$

with $\hat{\Pi}_j = \sum_i x_j z_i z_i' (\sum_i z_i z_i')^{-1}$.

Expression 18 corresponds to the interpretation of 3SLS on which its name is based. Namely, the first two stages coincide with those of 2SLS for each of the g equations, whereas in the third stage we obtain as $\hat{\theta}_{3SLS}$ as GLS of y_i on x_i weighted by the inverse of $\hat{\Omega}$. Note that replacing by an identity matrix in 18 we obtain a compact expression for the 2SLS estimators of all the θ . Finally, we also have

$$\hat{\theta}_{3SLS} = (\sum_i \hat{X}_i \hat{\Omega}^{-1} x_i)^{-1} \sum_i \hat{X}_i \hat{\Omega}^{-1} y_i \tag{20}$$

so that $\hat{\theta}_{3SLS}$ can also be interpreted as a simple IV estimator of the full system that uses $\hat{\Omega}^{-1} \hat{X}_i$ as instrument and solves the moment conditions

$$\sum_{i=1}^N \hat{X}_i \hat{\Omega}^{-1} (y_i - X_i \hat{\theta}_{3SLS}) = 0 \tag{21}$$

The main advantage of 3SLS over 2SLS is a gain in asymptotic efficiency. The main disadvantage is that the estimators for a single equation are potentially less robust, since they will be inconsistent if the IV assumptions that Z is predetermined fail in any equation, not just a particular one of interest (McFadden 1999).

5. Estimation results

Applying the gravity model and simultaneous equations: Three-Stage Least Squares, we studied the effect of trade liberalization with the EFTA countries on B&H trade balance. In Table 1 we presented the descriptive statistics for variables affecting the trade balance of B&H, while simultaneously leaving out dummy variables. Based on the mean value and statistical deviation, we observe that import ($Import_{ijt}$) to B&H from the EFTA countries is very high. Gross domestic product (GDP_{ijt}) of EFTA countries significantly exceeds the gross domestic product (GDP_{it}) of B&H. Trade balance ($Trade\ Balance_{ijt}$) of B&H has negative value. Consumer Price Index (CPI_{ijt}) and real effective exchange rate ($REER_{ijt}$) of EFTA countries have greater main value and statistical deviation compared to B&H.

Table 1 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Export _{ijt}	40	23478.33	39714.46	2	135878
Import _{ijt}	40	27703.4	52253.74	106	213899
Trade Balance _{ijt}	40	-4225.075	34868.53	-133631	49328

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP _{it}	40	16285.5	2542.935	10909	18692
GDP _{jt}	40	257752.1	263267.1	3659	703852
REER _{it}	40	99.525	1.154423	98	101
REER _{jt}	40	103.4	14.69659	87	153
CPI _{jt}	40	74.6775	43.53706	-.7	106.3
CPI _{it}	40	102.4	2.137816	98.8	104.9

Source: Author's

Table 2 shows the results of the effect of trade liberalization on export, import and trade balance of B&H. We concluded that the export of products from B&H to the EFTA countries is positively affected by independent variables such as Consumer Price Index, geographical distance, signed bilateral trade agreements and population of the EFTA countries. The EFTA countries have low inflation, which positively affected the import of cheap raw materials, semi-products and products from B&H.

With respect to transportation costs, geographical distance of the EFTA countries' markets does not represent a great obstacle for export of products from B&H. Additionally, signed bilateral agreements with the EFTA countries contributed to a reduction in customs duties and non-customs barriers, which boosted exports from B&H to a certain extent. Finally, EFTA market has a population of 13 million, which represents a significant potential for an increase in exports from B&H. However, in regard to gross domestic product and real effective exchange rate of the EFTA countries, we concluded that they negatively affected the increase in export from B&H.

Despite the growing GDP of the EFTA countries, export of goods from B&H did not reach the desired level, in the sense of a significant reduction in trade, because B&H exports raw materials, semi-products and products of low competitiveness for which there is low demand within the EFTA countries as a result of low global demand. Real effective exchange rates of the EFTA countries, apart from the Icelandic Krona, have appreciated compared to the real exchange rate of BAM, which was supposed to lead to an increase in exports to the aforementioned countries; however, that did not happen. Namely, this has to do with the high elasticity of demand of the EFTA countries for B&H products.

Table 2 Trade balance of B&H with the EFTA countries

Equation	Obs	Parms	RMSE	«R-sq»	chi2	P
Export _{ijt}	40	6	11298.47	0.9170	461.73	0.0000
Import _{ijt}	40	6	27977.04	0.7060	150.34	0.0000
Trade Balance _{ijt}	40	6	31317.55	0.1726	6.78	0.1481

	Coef.	Std. Err.	z	P> z 	[95% Conf.	Interval]
Export_{ijt}						
GDP _{jt}	.0571114	.0398854	1.43	0.152	-.0210626	.1352854
REER _{jt}	-117.5664	168.2399	-0.70	0.485	-447.3106	212.1778
Dis _{ij}	33.34812	12.21473	2.73	0.006	9.407687	57.28856
Acc _{ij}	91918.23	9687.8	9.49	0.000	72930.49	110906
Pop _{jt}	.0058325	.0018497	3.15	0.002	.0022071	.0094579
CPI _{jt}	-853.6563	296.9202	-2.88	0.004	-1435.609	-271.7034
_cons	-14068.78	14134.57	-1.00	0.320	-41772.02	13634.46
Import_{ijt}						
GDP _{it}	-.7754184	2.122093	-0.37	0.715	-4.934644	3.383808
REER _{it}	-3008.552	3752.583	-0.80	0.423	-10363.48	4346.375
CIP _{it}	639.2831	1789.383	0.36	0.721	-2867.843	4146.409
Dis _{ij}	-1.327231	3.030465	-0.44	0.661	-7.266833	4.612371
Acc _{ij}	84448.04	7755.467	10.89	0.000	69247.6	99648.47
Pop _{it}	.2784923	.3049471	0.91	0.361	-.319193	.8761775
_cons	-817444.5	1130758	-0.72	0.470	-3033689	1398800
Trade Balance_{ijt}						
GDP _{jt}	.0108039	.0139588	0.77	0.439	-.0165549	.0381627
GDP _{it}	4.380431	1.893555	2.31	0.021	.6691309	8.091731
REER _{it}	2934.012	4155.648	0.71	0.480	-5210.908	11078.93
REER _{jt}	210.7882	228.9957	0.92	0.357	-238.0351	659.6115
_cons	-392150.4	420480	-0.93	0.351	-1216276	431975.2

Note: *- significance at 10 percent level, **- significance at 5 percent level, ***- significance at 1 percent level. Source: Author's

The research results are in accordance with the current theoretical views and the empirical research carried out to date stating that, compared to the more industrially developed countries, less industrially developed countries, within trade liberalization, register a negative trade balance i.e. import considerably more products than they export. Less industrially developed countries import technology and sophisticated products, while they export labor-intensive products. Observed by country, B&H mostly exports footwear, clothes and furniture to Iceland; furniture, steel, steel products and footwear to Norway; and footwear and furniture to Switzerland. There are no data available on export from B&H to Liechtenstein (EFTA, 2015). Hence, we note that B&H industry has low competitiveness when compared to the EFTA countries. On the other hand, import from the EFTA countries exceeds export considerably, which causes the trade balance deficit. It was only in the case of independent variable bilateral trade agreements that

we observed a positive effect on the reduction of import from the EFTA countries, whereas other independent variables exhibited a negative effect. Observed by country, B&H mostly imports livestock and manufacturing machines from Norway and pharmaceutical products, machines for machinery industry and electrical machines from Switzerland (EFTA, 2015). There are no data available on import from Iceland and Liechtenstein.

Finally, we have concluded that B&H registered a deficit in trade balance with the EFTA countries. This is mostly ascribed to the fact that imports exceed exports and particularly to the negative effect of variables such as gross domestic product and real effective exchange rates of the EFTA countries. On the other hand, decrease in gross domestic product of B&H positively affected the reduction in B&H trade balance deficit. In the period 2005-2014, GDP of B&H fell considerably, resulting in a decrease in domestic demand, which indirectly led to a decrease in import of products from the EFTA countries and a relative decrease in trade deficit.

6. Conclusion

This paper studies the effect of the liberalization of trade with the EFTA countries on B&H trade balance. It analyzes the time series data for the period 2005 – 2014. We applied the gravity model and simultaneous equations: Three-Stage Least Squares. According to theoretical views, trade liberalization aims to enhance economic welfare and improve trade flows between partners. The research results confirm the current theoretical views and the previously carried out empirical research pertaining to trade liberalization and signing of trade agreements. Liberalization of trade between B&H and the EFTA countries enhanced the trade exchange; however, it did not lead to a significant reduction in trade balance deficit, i.e. imports continued to exceed the exports considerably. Liberalization of trade between the industrially developed countries and the less industrially developed countries in most cases does not positively affect the latter countries. Generally, less industrially developed countries register a negative trade balance and there is no convergence in trade exchange.

We have concluded that export of products from B&H to the EFTA countries is positively affected by the factors such as Consumer Price Index, signed bilateral trade agreements, population and geographical distance of the EFTA countries, whereas it is negatively affected by gross domestic product and real effective exchange rates. Namely, we found that of all the analyzed factors affecting the reduction in import of products from EFTA to B&H, only bilateral agreements exhibited a positive effect, while the other variables had a negative impact. The fact that imports exceed exports is explained by the increase in import of sophisticated technology and pharmaceutical products from the EFTA countries, while B&H exports labor-intensive products such as footwear, furniture and steel. Apart from this, one of the main reasons for low export to the EFTA countries lies in the fact that the consumers and economies of the given countries exhibit more elasticity with respect to B&H products, i.e. these products are less competitive. On the other hand, consumers and economies in B&H show non-elasticity with respect to products imported from the EFTA countries.

Finally, the result where we have imports exceeding exports leads to a balance of trade deficit in B&H. Trade balance deficit of B&H has decreased in the last couple of years due to a fall in GDP of B&H, which reflected itself on the reduction in domestic demand and import of products from the EFTA countries. However, the main reasons for B&H deficit pertain to exports of products, raw materials and semi-products of low competitiveness. In order to achieve convergence in trade balance between B&H and EFTA in the long run, B&H needs to implement the necessary economic reforms and change the product export structure, i.e. to improve its competitive position in relation to the EFTA countries.

References

- Ahearn JR (2011) Europe's Preferential Trade Agreements: Status, Content, and Implications, CRS Report for Congress, Congressional Research Service. Available at: <https://www.fas.org/sgp/crs/row/R41143.pdf>.
- Aitken DN (1973) The Effect of the EEC and EFTA on European Trade: A Temporal Cross-Section Analysis, *The American Economic Review*, Vol. 63, No. 5. Available at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.472.1572&rep=rep1&type=pdf>.
- Anderson JE (2010) The Gravity Model, Working Paper No. 16576, December, National Bureau of Economic Research, Cambridge, MA. Available at: <http://www.nber.org/papers/w16576.pdf>
- Arellano M (2003) *Panel Data Econometrics*, Oxford U. Press. Available at: <http://dx.doi.org/10.1093/0199245282.001.0001>.
- Avery G (1995) The Commission's Perspective on the EFTA Accession Negotiations, SEI Working Paper No. 12, Sussex European Institute. Available at: <https://www.sussex.ac.uk/webteam/gateway/file.php?name=sei-working-paper-no-12.pdf&site=266>.
- Baldwin R, Venables JA (2004) *Regional Economic Integration*. Available at: http://graduateinstitute.ch/files/live/sites/iheid/files/sites/ctei/shared/CTEI/Baldwin/Publications/Chapters/Trade%20Theory/Baldwin_Venables_Handbook.pdf.
- Baldwin R (2011) Sequencing Regionalism: Theory, European Practice, and Lessons for Asia, ADB Working Paper Series on Regional Economic Integration, No. 80, Asian Development Bank. Available at: https://aric.adb.org/pdf/workingpaper/WP80_Baldwin_Sequencing_Regionalism.pdf.
- Baltagi HB (2008) *Econometrics*, Fourth Edition, Heidelberg: Springer-Verlag Berlin.
- Barbalet F, Greenville J, Crook W, Gretton P, Breunig R (2015) Exploring the Links between Bilateral and Regional Trade Agreements and Merchandise Trade, *Asia & The Pacific Policy Studies*, Vol. 2, No. 3. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/app5.101/pdf>.
- Batra A (2004) India's Global Trade Potential: The Gravity Model Approach, ICRIER Working paper No. 151. Available at: <http://www.icrier.org/pdf/wp151.pdf>.
- Baudenbacher C. (2005) The Implementation of Decisions of the ECJ and of the EFTA Court in Member States Domestic Legal Orders, *Texas International Law Journal*, Vol. 40. Available at: <http://www.tilj.org/content/journal/40/num3/Baudenbacher383.pdf>.
- Beronilla NL, Esguerra PJH, Ocampo J (n.d.) The economic potential via the gravity model of trade. Available at: http://nap.psa.gov.ph/ncs/12thncs/papers/CONTRIBUTED/CPS-2%20Socio%20Economic%20Statistics%20II/CPS-2_4_The%20Economic%20Potential%20via%20the%20Gravity%20Model%20of%20Trade.pdf.
- Bhagwati J, Panagariya A (1996) The Theory of Preferential Trade Agreements: Historical Evolution and Current Trends, *The American Economic Review*, Vol. 86, No. 2, In: Proceedings of the Hundred and Eighth Annual Meeting of the American Economic Association San Francisco, CA, 5-7 January. Available at: http://www.jstor.org/stable/2118101?seq=1#page_scan_tab_contents.
- Bhagwati J (1993) Regionalism versus Multilateralism, In: De Melo J, Panagariya A (eds) *New dimensions in regional integration*, 22-46, Cambridge University Press.
- Braha K, Qineti A, Smutka L, Matejková E, Pietriková M (2014) EU accession and trade integration: the gravity model of trade in the case of the EU candidate countries, In: 142nd EAAE Seminar Growing Success? Agriculture and rural development in an enlarged EU, 29-30 May, Corvinus University of Budapest, Hungary. Available at: http://ageconsearch.umn.edu/bitstream/168926/2/paper_Braha_Qineti_Smutka_Matejkova_Pietrikova.pdf.

- Caporale MG, Rault C, Sova MA (2008) On the Trade Balance Effects of Free Trade Agreements Between the EU-15 and the CEEC-4 Countries, Working Paper No. 912, William Davidson Institute. Available at: <http://deepblue.lib.umich.edu/bitstream/handle/2027.42/64367/wp912.pdf?sequence=1>.
- Carrere C (2003) Revisiting the Effects of Regional Trading Agreements on with Proper Specification of the Gravity Model, CERDI, Etudes et Documents, E 10. Available at: <http://publi.cerdi.org/ed/2003/2003.10.pdf>.
- Chaney T (2011) The Gravity Equation in International Trade: An Explanation. Available at: <http://www.tse-fr.eu/sites/default/files/medias/doc/by/chaney/distance.pdf>.
- Cieřlik A, Hagemeyer A (2011) The Effectiveness of Preferential Trade Liberalization in Central and Eastern Europe, Working Papers No. 21, (61), Faculty of Economic Sciences University of Warsaw. Available at: http://www.wne.uw.edu.pl/files/7813/9628/4103/WNE_WP61_2011.pdf.
- Cipollina M, Salvatici L (2012) Reciprocal trade agreements in gravity models: a meta-analysis, Working Paper 06, Tradeag is a Specific Targeted Research Project financed by the European Commission within its VI Research Framework. Available at: <https://www.gtap.agecon.purdue.edu/resources/download/3689.pdf>.
- Coulibaly S (2009) Evaluating the Trade Effect of Developing Regional Trade Agreements: A Semi-Parametric Approach, WPS 4220. Available at: <http://dx.doi.org/10.11130/jei.2009.24.4.709>
- Dee P, Gali J (2005) The Trade and Investment Effects of Preferential Trading Arrangements, In: Ito T, Rose KA (eds) *International Trade in East Asia*, NBER-East, Asia Seminar on Economics, Vol. 14, August, University of Chicago Press. Available at: <http://www.nber.org/chapters/c0193.pdf>.
- EFTA Team. (2004) Study of Consequences from Entering into an FTA with EFTA, Part IV: Advice on Trade and Investment Opportunities, Revised Draft Report. Available at: <http://www.thaifta.com/thaifta/portals/0/file/efta123004.pdf>.
- European Free Trade Association (2015) Trade Statistics – EFTA - Bosna-Herzegovina Merchandise Trade – Overview. Available at: <http://www.efta.int/free-trade/trade-statistics>.
- Ferreira PM (1990) Effects of European Integration on Nordic, Working Papers No. 279, In: IUIjNEF Workshop on The EC Internal Market and the Nordic Countries, at Lidingö, 11-13 June. Available at: <http://www.ifn.se/wfiles/wp/wp279.pdf>.
- Fundira T (2007) The SACU-EFTA Agreement: current trading relationship and implications, Tralac Trade Brief, No. 11. Available at: <http://paulroos.co.za/wp-content/blogs.dir/12/files/2011/uploads/TB11%20FUNDIRA%20SACU%20EFTA%20Agr%2018122007.pdf>.
- Furusawa T, Konishi H (2003) Free Trade Networks. Available at: <http://fmwww.bc.edu/ec-p/wp548.pdf>.
- Gao S (2009) The Predictive Capacity of the Gravity Model of Trade on Foreign Direct Investment, National ekonomiska Institutionen, Uppsala Universitet. Available at: <http://www.diva-portal.org/smash/get/diva2:216318/FULLTEXT01.pdf>.
- Gjipali A, Jorgji E, Liko E (2012) Intra-Regional Trade in Transitional Economy: Prospects from South-Eastern Europe European Perspectives, *Journal on European Perspective of the Western Balkans*, Vol. 4, No 4, 2 (77) Available at: <http://www.cep.si/dokumenti/Arsena%20Gjipali,%20Etis%20Jorgji,%20Elida%20Liko.pdf>.
- Henningesen A, Hamann, DJ (2007) Systemfit: A Package for Estimating Systems of Simultaneous Equations in R, *Journal of Statistical Software*, Vol. 23, Issue 4. Available at: <http://www.jstatsoft.org/article/view/v023i04>.
- Krishna P (1998) Regionalism and Multilateralism, *The Quarterly Journal of Economics*. [Available at: <http://dx.doi.org/10.1162/00335539851144162>].

- Lipsey GR (1957) *The Theory of Customs Unions: Trade Diversion and Welfare*, *Economica*, New Series, Vol. 24, No. 93. Available at: <http://dx.doi.org/10.2307/2551626>
- Magee SPC (2007) *New Measures of Trade Creation and Trade Diversion*. Available at: <http://www.facstaff.bucknell.edu/cmagee/trade%20creation%20and%20diversion,%20magee,%20august%202007.pdf>.
- Mansfield DE, Helen V, Milner, VH (1999) *The New Wave of Regionalism*, *International Organization* 53, 3, The IO Foundation and the Massachusetts Institute of Technology. Available at: <http://dx.doi.org/10.1162/002081899551002>.
- Matta A (2014) *EU differentiated integration frameworks – has the EU learnt its lesson in the Eastern Neighborhood?*, In *UACES 44th Annual Conference*, Cork, September. Available at: <http://www.uaces.org/documents/papers/1401/matta.pdf>.
- McFadden D (1999) *Economics* 240, *Simultaneous Equations*. Available at: https://eml.berkeley.edu/~mcfadden/e240b_f01/ch6.pdf.
- Mihashi K (2009) *The Effect of Regional Trade Agreements on the Global Economy and Society*, Master of Thesis, The Graduate School of Arts and Sciences at Georgetown University. Available at: <https://repository.library.georgetown.edu/bitstream/handle/10822/553179/mihashiKohichi.pdf?sequence=1>.
- Mukunoki H (2005) *Understanding the Effects of Preferential Trade Agreements: A Theoretical Overview*, *Bulletin of Gakushuin University* No.19, Research Institute of Economics and Management. Available at: <http://www-cc.gakushuin.ac.jp/~20030012/paper/GEM19-mukunoki.pdf>.
- Park I, Park S (2008) *Free Trade Agreements versus Customs Unions: An Examination of East Asia*, MPRA paper No. 11301, Munich Personal RePEc Archive. Available at: https://mpra.ub.uni-muenchen.de/11301/1/MPRA_paper_11301.pdf.
- Robinson S, Thierfelder K (1999) *Trade Liberalization and Regional Integration: The Search for Large Numbers*, TMD Discussion Paper No. 34, In: presented to the meetings of the International Agricultural Trade Research Consortium (IATRC), Research Institute Washington, Florida, December. Available at: <http://ageconsearch.umn.edu/bitstream/97554/2/tmdp34.pdf>.
- Saggi K, Stoyanov A, Yildiz MH (2015) *Do free trade agreements affect tariffs of non-member countries? A theoretical and empirical investigation*, Vanderbilt University Department of Economics. Available at: <http://economics.ryerson.ca/workingpapers/wp051.pdf>.
- Schmieding H (1989) *Between Perestroika and Internal Market 1992: A new role for EFTA*, Kiel Working Papers No. 370, Kiel Institute for the World Economy (IfW), Leibniz Information Centre for Economics. Available at: <http://econstor.eu/bitstream/10419/47051/1/042029694.pdf>.
- Službeni glasnik BiH – Međunarodni ugovori (2014) *Sporazum o slobodnoj trgovini između država Evropskog udruženja slobodne trgovine i BiH*, Službeni Glasnik BiH – Međunarodni ugovori, Br. 18, Oktobar. Available at: <http://www.uino.gov.ba/download/2015/18.02.2015.%20Ugovor%20EFTA%20BS.pdf>.
- Snorrason ST (2012) *Asymmetric Economic Integration*, *Contributions to Economics*, Springer-Verlag Berlin, Heidelberg. Available at: http://dx.doi.org/10.1007/978-3-7908-2861-0_1.
- Spies J, Marques H (2006) *Trade Effects of the Europe Agreements*, Nr. 274, Institut für Volkswirtschaftslehre (520), Universität Hohenheim. Available at: <https://www.uni-hohenheim.de/RePEc/hoh/papers/274.pdf>.
- Srinivasan TN (2002) *Developing Countries and the Multilateral Trading System After Doha*, Center Discussion Paper No. 842, Economic Growth Center, In: *International Symposium on The WTO: Present and Future Challenges*, Aoyama Gakuin University, 8 December 2002, Tokyo. Available at: http://aida.wss.yale.edu/growth_pdf/cdp842.pdf.

Stevens C, Irfan I, Massa I, Kennan J (2015) The Impact of Free Trade Agreements between Developed and Developing Countries on Economic Development in Developing Countries: A Rapid Evidence Assessment, Overseas Development Institute, London. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/448862/REA_FreeTradeAgreements.pdf.

Trocen ML (2010) The European Free Trade Association – 50 years of existence, Seria Științe Juridice, Nr. 1, Analele Universității Constantin Brâncuși din Târgu Jiu. Available at: http://www.utgjiu.ro/revista/jur/pdf/2010-01/9_LAURA_MAGDALENA_TROCEN.pdf.

Van Randwyck H (2011) FTA or the EU, The Bruges Group, London. Available at: <http://www.brugesgroup.com/EFTAorTheEU.pdf>.

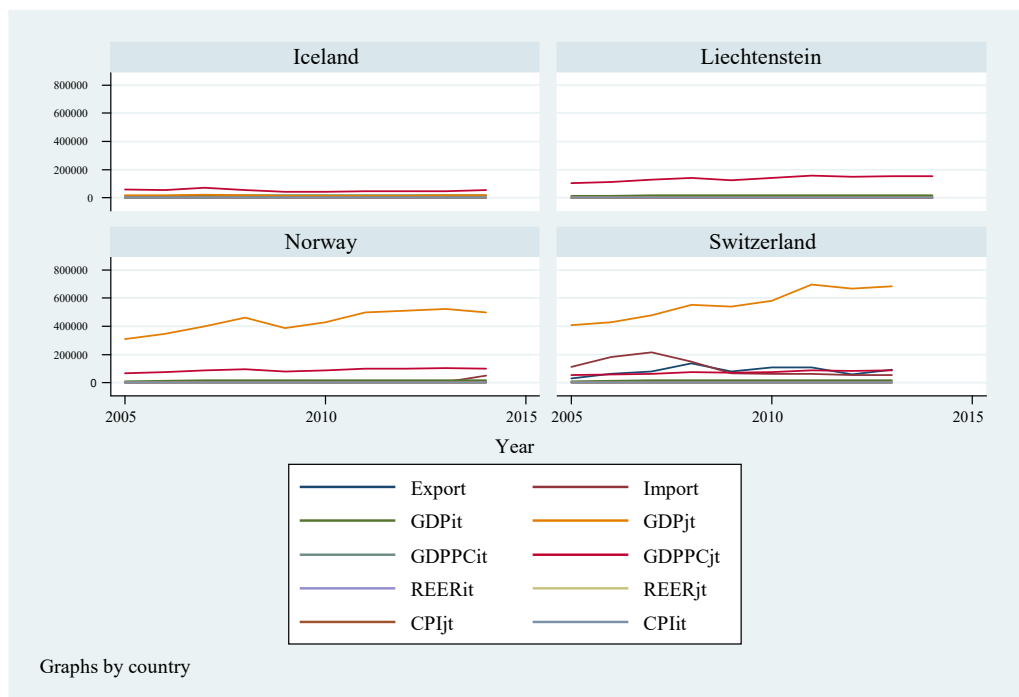
Viner J (1950) The Customs Unions Issue, New York: Carnegie Endowment for International Peace.

World Trade Organization. (2015) Regional trade agreements, Facts and figures, In WTO Homepage. World Trade Organization. Available at: https://www.wto.org/english/tratop_e/region_e/region_e.htm.

Zahariadis Y (2007) The Effects of the Albania-EU Stabilization and Association Agreement: Economic Impact and Social Implications, ESAU Working Paper 17, Overseas Development Institute, London. Available at: <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2527.pdf>.

Appendix 1

Figure A1 Independent variables affecting the B&H trade balance with the EFTA countries



Source: Author's