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## Article

# Import tariffs of trading partners: Evidence from three West Balkan countries

Comparative Economic Research. Central and Eastern Europe

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*Suggested Citation:* Kurtović, Safet; Halili, Blerim; Maxhuni, Nehat (2017) : Import tariffs of trading partners: Evidence from three West Balkan countries, Comparative Economic Research. Central and Eastern Europe, ISSN 2082-6737, De Gruyter, Warsaw, Vol. 20, Iss. 4, pp. 83-100, <https://doi.org/10.1515/cer-2017-0029>

This Version is available at:

<https://hdl.handle.net/10419/184450>

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## Import Tariffs of Trading Partners: Evidence from Three West Balkan Countries

### Abstract

*This paper aims to examine the effect of reducing the import tariffs of trading partners on total and individual exports of products from three countries of the Western Balkans and individually observed for each country. In order to investigate the potential effect, this paper applied the gravity equation and the GMM model system dynamic data estimation. The research is based on aggregate and non-aggregate approach. Within the aggregate approach for the three countries of the Western Balkans, the reduction of import simple average tariff rate (SAT) and weighted average tariff (WAT) rate have a positive effect on the growth of total and individual exports of products. Within the non-aggregate approach for each country individually, the reduction in imports of SAT and WAT rates also have a positive effect on the growth of total and individual exports of products from Albania and Serbia, while this effect is weak for FYR Macedonia.*

**Keywords:** tariffs, exports, products, preferential tariffs, trade agreements

**JEL:** F11, F14, F15

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## 1. Introduction

The basic goals of the foundation of PTAs (preferential trade agreements) are to insure a higher economic integration and access to markets of the member countries. PTAs are related to a wider range of international trade agreements, such as the common market, tariffs union, areas of free trade and economic union (Brenton and Manchin 2002, pp.1–23; Mansfield and Milner 2015, pp. 1–41). It is about trade agreements which represent an alternative to the multilateral trade system (Korinek and Bartos 2012, pp. 1–61).

Within the last few decades, the number of the PTAs has increased significantly. They rose as a response to the slow process of liberalization of multilateral trade (Hansen and Sala 2013, pp. 1–32; Bown and Crowley 2016, pp. 1–100). According to the regional trade base of the World Trade Organization (WTO), the number of PTAs at the end of 2016 amounted to was 635 (Missios et al. 2016, pp. 105–119). For the most part they are represented in Europe and Northern America, and account for almost 40% of world trade. PTAs enable the reciprocal preferential access at zero tariffs for the products from member countries, thereby strengthening the trade cooperation (Nicita 2011, pp. 1–29). In addition to that, they insure the removal of discriminatory barriers related to the flow of goods, capital and services, through which a unilateral trade policy between member countries is established, while it has a negative effect on third countries in the sense of losing welfare. PTAs in the regional trade can be the cause of the reduction or loss of social welfare, i.e. they are a stumbling or building blocks in relation to multilateral trade. What makes PTAs particularly important is that the higher number of countries across the world, of a varying level of development, is becoming a part of them, i.e. leading to the overlap of agreements or “spaghetti bowls” (Mukunoki 2005, pp. 31–51; Medvedev 2006, pp. 1–90).

Within the last few decades, numerous studies have been conducted to test the effect of PTAs on the growth of the trade flows of exchange. In that sense, we wish to point out that early and recent research have succeeded to investigate the effects of PTAs on trade flows. We number Lipsey (1957, pp. 40–46), Fleming and Mundell (1964, pp. 1–19), Brada and Mendez (1983, pp. 589–603), Richardson (1993, pp. 309–324), Frankel et al. (1995, pp. 61–95), Grossman and Helpman (1995, pp. 667–690), Bagwell and Staiger (2001, pp. 69–88) etc. In the group of recent studies we number Clausing (2001, pp. 677–696), who conducted the effect of reduction of import preferential tariffs between the USA and Canada during the period between 1989 and 1999. The results of the research have shown that the reduction of import tariffs leads to the growth of the USA exports to Canada. Brenton and Manchin (2002, pp. 1–23) tested whether the effect of the import preferential tariffs of the EU with the neighbouring countries and the countries of the Balkans. The results of the investigation have shown that the EU preferential tariffs have

a positive effect only in the case of the Balkan countries, because the rule of the origin of products does not apply to them. Haveman and Schatz (2003, pp. 1–27) tested whether the reduction of import preferential tariffs of the EU leads to the growth of export of the developing countries. Candau and Jean (2005, pp. 1–37) tested whether that the reduction of import preferential tariffs of the EU has a positive effect on their export using as example the countries of the sub-Saharan Africa. Manchin (2006, pp. 1243–1266) tested whether the effect of the reduction of import preferential tariffs of the EU on the growth of export of African, Caribbean and Pacific countries. The results of the investigation have shown that if the preferential tariffs are lower in relation to the world tariffs, then we have an increase of exports and the reduction of demands for issuing preferences.

Alfieri et al. (2008, pp. 1–37) tested whether that the unilateral reduction of import tariffs by the EU hasn't led to a motivated whether significant growth of import of products from Mozambique, because most of the products exported by Mozambique have a zero tariff of the Most-Favored Nation. Nilsson and Mattsson (2009, pp. 1–34) tested whether that the reduction of the import preferential tariff of the EU has a positive effect on most countries which are part of the PTA. Candau et al. (2004, pp. 1–17) have examined the effect of preferential regime on export of products to the EU. The results of the research have shown that the reduction of the import preferential tariffs has no influence on facilitating market access in the EU.

The countries of the Western Balkans are part of the preferential trade agreements with the EU, EFTA, CEFTA 2006, Russia and Turkey. For Albania, Serbia and Macedonia we made a decision to make them a part of our sample, in relation to other countries of the Western Balkans, because these countries share approximately the same date of signing and entry into effect the agreements with the EU, CEFTA 2006 and EFTA, while the other Western Balkan countries later signed the above-mentioned agreements. The preferential trade agreements with Russia were left out of our sample because the different date of signing and coming into effect of those agreements. Thus, the basic goal of this research is to investigate the effect of preferential trade agreements, i.e. to test the aggregate and non-aggregate effect of the reduction of Simple Average Tariff and the Weighted Average Tariff of the EU, CEFTA 2006 and EFTA on the total and individual export of raw materials, intermediate goods and consumer goods of the three countries of the Western Balkans. In our research, we have left out the question of the effect of the import tariffs on the capital products due to data unavailability. Besides, the goal of this research is to investigate which of the two import tariffs of trade partners, i.e. the simple average tariff or the weighted average tariff, has a greater effect on the export of products.

The structure of the remaining part of the thesis consists of: Section 2 describes the economic model, econometric techniques and data sources used; section 3 presents the empirical results; Section 4 presents the conclusion.

## 2. Methodology and Data

### 2.1. Gravity Model

In our research, we took the gravity equation as the framework on the basis of which we will assess the bilateral trade flows between trading partners, i.e. as a result of the effects of certain factors. Given that our research is based theoretical assumptions starts from the premise that exports of the country  $i$  to the country  $j$  depend on the influence of three interrelated factors. The first factor relates to the possibility of export supply of the country  $i$ , i.e. which depends on the extent of income of the exporting country. The second factor relates to the import demand function of the importing country  $j$  which depends on the extent of income of the importing country. Finally, the third factor is related to trade barriers in the form distance (Caporale et al. 2009, pp. 1–30; Hayakawa 2011, pp. 1–25). In addition to the above factors, we can add to our gravity equation GDP per capita which is about consumer power in the importing country  $j$  (Bergstrand 1989, pp. 143–53). Our regression equation will be presented on the basis of the equation (1):

$$\ln(\text{Total Exports}_{pj}) = \beta_0 + \beta_1 \ln(\text{GDP}_j) + \beta_2 \ln(\text{Dist}_{ij}) + \varepsilon_{ij}. \quad (1)$$

In equation (1) we have included the GDP per capita and import tariffs, and thereby got the equation (2). Based on the equation (2) we estimated the aggregate effect of the PTAs, i.e. the import simple average tariff rate – SAT rates and the import weighted average tariff rate – WAT rate of trade partner on the total export of products of the three countries of the Western Balkans. In equation (3) we estimated the individual effect of the import SAT and WAT rates on the exports of raw materials, intermediate goods and consumer goods of the three countries of the Western Balkans.

$$\begin{aligned} \ln(\text{Total ExportsWBC}_i) = & \beta_0 + \beta_1 \ln(\text{GDP}_j) + \beta_2 \ln(\text{GDPpc}_j) + \\ & \beta_3 \ln(\text{ImportSATrm, SATig, SATci}_{pj}) + \\ & \beta_4 \ln(\text{ImportWATrm, WATig, WATci}_{pj}) + \beta_5 (\text{Dist}_{ij}) + \varepsilon_{ij}. \end{aligned} \quad (2)$$

$$\begin{aligned} \ln(\text{ExportsWBC}_{rm, ig, cg}_i) = & \beta_0 + \beta_1 \ln(\text{GDP}_j) + \beta_2 \ln(\text{GDPpc}_j) + \\ & \beta_3 \ln(\text{ImportSATrm, SATig, SATci}_{pj}) + \\ & \beta_4 (\text{ImportWATrm, WATig, WATci}_{pj}) + \beta_5 (\text{Dist}_{ij}) + \varepsilon_{ij}. \end{aligned} \quad (3)$$

After the evaluation of the aggregate effect, we approached the evaluation of the non-aggregate effect in the equation (4). We tested the individual effect of the import tariffs of trade partners on the total exports for each country viewed individually. In addition to that, in equation (5) with the help of GMM system dynamic panel data estimation we tested the effect of the PTA, i.e. the import SAT rates

and the import WAT rates on the export of raw materials, intermediate goods and consumer goods for each country viewed individually.

$$\begin{aligned} \ln(\text{TotalExports}_{\text{Alb,Srb,FRY Mac}_i}) &= \beta_0 + \beta_1 \ln(\text{GDP}_j) + \beta_2 \ln(\text{GDPpc}_j) + \\ &\beta_3 \ln(\text{ImportSATrm, SATig, SATci}_{pj}) + \\ &\beta_4 \ln(\text{ImportWATrm, WATig, WATci}_{pj}) + \beta_5 \ln(\text{Dist}_{ij}) + \varepsilon_{ij}. \end{aligned} \quad (4)$$

$$\begin{aligned} \ln(\text{Exports}_{\text{Alb,Srb,FRY Mac rm,ig,cg}_i}) &= \beta_0 + \\ &\beta_1 \ln(\text{GDP}_j) + \beta_2 \ln(\text{GDPpc}_j) + \beta_3 \ln(\text{ImportSATrm, SATig, SATci}_{pj}) + \\ &\beta_4 \ln(\text{ImportWATrm, WATig, WATci}_{pj}) + \beta_5 \ln(\text{Dist}_{ij}) + \varepsilon_{ij}. \end{aligned} \quad (5)$$

where  $\ln(\text{TotalExports}_{\text{WBC}_i})$  – total export of products of the country  $i$ ;  $\ln(\text{TotalExports}_{\text{Alb,Srb,FRY Mac}_i})$  – export of raw materials, intermediate goods and consumer goods into the country  $i$  according to harmonized system into the country  $j$ ;  $\ln(\text{GDP}_j)$  – real gross domestic product of the country  $j$ ;  $\ln(\text{GDPpc}_j)$  – gross domestic product per capita of the country  $j$ ;  $\ln(\text{ImportSATrm, SATig, SATci}_{pj})$  – import simple average tariff rate  $j$  for product  $p$  and  $\ln(\text{ImportWATrm, WATig, WATci}_{pj})$  – import weighted average tariff rate of country  $j$  for product  $p$ ;  $\ln(\text{Dist}_{ij})$  – distance between the economic centres of the trade partners  $ij$ ;  $\varepsilon_{ij}$  – residual term.

Based on the regression equations (2), (3), (4) and (5) we expect our variables to have the following expected signs. For the gross domestic product of country  $j$   $\ln(\text{GDP}_j)$  we expect it to have a positive sign (+), while we expect the gross domestic product per capita of country  $j$   $\ln(\text{GDPpc}_j)$  to have a positive and negative sign (+). For the import simple average tariff rate  $j$  for product  $p$   $\ln(\text{ImportSATrm, SATig, SATci}_{pj})$  and the import weighted average tariff rate of country  $j$  for product  $p$   $\ln(\text{ImportWATrm, WATig, WATci}_{pj})$  we expect a negative sign (-/+). Finally, in case of a distance between economic centres of the trading partners  $\ln(\text{Dist}_{ij})$  we expect a positive and negative sign (+/-).

## 2.2. Econometric Methodology

System GMM is a preferred approach since this approach has better finite sample properties when the instruments are weak, which occurs mainly when the GDP series is persistent. Moreover, it utilizes both lagged and differenced versions of the regressors as instruments in obtaining coefficient estimates. The GMM dynamic panel estimator uses the following momentary conditions under two assumptions: i) the error term is not serially correlated and ii) the explanatory variables are not correlated with future realizations of the error term (Carkovic and Levine 2002, pp. 1–23):

$$E[Y_{i,t-j} \cdot (u_{i,t} - e_{i,t-1})] = 0 \text{ for } j \geq 2, \dots, (T-1); t = 3, \dots, T \quad (6)$$

$$E[X_{i,t-j} \cdot (u_{i,t} - e_{i,t-1})] = 0 \text{ for } j \geq 2, \dots, (T-1); t = 3, \dots, T \quad (7)$$

The first difference estimator suffers from the following problem: the instruments available for first-differenced equations are weak when the explanatory variables are persistent over time. Such weak instruments can bias the coefficients when the sample size is small. Blundell and Bond (1998, pp. 1–24) proposed a new estimator that has superior finite sample properties. This new estimator combines the regression in differences with the regression in levels in a system of equations. Under the following additional assumption, this new estimator has been shown to have superior finite sample properties in an autoregressive model with panel data (Carkovic and Levine 2002, pp. 1–23):

$$E[y_{i,t+p} \cdot \eta_i] - E[y_{i,t+q} \cdot \eta_{i,t}] = 0 \text{ and } E[X_{i,t+p} \cdot \eta_i] - E[X_{i,t+q} \cdot \eta_{i,t}] = 0, \quad (8)$$

for all  $p$  and  $q$

Considering the second part of the system, which includes the regression in levels, the additional momentary conditions are (Carkovic and Levine 2002, pp. 1–23):

$$E[(Y_{i,t-1} - y_{i,t-2}) \cdot (u_i + e_{i,t})] = 0 \text{ for } s = 1 \quad (9)$$

$$E[(X_{i,t-1} - X_{i,t-2}) \cdot (u_i + e_{i,t})] = 0 \text{ for } s = 1 \quad (10)$$

The GMM system estimator is more efficient than the GMM in differences (Caporale et al. 2009, pp. 1–30).

### 2.3. Data

Our research rests on the application of aggregate and non-aggregate yearly data from 2010 to 2015 for three countries of Western Balkans. Data on the total exports were taken from the International Financial Statistics (Direction of Trade Statistics). The total value of exports is expressed in millions of \$US free on board or at the port of export (f.o.b. price). Data on the individual source of raw materials, intermediate goods and consumer goods were taken from The World Bank's

World Integrated Trade Solution (WITS), i.e. from UNCTAD's TRAINS database (UNCTAD). The real gross domestic product and gross domestic product per capita were taken from the World Bank's WDI (World Development Indicators) and Eurostat (Economy and Finance) – the value of the variables is expressed in millions of \$US.

Albania, Macedonia and Serbia signed preferential agreements with the EU, EFTA and CEFTA 2006. A large part of the exports is under the auspices of the Generalized System of Preferences (GSP). The data on the simple average tariff rate and the average weighted tariff rate for raw materials, intermediate goods and consumer goods were taken from UNCTAD's TRAINS database. The simple average tariff rate (SAT) represents the average of ad-valorem and ad valorem-equivalent MNF applied HS 6 – six-digit numbers. The tariff duty is the same for all products, no matter the amount of products imported. The weighted average tariff rate (WAT) is the weighted average HS 6 – six-digit import-traded products. The tariff is higher for the higher volume of product imports. The data on the import simple average tariff rate and the import weighted average rate were taken from the combined harmonized system HS – The World Bank's World Integrated Trade Solution (WITS), i.e. the UNCTAD's TRAINS database. The products were classified according to the harmonized combined system of HS tariff lines (tariff-line level data) at the six-digit level. The data on the geographical distance were taken from CEPII ([www.cepii.fr](http://www.cepii.fr)).

### 3. Empirical Results

#### 3.1. The Aggregate Effect of PTAs, i.e. the Import Tariffs on the Imports of Three Countries of the Western Balkans

The results of our research are presented in two parts. In part one, the estimates relate to the effect of PTAs, i.e. the import simple average tariff rates (SAT) and the import weighted tariff rates (WAT) on the total exports of products, raw materials, intermediate goods and consumer goods of three countries of the Western Balkans. In part two, the results of the estimate relate to the effect of PTAs, i.e. the import SAT rate and the import WAT rate on the individual exports of Albania, Macedonia and Serbia. In part one the aggregate data was used, while in the latter part non-aggregate data was used. Based on the regression equations (2) and (3) in Table 1, we presented the results of estimating the coefficients of independent variables on the total imports of products, raw materials, intermediate goods and consumer products of three countries of the Western Balkans. The estimated value of the coefficients is in accordance with the expected signs. Namely, the research done by Brenton and Manchin (2002, pp. 1–23), Haveman and Schatz (2003,



pp. 1–27), Nilsson and Matsson (2009, pp. 1–34) and Candau et al. (2004, pp. 1–17) confirm the results of our research that the import preferential tariffs of trade partners have a positive effect on the exports of products.

**Table 1. The influence of export tariffs on the total exports of three countries of the Western Balkans**

Variable	GMM I	GMM II	GMM III	GMM IV
<i>lnGDP</i>	1.383443 (0.000)*	1.385996 (0.000)*	1.434134 (0.000)*	6.294926 (0.143)
<i>lnGDP<sub>pc</sub></i>	1.088766 (0.000)*	1.401892 (0.000)*	1.705576 (0.000)*	6.28.3442 (0.017)**
<i>lnImportSAT<sub>rm</sub></i>	-0.797498 (0.000)*	-0.051751 (0.145)		
<i>lnImportWAT<sub>rm</sub></i>	-0.149071 (0.000)*	-0.064355 (0.000)*		
<i>lnImportSAT<sub>ig</sub></i>	-0.319734 (0.583)		-0.745616 (0.112)	
<i>lnImportWAT<sub>ig</sub></i>	-0.437326 (0.285)		-0.262676 (0.111)	
<i>lnImportSAT<sub>cg</sub></i>	-0.4204766 (0.000)*			-0.327557 (0.000)*
<i>lnImportWAT<sub>cg</sub></i>	-0.138561 (0.000)*			-0.278458 (0.000)*
<i>lnDist<sub>ij</sub></i>	2.701451 (0.269)	2.904015 (0.000)*	2.861583 (0.000)*	3.449367 (0.083)***
Constant	1.239303 (0.601)	8.443727 (0.000)*	12.13722 (0.000)*	6.623023 (0.054)***
Wald chi2(12)	2627.23	54.49	71.41	3.01
Prob>chi2	0.0000	0.0000	0.0000	0.2221

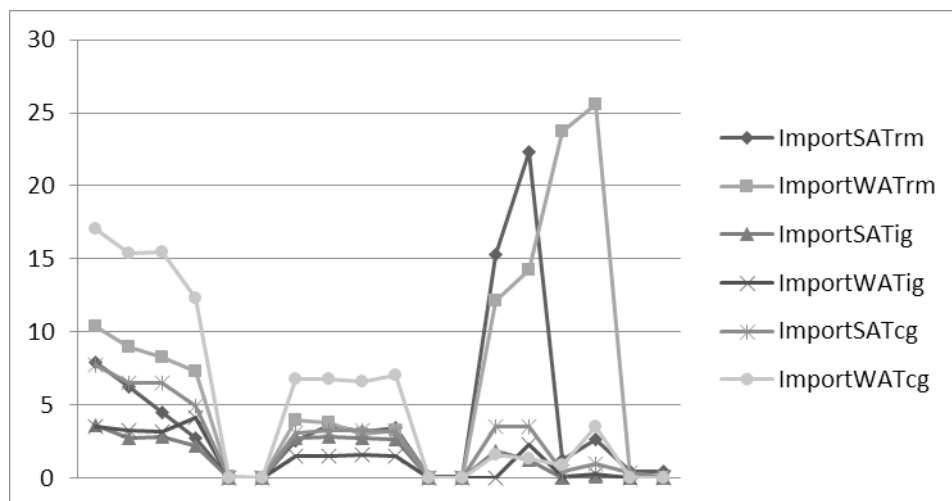
Notes: \*, \*\*,\*\*\* Show significant at 1, 5 and 10% respectively. In columns are coefficient and *p*-value in parentheses.

Source: Author's compilation.

The result of estimating the coefficients of GDP on the total exports of products, raw materials, and intermediate goods is significant at the level of 1%, but not in the case of consumer goods. On the other hand, the result of estimating the coefficient of GDP per capita on the total exports of products, raw materials, intermediate goods and consumer goods is significant at the level of 1% and 5%. The growth of GDP of trade partners by one percent has a positive impact on the total growth of imports of products, raw materials, and intermediate goods, while the growth of GDP per capita of trade partners by one percent has a positive impact on the exports of products, raw materials, intermediate goods and consumer goods. Then, the result of estimating the coefficient of the import SAT rate on the total exports of products and consumer goods is significant at the level of 1%, while in the other case no significant value has been recorded. The reduction of the import

SAT rate by less than one percent leads to the growth of the total export of products and consumer goods. In the case of the result of estimating the coefficient of import WAT rate on the total export of products, raw materials and consumer goods, no significant value has been recorded. In the end, the result of estimating the coefficient of distances on the exports of raw materials and intermediate goods is significant at the level of 1%, while in other cases no significant value has been recorded. The reduction of expenses of distance means the reduction of costs of trade and the increase of exports of raw materials and intermediate goods.

The results have the following implications: the reduction of import tariffs has a positive effect on the total growth of the exports of products to trade partners (see Figure 1). By observing exports by products, the reduction of import SAT and WAT rates of trade partners has enabled the growth of exports of raw materials and consumer goods, while, on the other hand, it hasn't ensured the positive growth of export of intermediate goods. By observing the structure of exports, three countries of the Western Balkans mostly export consumer goods, intermediate goods and raw materials to the EU, CEFTA 2006 and EFTA. The exports of most products are under the regime of the import WAT rate, i.e. at the increased import a higher WAT rate is charged. Therefore, based on the results of the research we can conclude that the reduction of the import SAT and WAT rate has a positive effect on the exports of raw materials and consumer goods, but not on the exports of intermediate goods to trade partners.



**Chart 1. Import SAT and WAT rates of three countries of the Western Balkans**

*Notes: Figure obtained on the basis of TRAINS data*

Source: Author's compilation.

### 3.2. Non-aggregate Effect of PTAs, i.e. Import Tariffs on the Individual Exports of Three Countries of the Western Balkans

The results of estimating the coefficients of independent variables for Albania are presented in Table 2. Based on the equations (4) and (5) the results of estimating the coefficients GDP and GDP per capita on the total exports of products, raw materials, intermediate goods and consumer goods are significant at the level of 1%. The growth of income of trade partners by one percent leads to the growth of total imports of products, raw materials, intermediate goods and consumer goods. The result of estimating the coefficient of the import SAT rate on the total exports of products, raw materials and intermediate goods is negatively significant at the level of 1%, while in other cases no significant value has been recorded. The reduction of the SAT rate of trade partners by less than one percent leads to the growth of total exports of products, raw materials and intermediate goods. Likewise, the results of estimating the coefficients of import WAT rate on the total exports of products, intermediate goods and consumer goods is negatively significant at the level of 1% and 5%, while in other cases no significance was recorded. The reduction of the import WAT rate of trade partners by less than one percent leads to the growth of exports of intermediate goods and consumer goods. In the end, the result of estimating the coefficient of distance on the total exports of products, raw materials and consumer goods is significant at the level of 1%. The reduction of the expenses of trade has a positive influence on the growth of total exports of products, raw materials, intermediate goods and consumer goods.

Table 2. The influence of import tariffs on the exports of products from Albania

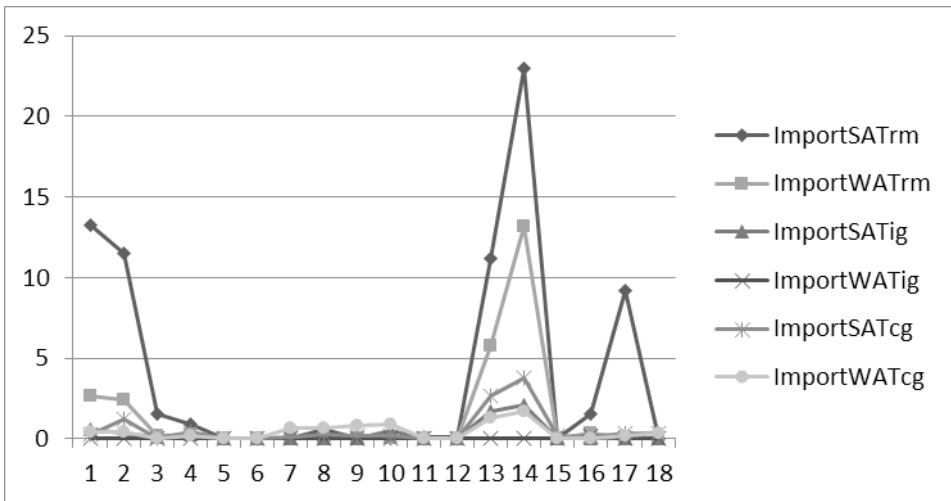
Variable	GMM I	GMM II	GMM III	GMM IV
<i>lnGDP</i>	1.048006 (0.000)*	9.401362 (0.000)*	9.889518 (0.003)*	9.126984 (0.000)*
<i>lnGDP<sub>pc</sub></i>	0.901247 (0.000)*	1.964246 (0.001)*	3.954991 (0.000)*	4.3275564 (0.000)*
<i>lnImportSAT<sub>rm</sub></i>	-0.085096 (0.356)	-0.323186 (0.016)*		
<i>lnImportWAT<sub>rm</sub></i>	-0.320871 (0.000)*	0.024572 (0.911)		
<i>lnImportSAT<sub>ig</sub></i>	-0.778964 (0.000)*		-0.346077 (0.000)*	
<i>lnImportWAT<sub>ig</sub></i>	-0.439891 (0.000)*		-0.133434 (0.031)**	
<i>lnImportSAT<sub>cg</sub></i>	-0.815177 (0.000)*			-0.622734 (0.303)
<i>lnImportWAT<sub>cg</sub></i>	-0.513058 (0.000)*			-0.268906 (0.022)**

Variable	GMM I	GMM II	GMM III	GMM IV
<i>lnDist<sub>ij</sub></i>	1.927454 (0.000)*	1.8249911 (0.000)*	1.138527 (0.003)*	1.056398 (0.000)*
Constant	9.176456 (0.000)	-8.013383 (0.006)	5.683515 (0.014)	4.525332 (0.021)
Wald chi2(12)	52.20	136.27	24.01	21.11
Prob>chi2	0.0000	0.0000	0.0000	0.0000

Notes: \*, \*\*, \*\*\* Show significant at 1, 5 and 10% respectively. In columns are coefficient and p-value in parentheses.

Source: Author’s compilation.

The results have the following implications: the reduction of import tariffs of trade partners ensures the growth of the total exports of products and the exports of consumer goods, raw materials and intermediate goods from Albania to trade partners (see Figure 2). Albania mostly exports consumer goods, intermediate goods and raw materials to the EU, CEFTA 2006 and EFTA. The growth of exports of raw materials is ensured thanks to the reduction of import SAT rate, while the growth of exports of intermediate goods is ensured by the reduction of the imported SAT and WAT rates of trade partners of trade partners. The exports of intermediate goods and consumer goods used to be burdened with a higher import WAT rate, but with its reduction a growth of export of the mentioned products occurred. In the end, based on the examined results we conclude that the import SAT and WAT rate have an equal effect on the exports of products to trade partners, i.e. the cause of that are their tariff rates which are approximately the same.



**Chart 2. Import SAT and WAT rates for Albania**

Notes: Figure obtained on the basis of TRAINS data

Source: Author’s compilation.

The results of estimating the coefficients for Macedonia are presented in Table 3. On the basis of equations (4) and (5), the results of estimating the coefficients GDP and GDP per capita on the growth of exports of raw materials and intermediate goods are significant at the level of 1%, while in the case of the total exports of products and consumer goods no significant value was recorded. The growth of profit of trade partners by one percent leads to the growth of demand and import of raw materials and intermediate goods. The result of estimating the coefficients of the import SAT rate on the total exports of products, raw materials and consumer goods is significant at the level of 1%, but not in the case of intermediate goods. That means that the reduction of the import SAT rate of trade partners by less than one percent leads to the growth of the total export of products, raw materials and consumer goods. Likewise, the result of estimating the coefficient of the import WAT rate on the total export of intermediate goods is significant at the level of 1%, while in other cases no significant value has been recorded. The reduction of the import WAT rate of trade partners by one percent leads to the growth of the total exports of products. In the end, the result of estimating the coefficient of distance to the export of raw materials and intermediate goods is significant at the level of 1%, while in other cases no significant value has been recorded. The reduction of the costs of trade leads to the growth of exports of raw materials and intermediate goods.

The results have the following implications: in the case of Macedonia, the reduction of import customs of trade partners does not have a positive effect on the growth of total exports of products (see Figure 3). Macedonia mostly exports raw materials, intermediate goods and consumer goods to the EU, CEFTA 2006 and EFTA. The growth of exports of raw materials and consumer goods is achieved thanks to the reduction of import SAT rate of trade partners. In the case of exports of intermediate goods, a significant effect was absent in spite of the reduction of both kinds of tariffs. In the end, we conclude that the import SAT rate has a higher individual effect on the exports of products in relation to the import WAT rate of trade partners, i.e. the products which are mostly under the regime of the import SAT rate dominate in the export structure.

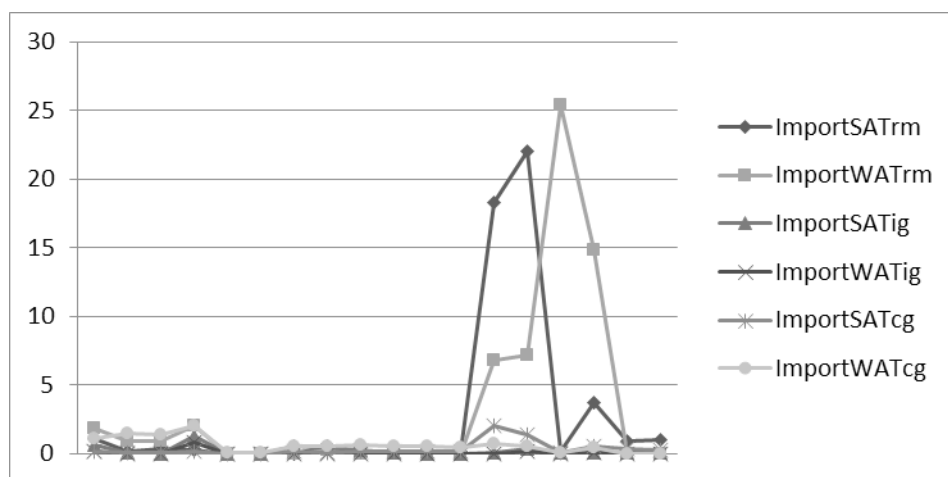
**Table 3. The influence of import tariffs on the exports of products from Macedonia**

Variable	GMM I	GMM II	GMM III	GMM IV
<i>lnGDP</i>	4.060522 (0.129)	2.857315 (0.000)*	2.865338 (0.000)*	0.770064 (0.418)
<i>lnGDP<sub>pc</sub></i>	4.357116 (0.092)***	4.148061 (0.000)*	3.122406 (0.000)*	1.153391 (0.244)
<i>lnImportSAT<sub>rm</sub></i>	-1.386838 (0.184)	-0.020107 (0.000)*		
<i>lnImportWAT<sub>rm</sub></i>	-0.157679 (0.000)*	0.014532 (0.111)		
<i>lnImportSAT<sub>ig</sub></i>	1.997468 (0.142)		-0.156856 (0.216)	

Variable	GMM I	GMM II	GMM III	GMM IV
$\ln \text{ImportWAT}_{ig}$	-4.22478 (0.004)*		-0.279516 (0.131)	
$\ln \text{ImportSAT}_{cg}$	3.238821 (0.122)			-0.503704 (0.008)*
$\ln \text{ImportWAT}_{cg}$	-1.728877 (0.088)***			-0.148672 (0.511)
$\ln \text{Dist}_{ij}$	2.034525 (0.165)	9.2777476 (0.000)*	1.128142 (0.000)*	0.676384 (0.893)
Constant	12.49508 (0.006)	21.58014 (0.000)	10.15929 (0.000)	7.629353 (0.015)
Wald chi2(12)	2.43	15.09	48.38	1.46
Prob>chi2	0.2969	0.0005	0.0000	0.4829

Notes: \*, \*\*, \*\*\* Show significant at 1, 5 and 10% respectively. In columns are coefficient and p-value in parentheses.

Source: Author's compilation.



**Chart 3. Import SAT and WAT rates for Macedonia**

Notes: Figure obtained on the basis of TRAINS data.

Source: Author's compilation.

The results of estimating the coefficients for Serbia are presented in Table 4. On the basis of the equations (4) and (5), the results of estimating the coefficients GDP and GDP per capita on the total exports of products, raw materials, intermediate goods and customer goods are significant at the level of 1%. The growth of profit of trade partners by one percent leads to the growth of total imports of products, raw materials, intermediate goods and consumer goods. The results of estimating the coefficients of import SAT and WAT rate on the total export of products, import WAT rate on the exports of raw materials, import SAT and WAT rate on the exports of con-

sumer goods are significant at the level of 1%, while in the other cases no significance was recorded. The reduction of import tariffs of trade partners by less than one percent leads to the growth of total exports of products, raw materials and consumer goods, but not intermediate goods. In the end, the results of estimating the coefficients of distance on the export of raw materials and intermediate goods is significant at the level of 1%, while in other cases no significant value has been recorded.

**Table 4. The influence of import tariffs on the export of products from Serbia**

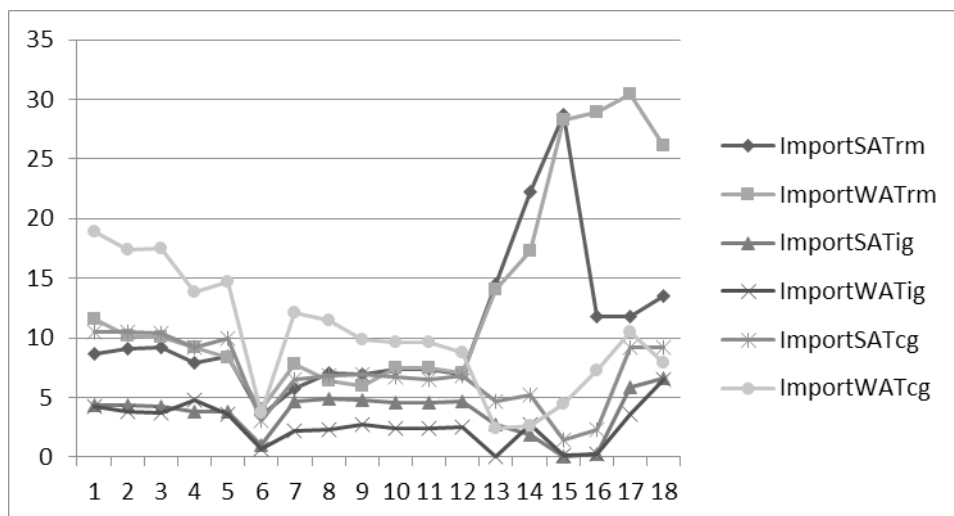
Variable	GMM I	GMM II	GMM III	GMM IV
<i>lnGDP</i>	4.116646 (0.002)*	5.105563 (0.000)*	0.888904 (0.000)*	0.236567 (0.621)
<i>lnGDP<sub>pc</sub></i>	9.978652 (0.000)*	0.695089 (0.000)*	1.875286 (0.000)*	0.272791 (0.510)
<i>lnImportSAT<sub>rm</sub></i>	-0.210001 (0.000)*	-0.161284 (0.549)		
<i>lnImportWAT<sub>rm</sub></i>	-0.617833 (0.000)*	-0.443136 (0.000)*		
<i>lnImportSAT<sub>ig</sub></i>	-0.453161 (0.000)*		0.202715 (0.263)	
<i>lnImportWAT<sub>ig</sub></i>	0.214381 (0.485)		0.131541 (0.440)	
<i>lnImportSAT<sub>cg</sub></i>	-1.300556 (0.000)*			-0.866644 (0.002)*
<i>lnImportWAT<sub>cg</sub></i>	-0.476275 (0.001)*			-0.501812 (0.049)**
<i>lnDist<sub>ij</sub></i>	1.062621 (0.800)	2.976405 (0.000)*	1.680743 (0.000)*	1.331422 (0.642)
<b>Constant</b>	10.20226 (0.000)	23.60108 (0.001)	13.86259 (0.000)	1.767377 (0.342)
<b>Wald chi2(12)</b>	11.58	728.60	630.14	195.78
<b>Prob&gt;chi2</b>	0.0031	0.0000	0.0000	0.0000

Notes: \*, \*\*, \*\*\* Show significant at 1, 5 and 10% respectively. In columns are coefficient and p-value in parentheses.

Source: Author's compilation.

The results have the following implications: the reduction of import tariffs of trade partners has a positive effect on the total growth of the exports of products from Serbia (see Figure 4). Serbia mostly exports consumer goods, intermediate goods and raw materials to the EU, CEFTA 2006 and EFTA. The growth of exports of raw materials was achieved thanks to the reduction of import WAT rate, while the growth of export of consumer goods was achieved by a decrease of both types of import tariff rates of the trade partners. In case of exports of intermediate goods, there was no positive effect on the basis of reduction of import SAT and WAT rate. The growth of the industrial demand for trade partners, and

not just the height of the import tariffs, has a positive effect on the exports of intermediate goods. In the end, on the basis of the tested results we conclude that the import WAT rate has a greater effect on the individual export of products than the import SAT rate of trade partners.



**Chart 4. Import SAT and WAT rates for Serbia**

*Notes: Figure obtained on the basis of TRAINS data*

Source: Author’s compilation.

#### 4. Conclusion

The results of the research are reflected in the following: within the aggregate approach, we estimated that the majority of evaluated coefficients of independent variables have a positive effect on the total exports of products, raw materials, intermediate goods and consumer goods of three countries of the Western Balkans. We particularly point out that the import simple average tariff (SAT) rate and the import weighted average tariff (WAT) rate of trade partners have a positive effect on the growth of exports of raw materials and consumer goods, but not the intermediate goods.

Namely, three countries of the Western Balkans mostly export consumer goods, intermediate goods and raw materials to trade partners with whom they have signed preferential agreements. The reduction of import tariffs of trade partners to the zero had no effect on the growth of exports of intermediate goods. The growth of exports of intermediate goods primarily depends on the growth of do-



mestic industrial demand, and not on the reduction of import tariffs. This argument also applies to the individual exports of intermediate goods of Macedonia and Serbia in non-aggregate approach. In the end, both types of import tariffs of trade partners have the same effect on the total and individual export of products. On the other hand, the non-aggregate approach offers results for each country viewed individually. For Albania and Serbia, the positive effect of reducing the import tariffs of trade partners on the total exports of products was verified, while that is not the case for Macedonia. The growth of exports of raw materials in the case of Albania and Macedonia was ensured by reducing the import SAT rate, while the export of raw materials for Serbia was ensured by reducing the import WAT rate of trade partners. The growth of export of intermediate goods from Albania was ensured by reducing the import SAT and WAT rate, while in the case of Macedonia and Serbia, no positive effect was recorded. The growth of exports of consumer goods from Albania was ensured by reducing the WAT rate, from Macedonia by reducing the import SAT rate, and Serbia by reducing both import tariff rates of trade partners.

As a result of reducing the import tariff rates of trade partners, Albania has increased the export of consumer goods and intermediate goods in addition to its traditional exports of raw materials. Both types of import tariffs of trade partners have the same effect on the individual export of products from Albania. In Macedonia, raw material exports are dominant, followed by the exports of intermediate goods and consumer goods. We estimated that the import SAT rate has a much higher effect than the import WAT rate on the export of products to trade partners. One of the reasons is that the structure of Macedonian export is mostly dominated by products which are within the regime of the import SAT rate. In the end, Serbian the exports is dominated by consumer goods, intermediate goods and raw materials. The import WAT rate has a stronger effect on the growth of exports from Serbia than the import SAT rate of trade partners.

This research can serve as a good basis for a new research that will relate to the assessment of PTAs, i.e. the reduction of import tariffs of trade partners on the export of agricultural and industrial products from the countries of South-east Europe.

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## Streszczenie

### TARYFY IMPORTOWE PARTNERÓW HANDLOWYCH: DOŚWIADCZENIA TRZECH KRAJÓW BAŁKANÓW ZACHODNICH

Niniejszy artykuł ma na celu zbadanie wpływu obniżenia taryf importowych partnerów handlowych na eksport całkowity i eksport poszczególnych produktów z trzech państw Bałkanów Zachodnich łącznie oraz obserwowany indywidualnie dla każdego państwa. W celu zbadania potencjalnego efektu, w artykule wykorzystano równanie grawitacyjne i dokonano szacowania danych dynamicznych z użyciem systemu GMM. Badania dokonano w oparciu o podejście łączne i indywidualne. Podejście łączne do trzech krajów Bałkanów Zachodnich wskazało iż obniżenie średniej stawki celnej w imporcie (*simple average tariff rate – SAT*) i średniej ważonej stawki celnej (*weighted average tariff – WAT*) pozytywnie wpływa na wzrost eksportu całkowitego i eksportu poszczególnych produktów. Zastosowanie podejścia indywidualnego dla każdego kraju wykazało, że spadek stawek *SAT* i *WAT* w imporcie ma również pozytywny wpływ na wzrost eksportu całkowitego i eksportu poszczególnych produktów z Albanii i Serbii, podczas gdy efekt ten jest słaby dla Byłej Jugosłowiańskiej Republiki Macedonii.

**Słowa kluczowe:** taryfy celne, eksport, produkty, taryfy preferencyjne, umowy handlowe