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THE EXPORT PERFORMANCE OF THE CEFTA COUNTRIES - AN ARDL MODEL-BASED EMPIRICAL ANALYSIS

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The paper investigates the export performance of the CEFTA 2006 countries (Albania, Bosnia and Herzegovina - BiH, Montenegro, Kosovo* (UNMIK, according to the United Nations Security Council Resolution 1244), Moldova, North Macedonia and Serbia)), using the ARDL (Autoregressive Distributed Lag) model. By applying the F-Bound ARDL test for the period from 2000 to 2022, the existence of a long-term equilibrium relationship between the real exports of the CEFTA 2006 members and the selected variables was determined, the results indicating differences in the significance of certain variables in the long run. Export performance mainly depends on the degree of trade openness (for most members), then the real effective exchange rate (BiH, Kosovo*, Serbia), while the net inflow of FDI (except Serbia) and the domestic bank loans granted to the private sector are less important (with the exception of Kosovo*).

Keywords: export, exchange rate, foreign direct investments, ARDL, trade openness, co-integration

JEL Classification: C22, F10, F14, F21

INTRODUCTION

CEFTA 2006 (Central European Free Trade Agreement) represents a free trade zone that includes a group of countries (Albania, BiH, Montenegro, Kosovo*, Moldova, North Macedonia and Serbia) and has recorded a significant increase in the export of goods and services in recent years. The creation of this free trade zone was intended to promote mutual trade between the members and prepare them for joining the European Union (EU). CEFTA 2006 initially included Romania, Bulgaria and Croatia, in addition to the mentioned current members. These three countries left CEFTA 2006 membership when they became EU members. Therefore, CEFTA 2006 includes the Western Balkan countries and Moldova today. Given the similarities and differences in available resources, the structure of trade reflects the structure of the economy and the availability of resources. Exports are extremely important for all CEFTA 2006 members because they all record a

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trade deficit as a prominent feature of their balance of payments. Trade deficits cause a current account deficit, which must be covered by the capital inflow either from abroad or from foreign exchange reserves. Due to the importance of exports for the balance of payments performance, all CEFTA 2006 members are interested in the growth of exports. The abolition of tariffs in mutual trade has contributed to the dynamic growth of the exports of all the members and the ongoing efforts to abolish the remaining non-tariff measures, which hinder trade, may further stimulate export growth.

Figure 1 in the Appendix shows the harmonized movement of the real exports of goods and services leaving the CEFTA 2006 members. The real growth of exports in the years before the outbreak of the COVID-19 pandemic and the coordinated decline during the crisis, as accompanied by the recovery after the crisis, are noticeable. The equalization of the economic conditions in the CEFTA 2006 members, as well as the growth of mutual trade, significantly contribute to mitigating the impact of external shocks on each member, such as the crisis caused by the COVID-19 pandemic. In addition to strengthening competition, the bigger the market within the CEFTA 2006 zone, the bigger the chances of each country to find a way out in mutual trade in the case of external difficulties. The further harmonization of the procedures and the mutual acceptance of the certificates accompanying trade can contribute to a deeper mutual integration of all CEFTA 2006 members. According to the OECD (2024), regional cooperation between the countries of the Western Balkans is essential for achieving convergence towards the EU.

Export performance is significant for each country because, through the balance of payments, it also affects economic growth and economic development. In addition, all CEFTA 2006 members are in the process of joining the EU and the abolition of the remaining restrictions on mutual trade should strengthen competition within the zone, thus facilitating integration into the EU market. Trade liberalization also encourages financial flows, which can contribute to enhancing CEFTA 2006 trade flows and intra-EU trade. Trade between CEFTA 2006 members tends to grow, and some countries (such as Serbia) have a marked trade surplus in trade with other CEFTA 2006 members. The growth of mutual trade can help a stronger convergence of the income of the Western Balkans countries and the EU, while the results in terms of convergence have been different between the countries so far (Stanišić, 2016).

Figure 2 in the Appendix shows the recent trends in merchandise trade between the CEFTA 2006 members, according to which it can be concluded that a significant jump was made in mutual trade between the CEFTA 2006 members after the outbreak of the COVID-19 pandemic. In the beginning, that was contributed to by the new circumstances. Due to the difficulties in transporting goods during the COVID-19 pandemic, the regional "Green Corridors" initiative was launched to facilitate the rapid flow of goods during the pandemic. The initiative has helped to facilitate trade. The intensification of cooperation and coordination in customs reduces trade costs and ensures continuous supply, for which reason this initiative was continued even after the end of the COVID-19 pandemic. The dependence of the less developed CEFTA 2006 members on regional supply chains promotes reciprocal trade. The euro-denominated growth in two-way trade within CEFTA in 2006 is partly due to the inflationary trends that have had an impact on the increase in trade value at relatively stable exchange rates.

The subject matter of the research conducted in this paper implies the export performance of the CEFTA 2006 members and the connection between the real export of the goods and services of these countries and the relevant macroeconomic variables. The paper aims to analyze the role and significance of the selected macroeconomic variables for the export performance of the CEFTA 2006 members, using the ARDL cointegration model. The basic research hypotheses of the paper read as follows:

H1: Trade liberalization significantly affects the trade performance of the CEFTA 2006 members.

H2: The impact of net FDI inflows and the real effective exchange rate on export varies between the CEFTA 2006 members.

The initial hypotheses were tested using the F-bound ARDL test for the period from 2000 to 2022. The empirical analysis carried out in this paper has confirmed the existence of a cointegration relationship between the real exports of the goods and services of all the CEFTA 2006 members and the selected macroeconomic variables. The estimated coefficients of the long-term relationship between exports and the explanatory variables reveal differences between the CEFTA 2006 members with respect to the importance of certain explanatory variables. In most member states, export performance mainly depends on trade openness, which leads to the recommendation to policymakers to increase activities to remove the remaining barriers to free trade, especially those coming from the non-tariff complex.

This study contributes to the existing literature in three ways. First, the study provides an empirical insight into the characteristics of the dynamics of the real exports of goods and services and the relevant macroeconomic factors of the CEFTA 2006 members. Second, the cointegration of the integrated variables of the orders I(0) or I(1) is tested using the ARDL bounds test model, which overcomes the limitation of the traditional cointegration tests assuming that all the variables in the model are integrated with the order I(1). The ARDL model is additionally suitable for shorter time series, as is the case in this analysis. Third, the estimated long-term relationships between exports and the explanatory variables suggest that policymakers should act towards achieving greater trade openness since trade expansion contributes to the gross domestic product (GDP) growth and the welfare of a country.

The paper is structured into five sections. After the introduction, the second section provides a literature review. The third section refers to the description of the data used and the presentation of the applied methodology in the empirical research, the results of which are given in the fourth section. The conclusion is given in the fifth section.

LITERATURE REVIEW

The contribution of the ARDL methodology-based empirical research in the literature reflects in the identification of the direction and intensity of the influence of certain variables on the real export of a country, group of countries, or regions. To the best of the author's knowledge, the ARDL methodology has not been used in research in the export performance of the CEFTA 2006 members, so he believes that this research study makes a contribution to the current research in the export of goods and services of the CEFTA 2006 countries.

Recent studies have confirmed that the CEFTA 2006 member countries' exports have increased after the Agreement entered into force. R. Dragutinović-Mitrović and P. Bjelić (2015) applied the gravity approach to determine the extent to which CEFTA contributed to trade growth, the results of their study showing that this agreement has contributed to a 44% increase in reciprocal trade between the members.

L. Klimczak and J. Trivić (2018) analyzed the influence of various factors on mutual trade between the CEFTA 2006 members by applying an extended gravity model based on the CEFTA 2006 countries' panel data. The results of this study show that the CEFTA 2006 Agreement plays a positive and statistically significant role for mutual trade between the member countries.

M. Petreski (2018) also analyzed the impact of the 2006 CEFTA Agreement on the mutual trade between the member countries and found a big and statistically significant impact. Taking into account the endogeneity problem, the author estimates that the impact of the Agreement on trade exceeds 50%. In addition to the GDP and the proximity of the countries, the author opines that this was also influenced by the commitment of the member governments to standardize the conditions for faster EU accession.

Using the gravity model for trade, P. Kaloyanchev, I. Kusen and A. Mouzakitis (2018) showed that trade within CEFTA 2006 was determined by the level of economic activity and that non-tariff barriers

significantly reduced reciprocal trade. Contrary to expectations, geographic proximity did not prove to be a statistically significant variable influencing trade dynamics. The results of this study indicate a low level of trade openness in most countries in the region.

J. Choi and A. Minondo (2019) estimated that CEFTA 2006 had significantly contributed to the increase in the exports of Albanian companies using the gravity model, which was mainly due to the reduction in tariffs in the CEFTA 2006 Agreement.

R. Grieveson, M. Holzner and G. Vukšić (2021) found that the CEFTA 2006 Agreement had significantly contributed to the growth of intraregional trade and that the Stabilization and Association Agreements (SAAs) with the EU were important for the inflow of foreign direct investment from the EU to the CEFTA 2006 members.

F. V. Vieira and C. G. da Silva (2021) analyzed the export performance of the BRICS countries in the period from 2000 to 2017 using non-linear ARDL cointegration. The authors found that the exchange rate was not a statistically significant determinant of the exports in the long run, whereas the exchange rate volatility, global imports and commodity prices were statistically significant variables.

D. Lazarov and E. Miteva- Kacarski (2023) analyzed intraregional trade in the Western Balkans and found that it had tended to grow in those years. They analyzed the sources of export growth at the country and product levels and used the International Trade Centre (ITC) methodology to assess the unrealized export opportunities at the product level for the period from 2023 to 2027. A significant potential for the expansion of two-way trade between the CEFTA 2006 members was found in the fact that it was now focused on a small number of products.

N. Vujanović (2023) analyzed the differences between the CEFTA 2006 members in terms of the participation of the semi-finished products originating in CEFTA 2006 in their industrial exports. The research results show that the countries with a more developed industrial structure are more dependent on supply chains within the EU, whereas smaller countries are more involved in the CEFTA 2006 supply chains.

DATA AND APPLIED METHODOLOGY

Data sources and description

This research into the export performance of the CEFTA 2006 countries rests on the annual time series relevant variables during the period from 2000 to 2022. The data were taken from the World Development Indicators - the WDI database, the BIS statistics, the national statistics and Bruegel. The description, the expected sign and the sources of those variables are given in Table 1. Mutual trade between the CEFTA 2006 members existed even before the signing of this agreement, for which reason we chose to start the period from 2000.

The data for Kosovo* for all the variables refer to the period from 2008 to 2022. The data for Montenegro for the BANKCREDIT series refer to the period from 2002 to 2022, and for EXP, they refer to the period from 2006 to 2022.

The applied methodology

In the study of the export performance of the CEFTA 2006 countries, the following regression equation was estimated for the period from 2000 to 2022:

$$ln\ EXP = \beta_0 + \beta_1 lnFDI_t + \beta_2 lnBANKCREDIT_t + \beta_3 lnREER_t + \beta_4 lnTL_t + \varepsilon_t \quad (1)$$

The variables have the meaning as in Table 1.

The traditional ARDL model, in which y is the dependent variable and a $x_{1,\dots},x_k$ are the k explanatory variables, can be represented as:

$$y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^{p} \psi_i y_{t-i} + \sum_{j=1}^{k} \sum_{l_j=0}^{q_j} \beta_{j,l_j} x_{j,t-lj} + \epsilon_t \quad (2)$$

where α_0 is the constant term, α_1, ψ_1, and $\beta_{j,lj}$ are the coefficients associated with the linear trend, the lags

Table 1 The data description and the sources

Variables	Description	Expected sign	Source
LnEXP	Log of exports of goods and services (constant 2015 US$) 2015=100 index	+	World Bank (2023)
LnFDI	Log of foreign direct investment, net inflows (% of the GDP)	+	World Bank (2023)
LnREER	Log of real effective exchange rate index (2015 = 100)	-	World Bank (2023)
LnTL	Log of trade liberalization measured as the trade (sum of exports and imports of goods and services)-to-GDP ratio at the time t	+	World Bank (2023)
LnBANKCREDIT	Log of domestic credit to the private sector by banks (% of the GDP)	+	World Bank (2023)

Note: Kosovo* - UNMIC, according to the SC Res. 1244. The data for Montenegro's LnEXP start from 2006. The data for Albania's LnREER were taken from BRUEGEL, retrieved December 24, 2023, from: https://www.bruegel.org/publications/datasets/real-effective-exchange-rates-for-178-countries-a-new-database. The data for Bosnia and Herzegovina's LnREER were taken from https://data.bis.org/topics/EER/BIS,WS_EER,1.0/M.R.B.BA (retrieved December 13, 2023). The data for LnREER for Montenegro and Kosovo* are the data for LnREER for the euro, taken from https://data.bis.org/topics/EER/BIS,WS_EER,1.0/M.R.B.XM. The data for Serbia's LnREER were taken from the NBS (2024), p. 99. The data for LnSDI for Serbia for the period from 2001 to 2006 were taken from https://www.nbs.rs/sr_RS/drugi-nivo-navigacije/statistika/platni_bilans/, retrieved December 13, 2023.

Source: The author

of y_t and the lags of the k regressors $x_{j,t}$ for $j = 1, \ldots, k$, respectively, and ϵ_t is the label for innovations.

Since no single variable in the empirical model is found to be I(2), the ARDL-ECM model can be estimated according to the following specification:

$$\Delta y_t = \alpha_0 + \alpha_1 t - \psi(1) y_{t-1} + \sum_{j=1}^{k} \beta_j(1) x_{j,t-1} + \left(\psi^*(L)\Delta y_{t-1} + \sum_{j=1}^{k} \beta_j(L)\Delta x_{j,t-1}\right) + \sum_{j=1}^{k} \beta_j(L)\Delta x_{j,t} + \epsilon_t \quad (3)$$

where the convention applied reads as follows:

$$\psi^*(L) = \sum_{i=1}^{p} \psi_i L^i = \left(\sum_{i=1}^{p} \psi_i L^{i-1}\right)L = \left(\psi^*(1) + (1-L)\psi^*(L)\right)L \quad (4)$$

EMPIRICAL RESULTS AND DISCUSSION

The first step in model estimation is the application of unit root tests in order to determine the level of the integration of the variables. As has already been mentioned, this is important in the case in which the estimated value of the F statistic lies between the lower and upper critical values. In this paper, the following unit root tests are applied: the Augmented Dickey-Fuller (ADF) test, the Phillips-Perron (PP) test, and the Kwiatkowski, Phillips, Schmidt and Shin test, the results of all the tests applied being given in the Appendix, Table A1, and showing that all the variables are either I(0) or I(1). The descriptive statistics of the estimated residuals by country are presented in the Appendix, Table A2.

Table 2 shows the ARDL models for each analyzed country. The lags for each variable vary between the countries. The same table contains the results of the Breusch and Godfrey (Breusch-Godfrey Serial Correlation LM test) autocorrelation test for each selected ARDL model, as well as the results of the heteroskedasticity test (Heteroskedasticity Test Breusch-Pagan-Godfrey) also for each of the selected ARDL model. All the estimated ARDL models are without the autocorrelation of the residuals at the standard level of 5% and heteroskedasticity (with the exception of Moldova, where there is less heteroskedasticity). The residuals of the estimated

Table 2 The ARDL models - The dependent variable: real exports (for each country)

Country	ARDL model	Breusch-Godfrey Serial Correlation LM test (Prob); H_0: No serial correlation	Breusch-Pagan-Godfrey heteroskedasticity test (Prob) H_0: Homoskedasticity	Jarque-Bera test (Prob) H_0: Normal distribution
Albania	(1, 1, 2, 0, 2)[1]	1.3276 (0.3596)	0.3743 (0.9315)	1.3231 (0.5160)
BiH	(3, 2, 2, 2, 2)[2]	0.2924 (0.8384)	3.3924 (0.1232)	7.1483 (0.0280)
Montenegro	(2, 0, 2, 1, 2)[1]	0.5572 (0.7124)	1.9888 (0.1856)	0.9707 (0.6154)
Kosovo*	(1, 1, 1, 1, 0)[1]	3.0206 (0.4041)	2.9347 (0.1255)	0.2559 (0.8798)
Moldova	(2, 0, 2, 1, 2)[2]	4.8023 (0.0578)	3.5132 (0.0348)	0.2727 (0.8725)
North Macedonia	(3, 0, 1, 1, 2)[1]	1.2212 0.4256)	0.8456 (0.6120)	0.6342 (0.7282)
Serbia	(3, 2, 2, 2, 0)[1]	4.6677 (0.1841)	0.9392 (0.5693)	1.2808 (0.5270)

Note: [1]The restricted constant and no trend; [2]The unrestricted constant and no trend; Kosovo* - UNMIK, according to the SC Res. 1244

Source: The author

ARDL models are normally distributed, except for BiH. The results of the CUSUM and CUSUMQ stability tests of the long-term coefficients given in the Appendix (Figures A - G) show a lesser instability of the equation parameters (the CUSUMQ test) in the case of Montenegro.

Allow us now to return to examining the existence of cointegration between the observed variables using the ARDL Bound test. The results are given in Table 3. The inferences regarding the presence or absence of cointegration are made using M. H. Pesaran, Y. Shin and R. J. Smith (2001) of the asymptotic critical values corresponding to the limiting case when all variables are I(0) (the lower bound) or I(1) (the upper bound).

Based on the obtained results presented in Table 3, the null hypothesis about the absence of cointegration (H_0: There is no cointegration between the dependent variable and the regressor.) can be rejected at the 1% level for BiH, Kosovo*, Moldova, North Macedonia, and Serbia, because the F-statistic for these countries is higher than the critical upper value at 1%. The null hypothesis can also be rejected for Albania (at the 5% level) and Montenegro (at the 10% level). As has already been pointed out, there is a lesser instability of the regression parameters in the case of Montenegro, possibly because some time series are shorter compared to the other countries. Based on the previous results, it can be concluded that there is a long-term relationship between the observed variables for all the countries analyzed.

After conducting the ARDL F-Bounds test for all the models, the long-term (equilibrium) coefficients in the cointegration relation for each country. The results are given in Table 4.

For each country in Table 4, some time series are stable in level, others in the first difference (Appendix, Table 1). For Montenegro and Kosovo*, some time series are shorter compared to the other CEFTA 2006 members. In addition, the estimated ARDL model contains several lagged variables, which reduces the number of observations in the regression. Finally, the ARDL model requires a relatively large sample (more than 30 data). The time series used in this analysis contain less data. All these are the reasons why multicollinearity occurs for some variables in the estimated regression equation for individual countries. However, it does not affect the identification of the long-term relationship between the real exports and the observed explanatory variables.

The estimated coefficients in Table 4 show that there are differences between the countries with respect to the importance of certain variables for the exports in the long run. In the case of Albania, the analyzed long-term coefficients are not statistically significant, so it

Table 3 The cointegration test (the ARDL F-Bounds test)

Country	F-Statistics	Critical values						Long-term cointegration
		I(0) Bound			I(1) Bound			
		10%	5%	1%	10%	5%	1%	
Albania	2.8822	2.200	2.560	3.290	3.090	3.490	4.370	Yes, at 5% for I(0)
BiH	8.4427	2.450	2.860	3.740	3.520	4.010	5.060	Yes
Montenegro	2.2852	2.200	2.560	3.290	3.090	3.490	4.370	Yes, at 10% for I(0)
Kosovo*	115.87	2.200	2.560	3.290	3.090	3.490	4.370	Yes
Moldova	5.2255	2.450	2.860	3.740	3.520	4.010	5.060	Yes
North Macedonia	5.8171	2.200	2.560	3.290	3.090	3.490	4.370	Yes
Serbia	83.132	2.200	2.560	3.290	3.090	3.490	4.370	Yes

Note: [1]The restricted constant and no trend; [2]The unrestricted constant and no trend; Kosovo* - UNMIK, according to the SC Res. 1244

Source: The author

Table 4 The ARDL models: the long-term coefficients of the cointegration equation (the dependent variable: log real exports)

Variables	FDI, net inflows	Domestic credit to the private sector by banks	Real Effective Exchange Rate	Trade liberalization	Constant
Country (Lags)	Coefficient (Prob)	Coefficient (Prob)	Coefficient (Prob)	Coefficient (Prob)	Coefficient (Prob)
Albania (1, 1, 2, 0, 2)	-0.0516 (0.7053)	0.0795 (0.4983)	-0.2319** (0.5552)	-0.2007 (0.7720)	2.1642 (0.5676)
BiH (3, 2, 2, 2, 2)	-0.04149 (0.5257)	0.3149 (0.3154)	-1.5387 (0.0391)	0.8227 (0.0355)	5.0791 (0.3164)
Montenegro (2, 0, 2, 1, 2)	-0.0393** (0.5804)	-0.0865 (0.5084)	0.7347 (0.4018)	0.8862 (0.3136)	-4.5281 (0.2245)
Kosovo* (1, 1, 1, 1, 0)	-0.4604 (0.0003)	0.4656 (0.0362)	-2.0412 (0.0014)	2.3425** (0.0000)	2.9185 (0.1185)
Moldova (2, 0, 2, 1, 2)	0.0513 (0.1490)	0.0111** (0.8515)	0.00082 (0.9595)	-0.5399 (0.0337)	4.0473 (0.0236)
North Macedonia (3, 0, 1, 1, 2)	0.0076** (0.5359)	-0.1303 (0.2320)	1.3654 (0.3002)	0.3143 (0.0139)	-6.8416 (0.2218)
Serbia (3, 2, 2, 2, 0)	0.0778 (0.0497)	-0.0099 (0.8650)	-0.9850 (0.0109)	0.9864** (0.0000)	2.3116 (0.0893)

Note: Kosovo* - UNMIK, according to the SC Res. 1244. ** The variable without a lag.

Source: The author

is not possible to reliably assess which of them has the greatest significance for the export performance of this country. The coefficient with bank loans has a high value, although it is not statistically significant. However, it indicates that the internal loans granted to domestic companies have a positive effect on Albania's export performance. However, in 2020, the credit granted to the domestic private sector accounted for 39% of the GDP, which is below the average of the Western Balkan countries, which is 50% of the GDP

(World Bank Group, 2022, p. 55). Nevertheless, it should be noted that the 2006 CEFTA Agreement has significantly contributed to the increase in Albania's real exports (Choi & Minondo, 2019).

In Bosnia and Herzegovina's exports, the real effective exchange rate and trade openness play a significant role. The estimated coefficients of these variables are statistically significant at the 5% level and have the expected sign and a high value. Considering the exchange rate regime in BiH (the currency board), price growth leads to the appreciation of the convertible mark, which discourages exports. This result is in line with the findings of D. Jović (2024), who noted the significant role of the exchange rate for BiH's export performance. On the other hand, trade facilitation through the abolition of customs duties inside the CEFTA 2006 countries and with the EU countries within the framework of joining this integration significantly boosts the real exports of Bosnia and Herzegovina. This result is in line with the results of the OECD (2024).

The estimated coefficients for Montenegro are not statistically significant, although the value of the trade openness coefficient indicates that this factor plays a significant role in real exports. At the same time, trade with the other CEFTA 2006 members plays an important role in total trade. This result is in line with the results of previous studies (Klimczak & Trivić, 2018; Grieveson *et al*, 2021). Previously, the estimated regression parameters for Montenegro were found to be less unstable. It should be noted that some of the time series were shorter in the case of Montenegro compared to the other countries analyzed.

For the export performance of Kosovo*, trade openness and the real effective exchange rate are of utmost importance. The real effective exchange rate coefficient has the expected sign and a big impact on the real exports. However, the FDI estimated coefficient does not have the expected sign, although it is statistically significant at the 1% level. Although FDI inflows to Kosovo* more than tripled in the period from 2019 to 2022, they are largely concentrated in the non-tradable sectors (80% of the FDI stocks are those in construction and real estate), so FDI makes only a modest contribution to the exports (OECD, 2024). However, trade openness plays an important role for the exports, as in the case of BiH. The role of bank loans is also important for the export of Kosovo*, because a 1% increase in these loans causes an increase in real exports by 0.5%.

Moldova's real exports mainly rely on the net FDI inflow, although the estimated coefficient of this regressor is not statistically significant. The estimated coefficients of the other variables are not statistically significant, either, except for trade openness. However, in the case of trade openness, no positive impact of this variable on exports was identified. This result is in line with the earlier results obtained by Z. Toaca and V. Fala (2022).

North Macedonia's export performance is mainly based on trade liberalization (the estimated coefficient is statistically significant at the level of 5% and has a high value), whereas the other variables are less important, and the estimated coefficients are not statistically significant. The estimated real effective exchange rate coefficient has a high value, but not the expected sign. North Macedonia digitizes its customs procedures and significantly simplifies its export and import processes by introducing green customs declarations (OECD, 2024). Other export promotion measures also lead to an improvement in export performance. These findings are consistent with the results of earlier studies (Grieveson *et al*, 2021).

Serbia's export performance depends on the degree of trade openness (the estimated coefficient has a high value and is statistically significant at the 1% level), the real effective exchange rate, and the net inflow of FDI. Serbia's companies' exports depend on the productivity level (Čupić & Vržina, 2024). Although the European Union is Serbia's most important trading partner, trade with the CEFTA 2006 members brings Serbia a considerable surplus. Therefore, the finding in this study that trade openness plays a significant role in the development of export performance is not surprising. These findings are in line with the previous work that found the formation of CEFTA in 2006 had been accompanied by a significant increase in mutual trade between the members (Dragutinović-

Mitrović & Bjelić, 2015; Petreski, 2018; Lazarov & Miteva-Kacarski, 2023). The exports of finished products are growing at a faster rate, whereas the exports of semi-finished products are less dynamic (Reiter & Stehrer, 2021). However, high-tech products are hardly represented in the exports of the CEFTA members in 2006 (Vujanović, 2023).

Trade openness in the CEFTA 2006 region is significant for all the countries (this result is consistent with the previous research by N. Vujanović (2023)), although in the case of Montenegro and Albania, the estimated long-term coefficients of this variable are not statistically significant. Further trade liberalization under the CEFTA 2006 Agreement (the abolition of non-tariff measures) may contribute to the dynamics of the reciprocal trade of all the members of this agreement. The most common non-tariff measures applied under the CEFTA 2006 Agreement are the formalities related to import, export and transit, customs clearance, intellectual property rights, technical barriers to trade, sanitary and phytosanitary measures, and so on (GIZ, 2022). The findings on the positive long-term relationship between trade liberalization and exports are consistent with earlier research (Kaloyanchev *et al*, 2018). In some cases, however, an unexpected positive long-term relationship between the real effective exchange rate and exports was found, with the coefficients that were not statistically significant (Montenegro, Moldova, North Macedonia). This finding is in line with the results of F. V. Vieira and C. G. da Silva (2021). Although, with the exception of Serbia, no stronger long-term positive relationship between FDI and the exports was found in this research, it should be noted that a significant part of FDI in CEFTA 2006 was channeled into the services sector (Vujanović, 2023), which could be one of the reasons for the result achieved. In addition, the inflow of FDI in a country depends on the quality of its institutions (Arsov & Naumoski, 2024).

The empirical results of this study confirm the initial hypothesis H1 that trade liberalization significantly affects the trade performance of the CEFTA members in 2006. The estimated long-term coefficients of this variable confirm that further trade liberalization is an important factor for the real growth of the CEFTA members' exports in 2006. The removal of the remaining non-tariff measures for these countries can make an additional contribution to the growth of their mutual trade and their real exports as well. The empirical results obtained herein also confirm the hypothesis H2 that the effects of net FDI inflows and the real effective exchange rate on the CEFTA members' exports in 2006 were different. The results show that FDI has a positive effect on the real exports of Moldova, North Macedonia and Serbia, although the long-term relationship was only significant in the case of Serbia. For the other countries, no long-term positive relationship between real exports and foreign direct investment was found. The development of the real effective exchange rate is significant for the exports of Bosnia and Herzegovina, Kosovo* and Serbia, where the real effective appreciation has a negative effect on real exports. Although the exchange rate is also a significant variable for Albanian exports, it is not statistically significant. In the case of Montenegro, Moldova and North Macedonia, the theoretically expected relationship between the real effective exchange rate and exports was not found, which confirms the second research hypothesis.

CONCLUSION

The main goal of this paper was to investigate the export performance of the CEFTA 2006 members in the period from 2000 to 2022, using the ARDL cointegration model. For all the countries, the presence of the long-term equilibrium relationship between the real exports and the explanatory variables used in the empirical analysis was demonstrated, noting that the estimated long-term coefficients were not statistically significant in the cases of Albania and Montenegro. For most CEFTA 2006 countries, trade openness plays an important role in shaping long-run export performance, which is then followed by the real effective exchange rate playing a significant role as well. In the empirical analysis, it has not been determined that FDI affects the export performance of the CEFTA 2006 members (the estimated coefficients of this variable were not statistically significant),

except for Serbia, where a positive relationship was identified and the coefficient was statistically significant at the 5% level. It has not been confirmed, either, that export performance depends on the domestic bank loans granted to the private sector (the estimated coefficients of this variable are not statistically significant), except for Kosovo*, where the estimated coefficient is statistically significant at the level of 5% and shows a significant impact of this variable on exports.

The results obtained have both theoretical and practical significance. The theoretical contribution is to combine the effects of the selected factors on the CEFTA members' real exports in 2006 with a theoretical approach to the export competitiveness of the economy. The practical contribution of the results obtained is that they show the liberalization of mutual trade within CEFTA in 2006 and trade liberalization with the EU had a significant and positive impact on the export performance of all the members of this free trade area, which leads to the recommendation to policy-makers to continue liberalization, particularly by removing the remaining non-tariff measures that could influence a further increase in real exports. The results regarding the importance of net FDI inflows and exports suggest that there is a need to channel more of new FDI into export sectors with a higher share of value added, which would increase their contribution to the increase in real exports.

The empirical results of this study confirm the research hypotheses. Further trade liberalization, particularly by removing the remaining non-tariff measures, can significantly accelerate trade in goods and services and lead to further growth in the real exports of CEFTA members in 2006. In addition, the conditions must be created for FDI to make a greater contribution to exports. It should be borne in mind that the increase in the stock of FDI also increases the dividends from FDI that can be repatriated to the countries of origin, which can lead to pressure on the exchange rate. Even though this research has not shown that the domestic bank loans granted to the private sector have a stronger impact on real exports, it is precisely these financial-support loans that small and medium-sized enterprises seek.

It should be noted that the time series of the analyzed variables for the individual CEFTA 2006 members are shorter than the time sample in the applied research, which could influence the statistical significance of the estimated parameters. This is a limitation of this research.

Given the proven positive effects of trade liberalization on the export performance of the CEFTA 2006 members, the effects of the non-tariff measures on the export performance of these countries should be investigated in future research. In addition, the potential effects of geostrategic shifts in FDI flows on the export performance of the CEFTA 2006 members should be assessed.

ENDNOTE

In this paper, Kosovo* implies the following note: UNMIK, according to the SC Res. 1244.

REFERENCES

Arsov, S., & Naumoski, A. (2024). The nexus between institutional development and foreign investor's preferences - A comprehensive GMM study. *Economic Horizons*, *26*(3), 233-247. https://doi.org/10.5937/ekonhor2403233a

Choi, J., & Minondo, A. (2019). The trade effects of Albania's trade agreements with CEFTA members. *Post-Communist Economies*, *31*(4), 451-463. https://doi.org/10.1080/14631377.2018.1537736

Čupić, M., & Vržina, S. (2024). Firm exports and performance: Evidence from Serbia. *Economic Horizons*, *26*(2), 133-148. https://doi.org/10.5937/ekonhor2402133c

Dragutinović-Mitrović, R., & Bjelić, P. (2015). Trade regimes and bilateral trade in the EU enlargement process: Focus on the Western Balkans. *Acta Oeconomica*, *65*(2), 249-270. https://doi.org/10.1556/032.65.2015.2.4

GIZ. (2022). *Report on Non-tariff Measures in CEFTA: Support to regional economic integration*. Bonn, DE: Deutsche Gesellschaft für Internationale Zusammenarbeit.

Grieveson, R., Holzner, M., & Vukšić, G. (2021). Regional economic cooperation in the Western Balkans: The role of stabilization and association agreements, bilateral investment treaties and free trade agreements in regional investment and trade flows. *Eastern European Economics*, *59*(1), 3-24. https://doi.org/10.1080/00128775.2020.1846130

Jović, D. (2024). Movement of the real effective exchange rate of the convertible mark. *Bankarstvo*, *53*(1), 10-37. https://doi.org/10.5937/bankarstvo2401010j

Kaloyanchev, P., Kusen, I., & Mouzakitis, A. (2018). Untapped potential: Intra-regional trade in the Western Balkans. *European Commission Discussion paper 080*. Brussels, BE: European Commission Directorate-General for Economic and Financial Affairs.

Klimczak, L., & Trivić, J. (2018). Institutions and intra-regional trade in CEFTA 2006: A gravity approach. *Proceedings of the Faculty of Economics in East Sarajevo*, *7*(17), 11-25. https://doi.org/10.7251/zrefis1817011k

Lazarov, D., & Miteva-Kacarski, E. (2023). Intraregional trade perspective and untapped trade potentials of the Western Balkan region. *Economic Horizons*, *25*(3), 261-278. https://doi.org/10.5937/ekonhor23032611

NBS. (2024). *Statistical Bulletin*, June. Belgrade, RS: National Bank of Serbia.

OECD. (2024). *Western Balkans Competitiveness Outlook 2024: Regional Profile, Competitiveness and Private Sector Development*. Paris, France: OECD Publishing.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289-326. https://doi.org/10.1002/jae.616

Petreski, M. (2018). Has CEFTA increased members' mutual trade? Evidence with an enlarged set of plausibly exogenous instruments. *Czech Journal of Economics and Finance (Finance a uver)*, *68*(3), 294-317.

Reiter, O., & Stehrer, R. (2021). Value chain integration of the Western Balkan countries and policy options for the post - COVID-19 period. *WIIW Policy Note/Policy Report 48*. Vienna, AT: The Vienna Institute for International Economic Studies.

Stanišić, N. (2016). Income convergence in the process of the Western Balkan states' accession to the European Union. *Economic Horizons*, *18*(1), 3-14. https://doi.org/10.5937/ekonhor1601003s

Toaca, Z., & Fala, V. (2022). FDI-Exports-GDP nexus in the Republic of Moldova. *The Journal Contemporary Economy*, *7*(4), 193-204.

Vieira, F. V., & da Silva, C. G. (2021). What drives export performance in the BRICS countries? An ARDL investigation. *Economics Bulletin*, *41*(2), 686-695.

Vujanović, N. (2023). CEFTA: Trade and Growth Patterns Fifteen Years since Establishment, *Research Report 466 (April)*. Vienna, AT: The Vienna Institute for International Economic Studies.

World Bank Group. (2022). *Creating Markets in Albania: Taking Advantage of New Trade and Investment Opportunities for a More Robust Private Sector*. Washington, DC: World Bank Group.

World Bank. (2023). *World Development Indicators*. Washington, DC: World Bank Group.

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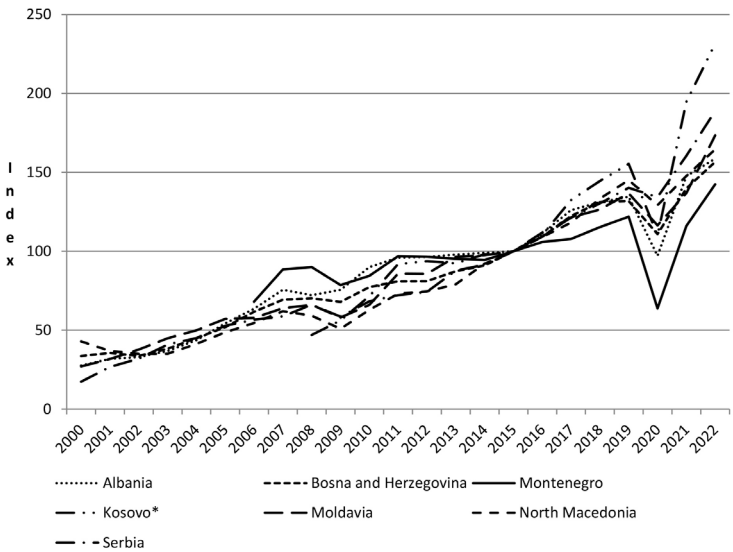
APPENDIX



Note: Kosovo* - UNMIK, according to the SC Res. 1244

Figure 1 The export of goods and services of the CEFTA 2006 members in constant dollars 2015, indices 2015=100

Source: World Bank (2023), https://datatopics.worldbank.org/world-development-indicators/, accessed on 15th Aug. 2024

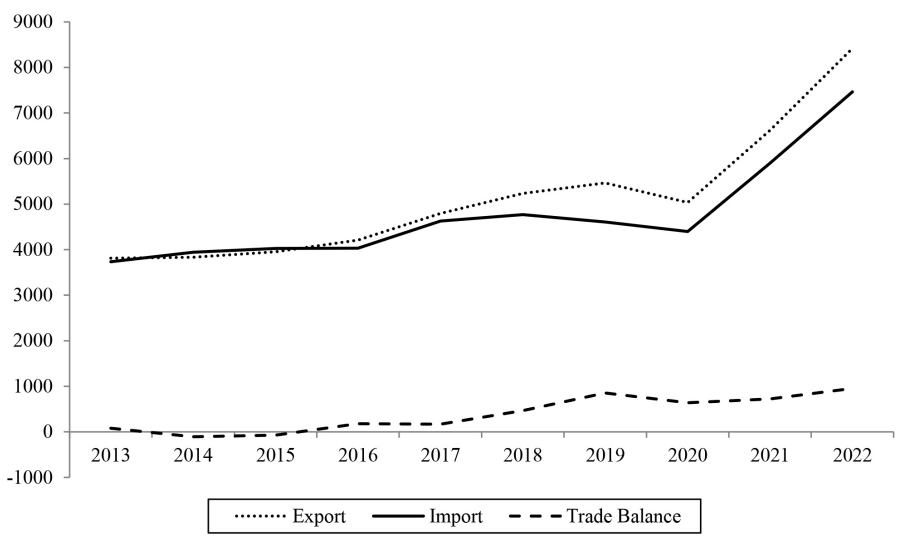


Figure 2 Intra-CEFTA trade of goods - CEFTA 2023 (in millions of euros)

Source: https://transparency.cefta.int/TradeStatistics/TradeInGoods, accessed on 16th Aug. 2024

Table A1 The unit root tests

		Level						The first difference						INFERENCE
		ADF		PP		KPSS		ADF		PP		KPSS		
		Intercept	Trend and intercept	Intercept	Trend and intercept	Intercept	Trend and intercept	Intercept	Trend and intercept	Intercept	Trend and intercept	Intercept	Trend and intercept	
LnEXP	Albania	-2.43	-2.23	-2.94**	-2.13	0.65*	0.16*	-5.53*	-5.62*	-5.58*	-6.66*	0.25*	0.15*	I(0)
	BiH	-0.79	-2.10	-0.85	-2.20	0.67*	0.14*	-4.32*	-4.21*	-4.33*	-4.55*	0.09*	0.09*	I(1)
	Moldova	-1.41	-3.69**	-1.82	-4.44*	0.69*	0.13*	-3.75*	-3.65**	-4.28*	-4.16**	0.19*	0.17*	I(0)
	N. Macedonia	0.33	-4.26**	0.63	-4.15**	0.66*	0.08*	-4.55*	-4.35**	-8.85*	-8.25*	0.22*	0.11*	I(0)
	Montenegro	-3.20**	-4.37**	-3.14**	-8.07*	0.54*	0.50	-5.34*	-5.12*	-10.44*	-10.76*	0.50*	0.50	I(0)
	Serbia	-2.84***	-2.23	-2.75***	-5.22*	0.69*	0.13*	-5.59*	-5.27*	-5.59*	-5.27*	-.32*	0.17*	I(0)
	Kosovo+	-1.03	-3.52***	-0.80	-4.23**	0.61*	0.11*	-2.79***	-2.26	-5.06*	-4.73**	0.19*	0.19	I(0)
LnFDI	Albania	-1.72	-1.84	-1.67	-1.88	0.40*	0.16*	-4.55*	-2.58	-4.58*	-4.42**	0.18*	0.18*	I(1)
	BiH	-2.70***	-3.10	-2.66**	-3.02	0.31*	0.09*	-4.88*	-4.73*	-8.07*	-7.95*	0.50*	0.50*	I(0)
	Moldova	-2.28	-3.34***	-2.23	-2.57	0.49*	0.09*	-4.65*	-4.52*	-7.38*	-7.69*	0.50*	0.50	I(1)
	N. Macedonia	-4.69*	-4.79*	-4.84*	-10.9*	0.41*	0.50*	-5.32*	-5.18	-14.29*	-17.86*	0.39*	0.38*	I(0)
	Montenegro	-1.76	-3.23	-2.84**	-3.23	0.18*	0.15*	-6.25*	-6.93*	-6.86*	-6.93*	0.20*	0.15*	I(1)
	Serbia	-4.33*	-4.04*	-4.45*	-4.81*	0.19*	0.10*	-6.32*	-6.27*	-6.78*	-6.71*	0.23*	0.13*	I(0)
	Kosovo+	-2.21	0.33	2.18	-1.26	0.28*	0.16*	-1.58	-3.34	-5.51*	-7.90*	0.38*	0.10*	
LnREER	Albania	-0.35	-1.77	-0.49	-1.91	0.59*	0.09*	-3.17**	-3.16	-3.21**	-3.20	0.13*	0.12*	I(1)
	BiH	-1.47	-1.86	-1.57	-1.74	0.49*	0.11*	-3.37**	-3.28**	-3.37**	-3.28**	0.12*	0.12*	I(1)
	Moldova	0.05	-2.01	0.26	-2.14	0.65*	0.08*	-3.73**	-3.69**	-3.56**	-3.55**	0.14*	0.10*	I(1)
	N. Macedonia	-2.76***	-2.29	-2.76**	-2.29	-2.76***	-2.29	-4.23*	-4.36**	-4.24*	-4.42**	0.33*	0.17*	I(0)
	Montenegro	-2.21	-3.05	-2.21	-3.50**	0.24*	0.13*	-4.12*	-4.25**	-4.10*	-4.24**	0.23*	0.15*	I(1)
	Serbia	-2.43	-2.42	-2.76**	-2.35	0.45*	0.14*	-4.52*	-4.46**	-4.61*	-4.74*	0.24*	0.14*	I(1)
	Kosovo+	-2.21	-3.05	-2.22	-3.51**	0.25*	0.13*	-4.13*	-4.26**	-4.12*	-4.26**	0.22*	0.15*	I(1)
LnTL	Albania	-2.93**	-3.11	-2.68**	-2.97	0.38*	0.15*	-4.16*	-4.12*	-6.32*	-5.96*	0.19*	0.19*	I(1)
	BiH	-0.51	-4.57*	-1.47	-3.49**	0.70*	0.15*	-5.61*	-5.56*	-6.06*	-10.1*	0.50*	0.43	I(0)
	Moldova	-1.26	-1.18	-1.26	-1.18	0.53*	0.11*	-3.05**	-2.99	-3.07**	-2.91	0.17*	0.15*	I(1)
	N. Macedonia	-0.29	-3.59***	1.35	-3.26**	0.66*	0.07*	-5.07*	-4.92*	-8.13*	-8.27*	0.50*	0.50*	I(0)
	Montenegro	-2.80*	-2.89	-2.62	-2.76	0.18*	0.11*	-4.62*	-4.46**	-5.22*	-4.75*	0.21*	0.21*	I(1)
	Serbia	-5.10*	-11.78*	-4.67*	-10.97*	0.67*	0.12*	-12.41*	-11.22*	-12.40*	-11.23*	0.28*	0.14*	I(0)
	Kosovo+	-0.63	-1.19	-0.45	-0.94	0.38*	0.20*	-3.38**	-3.08	-3.37**	-5.31*	0.29*	0.36	I(1)
LnBANK CREDIT	Albania	-2.14	-1.49	-2.89**	-1.09	0.48*	0.17*	-1.55	-2.12	-1.64	-2.24	0.44*	0.09*	I(0)
	BiH	-1.37	-0.91	-1.37	-0.92	0.44*	0.17*	-6.59*	-12.09*	-5.78*	-12.09*	0.22*	0.11**	I(1)
	Moldova	-2.38	-2.32	-2.47	-2.16	0.18*	0.16*	-2.74**	-3.00	-2.79***	-3.00	0.34*	0.11*	I(1)
	N. Macedonia	-1.92	-0.36	-1.66	-0.76	0.58*	0.16*	-2.22	-3.03	-2.24	-3.02	0.29*	0.09*	I(1)
	Montenegro	-7.35*	-6.94*	-3.09**	-2.12	0.31*	0.14*	-2.13	-2.40	-2.05	-2.44	0.37*	0.11	I(0)
	Serbia	-1.46	-2.85	-1.79	-3.02	0.41*	0.10*	-7.84*	-3.12	-3.34**	-3.11	0.13*	0.12*	I(1)
	Kosovo+	0.40	-4.65**	0.37	-1.01	0.52*	0.15*	-2.19	-3.75**	-3.18**	-3.77**	0.20*	0.10*	I(0)

Note: Kosovo+ - UNMIK, according to the SC Res. 1244. * Indicates significance at the 1% level (for the ADF and PP tests, * denotes null rejection, H_0 - *the unit root*; for KPSS, * means that the null hypothesis cannot be rejected, H_0 - stationarity); ** Indicates significance at the 5% level; *** Indicates significance at the 10% level.

Source: The author

Table A2 The descriptive statistics of the estimated residuals of the export equation by country

	Albania	BiH	Montenegro	Kosovo*	Moldova	North Macedonia	Serbia
Mean	-6.35e-16	4.00e-16	-2.33e-16	3.62e-15	-1.23e-15	8.88e-16	-2.66e-16
Median	0.005554	-0.001536	0.002601	-0.003522	0.001931	-0.004512	-0.001221
Maximum	0.052176	0.035220	0.068244	0.033882	0.055137	0.042183	0.011443
Minimum	-0.088655	-0.040523	-0.065014	-0.031609	-0.045047	-0.038107	-0.011190
St. Dev.	0.039868	0.014255	0.039854	0.017525	0.028348	0.021788	0.007134
Skewness	-0.513282	-0.353134	-0.005544	0.135677	0.108481	0.305947	0.115063
Kurtosis	2.322996	5.842395	1.892692	2.395745	2.485612	2.378176	1.781799
Jarque-Bera	1.323147	7.148352	0.970784	0.255941	0.272709	0.634234	1.280809
Probability	0.516039	0.028039	0.615456	0.879879	0.872533	0.728246	0.527079

Note: *UNMIK, according to the SC Res. 1244

Source: The author

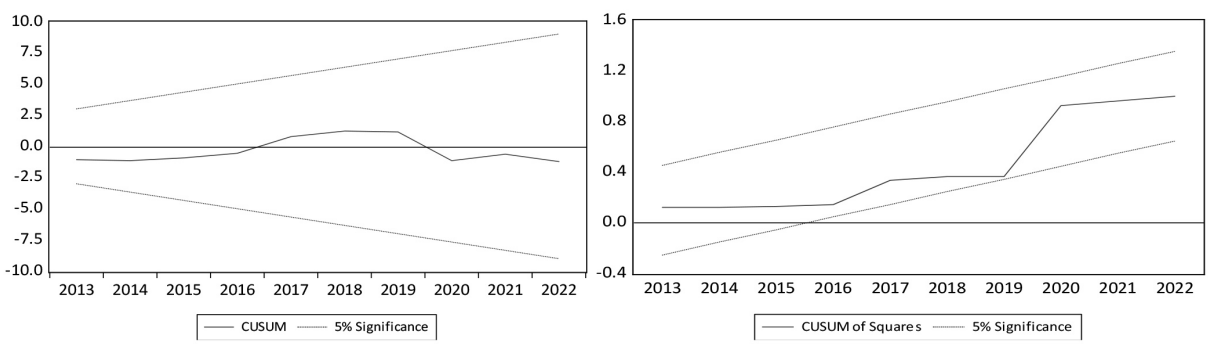


Figure A Albania - CUSUM and CUSUMQ

Source: The author

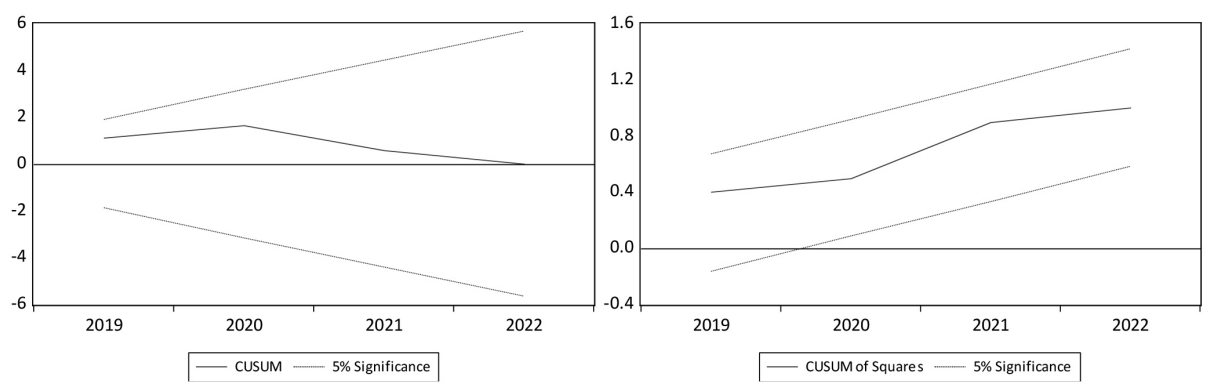


Figure B BiH - CUSUM and CUSUMQ

Source: The author

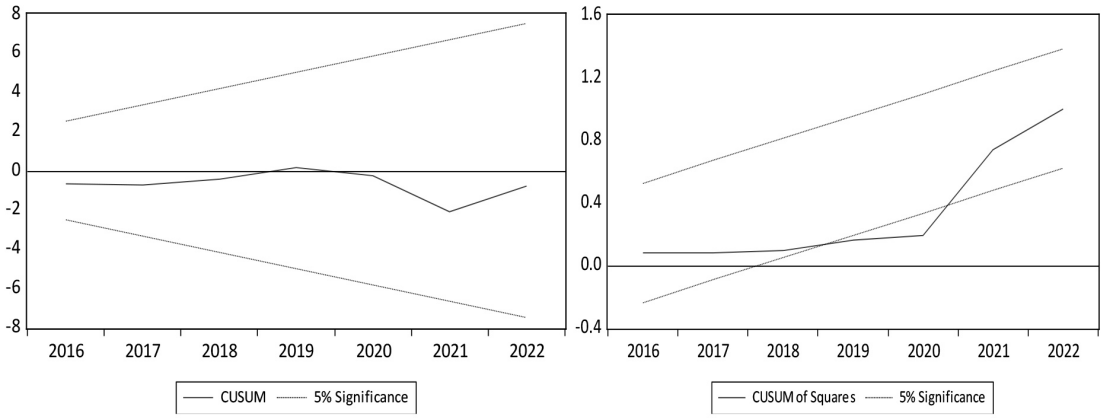
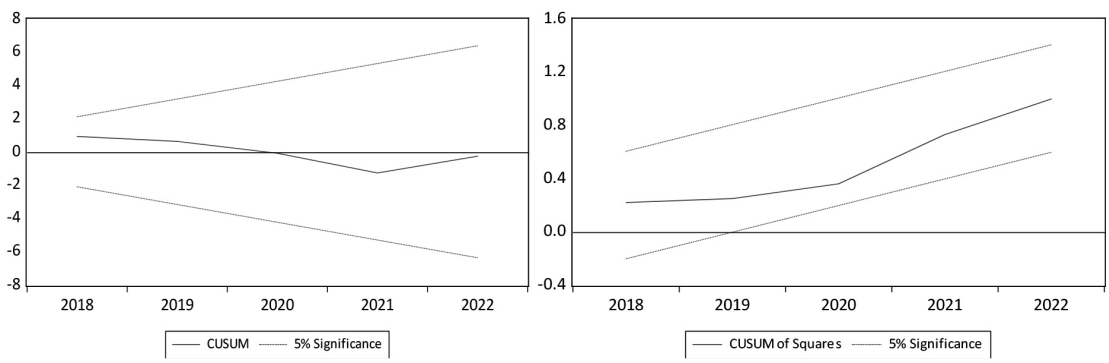


Figure C Montenegro - CUSUM and CUSUMQ

Source: The author



Kosovo* (UNMIK, according to the UN SC Res. 1244)

Figure D Kosovo* - CUSUM and CUSUMQ

Source: The author

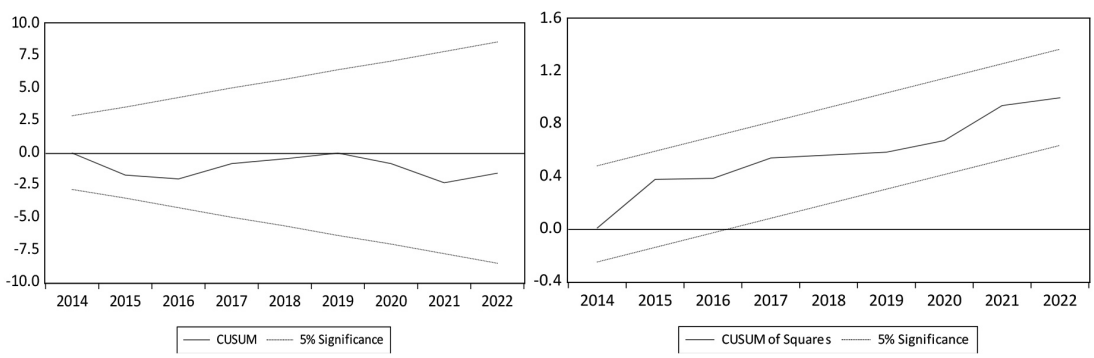


Figure E Moldova - CUSUM and CUSUMQ

Source: The author

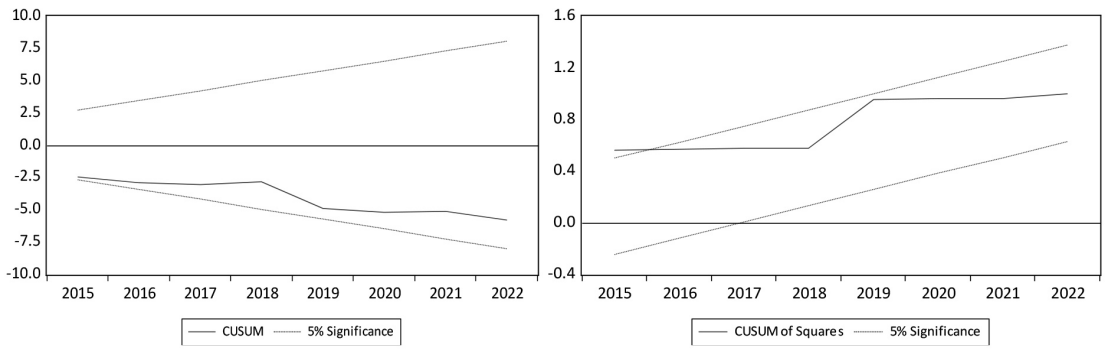


Figure F North Macedonia - CUSUM and CUSUMQ

Source: The author

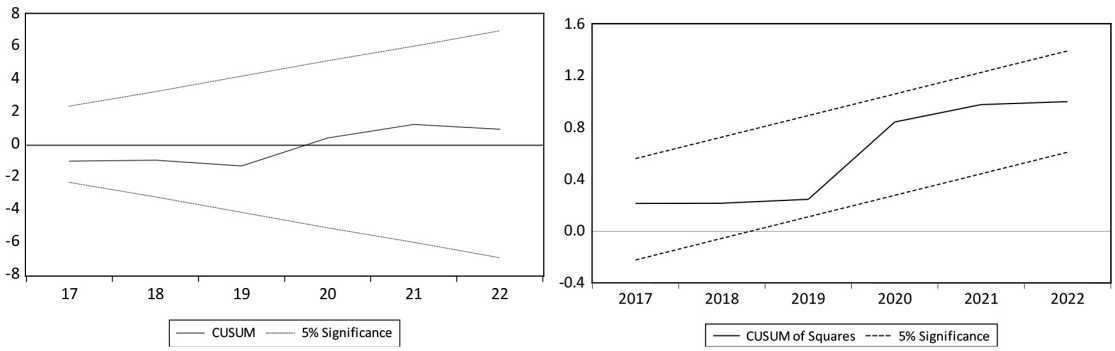


Figure G Serbia - CUSUM and CUSUMQ

Source: The author