A LONG-RUN RELATION BETWEEN TOURISM AND INTERNATIONAL TRADE: EVIDENCES FROM WESTERN BALKAN

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Abstract

The main objective of the study is to empirically assess whether a long run relationship exists between receipts from international tourism and export/import in the Western Balkan region. Applied methodology is based on the panel version of standard procedure for cointegration testing in multivariate time-series analysis. Empirical results support the existence of the cointegrating relations both between receipts and import and receipts and export. Also, the existence of a bidirectional long run causal relationship is evidenced in both cases, in line with certain theoretical expectations and predictions. On the other hand, short run Granger causality is indicated only from import to receipts and receipts to export.

Key words: *International tourism receipts, trade, cointegration, VECM, Western Balkan*

INTRODUCTION

The accelerated development of global tourism began in the middle of the last century. In the past seventy years, this industry has become a very important source of income, and consequential economic growth, for many countries. Therefore, tourism is characterized as "*an activity essential to the life of nations because of its direct effects on the social, cultural, educational, and economic sectors of national societies, and on their international relations*" (UNWTO, 1980). The basic type of income from tourism is realized through the sale of goods and services, which in the case of inbound tourism can be seen as a component of

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exports. In addition, tourism has a strong impact on the labor market, the environment, international trade and also on other, related economic activities.

The extent of the importance of tourism is easiest to observe through the data on its direct, indirect and induced impact. WTTC (2019) on the last, pre-COVID report stated that travel and tourism contribute US$8.9 trillion to the world's GDP, which is 10.3% of global GDP. Also, it generated 330 million jobs (1 in 10 jobs around the world is in the travel and tourism industry). Additionally, they reported US$1.7 trillion visitor exports (6.8% of total exports, 28.3% of global services exports) and US$948 billion capital investment (4.3% of total investment).

On the other hand, international trade also significantly contributes to the economic growth of a nation. It has a direct and indirect impact on agricultural and industrial sectors, but also on the service sector, including international tourism.

The main objective of the study is to empirically assess whether a long run relationship exists between receipts from international tourism and export/import in the Western Balkan region. The research is especially motivated by the concerns about the detrimental impact that the ongoing downfall in international tourist arrivals (due to the COVID-19 pandemic) will have on other macroeconomic variables. In addition, we also examine short-run causalities. Empirical analysis covers the period 1995-2017. Western Balkan region commonly refers to Balkan countries which are not EU member states: Albania, Bosnia & Herzegovina, Montenegro, North Macedonia and Serbia. Nevertheless, Croatia was also included as a part of Western Balkans in this research, since Croatia was not an EU member over most of period[3]. To the best of our knowledge, no similar research was conducted.

The structure of the paper is organized as follows. The Literature Review section briefly summarizes several empirical studies that examine the long-run relationship between flows of international trade and tourism. The Stylized Facts section depicts trends and developments of the import, export and receipts from international tourism in the WB region. The Methodology section deals with panel econometric methods applied to assess relations between international trade and tourism. The Results section provides estimates from the econometric analysis and interpretation of findings. The Conclusion section summarizes key findings of the study.

[3] Croatia joined the EU in mid-2013.

LITERATURE REVIEW

The initial theoretical assumption of this research is that long-term economic growth can be stimulated by exports through two channels. The first channel is represented by the export-led growth (ELG) hypothesis and its variation in the context of tourism - the tourism-led growth (TLG) hypothesis. And the second channel is raising the level of capital investments through financing the import of foreign capital goods (Nowak, Sahli, Cortez-Jimenez, 2007; Madaleno, Eusebio, Varum, 2016). Although there is still no microeconomic model, which could offer a theoretical justification of the link between trade and tourism, empirical studies developed in selected countries suggest that discussed interrelations really exist (Majewska & Mińska-Struzik, 2012).

The first scientific research of the idea that international travel is a component of international trade and consequently international travel has an impact on the economy were conducted by Gray (1970) and Keintz (1971), who find that the total value of trade is a strong predictor of the demand for travel to the US. Thirty years later, Kulendran & Wilson (2000) based on the cointegration and Granger-causality approaches, find that there is a relationship between international travel and international trade. Turner and Witt (2001) also confirm, in the case of New Zealand, that international trade plays a major role in influencing the demand for business travel. The same results are confirmed for South Africa in the research conducted by Fry, Saayman & Saayman (2010). They found a bi-directional relationship between international tourist numbers and international trade. Kadir & Jusoff (2010) study Malaysian data and the results of Granger-causality tests indicate that there is a one-way causal effect running from exports to international tourism receipts at a 5% significance level.

Sarmidi & Salleh (2011) analyse dynamic interrelationships between the tourism, trade and economic growth for Malaysia and its major tourism partner in ASEAN and results show that there is evidence of a long-run relationship amongst these three variables. Gautam & Kg (2012) examine the causal relationship between tourism arrivals and bilateral trade of India with Germany, Netherland, Switzerland, France, Italy, USA, UK and Canada and test results indicate two-way causal relationships between the trade and tourism in the case of USA, Italy and Canada. Majewska & Mińska-Struzik (2012) conducted an analysis of tourist arrivals and export flows between Poland and its main tourism and trade partners and find that country case studies are mixed, although with the use of quarterly data the evidence is stronger for the hypothesis that tourism causes trade.

Based on empirical evidence from Hong Kong Tsui & Fung (2016) showed bidirectional causality between the two-time series variables; however, business travel does Granger-cause trade volumes for the case of Mainland China and Taiwan. Caliskan et al. (2019) point out that even though there are differences in short-term and long-term relations, tourist flows and international trade are related, in the case of Turkey, which indicates that international trade is important for tourism development.

STYLIZED FACTS

In this section, we discuss trends of the import, export[4] and receipts from international tourism in the WB region, as well as patterns of their relations. The analysis covers the period 1995-2017. All data are collected from the World Bank WDI database[5]. Economic developments in the WB region followed the overall trend of economic activity in the larger area of Central and Eastern European countries. As documented by many studies, after the decade of transition from socialist to open market economies during the nineties, the CEE region became an attractive investment destination at the beginning of the 2000s. The huge inflow of foreign capital fuelled up the economic boom, but also created large structural imbalances. The imbalances were particularly evident in the external sector and reflected in large trade and current account deficits, making CEE countries dependent on foreign capital inflows to cover those deficits. After the spillover of the global financial and economic crisis in 2009, the huge inflow of FDI suddenly interrupted, leading to a sharp fall in economic activity. Eventually, most of the CEE countries recovered in 2010 and since then gradually reduced external imbalances and regained the trend of economic growth, but at a considerably slower pace relative to the pre-crisis period.

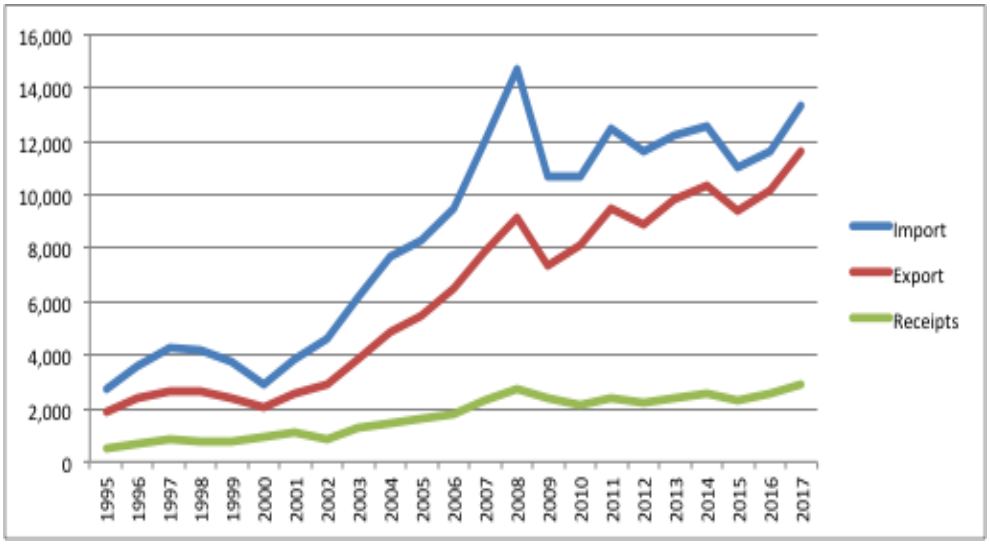
Developments of international trade and tourism in the WB region, as read in Figure 1, followed the overall pattern of the economic cyclicality of the broader CEE region. The average level of import in the WB countries, as well as trade deficit, reached pick in 2008. Since the sharp fall in 2009, the average level of import has gradually increased, but in 2017 was still below the 2008 pick. On the other hand, the average level of export recovered to the pre-crisis period already in 2011.

[4] Import and export include both goods and services.

[5] Unbalanced panel covers 133 obs. for import & export and 121 obs. for receipts. The following data are missing: B&H receipts 1995-1997, Montenegro export & import 1995-1999, Montenegro and Serbia receipts 1995-2001.

Overall, average values of import and export have been converging since 2009, whereas average negative net export has been reduced several times. Average receipts from international tourism were on the steady rise until fall in 2009; it fully recovered only in 2017, eventually exceeding the pre-crisis level. While growth in receipts from international tourism did not appear so explosive in Figure 1, their dynamics on average was volatile as much as in the case of foreign trade flows, as illustrated in Table A1 in the Appendix.

Figure 1. Annual average values of import, export and receipts, 1995-2017



Source: Authors' computation based on WB data

Notes: in millions of current USD. Exact numbers are presented in the Appendix, Table A1

Considering dynamics of international trade and tourism receipts, three development phases can be clearly identified: the period of moderate growth 1995-2000, period of overheating growth 2001-2008 and period of growth reconciliation 2009-2017. In the period of moderate growth, the cumulative increase in average import and export was particularly low, only 8% and 10%, respectively. During the period of overheating growth, average import almost quadrupled, while cumulative growth in average export was only 25 percentage points lower than in import. At the same time, average receipts did not proliferate so dramatically, but a cumulative increase at 161% rate was impressive growth anyway. Since the emergence of the global crisis in 2009, the dynamics of international trade and receipts have reconciled the potential growth of economic activity.

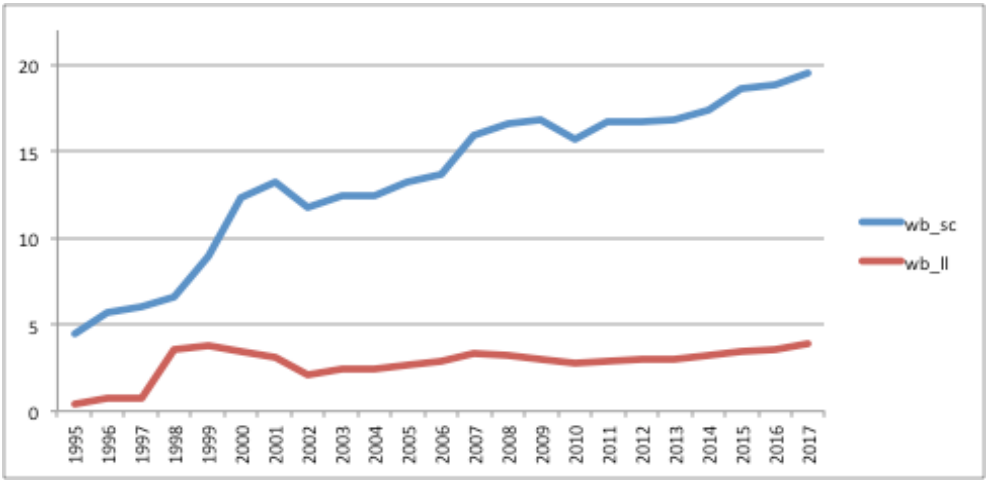
Table 1. Cumulative growth rates of import, export and receipts

Period	Import	Export	Receipts
1995-2000	8.1	9.8	87.9
2001-2008	284.3	258.7	161.2
2009-2017	24.2	57.2	22.3
1995-2017	393.2	531.1	498.7

Source: Authors' computation based on WB data

When speaking about the dynamics of receipts from international trade, it is important to mention that WB is not a homogeneous group of countries in terms of touristic resources. Territories of Croatia, Montenegro and Albania include large coastal areas, therefore coastal and maritime tourism prevails in touristic supply and represents the primary driver of tourism development and receipts generator. On the other hand, BiH, Serbia and North Macedonia are landlocked territories with scarce natural touristic resources limited to mountains, rivers and spas. The impact of the sea coast on the development of tourism in the WB countries is clearly demonstrated in Figure 2. The average receipts-to-GDP ratio in the landlocked WB countries has been stagnating around 3-4% over the period considered, which implies that the development of tourism was mostly proportional to economic growth. The same ratio in the WB countries with sea cost was continuously on the rise going from 5% up to almost 20%, illustrating how much impact of tourism on overall economic activity has increased in those countries.

Figure 2. Receipts to GDP, annual average, Coastal vs. Landlocked WB countries

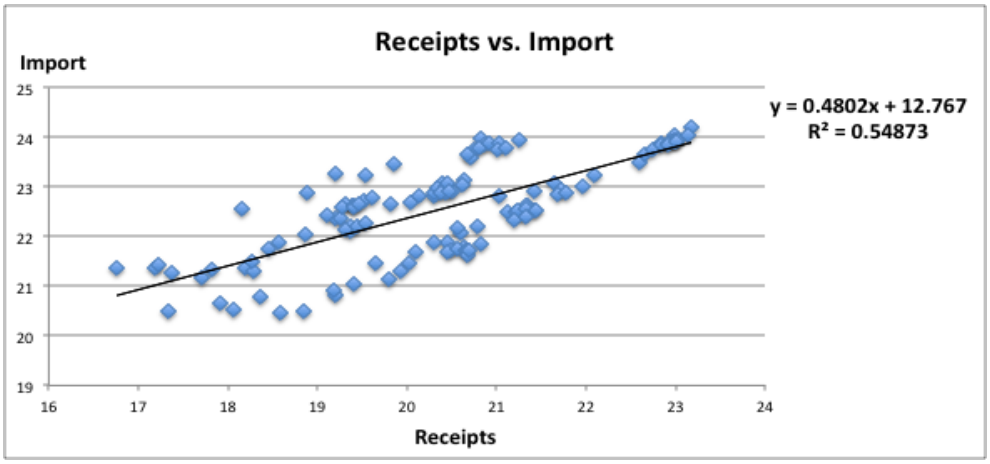


Source: Authors' computation based on WB data

Note: sc for sea coast, ll for landlocked

Furthermore, we examine patterns of joint development of receipts and flows from international trade using scatterplots and simple linear regressions, as reads in Figures 3a and 3b. In both cases, strong correlation patterns are identified, indicating a possible cointegrating relationship.

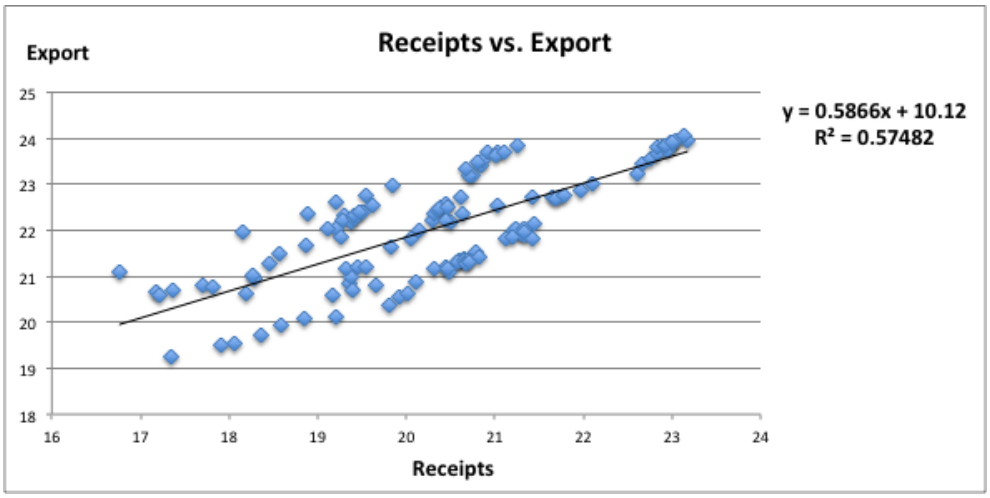
Figure 3a. Receipts vs. import, scatterplot



Source: Authors' computation based on WB data

Note: logged values

Figure 3b. Receipts vs. export, scatterplot



Source: Authors' computation based on WB data

Note: logged values

METHODOLOGY

The methodology applied in this study primarily aims to assess the existence and causality of a long run relationship between receipts from international tourism and flows of international trade. In particular, we estimate a panel regression model

$$Y_{i,t} = \beta' Z_{i,t} + u_{i,t}, \quad t = 1, \dots, T; \quad i = 1, \dots, N. \qquad (1)$$

where $Y_{i,t}$ is a dependent variable, $X_{i,t}$ is an explanatory variable and $u_{i,t}$ is a random error. In our case, the dependent variable $Y_{i,t}$ counts receipts from international tourist arrivals, whereas $Z_{i,t}$ is either import or export of goods and services.

Since we are dealing with a panel dataset, the methodology is based on the panel extension of standard procedure for cointegration testing in multivariate time-series analysis. It consists of the following steps:

- Panel unit root testing - the IPS W-stat (Im et al., 2003), the Fisher-ADF Chi-square test (Maddala and Wu, 1999) and the Fisher-PP Chi-square test (Choi, 2001).

- Panel cointegration testing – Johansen-Fisher test (Maddala and Wu (1999), and;
- Estimation of the panel Vector-Error Correction model.

Panel unit root testing

The majority of the panel unit root tests are basically derived from univariate tests by extending the computation of test statistics toward cross-section dimension. The most frequently used panel root tests are those derived under the assumption that panel data are generated by the variable $y_{i,t}$ that follows the stochastic process described by the panel version of Augmented Dickey-Fuller (ADF) regression, which reads as:

$$\boldsymbol{\Delta y_{i,t} = \rho_i y_{i,t-1} + \sum_{p=1}^{P_i} \phi_{ip} \Delta y_{i,t-p} + \psi_{i,0} + \psi_{i,1} t + \varepsilon_{it}.} \qquad (2)$$

The panel unit root tests typically test null that each individual process has a unit root against the alternative that some individual processes do not have unit roots. The LLC unit root test (Levin, Lin, and Chu, 2002) is the simplest panel extension of the univariate ADF test, assuming the same auto-regressive process across all panels ($\forall \rho_i = \rho$). The IPS test (Im, Pesaran and Shin, 2003), the Fisher-ADF test (Maddala and Wu, 1999) and the Fisher-PP test (Choi, 2001) all assume variations in ρ_i coefficients, but differ in the computation of tests statistics to make the statistical inference. The IPS test statistics is computed as a group-mean of individual t-statistics

$$\boldsymbol{\underline{t}_{NT} = N^{-1} \sum_{i=1}^{N} t_{iT}(P_i, \phi_{i1}, \dots, \phi_{iP_i}),} \qquad (3)$$

where $t_{iT}(P_i, \phi_{i1}, \dots, \phi_{iP_i})$ denotes t-statistics of each panel. The Fisher-ADF test and Fisher-PP[6] (Phillip-Peron) test statistics are computed following the rationale of Fisher's (1932) method to pool p-values from individual tests into the single test statistics:

$$\boldsymbol{-2 \sum_{i=1}^{N} ln(p_i) \sim \chi^2_{2N}.} \qquad (4)$$

[6] Non-parametric adjustment of the Fisher-ADF test

Panel cointegration testing

To make inference on cointegration we apply the Johansen-Fisher test proposed by Maddala and Wu (1999), which is a panel extension of the Johansen (1988) cointegration test. Cointegration test based on Johansen approach assumes that time series jointly follow the Vector-Error Correction (VECM) representation of Vector Autoregression (VAR) stochastic process:

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{p=1}^{P} \Gamma_p \Delta Y_{t-p} + u_t, \qquad (5)$$

where Y_t is a *k*-dimensional vector of non-stationary time series assumed to be cointegrated, while *p* is an order of the VAR. To check if the time series are cointegrated and how many cointegrating relations exist, Johansen (1988) proposed the maximum eigenvalue LR_{max} and likelihood ratio trace LR_{trace} statistics:

$$LR_{max}(r_0, r_0 + 1) = -T \sum_{j=r_0}^{k} ln\left(1 - \lambda_{r_0}\right); \qquad (6)$$

$$LR_{trace}(r_0, k) = -T \sum_{j=r_0}^{k} ln\left(1 - \lambda_j\right), \qquad (7)$$

where r_0 is a supposed number of cointegrating relations and λ_j is the *j*-th largest eigenvalue of the matrix Π. Since the matrix Π captures long-run relations among variables in the VECM, both statistics test the same null that supposed number of cointegrating relations r_0 equals the rank of Π against the alternatives H_1: $rank(\Pi) = r_0 + 1$ and H_1: $rank(\Pi) = k$ in case of LR_{trace} and LR_{max}, respectively. Maddala and Wu (1999) propose a panel extension of the Johansen test using Fisher's method of pooling individual p-values.

Panel Causality

Similar to unit root and cointegration testing, causality is examined using panel VECM representation as given in (5) of the baseline regression model (1). Under the assumption that matrix Π capturing long-run relations among variables can be further decomposed into the vector of adjustment coefficients α and vector of cointegrating coefficients β, total term ΠY_{t-1} in the VECM model (5) can be rewritten as αECT_{t-1}, where $ECT_{t-1} = \beta' Y_{t-1} = u_{t-1}$ represents the error-correction term, i.e. lagged deviation from cointegrating relation, while α quantifies the speed of adjustment of ΔY_t to the error-correction term. Subsequently, baseline regression model (1) can be rewritten in matrix panel VECM form as

$$\begin{bmatrix}\Delta Y_{i,t}\\ \Delta Z_{i,t}\end{bmatrix} = \begin{bmatrix}\alpha_Y\\ \alpha_Z\end{bmatrix} ECT_{t-1} + \sum_{p=1}^{P} \begin{bmatrix}\gamma_{Y,Y;p} & \gamma_{Y,Z;p}\\ \gamma_{Z,Y;p} & \gamma_{Z,Z;p}\end{bmatrix} \begin{bmatrix}\Delta Y_{i,t-p}\\ \Delta Z_{i,t-p}\end{bmatrix} + \begin{bmatrix}u_{Y;i,t}\\ u_{Z;i,t}\end{bmatrix}. \quad (7)$$

For instance, if $\Delta Y_{i,t}$ equation is estimated, the negative and significant estimated value of parameter α_Y implies long-run causality running from $Z_{i,t}$ to $Y_{i,t}$, while $\gamma_{Y,Z;p}$ implies short-run causality running from $Z_{i,t}$ to $Y_{i,t}$.

RESULTS

We applied four types of panel unit root tests as depicted in the previous section. Results of unit root testing at time-series levels are presented in Table 1. While null on unit root was occasionally rejected at 10% significance, the vast majority of tests strongly support the presence of unit roots in all three series examined.

Table 2a. Unit root tests at levels

Variable	Test	Level	
		Individual effects	Individual effects, individual linear trends
Import	Levin, Lin & Chu t	-150923*	-146920*
	Im, Pesaran and Shin W-stat	0.78268	0.21545
	ADF - Fisher Chi-square	694,371	822,314
	PP - Fisher Chi-square	706,232	731,558
Export	Levin, Lin & Chu t	-0.28296	-113,206
	Im, Pesaran and Shin W-stat	230,334	-0.04037
	ADF - Fisher Chi-square	421,375	106,722
	PP - Fisher Chi-square	250,934	206376*
Receipts	Levin, Lin & Chu t	-0.61232	-0.85544
	Im, Pesaran and Shin W-stat	186,412	0.60529
	ADF - Fisher Chi-square	308,328	842,473
	PP - Fisher Chi-square	344,461	572,819

*Note: Null – unit root; *,**, and *** level of significance for 10%, 5%, and 1%, respectively*

Results of unit root testing at time-series levels are presented in Table 2b. Null on unit roots was uniformly rejected by all tests applied, stemming to the robust conclusion that levels of import, export and receipts are first-order integrated.

Table 2b. Unit root tests at first differences

Variable	Test	First difference	
		Individual effects	Individual effects, individual linear trends
Import	Levin, Lin & Chu t	-642076***	-517786***
	Im, Pesaran and Shin W-stat	-596904***	-491889***
	ADF - Fisher Chi-square	581436***	458166***
	PP - Fisher Chi-square	880026***	999318***
Export	Levin, Lin & Chu t	-602953***	-558475***
	Im, Pesaran and Shin W-stat	-548226***	-553449***
	ADF - Fisher Chi-square	583295***	541629***
	PP - Fisher Chi-square	859614***	797425***
Receipts	Levin, Lin & Chu t	-732478***	-607193***
	Im, Pesaran and Shin W-stat	-570030***	-387300***
	ADF - Fisher Chi-square	527551***	359601***
	PP - Fisher Chi-square	563844***	439296***

*Note: Null – unit root; *,**, and *** level of significance for 10%, 5%, and 1%, respectively*

In the next step, we performed maximum eigenvalue LR_{max} and likelihood ratio trace LR_{trace} panel cointegration tests, as given in (6) and (7). Upper and lower panels of Table 3 present results of cointegration testing for import and receipts and export and receipts, respectively. Results of LR_{max} and LR_{trace} tests reject no cointegration null for both pairs of variables at 5% level of significance but did not reject null on one cointegrating relation. These results clearly indicate the presence of cointegrating relations between import and receipts, as well as between export and receipts.

Table 3. Cointegration tests

Import and Receipts				
Hypothesized No. of CE(s)	**Fisher Stat. (from trace test)**	**Prob.**	**Fisher Stat. (from max-eigen test)**	**Prob.**
None	22.01	0.0374	22.83	0.0292
At most 1	8,480	0.7466	8,480	0.7466
Export and Receipts				
Hypothesized No. of CE(s)	**Fisher Stat. (from trace test)**	**Prob.**	**Fisher Stat. (from max-eigen test)**	**Prob.**
None	26.04	0.0106	25.10	0.0143
At most 1	10.02	0.6145	10.02	0.6145

We proceed with analysis based on estimation of a panel VECM model for import and receipts. To preserve degrees of freedom regarding the limited number of observations in the sample, we arbitrary limited the order of VECM to only two legs. The specification of the model's equation reads in equations (9) and (10):

$$\Delta R_{i,t} = \alpha_R ECT_{t-1} + \gamma_{R,R;1}\Delta R_{i,t-1} + \gamma_{R,R;2}\Delta R_{i,t-2} + \gamma_{R,M;1}\Delta M_{i,t-1} + \gamma_{R,M;2}\Delta M_{i,t-2} + u_{R;i,t}; \quad (9)$$

$$\Delta M_{i,t} = \alpha_M ECT_{t-1} + \gamma_{M,R;1}\Delta R_{i,t-1} + \gamma_{M,R;2}\Delta R_{i,t-2} + \gamma_{M,M;1}\Delta M_{i,t-1} + \gamma_{M,M;2}\Delta M_{i,t-2} + u_{M;i,t}, \quad (10)$$

where $R_{i,t}$ denotes receipts and $M_{i,t}$ denotes import. Results of the joint estimation of the equations (9) and (10) are presented in Table 4.

Table 4. VECM estimation, receipts and import

Coefficient	Value	Std. Error	t-Statistic	Prob.	Adj. R-Sq.
α_R	-0.039959	0.008993	-4,443,210	0.0000	0.292621
$\gamma_{R,R;1}$	0.083461	0.093737	0.890370	0.3744	
$\gamma_{R,R;2}$	-0.367339	0.087954	-4,176,484	0.0000	
$\gamma_{R,M;1}$	0.329634	0.146486	2,250,271	0.0256	
$\gamma_{R,M;2}$	0.140394	0.141051	0.995342	0.3208	
α_M	-0.017363	0.006955	-2,496,324	0.0134	0.109986
$\gamma_{M,R;1}$	0.084475	0.072494	1,165,274	0.2453	
$\gamma_{M,R;2}$	-0.088441	0.068022	-1,300,194	0.1951	
$\gamma_{M,M;1}$	0.055034	0.113289	0.485780	0.6277	
$\gamma_{M,M;2}$	-0.035811	0.109086	-0.328279	0.7431	

The estimated value of the adjustment coefficients α_R and α_M are negative and statistically significant, implying bidirectional causality between import and receipts. On the other hand, the estimated value of the $\gamma_{R,M;1}$ parameter indicates short-run Granger causality running only from import to receipts. This implies that in the case of the WB region opening of the economy to the international trade flow is beneficial for tourism not only in the long run, but also in the short run.

In a similar manner we estimated panel VECM for export and receipts, specified by equations (10) and (11):

$$\Delta R_{i,t} = \alpha_R ECT_{t-1} + \gamma_{R,R;1}\Delta R_{i,t-1} + \gamma_{R,R;2}\Delta R_{i,t-2} + \gamma_{R,X;1}\Delta M_{i,t-1} + \gamma_{R,X;2}\Delta M_{i,t-2} + u_{R;i,t}; \quad (11)$$

$$\Delta X_{i,t} = \alpha_X ECT_{t-1} + \gamma_{X,R;1}\Delta R_{i,t-1} + \gamma_{X,R;2}\Delta R_{i,t-2} + \gamma_{X,X;1}\Delta X_{i,t-1} + \gamma_{X,X;2}\Delta X_{i,t-2} + u_{X;i,t}, \quad (12)$$

where $X_{i,t}$ denotes export. Results of the joint estimation of the equations (11) and (12) are presented in Table 5.

Table 5. VECM estimation, receipts and export

Coefficient	Value	Std. Error	t-Statistic	Prob.	Adj. R-Sq.
α_R	-0.034997	0.007665	-4,565,925	0.0000	0.262329
$\gamma_{R,R;1}$	0.178235	0.106873	1,667,720	0.0970	
$\gamma_{R,R;2}$	-0.337224	0.094376	-3,573,180	0.0004	
$\gamma_{R,X;1}$	0.068452	0.171701	0.398668	0.6906	
$\gamma_{R,X;2}$	0.085722	0.148350	0.577831	0.5640	
α_X	-0.016775	0.005096	-3,291,615	0.0012	0.176202
$\gamma_{X,R;1}$	0.194890	0.071058	2,742,685	0.0067	
$\gamma_{X,R;2}$	-0.125237	0.062749	-1,995,840	0.0474	
$\gamma_{X,X;1}$	-0.135409	0.114161	-1,186,127	0.2370	
$\gamma_{X,X;2}$	-0.062430	0.098636	-0.632941	0.5275	

The estimated value of the adjustment coefficients α_R and α_X are again negative and statistically significant, implying bidirectional causality between export and receipts. The estimated value of the $\gamma_{X,R;1}$ and $\gamma_{X,R;2}$ parameters indicate short-run Granger causality running only from receipts to export. The direction of short-run causality is in line with theoretical expectations, regarding that receipts from international touristic arrivals are considered as a component of total services exported.

CONCLUSIONS

Proper assessment and understanding of the relations and causality directions between flows of international trade and receipts from international tourism is beneficial for advanced macroeconomic planning. This is particularly important in the time of COVID-19 when touristic activities collapsed in many countries severely affected by the pandemic.

This paper contributes to the literature that empirically examines the issues of the long run relationship between receipts from international tourism and flows of international trade, especially in the emerging economies. In addition to empirical

work, it also contributes to the discussion on the econometric issues of panel cointegration analysis and the application of a panel VECM approach.

Results of the empirical analysis support the existence of the cointegrating relations between import and receipts, as well as between export and receipts, in the Western Balkan region. In line with expectations grounded on the literature review and stylized facts, the presence of a bidirectional long-run causal relationship is identified in both cases. Short-run Granger causality appears to run only from import to receipts and from receipts to export.

The originality of this study is stemming from the methodological approach to the analysis of the relationship between tourism receipts and international trade and the scope of countries in the sample. To the best of our knowledge, a study with the same or similar subject and analytical approach has not been previously conducted for the selected group of countries. The main limitation of the research is the limited number of annual observations available, which disables the application of more complex econometric methods or subsample analysis.

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APPENDIX

Table A1. Import, export and receipts descriptives, total sample

Variable	Obs.	Mean	Std. Dev.	Min	Max
Import	133	8,633	7,912	503	32,780
Export	133	6,332	7,131	230	27,680
Receipts	121	1,848	2,876	19	11,620

Source: Authors' computation based on WB data

Note: in millions of current USD

Table A2. Annual average values of import, export and receipts, 1995-2017

Year	Import	Export	Receipts
1995	2,699	1,841	479
1996	3,568	2,349	714
1997	4,262	2,622	862
1998	4,159	2,687	770
1999	3,787	2,386	788
2000	2,919	2,021	901
2001	3,818	2,552	1,061
2002	4,655	2,865	833
2003	6,188	3,875	1,309
2004	7,687	4,847	1,457
2005	8,266	5,496	1,625
2006	9,533	6,523	1,821
2007	11,965	7,851	2,300
2008	14,675	9,152	2,770
2009	10,720	7,388	2,346
2010	10,650	8,141	2,109
2011	12,499	9,517	2,412
2012	11,592	8,866	2,233
2013	12,205	9,857	2,426
2014	12,610	10,343	2,549

Year	Import	Export	Receipts
2015	11,047	9,380	2,312
2016	11,624	10,163	2,522
2017	13,309	11,617	2,870

Source: Authors' computation based on WB data

Note: in millions of current USD