



Is the Tourism-Led Growth Hypothesis Valid for Višegrad Group Countries?

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Abstract: *The tourism sector represents one of the most essential segments of the world economy. This paper aims to identify the effects of tourism indicators on economic growth in terms of tourism share, international tourism arrivals and tourism employment. The subject of the paper is evaluating the impact of the tourism sector on economic growth in selected Višegrad group countries (Czechia, Hungary, Poland and Slovakia) for the period 2008-2018. The empirical findings show that the tourism sector has a significant and positive effect on economic growth in these countries for the observed period. The results of the panel fixed effects model reflect that governments in Višegrad group countries should increase the tourism sector share in their economies in order to enable positive and lucrative implications for economic development.*

1. INTRODUCTION

In the recent era of globalization, the tourism industry is increasing rapidly and enhancing economic growth around the world (Danis and Wang, 2019). Tourism and tourism-related activities are considered one of the most essential sectors of economic growth in the world (Malec and Ahrám, 2016). With the tourism economy developing rapidly, major long-term trends such as changing demographics, evolving demand, digitalization as well as climate change manifest new opportunities and challenges for each country (OECD, 2018). It is widely accepted that tourism development positively affects the economy and leads to increased income, production and employment which enhance overall economic growth in the country (Chingarande and Saayman, 2018). In the twenty-first century, the tourism industry is observed as the main factor for economic growth in many developed and emerging economies (Eyuboglu and Eyuboglu, 2019). Similarly, the tourism industry has emerged as an important driver for economic growth strategies during the last decades (Balsalobre-Lorente et al. (2020). Accordingly, tourism is increasingly an important part of the economy as well as a source of income in today's conditions of globalization and an open economy (Mirović, Kalaš, Pavlović, 2020). Many authors emphasize that tourism manifests as the main component of international trade in services (Katirciogul, 2009; Arslanturk et al. 2011; Hana et al. 2015; Dogan et al. 2017; Akadiri et al. 2019). Arslanturk et al. (2011) highlight that international tourism has become an increasingly essential part of the economy, and the tourism sector has begun to play an important role in the many regions. Katircioglu (2009) points out that real income growth enhances growth in international trade and international tourist arrivals to the country.

The tourism industry had significant growth in terms of international tourism arrivals and tourism receipts in many countries, most especially in the tourism island states (Akadiri and Akadiri, 2019). Brida et al. (2014) highlight that tourism is driven by exogenous components such as the

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economic cycle and tourist preferences. Raza and Shah (2017) emphasize that a higher level of tourism revenues will help countries to reduce income inequality. Podovac (2021) emphasizes the importance of urban tourism because it enables the inflow of tourists throughout the year, as well as, the economic sustainability of the tourism sector. Likewise, governments can play an important role in attracting foreign investments and expanding international tourism. Banerjee et al. (2018) argue that tourism is one of the rapidly growing economic industries that makes 10% of the gross domestic product, as well as 30% of export in the services sectors in the global economy. Brida et al. (2020) point out that the tourism sector positively contributes to economic growth while Pjanić and Mitrašević (2020) point out the significant effects of business tourism spending and domestic tourism spending on economic growth in the European Union. Akadiri et al. (2019) indicate that the tourism sector can contribute to economic growth but only when countries have geopolitical stability. An empirical study for Turkey identified unidirectional causality running from geopolitical risk index to real GDP and from geopolitical risk index to tourism. It implies that real GDP and tourism react negatively to a one standard deviation shock to geopolitical risk.

The structure of this chapter is as follows. After the introduction, there is a literature review about the relationship between the tourism sector and economic growth in the world. The next segment is methodology and data which defines variables, makes hypotheses and creates a panel regression model. The fourth segment is the descriptive and empirical analysis of selected explanatory variables in Višegrad group countries (Czechia, Hungary, Poland and Slovakia) for the period 2008-2018. In this segment, it is presented panel data estimation in terms of the fixed effects model and random effects model. The last segment summarizes the findings and conclusions with enabling informational support to policymakers in these economies from the aspect of the effect of tourism indicators on economic growth, as well as their relationship.

2. LITERATURE REVIEW

For almost two decades, tourism researchers are trying to identify and determine the nexus between economic growth and tourism development to provide a better understanding of their relationship (Kozić et al. 2020). Traditionally, the tourism sector is considered to have a positive impact on the economy and therefore to be a tool by which economies can stimulate their economic growth (Pérez-Rodríguez et al. 2021). Ehigiamusoe (2020) defined the tourism-led growth hypothesis in a way that tourism can facilitate economic growth because it provides income and employment, as well as improves infrastructure and balance of payments. Many previous empirical studies investigated the nexus between tourism and economic growth in order to inform about the potential effect of this industry on the economic development (Balaguer and Cantavella-Jorda, 2002; Gunduz and Hatemi-J 2005; Kim et al. 2006; Lee and Chang, 2008; Lean and Tang, 2010; Arslanturk et al. 2011; Aslan, 2014; Wu and Wu, 2018; Antonakakis et al. 2019; Khan et al. 2020; Mirović et al. 2020; Usmani et al. 2020). Gunduz and Hatemi-J (2005) found unidirectional causality running from international tourist arrivals to the economic growth of Turkey. Further, Ongan and Demiroz (2005) researched the effect of international tourism receipts on economic growth in Turkey and found bidirectional causality between international tourism and economic growth. Lee and Chang (2008) analyzed the relationship between tourism development and economic growth for OECD and non-OECD countries for the period 1990 to 2002.

Their findings indicate that there is a unidirectional causality between tourism development and economic growth in OECD countries and bidirectional causality in non-OECD countries.

Simiraly, Chen and Chiou-Wei (2009) revealed that the tourism-led economic growth hypothesis was supported for Taiwan with a reciprocal causality for South Korea. Chou (2013) analyzed the relationship between tourism spending and economic growth in transition countries for the period 1988 to 2011. His results confirmed the growth hypothesis in Cyprus, Latvia and Slovakia, while the reverse nexus was identified in the Czech Republic and Poland. Can and Gozgor (2016) researched the relationship between tourism and economic growth in 8 Mediterranean countries for the period 1995-2014 and they found causality from market diversification to economic growth in Egypt and Greece. On the other hand, causality from economic growth to market diversification is identified in France, Morocco and Turkey, while bidirectional causality was in Italy, Spain and Tunisia. Salifou and Haq (2016) highlighted the positive impact of tourism on economic growth in ECOWAS countries for the period 1990-2010 and concluded that tourism development will enhance economic growth in these countries. Perles-Ribes et al. (2017) confirmed bidirectional causality between tourism and economic growth in Spain. Muhtaseb and Daoud (2017) estimated the relationship between tourism and economic growth in Jordan and their empirical findings confirmed unidirectional causality between these variables. Tang and Tan (2017) estimated the relationship between the tourism sector and economic growth in 167 countries for the period 1995-2013 and their results confirmed that tourism positively affects the economic growth with different effects between countries at various levels of income. Lin et al. (2018) investigated the causality between international tourism growth and regional economic expansion in 29 regions of China for the period 1978-2013 and confirmed that tourism-led growth hypothesis is identified in 10 regions. Contrary, economy-driven tourism growth is recorded in 9 regions in China for the analyzed period. Öztürk et al. (2018) analyzed the relationship between the tourism industry and economic growth in the ASEAN region from 1995 to 2015. The empirical results show that there is a statistically significant nexus between gross domestic product, export and tourism. Sokhanvar et al (2018) confirmed unidirectional causality from tourism to economic growth in Brazil, Mexico and the Philippines; reverse causality is identified in China, India, Indonesia, Malaysia and Peru. Finally, bidirectional causality is detected for Chile.

Akadiri et al. (2019) investigated international tourism arrivals and economic policy in 12 countries for the period 1995-2016. Their findings revealed bidirectional causality in Ireland, France and the United States, while unidirectional causality is identified in Brazil, Canada, China and Germany. Finally, the neutrality between these variables is recorded in Chile, Japan, Russia, South Korea and Sweden for the observed period. Mitra (2019) investigated causality between the tourism sector and economic growth in 158 economies for the period 2001-2017, where empirical results show bidirectional causality between these variables. Yazdi (2019) estimated the relationship between tourism and economic growth in Iran for the period 1981-2014 and confirmed unidirectional causality running from tourism to economic growth. Zhang and Cheng (2019) revealed that tourism significantly contributes to the economic growth of the thirty-six Wenchuan earthquake-affected countries in China for the period 2008-2016. Khan et al. (2020) revealed a significant and positive effect of economic growth on tourism in Pakistan. Empirical results show that a 1% increase in economic growth enhances tourism by 1.9% in the long-run while the same increase in economic growth raises tourism by 1.32% in the short-run. Usmani et al. (2020) have examined the effect of tourism arrivals and tourist expenditure on economic growth in Brazil, Russia, India and China for the period 1995-2016. Their findings confirmed that tourist expenditure positively affects economic growth as well as the existence of bidirectional causality between these variables.

Chirilă et al. (2020) confirmed that international tourism led to economic growth in Bulgaria and Estonia, while the opposite direction is identified in the Czech Republic, Hungary, Lithuania,

Romania, Slovenia and Slovakia for the period 2000-2019. Croes et al. (2021) found that the tourism sector has a significant positive direct impact on economic growth in Poland, but only in the short term. Xia et al. (2021) analyzed 34 European countries for the period 1995-2015 and their results showed that tourism indicators have a necessary role in promoting economic development in these countries. Finally, Haller et al. (2020) detected a positive and direct relationship between tourism and economic growth in EU-28 member states for the period from 2012 to 2018.

3. METHODOLOGY AND DATA

The chapter includes annual data obtained from World Bank (WB) and International Monetary Fund (IMF) for four Višegrad group countries (Czechia, Hungary, Poland and Slovakia) for the period 2008-2018. This segment implies panel data estimation where gross domestic product per capita is the dependent variable. Gross domestic product is considered an important economic indicator because it best manifests the performance of the economy (Ivanová & Masárová, 2018). A common feature of previous studies is using the aggregate tourism indicators such as tourism arrivals and tourism receipts as proxies for tourism development (Solarin, 2016). Accordingly, international tourism, arrivals, international tourism receipts, tourism employment and export are identified as independent variables.

Table 1. Variable definition

Variable	Notation	Calculation	Source	Expected impact
Dependent variable				
Gross domestic product per capita	GDPpc	US	IMF	/
Independent variables				
International tourism arrivals	ITR	US	WB	+
International tourism receipts	ITR	US	WB	+
Tourism employment	EMP	Number of employees	WB	+
Export	EXP	% of GDP	WB	+

Source: Authors illustration

In order to create an appropriate model, we develop the following hypotheses based on the determined research objectives:

- H₀: Tourism sector has a significant and positive effect on economic growth in Višegrad group countries.
- H₁: Greater number of international tourism arrivals significantly increases economic growth in Višegrad group countries.
- H₂: Greater level of international tourism receipts significantly increases economic growth in Višegrad group countries.
- H₃: Greater level of tourism employment significantly increases economic growth in Višegrad group countries.
- H₄: Greater level of export significantly increases economic growth in Višegrad group countries.

The chapter includes the panel fixed effects model and panel random effects model. The random effects model was identified as an adequate model in order to evaluate the effect of explanatory variables.

The model can be presented as:

$$GDPpc_{it} = \beta_1 + \beta_2 TRS_{it} + \beta_3 ITR_{it} + \dots + \beta_4 ITA_{it} + \varepsilon_i + \mu_{it} \quad (1)$$

where GDP_{pc} – gross domestic product per capita, ITA – international tourism arrivals, ITR – international tourism receipts, EMP – tourism employment, EXP – export, N denotes number of observations, T number of period, α constant, β_1 a random variable with a mean value of parameters and ε_i - random error with mean value 0 and variance σ_{ε}^2 , μ - random error.

4. TOURISM STATE AND PERSPECTIVES

Tourism development is a segment of the overall development strategy for many countries, including Višegrad group countries. The development of this sector enables foreign exchange receipts and generates employment opportunities which stimulate economic growth (Suresh et al. 2017). Accordingly, Badulescu et al. (2020) argue that tourism is positively related to economic development, monetary gains, infrastructure improvements, as well as, sustainable development with environmental impact and cultural values. Competitive advantages include demographic development, labor productivity, gross domestic product, employment and many other factors. Between 1990 and 2018 international tourist arrivals in the CEE region grew from 33.9 million to 141.4 million which represents an increase of 317%, while in 2018 international tourism generated 58 billion euros in receipts (Light et al. 2020). One of the advantages of the Višegrad region can be tourism area (Audretsch and Pena-Legazkue, 2012). Antošova et al. (2020) point out that tourism numbers constantly increased since 2012 in Višegrad group countries. For example, arrivals of tourists increased from 15 million arrivals to almost 18.4 million arrivals in 2016. Similarly, the arrivals of tourists in Hungary were almost 11.1 million arrivals in 2016, while tourist numbers increased as well in Poland from 22 million arrivals in 2012 to almost 29 million arrivals in 2016. In the same year, tourist numbers increased by over 5 million tourist arrivals in Slovakia. Those numbers reflect that tourism has an important place in the Višegrad group countries (Antošova et al. 2020). In 2018 tourism trends in Višegrad group countries implied a few facts:

Czechia

- International travel arrivals: 36.3 million tourists which is 4.52% more than the previous year.
- International travel receipts reached 7.02 billion dollars which is 3.32% more than the previous year.

Hungary

- International travel arrivals: 57.67 million tourists which is 4.92% more than the previous year.
- International travel receipts reached 8.16 billion dollars which is 9.76% more than the previous year.

Poland

- International travel arrivals: 85.94 million tourists which is 2.56% more than previous year.
- International travel receipts reached 13.37 billion dollars which is 7.57% more than the previous year.

Slovakia

- International travel arrivals: 16.82 million tourists which is 9.19% more than the previous year.
- International travel receipts reached 2.82 billion dollars which is 5.71% more than the previous year.

Before empirical analysis, there are trends in GDP growth rate and tourism indicators such as international tourism arrivals, international tourism receipts and tourism employment for the period 2008-2018.

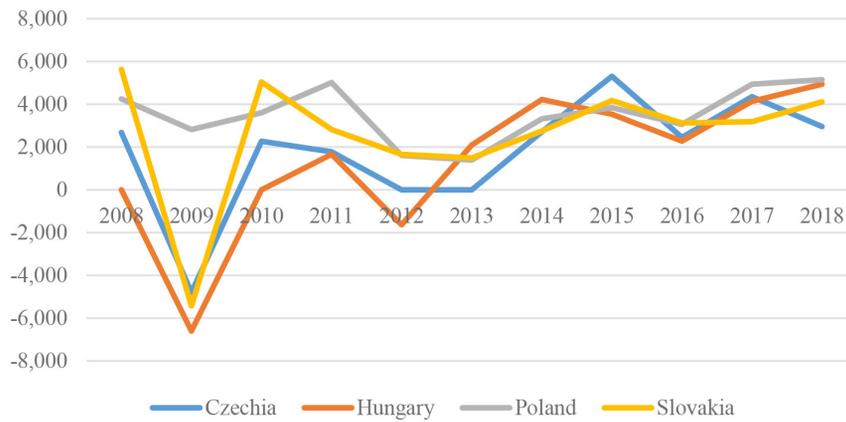


Figure 1. GDP growth rate in Višegrad group countries

Source: Authors calculation

The average GDP growth rate of Višegrad group countries was 2.31% from 2008 to 2018. It is important to notice that all countries recorded a positive average growth rate, where the highest mean GDP growth rate was identified in Poland (3.54%). On the other hand, Hungary had the smallest mean GDP growth of 1.33%, as well as, Czechia (1.79%) which is below average level. Finally, Slovakia had a mean GDP growth rate of 2.59% for the observed period. In the last five years, the Višegrad group economy had an average GDP growth rate of 3.72%, whereas Poland's economy mostly increased by 4.06% on average level.

After presenting the GDP growth rate, there is the level of gross domestic product per capita and share of export in GDP in Višegrad group countries. The average GDPpc of Višegrad group countries was 16601 dollars in the observed period, whereas Czechia recorded the highest GDPpc of 20302 dollars. Likewise, Slovakia had an average GDPpc of 17602 dollars which is above average level, while Hungary and Poland recorded below-average GDPpc of 13880 dollars and 13418 dollars.

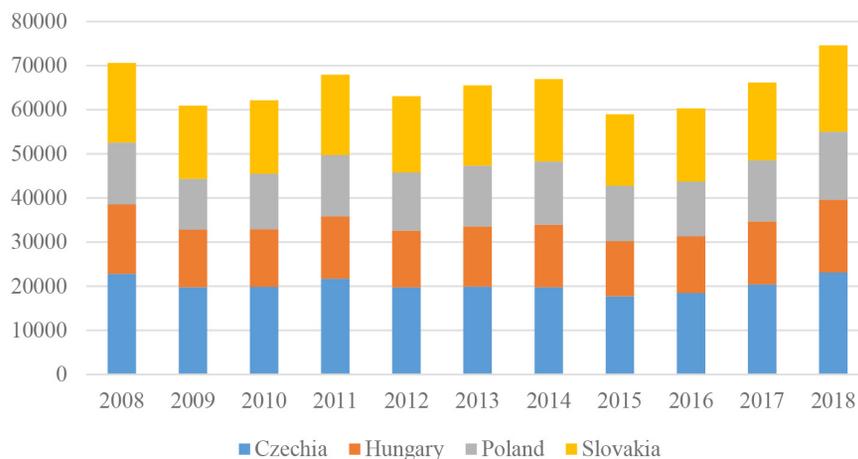


Figure 2. GDPpc in Višegrad group countries

Source: Authors calculation

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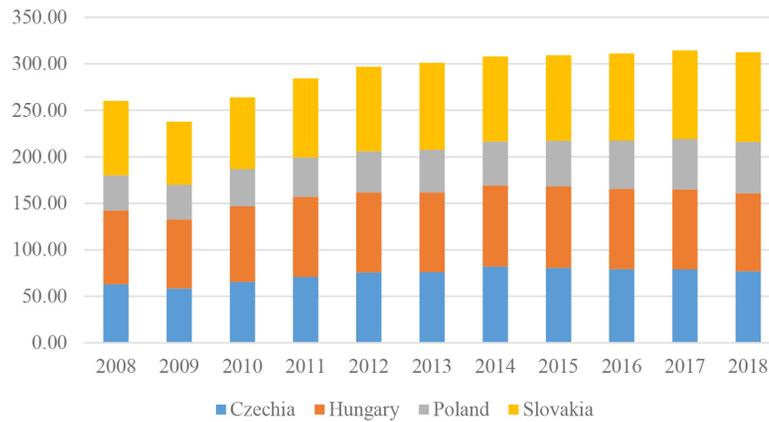


Figure 3. Export in Višegrad group countries

Source: Authors calculation

The economic structure of Višegrad group countries is dominantly based on export. The importance of export is manifested in fact that the average export share is 72.73% of GDP which reveals enough how this component is important for economic development in these countries. The highest mean export share in GDP is identified in Slovakia (87.59%), while the smallest average export share in GDP is recorded in Poland (45.09%) for the observed period.

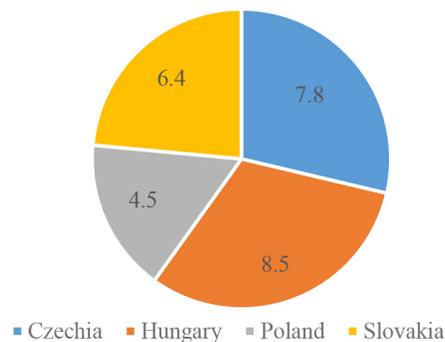


Figure 4. Tourism share in Višegrad group countries (% of GDP)

Source: Authors calculation

The average tourism share in Višegrad group countries was 6.8% of the gross domestic product in 2018. The highest tourism share is manifested in Hungary (8.5%), while the tourism share is the smallest in Poland (4.5%). According to data from 2017, these countries increased tourism contribution to the gross domestic product, respectively Hungary (2.25%), Poland (0.75%), Slovakia, (0.69%) and Czechia (0.40%).

In order to provide the real state of international tourism arrivals in Višegrad group countries, we analyzed their relative trends from 2008 to 2018. The results show that the number of international tourism arrivals mostly increased in Czechia and Slovakia for the observed period. Namely, these countries recorded an average growth rate of 5.22% and 5.18%, while Hungary and Poland had a mean growth rate of 3.88% and 3.96%. Analyzing the countries, the highest growth rate of international tourism arrivals is identified in Slovakia (29.25% in 2015).

On the other hand, the number of international tourism arrivals is mostly decreased in Poland (-10.17% in 2008) and Slovakia (-11.33% in 2017). It is also important to notice that in the last five years, these countries recorded a positive growth rate of this indicator, except Slovakia in 2017.



Figure 5. Relative trend of international tourism arrivals in Višegrad group countries

Source: Authors calculation

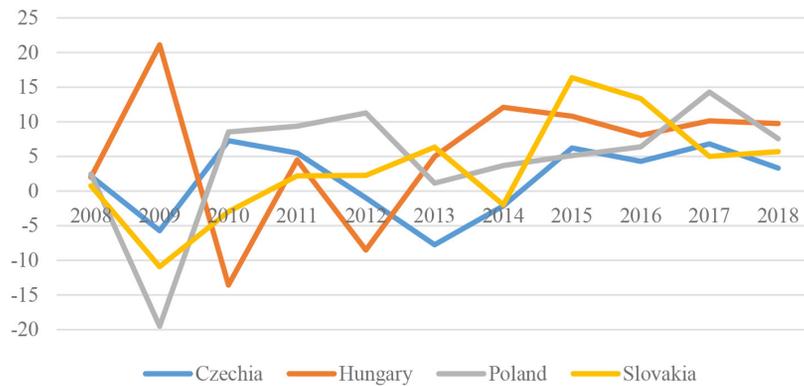


Figure 6. Relative trend of international tourism receipts in Višegrad group countries

Source: Authors calculation

After analyzing the number of international tourism arrivals, there is a relative trend of international tourism receipts in Višegrad group countries for the observed period. Selected countries recorded a positive growth rate at an average level from 2008 to 2018. The highest average growth of international tourism receipts is identified in Hungary (5.58%) and Poland (4.58%), while Czechia and Slovakia had smaller growth rates of 1.73% and 3.29%. Looking at the countries, the maximum growth rate is recorded in Hungary (21.11% in 2009), Slovakia (16.37% in 2015) and Poland (14.29% in 2017). Further, the international tourism receipts mostly decreased in Poland (-19.51% in 2009) and Hungary (-13.57% in 2010).

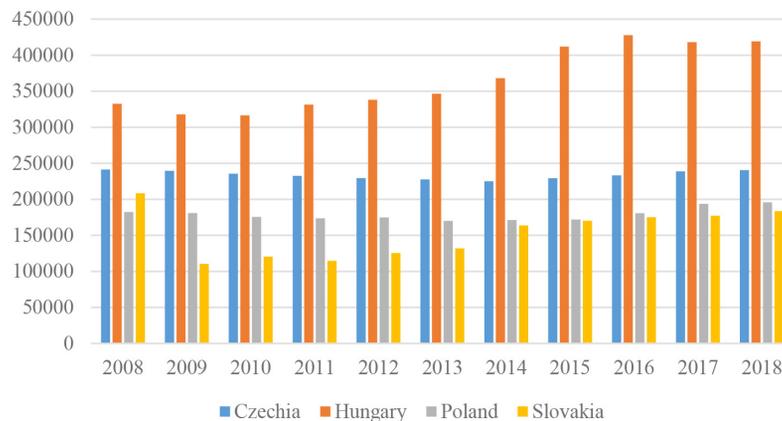


Figure 7. Tourism employment in Višegrad group countries

Source: Authors calculation

Figure 7 manifests the number of employees in the tourism sector in Višegrad group countries from 2008 to 2018. The average employment in the tourism sector is 233010, where Hungary had the highest mean number of employees in the tourism sector (366143). During the observed period, tourism employment increased in Hungary and Poland, where the number of employees enhances to 86662 and 13300. Contrary, Czechia recorded a slight drop of 645 employees, while a significant drop of 24617 employees is identified in Slovakia.

5. EMPIRICAL ANALYSIS AND FINDINGS

This segment implies descriptive statistics, panel unit root tests, panel data estimation and causality test in order which explanatory variables are significant for economic growth in Višegrad group countries.

Table 2. Descriptive statistics

Country	GDPpc	ITA	ITR	EMP	EXP
Czechia					
Mean	20302.36	27475091	6225.91	233897.6	73.36
Std. Dev.	1657.33	5152.36	421.26	5648.51	7.85
Max	23112	36268000	7024	241236	81.95
Min	17728	21850000	5679	225006	58.35
Hungary					
Mean	13880.36	46219091	5899.55	366142.5	84.01
Std. Dev.	1265.41	6404.57	1133.46	44403.85	4.09
Max	16484	57667000	8162	427715	87.6
Min	12487	39554000	4789	316583	74.39
Poland					
Mean	13417.91	70389000	9722.82	179156.4	45.92
Std. Dev.	1083.81	10159.32	1928.39	8701.32	6.31
Max	15425	85946000	13368	195675	55.24
Min	11541	53840000	7019	170061	37.15
Slovakia					
Mean	17601.55	13319364	2129.64	152840.6	87.59
Std. Dev.	1055.67	2533.21	378.07	33201.46	8.98
Max	19579	17376000	2817	208257	96.37
Min	16197	9773000	1766	110493	68.04
Total					
Mean	16300.54	39350636	5994.48	233009.3	72.73
Std. Dev.	3114.06	22662.47	2937.88	87523.12	17.86
Max	23112	9773000	13368	427715	96.37
Min	11541	85946000	1766	110493	37.14

Source: Authors calculation

Based on the Table, we can see that the mean gross domestic product per capita was 16300 dollars in the Višegrad group from 2008 to 2018. Further, the average share of export is 72.73% of gross domestic product, while Slovakia and Hungary had a mean share above 80% of GDP. Analyzing tourism indicators, we can see that the mean international tourism arrivals were 39350636, where tourism employment was 233009 at the average level for the observed period. Finally, these countries recorded international tourism receipts of 59994 billion dollars.

Table 3. Panel unit root test

H0: Panels contain unit roots				
H1: Panels are stationary				
Variables	Number of panels	LLC test	IPS test	Breitung test
GDPpc	4	-5.810 (0.003)	-2.936 (0.001)	-2.125 (0.016)
ITA	4	-4.543 (0.000)	-3.639 (0.002)	-1.819 (0.034)
ITR	4	-3.853 (0.007)	-3.306 (0.009)	-1.931 (0.027)
EMP	4	-4.247 (0.0267)	-3.696 (0.063)	-1.151 (0.082)

Source: Authors calculation

To identify the stationarity of the panels series, we used panel units root tests such as LLC, IPS and Hadri test. Results from Table 3 show that panel series are stationary at a level of 5% and it provides to implement panel regression models such as the fixed effects model and random effects model.

Table 4. Panel Data Estimation

Variable	RE		FE	
	Coeff.	Prob.	Coeff.	Prob.
GDPpc	0.491	0.000	0.193	0.049
ITA	0.534	0.000	0.364	0.028
TIR	0.139	0.004	0.078	0.035
EMP	0.612	0.003	0.132	0.019
EXP	3.55	0.000	3.56	0.000
R-squared	0.846		0.396	
Model specification	Chi-Sq. d.f.		Prob.	
Hausman test	2(6) = 6.80		0.339	

Source: Authors calculation

Table 4 manifests the impact of selected tourism indicators such as international tourism arrivals, international tourism receipts and tourism employment on gross domestic product per capita in Višegrad group countries. Results of Hausman test determined that the random effects model is appropriate for the analysis of explanatory variables on economic growth in the observed period. The random model explains 84.6% variations of independent variables and shows a significant effect of selected tourism indicators on gross domestic product per capita in observed countries. The chosen model shows that ITA, ITR and EMP have a positive impact on GDPpc where a 1% increase of these variables improves economic growth for 0.49%, 0.53% and 0.14%. Finally, variable EXP has a positive impact on GDPpc in these economies. Precisely, a 1% increase in export improves economic growth by 0.61% for the observed period. The empirical findings show that these countries should focus on a higher share of the tourism industry in GDP as well as a greater level of international tourism receipts and number of arrivals in order to provide rapid economic activity.

Table 5 represents the causality between economic growth and tourism indicators in Višegrad group countries from 2008 to 2018. The results show that there is bidirectional causality between GDPpc and tourism indicators such as international tourism receipts and international tourism arrivals. On the other hand, the results confirmed that there is unidirectional causality from EMP to GDPpc, as well as EXP to GDPpc. These findings indicate the importance of tourism indicators and export for the economic structure of selected countries.

Table 5. Causality test

Direction	W-stat	Z-stat	P-value
<i>ITA</i> → <i>GDPpc</i>	1.3323	2.9442	0.0029
<i>GDPpc</i> → <i>ITA</i>	1.5805	2.1176	0.0352
<i>ITR</i> → <i>GDPpc</i>	1.7309	2.8034	0.0017
<i>GDPpc</i> → <i>ITR</i>	1.8655	2.6117	0.0226
<i>EMP</i> → <i>GDPpc</i>	1.5263	2.6278	0.0011
<i>GDPpc</i> → <i>EMP</i>	1.6399	0.9051	0.2463
<i>EXP</i> → <i>GDPpc</i>	2.2812	4.6403	0.0000
<i>GDPpc</i> → <i>EXP</i>	1.2791	0.3947	0.6931

Source: Authors calculation

6. CONCLUSION AND DISCUSSION

The tourism sector reflects an essential component in the world economic structure and its faster growth should provide positive effects on the economic development. Višegrad group region has great potential to develop the tourism area and intensify this sector by using all existing natural and material resources. The issue of the tourism sector and economic growth is important for policymakers in creating an appropriate tourism strategy and environment. The chapter evaluated the impact of tourism indicators on economic growth in selected Višegrad group countries such as Czechia, Hungary, Poland and Slovakia for the period 2008- 2018. The empirical study includes the most important tourism indicators such as international tourism arrivals, international tourism receipts and tourism employment, as well as export as one of the most important macroeconomic components in the Višegrad group economy. In this chapter, we estimated the impact of selected variables on economic growth measured by gross domestic product per capita. Empirical results of the panel random effects model show that the tourism sector has a significant and positive effect on economic growth in these countries, which implies that H_0 can be accepted because all tourism indicators positively affect economic growth. Similarly, H_1 , H_2 , H_3 and H_4 can be accepted, where *ITA*, *ITR*, *EMP* and *EXP* have a significant and positive impact on *GDPpc*. Panel random effects model shows that *ITA*, *ITR* and *EMP* have a positive impact on *GDPpc* where a 1% increase of these variables improves economic growth for 0.49%, 0.53% and 0.14%. Finally, variable *EXP* has a positive impact on *GDPpc* in these countries. Namely, a 1% increase in export improves economic growth by 0.61% for the observed period. Further, causality analysis shows that there is a bidirectional relationship between *GDPpc* and tourism indicators such as *ITR* and *ITA*. Also, empirical results identified unidirectional causality from *EMP* to *GDPpc*, as well as, *EXP* to *GDPpc*. These findings show that policymakers should focus on selected tourism indicators, as well as, export, in order to provide lucrative implications for economic growth in Višegrad group countries. The empirical results showed that Poland should use the tourism-led growth before reaching greater development and this would bring rising return performance for the GDP growth. On the other hand, Czechia and Hungary should focus more on achieving higher overall economic development so the spillovers to the tourism sector could be higher (Škrinjarić, 2019). The contribution of this research is reflected in the fact that there are not many studies that have investigated the tourism-led growth hypothesis in this region. Consequently, each kind of new finding on the relationship between tourism and economic growth provides additional views and opinions during profiling economic policy on tourism development.

REFERENCES

- Akadiri, S.S., & Akadiri, A.C. (2019). Examining the Causal Relationship Between Tourism, Exchange Rate, And Economic Growth in Tourism Island States: Evidence From Second-Generation Panel. *International Journal of Hospitality & Tourism Administration*, 22(3), 1-17. <https://doi.org/10.1080/15256480.2019.1598912>
- Akadiri, S. S., Alola, A. A., & Uzuner, G. (2019). Economic policy uncertainty and tourism: evidence from the heterogeneous panel. *Current Issues in Tourism*, 23(20), 1–8. <http://doi.org/10.1080/13683500.2019.1687662>
- Akadiri, S. S., Eluwole, K. K., Akadiri, A. C., & Avci, T. (2020). Does causality between geopolitical risk, tourism and economic growth matter? Evidence from Turkey. *Journal of Hospitality and Tourism Management*, 43, 273-277. <https://doi.org/10.1016/j.jhtm.2019.09.002>
- Antonakakis, N., Dragouni, M., Eeckels, B., & Filis, G. (2019). The tourism and economic growth enigma: Examining an ambiguous relationship through multiple prisms. *Journal of Travel Research*, 58(1), 3–24. <https://doi.org/10.1177/0047287517744671>
- Antošova, G., Vogl, M., & Schraud, M. (2020). Challenges for the Visegrad Group – The Coronavirus Crises and Its Impact on Tourism. *Visegrad Journal on Bioeconomy and Sustainable Development*, 9(1), 28-32. <https://doi.org/10.2478/vjbsd-2020-0006>
- Arslanturk, Y., Balcilar, M., & Ozdemir, Z. A. (2011). Time-varying linkages between tourism receipts and economic growth in a small open economy. *Economic Modelling*, 28(1), 664–671. <https://doi.org/10.1016/j.econmod.2010.06.003>
- Aslan, A. (2014). Tourism development and economic growth in the Mediterranean countries: Evidence from panel Granger causality tests. *Current Issues in Tourism*, 17(4), 363–372. <https://doi.org/10.1080/13683500.2013.768607>
- Audretsch, D. B. & Pena-Legazkue, I. (2012). Entrepreneurial Activity and Regional Competitiveness: an Introduction to the Special Issue. *Small Business Economics*, 39(3), 531–537. <https://doi.org/10.1007/s11187-011-9328-5>
- Badulescu, A., Badulescu, D., Simut, R., & Dzitac, S. (2020). Tourism-economic growth nexus. The case of Romania. *Technological and Economic Development of Economy*, 26(4), 867-884. <https://doi.org/10.3846/tede.2020.12532>
- Balaguer, J., & Cantavella-Jorda, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. *Applied Economics*, 34(7), 877–884. <https://doi.org/10.1080/00036840110058923>
- Balsalobre-Lorente, D., Driha, O. M., Bekun, F. V., & Adedoyin, F. F. (2020). The asymmetric impact of air transport on economic growth in Spain: fresh evidence from the tourism-led growth hypothesis. *Current Issues in Tourism*, 24(4), 1–17. <http://doi.org/10.1080/13683500.2020.1720624>
- Banerjee, O., Cicowiez, M., Morris, E.J., & Moreda, A. (2018). Boosting tourism's contribution to growth and development: Analysis of the evidence. *Review of Development Economics*, 22(3), 1-25. <http://doi.org/10.1111/rode.12385>
- Brida, J. G., Cortes-Jimenez, I., & Pulina, M. (2014). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism*, 19(5), 394–430. <https://doi.org/10.1080/13683500.2013.868414>
- Brida, J.G., Matesanz Gómez, D., & Segarra, V. (2020). On the empirical relationship between tourism and economic growth. *Tourism Management*, 81, 1-11. <https://doi.org/10.1016/j.tourman.2020.104131>
- Can, M., & Gozgor, G. (2016). Revisiting the tourism-growth nexus: evidence from a new index for the market diversification of tourist arrivals. *Current Issues in Tourism*, 21(10), 1157–1170. <https://doi.org/10.1080/13683500.2016.1268103>

- Chen, C.-F., & Chiou-Wei, S.Z., (2009). Tourism expansion, tourism uncertainty and economic growth: new evidence from Taiwan and Korea. *Tourism Management*, 30, 812–818. <https://doi.org/10.1016/j.tourman.2008.2008.12.013>
- Chingarande, A., & Saayman, A. (2018). Critical success factors for tourism-led growth. *International Journal of Tourism Research*, 20(6), 1-19. <https://doi.org/10.1002/jtr.2233>
- Chirilă, V., Butnaru, G.I., & Chirilă, C. (2020). Spillover Index Approach in Investigating the Linkage between International Tourism and Economic Growth in Central and Eastern European Countries. *Sustainability*, 12(18), 1-36. <https://doi.org/10.3390/su12187604>
- Chou, M. C. (2013). Does tourism development promote economic growth in transition countries? A panel data analysis. *Economic Modelling*, 33, 226–232. <https://doi.org/10.1016/j.econmod.2013.04.024>
- Croes, R., Ridderstaat, J., Bąk, M., & Zientara, P. (2021). Tourism specialization, economic growth, human development and transition economies: The case of Poland. *Tourism Management*, 82, 1-12. <https://doi.org/10.1016/j.tourman.2020.104181>
- Danish, & Wang, Z. (2019). Dynamic relationship between tourism, economic growth, and environmental quality. *Journal of Sustainable Tourism*, 26(11), 1–16. <https://doi.org/10.1080/09669582.2018.1526293>
- Dogan, E., Seker, F., & Bulbul, S. (2017). Investigating the impacts of energy consumption, real GDP, tourism and trade on CO₂ emissions by accounting for cross-sectional dependence: A panel study of OECD countries. *Current Issues in Tourism*, 20(16), 1701–1719. <https://doi.org/10.1080/13683500.2015.1119103>
- Ehigiamusoe, K.U. (2020). Tourism, growth and environment: analysis of non-linear and moderating effects. *Journal of Sustainable Tourism*, 28(8), 1174-1192. <https://doi.org/10.1080/09669582.2020.1729164>
- Eyuboglu, S., & Eyuboglu, K. (2019). Tourism development and economic growth: an asymmetric panel causality test. *Current Issues in Tourism*, 23(6), <https://doi.org/10.1080/13683500.2019.1588863>
- Gunduz, L., & Hatemi-J, A. (2005). Is the tourism-led growth hypothesis valid for Turkey? *Applied Economics Letters*, 12(8), 499–504. <https://doi.org/10.1080/13504850500109865>
- Haller, A.-P., Butnaru, G. I., Hârșan, G.-D. T., & Ștefănică, M. (2020). The relationship between tourism and economic growth in the EU-28. Is there a tendency towards convergence? *Economic Research - Ekonomska Istraživanja*, 34(1), 1–25. <https://doi.org/10.1080/1331677x.2020.1819852>
- Hanna, J., Lévi, L., & Petit, S. (2015). Intra-tourism trade, income distribution and tourism endowment: An econometric investigation. *Applied Economics*, 47(21), 2184–2200. <https://doi.org/10.1080/00036846.2015.1005817>
- Ivanová, E. & Masárová, J. (2018). Performance evaluation of the Visegrad Group countries, *Economic Research – Ekonomska Istraživanja*, 31:1, 270-289, <https://doi.org/10.1080/1331677X.2018.1429944>
- Katircioglu, S. T. (2009). Revisiting the tourism-led-growth hypothesis for Turkey using the bounds test and Johansen approach for cointegration. *Tourism Management*, 30, 17–20. <https://doi.org/10.1016/j.tourman.2008.04.004>
- Khan, A., Bibi, S., Ardito, L., Lyu, J., Hayat, H., & Arif, A.M. (2020). Revisiting the Dynamics of Tourism, Economic Growth, and Environmental Pollutants in the Emerging Economies – Sustainable Tourism Policy Implications. *Sustainability*, 12(6), 1-23. <http://doi.org/10.3390/su12062533>
- Kim, H. J., Chen, M. H., & Jang, S. C. (2006). Tourism expansion and economic development: The case of Taiwan. *Tourism Management*, 27(5), 925–933. <https://doi.org/10.1016/j.tourman.2005.05.011>

- Koišová, E., Grmanová, E., Škrovánková, K., & Kostrová, J. (2019). Competitiveness of Regions in the Visegrad Group Countries. *Inzinerine Ekonomika-Engineering Economics*, 30(2), 203–210. <https://doi.org/10.5755/j01.ee.30.2.21746>
- Kožić, I., Sorić, P., & Sever, I. (2020). Contextual factors influencing tourism-led growth: do social and political background matter? *Current Issues in Tourism*, 24(13), 1–11. <https://doi.org/10.1080/13683500.2020.1778648>
- Lean, H. H., & Tang, C. F. (2010). Is the tourism-led growth hypothesis stable for Malaysia? A note. *International Journal of Tourism Research*, 12(4), 375–378. <https://doi.org/10.1002/jtr.759>
- Lee, C.-C., & Chang, C.-P. (2008). Tourism development and economic growth: a closer look at panels. *Tourism Management*, 29, 180–192. <https://doi.org/10.1016/j.tourman.2007.02.013>
- Light, D., Crețan, R., Voiculescu, S., & Jucu, I. S. (2020). Introduction: Changing Tourism in the Cities of Post-Communist Central and Eastern Europe. *Journal of Balkan and Near Eastern Studies*, 22(4), 1–13. <https://doi.org/10.1080/19448953.2020.1775405>
- Lin, V. S., Yang, Y., & Li, G. (2018). Where Can Tourism-Led Growth and Economy-Driven Tourism Growth Occur? *Journal of Travel Research*, 1-14. <http://doi.org/10.1177/0047287518773919>
- Malec, L., & Abrahám, J. (2016). Determinants of tourism industry in selected European countries: a smooth partial least squares approach. *Economic Research - Ekonomska Istraživanja*, 29(1), 66-84. <https://doi.org/10.1080/1331677X.2016.1156554>
- Mirović, V., Kalaš, B., & Pavlović, N. (2020). An empirical analysis of relationship between tourism and economic growth: Panel evidence from Western Balkan countries. In *MODERN MANAGEMENT TOOLS AND ECONOMY OF TOURISM SECTOR IN PRESENT ERA* (pp. 39-52). Association of Economists and Managers of the Balkans - UDEKOM. <https://doi.org/10.31410/tmt.2020.39>
- Mitra, S.K. (2019). Is tourism-led growth hypothesis still valid? *International Journal of Tourism Research*, 21(5), 1-10. <http://doi.org/10.1002/jtr.2285>
- Muhtaseb, B. M., & Daoud, H. E. (2017). Tourism and economic growth in Jordan: Evidence from linear and nonlinear frameworks. *International Journal of Economics and Financial Issues*, 7(1), 214–223.
- OECD (2018). *OECD Tourism Trends and Policies 2018*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/tour-2018-en>
- Ongan, S., & Demiroz, D. M. (2005). The contribution of tourism to the long-run Turkish economic growth. *Ekonomicky časopis*, 53(9), 880–894.
- Öztürk, M., Ihtiyar, A., & Aras, O. N. (2018). The Relationship Between Tourism Industry and Economic Growth: A Panel Data Analysis for ASEAN Member Countries. *Perspectives on Asian Tourism*, 35–58. https://doi.org/10.1007/978-981-13-2463-5_3
- Pérez-Rodríguez, J. V., Rachinger, H., & Santana-Gallego, M. (2021). Testing the validity of the tourism-led growth hypothesis under long-range dependence. *Current Issues in Tourism*, 24(6), 768–793. <https://doi.org/10.1080/13683500.2020.1744537>
- Perles-Ribes, J. F., Ramón-Rodríguez, A. B., Rubia, A., & Moreno-Izquierdo, L. (2017). Is the tourism-led growth hypothesis valid after the global economic and financial crisis? The case of Spain 1957–2014. *Tourism Management*, 61, 96–109. <https://doi.org/10.1016/j.tourman.2017.01.003>
- Pjanić, M., & Mitrašević, M. (2020). The impact of tourism on GDP growth in the European Union countries. In *MODERN MANAGEMENT TOOLS AND ECONOMY OF TOURISM SECTOR IN PRESENT ERA* (pp. 53-66). Association of Economists and Managers of the Balkans - UDEKOM. <https://doi.org/10.31410/tmt.2020.53>
- Podovac, M. (2021). Analysis of the tourists' motivation for the staying in cities: The case study of the City of Belgrade. *The Annals of the Faculty of Economics in Subotica*, 57(45), 51-65. <https://doi.org/10.5937/AnEkSub.2145051P>

- Raza, S. A., & Shah, N. (2017). Tourism growth and income inequality: does Kuznets Curve hypothesis exist in top tourist arrival countries. *Asia Pacific Journal of Tourism Research*, 22(8), 874–884. <https://doi.org/10.1080/10941665.2017.1343742>
- Salifou, C. K., & Haq, I. ul. (2016). Tourism, globalization and economic growth: a panel cointegration analysis for selected West African States. *Current Issues in Tourism*, 20(6), 664–667. <http://doi.org/10.1080/13683500.2016.1175421>
- Sokhanvar, A., Çiftçioğlu, S., & Javid, E. (2018). Another look at tourism- economic development nexus. *Tourism Management Perspectives*, 26, 97–106. <https://doi.org/10.1016/j.tmp.2018.03.002>
- Solarin, S. A. (2016). Does tourism-led growth hypothesis exist in Mauritius? Evidence from disaggregated tourism markets. *Current Issues in Tourism*, 21(9), 964–969. <https://doi.org/10.1080/13683500.2016.1232377>
- Suresh, K. G., Tiwari, A. K., Uddin, G. S., & Ahmed, A. (2017). Tourism, trade, and economic growth in India: a frequency-domain analysis of causality. *Anatolia*, 29(3), 1–7. <https://doi.org/10.1080/13032917.2017.1408025>
- Škrinjarić, T. (2019). Examining the Causal Relationship between Tourism and Economic Growth: Spillover Index Approach for Selected CEE and SEE Countries. *Sustainability*, 7(1), 1-19. <https://doi.org/10.3390/economies7010019>
- Tang, C. F., & Tan, E. C. (2017). Tourism-Led Growth Hypothesis: A New Global Evidence. *Cornell Hospitality Quarterly*, 59(3), 304–311. <http://doi.org/10.1177/1938965517735743>
- Usmani, G., Akram, V., & Praveen, B. (2020). Tourist arrivals, international tourist expenditure, and economic growth in BRIC countries. *Journal of Public Affairs*, 1-8. <https://doi.org/10.1002/pa.2202>
- Wu, T.P., & Wu, H.C. (2018). Tourism and economic growth in Asia: A bootstrap multivariate panel Granger causality. *International Journal of Tourism Research*, 21(1), 1-10. <https://doi.org/10.1002/jtr.2243>
- Xia, W., Dogan, B., Shahzad, U., & Adedoying, F.F., Poola, A., & Bashir, M.A. (2021). An empirical investigation of tourism-led growth hypothesis in the European countries: evidence from augmented mean group estimator. *Portuguese Economic Journal*, <https://doi.org/10.1007/s10258-021-00193-9>
- Yazdi, S.K. (2019). Structural breaks, international tourism development and economic growth. *Economic Research – Ekonomska istraživanja*, 32(1), 1765-1776. <https://doi.org/10.1080/1331677X.2019.1638279>
- Zhang, J., & Cheng, L. (2019). Threshold Effect of Tourism Development on Economic Growth Following a Disaster Shock: Evidence from the Wenchuan Earthquake, P.R. China. *Sustainability*, 11(2), 1-22. <https://doi.org/10.3390/su11020371>

