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THE VALIDITY OF TOURISM-LED GROWTH HYPOTHESIS FOR THE TOP TEN TOURISM REVENUE GENERATING COUNTRIES

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ABSTRACT

This study aims to test the validity of the tourism-led growth hypothesis. For this purpose, ten countries with the highest tourism income (USA, China, Australia, France, Italy, England, Spain, Germany, Japan, Thailand) are included in the analysis covering the period 1995-2018. Pedroni cointegration, panel Dynamic Ordinary Least Square (DOLS) and panel Fully Modified Ordinary Least Square (FMOLS) methods are utilized by using economic growth, tourism revenues and exchange rate series. According to panel DOLS and panel FMOLS test results, tourism revenues and exchange rate have a positive effect on economic growth. Furthermore, Granger causality analysis findings indicate a uni-directional causal relation from tourism revenues to economic growth and from exchange rate to tourism. The overall results of the empirical analysis verify the tourism-led growth hypothesis for the ten countries with the highest tourism income.

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INTRODUCTION

Tourism activities have strategic importance for the economies of all the countries because of their contribution to export performance (Sinclair & Tsegaye, 1990), the balance of payments (Arslanturk, 2012), employment (Lin et al., 2019) and economic development (Clancy, 1999; Belloumi, 2010). Tourism revenues arise from tourism expenditures, referring to the payments for goods and services within the scope of tourism activities and the demands for valuables and gifts during tourism tours (Çuhadar, 2020).

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The emerging advancements in the tourism field have direct and indirect positive effects in many sectors (Tang & Tan, 2013; Paramati et al., 2017). For this reason, tourism is thought to be one of the driving engines of the economy because it stimulates economic activities in place of origin, destination, and regions (Gavurova et al., 2020). As reported by the tourism-led growth hypothesis, tourism revenues increase income in two ways. First, with the multiplier effect, tourism revenues increase the productivity of local firms through increasing competitiveness. The second way is that economies of scale increase their impact on local firms (Balaguer & Cantavella-Jorda, 2002). Concordantly, a rise in tourism revenues will increase employment in this sector, contribute to the development of other tourism-oriented industries, enhance the balance of payments, and pave the way for a positive environment for the countries (Chatziantoniou et al., 2013; Liu & Song, 2018). The tourism sector has a decisive role in investing in infrastructure, labor, and competition (Brida et al., 2016).

As a consequence, tourism can be regarded as one of the essential drivers for economic growth (Oh, 2005; Zortuk, 2009). As stated by Çuhadar (2020), there is a global competition in tourism today and many countries are trying to increase international tourism revenues to attract foreign exchange inflows and create new business and employment opportunities. However, governments should be careful about the high-income elasticity of demand for tourism (Kozak & Bahar, 2013). Severe decreases can be seen in the tourism market due to the economic or political crisis. For example, the COVID-19 pandemic, which emerged at the beginning of 2020, has led to a significant shock in the global economy. Measures and bans imposed by countries and individual measures affected almost all sectors negatively. Consequently, severe contractions have occurred in the tourism sector and economic performance has been negatively affected (Gössling et al., 2020; Mariolis et al., 2020; Farzanegan et al., 2021). As global prosperity increases, so will tourism income. In this context, innovations and increasing the use of technology can contribute to ensuring a sustainable infrastructure in the tourism sector and cost reduction (Balsalobre-Lorente et al., 2020), therefore, these developments might help reduce the negative effects of the crisis on the tourism sector.

There are different approaches for modeling the tourism-led growth hypothesis. According to Tugcu (2014), the tourism led-growth hypothesis can be interpreted under four different assumptions, based on the energy-growth hypothesis in Ozturk (2010). Accordingly, i) *"the growth hypothesis"* suggests tourism has both direct and induced effects in the process of economic growth. ii) *"The conservation hypothesis"* suggests that economic

growth strengthens the tourism sector. iii) *"The feedback hypothesis"* shows a mutual relationship between tourism and growth. Finally, iv) *"the hypothesis of neutrality"* claims that tourism revenues do not affect economic growth.

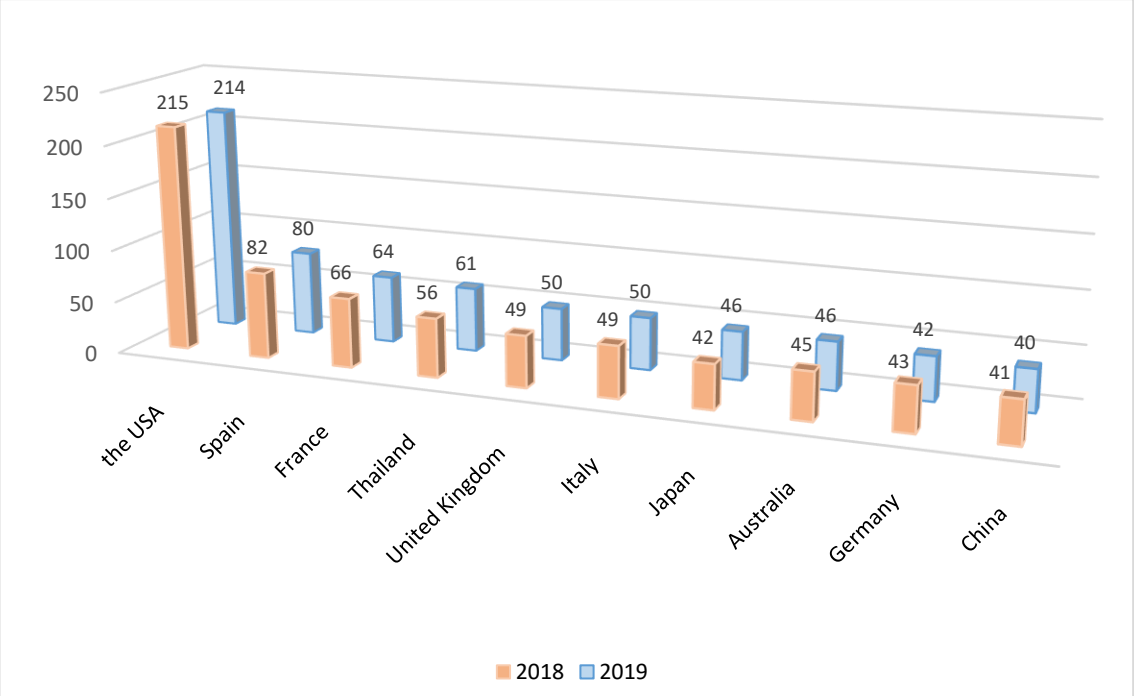

Figure 1. *International Tourism Receipts (Top Ten Countries, USD billion)* (Source: UNWTO, 2020)

Figure 1 shows the tourism revenues of the top ten countries with the highest tourism revenues in 2018 and 2019. Accordingly, the United States ($215 billion) ranks first with the highest tourism revenue, followed by Spain ($82 billion) and France ($66 billion). China ($41 billion) is the last country in the group.

Despite the steady growth of the tourism sector in many countries in recent years, it is seen that the impact of tourism revenues on economic growth is not the same for all countries. In this context, countries can be studied in groups to achieve a better understanding of tourism and economic growth. In countries where the tourism-led economic growth hypothesis is valid, it is essential to identify the underlying factors. Conversely, where tourism does not affect economic growth, tourism policies should be comprehensively reassessed. This study aims to examine the tourism-led growth hypothesis for the top ten tourism generating countries. The main reason for this choice is to show the tourism industry's contribution to the economic development in developed countries. The study is comprised of three parts. The introduction part presents theoretical

information about the tourism-led growth hypothesis and discusses the tourism sector by statistical data about the international tourism receipts. Afterwards literature review is discussed. In the second part, the empirical method is introduced and the findings are reported. Finally, the empirical results are discussed and some policy recommendations are suggested.

LITERATURE REVIEW

The tourism sector has grown very fast for the last 60 years (Liu & Song, 2018). However, the impacts of tourism activities on the economy were neglected by economists and policymakers, and tourism revenues were ignored in economic growth models (Tang & Tan, 2015). Two fundamental indicators are used to evaluate tourism activities: the number of tourists visiting the country and tourism revenues (Cernat & Gourdon, 2012).

When the tourism-economic growth relationship is examined, it is generally seen that tourism activities affect economic growth positively. However, empirical findings might be varied because of the methods, variables, or data. Table 1 presents a brief review of the studies examining the tourism and economic growth relationship with the details for the period, method, and empirical findings.

According to the Table 1, the general view is that tourism supports economic growth. However, there are also studies in which this relationship has not been determined. Studies generally claim that the tourism-led growth hypothesis is valid (e.g., Balaguer & Cantavella-Jorda, 2002; Kreishan, 2010; Schubert et al., 2011; Polat & Günay, 2012; Selimi et al., 2017; Ribeiro & Wang, 2020; Osinubi & Osinubi, 2020), but there are also studies do not support this hypothesis (e.g., Oh, 2005; Gunduz & Hatemi-J, 2005; Yavuz, 2006; Ozturk & Acaravci, 2009; Figini & Vici, 2010; Payne & Mervar, 2010; Cortes-Jimenez et al., 2011; Ekanayake & Long, 2012; Rout et al., 2019). Some studies also found a bi-directional causality relationship (e.g., Katircioglu, 2009a; Perles-Ribes et al., 2017), which indicates a feedback mechanism between tourism revenues economic growth. According to Zuo & Huang (2018), there is no statistically significant relationship between tourism and economic growth in the long term. Therefore, comments according to the empirical results would not be trustworthy. Osinubi & Osinubi (2018) determined that there is no causality relationship between the variables.

Table 1. *Literature Review*

Author	Country	Period	Method	Results
Balaguer & Cantavella-Jorda (2002)	Spain	1975-1997	Granger Causality Test	Findings indicate that tourism-led economic growth is valid for Spain.
Oh (2005)	Korea	1975-2001	Granger Causality Test	The findings of the research show that economic growth based on tourism is not valid for Korea.
Gunduz & Hatemi-J (2005)	Turkey	1965-2002	Bootstrap Causality Tests	The research results verify the tourism-led economic growth for Turkey.
Ozturk & Acaravci (2009)	Turkey	1987-2007	ARDL Bound Test	The tourism-led economic growth hypothesis is supported in Turkey.
Katircioglu (2009b)	Malta	1960-2006	Granger Causality Test	The findings show that tourism-led economic growth is valid for Malta and there is a two-way causality relationship.
Chen & Chiou-Wei (2009)	Taiwan and Korea	1975-2007	EGRACH-M Model	Empirical results confirm that the tourism led-growth hypothesis is supported in Taiwan.
Figini & Vici (2010)	150 Selected Countries	1980-2005	Panel Data Analysis	As a result of empirical applications, no meaningful conclusion could be reached regarding the existence of tourism-led economic growth.
Payne & Mervar (2010)	Croatia	2001-2008	Toda-Yamamoto Causality Test	The results obtained in the study show that there is a uni-directional causal relation from GDP to tourism income. The tourism led-growth hypothesis was rejected.
Cortes-Jimenez et al.(2011)	Tunisia	1975-2007	Granger Causality Test	Tourism-led economic growth was rejected, with the results of the study.
Lionetti & Gonzales (2012)	Latin American Countries	2001-2008	Granger Causality Test	While tourism-led growth is invalid in Latin American countries, no causality is found.
Ekanayake & Long (2012)	140 Selected Countries	1995-2009	Granger Causality Test	The tourism-led growth hypothesis is not supported.
Ridderstaat et al. (2013)	Aruba	1972-2011	Granger Causality Test	The tourism led-economic growth hypothesis is supported in Aruba.
Ivanov & Webster (2013)	174 Selected Countries	2000-2010	Growth Decomposition Methodologies	While tourism led-growth is confirmed at the highest level in Africa, Asia, the Caribbean, and Latin American countries, it is at a negative level in Europe, America and Oceania.
Terzi (2015)	Turkey	1963-2013	Granger Causality Test	The results present that the tourism-led growth hypothesis is valid for Turkey.
Chiu & Yeh (2017)	84 Selected Countries	1995-2008	Threshold Regression Model	The empirical results obtained in the research show a strong nonlinear relationship. Tourism-led growth hypothesis is confirmed.
Tang & Tan (2018)	167 Selected Countries	1995-2013	Dynamic Panel GMM	According to the research, tourism-led growth is valid, tourism income acts as a stimulant factor for economic growth.
Zuo & Huang (2018)	China (31 Region)	1995-2013	SYSGMM	There is no significant result for tourism-led growth.
Perles-Ribes et al. (2017)	Spain	1957-2014	Toda-Yamamoto Causality Test	Tourism-led growth hypothesis is supported in Spain and bi-directional causality relation is detected.
Rout et al.(2019)	India	1995-2016	Panel Causality Analysis	In the study, there is a long-run relation among tourism income and economic growth. However, tourism-led economic growth is not valid in the short run.
Lin et al.(2019)	China (29 Region)	1978-2013	Bayesian Probit Model	Findings show that the tourism-led growth hypothesis is valid for 10 of 29 regions. However, in the 9 regions, economy-driven tourism growth is detected.
Ribeiro & Wang (2020)	Sao Tome and Principe	1997-2018	Granger Causality Test	In the study, findings support the tourism-led growth hypothesis. In addition, one-way causality relationship has been identified.
Osinubi & Osinubi (2020)	Nigeria	1995-2018	Granger Causality Test	The results obtained from study affirm the tourism-led growth hypothesis and no meaningful result was obtained regarding causality.

METHODOLOGY

Variables and Data

The linear regression model of the tourism-led growth hypothesis is established as a panel data format in Equation (1).

$$GDP_{it} = \alpha_{0i} + \alpha_{1i}TRSM_{it} + \alpha_{2i}ER_{it} + u_{it} \qquad i=1, ..., N; t=1, ...T \qquad (1)$$

In the equation above, GDP represents the gross domestic product, TRSM represents tourism revenues and ER represents exchange rate. The data utilized in the analysis covers the period 1995-2018 and includes the ten countries with the highest tourism income in 2018. Countries are the USA, China, France, Spain, Italy, Germany, Japan, Thailand, Australia, and England. The data was compiled from the World Bank.[2]

Table 2 indicates the descriptive statistics and correlation matrix belong to the variables. These statistics provide some preliminary information about the relationships between variables.

Table 2. *Descriptive Statistics and Correlation Matrix (2000-2016)*

	GDP	**TRSM**	**ER**
Descriptive Statistics			
Average	3,78	4,72	0,91
Median	2,41	3,79	1,00
Maximum	1,79	2 ,56	1,86
Minimum	1,99	4,89	0,25
Standard Error	4,01	4,42	0,31
Number of Observations	240	240	240
Correlation Matrix			
GDP	1		
TRSM	0.79	1	
ER	0.18	0.12	1

Methods and Empirical Findings

In this section, the tourism-led growth hypothesis is analyzed via the cointegration method. There are three stages for the empirical approach. In the first stage, the stationarity of variables is tested with the panel unit root test methods as suggested by Levin et al. (2002) and Im et al. (2003). In the second stage, the long-run relationship among the variables is examined via Pedroni (1999) panel cointegration test method. Finally, coefficients of

[2] The data is available online at https://data.worldbank.org/indicator/ST.INT.RCPT.CD

cointegration are calculated by the panel DOLS and panel FMOLS approaches.

Panel Unit Root Tests

The stationarity of the variables should be estimated before applying panel DOLS and panel FMOLS long-term coefficient tests. If the data for the analysis is stationary, regression analysis could be employed to examine the relationship. If not, a spurious regression problem will emerge. Within this context, LLC (Levin et al., 2002) and IPS (Im et al., 2003) methods will be used for panel unit root testing.

To apply the LLC panel unit root test, the following model must be estimated.

$$\Delta y_{it} = \mu_i + \varrho y_{it-1} + \sum_{j=1}^{m} \alpha_j \Delta y_{it-j} + \delta_{it} + \theta_t + \varepsilon_{it} \quad (2)$$

Here, Δ is the first difference operator, m lag length, μi, and θt are unit-specific constant and time effects. The null hypothesis $\varrho = 0$ for all i is tested against the $\varrho < 0$ hypotheses for all i. Rejecting the null hypothesis means that the series is stationary.

Under other conditions, Im et al. (2003) apply individual unit root tests for time series for all units, and the test values are taken from the mean of all individual ADF test statistics. IPS test is derived from the following model:

$$\Delta y_{it} = \mu_i + \varrho y_{it-1} + \sum_{j=1}^{m} \alpha_j \Delta y_{it-j} + \delta_{it} + \theta_t + \varepsilon_{it} \quad (3)$$

The null hypothesis of this test and the p alternative hypothesis, under the assumption that ϱ changes from unit to unit, as follows: Ho: $\varrho = 0$ contains serial unit root for all i. H1: $\varrho < 0$ does not include unit root for at least one i or part i. To test the null hypothesis with the IPS test, firstly, the t-statistic for each section is estimated for the ϱi coefficient. Secondly, the ADF test statistics are averaged and finally normalized to show standard normal distribution. The terminal decision towards to the null hypothesis is made considering the values obtained from the test statistics.

The empirical findings obtained from the panel unit root tests are shown in Table 3. According to the results, while the general appearance of the variables is not stationary at level value [I (0)], variables are stationary at the first difference [I (1)] level. Therefore, the existence of a cointegration relationship might be searched in the long run. If the relationship is detected statistically, it means that the regression which is estimated is reliable.

Table 3. *Findings from LLC and IPS Panel Unit Root Test Results*

	LLC Test		IPS Test	
	Statistics Value	**Prob. Value**	**Statistics Value**	**Prob. Value**
GDP	1,21	0,20	-0,57	0,28
TRSM	3,47	1,00	7,44	1,00
ER	-0,13	0,99	-0,76	0,22
ΔGDP	-3,68*	0,00	-3,68*	0,00
ΔTRSM	-5,53*	0,00	-3,72*	0,00
ΔER	-7,27*	0,00	-3,83*	0,00

*p <0.01

Panel Cointegration Tests

The panel cointegration test developed by Pedroni (1999; 2004) is generally utilized to check the long-term relationship in the long run. Pedroni (2004) specified seven different test statistics to examine the null hypothesis identified as there is no cointegration relationship between the variables. Statistics are obtained from the residual values in the panel cointegration regression.

Table 4 shows the Pedroni panel cointegration test results. Three test statistics are statistically significant when the fixed model is considered; in the fixed and trend model, four test statistics are statistically significant. Thus, the null hypothesis is rejected. These results reveal the existence of a long-term relationship between variables.

Table 4. *Pedroni Panel Cointegration Test Results*

Test	Constant	Constant and Trend
Panel v-Statistic	1,37**	26,26*
Panel rho-Statistic	1,52	-0,48
Panel PP-Statistic	2,06	-3,13*
Panel ADF-Statistic	-5,23*	-3,63*
Panel rho-Statistic	1,80	2,21
Group PP-Statistic	0,15	-0,15
Group ADF-Statistic	-1,38**	-2,83*

*p<0.01 and **p<0.1

Estimating Panel Cointegration Coefficients

After obtaining the long-term relationship, the next step is to estimate the long-run coefficient of cointegration. To this extent, FMOLS and DOLS approaches developed by Pedroni (2000, 2001) are utilized. FMOLS and DOLS estimators have been established on the emergence of biased results when the series with long-term relationships are estimated by using the

least-squares mechanism. If a model has autocorrelation and endogeneity problems, it means the findings are not significant. While the FMOLS approach reorganizes the autocorrelation and endogeneity problem with the nonparametric approach, variables are taken with their lagged values and autocorrelation is eliminated in the DOLS approach. Table 5 presents the panel FMOLS and panel DOLS findings.

Table 5. *Panel Cointegration Coefficients (Dependent Variable: GDP)*

Variables	Panel FMOLS	Panel DOLS
TRSM	4,64*	4,24*
	[0,00)	[0,00]
ER	6,46*	2,24**
	[0,00]	[0,03]

*p<0.01 and **p<0.05.

According to panel FMOLS and panel DOLS results, GDP, TRSM and ER long-term coefficients are statistically significant. Consistent with these results, tourism and exchange rates positively affect economic growth.

Table 6. *Granger Causality Test Results*

Null Hypothesis	Number of Observations	F – Statistic	Probability Value
ER → GDP	230	47.52	5.33
GDP→ER		0.76	0.38
TRSM→GDP	230	8.72	0.00*
GDP→TRSM		1.17	0.28
TRSM→ER	230	0.79	0.38
ER→TRSM		3.20	0.07

*p<0.01

In Table 6, Granger causality test results reveal a causal relationship from tourism revenues to GDP and from exchange rate to tourism revenues. Other results are not statistically significant. The overall results show the evidence of the tourism-led growth hypothesis in the ten countries with the highest tourism income.

DISCUSSION AND CONCLUSIONS

In many economies, the tourism sector increases household and government incomes, contributes to the employment rate and improves the balance of payments (Solarin, 2018; Lin et al., 2019). In this paper, the validity of the tourism-led growth hypothesis is analyzed for the countries.

To this end, ten countries with the highest tourism revenues were examined for 1995-2018. After confirming the cointegration between GDP, tourism income, and exchange rate, the long-term coefficients are obtained. Accordingly, tourism and exchange rate increase economic growth and a uni-directional causal relationship from tourism to economic growth and from exchange rate to tourism is detected.

Empirical findings support the tourism-led growth hypothesis for the top ten tourism revenue-generating countries. That means the tourism industry is one of the main factors contributing to economic growth in these countries. Many studies bear similarities to the empirical findings of the present research (e.g., Balaguer & Cantavella-Jorda, 2002; Gunduz & Hatemi-J, 2005; Ozturk & Acaravci, 2009; Kreishan, 2010; Schubert et al., 2011; Polat & Günay, 2012; Kızılkaya et al., 2016; Chiu & Yeh, 2017; Selimi et al., 2017; Shahzad et al., 2017; Tang & Tan, 2018; Ribeiro & Wang, 2020; Osinubi & Osinubi, 2020; Rasool et al., 2021).

Tourism revenues have many advantages for countries. These advantages can be sorted as follows; increase in income from tourism-oriented different sectors, rise in infrastructure investments, encourage competition and productivity, increase employment opportunities, improve the balance of payments performance, and contribute to the international brand of countries. However, countries should be prepared for the shocks that may occur in tourism income. The tourism sector is one of the most fragile sectors in terms of its dynamic structure. The impacts of shocks might be felt in a short time. Therefore, it would be better for countries to make regulations that could protect firms and employees in the tourism sector against possible shocks. Policymakers should reconsider their tourism policies, especially for the post-COVID-19 period, and include the new sector dynamics in their medium- and long-term strategies. In particular, governments should implement economic stimulus packages via either fiscal or monetary policies to mitigate the effects of the COVID-19 pandemic on the tourism industry. In addition, nature conservation and tourism development are closely linked (Dunets et al., 2020). Therefore, countries should increase their infrastructure capacity to protect nature.

While some developed countries get high tourism income, there are some less developed countries have low tourism income despite their high potential. Today, some countries that suffer political instability are deprived of tourism revenues. The Middle East, North Africa, South America, and some Asian countries can be listed as an example of this situation. Within this context, reducing global instabilities and uncertainties

will increase countries' welfare and encourage tourism activities. Establishing and strengthening democracy, freedoms, and the rule of law improve many economic indicators, and tourism is one of these indicators.

The results of this study clearly show that the tourism-led growth hypothesis is valid for the Top 10 countries with the highest tourism receipts. However, some limitations require further research. What is less clear is the first individual findings for the countries in the panel. Researchers may contribute to the literature by applying other approaches to obtain individual results and discuss the hypothesis for each countries' economic structure. Therefore, the findings and policy implications may be considered for each country in the panel. Secondly, the empirical model comprises three variables: tourism income, economic growth, and exchange rate. It is possible to discuss the tourism-led growth hypothesis within the scope of different variables such as labor productivity, employment, and globalization.

The empirical findings of this study contribute to the literature. However, there are some questions to be addressed. For future studies, nonlinear approaches such as NARDL (Nonlinear Autoregressive Distributed Lag) are suggested to be employed to test the dynamic relationship between tourism income and economic growth.

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