

Article

Tourism Activity as an Engine of Growth: Lessons Learned from the European Union

Velisaria Matzana ¹, Aikaterina Oikonomou ² and Michael Polemis ^{1,3,4,*}

¹ School of Social Sciences, Hellenic Open University, 263 35 Patra, Greece; velisaria.matzana@gmail.com

² Department of International and European Studies, University of Piraeus, 185 34 Piraeus, Greece; erinaoikon@unipi.gr

³ Department of Economics, University of Piraeus, 185 34 Piraeus, Greece

⁴ Hellenic Competition Commission, 104 34 Athens, Greece

* Correspondence: mpolemis@unipi.gr

Abstract: In this study, the linkage between tourism activity and economic development in 21 European countries is analyzed. The data are collected on an annual basis and cover the years from 1995 to 2017. The main purpose is to investigate empirically if there is a long-run connection between tourism activity and the development of the economy by applying a multivariate model. For this purpose, generalized method of moments (GMM) and Granger causality tests are applied within a panel data framework. The results reveal that tourism contributes significantly to European countries' economic growth. Furthermore, Granger causality analysis shows a unidirectional relationship between tourism and economic development, leading to sufficient evidence for the validity of the tourism-led-growth hypothesis. Therefore, for these European countries, the tourism-led growth hypothesis is supported (meeting our expectations).

Keywords: tourism; economic growth; Europe; panel data; Granger causality



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1. Introduction

The tourism industry represents one of the most important parts of a globalized economy. However, its impact on economic growth constitutes ongoing research with many studies providing mixed results. In other words, the available studies have not yet concluded whether the effects of tourism activity on the economic engine are negative, positive, or not significant.

One strand of literature supports the evidence of insignificant impact among others, [Kasimati \(2011\)](#) for Greece, [Payne and Mervar \(2010\)](#) for Croatia, and [Katircioglu \(2009\)](#) for Turkey while other studies suggest that tourism activity exhibits a strong positive impact on growth such as the study developed by [Gokovali and Bahar \(2006\)](#) for the Mediterranean region, [Po and Huang \(2008\)](#) for a sample of 88 countries, and the study for Spain conducted by [Balaguer and Cantavella-Jordá \(2002\)](#).

The main object of this paper is to quantify the association between tourism activity and the growth of economies in Europe over the 1995–2017 period. Specifically, data from Austria, Belgium, Croatia, Denmark, Cyprus, Italy, Iceland, Greece, Germany, France, Ireland, Hungary, Spain, Switzerland, United Kingdom, Portugal, Norway, Netherland, Luxemburg, Finland, and Sweden have been collected to answer the following research questions. Is there any impact of the tourism sector on the development of European economies? In what way the tourism industry impacts the level of economic development? What are the main implications of the policy and business strategies derived from the empirical analysis? To answer the above research questions and define the connection between tourism development and economic growth among countries in Europe, an econometric panel data analysis was conducted.

To sum up, the main goal of this study is to discover if there is any link between tourism and economic growth by applying panel data techniques. To conduct the analysis this study employs annual data from 21 European countries over the 1995–2017 period. The dataset includes current GDP as a proxy for economic growth, while the control variables include the average annual population growth, the level of international tourism activity, and the impact of trade openness. Moreover, domestic credit to the private sector and private credit by deposit money banks and other financial institutions to GDP are used as proxies to measure financial development. Finally, annual data for school primary, secondary, and tertiary are used as proxies for human capital. No similar studies have been developed for the 1995–2017 period. Also, even though panel data analysis has previously been applied in other studies, it has never been applied with financial and human capital indicators.

The structure of this paper unfolds as follows. Section 2 introduces a brief analysis of the tourism literature review. Section 3 discusses the main research hypotheses of this study. Section 4 presents the data selection and the methodology applied in this study. Lastly, Section 5 concludes the paper while offering some useful implications to policymakers and government officials.

2. Literature Review

Tourism activity as an engine of economic growth can be analyzed from different angles. Firstly, tourism receipts are expected to affect the economy, with changes in sales, employment, tax revenues, and income levels. Also, tourism's crucial role in raising capital, reducing poverty, and advancing social well-being has drawn the interest of a growing number of researchers (Deller 2010; Lee 2009; Scheyvens 2007; Scheyvens and Russell 2012). Moreover, due to tourism productivity and effectiveness, there is a better allocation of economic resources reducing costs, improving performance, and maintaining tourism competition at a high level (Li et al. 2018). Finally, due to globalization, the tourism industry interacts with external economic factors. As reported by Fereidouni and Al-mulali (2014), there is a link between tourism activity and foreign direct investment. Also, tourism, as an important export of services, is sensitive to exchange rates and global economic conditions.

According to previous studies, tourism affects the economy of European countries in a positive way (Albalade and Bel 2010; Holzner 2011). They propose tourism as macroeconomic development, which will contribute to the success of tourism as a significant driver of long-term economic development. Sahli and Nowak (2007), mentioned that many governments applied policies focusing on tourism development to achieve economic growth.

Tugcu (2014) has proposed the construction of a tourism-led growth hypothesis (TLGH) in four different cases. First, the growth hypothesis states a condition in which tourism activity constitutes a crucial role in the economic engine. The growth hypothesis is accepted if uni-directional causality is proved, indicating the positive effect tourism has on the development of the economy. Next, under the conservation hypothesis tourism activity may be affected by economic growth. To accept the conservation hypothesis a uni-directional causality should exist from economic development to tourism. Third, the feedback hypothesis denotes a mutual relationship between tourism and economic development. The feedback hypothesis is accepted if holds bi-directional causality between tourism and the development of the economy, meaning that tourism policies might have a negative impact on economic growth, and similarly, changes in economic growth will affect tourism. Finally, the fourth hypothesis named the neutrality hypothesis denotes that tourism does not affect economic growth. In this case, there is no causality between tourism and economic development.

The first strand of literature investigates if there is a causal association between tourism and the development of economies by applying a Granger causality test using time-series data. Between these studies, Akinboade and Braimoh (2010), Belloumi (2010), Durbarry (2002), and Tang and Tan (2013) the existence of the growth hypothesis is been supported. On the other hand, there are other researchers such as Dritsakis (2004a, 2004b), Kim et al.

(2006), and Lee and Chien (2008) that mention evidence for the justifiability of the existence of the growth hypothesis. Finally, Oh (2005), Payne and Mervar (2010), and Tang and Jang (2009), denote the existence of neutrality and conservation hypotheses concerning the tourism and growth relationship.

The other strand is constituted of studies that examine the connection between tourism activity and the development of economies by applying cross-section and panel data. According to Po and Huang (2008), using time series data might lead to inefficiency when analyzing the long-term connection between tourism and economic growth. Empirical studies have shown that the results can be mixed when investigating the connection between tourism and economic development and are influenced by the specific country under consideration. (Aslan 2013; Falk 2010; Holzner 2011; Po and Huang 2008; Sequeira and Campos 2005).

Many researchers have investigated the link between tourism and economic development by applying panel data econometric techniques. Lanza et al. (2003) can be considered the first study that uses panel data from 13 OECD countries to discover the linkage between tourism activity and economic development for the 1977–1992 period. Using the small open economies model suggested by Lucas (1988) and Granger causality and cointegration tests, the authors validate the TLGH. Sequeira and Nunes (2008), used panel data methods for 90 countries for the 1980–2002 period, to show that tourism in specialized countries is more likely to grow than in others, even though modern economic theories suggest that technological countries have this advantage. The study used two estimators, the GMM estimator introduced by Blundell and Bond (1998) and the LSDV estimator proposed by Bruno (2005). For tourism, three different measures have been used: tourism receipts, tourism arrivals, and GDP. This study concludes that although tourism seems to affect positively the economy, only poor countries tend to benefit more than other countries do. To examine long-run movements and causal relationships between tourism and economic development for OECD and non-OECD countries for the 1990–2002 period, Lee and Chang (2008) performed panel cointegration techniques. The study finds that the impact of tourism is greater in non-OECD countries while the real effective exchange rate is determined by economic growth. Also, a unidirectional causality relationship is verified for OECD countries while for non-OECD countries the relationship seems to be bidirectional.

To answer whether tourism growth influences economic development Cárdenas-García et al. (2015), conduct a study employing panel data of 144 countries for the 1991–2010 period. By relying on socioeconomic characteristics such as per capita income, education, and economic activity the related study has divided the sample countries into two main categories. The first group includes countries with the highest value of the economic growth index in 1991, where the development of tourism has been reported to contribute to the enhancement of economic growth. The second group is made up of countries with a lower economic growth index value in 1991, where economic development has not been influenced by tourism growth. According to the results of the study, only in countries with a high level of development, tourism can cause economic growth. Besides, although tourism seems to have a positive impact on countries with a lower level of development, it is not necessary to cause economic growth.

From a regional perspective, Cortés-Jiménez et al. (2009) have analyzed the impacts of tourism on the economic development of Spain and Italy from 1990 to 2004 period. To address whether tourism could be characterized as a significant factor in regional convergence, the regions were divided into the following groups: Mediterranean, island, or coastal. The results indicated the importance of national as well as international tourism in both the Mediterranean and coastal regions, while only national tourism appeared to be relevant in island regions.

Pooling data analysis for 11 developed countries over the 2000–2005 period developed by Nissan et al. (2011). Nissan et al. (2011) analyze the relationship between tourism and economic development, and built two equations. The first equation used tourism as an independent variable, while the second attempts to explain the factors that influence

tourism such as entrepreneurship, income, and money supply. Employing Ordinary Least Square methods, tourism positively affects economic development. Entrepreneurship and income also have a positive impact on tourism, while prices seem to negatively affect tourism.

Several studies confirm a bidirectional relationship between tourism activity and economic development using panel data. [Seetanaah \(2011\)](#) verifies a bidirectional relationship between tourism and economic growth by employing panel data from 19 island economies for the years 1990–2007. The author followed the augmented Solow Model and Granger causality tests to investigate the contribution of tourism to economic progress. [Seghir et al. \(2015\)](#) explore if there is a linkage between tourism spending and economic development in 49 countries over the 1988–2012 period. By applying the Granger causality and panel cointegration test a bidirectional causal relationship between tourism and economic development was proved. The same results were obtained from the study developed by [Tugcu \(2014\)](#). The study concerns panel data for Mediterranean Region countries over the 1988–2011 period and apply a panel Granger causality test suggested by [Dumitrescu and Hurlin \(2012\)](#). Also, the bidirectional relationship between tourism and economic development depends on the tourism indicator used as well as the country. For panel data of nine Caribbean countries, the bidirectional causal relationship has been proved by [Apergis and Payne \(2012\)](#). The authors applied an error correction model and cointegration test proposed by [Pedroni \(1999\)](#) for the 1995–2007 period. The panel cointegration test showed that there is a long-term connection between international tourists' arrivals, real GDP, and the real effective exchange rate.

3. Research Hypothesis

In this section, the main research hypotheses are reported regarding the effects of tourism activity on economic growth. Based on the theoretical model and the related empirical studies, we hypothesize the following:

Hypothesis 1 (H1). *International tourism receipts have a positive effect on economic development.*

The impact of tourism activity on economic development is determined by the current multiplier mechanism created by the existing revenue-expenditure flow in the sector due to international tourism movements ([Carter 1998](#)). Since it can accumulate economic growth with a positive multiplier impact on jobs and profits, international tourism can be seen in the Keynesian theory as an exogenous factor of total demand. In this line, tourism receipts generate income, part of which indirectly influences the creation of new incomes such as investments, savings, consumption, taxes, etc. Therefore, international tourism receipts play a key role in economic development.

Hypothesis 2 (H2). *The existence of trade openness positively affects economic advancement.*

It has been argued that in the long run, trade openness can theoretically contribute to economic progress by attaining efficiency in resource allocation, offering access to goods and services, and improving productivity through the dissemination of technology and knowledge ([Barro and Martin 1997](#)). According to the theory of comparative advantage developed by David [Ricardo \(\[1817\] 1951\)](#), an economy that uses its resources more efficiently, as well as increases production and consumption opportunities, improves the level of income. Tourism is linked with exports and thus, trade openness can be considered a key component of the economic engine.

Hypothesis 3 (H3). *Human capital contributes to tourism development and therefore enhances economic progress.*

[Becker and Gerhart's](#) theory (1996) states that human capital is defined as the combination of skills, experience, and knowledge acquired by humans. In the tourism industry,

human capital constitutes a vital aspect of tourism businesses due to rapid development and the application of modern information and communication technologies (Hajiyeva and Teymurova 2019). Consequently, tourism companies invest in human capital development and train high-level managers, as they are considered an asset. In modern socio-economic conditions, human capital defines the level of economic growth as well as scientific and technical progress.

4. Data and Methodology

The data used in this study is a set of panel data including 21 countries from all over Europe (Austria, Belgium, Croatia, Denmark, Cyprus, Italy, Iceland, Greece, Germany, France, Ireland, Hungary, Spain, Switzerland, United Kingdom, Portugal, Norway, Netherlands, Luxemburg, Finland, and Sweden). The reason for selecting the specific countries is attributed to the fact that they constitute important tourist destinations. Other characteristics of the chosen countries are the level as well as the size of the development. The sample includes both small and large countries as well as developing and less developed ones. The data are obtained on an annual basis, for the years between 1995 and 2017. The main reason for not including additional years is due to the fact that they were not available. All variables have been derived from the World Bank database (World Development Indicators).¹

The methodology applied is based on the augmented Solow growth model developed by Mankiw et al. (1992). Specifically, we relied on the following reduced form equation:

$$\ln(\text{GDP}_{it}) = g((\text{SCHOOL}_{pr_{it}}, (\text{SCHOOL}_{sec_{it}}, (\text{SCHOOL}_{ter_{it}}, \ln(\text{POP}_{it}), \ln(\text{TOUR}_{0,it}), (\text{CRE}_{0,it}), (\text{PRI}_{0,it}), (\text{TRA}_{it})) + e_{it} \tag{1}$$

where the Gross Domestic Product (GDP) indicates the dependent variable of the sample and SCHOOL_pr, SCHOOL_sec, and SCHOOL_ter are used as proxies to measure human capital. POP measures the population density while TOUR is equal with the international tourism receipts in the current US\$ divided by the consumer price index (CPI) and is used as an independent variable. Two proxies of financial development CRE and PRI are also used to measure the financial depth of countries’ financial institutions (Cihak et al. 2013). The first proxy, CRE is equal to the domestic credit to the private sector and is expressed as a percentage of GDP, and the second proxy, PRI is defined as the fraction of private credit by deposit money banks and other financial institutions to GDP. Finally, TRA expresses trade openness and it is equal to the sum of exports and imports divided by GDP in current US\$ and multiplied by 100. Thus, trade openness is expressed as a percentage of GDP. In Table 1 the descriptive statistics of each variable of the sample are presented.

Table 1. Summary Statistics.

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
lnGDP	11.425	11.439	12.589	9.853	0.666	−0.343	2.515
lnPOP	1.940	2.046	2.706	0.426	0.512	−1.211	4.233
lnTOUR	10.01	9.997	10.845	8.749	0.470	−0.226	2.699
CRE	101.980	95.371	308.978	21.360	45.629	0.858	4.249
SCHOOL_PR	102.115	101.456	126.575	79.857	5.269	1.315	8.999
SCHOOL_SEC	109.708	104.496	163.934	81.650	16.466	1.352	4.646
SCHOOL_TER	59.639	59.895	136.602	7.380	19.301	−0.041	4.209
TRA	99.354	80.881	408.362	37.107	58.970	2.511	10.885

From the above table, it is observed that none of the variables of the sample follow the normal distribution. For the variable GDP, skewness is equal to −0.343 meaning that the distribution is approximately symmetric as the value is near 0, while the value of kurtosis is positive but less than 3, implying a platykurtic distribution. The skewness of variable POP is negative and lower than −1 and the kurtosis is positive and higher than

3, thus the distribution is left-skewed and leptokurtic. LnTOUR has a skewness equal to -0.226 and a kurtosis equal to 2.699 , therefore the distribution is approximately symmetric and platykurtic. Also, for the variable CRE, the value of skewness is positive and less than 1, while the kurtosis is positive and higher than 3, indicating that the distribution is moderately skewed and leptokurtic. The distributions of the variables SCHOOL_PR and SCHOOL_SEC are highly skewed and leptokurtic while the variable SCHOOL_TER is approximately symmetric and leptokurtic. Finally, the variable TRA follows a right-skewed and leptokurtic distribution.

4.1. Panel Unit Root Test

Unit root tests are statistics used to test the stationarity of the variables (see Figure 1). There are several unit root tests, including the Augmented Dickey-Fuller (ADF) (Dickey and Fuller 1979, 1981) which is used to test for a unit root in time series, the Levin et al. (2002), Breitung (2000), Im et al. (2003), Hadri (2000) and Fisher Type test using ADF (Maddala and Wu 1999) and PP test (Choi 2011) which are used in case there are both cross-sections and panel data. All of the above tests, except Hadri (2000) have the same null hypothesis that panel data have a unit root or in other words, the variable is non-stationary, while the alternative hypothesis indicates that panel data has no unit root or the variable is stationary. In the Hadri (2000) test the null hypothesis indicates the stationarity of the variable.

Due to the variety of results given by each test, in this paper, the Levin et al. (2002), Breitung (2000), Im et al. (2003), and Fisher Type test using ADF (Maddala and Wu 1999) and PP test (Choi 2011) is applied to check for unit root and compare their results.

Applying the relevant tests, it has been observed that the null hypothesis of the unit root cannot be rejected at a significant level of 5% for the majority of variables. More specifically the results of Levin et al. (2002) test the variables GDP and POP are non-stationary at the level as it holds that the p -value is higher than 0.05 and therefore the null hypothesis cannot be rejected. According to the results from Im et al. (2003) and ADF Fisher tests, only variables SCHOOL_pr and CRE appear to be stationary at a significant level of 5%, while the rest of the variables are non-stationary. Finally, the outcome from PP tests shows that all of the variables are non-stationary, except for variable CRE which is stationary. Applying the relevant tests taking first differences, we observe that all of the variables are stationary.

We conclude that GDP, POP, TRA, PRI, SCHOOL_sec, and SCHOOL_ter are non-stationary at level, but stationary at the first differences, while CRE and SCHOOL_pr are stationary at level implying that there can be no long-run or short-run effects from this proxy in tourism demand and economic growth. Therefore, CRE and SCHOOL_pr must be omitted from the econometric model. All graphs of variables are represented below verifying the results of unit root testing.

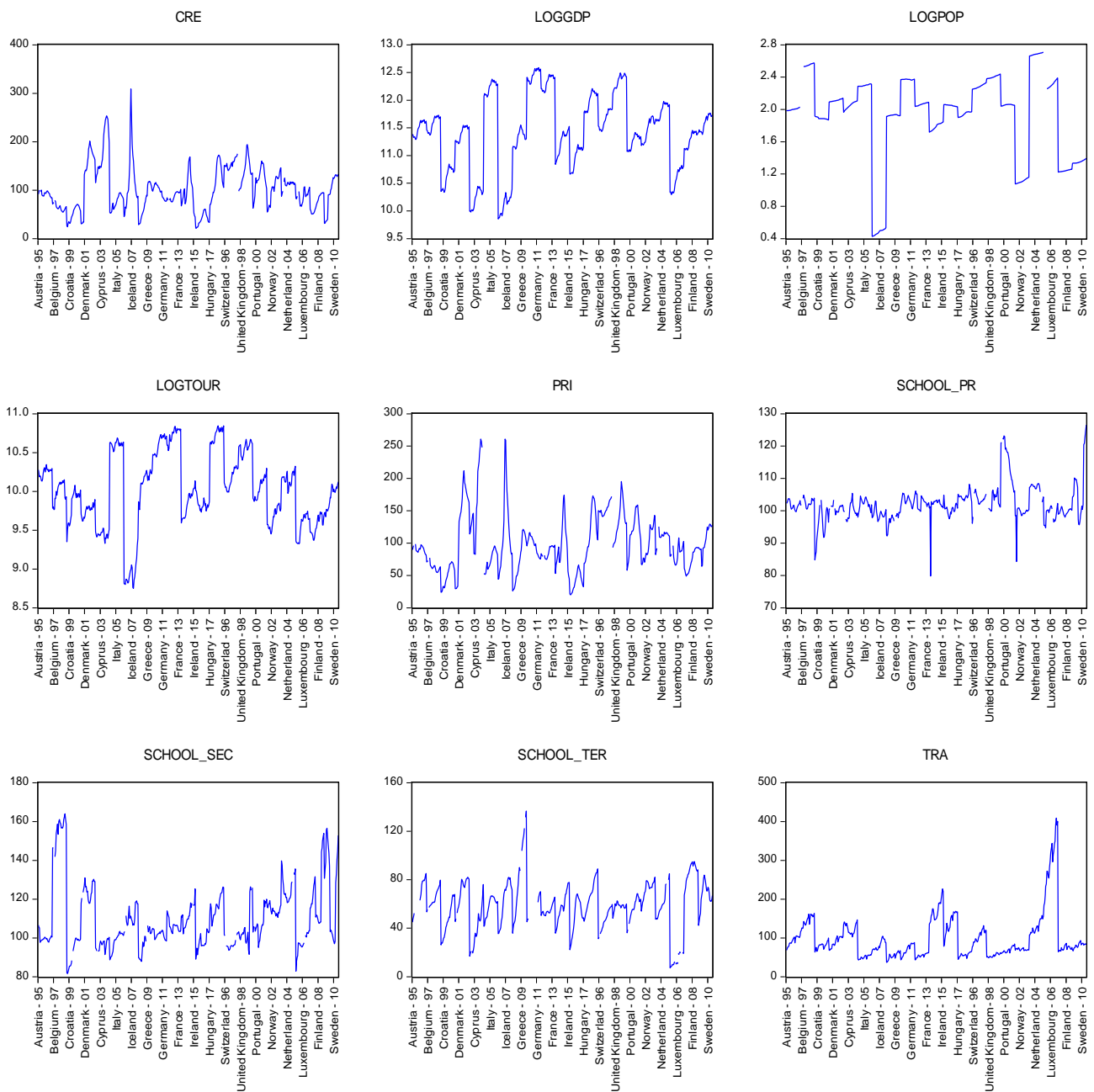


Figure 1. Evolution of sample variables.

4.2. Cointegration Tests

The next step for our analysis is to perform cointegration tests to examine if there is a structural (cointegrated) connection among the sample variables. Cointegration analysis constitutes a suitable technique to explore the long-term connection among real GDP per capita, human capital, population density, international tourism divided by the consumer price index, financial development, and trade openness. For this reason, several cointegration tests are conducted (Pedroni tests, Kao tests, and Fisher and Johansen). All of the above tests have the same null hypothesis claiming the absence of a cointegration relationship, whereas the alternative hypothesis suggests the existence of a cointegration relationship.

Specifically, [Pedroni \(1999\)](#), proposes seven different tests: panel v -test, panel rho-test, panel PP-test, panel ADF-test, group prho-test, group PP-test, and group ADF-test. On the other hand, [Kao \(1999\)](#) test, adopt the same approach as the Pedroni tests with the only difference that cross-section intercepts and homogeneous coefficients are defined on

the first stage regressors. Finally, the Fisher combined Johansen test consists of two kinds of Johansen-type tests. The Fisher test from the trace test and the Fisher test from the maximum eigenvalue test.

Table 2 illustrate the outcomes of all panel cointegration tests. Applying the Pedroni residual cointegration tests, only three of the eleven tests reject the null hypothesis, therefore the null hypothesis cannot be rejected at a 5% significant level. Thus, the variables are not cointegrated, implying that they do not exhibit a long-run relationship. According to the results from the Kao cointegration tests, the variables are cointegrated as *p*-values are lower than 0.05, and therefore the null hypothesis can be rejected, indicating that a long-term connection exists. Finally, also the results from the Fisher tests show that the variables are cointegrated rejecting the null hypothesis in which there is no cointegration relationship. Therefore, it holds, that the two of the three tests suggest that the variables are cointegrated, thus we can conclude that the data are cointegrated indicating that there is a long-term association between real GDP per capita, human capital, population density, international tourism divided by the consumer price index, financial development, and trade openness.

Table 2. Panel cointegration tests.

Pedroni Residual Cointegration Tests		
Panel Statistics		
Panel v-Statistic	−499.492 (1.000)	−1.247 (0.894)
Panel rho-Statistic	4.294 (1.000)	3.190 (0.999)
Panel pp-Statistic	2.063 (0.981)	−1.519 (0.064)
Panel ADF-Statistic	0.845 (0.801)	−2.050 * (0.020)
Group Statistics		
Group rho-Statistic	4.890 (1.000)	
Group pp-Statistic	−3.368 * (0.000)	
Group ADF-Statistic	−3.112 * (0.001)	
Kao Residual Cointegration Tests		
ADF-Statistic	−4.575 * (0.000)	
Johansen Fisher Panel Cointegration Tests		
Fisher Statistic from the trace test	None	86.16 * (0.000)
	At most 1	330.1 * (0.000)
	At most 2	262.4 * (0.000)
	At most 3	269.7 * (0.000)
	At most 4	263.4 * (0.000)
	At most 5	154.8 * (0.000)
	At most 6	92.22 * (0.000)
Fisher Statistic from the maximum eigenvalue test	None	86.16 * (0.000)
	At most 1	203.0 * (0.000)
	At most 2	208.2 * (0.000)
	At most 3	199.2 * (0.000)
	At most 4	195.0 * (0.000)
	At most 5	116.9 * (0.000)
	At most 6	92.22 * (0.000)

Note: * *p* < 0.01.

4.3. Panel Data Regression Analysis

To explore the relationship between GDP and the other six explanatory variables: POP, TOUR, PRI, TRA, SCHOOL_sec, and SCHOOL_ter, panel data is developed using pooled OLS regression model, fixed effect or LSDV model, and random effect model. The results of the three models are represented in Table 3.

Table 3. Panel Data Regression Models.

	Pooled OLS Model	Fixed Effect Model	Random Effect Model
ln(GDP)	−1.704 * (0.0000)	3.144 * (0.0000)	4.314 * (0.0000)
ln(POP)	−0.040 (0.307)	1.724 * (0.000)	0.607 * (0.000)
ln(TOUR)	1.215 * (0.000)	0.465 * (0.000)	0.552 * (0.000)
PRI	0.001 * (0.009)	0.001 * (0.000)	0.001 * (0.000)
SCHOOL_sec	0.007 * (0.000)	−0.000 (0.357)	−0.000 (0.744)
SCHOOL_ter	0.004 * (0.000)	0.002 * (0.000)	0.003 * (0.000)
TRA	−0.000 (0.145)	0.001 * (0.000)	0.001 * (0.000)
Hausman test		77.923 * (0.000)	

Note: * $p < 0.01$.

The results from the pooled OLS regression model, show that GDP is negative but statistically significant. The effect of tourism receipts (TOUR), private credit by deposit money banks and other financial institutions to GDP (PRI), school secondary (SCHOOL_sec), and school tertiary (SCHOOL_ter) on growth appears to be positive and significant, implying that these variables explain GDP. On the other hand, population density (POP) and trade openness (TRA) has a negative and statistically insignificant sign. However, the most important problem with implementing this model is that the heterogeneity that may exist between countries is not taken into account, therefore this model cannot be accepted.

Performing the fixed effect (FE) model it is observed that all of the variables have a positive effect on growth and are statistically significant except the school secondary (SCHOOL_sec) which comes with a negative and statistically insignificant sign. The same results were obtained, applying the random effect (RE) model.

To select between the fixed effects and random effects estimates, Hausman (1978) test should be applied. The null hypothesis suggests, according to the Hausman test, that the Random Effect model is adequate while the alternative denotes that the fixed effect model is sufficient. The Hausman test results suggest the rejection of the null hypothesis, as the p -value is less than 0.05. Thus, the fixed-effect model is the acceptable one.

The findings from the FE model, show the effect of population density (POP), tourism receipts (TOUR), private credit by deposit money banks and other financial institutions on GDP (PRI), and trade openness (TRA) appear to be positive and statistically significant. Interestingly, the effect of human capital expressed as a secondary school (SCHOOL_sec) and territory school (SCHOOL_ter) shows mixed results. The effect of secondary school appears to be negative and statistically insignificant while the tertiary school appears to be positive and statistically significant. For this reason, SCHOOL_ter can be considered a better representative of human capital and it also explains GDP better.

4.4. Generalized Methods of Moments (GMM) Analysis

To estimate the dynamic model difference, the generalized method of moments (GMM) proposed by Arellano and Bond (1991) is applied. According to the difference GMM, the original model is transformed into a first-difference model to remove fixed effects while eliminating the problem of endogeneity, lagged endogenous variables are used as instruments. Furthermore, two-steps estimators are used to evaluate the model due to the efficiency and robustness of heteroscedasticity (Roodman 2009). This methodology is accompanied by the assumption that the lagged values of the exogenous and endogenous

variables in the regression are valid instruments. Additionally, the GMM method assumes that there is no second-order autocorrelation in the residuals from the first differences as well as a correlation between instruments and the error term (Arellano and Bond 1991).

The results of the GMM method are represented in Table 4. Applying Arellano and Bond tests, the null hypothesis of no second-order autocorrelation in the residuals cannot be rejected at a 5% significant level. Also, the Sargan test of overidentifying restrictions, confirms the absence of correlation between the instruments and the error term. The results of the two tests confirm the consistency of the model. Furthermore, it is observed that the lagged dependent variable GDP is positive and significant as well as the independent variables TOUR and SCHOOL_ter.

Table 4. Two-step difference in GMM results.

Two-Step Difference GMM				
Variable	Coefficient	Standard Error	T Statistic	p-Value
lnGDP(−1)	0.713 *	0.094	7.562	(0.000)
lnPOP	0.571	0.848	0.674	(0.501)
lnTOUR	0.414 *	0.073	5.676	(0.000)
PRI	−0.000	0.000	−0.896	(0.371)
SCHOOL_SEC	5.7×10^5	0.001	0.034	(0.972)
SCHOOL_TER	0.002 *	0.000	5.773	(0.000)
TRA	−0.001 *	0.000	−2.238	(0.026)
Sargan’s Test of Overidentifying Restrictions				15.655 (0.405)
Arellano Bond Tests				
Test order	m-Statistic	rho	SE(rho)	Prob.
1st order autocorrelation AR(1)	NA	−0.083	NA	NA
2nd order autocorrelation AR(2)	−0.000	−0.119	140.812	0.999

Note: * $p < 0.01$.

It should be noted that the estimated coefficients of the table below are considered short-run elasticities. Therefore, the estimated coefficient of the variable TOUR comes with a positive sign, while the elasticity value is equal to 0.41, which confirms the importance of tourism in economic growth. Also, SCHOOL_ter appears with a positive sign and an elasticity equal to 0.002, suggesting the existence of the relationship between human capital and economic development. Finally, the lagged dependent variable GDP significantly affects tourism development.

4.5. Granger Causality Test

To determine whether one-time series is appropriate in forecasting another, the Granger causality test suggested by Granger (1969) is conducted. For critical values lower than a 5% level of significance, the null hypothesis should be rejected. Table 5 illustrates the outcomes of the test for all of the variables of our model.

According to the results, the null hypothesis that lnGDP does not Granger Cause lnPOP is rejected at a 5% level of significance, suggesting that there is a unidirectional causality moving from lnGDP to lnPOP. A unidirectional causal relationship also occurs from lnGDP to PRI and lnGDP to SCHOOL_sec.

In the case of lnGDP and lnTOUR, the results show a bidirectional relationship between the two variables, confirming the TGLH. A bidirectional relationship also exists between SCHOOL_ter and lnGDP as well as between lnTOUR and lnPOP.

Table 5. Pairwise Granger causality test.

Sample: 1995–2017, Lags: 2		
Null Hypothesis	F-Statistic	p-Value
D(lnPOP) does not Granger Cause D(lnGDP)	1.840	(0.160)
D(lnGDP) does not Granger Cause D(lnPOP)	7.754 *	(0.005)
D(lnTOUR) does not Granger Cause D(lnGDP)	5.891 *	(0.003)
D(lnGDP) does not Granger Cause D(lnTOUR)	6.247 *	(0.002)
D(PRI) does not Granger Cause D(lnGDP)	0.861	(0.423)
D(lnGDP) does not Granger Cause D(PRI)	13.752 *	(2×10^{-6})
D(SCHOOL_sec) does not Granger Cause D(lnGDP)	1.759	(0.174)
D(lnGDP) does not Granger Cause D(SCHOOL_sec)	8.076 *	(0.000)
D(SCHOOL_ter) does not Granger Cause D(lnGDP)	3.811 *	(0.023)
D(lnGDP) does not Granger Cause D(SCHOOL_ter)	4.442 *	(0.012)
D(TRA) does not Granger Cause D(lnGDP)	2.026	(0.133)
D(lnGDP) does not Granger Cause D(TRA)	0.798	(0.450)
D(lnTOUR) does not Granger Cause D(lnPOP)	6.371 *	(0.002)
D(lnPOP) does not Granger Cause D(lnTOUR)	5.222 *	(0.006)
D(PRI) does not Granger Cause D(lnPOP)	5.681 *	(0.004)
D(lnPOP) does not Granger Cause D(PRI)	1.103	(0.332)
D(SCHOOL_sec) does not Granger Cause D(lnPOP)	0.105	(0.899)
D(lnPOP) does not Granger Cause D(SCHOOL_sec)	0.387	(0.678)
D(SCHOOL_ter) does not Granger Cause D(lnPOP)	0.058	(0.943)
D(lnPOP) does not Granger Cause D(SCHOOL_ter)	1.361	(0.258)
D(TRA) does not Granger Cause D(lnPOP)	0.271	(0.762)
D(lnPOP) does not Granger Cause D(TRA)	2.064	(0.128)
D(PRI) does not Granger Cause D(lnTOUR)	1.989	(0.138)
D(lnTOUR) does not Granger Cause D(PRI)	3.213 *	(0.041)
D(SCHOOL_sec) does not Granger Cause D(lnTOUR)	2.869	(0.058)
D(lnTOUR) does not Granger Cause D(SCHOOL_sec)	2.465	(0.086)
D(SCHOOL_ter) does not Granger Cause D(lnTOUR)	0.626	(0.535)
D(lnTOUR) does not Granger Cause D(SCHOOL_ter)	1.213	(0.298)
D(TRA) does not Granger Cause D(lnTOUR)	0.642	(0.526)
D(lnTOUR) does not Granger Cause D(TRA)	0.987	(0.373)
D(SCHOOL_sec) does not Granger Cause D(PRI)	2.152	(0.118)
D(PRI) does not Granger Cause D(SCHOOL_sec)	3.025 *	(0.049)
D(SCHOOL_ter) does not Granger Cause D(PRI)	10.015 *	(6×10^{-5})
D(PRI) does not Granger Cause D(SCHOOL_ter)	0.502	(0.605)
D(TRA) does not Granger Cause D(PRI)	3.335 *	(0.036)
D(PRI) does not Granger Cause D(TRA)	1.462	(0.233)
D(SCHOOL_ter) does not Granger Cause D(SCHOOL_sec)	4.713 *	(0.009)
D(SCHOOL_sec) does not Granger Cause D(SCHOOL_ter)	1.622	(0.199)
D(TRA) does not Granger Cause D(SCHOOL_sec)	0.975	(0.378)
D(SCHOOL_sec) does not Granger Cause D(TRA)	1.385	(0.251)
D(TRA) does not Granger Cause D(SCHOOL_ter)	0.600	(0.549)
D(SCHOOL_ter) does not Granger Cause D(TRA)	2.754	(0.065)

Note: * $p < 0.01$.

The null hypothesis that PRI does not Granger cause lnPOP is rejected, indicating a unidirectional causality moving from PRI to lnPOP. Finally, the results of the test illustrate

a unidirectional causality running from InTOUR to PRI, PRI to SCHOOL_sec, SCHOOL_ter to PRI, TRA to PRI, and SCHOOL_ter to SCHOOL_sec.

5. Conclusions and Policy Implications

Although the empirical literature on the connection between tourism and economic development remains undecided, tourism has undoubtedly been an important factor in promoting regional and national economies. This is due to the fact that tourism contributes to the accumulation of exchange rates, the creation of employment opportunities, and the improvement of infrastructure.

This study tried to supplement the literature by examining the empirical relation between tourism activity and economic growth for a sample of 21 European countries covering the years between 1995 and 2017.

The empirical findings suggest that tourism growth is a significant driver in pursuing the economic performance of European economies. In particular, the Cointegration test suggests that there is a long-term connection between tourism and economic growth. The empirical findings indicate that all of the sample variables are positive and significant, verifying the existence of the connection between tourism and economic development. Further analysis applying the difference GMM showed the presence of short-run effects. Finally, the Granger causality test confirms the tourism-led-growth hypothesis, validating that tourism causes economic growth.

An alternative proposed approach for further research would be to make use of a vector autoregression model (VAR). Furthermore, it would be possible to employ other types of data as a proxy for tourism, such as the number of hotels, apartments, and beds depending on the increasing accessibility of relevant data in the future.

Evaluating further the results of this study and trying to connect them with the main research hypotheses we conclude the validity of hypothesis one, which indicates that international tourism receipts positively affect economic development. Therefore, international tourism receipts enhance the development of the examined economies in Europe. In line with this, the governments of European countries traditionally invest a lot of money to promote travel and tourism. Tourism can be considered a good development strategy for European economies. Therefore, the latter might improve their economic growth performance by investing in human and physical capital, in trade, and creating productive tourism marketing and exhibitions.

The second hypothesis of this paper according to which trade openness has a significant impact on economic growth is also valid. Thus, we argue that trade openness is linked with tourism and constitutes an essential factor in European economies, promoting development and growth. Policymakers and government officials, it is necessary to implement policies aimed at maximizing the benefits of tourism. First, governments should focus on strengthening the competitiveness of the tourism industry by developing tax incentives, supporting small businesses and start-ups, and sharing industry knowledge. Also, economic, and political stability plays an important role in promoting tourism and should therefore be one of their main objectives. It is important for tourists visiting a country as well as businesses operating in a country to feel safe and secure.

Finally, the third hypothesis referring to the contribution of human capital to tourism development and thus to the economic engine is also reasonable. We argue that human capital as the set of skills, knowledge, and experience can be considered an asset of tourism businesses. Thus, policymakers should focus on the investment in human capital as well as on the promotion of sharing and distribution of technical knowledge.

The relevant study incurs also important policy and managerial implications for countries and tourism stakeholders (i.e., hoteliers, travel agents, tour operators, etc.). Based on the relevant finding, tourism specialization does exert a statistically significant (positive) impact on economic growth in several international tourism destinations, validating the TLGH. Controlling for other well-established economic growth components, we argue that tourism activity is a stimulus for economic growth, but it does so in a monotonic way.

To further support tourism development, policymakers should also focus on infrastructure development. It is necessary to improve transport, better roads, and airports, and effective connectivity by land, air, and water. Transport efficiency plays an important role in the development of travel and tourism, as tourists need to travel from one place to another with safety.

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Note

¹ Our primary goal was to include only the European countries that constitute the European Economic Area (EEA). However, due to severe data limitations, we had to include only the pre-selected 21 countries. It is noteworthy that most of the sample countries belong to the European Monetary Union (Eurozone) turning thus our analysis focuses on the countries that have adopted a (strong) common currency (e.g., the euro).

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