CASE STUDY

Determinants of international tourism: Empirical evidence from three Mediterranean countries

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Abstract:

Purpose: This paper investigates the main factors of international tourist arrivals to three Mediterranean destinations, namely Greece, Albania and Montenegro.
Methods: A gravity model for panel data was used to analyze the number of tourists from twenty of the most important origin countries during the period 2012-2021.
Results: Findings show that international tourism is adversely affected by bilateral distance and large-scale crisis such as COVID-19 pandemic. On the other hand, the flow of international visitors is positively related to populations and incomes per capita in origin and destination countries, geographical contiguity and climate similarity. Other pull factors for tourism flows include total investments in infrastructure, and political stability and absence of violence or terrorism.
Implications: The results of this research provide some important implications and recommendations for tourism industry policymakers and managers.

Keywords: *Mediterranean, tourism, gravity model, pull factors, crisis*

JEL Classification: *L83, B23, O47*

1   INTRODUCTION

For many countries, tourism is one of the major sectors of the economy. Tourism flows can generate employment, encourage local investments, diffuse technical knowledge and skills, and stimulate international trade and economic growth (Brida, Gómez, and Segarra, 2020). Prior to COVID-19 pandemic, Travel and Tourism contributed more than 10 percent to world's Gross Domestic Product (GDP). The share decreased to 5,3 percent in 2020 due to restrictions imposed during the lockdown. In 2021, the contribution of the sector started to recover, reaching 6,1 percent of GDP. The global travel and tourism sector is excepted to reach its pre-pandemic levels in 2023 (WTTC, 2022). Given the significance of the sector for the global social and economic development, it would be natural to study the drivers of international tourism flows.

A considerable number of authors have empirically analyzed the nexus between tourism flows and various explanatory variables. The vast majority of these studies are based on developed economies (Khoshnevis Yazdi and Khanalizadeh, 2017), or on particular developing countries and areas (Habibi, 2017; Xu, Wang, Li, Tang and Shao, 2019). Extant research has identified a large number of determinants affecting tourism flows between cities, countries, and regions (Park, Woo and Nicolau, 2020; Boivin and Tanguay, 2019). The number of international tourists in a given destination may be impacted by income levels of home and host countries, exchange rate, international trade, infrastructure condition, tourism marketing, climate and security at the

destination, bilateral distance, and other economic and non-economic factors.

The objective of the present paper is to empirically analyze the most important determinants of international tourist arrivals to three Euro-Mediterranean coastal destinations: Greece, Albania and Montenegro. In this regard, a gravity equation is estimated to a panel dataset covering twenty relevant origin countries from 2012 to 2021. During our literature search, we noted that a relatively small number of authors have used a gravity approach to investigate international tourism demand for Mediterranean countries. Our choice is also related to data availability for the considered variables and time period. Despite being geographically close, Greece, Albania and Montenegro differ significantly in population and economic size as well as in tourism performance. Greece is a member of the European Union from 1981, whereas Albania and Montenegro are still candidate countries. Tourism remains a priority sector and a crucial element of economic growth in all the study countries. The rest of the study is organized as follows. The next section provides a summary of facts and figures regarding the considered countries. The third section briefly reviews some of the main studies related to the econometric estimation of tourism demand. The fourth section presents the gravity model for tourism flows and describes the empirical results. The last section provides some policy suggestions and recommendations for further research.

2   FACTS AND FIGURES

The tourism industry is particularly vulnerable to large-scale crisis, disasters and extreme events. Prior to COVID-19 pandemic, the contribution of Travel and Tourism to the European economy was more than 9 percent. Whereas in 2020, sector's revenues and the contribution to the economy decreased to nearly 47 percent and to 5 percent, respectively. Travel and Tourism started to recover in 2021, as lockdowns and travel restrictions were lifted. In 2021, international visitor spending increased by nearly 24 percent and the sector generated 34,7 million jobs, a growth of 1,6 million compared to the previous year (WTTC, 2022). Europe continues to be the continent with the largest number of international visitors, welcoming 585 million in 2022, more than double than in the previous year. During this period, Europe registered a stronger than expected recovery, reaching about 80 percent of its pre-pandemic levels (UNWTO, 2023). Among the subregions, Southern Mediterranean countries and Western Europe saw the fastest recovery after the pandemic. Furthermore, Southern Mediterranean Europe had the highest occupancy rate (79 percent) in September 2022 (UNWTO, 2023).

Tourism receipts are one of the common proxies for measuring tourism growth (Rossello Nadal and Santana-Gallego, 2022). International tourism receipts are usually calculated as the expenditures by foreign visitors, including payments for international transport. Figure 1 displays international tourism receipts in the study countries for the period from 2012 to 2021. Greece leads the ranking, with a median of 17,49 billion dollars, followed by Albania (1,84) and Montenegro (0,95). Albania registered the largest growth rate from 2012 to 2021, with an increase of 52,8 percent; both

Montenegro and Greece registered a decline during the considered period, by 88,1 and 6,8 percent, respectively. Furthermore, Montenegro recorded the largest yearly decline in 2021 (86 percent), whereas the respective values for Greece and Albania were 73 and 49 percent.

Figure 1. International tourism receipts (in million dollars).
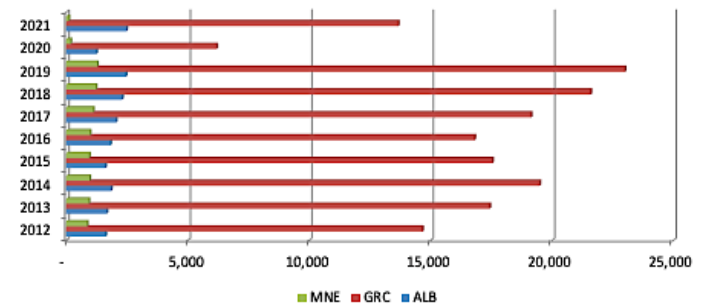
Source: Own elaboration based on data from UNWTO (2022).

The role of tourism in a national economy can be evaluated through the ratio between visitors' expenditures and total exports. Figure 2 plots international tourism receipts as a percentage of total exports for the study countries during the period 2012-2020. Montenegro had the highest median share (52,2 percent), followed by Albania (49,5 percent) and Greece (26,4 percent). The pandemic had a very negative effect on the ratio of tourism receipts on exports. Greece recorded the lowest value in 2020 with 10,5 percent, while the respective shares for Albania and Montenegro were 35,9 and 14,4 percent, respectively.

Figure 2. International tourism, receipts (percentage of total exports).
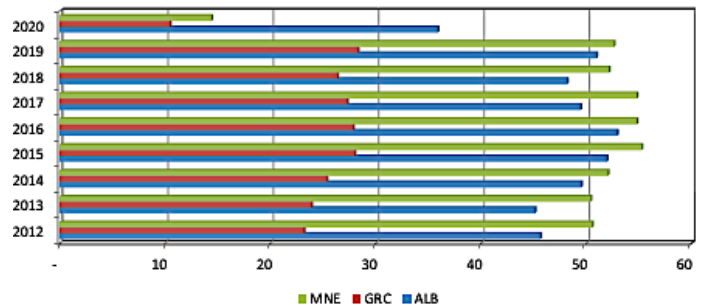
Source: Own elaboration based on World Bank data (2022).

Tourism flows are used as an estimator of international tourism demand in numerous empirical studies (Seetanah, Sannassee and Rojid, 2015; Li, Goh, Hung and Chen, 2018; ; Spyridou, Christou, and Shin, 2022). Figure 3 shows the number of international tourists during the years 2012-2021. Greece had obviously the highest number of overseas visitors (median of 25,2 million), followed by Albania (4,4) and Montenegro (1,6). On the other hand, Albania registered the largest growth rate from 2012 to 2021, with an increase of 61,9 percent; the respective values for Montenegro and Greece were 22,9 and -1,9 percent. International tourist arrivals followed generally a positive trend for the study countries, except for the year 2020, when Covid-19 spread worldwide. The largest yearly decline occurred in Montenegro (86 percent), while the smallest decline was observed in Albania (59 percent). On the other hand,

Montenegro recorded the highest annual growth in 2021 (343 percent), followed by Albania (114 percent) and Greece (106 percent). International tourist arrivals are strongly correlated with tourism receipts, but the former are easy to measure and generally more reliable (Okafor, Khalid and Burzynska, 2022).

Figure 3. International tourists (in millions).
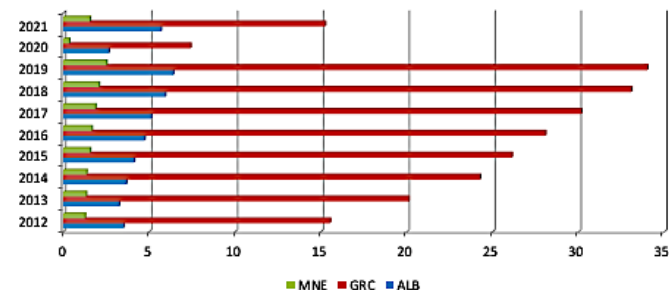
Source: Own elaboration based on UNWTO data (2022).

3   LITERATURE REVIEW

The evaluation of tourism policies and programmes, and the econometric estimation of tourism demand have always been major issues for tourism researchers. Numerous authors have been focused on the identification of explanatory variables and the respective conceptualization, as well as on econometric models, forecasting methods and data levels to be employed (Witt and Witt, 1995; Lathiras and Siriopoulos, 1998; Guan, Silva, Hassani and Heravi, 2022; Spyridou, Polyzos, and Samitas, 2023). Tourism demand equations differ according to the variables used, estimation techniques, selected samples and countries included in the analysis. For instance, Syriopoulos (1995) formulates a dynamic econometric model to evaluate tourism consumption changes by the United States and northern European countries for some important Mediterranean countries. Estimation results show that tourism demand may be affected by disposable income, relative inflation rates, and effective relative prices. Wider information availability and habit persistence can also influence the changes in tourism demand. Papatheodorou (1999) also analyzes some of the main factors of international tourism in Mediterranean destinations. The set of explanatory factors includes total tourist expenditures, prices, and a time trend. According to the estimated model, the considered parameters are statistically significant, and consistent with consumer demand theory. Lathiras and Siriopoulos (1998) focus on the long-run equilibrium relation among Greece in-bound tourism and the corresponding determinants. The formulated equation includes an income variable, relative prices, exchange rates, and substitute prices. The results show that the estimated coefficients have the expected signs and are statistically significant.

Martins, Gan and Ferreira-Lopes (2017) formulate different econometric models to understand the relationship between tourism demand and macroeconomic variables. The considered database is a panel of more than 200 countries over the period from 1995 to 2012. Empirical evidence shows that tourism demand is stimulated by a higher world's GDP per capita, and a decline of national currency and relative domestic prices. Seetanah, Sannassee and Rojid (2015) also evaluate the influence of relative prices and other relevant variables on tourism flows in Mauritius. Empirical results show that tourist decision depends on tourism infrastructure, relative prices, income in origin countries, and the destination's development. Albaladejo and González-Martínez (2018) study international tourism in Spanish Mediterranean coasts during the period from 2005 to 2015. The proposed dynamic equation includes economic variables (relative prices and income), and a variable related to past tourism flows. Estimation results show that the considered variables have a significant impact on tourism demand. As demonstrated in the previous studies, relative prices have a statistically significant effect on international tourism.

A considerable number of recent publications have highlighted the role of security level, political instability, disease threats and other similar variables in the dynamics of international tourism flows. Ghaderi, Saboori and Khoshkam (2017) study the relation among global tourism demand and collective security. The authors apply a dynamic estimation technique to explain tourism arrivals in 74 developing and developed economies. Empirical results show that the security parameter is positive in developed countries, and negative in developing countries. Rosselló, Santana-Gallego and Awan (2017) investigate the impact of travel-related infectious diseases on tourist arrivals and expenditures. According to the empirical results, the elimination of dengue, malaria, ebola, and yellow fever would significantly increase tourism expenditures. International tourism flows can also be affected by ongoing political tensions between countries. For instance, Theocharous, Zopiatis, Lambertides, Savva and Mansfeld (2020) analyze the tourism interdependency among some Eastern Mediterranean destinations (namely, Israel, Turkey, Greece and Cyprus), considering the period 1987-2012. Findings confirm the positive effect of verbal and material collaboration on tourism demand. In contrast, verbal conflicts have an adverse effect on tourism flows and stimulate volatility.

A small but increasing number of authors have focused on the role of climate and of environmental pollution variables in tourism dynamics. Li, Goh, Hung and Chen (2018) suggest a climate indicator based on the push-pull theory of migration to explain the seasonal behaviour of tourism. The considered sample includes tourism flows from Hong Kong to 13 important Chinese cities. The evidence indicates that relative climate significantly increases tourism flows to Mainland areas, where the weather conditions are different from those of Hong Kong. Ridderstaat, Oduber, Croes, Nijkamp and Martens (2014) analyze the impact of seasonal variations in tourism flows from Venezuela and the United States to Aruba. Empirical evidence shows that seasonal factors significantly influence tourism demand from the considered origin countries. The seasonal factors include temperature, cloudiness, wind speed, and precipitations. Churchill, Pan and Paramati (2022) focus on the effect of particulate matter pollution and carbon dioxide on the number of international tourists. The authors utilize annual data from 1995 to 2014 and a panel of G20 countries. They find evidence of a negative effect of the considered variables on tourism. Furthermore, the effect of carbon dioxide is stronger in developed countries, whereas the effect of particulate matter emissions is more pronounced in developing countries.

A relevant number of authors have formulated and applied various gravity equations for international tourism demand. The gravity model was initially suggested by Tinbergen (1962) to forecast international trade flows. Since then, the model has been employed to study different types of variables, including migration, tourism, and foreign direct investments. According to Anderson (2011), gravity "is one of the most successful empirical models in economics". The gravity model of tourism has become particularly popular over the last five years. Fourie and Santana-Gallego (2013) estimate a simple gravity model on a dataset of 175 countries over the period 1995-2008. The authors focus on the variables that determine African tourism. Findings suggest that repeat tourism, incomes of home and host countries, free trade agreements, sharing the same border, country areas, religion, language, and past colonial ties stimulate tourist arrivals to Africa. Malaj and Kapiki (2016) investigate the main determinants of the number of international tourists in Greece. The authors estimate a gravity equation on a dataset of tourist arrivals from 19 countries during the years 2005-2015. According to the empirical results, tourism flows are adversely impacted by climate similarity between countries and bilateral distance; whereas, investments in transport infrastructure, stability, income, and European Union membership of origin countries stimulate tourism. Khoshnevis Yazdi and Khanalizadeh (2017) study the determinants of international tourist arrivals to the United States over the period 1995–2014. The authors employ a gravity framework on a panel dataset of tourist arrivals from 14 countries. Empirical findings confirm the statistical significance of real GDP, consumer price index, real exchange rate, and tourism transport infrastructure. Ulucak, Yücel and İlkay (2020) focus on the main determinants of international tourism flows to Turkey. The authors estimate an augmented gravity model on a sample of 25 originating countries from 1998 to 2017. Empirical findings indicate that per capita incomes, globalization and exchange rates stimulate tourism demand, whereas debt levels, consumer price index, violence, and distance discourage international visitors. Yerdelen Tatoglu and Gul (2020) investigate the factors of international tourism flows through a multi-dimensional gravity equation. The authors consider international visitors from 30 origin countries in the 14 most important world destinations during the period from 2008 to 2016. Empirical findings show that the number of tourists depends mostly on economic factors, such as international trade and income. Cevik (2022) also formulates a gravity equation to evaluate the effect of infectious diseases on tourism flows between 38.184 country pairs during the years 1995–2017. Empirical findings show that the number of international tourists is negatively impacted by the risk of infectious diseases; the effect of is much more pronounced in developing countries.

4 EMPIRICAL ANALYSIS

In this section we make use of the gravity theory to explain international tourism flows towards the study countries. Gravity models are based on the law of universal gravitation of Newton, which postulates that the gravitational force acting between two bodies is directly proportional to the product of their masses, and inversely proportional to the respective distance. A large number of authors have formulated and used gravity equations to describe international flows of trade, migration, and foreign direct investments (Morley, Rosselló and Santana-Gallego, 2014). The basic gravity model can be written as follows:

$$\text{FLOW}_{ij} = C \frac{M_i^{\alpha} M_j^{\beta}}{\text{DIST}_{ij}^{\gamma}} U_{ij} \qquad (1)$$

where FLOWij indicates the bilateral flow between countries (i,j); M denotes the economic size; DIST refers to the respective distance; C, α, β and γ are estimated from the sample; and U is a lognormal distributed error term. We apply a logarithmic transformation to (1) and include a normal distributed error (ε):

$$\ln(\text{FLOW}_{ij}) = C + \alpha \ln(M_i) + \beta \ln(M_j) - \gamma \ln(\text{DIST}_{ij}) + \varepsilon_{ij} \qquad (2)$$

According to Kimura and Lee (2006), services trade is better predicted by gravity models than goods trade. Gravity equations for bilateral trade are based on Heckscher-Ohlin models, and tourism is often regarded as a particular type of trade in services (Morley, Rosselló and Santana-Gallego, 2014). The augmented variant of the gravity model for international tourism demand can be expressed as:

$$\ln(\text{TOU}_{ij}) = C + \sum_{p=1}^{P} \alpha_p \ln(O_i^p) + \sum_{s=1}^{S} \beta_s \ln(H_j^s) - \sum_{r=1}^{R} |\gamma_r| \ln(\qquad (3)$$

where TOUij denotes international tourism demand from home country i to host country j; O refers to a vector of P push factors related to i; H is a vector of S pull factors associated with j; and D refers to a vector of R variables related to tourist costs.

Rossello Nadal and Santana-Gallego (2022) review 143 relevant papers that employ a gravity model to explain tourism demand. The majority of the authors consider tourists flows or the number of trips as an estimation of demand, with relatively few exceptions employing monetary estimations, including tourism receipts. The analysis shows that income, population and travel costs are the most frequent explanators.

Table 1. List of the origin countries included in the dataset.

Austria	Norway
Belgium	Poland
Bulgaria	Romania
Czech Republic	Serbia
Denmark	Spain
France	Sweden
Germany	Switzerland
Italy	Turkey
Netherlands	United Kingdom
North Macedonia	United States

Other common factors include prices, exchange rate and trade variables; geographical variables, such as common borders and state of transport infrastructure; environmental and climate variables; culture-related variables, such as common language, religion, and colonial ties; variables related to politics and institutional quality; security threats variables, such as terrorist incidents and other similar events; and other economic variables that might affect tourism. The augmented gravity model proposed in this section includes international tourist arrivals to Albania, Greece, and Montenegro from 2012 to 2021. We take into account twenty of the most important origin countries (see table 1), or more than 80 percent of total foreign visitors to the considered host countries.

Table 2 shows the corresponding definitions and expected signs of the proposed explanators. International tourist arrivals are sourced from UNWTO (United Nations World Tourism Organization) as well as from the respective national statistical offices and ministries. Total populations, GDPs per capita, and the indicator of political stability and absence of violence and terrorism are collected from the World Bank. The index of political stability and absence of violence and terrorism is expressed in standard normal distribution units, varying from -2,5 to 2,5. The bilateral distance between countries is sourced from CEPII (Centre d'Études Prospectives et d'Informations Internationales) GeoDist dataset (Mayer and Zignago, 2011). The distance is estimated according to the great circle formula, which uses longitudes and latitudes of major cities or capitals. Total infrastructure investment is collected from the respective national statistical offices, ministries and central banks. The variable of 'climate similarity' follows the Köppen classification system, which divides the world into five climate zones, based on threshold levels, rainfall seasonality and monthly air temperature (Beck, Zimmermann, McVicar, Vergopolan, Berg and Wood, 2018).

Table 2. Definition and expected sign of the proposed variables.

Variable	Definition	Expected sign
tou_ijt	*Logarithm of tourist flows from home (i) to host (j) at year t.*	Response variable
pop_it	*Logarithm of population in home (i) at year t.*	+
pop_jt	*Logarithm of population in host (j) at year t.*	+
$dist\_ij$	*Logarithm of bilateral distance.*	-
$gdpc\_it$	*Logarithm of GDP per capita in home (i) at year t.*	+
$gdpc\_jt$	*Logarithm of GDP per capita in host (j) at year t.*	+
$infra\_jt$	*Logarithm of infrastructure investment in host (j) at year t.*	+
$STABLE\_jt$	*"World development indicator of political stability and absence of violence and terrorism" in host (j) at year t.*	+
$BORDER\_ij$	*"Same border" dummy variable.*	+
$CLIMA\_ij$	*"Similar climate" dummy variable.*	uncertain
D_20	*A dummy variable that equals one in 2020.*	-
D_21	*A dummy variable that equals one in 2021.*	-
$EURO\_ij$	*"Same currency" dummy (i.e., euro).*	+

Table 3 reports the random effects panel regression results. The random effects estimation technique is based on the assumption that the variation across countries is random and uncorrelated with the proposed explanators. One the main advantages of random effects is that we can include time invariant variables in the equation (i.e., distance, BORDER, CLIMA, EURO). The results show that all the parameters are statistically significant at 5 percent or 10 percent levels,

except for EURO, whose p-value is nearly 73 percent. The existence of the same currency does not stimulate the number of international visitors in the selected destinations. The other estimated parameters have the expected sizes and signs, indicating that the regression equation is correctly specified. The adjusted R-square value indicates that the estimated model explains approximately 54 percent of the variation in international tourist arrivals.

Total populations and per capita GDPs of origin and destination countries have a positive effect on international tourist arrivals. Bilateral distance, which can also be considered as a proxy for the cost of travelling, is consistently significant and negative. Outbound tourism is mainly directed towards closer countries than farther ones. This result is also confirmed by the "same border" parameter, which is statistically significant and positive. Total infrastructure investments, and the indicator of political stability and absence of violence and terrorism are both significant and positively related to inbound tourism. The improvement of infrastructure quality is crucial to tourism growth and competitiveness. In addition, international visitors prefer to travel to stable destinations, where the probability of violent conflicts is relatively low. The 'climate similarity' parameter is positive and significant, suggesting that there is a greater probability that an international visitor to Greece, Albania, and Montenegro originates from a country with a similar climate. As expected, the dummy variables related to the years 2020 and 2021 are both negative and statistically significant. The tourism industry is highly sensitive to global emergencies like COVID-19 pandemic.

Table 3. Random Effects estimation results.

Dependent variable: tou_ijt				
Balanced Panel: n=60, T=10, N=600				
Independent variable	**Estimate**	**Std. Error**	**t-value**	**Pr(>|t|)**
Constant	3,838	0,0751	51,1052	2.79e-218***
pop_it	0,799	0,036	22,1944	1.05e-79***
pop_jt	0,502	0,127	3,9528	8.67e-05***
dist_ij	-1,383	0,063	-21,9524	1.96e-78***
gdpc_it	0,416	0,044	9,4545	7.67e-20***
gdpc_jt	0,195	0,095	2,0526	0.04055*
infra_jt	0,352	0,182	1,9341	0.05358.
STABLE_jt	0,168	0,091	1,8462	0.06537.
BORDER_ij	1,647	0,526	3,1312	0.00183**
CLIMA_ij	0,143	0,077	1,8571	0.06379.
D_20	-1,069	0,093	-11,4946	1.00e-27***
D_21	-0,293	0,084	-3,4881	0.00052***
EURO_ij	0,095	0,271	0,3506	0.72605
R-Squared	0.5516			
Adj. R-Squared	0.5424			

Estimate': estimated coefficient
'Std. Error': standard error of the estimated coefficient
't-value': t-test of the estimated coefficient
'Pr(>|t|)'= test p-value
*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

5   CONCLUDING REMARKS

The tourism industry is one of the most powerful drivers of economic growth in the Mediterranean region. Tourism is a major contributor to employment, foreign exchange earnings, international trade, local investments, and tax revenues. On the other hand, international tourist arrivals are particularly vulnerable to natural disasters, terrorist attacks, large-scale economic crisis, disease threats and other extreme events. The COVID-19 pandemic and travel restrictions had a devastating impact on inbound tourism to Mediterranean countries.

The main aim of this study was to empirically investigate some of the most important factors of tourism flows to three Mediterranean destinations: Greece, Albania and Montenegro. A gravity-based model was used to identify the main variables affecting the number of international tourist arrivals from twenty origin countries during the period from 2012 to 2021. The empirical findings asserted the statistical significance of "standard" gravity variables such as bilateral distance between countries and geographical contiguity. Findings also revealed that residents in countries with a high population and GDP per capita were more likely than others to engage in international travel. In addition, we found evidence of a positive effect of population and GDP per capita in destination countries on tourism. Other pull factors for international tourists included total infrastructure investments, climate similarity, political stability and absence of violence and terrorism. As expected, international tourism to the study countries was adversely affected by the COVID-19 pandemic.

The present research holds significance considering the small number of studies that apply a gravity approach to investigate international tourism demand for Mediterranean countries. Based on the estimation results, the authorities should continue to improve infrastructure, services and institutional capacity in tourism strategic areas. While these investments can contribute to economic growth, it remains essential to control public spending and debt. Furthermore, large public investment spending may also be related to higher levels of corruption. This is particularly true for the developing countries of the Mediterranean region, characterized by weak institutions and political instability. It is fundamental to note that this paper has different limitations which might be addressed in future studies. The database can be expanded by taking into account a longer time frame. In addition, we can include in the regression a higher number of Mediterranean countries as well as consider different independent variables and estimation techniques.

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