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## Impact of the rule of law, corruption and terrorism on tourism: Empirical evidence from Mediterranean countries

**JEL Classification:** C23; D73; F50; Z30

**Keywords:** *terrorism; public governance; tourism development; mediterranean countries; panel data analysis*

### Abstract

**Research background:** Tourism sector is considered as a driving force of economic development and understanding factors that deter the flow of tourists and hinder its development, which is essential for all actors involved in this industry.

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**Purpose of the article:** The purpose of the article is to investigate the impact of rule of law, corruption, and terrorism on tourism in 14 coastal states of the Mediterranean Sea based on the United Nations classification.

**Methods:** The short and long-run relationships among the rule of law, corruption, terrorism and tourism are respectively analyzed through Dumitrescu and Hurlin causality test and LM bootstrap cointegration test taking notice of the presence of heterogeneity and cross-sectional dependence.

**Findings & value added:** The causality analysis reveals that control of corruption has a significant influence on tourism only in the short run. The cointegration analysis uncovers that terrorism negatively affects the tourism in Albania, Algeria, Egypt, and Tunisia, but improvements in corruption also positively affect the tourism in Albania, Bosnia and Herzegovina, Greece and Italy. Last, the rule of law has a positive impact on tourism in Egypt, Greece, and Israel. In this context, the rule of law can also be a key factor for tourism development via combat with corruption and terrorism. Based on some unique characteristics, the Mediterranean region has consolidated its position as the world's leading tourist destination, but to maintain this competitive position, it is crucial to recognize and adopt strategies that respond to all key challenges faced by this sector.

## Introduction

Tourism is one of the largest service industries in many countries and has become a driving force of economic development and growth of many national economies, having the potential to increase employment opportunities, reduce regional inequalities and poverty, increase foreign exchange earnings, to strengthen the relationships among various economic sectors and activities. A combination of four factors (economic, socio-cultural, political, and technological) led to a faster development of the tourism market (Seabra *et al.*, 2020). However, in the last decades, like other economic sectors, the tourism sector has faced many challenges that can have effects on long-term growth: globalization, fast-changing markets, transition to a knowledge economy, shortage of qualified workers, climate change, aging infrastructure, terrorism, political instability, and corruption. This study centres on the influence of terrorism, corruption, and the rule of law on tourism considering the related empirical literature.

Terrorism has become a global reality and terrorist attacks are rising all over the world in parallel with globalization. Until recently, acts of terrorism attacks in zones like the Middle East or North Africa (MENA) have been experienced, but now the situation has changed and many developed countries have been confronted in the last years with high levels of terrorist attacks leading to a high number of fatalities: France (Paris attack (2015) – 92 fatalities; Nice attack (2016) – 87 fatalities), Spain (Madrid attack (2004)

– at least 190 fatalities, Barcelona attack (2017) – 16 fatalities) (IEP, 2016, 2017, 2018).

Terrorism negatively affects population, infrastructure and economic activities. Major economic costs associated with terrorist attacks occur in both phases: impact and adaptation, and differ among various economic sectors. Tourism is one of the sectors most affected by terrorist attacks, and monetary and non-monetary impacts are associated with this phenomenon (Brück *et al.*, 2007).

According to Marvell *et al.* (2005), the environments that are appealing to tourists are safe and clean. Therefore, travel decisions are highly influenced by risk perceptions related to a destination (Fuchs & Reichel, 2011). Hereby, tourist destinations exposed to terrorist attacks probably faced a negative impact on tourist demand for several months (Vanneste *et al.*, 2017; Bac *et al.*, 2015; Neumayer & Plümper, 2016). Furthermore, an analysis by Ahlfeldt *et al.* (2015) about the influence of the 9/11 and the other similar terrorist attacks on German tourists' destination preferences in sample of 192 countries for the 1993–2005 uncovered that the terror incidents negatively influenced the Islamic countries in the world via ethnic and religious proximities.

Since tourism is a great contributor to economic growth, decreases in tourism demand will have a negative impact on countries' economies. Key performance indicators in the tourism industry like the number of arrivals, overnight stays and hotel occupancy rates will be all negatively impacted by terrorist acts (Vanneste *et al.*, 2017). Moreover, there is evidence that foreign investments associated to the tourism industry are negatively affected (Alam & Mingque, 2018; Lutz & Lutz, 2020; Krajčák, 2021; Kim & Mun, 2022) by terrorist acts.

Like terrorism, the occurrence of corruption can severely affect the tourism industry. Corruption is a constant “at all levels of all societies” (Lewis, 2017) and is considered a complex phenomenon that causes serious problems in both developed and developing countries (Bhagwan, 2007). The causes and consequences of this old phenomenon (Mahler-Hutter, 2011) are multiple. Its negative effects on the economy (slowing economic growth, accelerating immigration, impeding investment, and degrading international trade activity) have been well researched and documented by many researchers (Kaufman & Wei, 1999; Mathur & Singh, 2013; Beekman *et al.*, 2014; Dimant & Tosato, 2018). Nevertheless, there is surprisingly little research focused on the linkage between corruption and tourism industry.

The majority of the researchers have found a negative relationship between corruption and tourism-related variables (Das & Dirienzo, 2010; Saha & Yap, 2015; Poprawe, 2015; Alola *et al.*, 2021; Osinubi *et al.*, 2022; Xu *et al.*, 2023). On the other hand, Maria *et al.* (2022) uncovered a nonlinear interplay between corruption and tourism.

Rule of law indicates the quality of property rights, contract enforcement, the courts, the police, and the likelihood of violence and crime and individuals' trust and compliance with the rules of society (Kaufmann *et al.*, 2010). Therefore, higher levels of the rule of law can influence the tourism through several aspects such as institutional quality, enforcement of contracts, property rights protection, and reliability of the courts and police (Gozgor *et al.*, 2019). Furthermore, the rule of law can foster the tourism via decreasing the corruption and terrorism.

The purpose of this research is to understand better how different types of insecurities such as the rule of law, corruption or terrorism can influence the tourism industry in the 14 coastal states of the Mediterranean Sea. Developing policies and procedures capable of boosting the tourism industry require complex analyses of factors that can have a great potential to significantly impact this sector. We focused our research on the Mediterranean region for more reasons: firstly, this region includes countries with rich history, cultural heritage, astounding natural beauty being considered the world's leading tourism destination (Fosse *et al.*, 2021); secondly, the tourism sector is vital for many Mediterranean economies from this region, contributing substantially to GDP, and this region accounts for half of international arrivals and one third of the world-wide tourism receipts (Šimundić & Kuliš, 2016); thirdly, the Mediterranean area is still known as "a reservoir of terrorism and political violence" (Lesser, 2016).

By analysing the dynamic of terrorist attacks from the 2003-2017 period in the Mediterranean region, we can notice an intensification of these events, especially in the last few years in two countries: Turkey and Egypt. Growing terrorist attacks impose us to analyse the relationship between tourism and terrorism to find efficient solutions that may counteract the negative effects (IEP, 2020). In this context, the connections between corruption, terrorism and the rule of law on the tourism industry is analyzed by focusing on the next questions:

Q1: *Is there any link between the rule of law and tourism? If so, what is the causal direction between them?*

*Q2: Is there any link between corruption and tourism? If so, what is the causal direction between these 2 variables?*

*Q2: Is there any link between terrorism and tourism? If so, what is the causal direction between variables?*

To accomplish these goals, we employed the Westerlund and Edgerton (2007) LM bootstrap cointegration test and Dumitrescu and Hurlin (2012) panel causality test to investigate the interaction among the rule of law, corruption, terrorism, and tourism in the 14 coastal states of the Mediterranean Sea (Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, France, Greece, Israel, Italy, Lebanon, Morocco, Spain, Tunisia, and Turkey) based on the United Nations (UN)' classification (UN, 2023) for the 2003–2017 term. The data of tourism receipts, the rule of law and corruption is obtained from databases of World Bank (2020a; 2020b) and terrorism data is procured from Institute for Economics and Peace (IEP) (2020).

The purpose of this research article is to contribute to the associated empirical literature in three aspects. First, in the empirical literature, the articles have sufficiently investigated the nexus between terrorism and tourism in the Mediterranean countries, including Egypt, Greece, Israel, Italy, Portugal, Spain, Tunisia, Turkey, and the UK (United Kingdom); but this research article is one of the first studies analyzing the reciprocal relationship between tourism and terrorism at panel and country levels. Secondly, the relationship among corruption, the rule of law, and tourism has been explored by scarce researchers. Thereby, the second contribution of this article is to analyze the relationship among corruption, the rule of law, and tourism in the coastal states of the Mediterranean Sea. The last contribution of the article is to choose the cointegration and causality tests yielding robust results in the presence of heterogeneity and cross-sectional dependence.

The manuscript is structured as follows: the section of “Literature review” summarizes the empirical evidence of the relationship between the tourism sector and terrorism, corruption and the rule of law; the section of “Data and research methods” presents the dataset used to test the proposed method. Then, the sections of “Results” and “Discussion”, respectively, provide a summary of the major findings and discussion of the findings in the context of the associated theoretical and empirical considera-

tions. Last, the section of “Conclusions” presents concluding remarks, indicates the policy implications and provides suggestions for future research.

## **Literature review**

In the article, the impact of terrorism, corruption, and the rule of law on tourism is studied. In this regard, the immediate consequences of terrorism acts include civilian casualties and physical damages, but the medium and long-term consequences are multiple: psychological, economic, political, and social, and political (Waxman, 2011).

Starting from the terrorism definition provided by the National Consortium for the Study of Terrorism and Responses to Terrorism (2020) that defines this concept as “the threatened or actual use of illegal force and violence by non-state actors to attain a political, economic, religious or social goal through fear, coercion or intimidation”, we understand that we deal with a phenomenon that has a direct negative impact on the entire society (Shah *et al.*, 2018).

Cró *et al.* (2020) consider safety and security one of the most important factors in choosing a destination, therefore, the occurrence of terrorist attacks will reduce the influx of tourists. This can have negative implications not only on the tourism sector, but also on other sectors directly or indirectly linked to it.

September 11, 2001 can be considered as a turning point for the tourism industry (Deutsche Welle, 2016), and Goodrich (2002) indicated that after the 9/11 attacks, the airline passenger loads and U.S. hotel occupancy witnessed a sharp decline by more than 50 %.

By reviewing the relevant literature, a considerable amount of literature that focused on the connection between terrorism and tourism has been revealed as presented in Table 1 and almost all studies have uncovered a negative influence of terrorism on tourism. However, a limited number of studies focused in particular on the countries situated in the Mediterranean region. Referring to this specific region, we have noticed that most of the previous researchers analyzed data exclusively from one country Seabra *et al.* (2020) (Portugal); Feridun (2011) (Turkey), Karamelikli *et al.* (2020) (Turkey), Kaya *et al.* (2022); Lanouar and Goaid (2019) (Tunisia); Greenbaum and Hultquist (2006) (Italy); Enders and Sandler (1991) (Spain); Mohamed and Elseyoufi (2018) (Egypt), Polyzos *et al.* (2023) (Egypt); Pizam and

Fleischer (2002) (Israel), Cohen (2014) (Israel); Samitas *et al.* (2018) (Greece) and only few studies are based on a cross-country analysis Aly and Strazicich (2000) (Egypt and Israel), Drakos and Kutun (2003) (Greece, Israel, and Turkey), Radić *et al.* (2018) (Italy, Spain, UK, Germany and Turkey), Adeloye and Carr (2019) (Tunisia and Egypt).

Tourists prefer peaceful and stable locations when they are traveling (Neumayer, 2004), because their primary goal is to relax and rest. They can choose from a broader range of destinations and, in general, will avoid the countries where risky incidents had been reported. Countries targeted by terrorist attacks will probably be affected by fluctuations in tourism demand and, as we expect, most of the studies indicated that casualties or fatalities, which resulted from terrorist incidents, have considerably reduced tourist arrivals (Drakos & Kutun, 2003; Llorca-Vivero, 2008; Feridun, 2011; Buigut *et al.*, 2017; Seabra *et al.*, 2020).

The world has become integrated and interdependent, and research showed that tourism crises in one region of the globe may have severe effects in other locations (Lanouar & Goaid, 2019). Due to the so-called spatial spillover effect, tourist destinations can be negatively affected by unfavorable events that occur in the nearby areas, and safer destinations will be selected that can meet their expectations related to security issues (Beirman, 2003; Drakos & Kutun, 2003; Radić *et al.*, 2018; Seabra *et al.*, 2020; Santamaría, 2021).

Furthermore, the study of Fourie *et al.* (2020) found the existence of a relationship between conditions in the origin country and tourism flow patterns in certain destinations. Safety and security levels in tourist-origin countries are important in choosing one or another country to visit; tourists are in general willing to visit countries with similar levels of safety and security as in the countries of origin. Also, they indicated that more in-depth information about the destination country decreases the negative impact of security threats on tourist arrivals.

Another aspect identified by previous studies is that developing countries are more severely affected by terrorism than the developed ones (Llorca-Vivero, 2008; Sandler & Enders, 2008). This is understandable, since, in general, the developed countries adopted effective counter-terrorism strategies unlike the developing countries characterized by weak counter-terrorism capabilities, insufficient resources to fight properly against terrorism, and poor quality of the government. Different perspectives have been provided by Aly and Strazicich (2000), who found that the effect of terrorist

attacks exerted rather a transitory effect than a permanent effect on tourism. Moreover, Cohen (2014), based on his analyses conducted on Israel's tourism market, noted that some of Israel's wars positively influenced tourism, and other conflicts have only short time impacts.

Besides terrorism, corruption is another factor that is considered by many specialists to have a negative impact on the tourism sector. Corruption can hinder the development of the tourism industry in many ways: firstly, tourists can prefer to travel in countries where no additional costs may encounter so they can know exactly the cost of their travel (Poprawe, 2015); secondly, corruption is considered a threat to a secure and safe environment (D'Monte, 2000), and lack of safety affects travel intentions (Kovačić *et al.*, 2019); thirdly, corruption issues can discourage private capital investment by rising business costs or by creating investment barriers (Tosun & Timothy, 2001; Ekine, 2018); fourthly, social-cultural image of a country can be negatively affected by different acts of corruption hindering tourism development (Das & Dirienzo, 2010).

Support for the idea that corruption has a negative impact on tourism can be identified in Poprawe's (2015) research which investigated the connection between corruption and tourist inflows using data from more than 100 countries during the 1995–2010. The same results were reported by Santana-Gallego *et al.* (2016), that analyzed the effect of terrorism, corruption, and crime on tourism demand for 171 countries (1995–2013) and indicated that all the three factors have a negative impact on inbound tourism when countries of destination are confronted with them but found no impact on tourist departures. They also indicated that the stability of tourist-originating countries influences tourists' decisions, therefore, tourists from stable countries will choose to travel to countries with similar regimes; meanwhile, tourists from countries affected by crime, terrorism, and corruption will be more tolerant to regimes from countries they chose to visit.

Similarly, Ferreira and Castro (2020) focused their study on the connection between terrorism, corruption, and tourism arrivals in Turkey for the 1995–2015 period and found that both exert a negative impact on tourists' arrivals. Osinubi *et al.* (2022) also uncovered a negative short and long-term influence of corruption on tourism in Nigeria for the duration of 2002–2018. Last, Xu *et al.* (2023) discovered a negative impact of corruption on international and domestic tourists for 30 African countries.

On the other hand, a study conducted by Santa-Gallego *et al.* (2016) concluded that tourism is less affected by corruption in the countries with



World Heritage sites and indicated that higher levels of perceived corruption are not identified as inhibitors of travel intentions in less developed countries. Yap and Saha (2013) reached the same results that demand for tourism at World Heritage destinations is not influenced by an increase in the corruption index. Furthermore, Maria *et al.* (2022) uncovered a nonlinear interplay between corruption and tourism in 83 countries over the 1996–2020 term.

The rule of law is crucial for fighting corruption. The idea that a weak rule of law is associated with high levels of corruption is not new (Leff, 1964), nowadays being considered a key dimension of governance in the control of corruption. A high level of the rule of law will be associated not only with low levels of corruption but also with high levels of control. This will positively influence the tourism sector by providing predictable and efficient rules and patterns to follow, contributing to this sector's stability.

The United Nations (UN) considers "The rule of law is fundamental to international peace and security and political stability; to achieve economic and social progress and development; and to protect people's rights and fundamental freedoms" (UN, 2020) having a direct influence on each country's tourism sector development. A legal and regulatory framework established at the international level followed by adequate rules at the national level will facilitate tourism investment and tourism travel development.

The existing literature doesn't provide any evidence related to the existence of any relationship between the rule of law and the tourism sector. In the particular case of Romania, Coros and Lupu (2015) found that legal framework that regulates the travel and tourism sector impedes the development of this sector rather than fostering it. However, Gozgor *et al.* (2019) uncovered a positive effect of legal system quality and property rights protection on tourism in 152 countries for 1995–2015. Therefore, additional research is needed to better understand how the rule of law influences the tourism sector and how it can improve it.

## **Data and research method**

In the econometric analyses, the tourism receipts (nominal US dollar) stand for the explained variable of tourism and are obtained from World Bank (2020a). The rule of law and corruption variables are respectively proxied by the rule of law and control of corruption indices from worldwide gov-

ernance indicators of World Bank (2020b). These indices' values change between +2.5 and -2.5, and increases in both the indices refer to higher rule of law and less corruption (see Kaufmann *et al.*, 2010, for measurement of the indices). Last, terrorism variable from explanatory variables is proxied with global terrorism index (GTI) which is figured out by Institute for Economics and Peace (IEP) (2020). The GTI index varies between 0 and 10 (0: no impact of terrorism; 10: the highest impact of terrorism) (see Table 2). The characteristics of a touristic destination such as safety, security, corruption, and the rule of law are crucial in choosing a touristic destination (Fennell, 2017; Gozgor *et al.*, 2019; Cró *et al.*, 2020; Seger-Guttmann & Gilboa, 2023). Therefore, the impact of the rule of law, corruption, and terrorism on tourism is investigated in the research.

The influence of terrorism, corruption, and the rule of law on international tourism is analyzed in the 14 coastal states of the Mediterranean Sea based on the United Nations (UN)' classification (UN, 2023). In this context, 23 countries (Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, State of Palestine, the Syrian Arab Republic, Tunisia, Turkey, and the United Kingdom) have a coast with the Mediterranean Sea. However, 14 of the 23 countries, except for Cyprus, Libya, Malta, Monaco, Montenegro, Slovenia, the State of Palestine, Syria, and the United Kingdom, constitute the sample of the study, because the aforementioned countries have missing data during the study period. Furthermore, the econometric analysis covers the 2003–2017 term owing to terrorism data availability.

This research has some limitations that need to be mentioned: first, our study involved a selection of Mediterranean countries, therefore, future analyses should be conducted using a larger sample of countries distributed on more continents. Also, analyzing the differences between terrorist acts' effects on the tourism sector in the countries with different levels of development can help us to understand tourist behaviors in choosing destination. Second, based on terrorism data availability, we focused on a particular period of time, 2003–2017. During the COVID-19 pandemic period, the tourism sector was one of the sectors most affected due to lockdown measures, travel restrictions, rising poverty and unemployment, therefore, we consider that an analysis of the relationship between corruption, terrorism, and tourism for this period is not very relevant.

Eviews 10.0, Gauss 11.0, and Stata 14.0 programs are used to conduct the econometric analyses. The main characteristics of the series employed in the econometric analyses are displayed in Table 3. The average of TOURISM is 18.139 billion USD, and the mean values of GTI, CORRUPTION, and ROL indices are respectively 3.331, 0.012, and 0.134. However, considerable variations in TOURISM and moderate variation in TERRORISM are noticed during the study period, but the variations in levels of corruption and the rule of law are relatively much less.

In our econometric analysis, firstly the tests of cross-sectional dependency and homogeneity are run, then LM bootstrap cointegration and causality tests are performed to analyze the interaction between terrorism, corruption, the rule of law, and tourism. Both Westerlund and Edgerton (2007) test and Dumitrescu and Hurlin (2012) causality test produce in presence of heterogeneity and cross-sectional dependence, and the cointegration test is also efficient for small sample sizes. However, these both tests do not take notice of the possible structural breaks during the study period.

LM bootstrap cointegration test by Westerlund and Edgerton (2007) pays regard to the existence of cross-sectional dependence among the cross-sections in the analyses, and also generates relatively more robust consequences in case of small sample sizes. Last, it also lets heteroscedasticity and autocorrelation in the cointegrating equation. The LM (Lagrange multiplier) statistics of the LM bootstrap cointegration test rests upon the Lagrange multiplier test of McCoskey and Kao (1998) and is calculated as the following:

$$LM_N^+ = \frac{1}{NT_2} \sum_{i=1}^N \sum_{t=1}^T W_i^{-2} S_{i,t}^2 \quad (1)$$

N (i) symbolizes the cross-sections and T(t) represents the time dimension of the panel.  $S_{i,t}^2$  and  $W_i^{-2}$  respectively demonstrate partial sums of error terms and long-run variances of the error terms in the above equation.

Dumitrescu and Hurlin (2012) causality test rests upon vector autoregression and disregards the cross-sectional dependence, but regards heterogeneity. However, the causality test is able to yield robust results even under the presence of cross-sectional dependence. Dumitrescu and Hurlin (2012) suggest that Zhnc ( $Z_{N,T}^{HNC}$ ) test statistics with asymptotic distribution should be regarded if T is higher than N, but Ztild ( $Z_N^{HNC}$ ) test

statistics with semi-asymptotic distribution should be regarded if N is higher than T. The causality test statistics is figured as the following:

$$W_{N,T}^{HNC} = \frac{1}{N} \sum_{i=1}^N W_{i,T} \quad (W_{i,T} \text{ are individual Wald statistics}) \quad (2)$$

$$Z_{N,T}^{HNC} = \sqrt{\frac{N}{2K}} (W_{N,T}^{HNC} - K) \quad T, N \rightarrow \infty, N(0,1) \quad (3)$$

$$Z_N^{HNC} = \frac{\sqrt{N} [W_{N,T}^{HNC} - N^{-1} \sum_{i=1}^N E(W_{i,T})]}{\sqrt{N^{-1} \sum_{i=1}^N \text{Var}(W_{i,T})}} \quad N \rightarrow \infty, N(0,1) \quad (4)$$

N (i) symbolizes the cross-sections and T(t) represents the time dimension of the panel and HNC indicates the Homogeneous Non-Causality.

## Results

The pre-tests of cross-sectional dependence and heterogeneity exhibit importance for the application of the relatively more robust econometric tests for the unit root and cointegration test. Therefore, the existence of any cross-sectional dependence is examined through Breusch and Pagan (1980) LM test, Pesaran (2004) LM CD test, and Pesaran *et al.* (2008)  $LM_{adj}$  test and the findings are displayed in Table 4. Following these tests, we can notice that among the series there is a cross-section dependence, as null hypothesis of cross-section independence is abnegated at 1%. Further, we run second-generation unit root and cointegration tests in order to search for the presence of both unit root and cointegration relations for more robust results.

The homogeneity presence is checked by delta tilde tests of Pesaran and Yamagata (2008), and the consequences are displayed in Table 5. The null hypothesis supporting the homogeneity was declined at 1% significance level, and the cointegration coefficients were specified to be heterogeneous.

The stationary analysis of the series was conducted through a cross-sectional augmented Im-Pesaran-Shin (2003) (CIPS) unit root test proposed by Pesaran (2007), taking into account the existence of cross-sectional dependences, and the findings are displayed in Table 6. The results disclose that all variables are integrated of order one.

The cointegrating relationship among tourism, terrorism, corruption, and the rule of law through LM bootstrap cointegration test by Westerlund and Edgerton (2007) was disclosed, and the findings are listed in Table 7. In this context, the null hypothesis of significant cointegration among tourism, terrorism, corruption, and rule of law is accepted, taking into account bootstrap p values because of the cross-section dependence among the four series. However, the null hypothesis is declined, when the asymptotic p-value from normal distribution is taken into account. So, the consequences point out the significance of the use of a cointegration test regarding the cross-sectional dependence.

The long-run coefficients are based on AMG (augmented mean group) estimator regarding both cross-sectional dependence and heterogeneity (see Eberhardt (2012) for the information about the estimator), and the findings are reported in Table 8. The estimation results reveal that terrorism negatively affects tourism in Albania, Algeria, Egypt, and Tunisia. On the other hand, improvements in corruption positively affect the tourism in Albania, Algeria, Bosnia and Herzegovina, Greece, and Italy. Lastly, the rule of law has a positive impact on tourism in Egypt, Greece, and Israel.

The causal interplay among tourism, terrorism, corruption, and the rule of law is analyzed with Dumitrescu and Hurlin (2012) causality test, and the test results are listed in Table 9. The test results uncover a one-way causality from corruption to tourism, because null hypothesis of non-causality is abnegated at 10% significance level. In other words, corruption has a significant short run influence on tourism.

## **Discussion**

The short run analysis among tourism, corruption, terrorism, and the rule of law via causality test uncovers a significant impact of control of corruption on tourism. Corruption is theoretically expected to negatively influence tourism sector through raising the uncertainty and risks by means of increasing the costs, harming the social-cultural image, secure and safe characteristics of a touristic destination, and preventing the private touristic investments (D'Monte, 2000; Das & Dirienzo, 2010; Poprawe, 2015; Ekine, 2018; Kovačić *et al.*, 2019). Furthermore, these theoretical considerations have been supported by results of Poprawe (2015), Santana-Gallego *et al.* (2016), Ferreira and Castro (2020), Osinubi *et al.* (2022), Xu *et al.* (2023) to

a great extent. Therefore, our results are in accordance with the associated theoretical predictions and empirical results. However, significant causal relationship among the rule of law, terrorism, and tourism has not been covered for 14 coastal states of the Mediterranean Sea.

On the other hand, the above long-run estimated coefficients indicate a significant effect of terrorism, corruption, and the rule of law on tourism in harmony with the associated theoretical considerations. In this regard, terrorism is anticipated to negatively impact tourism industry via supply and demand sides of tourism sector by leading deaths, casualties or fatalities, decreasing tourism investments, damaging touristic infrastructures and values, environment, peaceful and stable characteristics of touristic destination, and raising security concerns (Neumayer, 2004; Seabra *et al.*, 2020). The results of nearly all studies introduced in Table 1 support these theoretical expectations. Thereby, the negative influence of terrorism on tourism in Albania, Algeria, Egypt, and Tunisia is consistent with the associated literature.

Furthermore, the positive effect of improvements on corruption in Albania, Algeria, Bosnia and Herzegovina, Greece, and Italy is in accord with the associated literature (Poprawe, 2015; Santana-Gallego *et al.*, 2016; Ferreira & Castro, 2020; Osinubi *et al.*, 2022; Xu *et al.*, 2023). Referring to previous studies, it seems that countries' level of development and the existence of World Heritage sites in destination countries have a significant influence on how corruption affects the tourism sector. Thus, Ekine (2018) pointed out that in nondemocratic countries the impact of corruption on tourist arrivals is limited or statistically insignificant, but in democratic countries, a negative and statistically significant effect of corruption on tourism was noticed.

After conducting research in the tourism sector, Papathanassis (2016) supports the notion that relatively small and short-term organizational changes at a local level can enable larger-term significant positive anti-corruption effects at the macro-level. The author suggests „that targeted local support of tourist-victims and maintenance of reliable, trustworthy official points of contact (e.g. tourist police, tourist-legal support helpline) could significantly contain and reduce the negative actual and reputational effects of corruption on the tourism-sector, without necessitating wide-scope and time-consuming systemic changes”

Last, the rule of law can positively impact tourism development through institutional quality, enforcement of contracts, protection of prop-

erty rights, and reliability of the courts and police (Gozgor *et al.*, 2019), and decreasing the corruption and terrorism. However, only two studies have investigated the interaction between the rule of law and tourism, and have reached different results. Gozgor *et al.* (2019) uncovered a positive effect of legal system quality while Coros and Lupu, (2015) revealed a negative influence of legal framework on tourism. Thereby, our results are in accord with results Gozgor *et al.* (2019). Furthermore, the rule of law can be a crucial instrument in combat with terrorism and corruption to contribute to tourism sector development.

In the field of tourism, perhaps more than in any other sector, it is very important for law enforcement authorities to not only cooperate with private (hotels, restaurants, transporter associations, etc.) and public institutions (customs, foreign affairs departments, borders, etc.), but also to adapt their activities, taking into account the culture, language and expectations of the most arriving tourists. Countries that depend heavily on tourism should establish "tourist police" corps or branches. Legal regulation is one of the causes underlying the development of the tourism industry. Therefore, legislation and regulations, in order to support tourism and safety for the tourists, are essential.

## **Conclusions**

Tourism has become one of the significant driving sectors behind economic growth and development for many states. Countries try to develop the tourism sector by giving it extensive economic benefits such as income, employment and foreign exchange generation, and its contribution to tax revenues, and infrastructure development. However, the tourism sector is confronted with unprecedented threats like terrorists, pandemics, or climate change risks and economic crises that cause significant slowdowns for this industry. The September 11 attacks, SARS, Swine Flu, and COVID pandemics are only a few examples of major disruptive events which hit the tourism industry. In this context, security measures, national and international new procedures for traveling and new visa requirements must represent a permanent concern for authorities at the national and international levels.

In this context, identification of the drivers underlying tourism development is important for optimal policy-making. This paper investigates the

impact of terrorism, corruption, and the rule of law on tourism development in 14 coastal states of the Mediterranean Sea in deference to the associated empirical literature.

The results of the causality test indicate a one-way causality from corruption to tourism which means that level of corruption can be a useful predictor of tourist arrivals in the short run. On the other hand, the results of cointegration test uncover a positive impact of control of corruption (decreases in corruption level) on tourism in Albania, Algeria, Bosnia and Herzegovina, Greece, and Italy. This is an expected result since an increasing level of corruption negatively affects the image of a country, causing uncertainty related to safety and security issues, supplementary travel expenses, etc. Therefore, decreases in corruption are expected to positively influence the development of tourism sector. Furthermore, the results of cointegration analysis uncover the fact that terrorism negatively affects tourism in Albania, Algeria, Egypt and Tunisia, and the rule of law has a positive impact on tourism in Egypt, Greece, and Israel.

The main recommendations promoting tourism and ensuring their safety would be the implementation of innovative technologies (face, iris, fingerprints) in hotels, airports, bus stations and in the most popular places of tourists, which would reduce the threat of terrorism, and the introduction of legal standards for the compatibility of technologies in different countries. In addition, the qualifications of police officers and persons working in tourism should be raised in recognizing and timely diagnosing manifestations of terrorism. The extent of corruption phenomena could be reduced starting from the financial and non-financial motivational system of the staff working in the tourism sector and serving it, in order to reduce the manifestations of corruption at the micro level. Good practices would easily transfer to both the mezzo and macro levels.

Further research directions are: the need for the use of innovative technologies in the tourism sector and the assessment of their impact on the negative phenomena (corruption, terrorism).



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## Annex

**Table 1.** Literature about the nexus between terrorism and tourism

Study	Sample; period	Method	Impact of terrorism on tourism
Enders and Sandler (1991)	Spain; 1970–1988	Causality analysis	Terrorism is a Granger cause of tourism
Aly and Strazicich (2000)	Egypt (1995–1997); Israel (1971–1997)	Unit root test with structural breaks	Transitory negative effects
Pizam and Fleischer (2002)	Israel; 1991-2001	Time series analysis	Negative
Drakos and Kutan (2003)	Greece, Israel, and Turkey; 1991-2000	Regression	Negative
Feridun (2006)	Turkey; 1986-2007	Autoregressive distributed lag	Negative
Greenbaum and Hultquist (2006)	Italy; 1985-197	Regression	Negative
Araña and León (2008)	Canary Islands and the Mediterranean region	Regression	Negative
Bhattacharya and Basu (2010)	India; 2003-2009	Time series analysis	Negative
Cohen (2014)	Israel; 1948-2012	Descriptive and correlation analyses	Negative
Ranga and Pradhan (2014)	India; 2006-2012	Descriptive analysis	Negative
Ahlfeldt et al. (2015)	192 countries; 1993-2005	Difference-in-difference approach	Negative
Radić et al. (2018)	Italy, Spain, UK, Germany and Turkey; 2002-2015	Ganger causality test	Terrorism is Granger cause of tourism in Italy and Spain; but tourism is Granger cause of terrorism in Turkey, United Kingdom and Germany
Mohamed and Elseyoufi (2018)	Egypt; 1985-2017	Descriptive analysis	Negative
Samitas et al. (2018)	Greece; 1977-2012	Johansen and Juselius cointegration test	Negative
Adeloye and Carr (2019)	Tunisia and Egypt	Descriptive analysis	Negative
Lanouar and Goaid (2019)	Tunisia; 2000-2016	Markov switching autoregressive model	Negative
Karamelikli et al. (2020)	Turkey; 2007- 2016	Non-linear autoregressive lag	Negative for foreign tourists; positive for domestic tourists
Seabra et al. (2020)	Portugal; 2002-2016	Unrestricted vector Autoregressive model	Negative
Krajňák (2021)	45 peer-reviewed studies	Meta analysis	Negative



**Table 1.** Continued

Study	Sample; period	Method	Impact of terrorism on tourism
Santamaria (2021)	167 countries; 1995-2014	Panel regression	Negative
Kaya <i>et al.</i> (2022)	Turkey; 2012-2018	Autoregressive distributed lag	Negative
Fauzel and Seetannah (2023)	African countries; 1995-2017	Panel vector error correction model	Negative
Polyzos <i>et al.</i> (2023)	Egypt; 1995- 2018	Vector autoregressive model	A causality from terrorism to tourism
Raifu <i>et al.</i> (2023)	Nigeria; 1995-2019	Dynamic ordinary least squares	Negative

**Table 2.** Dataset summary

Variables	Explanation	Data Source
LTOURISM	International tourism, receipts (current US\$)	World Bank (2020a)
ROL	Rule of law index	World Bank (2020b)
CORRUPTION	Control of corruption index	World Bank (2020b)
GTI	Global terrorism index	IEP (2020)

**Table 3.** Dataset's main characteristics

Characteristic	TOURISM*	GTI	CORRUPTION	ROL
Mean	18.139	3.331	0.012	0.134
Median	8.110	3.545	-0.125	0.030
Maximum	81.250	7.500	1.530	1.520
Minimum	0.112	0.000	-1.110	-0.860
Std. Dev.	21.64	2.061	0.666	0.673

Note: \* Billion USD

**Table 4.** Cross-sectional dependence tests

Test	Test statistic	p – value
LM	159.2	0.00002
$LM_{adj.}$ *	7.761	0.00001
LM CD*	8.229	0.00004

Note: \*two-sided test

**Table 5.** Homogeneity tests

Test	Test statistic	p - value
$\bar{\Delta}$	5.759	0.00001
$\bar{\Delta}_{adj.}$	6.855	0.0000

**Table 6.** Panel CIPS unit root test

Variables	Constant	Constant + Trend
LTOURISM	-1.850	-2.943
d(LTOURISM)	-4.296***	-4.271***
GTI	-1.993	-2.879
d (GTI)	-3.921***	-3.973***
CORRUPTION	-2.148	-2.150
d(CORRUPTION)	-3.341***	-3.518***
ROL	-1.764	-2.165
d(ROL)	-3.770***	-3.912

Note: d(): first differenced values of the variables.

\*\*\*, \*\*, \* indicates that it is respectively significant at 1%, 5%, and 10% significance level.

**Table 7.** Westerlund and Edgerton (2007) LM bootstrap cointegration test

Constant			Constant and Trend		
Statistic	Asymptotic p - value	Bootstrap p - value	Statistic	Asymptotic p - value	Bootstrap p - value
6.344	0.0003	0.998	14.027	0.0001	0.996

**Table 8.** Cointegrating coefficients estimation

Country	GTI	CORRUPTION	ROL
Albania	-0.099*	0.765**	0.402
Algeria	-0.230**	2.205**	-1.863
Bosnia and Herzegovina	-0.046	1.225***	0.159
Croatia	-0.029	0.244	-0.068
Egypt	-0.074*	0.309	0.959***
France	0.007	-0.083	-0.691
Greece	0.004	0.528**	0.395***
Israel	-0.116	0.306	1.055***
Italy	0.079	0.203***	0.098
Lebanon	0.046	-0.099	-0.030
Morocco	-0.016	-0.023	-0.351
Spain	-0.004	-0.177	0.133
Tunisia	-0.130***	-0.549	0.092
Turkey	-0.038	-0.556	0.114
Panel	-0.013	0.132	-0.027

Note: \*\*\*, \*\*, \* indicates that it is respectively significant at 1%, 5%, and 10% significance level.

**Table 9.** Dumitrescu and Hurlin (2012) panel causality test

<b>Null Hypothesis:</b>	<b>W-Stat.</b>	<b>Zbar-Stat.</b>	<b>Prob.</b>
DGTI $\rightarrow$ DLTOURISM	1.33439	0.20315	0.8390
DLTOURISM $\rightarrow$ DGTI	1.99064	1.39170	0.1640
<b>DCORRUPTION <math>\rightarrow</math> DLTOURISM</b>	<b>0.29123</b>	<b>-1.68613</b>	<b>0.0918</b>
DLTOURISM $\rightarrow$ DCORRUPTION	1.00169	-0.39942	0.6896
DROL $\rightarrow$ DLTOURISM	1.00693	-0.38992	0.6966
DLTOURISM $\rightarrow$ DROL	1.05421	-0.30429	0.7609