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Terrorism and Tourism: An Empirical Exemplification of Consequences of Terrorist Attacks on Tourism Revenues in Turkey

Abstract

The booming tourism sector in Turkey has resulted in major economic gains in terms of direct revenues to both government and private sectors alike. Turkey had more than 45 million visits in 2018, and top inbound arrivals were from Russia and European Union (EU) members, such as Germany, the United Kingdom, and Bulgaria, among others (Organization for Economic Co-operation and Development [OECD], 2020). However, terrorism is becoming a challenge to tourism development. This study explores terrorism–tourism dynamics in Turkey. The short- and long-run impacts of terror attacks on tourism revenues were examined within the framework of an autoregressive lag (ARDL) model using monthly data for the period between 2012 and 2018. The empirical findings did not support terrorism's effects on tourism revenues. However, in the long run, terror-related casualties and fatalities on tourism revenues had different effects. The findings affirm that the casualty rate has a stronger impact on terrorism–tourism dynamics in Turkey because a 1% increase in reported injuries from terror attacks hampers revenues by approximately 0.1%. Hence, adequate and continuous support for general security establishments is imperative while strengthening commitments to the international cooperation on the war against terrorism to proactively contain the undesirable impacts of terrorism in the Turkish tourism industry.

Keywords: terrorism, tourism revenues, casualty & fatality, Turkey

1. Introduction

The tourism industry is an important part of the global economy. The real growth in international tourism revenues between 2009 and 2019 was estimated at approximately 54%, a rate that even surpassed the 44% real growth in the global GDP during the same period (United Nations World Tourism Organization [UNWTO], 2020). Tourism revenues in developing country economies, such as Turkey, are important (Saha & Yap, 2014). Tourism revenues are a significant source of foreign currency for countries with current account deficits, such as Turkey. The government also relies on forex earnings to maintain the stability of the domestic currency (Po & Huang, 2008). During the past few decades, tourism in Turkey has been a booming sector and has witnessed tremendous growth through the more liberal economic policies implemented since the 1980s (Karamelikli et al., 2020).

According to the Organization for Economic Co-operation and Development (OECD), Turkey is ranked sixth globally in terms of attracting tourists, and more than 45 million people visited the country in 2018 (OECD, 2020). The importance of Turkey's tourism industry cannot be overemphasised. More than 2 million people

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are gainfully employed in the sector, which accounts for approximately 3.8% of Turkey's economy in terms of contributions to the GDP (OECD, 2020). However, the economic gains from the tourism industry in many nations have become increasingly susceptible to various factors, including terrorism, political violence, coups, and diverse degrees of crime and criminalities (Abadie & Gardeazabal, 2003; Ahad et al., 2021; Saha & Yap, 2014). Starting in the 1970s, Turkey has been an epicentre of terrorist activities on both a regional and a global scale and within the context of the nation's geography (Sönmez, 1998). The resultant effects of those terror attacks are observable in various facets of society. As of 2002, Turkey ranked 150th on the Global Peace Index report and was the only European country in the top 25 least peaceful countries (Institute for Economics & Peace [IEP], 2020).

Levy and Sidel (2009) noted that terrorism is defined as politically motivated violence or the threat of violence, especially against civilians, to instil fear. International terrorism incidents occur when citizens of more than one country are involved or affected. Terrorism activities are increasing globally–more than ever before–and terrorist attacks are responsible for approximately 0.05% of deaths on a global scale (Ritchie et al., 2013). Arguably, the tourism sector is one of the most affected industries by terrorist activities. Such activities can leave indelible impacts on national economies, whether directly on tourism revenues or indirectly on other economic variables, such as exchange rates, trade, current accounts, and foreign direct investments (FDI), among others, especially in a rapidly emerging economy such as Turkey (Sönmez & Graefe, 1998; Eckstein & Tsiddon, 2004; Sandler & Enders, 2008; Onifade et al., 2021a).

Studies on terrorism–tourism linkage have gradually increased within the literature on tourism due to the growing threats from terrorism. The effects of terrorism on tourism are often analysed from various perspectives, including consumer choices, tourist destination decisions, and economic consequences, among others. Related research has gained more momentum, especially during the aftermath of the infamous September 11 attacks (Schmude et al., 2020). Although different studies found different results, both the magnitude and the frequency of terrorist attacks were observed to be negatively related, on average, to tourism demand (Enders & Sandler, 1991; Drakos & Kutan, 2003). Moreover, terrorism effects might not be observable in the interim but could linger and resurface after some time (Samitas et al., 2018). Terrorism's effects could be more severe when considering non-business tourists who are mostly free to choose wherever they want to travel. In this regard, Sönmez and Graefe (1998) noted that terrorism, among other factors, is quite a natural determining factor that can easily influence customers' decisions regarding destinations.

In a nutshell, the undesirable impacts of terrorism surface in diverse forms. One challenge is tourists' risk perception regarding the choice of destination. Turkey, which is strategically located in the Eurasia region, has a geographical advantage in attracting tourists primarily from developed countries in the EU and Russia. However, terrorism is undoubtedly a major cog in the wheel of the tourism industry's growth. Risk perceptions of local and foreign tourists have been observed to differ, and foreign tourists from developed countries react much more strongly to terrorist incidents (Fleischer & Buccola, 2002; Buigut, 2018). Moreover, given the destabilisation of the Middle East by the Arab Spring in 2011, terrorist attacks that directly target tourists have begun to occur in various European cities, and their impacts are worrisome because they inhibit the growth of the tourism industry (Schmude et al., 2020).

Given the foregoing issues, this study aims at exploring the terrorism–tourism dynamics in Turkey from the perspective of the economic consequences of terror attacks on tourism revenues to shed more light on the terrorism-led tourism hypothesis for Turkey. In this context, the resultant effects of terrorist attacks and the experiences of the tourism sector in Turkey were analysed vis-à-vis the number of tourism revenues between January 2012 and December 2018. The criticality of the period of the study buttresses the contributions to the body of knowledge regarding the terrorism–tourism nexus in the tourism literature. Furthermore, unlike many previous studies that generally covered the early 1980s and 2000s, this research covers the periods after the 2010 Syrian Civil War. Within the period, the Turkish authority simultaneously fought both international

and domestic terrorism. The fight against terrorism in Turkey was directed towards various terror organisations, including groups such as the notorious Islamic State popularly known as ISIS, which is an international terror group, and other domestically designated terror organisations, such as the PKK and FETO.

The study is structured into five (5) sections. The introduction comes first in Section (1). Section (2) provides detailed information on past terrorism experiences in Turkey and a review of the extant studies. In Section (3), the method of analysis is explained, and the results are presented and discussed in Section (4). The conclusion and the policy initiatives are presented in Section (5).

2. Literature Review

2. 1. Terrorism in Turkey

Terrorism adversely affects tourism and economic variables, such as per capita GDP, investment per capita, foreign direct investment, and bilateral trade flows (Eckstein & Tsiddon, 2004). Terrorist attacks in Turkey are mostly concentrated in areas dominated by Kurdish separatists, which weakened the country economically (Estrada et al., 2018) and prevented development (Yildirim & Öcal, 2013). However, as more liberal economic policies have been implemented in the country since the 1980s (Karamelikli et al., 2020), tourism has become one of the fastest-growing sectors and has received more attention in the literature (Brown, 1995).

Starting from the 1970s, Turkey has been an epicentre of terrorist activities on both a regional and a global scale and within the context of the nation's geography (Sönmez, 1998). Terrorism in modern Turkey started from the effects of the rapid migration to cities, rising unemployment, increasing unrest in Kurdish provinces, and radical Islamist/leftist student movements in the 1970s (Rodoplu et al., 2003). Terrorism was such an issue that on 12 September 1980, Turkish military forces staged a coup on the pretext that the government could not prevent terrorist actions. However, by the mid-1980s, terrorist attacks relapsed, as former groups reorganised and continued their activities in different forms. As Table 1 shows and as outlined by Rodoplu et al. (2003), three main categories of terrorist groups are active in Turkey: Kurdish separatist, Radical Islamist, and Leftist groups. Although the leftist group attacks have ended, Turkey is still struggling with Kurdish separatists.

Table 1
Terrorist groups in Turkey between 1970 and 2019

Name of the group	Scale	Ideology	Incident number	Years
Al-Qaeda	Worldwide	Islamic Fundamentalism	3	2003–2008
ASALA	Domestic	Marxist-Leninist, Armenian Nationalism	17	1976–1983
Dev Sol	Domestic	Marxist-Leninist	236	1979–1996
Devrimici Halk Kurtulus Cephesi (DHKP/C)	Domestic	Marxist-Leninist	42	1994–2019
Great Eastern Islamic Raiders Front (IBDA-C)	Domestic	Islamic Fundamentalism	36	1994–2003
Islamic State of Iraq and the Levant (ISIL)	Worldwide	Islamic Fundamentalism	28	2013–2017
Kurdistan Freedom Hawks (TAK)	Domestic	Kurdish Nationalism	29	2004–2017
Kurdistan Workers' Party (PKK)	Domestic	Kurdish Nationalism	2234	1984–present
Peace at Home Council (FETO)	Domestic	Gulenism	20	2016 (coup attempt)
People's Protection Units (YPG)	Domestic	Kurdish Nationalism	10	2017–present
Turkish Communist Party/Marxist (TKP-ML)	Domestic	Marxist-Leninist	30	1990–2015
Turkish Hezbollah	Domestic	Sunni Islamist	6	1992–2001
Turkish People's Liberation Army	Domestic	Marxist-Leninist	69	1970–1980
Turkish People's Liberation Front (TPLF) (THKP-C)	Domestic	Marxist-Leninist	36	1970–1980

Source: Data retrieved from Global Terrorism Database, 1970–2019).
Note: Some groups on the list are classified as terrorist organisations only by the Republic of Turkey.

Table 2
Major terrorist incidents between 2012 and 2018

Year	Province	Group	Death	Wounded
2012	Daglica	Kurdistan Workers' Party (PKK)	10	6
2012	Cukurca district	Kurdistan Workers' Party (PKK)	19	15
2012	Gaziantep	Kurdistan Workers' Party (PKK)	10	67
2012	Semdinli	Kurdistan Workers' Party (PKK)	21	5
2012	Beytussebap district	Kurdistan Workers' Party (PKK)	10	1
2012	Kardesler	Kurdistan Workers' Party (PKK)	10	60
2013	Cukurca district	Kurdistan Workers' Party (PKK)	13	2
2013	Reyhanli	Unknown	13	24
2013	Reyhanli	Islamic State of Iraq and the Levant (ISIL)	27	70
2013	Reyhanli	Islamic State of Iraq and the Levant (ISIL)	26	70
2015	Suruc	Islamic State of Iraq and the Levant (ISIL)	34	101
2015	Daglica	Kurdistan Workers' Party (PKK)	17	5
2015	Hasankoy	Kurdistan Workers' Party (PKK)	14	
2015	Semdinli district	Kurdistan Workers' Party (PKK)	10	0
2015	Ankara	Islamic State of Iraq and the Levant (ISIL)	105	245
2016	Istanbul	Islamic State of Iraq and the Levant (ISIL)	13	13
2016	Ankara	Kurdistan Freedom Hawks (TAK)	30	60
2016	Idil district	Kurdistan Workers' Party (PKK)	14	6
2016	Ankara	Kurdistan Freedom Hawks (TAK)	39	125
2016	Istanbul	Kurdistan Freedom Hawks (TAK)	13	35
2016	Istanbul	Islamic State of Iraq and the Levant (ISIL)	48	235
2016	Semdinli district	Kurdistan Workers' Party (PKK)	17	0
2016	Ankara	Peace at Home Council	43	0
2016	Cukurca	Kurdistan Workers' Party (PKK)	35	25
2016	Gaziantep	Islamic State of Iraq and the Levant (ISIL)	58	91
2016	Cizre	Kurdistan Workers' Party (PKK)	13	77
2016	Dogubeyazit district	Kurdistan Workers' Party (PKK)	10	4
2016	Durak	Kurdistan Workers' Party (PKK)	19	26
2016	Diyarbakir	Islamic State of Iraq and the Levant (ISIL)	14	100
2016	Cukurca district	Kurdistan Workers' Party (PKK)	20	0
2016	Istanbul	Kurdistan Freedom Hawks (TAK)	24	82
2016	Istanbul	Kurdistan Freedom Hawks (TAK)	24	82
2016	Kayseri	Kurdistan Freedom Hawks (TAK)	16	53
2017	Istanbul	Islamic State of Iraq and the Levant (ISIL)	39	69
2017	Senoba	Kurdistan Workers' Party (PKK)	13	0
2017	Derecik	Kurdistan Workers' Party (PKK)	13	2

Source: Data retrieved from Global Terrorism Database (2012–2018).

Since 2013, Turkey has been attacked by various Islamic groups (e.g., ISIS) and Kurdish separatists (e.g., YPG, TAK) because of the instability caused by the Syrian civil war in the Middle East. Terrorist attacks started to occur in metropolitan cities, especially since 2013. Thus, the number of attacks targeting civilians has increased, as shown in Table 2. In addition, a state of chaos created by the unsuccessful coup attempt in 2016 adversely affected the Turkish economy in every field. In a nutshell, the resultant effects of those terror attacks are observable in various facets of society.

2. 2. Empirical studies

Tourism demand is crucial to total tourism revenues. Extant studies showed that many variables affect tourism demand, such as cost, level of education, leisure time, transportation, and destination attractiveness, among

other issues (Neumayer, 2004). However, in addition to the aforementioned factors, terrorism also played an important role in tourist decision making over time because, as shown in the literature, security concerns are often explained with the illusion of 'home is safer than abroad' such that tourists are more perceptive of risks wherever they are away from their homes (Wolff & Larsen, 2014, 2016). Fourie et al. (2020) also revealed that tourists do not prefer countries that are less stable than the country of their citizenship, at the least they want to travel to countries with the same conditions. Similarly, several studies found that past travel experiences appear to shape risk perception and affect future destination selection (Asongu et al., 2019; Karl et al., 2020; Isaac & Bedem, 2021).

Studies that examined the relationship between tourism and terrorism date back to the 1980s (Sönmez, 1998). Terrorism peaked after the 1980s and, since then, has been one of the most important issues in tourism research. Describing the relationship between terrorism and tourism as logical rather than coincidental would be more convenient (Richter & Waugh, 1986). For certain reasons, the tourism industry is a direct target of terrorist attacks. Arguably, the desire for global recognition is among the most important aims of terror activities, as observed by Tarlow and Muehsam (1996). In addition, even if terrorist activities do not directly target tourists, they could indirectly affect the industry. For example, in the aftermath of the September 11 attacks in the United States, the Caribbean region–not the target of terrorist attacks–was indirectly adversely affected (Lutz & Lutz, 2020). Similarly, Andraz and Rodrigues (2010) found that the tourism industry in Portugal, which has had almost no terrorist attacks, was indirectly affected by increasing terrorist activities globally. Moreover, Neumayer and Plümper (2016) observed that terror activities have a spillover effect and further pointed out that the outcomes of terrorist attacks involving western victims in an Islamic country often create a general attitude and perceptions not only against the Islamic country in which the incident took place but also against global Islamic communities.

Several studies agreed that terrorism harms tourism (Pizam & Fleischer, 2002; Abadie & Gardeazabal, 2003; Hanon & Wang, 2020; Krajňák, 2021; Seabra et al., 2020). However, many researchers went beyond this point and studied the magnitude of this effect (Enders & Sandler, 1991; Drakos & Kutan, 2003; Neumayer, 2004; Saha & Yap, 2014; Voltes-Dorta et al., 2016). In studies that tested the causality relationship between terrorism and tourism demand, some extant works concluded one-way causality (Feridun, 2011; Samitas et al., 2018). Studies that examined temporal effects, that is, whether terrorist attacks immediately affect tourism demand and how long this effect lasts, reached different opinions–some concluded that the attacks have permanent effects (Feridun, 2011); in contrast, others found that the attacks have no long-term effect (Liu & Pratt, 2017). Neumayer (2004) found that the effects of terrorism emerged stronger in the year after the events. Similarly, up to a ten-month delay in effects might exist, according to Yaya (2009). Also considered a different unit of analysis in research was the form of terrorist events that affect the demand for tourism. Negative effects generally increase as the intensity of terrorism increases, i.e., death rates; however, Drakos and Kutan (2003) showed that the urban and rural locations of the terrorist incidents also play crucial roles in this interplay.

That a consensus exists in the literature that tourism is an indispensable industry for sustainable economic development can be said (Saarinen et al., 2011; Davidson & Sahli, 2015). The current account deficit of the Turkish economy practically needs tourism revenue. However, terrorist activities that peaked globally in recent years resulted in serious fluctuations in the tourism income of countries being experienced. In a study that analysed the dynamics of the terrorist attacks in Turkey, the most dominant effect of terrorism was the unwanted impacts on tourism demand (Ulucak et al., 2020). Moreover, terrorist attacks are not only for the real sector but also negatively affect stock markets (Hadi et al., 2020). Tourism and terror have been the subject of scrutiny in the context of Turkey since the 1990s (Brown, 1995). Kılıçlar et al. (2018) revealed the importance of elements, such as education, cooperation, and human resources, in their work that aimed to learn the perspectives of security forces and civilian authorities on preventing terrorism and that used semi-structured questionnaires and open-ended questions. A study of the perceptions of German citizens

who travel to Turkey revealed that tourists are very sensitive about security issues in the country (Isaac & Velden, 2018). Nikšić Radić et al. (2018) compared Turkey, the United Kingdom, Spain, Italy, and Germany to demonstrate a causal relationship between tourism and terrorism. In addition, the terrorism-led tourism hypothesis was obtained in the vector autoregression (VAR) model using the Granger causality test. Bassil (2014) also compared Turkey, Lebanon, and Israel in a study using the SUR model while examining the relationship between the size and impact of terrorist attacks. The study found that more attacks resulted in greater effects on the tourism industry. Afonso-Rodríguez (2017), who examined the period after the Syrian civil war, used a co-integrating regression model to reveal the negative impact of terrorism on tourism even in a short period, such as three to six months after a terrorist attack. The findings from Yaya (2009) indicated that Turkey lost approximately six million visitors due to terrorist activities from 2000 and 2009.

This study expanded the terrorism–tourism nexus from the perspective of the economic consequences of terror attacks on tourism revenues to shed more light on the terrorism-led tourism hypothesis for Turkey.

3. Methodology

3.1. Data and unit-root test

Monthly data were obtained on the understudied variables from the Turkish Statistical Institute to assess the consequences of terrorist attacks on tourism revenues in Turkey (TUİK, 2020). Data were also drawn from the Global Terrorism Database (GTD, 2020). The data used cover the period between 2012:01 and 2018:12. Within this sample period, the Turkish authority was confronted with a series of terror-related events on both an international and domestic basis. The data selection process consists of two stages. The first stage is the selection of variables related to the subject to be investigated. For Turkey as a whole, the desired result is the effect of terrorism on general tourism revenues. No regional or seasonal distinction was made because of the intense tourist interest not only in the coastal parts of the Marmara and the Aegean in the west of Turkey and the Mediterranean regions in the south, and the demand in the northern regions of the Black Sea and the Central Anatolia regions of central Turkey. This flow of tourism income spread across both summer and winter periods. Although the number of tourists and income decreases during the winter period, these data are not to be overlooked. In the second stage, the officially confirmed terrorist incidents that affect tourists were differentiated by considering terrorism cases that could affect tourists and result in injuries or deaths. Although the data obtained from the GTD include various distinctions on the targeted mass, not considered were the types of weapons, ammunition, and explosive materials used in the terrorist attacks because only the cases resulting in injuries and deaths were the direct focus. To achieve the study's goals, an equation that represents the empirical relationships among the variables is presented in Equation (1).

$$INC = \gamma_0 + \gamma_1 CTY + \gamma_2 FTY + \mu_t \tag{1}$$

where the dependent variable for this study, *INC*, represents tourism income, which was drawn from the Turkish Statistical Institute (TUİK). Two proxies were utilised for terror activities: the variable *CTY* and the variable *FTY*, which represent the number of casualties (injury) and fatalities (death) related to terrorist attacks in Turkey, respectively. These data for these variables were drawn from the GTD. The dependent variable is in natural logarithm to facilitate reading the results in percentages, thus making model (1) a log-level model specification. Time series data are often marred with their non-stationarity properties, often calling for empirical studies to examine the unit root properties of the dataset (Shrestha & Bhatta, 2018; Çoban et al., 2020; Bekun et al., 2021; Gyamfi et al., 2021). Overlooking the properties of the data could as well be tantamount to a call for dubious or spurious estimates because the results might not reveal the true relationships among the series. Hence, the unit root for variables is examined by applying the Augmented Dickey-Fuller (1981) test and Phillip and Perron's (1988) unit root approaches.

3.2. Co-integration relationship and bound test approach

Granger (1981) and Engle and Granger (1987) suggested a co-integration method to overcome spurious regression while also obtaining an underlying formation for the long-term relationship among variables. Given the assumption of a model with two variables (Y & X), as shown in Equation (2), if both variables are stationary of the same order [$X_t \sim I(1)$, $Y_t \sim I(1)$], a co-integration study can be conducted between the variables. The assumption is that the error term obtained by including level values of the series in the regression model is stationary such that [$\mu_t \sim I(0)$].

$$\Delta Y = \alpha \Delta X_t + \beta(Y_{t-1} - \alpha X_{t-1}) + \varepsilon_t \tag{2}$$

In Equation (2), the β parameter is expected to be statistically significant, whereas the error term is stationary. Otherwise, proceeding to check for a co-integration relationship among series is a futile exercise. The standard VAR approach draws its strength from the same level of stationarity among the series to establish a co-integration relationship among variables in time series analysis. However, this method loses its validity when the order of integrations is different in the series. In this regard, the autoregressive distributed lag (ARDL) method, as proposed by Pesaran and Shin (1999) and advanced by Pesaran et al. (2001), is often applied in the empirical literature (Seetanah, 2006; Ali et al., 2020; Onifade et al., 2020a,b; Taiwo et al., 2020). The test follows the standardised F-statistics to ascertain the presence of long-term relationships in a given series.

The ARDL bounds test method has some advantages over other traditional co-integration tests, and the choice of the ARDL approach was guided by the strength of the methodology in producing unbiased and robust estimates given the unique feature of the study's data structure. This study is compelled to explore the level relationship for tourism variables whose datasets are characterised by a mixed order of integration. The ARDL method does not have the limitation that the variables must be co-integrated at the same level compared with the other methods of co-integration methods, such as the Johansen approach, meaning that $I(0)$ and $I(1)$ can be combined (Johansen, 1988; Seetanah, 2006; Onifade et al., 2020b). The long-term relationship can be determined following Equation (3).

$$\Delta INC_t = \alpha_0 + \sum_{i=4}^{p} \alpha_1 \Delta INC_{t-i} + \sum_{i=3}^{p} \alpha_2 \Delta CTY_{t-i} + \sum_{i=0}^{p} \alpha_3 \Delta FTY_{t-i} + \beta_1 INC_{t-1} + \beta_2 CTY_{t-1} + \beta_3 FTY_{t-1} + \varepsilon_t \tag{3}$$

In Equation (3), the intercept parameter is α_0 and short-run variables coefficients are α_1, α_2, and α_3. The other variables were previously defined, and the parameter ε_t denotes the error term. The critical values of the F-statistics are used to test the null hypothesis that the long-run coefficients (β_1, β_2, β_3) are insignificant on a joint basis. The conclusion can be concluded that a long-term relationship exists between the variables if the estimated statistics exceed the lower and upper values of the critical values for the bound approach. In addition, the error adjustment process is constructed as in Equation (4).

$$\Delta INC_t = \gamma_0 + \sum_{i=4}^{p} \gamma_1 \Delta INC_{t-i} + \sum_{i=3}^{p} \gamma_2 \Delta CTY_{t-i} + \sum_{i=0}^{p} \gamma_3 \Delta FTY_{t-i} + \varphi EC_{t-1} + \mu_t \tag{4}$$

The coefficient of the error adjustment process φ for the EC variable in Equation (4) should be negative and significant in the estimation to support a valid adjustment speed to the equilibrium. The corresponding outputs of all estimations were detailed in the results and discussion section.

4. Empirical results discussion

Table 3 reports the unit-root test for both ADF and PP approaches. The final decision was made on the basis of the conventional probability level of 5%. Combining both the ADF and the PP helps ensure that none of the series is of the second-degree order of integration.

Table 3
Unit root test

| VARIABLES | Test at the levels | | | | DECISION |
| | ADF | | PP | | |
	Intercept	Trend & intercept	Intercept	Trend & intercept	
INC	-1.0643	-1.2151	-3.7851***	-3.8488**	
CTY	-2.0643	-1.9883	-5.9415***	-5.9815***	I (0)
FTY	-2.1659	-2.1378	-3.6579***	-3.6249**	
Test at the first difference					
ΔINC	-6.6948***	-6.6570***	-6.0449***	-6.0655***	I (1)
ΔCTY	-10.392 ***	-10.3552***	-21.4886***	-21.4478***	I (1)
ΔFTY	-4.4234 ***	-5.0271 ***	-15.7539***	-16.6475***	

***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

Evidence exists of a mixed order of integration, as observed from the results in Table 3. Sufficient evidence exists to decide that the CTY variable (casualty from terrorist attacks) is integrated considering the more complex model that accommodates both the trend and the intercept beyond the conventional 5% significance level. Although the ADF result does not agree with this statement, the PP offers a non-parametric advantage that could be an edge. Both the ADF and PP support the stationarity of tourism revenues (INC) and the fatality from terrorism attacks (FTY) at the first difference level. Hence, the unit-root result further strengthens the argument in support of the ARDL bound test method for co-integration and, subsequently, for estimating the long-run estimations.

Table 4
F-bound test for co-integration

Models	Lags (AIC)	F-stat	Conclusion
(3)	1	20.23	There is co-integration
Critical values (F-stat.)	I (0) at 1% = 5.15		I (1) at 1% = 6.36

The level relationship among variables was established because the obtained F-statistics value significantly exceeds the upper limit value of 6.36, as observed in Table 4. Therefore, the null hypothesis for no co-integration is rejected; thereafter, the attendant long-run coefficients alongside the short-run estimates are obtained and reported in Table 5

Table 5
Short-run and long-run coefficients

| Variables | Long-run outputs | | |
	Coefficients	t-stat.	P-values
CTY	-0.000935**	-2.371825	0.0205
FTY	0.001255	1.296495	0.1991
Short-run outputs with EC			
Variables	Coefficients	t-stat.	P-values
C	3.365742	7.898200	0.0000
D(INC(−1))	0.337537	4.132995	0.0001

Table 5 *(continued)*

D(INC(−2))	0.507358	5.666413	0.0000
D(INC(−3))	0.254582	2.323370	0.0231
D(CTY)	4.51E-05	0.415786	0.6788
D(CTY(−1))	0.000410	3.099399	0.0028
D(CTY(−2))	0.000246	2.356706	0.0212
EC(−1)	-0.52820***	-7.902674	0.0000
R2	0.6421		
Adjusted R2	0.6073		
DW-stat	2.0533		
P-value	0.0000		

The long-run estimates in Table 5 for the occurrence of casualty (CTY) or injuries from terrorist attacks have a significant negative impact on tourism revenues for Turkey. In contrast, the impact of fatality (FTY) or the number of deaths from terrorist attacks was insignificant to Turkey's tourism income. As such, tourism incomes are only significantly affected by the number of casualties or injuries in the long term. The result shows that casualties from terror attacks significantly reduce the contribution of tourism to the Turkish economy, and a percentage increase in recorded injuries from the occurrence of terror attacks significantly reduces income from the tourism industry by approximately 0.093%.

Overall, the results reveal that terrorism has a negative linear relationship with tourism revenues, given that fear of casualty from terror attacks could be limiting the preference of potential tourists in terms of choice of destination, thereby negatively affecting the general inbound tourist arrivals into the country. This observation shows some consistency with previous studies on the subject (Drakos & Kutan, 2003; Enders & Sandler, 1991; Neumayer, 2004; Saha & Yap, 2014; Voltes-Dorta et al., 2016). Additionally, the observations regarding the immediate impacts of terror attacks from the short-run findings are coherent with the findings from other studies that likewise argued for the long-term effects of terrorism on tourism (Neumayer 2004; Yaya, 2009). Given the importance of tourism income to the Turkish economy, the current finding calls for critical action by authorities to implement measures to curb terrorist attacks in the country.

Furthermore, although no visible short-run immediate impacts of the number of terror-related fatalities on tourism revenues exist, the immediate impacts of terror attacks vis-à-vis the resultant casualties or injuries were found to be inconsistent. Lastly, the speed of adjustment parameter (EC) is negative and found to be significant, as expected, thereby confirming the relationship from short term to long term. Precisely, the adjustment from the short-run disequilibrium to a path of long-run equilibrium should take approximately 52.8% on a monthly basis.

Lastly, Table 6 provides a combination of diagnostic tests. The diagnostic tests include a normality test using Jarque-Bera statistics, a serial correlation test using the Breusch-Godfrey LM test, and a heteroscedasticity test. The model was also found to be structurally stable through structural stability checks conducted using the CUSUM tests, as observed in Figures 1 and 2. Overall, the model is free from heteroscedasticity and serial correlation and passed the expectation for the normal distribution of the residuals.

Table 6
Diagnostic checks for EC model

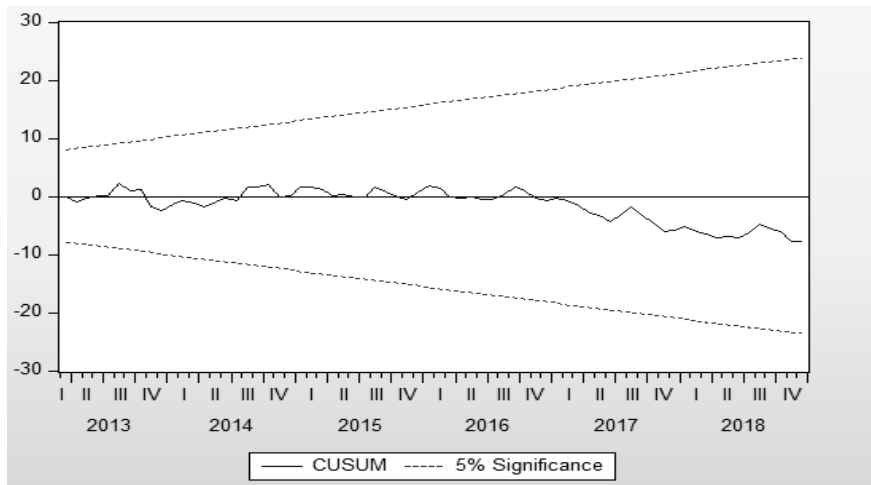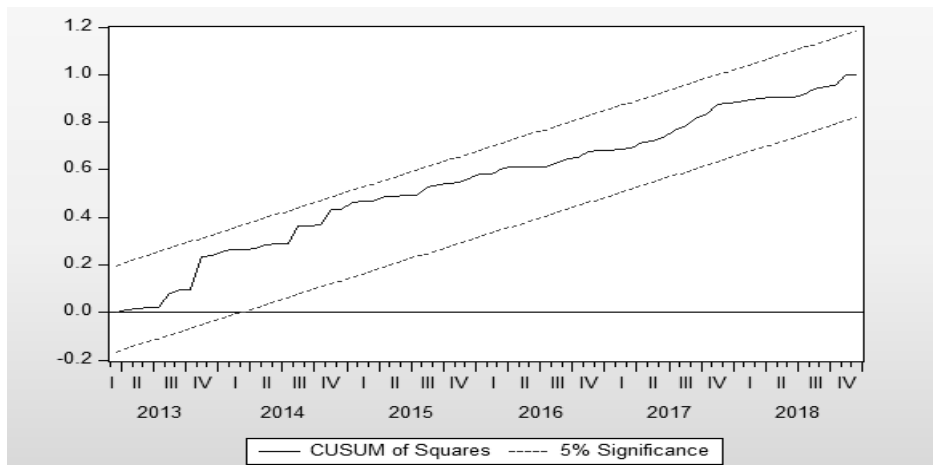| Test statistics	F-stat (P-value)
Serial correlation (LM test)	1.0955(0.3402)
Heteroscedasticity test	1.1385(0.2893)
Normality test	0.6768(0.7128)

Figure 1
CUSUM test

Figure 2
CUSUM of square test

5. Conclusions and recommendations

The present research analysed the nexus between terrorism and tourism in Turkey. The study draws its empirical insights from the autoregressive distributed lag (ARDL) method by analysing the impacts of terror attack occurrences on tourism revenues in Turkey for a monthly dataset for the period between 2012 and 2018. The statistical advantage of the ARDL method helps overcome the limitation of requiring that the variables are integrated at the same level before exploring the long-run nexus among them. This study uses this methodology to examine the impact of terrorist incidents on tourism using the available monthly data obtained from the Turkish Statistical Institute (TUIK) and the GTD from January 2012 to December 2018. The results indicate that no terrorism short-term effect on tourism revenues exists. However, in the long run, the number of terror-related casualties (injuries) is observed to harm tourism revenues. Although the number of fatalities (deaths) from terrorist attacks was not significant to tourism earnings, a 1% increase in terrorist attacks resulted in a serious number of casualties (injuries) and led to a decrease of approximately 0.1% in long-term tourism revenues. The current result portends that terrorism could be a major bane to Turkey's tourism industry benefits. The findings further corroborate the argument of Feridun (2011) that terrorism

reduces the impacts of tourism in Turkey while also buttressing the obtained unidirectional causality between terrorism and tourism in Turkey, as observed in Yaya (2009).

The findings from this study support the recommendation of providing continuous support for the security establishment of the nation to boost tourist confidence towards stimulating inbound arrivals. Because tourism earnings are very crucial to the stability of the Turkish economy, the current finding calls for more proactive measures for curbing terrorist attacks by strengthening security not just in the public arena alone but also at major historical sites and other popular touristic areas. Turkey has become a respected player in the tourism sector since the 1980s. However, the sector has been negatively affected by terrorist incidents, some of which have received global attention in recent years, thus making terrorism one of the major impediments to the growth of Turkey's tourism sector. Of course, terrorism is of concern to the tourism industry–not just in Turkey alone but also globally. However, the dynamics of terror attacks and the reasons behind attacks vary from one place to another. In this regard, for Turkey, one of the points that makes this research important is that it covers the periods after the 2010 Syrian Civil War. This civil war, which took place at the Turkish-Syrian border, was devastating. In the aftermath of the war, a substantial surge in terror attacks has occurred, has lasted for several years, and has yet to be settled.

Given the growing trend of terrorism, which has recently become an international issue, the global community is faced with the reality that more international cooperation is needed to curb its undesirable impacts. Hence, a further recommendation is a continuous cooperation between the Turkish authority and the international community on the war against terrorism. In this regard, fostering more strategic partnerships between Turkey and the international community is needed, and such partnerships could include, among others, proper monitoring of illicit and suspicious financial transactions towards halting cross-border financial support and logistics for terror activities.

Although this research attempted to expand the debate on the relationship between terrorism and tourism, the objectives were reached within the confines of a linear model specification for the sample. The period before 2012 was excluded because of irregularities that marred the available data points. Extending the data to 2020 faced another constraint caused by the inconsistencies in the data points resulting from the coronavirus outbreak, especially for observations in periods after 2019. As such, the scope of the present study is limited to the selected sample space. Hence, future studies might examine terrorism–tourism dynamics within the framework of a non-linear model while further expanding the variable selection. In this regard, that injury rates and not only mortality affect tourism revenues–as revealed by the current study–provides researchers with more insights into the variables to be used in future studies. Finally, given the level of prejudices formed against Islamic countries, as observed in the literature (Neumayer & Plümper, 2016), future research can also be conducted to juxtapose observations from Turkey with findings from other Islamic countries within the framework of the terrorism–tourism nexus vis-à-vis the roles of cultural and religious values at tourist destinations.

References

Abadie, A., & Gardeazabal, J. (2003). The economic costs of conflict: A case study of the Basque County. *American Economic Review, 93*(1), 113-132. https://doi.org/10.1257/000282803321455188

Afonso-Rodríguez, J. A. (2017). Evaluating the dynamics and impact of terrorist attacks on tourism and economic growth for Turkey. *Journal of Policy Research in Tourism, Leisure and Events, 9*(1), 56-81. https://doi.org/10.1080/19407963.2016.1231196

Ahad, M., Anwer, Z., & Ahmad, W. (2021). Does crime-tourism nexus hold for Pakistan? *International Journal of Emerging Markets*. https://doi.org/10.1108/IJOEM-08-2020-0889

Ali, M.U., Gong, Z., Ali, M.U., Wu, X., & Yao, C. (2020). Fossil energy consumption, economic development, inward FDI impact on CO2 emissions in Pakistan: Testing EKC hypothesis through ARDL model. *International Journal of Finance & Economics, 26*(3), 3210-3221. https://doi.org/10.1002/ijfe.1958

Andraz, J.L.M., & Rodrigues, P.M.M. (2010). Events that marked tourism in Portugal. *Applied Economics Letters, 17*(8), 761-766. https://doi.org/10.1080/13504850802314445

Asongu, S.A., Nnanna, J., Biekpe, N., & Acha-Anyi, P.N. (2019). Contemporary drivers of global tourism: Evidence from terrorism and peace factors. *Journal of Travel & Tourism Marketing, 36*(3), 345-357. https://doi.org/10.1080/10548408.2018.1541778

Bassil, C. (2014). The effect of terrorism on tourism demand in the Middle East. *Peace Economics, Peace Science and Public Policy, 20*(4), 669-684. https://doi.org/10.1515/peps-2014-0032

Bekun, F.V., Gyamfi, B.A., Onifade, S.T., & Agboola, M.O. (2021). Beyond the environmental Kuznets curve in E7 economies: Accounting for the combined impacts of institutional quality and renewables. *Journal of Cleaner Production*, *314*, 127924. https://doi.org/10.1016/j.jclepro.2021.127924

Brown, J. (1995). The Turkish imbroglio: Its Kurds. *The Annals of the American Academy of Political and Social Science, 541*(1), 116-129. https://doi.org/10.1177/0002716295541001008

Buigut, S. (2018). Effect of terrorism on demand for tourism in Kenya: A comparative analysis. *Tourism and Hospitality Research, 18*(1), 28-37. https://doi.org/10.1177/1467358415619670

Çoban, O., Onifade, S.T., Yussif, A.R.B., & Haouas, I. (2020). Reconsidering trade and investment-led growth hypothesis: New evidence from Nigerian economy. *Journal of International Studies, 13*(3), 98-110. https://doi.org/10.14254/2071-8330.2020/13-3/7

Davidson, L., & Sahli, M. (2015). Foreign direct investment in tourism, poverty alleviation, and sustainable development: A review of the Gambian hotel sector. *Journal of Sustainable Tourism, 23*(2), 167-187. https://doi.org/10.1080/09669582.2014.957210

Dickey, D.A., & Fuller, W.A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: Journal of the Econometric Society, 49*(4), 1057-1072. https://doi.org/10.2307/1912517

Drakos, K., & Kutan, A.M. (2003). Regional effects of terrorism on tourism in three Mediterranean countries. *Journal of Conflict Resolution, 47*(5), 621-641. https://doi.org/10.1177/0022002703258198

Eckstein, Z., & Tsiddon, D. (2004) Macroeconomic consequences of terror: Theory and the case of Israel. *Journal of Monetary Economics, 51*, 971-1002. https://doi.org/10.1016/j.jmoneco.2004.05.001

Enders, W., & Sandler, T. (1991). Causality between transnational terrorism and tourism: The case of Spain. *Terrorism, 14*(1), 49-58. https://doi.org/10.1080/10576109108435856

Engle, R.F., & Granger, C.W. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica: Journal of the Econometric Society, 55*(2), 251-276. https://doi.org/10.2307/1913236

Estrada, M.A.R., Park, D., & Khan, A. (2018). The impact of terrorism on economic performance: The case of Turkey. *Economic Analysis and Policy, 60*, 78-88. https://doi.org/10.1016/j.eap.2018.09.008

Feridun, M. (2011). Impact of terrorism on tourism in Turkey: Empirical evidence from Turkey. *Applied Economics, 43*(24), 3349-3354. https://doi.org/10.1080/00036841003636268

Fleischer, A., & Buccola, S. (2002). War, terror, and the tourism market in Israel. *Applied Economics, 34*(11), 1335-1343. https://doi.org/10.1080/00036840110099252

Fourie, J., Rosselló-Nadal, J., & Santana-Gallego, M. (2020). Fatal attraction: How security threats hurt tourism. *Journal of Travel Research, 59*(2), 209-219. https://doi.org/10.1177/0047287519826208

Global Terrorism Database. (2020). https://www.start.umd.edu/gtd/access/

Granger, C.W. (1981). Some properties of time series data and their use in econometric model specification. *Journal of Econometrics, 16*(1), 121-130.

Gyamfi, B.A., Onifade, S.T., Nwani, C., & Bekun, F.V (2021). Accounting for the combined impacts of natural resources rent, income level, and energy consumption on environmental quality of G7 economies: A panel quantile regression approach. *Environmental Science and Pollution Research*. https://doi.org/10.1007/s11356-021-15756-8

Hadi, D.M., Katircioglu, S., & Adaoglu, C. (2020). The vulnerability of tourism firms' stocks to the terrorist incidents. *Current Issues in Tourism, 23*(9), 1138-1152. https://doi.org/10.1080/13683500.2019.1592124

Hanon, W., & Wang, E. (2020). Comparing the impact of political instability and terrorism on inbound tourism demand in Syria before and after the political crisis in 2011. *Asia Pacific Journal of Tourism Research, 25*(6), 651-661. https://doi.org/10.1080/10941665.2020.1752750

Institute for Economics & Peace. (2020). *Global peace pndex 2020*. https://www.visionofhumanity.org/resources/

Isaac, R.K., & Van den Bedem, A. (2021). The impacts of terrorism on risk perception and travel behaviour of the Dutch market: Sri Lanka as a case study. *International Journal of Tourism Cities, 7*(1), 63-91. https://doi.org/10.1108/IJTC-06-2020-0118

Isaac, R.K., & Velden, V. (2018). The German source market perceptions: How risky is Turkey to travel to? *International Journal of Tourism Cities, 4*(4), 429-451. https://doi.org/10.1108/IJTC-11-2017-0057

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economic Dynamics and Control, 12*(2-3), 231-254. https://doi.org/10.1016/0165-1889(88)90041-3

Karamelikli, H., Khan, A.A., & Karimi, M.S. (2020). Is terrorism a real threat to tourism development? Analysis of inbound and domestic tourist arrivals in Turkey. *Current Issues in Tourism, 23*(17), 2165-2181. https://doi.org/10.1080/13683500.2019.1681945

Karl, M., Muskat, B., & Ritchie, B.W. (2020). Which travel risks are more salient for destination choice? An examination of the tourist's decision-making process. *Journal of Destination Marketing and Management, 18*, 100487. https://doi.org/10.1016/j.jdmm.2020.100487

Kılıçlar, A., Uşaklı, A., & Tayfun, A. (2018). Terrorism prevention in tourism destinations: Security forces vs. civil authority perspectives. *Journal of Destination Marketing and Management, 8*, 232-246. https://doi.org/10.1016/j.jdmm.2017.04.006

Krajňák, T. (2021). The effects of terrorism on tourism demand: A systematic review. *Tourism Economics, 27*(8), 1736-1758. https://doi.org/10.1177/1354816620938900

Levy, B.S., & Sidel, V.W. (2009). *Terrorism and public health: A balanced approach to strengthening systems and protecting people*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195325256.001.0001

Liu, A., & Pratt, S. (2017). Tourism's vulnerability and resilience to terrorism. *Tourism Management, 60*, 404-417. https://doi.org/10.1016/j.tourman.2017.01.001

Lutz, B.J., & Lutz, J.M. (2020). Terrorism and tourism in the Caribbean: A regional analysis. *Behavioral Sciences of Terrorism and Political Aggression, 12*(1), 55-71. https://doi.org/10.1080/19434472.2018.1518337

Neumayer, E. (2004). The impact of political violence on tourism: Dynamic cross-national estimation. *Journal of Conflict Resolution, 48*(2), 259-281. https://doi.org/10.1177/0022002703262358

Neumayer, E., & Plümper, T. (2016). Spatial spill-overs from terrorism on tourism: Western victims in Islamic destination countries. *Public Choice, 169*(3-4), 195-206. https://doi.org/10.1007/s11127-016-0359-y

Nikšić Radić, M., Dragičević, D., & Barkiđija Sotošek, M. (2018). The tourism-led terrorism hypothesis-evidence from Italy, Spain, UK, Germany and Turkey. *Journal of International Studies, 11*(2), 236-249. https://doi.org/10.14254/2071-8330.2018/11-2/16

Onifade, S.T., Alola, A.A., Erdoğan, S., & Acet, H. (2021b). Environmental aspect of energy transition and urbanization in the OPEC member states. *Environmental Science and Pollution Research, 28*, 17158-17169. https://doi.org/10.1007/s11356-020-12181-1

Onifade, S.T., Ay, A., Asongu, S., & Bekun, F.V. (2020b). Revisiting the trade and unemployment nexus: Empirical evidence from the Nigerian economy. *Journal of Public Affairs, 20*(3), Article e2053. https://doi.org/10.1002/pa.2053

Onifade, S.T., Çevik, S., Erdoğan, S., Asongu, S., & Bekun, F.V. (2020a). An empirical retrospect of the impacts of government expenditures on economic growth: New evidence from the Nigerian economy. *Journal of Economic Structures, 9*(1), 6. https://doi.org/10.1186/s40008-020-0186-7

Onifade, S.T., Erdoğan, S., Alagöz, M., & Bekun, F.V. (2021a). Renewables as a pathway to environmental sustainability targets in the era of trade liberalization: Empirical evidence from Turkey and the Caspian countries. *Environmental Science and Pollution Research, 28*, 41663-41674. https://doi.org/10.1007/s11356-021-13684-1

Organization for Economic Co-operation and Development. (2020). *Tourism trends and policies 2020*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/sites/f3b16239

Pesaran, M., & Shin, Y. (1999). An autoregressive distributed-lag modelling approach to cointegration analysis. In S. Strøm (Ed.), *Econometrics and economic theory in the 20th century: The Ragnar Frisch centennial symposium* (pp. 371-413). Cambridge University Press. https://doi.org/10.1017/CCOL521633230.011

Pesaran, M.H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289-326. https://doi.org/10.1002/jae.616

Phillips, P.C., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335-346. https://doi.org/10.1093/biomet/75.2.335

Pizam, A., & Fleischer, A. (2002). Severity versus frequency of acts of terrorism: Which has a larger impact on tourism demand? *Journal of Travel Research, 40*(3), 337-339. https://doi.org/10.1177/0047287502040003011

Po, W.C., & Huang, B.N. (2008). Tourism development and economic growth-a nonlinear approach. *Physica A: Statistical Mechanics and Its Applications, 387*(22), 5535-5542. https://doi.org/10.1016/j.physa.2008.05.037

Richter, L.K., & Waugh, W.L. (1986). Terrorism and tourism as logical companions. *Tourism Management, 7*(4), 230-238. https://doi.org/10.1016/0261-5177(86)90033-6

Ritcihe, H., Hasell, J., Appel, C., & Roser, M. (2013). *Terrorism*. https://ourworldindata.org/terrorism

Rodoplu, U., Arnold, J., & Ersoy, G. (2003). Terrorism in Turkey. *Prehospital and Disaster Medicine, 18*(2), 152-160. https://doi.org/10.1017/S1049023X00000923

Saarinen, J., Rogerson, C., & Manwa, H. (2011). Tourism and millennium development goals: Tourism for global development? *Current Issues in Tourism, 14*(3), 201-203. https://doi.org/10.1080/13683500.2011.555180

Saha, S., & Yap, G. (2014). The moderation effects of political instability and terrorism on tourism development: A cross-country panel analysis. *Journal of Travel Research, 53*(4), 509-521. https://doi.org/10.1177/0047287513496472

Samitas, A., Asteriou, D., Polyzos, S., & Kenourgios, D. (2018). Terrorist incidents and tourism demand: Evidence from Greece. *Tourism Management Perspectives, 25*, 23-28. https://doi.org/10.1016/j.tmp.2017.10.005

Sandler, T., & Enders, W. (2008). Economic consequences of terrorism in developed and developing countries: An overview. In P. Keefer & N. Loayza (Eds.), *Terrorism, economic development, and political openness* (pp. 17-47). Cambridge University Press. https://doi.org/10.1017/CBO9780511754388.002

Schmude, J., Karl, M., & Weber, F. (2020). Tourism and terrorism: Economic impact of terrorist attacks on the tourism industry. The example of the destination of Paris. *Zeitschrift fur Wirtschaftsgeographie, 64*(2), 88-102. https://doi.org/10.1515/zfw-2019-0015

Seabra, C., Reis, P., & Abrantes, J.L. (2020). The influence of terrorism in tourism arrivals: A longitudinal approach in a Mediterranean country. *Annals of Tourism Research, 80*, Article 102811. https://doi.org/10.1016/j.annals.2019.102811

Seetanah, B. (2006). Do marketing promotion efforts in the tourism industry really matter? The case of Mauritius. *Tourism: An International Interdisciplinary Journal, 54*(3), 199-219. https://hrcak.srce.hr/161470?lang=en

Shrestha, M.B., & Bhatta, G.R. (2018). Selecting appropriate methodological framework for time series data analysis. *The Journal of Finance and Data Science, 4*(2), 71-89. https://doi.org/10.1016/j.jfds.2017.11.001

Sönmez, S.F. (1998). Tourism, terrorism, and political instability. *Annals of Tourism Research, 25*(2), 416-456. https://doi.org/10.1016/S0160-7383(97)00093-5

Sönmez, S.F., & Graefe, A.R. (1998). Influence of terrorism risk on foreign tourism decisions. *Annals of Tourism Research, 25*(1), 112-144. https://doi.org/10.1016/s0160-7383(97)00072-8

Taiwo, S., Alagöz, M., & Erdoğan, S. (2020). Inflation, oil revenue, and monetary policy mix in an oil-dependent economy: Empirical insights from the case of Nigeria. *International Journal of Business, 7*(2), 96-109. https://doi.org/10.18488/journal.62.2020.72.96.109

Tarlow, P., & Muehsam, M. (1996). Theoretical aspects of crimes as they impact the tourism industry. In A. Pizam & Y. Mansfeld (Eds.), *Tourism, crime and international security issues* (pp. 1-22). John Wiley & Sons.

Turkish Statistical Institute. (2020). *Tourism statistics*. https://www.tuik.gov.tr/Home/Index

Ulucak, R., Yücel, A.G., & İlkay, S.Ç. (2020). Dynamics of tourism demand in Turkey: Panel data analysis using gravity model. *Tourism Economics, 26*(8), 1394-1414. https://doi.org/10.1177/1354816620901956

United Nations World Tourism Organization. (2020). *International tourism highlights*. https://www.e-unwto.org/doi/pdf/10.18111/9789284422456

Voltes-Dorta, A., Jiménez, J.L., & Suárez-Alemán, A. (2016). The impact of ETA's dissolution on domestic tourism in Spain. *Defence and Peace Economics, 27*(6), 854-870. https://doi.org/10.1080/10242694.2015.1025485

Wolff, K., & Larsen, S. (2014). Can terrorism make us feel safer? Risk perceptions and worries before and after the July 22nd attacks. *Annals of Tourism Research, 44*, 200-209. https://doi.org/10.1016/j.annals.2013.10.003

Wolff, K., & Larsen, S. (2016). Flux and permanence of risk perceptions: Tourists' perception of the relative and absolute risk for various destinations. *Scandinavian Journal of Psychology, 57*(6), 584-590. https://doi.org/10.1111/sjop.12326

Yaya, M.E. (2009). Terrorism and tourism: The case of Turkey. *Defence and Peace Economics, 20*(6), 477-497. https://doi.org/10.1080/10242690903105414

Yildirim, J. & Öcal, N. (2013) Analysing the determinants of terrorism in Turkey using geographically weighted regression. *Defence and Peace Economics, 24*(3), 195-209. https://doi:10.1080/10242694.2012.695034