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Tourism and Troubles: Effects of Security Threats on the Global Travel and Tourism Industry Performance

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Abstract

The literature on the effects of security threats such as terrorism, political instability, and geopolitical power-plays on travel and tourism has produced mixed results with scant attention paid to the spillover effects on the tourism economy (e.g., employment, leisure expenditure, travel, and tourism services' contribution to gross domestic product). This study provides a conceptual framework for the transmission of direct, indirect, and induced spillover effects of security threats on travel and tourism service industries. It uses rigorous methodological design and non-spatial and spatial panel-data analyses to examine the effects of security threats on tourism demand and economy. The conceptual framework and results of spatial panel data provide novel insights into security threats' spillover effects on spatial inter-connectivity in the tourism service industry. The results show that security threat indices have significant negative impacts on tourist receipts, but they also contribute positively to employment, leisure expenditure, and tourist arrivals. Our conceptual model and substantial findings will inform both policymakers and future research.

Keywords

security threats taxonomy, tourism demand and economy, tourist arrivals, travel and tourism industry performance, spillover effects, spatial panel time-series data, PCSE estimator methods

Introduction

Tourism is one of the largest contributors to gross domestic product (GDP), economic development, and job creation (UNWTO, 2018). Jus and Misrahi (2021) report that prior to the COVID-19 pandemic, the travel & tourism sector's direct, indirect, and induced impacts contributed US$9.2 trillion to the global economy and supported 334 million jobs in 2019, while it directly contributed 10.4% of the world's GDP. Tourism also influences the growth of tourism-led satellite service activities and the global economy (Frechtling, 2010; Sinclair, 1998; Smeral, 2006). Moreover, the development of tourism demand is one of the key drivers of service growth and trade development (Kim et al., 2006; C.-C. Lee & Chang, 2008).

Nonetheless, the global travel and tourism (T&T) service sector has been afflicted with persistent and episodic security threats over the past two decades (Araña & León, 2008; Goldman & Neubauer-Shani, 2017; Pizam, 1999; Saha & Yap, 2014), including the recent COVID-19 pandemic (Farzanegan et al., 2021). For example, the global service economy, especially the T&T service industry, has suffered gigantic financial losses and capacity dormancy due to travel restrictions and facility closures, among others, during the COVID-19 pandemic (Bausch et al., 2021; Wolf, 2020). While this study is not based on COVID-19 due to the paucity of panel data, its framework is extendable to the current pandemic and is amenable to COVID-19 policies and research paradigms.

There is evidence that direct and spillover effects of different security threats (e.g., terrorism, political instability, war, etc.) tend to slow growth in T&T service sectors (Walters et al., 2019). For instance, UNWTO (2022) reports that a prolonged conflict between Russia and Ukraine could translate into a loss of US$14 billion in tourism receipts globally in 2022. Furthermore, Koch

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(2022) argues that the Russian war on Ukraine will have global ripple effects across many industries, especially on travelers, travel agencies, airlines, and cruise operators. However, the wider effects of global and destination-specific security factors, such as defense capability (e.g., military expenditure, nuclear, and heavy weapons, weapons imports, exports, and armed services personnel) and geopolitical power-plays (e.g., deaths from external conflict, displaced people, UN peacekeeping funding), on the T&T service sector (e.g., leisure tourism spending, contribution to employment, contribution to GDP) have been overlooked in prior studies. While the link between country risk factors and economic activities is becoming increasingly evident, C.-C. Lee and Chen (2021) point out that there is a surprising lack of empirical evidence on country risk factors and tourism development.

Furthermore, some questions regarding the lack of conceptual framework to assess the direct, indirect, and long-term spillover effects on tourism, as well as the extent to which security threats impact the tourism industry, remain unanswered. Is there a conceptual framework to show the direct, indirect, and induced spillover effects of security threats on the T&T service industry? To what extent do security threats affect the tourism economy (e.g., T&T's direct contribution to employment, leisure tourism spending, and GDP)? Our systematic review of classical studies in the fields of global security, tourism economy, and tourism demand presents a concise taxonomy of the literature and theoretical gaps in the existing literature (see Appendix A). The review table in Appendix A also juxtaposes our study with germane research focusing on typology of security threats influencing T&T industry performance. Consequently, the review enables us to identify new variables and postulates a holistic integration of new indicators to model the relationships between security threats, tourism demand, and the tourism economy.

We argue that relationships between T&T and security threats exhibit complex geographical and locational spillover externalities that ripple over regions, countries, and continents (Neumayer, 2004; Neumayer & Plümper, 2016). Tobler's (1970) first law of geography sets forth the paradigm of spatial inter-connectivity, which is inherent in global tourism and security incidents. Marrocu and Paci (2013, p. 72) show that spatial inter-connectivity "fully accounts for spatial dependence, generally featured by tourism flows, which exhibits a quite complex pattern since tourists' movements are affected not only by geographical distance and by origin and destination-specific features, but also by the characteristics of neighboring locations at both origin and destination." Similarly, terrorism incidents, which are location specific, adversely affect the tourism-sector performance of neighboring locations and faraway destinations (Groizard et al., 2022).

Arguably, security threats have hampered interconnected service supply chains, such as restaurants, transport, hotel, leisure and sport recreation activities, employment, travel services, manufacture of beverages and foods, logistic service, tax revenues, capital flows for investment in new hotel construction, retailing businesses, the creative industry, etc. However, existing literature overlooks the empirical modeling of spatial interconnectivity related to security threats and the tourism economy. Although international tourism has received some attention at country and international levels, intercountry spatial units have largely been ignored (Krajňák, 2021). Further, Duan et al. (2022) emphasized the importance of multi-country or multi-regional studies to highlight the spillover, ripple, or contagion effects based on geographical locations. Therefore, this study addresses the above oversights.

This study makes four major contributions. First, our study synthesizes and highlights the integration of security related theoretical constructs (i.e., defense capability, geopolitical power-plays, police, and security services) which have received scant attention. Scholars, including Araña and León (2008), Corbet et al. (2019), and A. Liu and Pratt (2017), call for a further examination of the relationship between security and tourism issues. Specially, C.-C. Lee and Chen (2021, p. 1446) stated that "knowledge is limited as to whether all types of country risks exhibit similar impacts on tourism development." Furthermore, Fourie et al. (2020, p. 209) claimed that "little is known about how safety and security differences between countries may affect the choices of tourists to travel."

In response to the abovementioned calls, this study draws on tourism security theory proposed by Pizam and Mansfeld (2006) and provides initial international evidence regarding the effects of different country risk variables on tourism development variables. This study includes 24 security threats-related explanatory variables classified into six typological constructs (i.e., perception of crime, political environment, terrorism, the impact of police and security services, defense capability, and geopolitical power-plays), and five tourism outcome variables into two dependent constructs: tourism demand (i.e., tourism arrivals and tourism receipts) and tourism economy (i.e., employment, leisure expenditure, and T&T services' contribution to GDP). Hence, our study differs from prior studies (e.g., Araña & León, 2008; Corbet et al., 2019; C.-C. Lee & Chen, 2021; A. Liu & Pratt, 2017; Saha & Yap, 2014) as we test the universality of the proposed tourism security theory by analyzing wider tourism economy-related variables.

Second, this study advances the literature on the tourism economy by using new outcome variables (namely leisure tourism spending, T&T's direct contributions to employment, and GDP), which remains unexplained by

security threats issues. Most existing studies focus solely on the theory of international tourism demand variables (e.g., tourist arrivals and tourist receipts) (Crouch, 1994; Dogru et al., 2017; A. Liu & Pratt, 2017; Pizam, 1999; Saha & Yap, 2014). While tourism is regarded as one of the main contributors to destination economies GDP (C.-C. Lee & Chang, 2008; C.-C. Lee & Chen, 2021; Oh, 2005), scholars have not paid appropriate attention to the effects of security threats on the three indicators of the tourism economy (see Appendix A). In fact, Fourie et al. (2020, p. 212) ascertain that "the previous literature on the effect of security threats on tourism mainly explores the impact of terrorism on inbound tourism." Moreover, selection bias seems to exist across the tourism and terrorism literature as most of the studies predominantly emphasize on United States, Europe, Central Asia, or MENA countries (Duan et al., 2022; Krajňák, 2021). As a result, we extend and deepen the extant literature by analyzing 161 country data on how diverse security threats influence the tourism economy with significant novel findings in the global tourism arena. Subsequently, our study augments extant knowledge by not only enlightening what is known, but also by putting forward novel arguments related to global insecurity literature in the T&T field.

Third, this study proposes a conceptual framework offering schematic channels for the transmission of global security threats and their influence on the spatial interconnectivity of the T&T industry (see Figure 1). The framework provides comprehensive insights into the dimensions of security threats and related direct, indirect, and long-run spillover effects on T&T service industries. It also hypothesizes that global security threat indices have repercussions on service industry employment, service consumers' leisure-based expenditure, tourist receipts, travel services, and growth.

Moreover, this framework envisions that security threats have a spillover effect on tourism-related services. Tourism and allied service sectors tend to bear the brunt of the economic effects of insecurity and instability (Dekimpe et al., 2016); thus, the spillover effects of global security threats can be significant, as their impact is not limited only to the aforementioned business sectors, but also affect global economic growth (Karl et al., 2015; Khan, 1997). Numerous studies have explored the relationship between insecurity and tourism demand (e.g., Coshall, 2003; Goldman & Neubauer-Shani, 2017; Saha & Yap, 2014), but scholars have neither proposed a conceptual framework nor empirically examined the impact of security threats on the tourism economy using a global sample of panel time-series data and robust econometric methodology. Subsequently, this study attempts to remedy the aforementioned gaps in tourism outcomes and spillover literatures by using a spatial panel model to reveal new insights into long-run spillover effects on the T&T industry. However, due to limitation on availability of data for mediating industry/country-level variables in the framework, this study focuses on direct and long-term spillover effects of outcome variables due to security threat covariates. In addition, the proposed framework can be used to determine cybercrime and COVID-19's impact on global service industries. We believe that the framework developed in this study is the first attempt to advance and extend the COVID-19 research agenda put forward by Bausch et al. (2021).

Finally, from a methodological perspective, we used a unique three-pronged combination of the existing literature (see Appendix A), our knowledge of possible relationships between the variables, and automatic (machine learning) variable selection methods that enable us to select covariates, specify, and test our empirical models (Efron et al., 2004; Tibshirani, 2011) to produce reliable estimates. Thus, we advance the tourism security theory with robust new empirical evidence. We also make significant contributions to the theory of global security threats and the T&T economy.

The remainder of this paper proceeds as follows. The review of global security threats and the T&T economy section discusses the theoretical underpinnings and related literature on terrorism-led tourism and its spillover effects. The section on methodology, data, and preliminary tests presents the models, describes the data and sample, and offers a preliminary analysis and tests. The results and discussion section presents the empirical results of the models and discusses the spillover effects of security threats. Finally, we present the conclusions and policy implications.

Review of Global Security Threats and the T&T Economy

Security threats related to sporadic terrorist acts (Araña & León, 2008; Pizam, 1999), wars (Chan et al., 1999; B. Liu et al., 2016), terrorism, political instability (Bhattarai et al., 2005; Saha & Yap, 2014), conflicts (Heilmann, 2016; Lepp & Gibson, 2003), global pandemics (Farzanegan et al., 2021; Jonas et al., 2011; Mao et al., 2010), and government travel bans and restrictions (Pizam & Mansfeld, 2006) all present exogenous challenges to the global T&T service sector. In fact, the global T&T service industry is an easy target and has been plagued by episodic terrorist and security incidents that have attracted widespread attention (C.-C. Lee & Chen, 2021; Paraskevas & Arendell, 2007).

Table 1 and Figure 2 summarize some of the major terrorist acts and trends in attacks and their fatalities. Over the past two decades, real and perceived public security incidents and their aftermaths have drawn widespread attention in traditional and social media; in turn, this has led to an exponential growth in visibility and awareness of security threats to tourists and travelers (Birkland,

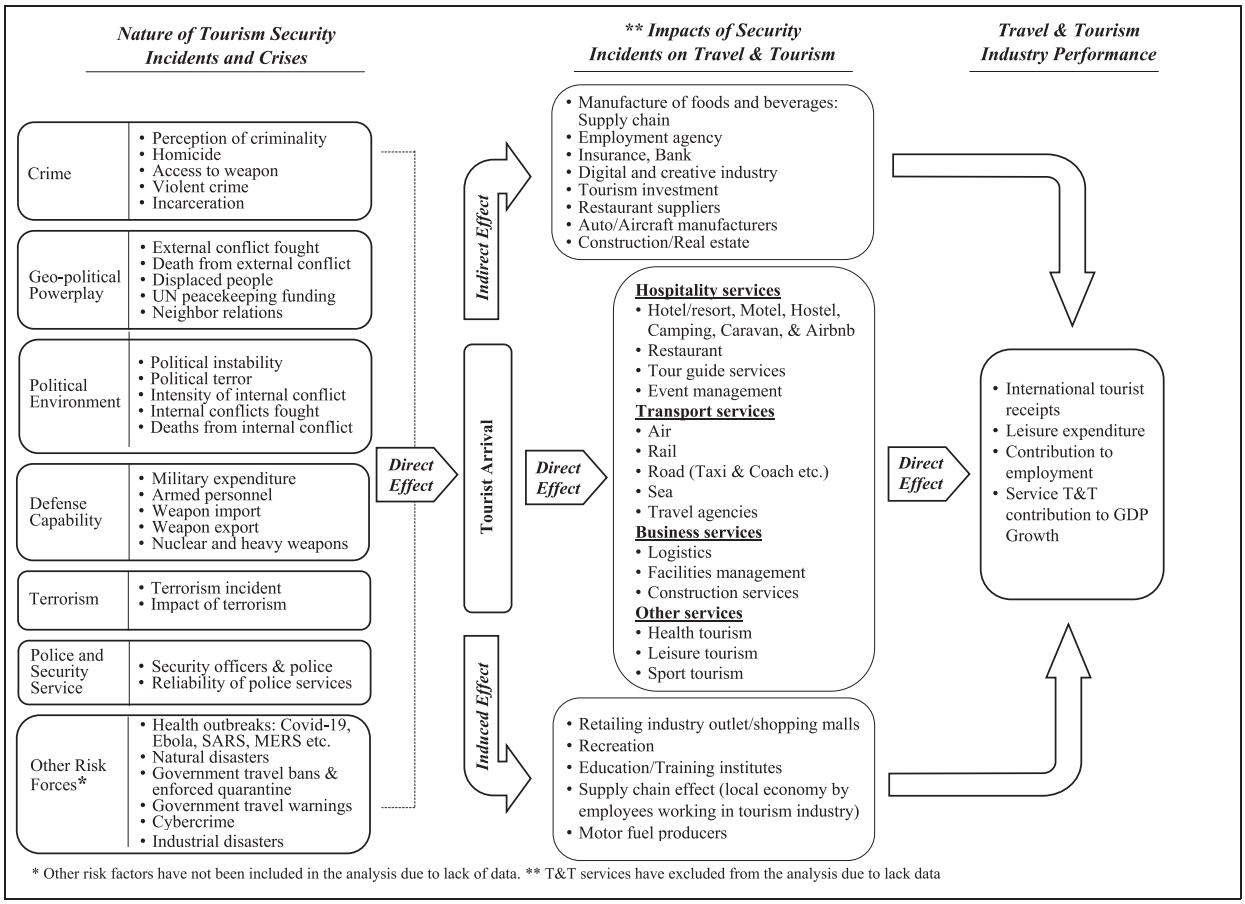

Figure 1. Impact of security threats on service industries economy: spillover effect model.
*Other risk factors have not been included in the analysis due to lack of data. **T&T services have excluded from the analysis due to lack data.

2004; Jetter, 2017; Walters et al., 2019). Several studies have shown the tourism industry's sensitivity to security-related news and hasty changes in security arrangements, which are the most important determinants of destination choice for potential tourists/travelers (Boakye, 2012; Sönmez & Graefe, 1998b; Sullivan-Taylor & Wilson, 2009).

Fourie et al. (2020) have shown that the multiplier effect of terrorism and insecurity on tourism is regressive due to travelers and tourists' risk perceptions of destinations. Other scholars have argued that terrorist attacks and insecurity impede growth in T&T service industries. For instance, Araña and León (2008) and Walters et al. (2019) reported that hotel occupancy levels, restaurant takings, airline passenger numbers, and retail revenues all decline when there are terrorism and other security concerns. In addition, security threats have negative effects on prospective tourists' perceptions of comfort, safety, and leisure choices of a destination country (Li, Yang et al., 2021). The negative effects are not only limited to the time of the crisis but also have prolonged effects long after the incidents (Cavlek, 2002). In addition, visitors' perceptions of security threats have spillover and halo effects on neighboring countries that are not directly impacted by the conflict or crisis (Lepp & Gibson, 2003).

Contrarily, a few scholars have suggested that terrorism does not always hurt tourism (Morakabati & Beavis, 2017; Yaya, 2009). For instance, Saha and Yap (2014) revealed that because people are inquisitive by nature, tourism demand tends to increase up to a threshold following terrorism incidents in nations with low to moderate political risk. Furthermore, global terrorism has generated a new and unique dimension to tourism on the so-called "dark side" of the tourism spectrum (P. R. Stone, 2012, p. 1), referred to as dark tourism (Lennon & Foley, 2000; P. R. Stone, 2006; Strange & Kempa, 2003), morbid tourism (P. R. Stone, 2012), atrocity heritage tourism (Kang et al., 2012), thanatological framework and thanatourism (Light, 2017; P. Stone & Sharpley, 2008), grief tourism (Lewis, 2008), sacred memorial sites (Podoshen & Hunt, 2011), popular shrine/altar and ritual space (Iliev, 2020), from *lieux de mémoire to noeuds de mémoire* (Fuggle, 2020), victimhoodscape or thanatoptic/dark heritage (Hooper & Lennon, 2016), and anamnesis

Table 1. Precis of Some Terrorist Attacks and Effects.

Place			Time	Incident tactics/type	Effects	
Region	Country	City	Date	Details	Killed	Injured
North America	United States	New York	11-Sep-01	**9/11 Attack on World Trade Center:** 19 terrorists hijacked four commercial airplanes, deliberately crashing two of the planes into the upper floors of the North and South towers of the World Trade Center complex.	> 2,770	> 21,756
		Florida	12-June-16	**Orlando Nightclub Shooting:** A terrorist attack/hate crime inside a gay nightclub, in Orlando.	49	53
Europe	Belgium	Brussels	22-Mar-16	**Brussels Bombings:** Two coordinated nail bombings occurred at Brussels Airport in Zaventem and one at Maelbeek metro station in Brussels.	32	300
	France	Paris	13-Nov-15	**Paris Attacks:** Three suicide bombers struck near the Stade de France, followed by suicide bombings and mass shootings at cafés, restaurants, and a music venue in central Paris.	130	368
		Nice	14-Jul-16	**Nice Attack:** A 19-tonne cargo truck drove into crowds celebrating Bastille Day on the Promenade des Anglais	85	434
	Germany	Berlin	19-Dec-16	**Berlin Attack:** A truck was deliberately driven into the Christmas market	12	56
	Spain	Madrid	11-Mar-04	**Madrid Train Bombings:** Coordinated bombings against the commuter train system, 3 days before Spain's General Elections.	192	2,000
	United Kingdom	London	07-Jul-05	**London Transport Bombings:** A series of coordinated terrorist suicide bomb attacks in central London, which targeted civilians using the public transport system (Underground Train and Bus).	56	784
		Manchester	22-May-17	**Manchester Arena Bombing:** A terrorist detonated a shrapnel-laden homemade bomb at the exit of the arena after a concert.	22	119
South Asia	Bangladesh	Dhaka	01-Jul-16	**Dhaka Bakery Attack:** Six militants attacked a bakery and held hostages in Dhaka. Mostly foreigners were killed, making this the worst terrorist attack in Bangladesh's history.	22	50
	India	Mumbai	11-Jul-05	**Mumbai Railway Bombings:** A series of seven bombs were set off in pressure cookers on trains on the Western line of the Suburban Railway network.	209	> 700
			26-Nov-08	**Siege of Mumbai:** An Islamist militant organization carried out a series of 12 coordinated shooting and bombing attacks for 4 days (transport terminals, cafes, hotels, cinemas, and a hospital).	164	308
	Pakistan	Peshawar	16-Dec-14	**Peshawar School Massacre:** Seven militants attacked an army-run school in the north-west of Pakistan.	141	114
	Sri Lanka	Colombo, Negombo, Batticaloa	21-Apr-19	**Sri Lanka Easter Bombings:** A series of explosions were reported at three churches and three hotels in several cities in Sri Lanka targeting Christians and foreigners.	259	> 500

(continued)

Table 1. (continued)

Place			Time	Incident tactics/type	Effects	
Region	Country	City	Date	Details	Killed	Injured
Southeast Asia	Indonesia	Bali	12-Oct-02	**Bali Bombings:** The attack involved the detonation of three bombs, which were detonated in or near popular nightclubs and outside the United States consulate in Denpasar.	202	209
	Thailand	Bangkok	17-Aug-15	**Bangkok Bombing:** A bomber, leaving a bag on the floor in the Erawan Shrine and walking out before the bomb exploded.	20	125
Western Asia	Iran	Tehran	07-Jun-17	**Tehran Attacks:** Terrorist attacks were carried out by five Kurdish terrorists against the Iranian Parliament building and the Mausoleum of Ruhollah Khomeini.	23	52
	Israel	Netanya	27-Mar-02	**Passover Massacre:** A bomber, disguised himself as a woman, entered the hotel carrying a suitcase containing explosives, and successfully detonated the bomb.	30	140
	Lebanon	Beirut	12-Nov-15	**Beirut Bombings:** The biggest terrorist attack 25 years, targeting Shi'a Muslims, with the aim of dividing Lebanon, which was facing political unrest at the time.	43	200
	Turkey	Istanbul	28-Jun-16	**Atatürk Airport Attack:** Gunmen armed with automatic weapons and explosive belts staged a simultaneous attack at the international terminal of Atatürk Airport.	48	> 230
West Africa	Ivory Coast	Grand-Bassam	13-Mar-16	**Grand-Bassam Shootings:** Three armed assailants attacked the Étoile du Sud Hotel which was occupied by numerous expats at the time.	22	33
	Mali	Bamako	20-Nov-15	**Bamako Hotel Attack:** Islamist militants took 170 hostages at the Radisson Blu Hotel, where foreigners from six different nations died in a mass shooting.	22	9
East Africa	Kenya	Nairobi	21-Sep-13	**Westgate Mall Shootings:** Gunmen from extremist Islamist group al-Shabaab carried out an attack at the most expensive shopping center in Nairobi as retribution for the Kenyan military's deployment in the group's home country of Somalia.	67	175
Northeast Africa	Egypt	Bir al-Abed	24-Nov-17	**Sinai Mosque Attack:** As worshipers were gathered for Friday prayers, a suicide bomb was detonated and up to 30 attackers opened fire on people trying to flee.	128	305
North Africa	Tunisia	Sousse	28-Jun-15	**Sousse Beach Attack:** 23-year-old electrical engineering student opened fire at tourists on the beach.	38	39
Oceania	Australia	Sydney	15-Dec-14	**Sydney Hostage Crisis:** A lone gunman held hostage 10 customers and 8 employees of a Lindt chocolate café.	3	4
	New Zealand	Christchurch	15-Mar-19	**Christchurch Mosque Shootings:** Two consecutive terrorist shooting attacks occurred at mosques carried out by a white supremacist.	51	49

Note. The event description, statistics for the number of fatalities and injuries are sourced from SINCE 9/11 (2019), an UK educational charity created by the UCL's Institute of Education and Global Terrorism Database by National Consortium for the Study of Terrorism and Responses to Terrorism (START).

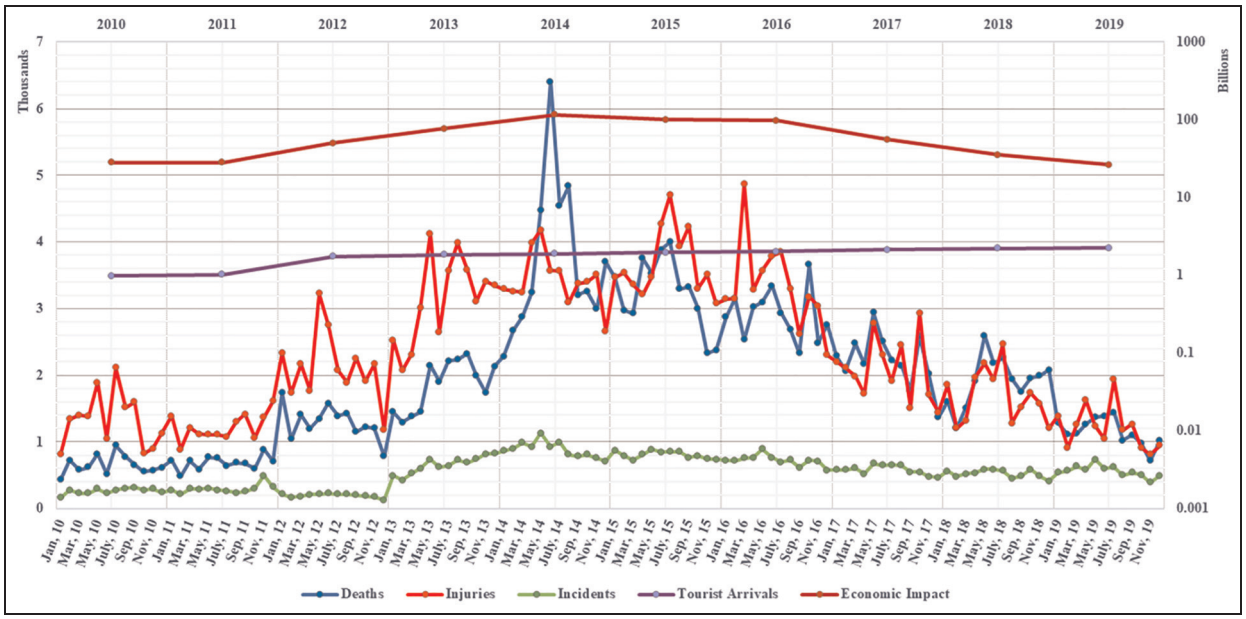

Figure 2. Tourist arrivals, terrorist acts, and economic cost of terrorism in between 2010 and 2019.
Source: Data collected from The Global Terrorism Database (2020), Institute for Economics & Peace (2020), The World Bank Databank (2020).
Bottom and left axis: explaining time and amount of terrorist incidents, injuries and deaths in thousands; top and right axis: explaining years, amount of tourist arrivals, and economic cost of terrorism in billions (log scale).

tourism (Seaton, 2002). This paradigm has a common denominator of the aforementioned themes, which integrates them to assign the basis for a common thread for dark tourism. For instance, Jacobs (2004, p. 311) noted that "Ground Zero became a religious shrine for a dark pilgrimage with the placement of other sacred objects at the site—rosary beads, religious medals, and memorial candles."

Geopolitical risks such as war, military-related tension, and nuclear threats contribute to a decrease in tourist arrivals and demand (Demir et al., 2019; Tiwari et al., 2019). The Turkish invasion of Cyprus in 1974 and the Syrian and Iraq war demonstrate how badly geopolitical tensions can affect tourism demand and the regional T&T economy (Farmaki, 2017; Mehmood et al., 2016; Sharpley, 2003). In addition, recent tensions on the Sino-Indian border have had a negative impact on tourism in Ladakh, Manali, and Lahaul-Spiti—major tourist destinations in India—where tourists could not enter the region (Gettleman et al., 2021). Recently, Parkin and Ratnaweera (2022) argue that the current Russia-Ukraine war has a severe fallout with an unwelcomed twist, which causes a huge economic disruption and an austere effect on T&T services. In fact, Bülbüloğlu (2022) reports that Turkish tourism expects a 30% loss due to the Russia-Ukraine war. Koch (2022) also conveys that this war affects the travel industry (e.g., airlines, cruises) with longer routes and distances, and greater fuel costs. Additionally, evolving sensitive geopolitical pressures facing China and Taiwan may deeply threaten T&T industry performance (Gillen & Mostafanezhad, 2019; Lim, 2012). Moreover, Balli et al. (2019) have reported that, while geopolitical risk factors adversely affected tourism demand in some countries, others remain unaffected by the risk of a geopolitical power-play. Furthermore, substantial geopolitical tensions, political turmoil, recent coup d'états, and rising and on-going terrorism attacks in the Sahel region present evolving real security threats to T&T industry performance in West Africa, East Africa, and surrounding regions (Benedikter & Ouedraogo, 2019; Dowd & Raleigh, 2013; Gaibulloev & Sandler, 2011). However, the impact of geopolitical risks on the tourism economy remains understudied (Akadiri et al., 2020; Demiralay & Kilincarslan, 2019; Gozgor et al., 2022) and needs further investigation, especially from a global perspective.

In addition, there is an ongoing debate in the field of defense economics literature regarding the impact of public expenditure on defense capability, economic growth, and tourism inflows. While some studies provide evidence that military expenditure positively impacts economic growth, other studies suggest that it hinders economic growth through various channels. Scholars (e.g., J. P. Dunne et al., 2005; Mylonidis, 2008; Pieroni, 2009) have argued that increased military expenditure can impede economic growth by constraining other government expenditures or crowding out investment. Moreover,

Khalid et al. (2020) have shown that increased military expenditure can hurt investment in the tourism industry and international tourism inflows. However, military spending can also enhance economic growth and employment (e.g., Wijeweera & Webb, 2009; Yildirim et al., 2005). Nassani et al. (2017) noted that an increase in military spending and arms exports has a positive impact on net tourism receipts, and thus significantly influences tourism growth. In addition, a similar notion was put forth by Yildirim et al. (2005, p. 294), who report "that military expenditure enhances economic growth in the Middle Eastern countries." However, tourism scholars have yet to examine the effect of defense capabilities on tourism demand and the economy.

Furthermore, law enforcement officials/forces can play a pivotal role in preventing future terrorist attacks and restoring communal faith and a destination's image (Paraskevas & Arendell, 2007; Sönmez et al., 1999). Studies have ascertained that an increase in the number of security forces and police services in a tourist destination can help elevate tourists' perception of a destination's attractiveness (de Albuquerque & McElroy, 1999; Tyagi et al., 2016) and safety (Barker & Page, 2002; Tarlow & Santana, 2002). An increase in the presence of security forces can also enhance tourists' perception of police effectiveness (George, 2003; Tyagi et al., 2016), crime prevention (Mawby, 2014), and security (Cruz-Milán et al., 2016). However, a few studies have argued that an overt display of security has an opposite effect on tourists' perception of safety. For instance, Boakye's (2012) study in Ghana found that the prominence of law enforcement agencies made tourists feel insecure and served as a constant reminder of the need to remain vigilant.

Terrorism and conflicts are major security threats that have spillover effects on service industries, leading to economic losses (Abadie & Gardeazabal, 2008; Öcal & Yildirim, 2010). Greenbaum et al. (2007) noted that terrorist incidents decrease the number of firms and employment in the year following an attack. For instance, Causevic and Lynch (2013) showed that political conflict in Croatia, Serbia, Bosnia, and Herzegovina had negative effects on economic and employment indicators. However, Bagchi and Paul (2018) argued that the increase in terrorist activities increased military expenditure, which contributed to a decline in youth unemployment in MENAP countries (Middle East, North Africa, Afghanistan, and Pakistan). In general, security threats such as terrorism, crime, political uncertainty, and war can have negative direct, indirect, and long-run spillover effects on employment and tourist receipts. Hence, the next section focuses on the empirical investigation of security threats' effects on spatial inter-connectivity in T&T service industries.

Methodology, Data, and Preliminary Tests

Methodology

We posit that the outcomes of a country's T&T industry performance (i.e., tourism demand and tourism economy) are influenced by prevailing security factors and the perceived atmosphere of peace, criminality, and terrorism incidents. Accordingly, key T&T demand variables (tourist arrivals and tourist receipts) are determined by many country-specific public safety, security, peace, and terrorism-related factors (e.g., the perception of criminality in the country, homicide rates, internal conflicts, political instability, terrorist incidents, etc.). While the existing literature has used a variety of empirical approaches to analyze the relationship between tourism demand and security/safety-related covariates, the economic variables for the T&T sector (e.g., tourist spending, tourism contribution to employment, and economic growth) have largely been overlooked.

In addition, the literature on the extent, direction, and magnitude of the causal relationships between T&T demand and safety/security factors of destinations have produced mixed conclusions (Akadiri et al., 2020; Antonakakis et al., 2019; Duan et al., 2022; Fayissa et al., 2008; Krajňák, 2021; Saha et al., 2017; Tugcu, 2014). Several different models have been used to evaluate economic impacts of tourism, often with different results. For example, Kumar and Hussain (2014) identified key modeling approaches commonly used for tourism impact, including input-output (IO) models (Bonn & Harrington, 2008; Frechtling & Horváth, 1999), Keynesian models (Schaffer, 1999), exports base models (Dwyer et al., 2007; Egan & Nield, 2003); computable general equilibrium models (Blake et al., 2006; Dwyer et al., 2007), money generation model (Stynes & Sun, 2003), and ad hoc models which draw on synthesis of IO and Keynesian models (Archer & Owen, 1972).

We argue that the inconclusiveness of findings in the literature emanate from three commonly unresolved econometric and design issues which we address in this study. First, we posit that the chosen econometric and empirical analyses in earlier papers often tend to ignore omnipresent problems of endogeneity and unobserved heterogeneity in the models which are principally due to omitted variables, simultaneity bias, and measure errors in terrorism and security-related covariates. The problem is also evident in recent strands of the literature. For example, a recent study by Seabra et al. (2020) used vector autoregressive models (VAR) to establish the significant and strong effect of terrorist incidents in European countries on tourist arrivals in Portugal.

The VAR framework provides flexibility in examining the relationships between variables; however, their rather complex atheoretical approach to modeling multivariate relationships is a major drawback. VAR systems often

require researchers to determine the long-run relationships before ensuing short-run changes that policymakers may want to know. Feridun (2011), Wang (2009), and Zhang et al. (2021) used the lag-error correction type autoregressive distributed model (ARDL) to predict tourism recovery from a crisis environment. ARDL models possess the advantages of VARs, render a more general determination of lag structures, and are amenable to panel data.

However, the ARDL framework tends to perform poorly in the presence of stochastic trends, as it tends to model random trends at the expense of the underlying relationship. Saha et al. (2017) and Antonakakis et al. (2019) applied panel VAR and country fixed-effect models to large panel-data models, respectively, to study the determinants of tourist arrivals and tourism effects on economic growth. While the panel VAR and standard fixed-effect models are well executed in both studies, the two approaches are weak in dealing with panel structures afflicted by problems of heteroscedasticity in the panel and cross-sectional dependence (Greene, 2018; Pesaran, 2007, 2015).

Second, most empirical studies tend to display evident inertia in sticking with a narrow set of established and suspected explanatory variables in their modeling frameworks. To address this challenge, we started with large models containing a large set of relevant explanatory variables, most of which have not been used in previous studies. We proceeded to reduce the models using the least absolute shrinkage and selection operator (LASSO) to reach the smallest possible subset for the best explanatory content (Efron et al., 2004; Ghysels & Marcellino, 2018; Tibshirani, 2011) (see FRS and LASSO on p.15). Consequently, in a data-rich environment, we developed models that are large enough to capture pertinent and new explanatory variables beyond those used in previous literature (e.g., Antonakakis et al., 2019; Saha et al., 2017; Seabra et al., 2020) but also parsimonious and internally valid (Hännikäinen, 2017; Wedel & Kannan, 2016).

Finally, we used one of the largest panel-data sets, consisting of a global sample of 161 UN countries, and a complete dataset panel spanning over 10 years (2010–2019) on country-level T&T industry performance and security threats. The coverage and comprehensiveness of the panel data proved that our data can meet this study's objectives. We have used a triumvirate of research designs based on the extant literature, our understanding of priori statistical and economic relationships between the putative variables, and "machine learning" model reducing computer-intensive methods (LASSO) to develop estimable, robust, and parsimonious models. Morever, we used the extended Bayesian information criterion to research the lambda shrinkage parameters for the models (Chen & Chen, 2008).

Data Collection

Table 2 presents a list of variables and their definitions, measurements, credible data sources, and some related studies. For example, our data sources are in line with prior studies such as World Bank Data (Goldman & Neubauer-Shani, 2017; Nassani et al., 2017), World Travel and Tourism Council (Cárdenas-García et al., 2015; Peeters & Eijgelaar, 2014), Economist Intelligence Unit (Demir et al., 2020; Gaventa & Barrett, 2012; Kilian & Hicks, 2013), and Global Terrorism Index (A. Liu & Pratt, 2017). Moreover, Table 2 also shows that this study encapsulates several variables (e.g., access to weapons, incarceration, external conflicts fought, displaced people, nuclear and heavy weapons, weapons imports, and reliability of police services) that have not been considered in previous studies (Corbet et al., 2019; A. Liu & Pratt, 2017). The data analysis was conducted using Stata v.16.

Modeling the Framework

Consider a panel-data structure with k distinct explained and explanatory variables $\{Y_{it}, X_{it} = (x_{1,it}, x_{2,it}, \ldots, x_{k,it})\}$, $i = 1, \ldots N, t = 1, \ldots, T$, where i denotes entities (countries) and t denotes time (in years). The baseline panel-data regression model used to establish the effects of the explanatory variables on the explained variables is as follows:

$$\begin{aligned} Y_{it} &= \mathbf{X}_{it}\boldsymbol{\beta} + \xi_{it} \\ \xi_{it} &= \alpha_i + \gamma_t + \varepsilon_{it} \\ \alpha_i &= \alpha_2 C_2^{FE} + , \ldots, + \alpha_N C_N^{FE} \\ \gamma_t &= \gamma_2 T_2^{FE} + , \ldots, + \gamma_T T_T^{FE} \end{aligned} \tag{1}$$

where Y_{it} denotes a panel T&T dependent (outcome) variable of the countries in our sample. Specifically, Y_{it} is a $N\times1$ vector of international tourist arrivals, leisure tourism spending, international tourism receipts, direct contribution to employment, and direct contribution to GDP. $\mathbf{X}_{it}\boldsymbol{\beta} = \beta_0 + \beta_1 PerCri_{it} + \beta_2 Hom_{it} + \beta_3 AccWea_{it} + \ldots + \beta_k SecOffPol_{it}$; $\mathbf{X}$ denotes the $N\times K$ matrix of explanatory variables (our models contain the following independent variables: perceptions of criminality, homicide, access to weapons, incarceration, political instability, political terror, intensity of internal conflict, impact of terrorism, terrorism incidents, external conflicts fought, displaced people, UN funding for peacekeeping, relations between neighboring countries, military expenditure, nuclear and heavy weapons, weapons imports, and the reliability of police services, security officers and police). $C_{\bullet}^{FE}$ denotes $N-1$ country fixed-effect dummies (equal to 1 for the ith country and 0 otherwise); $T_{\bullet}^{FE}$ denotes $T-1$ time-fixed dummies (equal to 1 for the ith country and 0 otherwise); α_i denotes country-specific fixed effects; and γ_t denotes

Table 2. Explanation of Variables and Data Sources.

Variable names	Definition	Measure	Data sources	Supportive studies using similar variables
Dependent variables				
Tourism demand				
International tourism arrivals	The number of visitors traveling to a country that is not the country of origin for a duration between 1 night and 12 months.	Millions	World Bank Open Data	Pizam (1999), Saha and Yap (2014), Karl et al. (2015), Goldman and Neubauer-Shani (2017)
International tourism receipts	Total expenditures by international inbound visitors in a foreign country, including payments to national carriers and pre-payments toward goods and services consumed in the country.	Current US$ millions		A. Liu and Pratt (2017)
Tourism economy				
Leisure tourism spending	Spending on leisure travel within a country by residents and international visitors.	US$ billions	World Travel and Tourism Council	Araña and León (2008)
T&T services contribution to GDP	The number of jobs generated directly in the travel and tourism sector plus the indirect and induced contribution.	Number of jobs in thousands		Bagchi and Paul (2018)
Direct contribution to GDP	GDP generated by industries that deal directly with tourists, including hotels, travel agents, airlines and other passenger transport services, as well as the activities of restaurant and leisure industries that deal directly with tourists. It is equivalent to total internal travel and tourism spending within a country less the purchase made by those industries (including imports).	US$ billions		Sönmez et al. (1999)
Explanatory variables				
Perception of crime				
Perceptions of criminality	Assessment of the levels of distrust in other citizens; people's cautiousness in their dealings with others; number of gated communities, and prevalence of security guards.	Qualitative scoring band, rated 1 to 5	Economist Intelligence Unit (EIU)	Reisinger and Mavondo (2005), Boakye (2012)

(continued)

Table 2. (continued)

Variable names	Definition	Measure	Data sources	Supportive studies using similar variables
Homicide	Death deliberately inflicted on a person by another person, including infanticide. The figures refer to the total number of penal code offenses or their equivalent, but exclude minor road traffic and other petty offenses, brought to the attention of the police or other law enforcement agencies, and recorded by one of those agencies.	Number of homicides per 100,000 people	UNODC CTS; EIU estimates	
Access to weapons	The development of regulations and commitment to ensure controls on civilian possession of firearms, policy instruments and best practices to strengthening of export controls, codes of conduct, firearms or ammunition marking.	Qualitative scoring band, rated 1 to 5	Economist Intelligence Unit (EIU)	
Incarceration	The state of being imprisoned or confined.	Prison population rates per 100,000 people	World Prison Brief, Institute for Criminal Policy Research at Birkbeck, University of London	
Violent crime	Violent crimes typically associated with people's everyday movements, such as robberies, assaults, kidnappings, and extortion.	Qualitative scoring band, rated 1 to 5	Economist Intelligence Unit (EIU)	
Terrorism				
Impact of terrorism	Intentional acts of violence or threat of violence by a non-state actor, which must be aimed at attaining a political, economic, religious and/or social goal, or intend to coerce, intimidate, or convey some other message to a larger audience(s) than the immediate victims, or the action must be outside the context of legitimate warfare activities. It captures the direct effects of terrorist-related violence, in terms of its physical effect, but also attempts to reflect the residual effects of terrorism in terms of emotional wounds and fear by attributing a weighted average to the damage inflicted in a year to a country.	Qualitative scoring band, rated 1 to 5	IEP Global Peace Index (GPI)	Ryan (1993), Sönmez and Graefe (1998a), Pizam (1999), Coshall (2003), Bhattarai et al. (2005), A. Liu and Pratt (2017), Sönmez and Graefe (1998b)

(continued)

Table 2. (continued)

Variable names	Definition	Measure	Data sources	Supportive studies using similar variables
Terrorism incidents	Total number of terrorist incidents in a given year.	Number of terrorist attacks in a year in hundred	IEP Global Terrorism Index (GTI)	
Political environment				
Political instability	Assessment of the risk of social unrest, level of established constitutional mechanisms for orderly transfer of power, likeliness to opposition party coming to power and causing a significant deterioration in business operating conditions, authority's accountability and level of discretion, and risk of international disputes/ tensions affecting the economy and/or polity.	Qualitative scoring band, rated 1 to 5	Economist Intelligence Unit (EIU)	Sönmez and Graefe (1998b), Lepp and Gibson (2003), Saha and Yap (2014), Karl et al. (2015)
Political terror	Assessment of rule of law implication, level of political imprisonment, murders/executions, disappearances, and torture/brutality, detention with or without a trial, which a country experiences in each period.	Qualitative scoring band, rated 1 to 5	Amnesty International and US State Department	Bhattarai et al. (2005)
Intensity of internal conflict	Assessment of the intensity of conflicts within the country (e.g., explicit threats of violence; imposition of economic sanctions by other countries, level of tense situation across the country; group using violent force in sporadic incidents or in an organized and systematic way throughout the country, civil war).	Qualitative scoring band, rated 1 to 5	Economist Intelligence Unit (EIU)	Karl et al. (2015)
Internal conflicts fought	This indicator measures the number and duration of conflicts that occur within a specific country's legal boundaries. Number includes the number of interstate armed conflicts, internal armed conflict (civil conflicts), internationalized internal armed conflicts, one-sided conflict and non-state conflict located within a country's legal boundaries. Duration includes the number of years out of the last five that conflict has occurred.	Qualitative scoring band, rated 1 to 5	IEP; UCDP Battle-Related Deaths Dataset, Non-State Conflict Dataset and One-sided Violence Dataset	

(continued)

Table 2. (continued)

Variable names	Definition	Measure	Data sources	Supportive studies using similar variables
Deaths from internal conflict	Fatality statistics relate to military and civilian lives lost as a direct result of an armed conflict. Here conflict is defined as a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in a year.	Qualitative scoring band, rated 1 to 5	International Institute for Strategic Studies (IISS) Armed Conflict Database (ACD)	
Geopolitical power-play				
External conflicts fought	The number and duration of extraterritorial conflicts a country is involved in.	Qualitative scoring band, rated 1 to 5	IEP; UCDP Battle-Related Deaths Dataset	
Deaths from external conflict	Fatality statistics relate to extraterritorial conflicts a country is involved in.	Qualitative scoring band, rated 1 to 5	UCDP Armed Conflict Dataset	
Displaced people	Refugee population by country or territory of origin plus the number of a country's internally displaced people (IDPs), as a percentage of the country's total population.	Qualitative scoring band, rated 1 to 5	UNHCR; International Displacement Monitoring Centre (IDMC)	
UN peacekeeping funding	Assessment of the percentage of countries'"outstanding payments versus their annual assessment to the budget of the current peacekeeping missions" over an average of 3 years.	Qualitative scoring band, rated 1 to 5	IEP; United Nations Committee on Contributions	Yaya (2009)
Neighboring countries' relations	Assessment of the intensity of contentiousness of neighbors (e.g., aggressiveness in politicians' speeches or in protectionist measures, serious tensions and consequent economic and diplomatic restrictions, open conflicts with violence and protests, frequent invasions by neighboring countries).	Qualitative scoring band, rated 1 to 5	Economist Intelligence Unit (EIU)	
Defense capability				
Military expenditure	Cash outlays of central or federal government to meet the costs of national armed forces—including strategic, land, naval, air, command, administration, and support forces and paramilitary forces, customs forces, and border guards if these are trained and equipped as a military force.	Military expenditure as a share of GDP from the benchmarks of 0% (for a score of 1) and 8.37% or above (for a score of 5)	International Institute for Strategic Studies, The Military Balance 2019	Bagchi and Paul (2018)

(continued)

Table 2. (continued)

Variable names	Definition	Measure	Data sources	Supportive studies using similar variables
Nuclear and heavy weapons	Assessment on a categorized system for rating the destructive capability of a country's stock of heavy weapons (e.g., armored vehicle and artillery pieces, tank, combat aircraft and combat helicopter, warship, aircraft carrier and nuclear submarine). Holdings are those of government forces and do not include holdings of armed opposition groups.	Qualitative scoring band, rated 1 to 5	IEP; SIPRI; IISS The Military Balance: United Nations Register of Conventional Arms	
Weapons imports	The total volume of major conventional weapons imported by a country in a period divided by the average population during that time period.	Transfers of major conventional weapons, as recipient (imports) per 100,000 people	SIPRI Arms Transfers Database; EIU	
Weapons exports	Measures the total volume of major conventional weapons exported by a country divided by the average population during this time period. The database covers all international sales and gifts of major conventional weapons and the technology necessary to produce them. Major conventional weapons include aircraft, armored vehicles, artillery, radar systems, missiles, ships, and engines.	Qualitative scoring band, rated 1 to 5	SIPRI Arms Transfers Database	
Armed services personnel	Active armed services personnel comprise all service men and women on full-time duty in the army, navy, air force, and joint forces (including conscripts and long-term assignments from the reserves).	Qualitative scoring band, rated 1 to 5	International Institute for Strategic Studies, The Military Balance 2016	
Police and security services				
Number of security officers and police	Personnel in public agencies whose principal functions are the prevention, detection, and investigation of crime and the apprehension of alleged offenders. It is distinct from national guards or local militia.	Number of internal security officers and police per 100,000 people.	UNODC Surveys on Crime Trends and the Operations of Criminal Justice System (CTS); EIU Estimates	Sönmez et al. (1999)
Reliability of police services	Assessment of police services' reliability in enforcing law and order.	Qualitative scale base, ranked 1 to 7	World Economic Forum	

time-fixed effects. β denotes vector of parameters, $\varepsilon_{it}(t = 1, \ldots, T)$ is the vector of idiosyncratic residuals, which are serially uncorrelated and homoscedastic, and $\xi_{it}(t = 1, \ldots, T)$ are serially correlated and heteroskedastic composite residual (consistency of standard estimators requires T to be fixed and $N \to \infty$). However, equation (1) theoretically assumes "idiosyncratic" exogeneity in the relationship between the explanatory variables and the idiosyncratic errors $Cov(\mathrm{X}_{it}, u_{it}) = 0, t = 1, \ldots, T$, which in conditional mean terms evaluates to $E(y_{it}|\mathrm{X}_{it}, \alpha_i) = \mathbf{X}_{it}\boldsymbol{\beta} + v_{it}$, $\frac{\partial E(y_{it}|\mathrm{X}_{it}, \alpha_i)}{\partial \mathrm{X}_{itj}} = \beta_j$. In practice, endogeneity is often an unavoidable problem in behavioral covariates such as those in equation (1).

Proposition: The standard fixed-effect estimator cannot be unbiased in the presence of unobserved endogeneity (see Appendix B). The presence of unobserved endogeneity in equation (1) leads to biased estimates of the coefficients. Consequently, we use a battery of econometric tests to identify the correct estimator underpinned by a battery of model specifications and diagnostic tests to enable us to correct the estimation method. In addition, econometric challenges such as heteroscedasticity, serial correlation, and cross-sectional dependence are inherent in country-level panel data (Driscoll & Kraay, 1998; Pesaran, 2007); the data used in this study are no exception.

FRS and LASSO

The LASSO model-reduction approaches use "soft thresholding" rules to order and select independent variables in a manner that reduces collinearity and increases parsimony by minimizing the sum of the square of the error term. Both the forward selection regression (FRS) and LASSO methods achieve model reduction by selecting a subset of variables that minimizes the residual sum of squares of regression. However, we use the LASSO because the approach holds substantial statistical advantages over FSR for model reduction and selection (see Burnham & Anderson, 2002; Harrell, 2001; Tibshirani et al., 2005).

From equation (1), the soft-thresholding model shrinkage approach, solves the following minimization problem:

$$\min_{\beta} \Phi(RSS) + \lambda \Psi(\beta_1, \ldots, \beta_j, \ldots, \beta_K) \tag{2}$$

where λ denotes a Lagrange multiplier that controls the magnitude of the penalty imposed on the model. Therefore, the larger the value of λ the greater the penalty imposed on the model, including additional explanatory variables, and vice versa. Φ and Ψ are functions of the residual sum of squares and β in equation, respectively. Here, $RSS = \xi_{it}^2 = \sum (y_{it} - X\beta)^2$.

For a given dependent variable in equation (1), the FSR procedure regresses $x_{1,it}$ on y_{it} and stores the residual $\hat{\xi}_{1,it}$ and then proceeds to search for an explanatory variable in $\boldsymbol{X}$ which has the highest correlation with $\hat{\xi}_{1,it}$, say $x_{2,it}$. In the second step, it proceeds to regress $\hat{\xi}_{1,it}$ on, $x_{2,it}$ and a new residual $\hat{\xi}_{2,it}$. Thereafter, the iteration process continues until all explanatory variables in X are ranked. The FSR tends to retain fewer orthogonal variables in contrast to iterative hard-thresholding methods that tend to select a set of highly collinear variables (Bai & Ng, 2008; Bulligan et al., 2015; Ghysels & Marcellino, 2018). However, the LASSO regression starts with least angle regression (LARS) to delineate independent variables that are highly correlated with the dependent variables (Efron et al., 2004). However, while the LARS is indifferent to the sign of the correlation between y_{it} and the candidate variable in $\boldsymbol{X}$, the LASSO restricts the sign of the correlation, which prevents it from switching. For a model with independent M variables, LASSO operationalizes the model-reduction process by solving the problem in equation (2) as follows:

$$\min_{\beta} (RSS) + \lambda \sum_{j=1}^{M} |\beta_j| \tag{3}$$

For a large two-dimensional panel-data model, in equation (1), of the relationship between T&T demand/economy and terrorism/security entails several often collinear covariates, so we LASSO to shrink the models before conducting pre-estimation and specification tests and model estimation. Consequently, this study addresses the empirical challenges and possible anomalies associated with heteroscedasticity, serial correlation, and cross-sectional and temporal dependence in panel data (Ammermann & Patterson, 2003; Chudik & Pesaran, 2015; Petersen, 2009).

Preliminary Analysis

Table 3 summarizes the statistics of dependent and independent variables. The standard deviations and coefficient variations confirm large degrees of variation within and between the variables. These properties lend support to further statistical investigations of the multivariate relationships among the variables in the modeling framework. Following from the model selection procedures, we conducted five pre-estimation diagnostic and specification tests: (i) fixed versus random effect delineation using the (Hausman, 1978) test, (ii) the Breusch-Pagan Lagrange multiplier test for significant panel effect versus no panel effect (Breusch & Pagan, 1980), (iii) a test for serial correlation in panel (Drukker, 2003; Wooldridge, 2010), (iv) the modified Wald test for heteroscedasticity in panel (Greene, 2018, p. 598), and (v) the Pesaran's cross-sectional dependence test (Pesaran, 2007, 2015). These

Table 3. Summary Statistics.

	Mean	*SD*	*CV*
Panel A: Dependent variables			
International tourism arrivals	14.697	1.768	0.120
International tourism receipts	21.041	2.244	0.107
Leisure tourism spending	1.189	2.135	1.796
Contribution to employment	5.017	1.591	0.317
T&T services contribution to GDP	0.819	1.945	2.376
Panel B: Independent variables			
Perceptions of criminality	3.079	0.903	0.293
Homicide	2.765	1.155	0.418
Access to weapons	3.126	1.079	0.345
Incarceration	2.202	0.890	0.404
Violent crime	2.73	1.157	0.424
Impact of terrorism	1.892	0.983	0.520
Terrorism incidents	47.546	208.401	4.383
Political instability	2.533	1.019	0.402
Political terror	2.584	1.107	0.429
Intensity of internal conflict	2.422	1.163	0.480
Internal conflicts fought	1.495	1.078	0.721
Deaths from internal conflict	1.457	0.962	0.661
External conflicts fought	1.445	0.961	0.665
Deaths from external conflict	1.076	0.271	0.252
Displaced people	1.354	0.901	0.665
UN peacekeeping funding	2.226	1.141	0.512
Neighboring countries relations	2.323	1.017	0.438
Military expenditure	1.954	0.810	0.414
Nuclear and heavy weapons	1.476	0.965	0.654
Weapons imports	1.49	0.897	0.602
Weapons exports	1.349	0.940	0.697
Armed services personnel	1.607	0.683	0.425
Number of security officers and police	2.694	0.910	0.338
Reliability of police services	4.30	1.155	0.269

Note. All dependent variables are in logarithms. List of countries in sample ($n = 161$): Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Belarus, Belgium, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Democratic Republic of the Congo, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Eswatini, Ethiopia, Finland, France, Gabon, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kosovo, Kuwait, Kyrgyz Republic, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Macedonia (FYR), Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, North Korea, Norway, Oman, Pakistan, Palestine, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of the Congo, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Serbia, Sierra Leone, Singapore, Slovakia, Slovenia, Somalia, South Africa, South Korea, South Sudan, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, Tajikistan, Tanzania, Thailand, The Gambia, Timor-Leste, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States of America, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, and Zimbabwe. CV = coefficient of variation; SD = standard deviation.

tests are vital for understanding the properties of the residuals of every study involving time-series cross-section data. Ignoring them often leads to the imposition of theoretically driven assumptions about residual properties and covariance matrices without empirical justification.

Table 4 contains results of pre-estimation and model specification tests for the panel data. The results show a preference for the fixed-effect panel-data model (Hausman tests) over the random effect model, and further tests ruled out the ordinary least squares estimator for all five outcome variables (Breusch-Pagan Lagrange multiplier tests). The results further confirm autocorrelation and heteroskedasticity for all models (Wooldridge and modified Wald tests). Moreover, further tests revealed evidence of cross-sectional dependence in models for all the dependent variables (Driscoll & Kraay, 1998; Hoechle, 2007). Consequently, we apply the panel-corrected standard error (PCSE) estimator which uses the feasible generalized least squares estimator to robustly address the above shortcomings in our data (Doran & Kmenta, 1986; Parks, 1967). The PCSE produces robust inferences and is consistent in the presence of non-

Table 4. Pre-estimation and Model Specification Tests for the Data.

Dependent variable	Hausman test	Breusch-Pagan test	Wooldridge test	Heteroscedasticity test	Pesaran CD test
International tourism arrival	$\chi^2(21) = 90.44$ (.000); $Prob > \chi^2 = .0000$	$\bar{\chi}^2(01) = 3180.81$, $Prob > \bar{\chi}^2 = .0000$	$F(1, 133) = 618.366$, $Prob > F = 0.0000$	$\chi^2(136) = 1.1e^{+05}$, $Prob > \chi^2 = 0.0000$	$CD_1 = 3.929$ (.000), $CD_2 = 122.363$ (.000)
Leisure tourism spending	$\chi^2(18) = 161.91$, $Prob > \chi^2 = .0000$	$\bar{\chi}^2(01) = 4573.25$, $Prob > \bar{\chi}^2 = .0000$	$F(1, 148) = 228.581$, $Prob > F = .0000$	$\chi^2(149) = 67{,}023.16$, $Prob > \bar{\chi}^2 = .0000$	$CD_1 = 0.027$ (.978), $CD_2 = 46.481$ (.000)
International tourism receipt	$\chi^2(16) = 96.60$, $Prob > \chi^2 = .0000$	$\bar{\chi}^2(01) = 2988.13$, $Prob > \bar{\chi}^2 = .0000$	$F(1, 134) = 14.615$, $Prob > F = .0002$	$\chi^2(139) = 54{,}233.48$, $Prob > \chi^2 = .0000$	$CD_1 = 0.860$ (.390), $CD_2 = 46.481$ (.000)
Contribution to employment	$\chi^2(16) = 144.83$, $Prob > \chi^2 = .0000$	$\bar{\chi}^2(01) = 4661.67$, $Prob > \bar{\chi}^2 = .0000$	$F(1, 147) = 183.743$, $Prob > F = .0000$	$\chi^2(148) = 2.0e^{+05}$, $Prob > \chi^2 = .0000$	$CD_1 = -0.352$(.724), $CD_2 = 103.476$ (.000)
T&T services contribution to GDP	$\chi^2(21) = 149.95$, $Prob > \chi^2 = .0000$	$\bar{\chi}^2(01) = 3923.14$, $Prob > \bar{\chi}^2 = .0000$	$F(1, 134) = 188.216$, $Prob > F = .0000$	$\chi^2(137) = 1.6e^{+05}$, $Prob > \chi^2 = .0000$	$CD_1 = 0.641$ (.522), $CD_2 = 147.636$ (.000)

Note. Pesaran CD_1 and CD_2 Pesaran denote test statistics for the unrestricted and restricted models, respectively. Results show that we cannot reject (weak) cross-sectional dependence/contemporaneous correlation for all models. *p*-Values are reported in parentheses. Tests Wooldridge test refers to Wooldridge (2010) for serial correlation/autocorrelation in panel data. Heteroscedasticity test refers to Greene's (2018) modified Wald test for groupwise heteroscedasticity.

spherical errors that originate from serial correlation problems, heteroskedasticity, cross-sectional dependence, and a combination of the three problems that are typical in social, political, and economic variables (Bailey & Katz, 2011; Beck & Katz, 1995; Greene, 2018; Hoechle, 2007).

Assuming that $t = 1, \ldots, T_i$ (where $T_t = T$) and the error term, v_{it}, in equation (1) is heteroskedastic and cross-sectionally dependent, the model can be written as

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_N \end{bmatrix} = \begin{bmatrix} \mathbf{X}_1 \\ \mathbf{X}_2 \\ \vdots \\ \mathbf{X}_N \end{bmatrix} \beta + \begin{bmatrix} \xi_1 \\ \xi_2 \\ \vdots \\ \xi_N \end{bmatrix} \tag{4}$$

Consequently, in the covariance matrix of a model with heteroskedastic and serially correlated error terms, the disturbance terms are

$$E[\xi\xi'] = \Omega \tag{5}$$

where Ω is a block diagonal matrix ($NT \times NT$) of the matrix $N \times N$ of contemporaneous covariance, Σ, along the diagonal line. The elements of Σ, $\hat{\Sigma}$, are derived from OLS residuals equation (1):

$$\hat{\Sigma}_{ij} = \sum_{t=1}^{T_{ij}} \frac{\xi_{it}\xi_{jt}}{T_{ij}} \tag{6}$$

Therefore, the estimator of $\hat{\Omega}$ can be obtained from the block diagonal matrix comprising the $\hat{\Sigma}$ matrices on the diagonal line. Assuming that the error terms are spherical, $\Omega = \sigma^2\mathbf{I}$ where $\mathbf{I}$ is the identity matrix and our panel is balanced $T = T_{ij}, \forall_i = 1, \ldots, N$,

$$\hat{\Sigma} = \frac{(\Xi'\Xi)}{T} \tag{7}$$

where Ξ is $T \times N$ a matrix of residuals and, therefore, Ω is obtained from

$$\hat{\Omega} = \hat{\Sigma} \otimes \mathbf{I}_T \tag{8}$$

where $\otimes$ denotes the Kronecker (direct) product of matrix. However, in the case of an unbalanced and subsequently non-spherical residual, as in this study, the covariance matrix is

$$\hat{\Omega} = \hat{\Sigma} \otimes \mathbf{I}_{T_i \times T_i} \tag{9}$$

Therefore, the PCSE estimator is obtained from computation of the square root of the diagonal elements as follows:

$$PCSE = (\mathbf{X}'\mathbf{X})^{-1}\mathbf{X}'\hat{\Omega}\mathbf{X}(\mathbf{X}'\mathbf{X})^{-1}. \tag{10}$$

Furthermore, Appendix C reports pairwise correlation coefficients to understand the nature of any relationships between the IV's.

Spatial Panel Model

We proceeded to address possible effects of spatial interdependence and spatial heterogeneity due to the geographical inter-connectivity of security threats' effect on tourism by augmenting our results with the spatial Durbin panel models (Anselin, 2003; Anselin & Rey, 2010; Elhorst, 2014; Tobler, 1970). This analysis enables us to understand externalities due to inherent spillover effects (Figure 1) (Anselin, 2003; Chhetri et al., 2017). Consequently, we used vectors of tourism sector dependent and independent variables outlined in equation (1) to specify the spatial Durbin model (SDM) as follows:

Table 5. Spatial Panel Specification Tests.

Spatial panel tests	Tourism demand		Tourism economy		
	International tourism arrival	International tourism receipt	Leisure tourism spending	Contribution to employment	T&T services contribution to GDP
Moran test for spatial dependence	15.05*** (0.0001)	30.93*** (0.0000)	21.81*** (0.0000)	3.10* (0.0783)	16.13*** (0.0000)
Spatial Hausman	96.23*** (0.0000)	202.10*** (0.0000)	33.52 (0.6332)	46.92* (0.0549)	32.65 (0.9150)
Information criteria					
SDM FE					
AIC =	28.868	−32.481	1,164.806	−1,273.04	−90.03947
BIC =	243.469	138.347	1,376.527	−1,093.078	150.9726
SDM FE					
AIC =	126.761	58.568	—	−999.544	—
BIC =	336.726	225.603		−823.164	

Note. *$p < .1$. ***$p < .01$.

$$Y_{it} = \rho_{it}\mathbf{W}Y_{it} + X_{it}\beta + \mathbf{W}X_{it}\theta_{it} + \zeta_{it}$$
$$\zeta_{it} = \mu_i + \alpha_t\iota_N + \varepsilon_{it} \quad (11)$$

where Y_{it}, X_{it}, β are as denoted in equation (1), ζ_{it} denotes a vector of spatial and time effects; $\mathbf{W}$ is an $N\times N$ row-normalized spatial weights matrix depicting sample units, ρ_{it} and θ_{it} denote the spatial parameters relating to dependent and independent variables, respectively, μ_i is the vector of spatial fixed effects, and α_t is the vector of time-fixed effects, ε_{it} are independently and identically distributed error terms for all country units with zero mean and variance σ^2. Notice that the μ_i and α_t parameters can also be spatial random effects. The weighting matrix was derived in two stems. First, longitude and latitude coordinates were used to develop the matrix of distances D_{ij} in kilometers of capital cities of all the countries in our sample. Second, we used D_{ij} spatial weighting matrices, $\mathbf{W}$, of countries in our sample (Drukker et al., 2013).

The advantage of the spatial panel econometric approach lies in the ability to capture the extent to which neighboring countries' explanatory variables affect tourism outcome variables in our model (Partridge et al., 2012). In addition, the approach can address empirical challenges relating to non-randomly distributed error terms (Elhorst, 2014) and render spillover effects which are inherent in our framework. We brought the spatial dimension to our analyses to complement the PCSE results with spatial spillover effects. The estimations of spatial panel data used a combination of Stata in-built and user-written spatial panel-data commands (Belotti et al., 2017; Drukker et al., 2013). Our approach to spatial panel-data model estimation for this paper followed six steps. First, we augmented variables in our original model (used to obtain PCSE results) with geographical location variables in the form of longitude and latitude coordinates of capital cities of all the countries in our dataset. Second, we declared the data a spatial panel-data dataset. Third, we used longitude and latitude coordinates to generate distances in kilometers between the countries (Baum & Hurn, 2021). Fourth, we generated normalized inverse-distance weighting matrices using the Stata *spmatrx create* command combined with *normalize (spectral)* (Drukker et al., 2013). Fifth, we used the spatial weight matrices to conduct spatial panel-data diagnostics and specification tests. The results of the tests in this step, reported in Table 5, confirm statistically significant spatial dependence and fixed effect Spatial Durbin model (FE-SDM) and random effect Spatial Durbin model (RE-SDM). Finally, we proceeded to estimate FE-SDMs and RE-SDMs reported in this paper.

The results of Moran tests established significant spatial dependence for all the outcome variables used in this study. These results largely corroborate the tests for Pesaran tests for cross-sectional dependence in Table 5. However, the spatial Hausman test results favored the spatial fixed-effect Durbin models (FESDM) tourism arrivals, tourism receipts, and contribution to employment outcome variables, while the RE-SDM is favored for leisure spending and contribution to GDP. Further examination of model information criteria strongly favored the FE-SDM specification without L.-F. Lee and Yu (2010)'s transformation to the data.

Results and Discussion

Direct Causal Effects of Security Threats on T&T Demand and Economy

Following the battery of preliminary model specifications and diagnostic tests outlined above, we used the PCSE for our models. Table 6 shows the empirical results for the five tourism-related outcome variables used in this

Table 6. Empirical Results of Panel-Corrected Standard Errors Estimator (PCSE).

	Outcome variables				
	Tourism demand		Tourism economy[a]		
	International tourism arrival	International tourism receipt	Leisure tourism spending	Contribution to employment	T&T services contribution to GDP
Perception of crime					
Perceptions of criminality	—	—	0.0266	0.00245	0.0124
			(0.0238)	(0.0180)	(0.0194)
Homicide	−0.158***	−0.0556	−0.234***	−0.168***	−0.0890***
	(0.0340)	(0.0689)	(0.0290)	(0.0209)	(0.0297)
Access to weapons	−0.170***	−0.450***	−0.291***	—	−0.219***
	(0.0480)	(0.0506)	(0.0244)		(0.0301)
Incarceration	0.327***	0.161**	0.169***	0.0161	0.0388
	(0.0458)	(0.0691)	(0.0275)	(0.0202)	(0.0249)
Violent crime	—	—	—	0.0100	—
				(0.0103)	
Terrorism					
Impact of terrorism	0.130***	0.275***	0.127***	0.0895***	0.111***
	(0.0442)	(0.0690)	(0.0400)	(0.0295)	(0.0399)
Terrorism incidents	−0.000565**	−0.000468**	0.000141	—	−7.67e−05
	(0.000236)	(0.000238)	(0.000165)		(0.000157)
Political environment					
Political instability	−0.246***	−0.461***	−0.381***	−0.139***	−0.308***
	(0.0459)	(0.0529)	(0.0634)	(0.0402)	(0.0485)
Political terror	0.0161	0.0168	−0.0201	0.0981***	−0.0179
	(0.0224)	(0.0250)	(0.0220)	(0.0291)	(0.0180)
Intensity of internal conflict	−0.0644**	−0.0759**	−0.0382*	0.105***	−0.00366
	(0.0269)	(0.0380)	(0.0221)	(0.0327)	(0.0253)
Internal conflicts fought	−0.104***	−0.0727	—	—	0.00153
	(0.0329)	(0.0490)			(0.0185)
Deaths from internal conflict	0.0161	0.0194	−0.00523	—	−0.00126
	(0.0141)	(0.0169)	(0.0149)		(0.0108)
Geo-political powerplay					
External conflicts fought	−0.120***	—	−0.0589***	−0.0517***	−0.123***
	(0.0433)		(0.0199)	(0.0127)	(0.0183)
Deaths from external conflict	0.0145	—	−0.0667*	—	−0.00796
	(0.0539)		(0.0393)		(0.0380)
Displaced people	−0.0260	−0.0391	—	−0.177***	−0.104***
	(0.0356)	(0.0735)		(0.0408)	(0.0305)
UN peacekeeping funding	−0.0281	−0.0683***	−0.0462***		−0.0217*
	(0.0178)	(0.0225)	(0.0138)		(0.0114)
Neighboring countries relations	−0.00933	—	−0.00174	−0.0124	−0.0172
	(0.0185)		(0.0200)	(0.00923)	(0.0160)
Defense capability					
Military expenditure	−0.0317	−0.0875**	0.0157	−0.0698**	−0.0461
	(0.0394)	(0.0407)	(0.0303)	(0.0336)	(0.0299)
Nuclear and heavy weapons	0.601***	0.557***	0.835***	0.718***	0.732***
	(0.0333)	(0.0293)	(0.0792)	(0.0424)	(0.0512)
Weapons imports	—	0.101**	0.188***	—	0.173***
		(0.0445)	(0.0297)		(0.0292)
Weapons exports	0.00910	—	0.0296**	−0.0117	0.00885
	(0.0143)		(0.0149)	(0.00799)	(0.0109)
Armed services personnel	0.178***	0.373***		−0.0690*	—
	(0.0648)	(0.0819)		(0.0362)	
Police and security service					
Reliability of police services	0.0977***	0.126***	—	—	0.111***
	(0.0356)	(0.0474)			(0.0203)
Security officers and police	−0.0677***	—	—	−0.173***	−0.0770***
	(0.0243)			(0.0256)	(0.0224)

(continued)

Table 6. (continued)

	Outcome variables				
	Tourism demand		Tourism economy[a]		
	International tourism arrival	International tourism receipt	Leisure tourism spending	Contribution to employment	T&T services contribution to GDP
Constant	14.43***	21.43***	1.698***	5.145***	1.096***
	(0.386)	(0.378)	(0.179)	(0.142)	(0.171)
Observations	1,244	1,218	1,479	1,477	1,299
R^2	0.992	0.996	0.687	0.961	0.601
Wald χ^2	2,539	280.1	2010	683	4,232
Prob $> \chi^2$	0.000	0.000	0.000	0.000	0.000

Note. Degrees of freedom for Wald Chi^2 test (Wald Chi^2 (*df*)) for International Tourism-Arrival Wald = 20, International tourism receipt = 12, Leisure Tourism Spending = 18, Contribution to Employment = 16, Contribution to GDP = 21.[a]This study recognizes that the tourism economy outcome variables (i.e., T&T services contribution to GDP, tourism employment, leisure expenditure) might not be independent for a given country. Therefore, the economy outcome variables in our models are not projected onto one another to avoid internal validity problems resulting from double counting.*$p < .1$. **$p < .05$. ***$p < .01$.

study. Interestingly, the empirical results of the model show that the perception of crime and violent crime (i.e., robberies, assaults, kidnappings, and extortion) has an insignificant effect on tourism demand or economy variables. The reason behind such an outcome could be that the attractiveness of a destination subdues the effect of perceived crime. Altindag (2014, p. 8) notes that "the attractiveness of a country may partly compensate for the probability of victimization." Moreover, Alleyne and Boxill (2003) show that the impact of crime on tourist arrivals is mitigated by increased advertising and promotion of a destination. Alternatively, travelers can take precautions to reduce their perceived risk of crime without limiting their travel behavior (Barker et al., 2003).

Our findings also reveal that homicide rate and level of access to weapons in a country have direct significant negative influences on international tourist demand and economy indicators. Specifically, these findings show that destinations, which are notorious for high homicide rates and have easy access to weapons, face challenges to attract visitors, get lower tourism receipts, leisure spending, and benefit from lower tourism contribution to GDP. This implies that tourism demand and tourism economy tend to dwindle in countries, which experience high levels of homicide and preponderance of weapons used to commit homicide and violent crimes. The evidence from tourism-crime literature suggests that homicide/murder incidents have a greater impact on tourist arrivals than property crime (e.g., Alleyne & Boxill, 2003; Fourie et al., 2020; George, 2010; Pizam, 1999). However, the results show that incarceration has a significant positive effect on tourism arrivals, tourism receipt and leisure spending. We argue that incarceration has deterrent effects on perpetrators of crime rendering wider physical, psychological, and public safety benefits, which positively influence the intention to visit and spend time in destination and boost overall tourism demand and economy (Akerlof & Yellen, 1994; Wilhite & Allen, 2008).

Our analysis further shows that the total number of terrorist incidents has a negative influence on the growth rate of international tourist arrivals and the tourism receipts of destination countries. Moreover, highly insecure destinations affected by terrorism incidents fail to benefit from tourism. Tourism declines when perceived safety risks from terrorism incidents are high, or related information is communicated through the media (Kapuściński & Richards, 2016; B. Rittichainuwat & Chakraborty, 2009; Seabra et al., 2013). Terrorism incidents have adverse effects on expected cash flows and can depress travel industry stocks (Demiralay & Kilincarslan, 2019). However, we did not find any significant relationships between terrorism incidents and tourism leisure spending, T&T contribution to employment and GDP, which challenge the existing line of thought (e.g., Abadie & Gardeazabal, 2008; Blomberg et al., 2004) that a negative divergence of overall country's GDP results from terrorist shocks.

Meanwhile, one of the compelling results from our analysis shows that the overall impact of terrorism (terrorist-related violence attributing to physical and/or emotional damage to a country) has a significant positive influence on all T&T demand and economy variables. This finding can be explained from different perspectives of dark tourism, destination crisis management, and/or destination substitution. First, our findings are in line with the literature of dark tourism (Biran et al., 2014; N. Rittichainuwat, 2008; Strange & Kempa, 2003). Beyond mere leisure, recreation, and safety concerns, tourists may also be motivated to travel to terrorism-related destinations with motives ranging from a desire to honor victims to interest in seeing the grim magnitude of terrorism.

Second, Saha and Yap (2014) have noted that terrorism increases tourism demand up to a threshold, and then

substantially lowers the value of tourist arrivals after that threshold. However, destination crisis management can rebuild a country's image and minimize terrorism's impact on tourism demand (Avraham, 2015; A. Liu & Pratt, 2017). Therefore, a country can attract tourists even though it has a history of instability and/or terrorist incidents. Third, the positive relationship between security issues and tourism demand and economy variables could be highly substitutional in nature for the international destination market. Previous studies (e.g., Araña & León, 2008; Yechiam et al., 2005) have shown that if the degree of substitution among products is low, security issues have a less significant impact on tourist behavior. Therefore, travelers may opt for alternative destinations with similar characteristics, which they view as close substitutes (Neumayer, 2004; Yaya, 2009).

This also contributes to confirming that tourists do not stop traveling when faced with insecurity; rather, they choose a safer destination (Bonham et al., 2006; Seabra et al., 2020). For instance, Afonso-Rodríguez and Santana-Gallego (2018) found that terrorist attacks in MENA countries have positive substitution effect on tourist arrivals in Spain. Moreover, Buigut et al. (2022) found that increased terrorism activity in Thailand increase tourist arrivals in Malaysia from four continents (Europe, North America, Oceania, and Asia) as well as overall. Hence, our result shows that despite terrorist-related violence attributing to physical and/or emotional damage to a country, overall impact of terrorism not necessarily will have a negative impact on tourism sector development, rather it can boost tourist arrivals, receipts, leisure spending, T&T contribution to employment, and GDP.

Our findings show that tourism demand and the tourism economy can be negatively affected by the political instability (e.g., transfer of power, coup d'état, likeliness to opposition party coming to power and causing disruption, accountability and level of discretion, risk of international tensions affecting the economy). The results also demonstrate that intensity and duration of internal conflicts fought (e.g., economic sanctions, level of tense situation across country, group violence in sporadic incidents or systematic violence throughout the country, or civil war) have direct negative impact on tourist arrivals, tourism receipt, and leisure spending. However, intensity of internal conflicts does not show any impact on T&T contribution to GDP, while duration of internal conflicts fought does not have any impact on tourism economy variables.

Meanwhile, our interesting finding shows that the political terror (e.g., rule of law implication, political imprisonment, executions, disappearances, torture/brutality, etc.) and intensity of internal conflict have significant positive influence on the T&T contribution to employment. Despite the prevalent notion of political instability's negative impact on a country's economic output, some studies (e.g., Abu Murad & Alshyab, 2019; Campos et al., 2012; Jong-A-Pin, 2009) have shown that political instability and/or violence can have a positive or inconclusive impact on economic growth. One of the reasons for such a counter-intuitive relationship is that economic growth may be more responsive to a country's economic policies than its instability (Aizenman & Marion, 1993). A country can have an unstable internal political environment, but it would not necessarily alter overall rate of employment in a country while the country pursue consistent economic policies (Ali, 2001). Besides, we did not find any relationship between deaths from internal conflict and T&T service demand and economy variables. Overall the results show that tourism is sensitive to the state and nature of a destinations' political uncertainity.

Contrarily to de Albuquerque and McElroy (1999), Cruz-Milán et al. (2016), and Feickert et al. (2006), our results indicate that the number of security officers and police has a negative influence on tourist arrivals, T&T contribution to employment, and GDP. This result challenges the predominant notion that an increased number of uniformed security officers can increase tourists' perception of safety. Rather, our findings suggest that it might make tourists apprehensive, have a direct negative impact on tourist demand, and can indirectly affect the tourism economy. However, our results confirm that the reliability of police services can significantly enhance tourist demand (i.e., tourist arrivals and receipts) and have a positive impact on T&T contribution to GDP. Our results indicate that a high level of confidence in police may improve the sense of destination security, reassuring visitors and increasing tourist arrivals. This finding is in line with Cruz-Milán et al. (2016), who observed that the perceived effectiveness of security forces offers tourists a sense of protection, which eventually has a positive impact on the destination's economy. Our results show that tourists' perception of security is more reliant on the quality of police services than the quantity of security personnel present in the destination country.

While the defense spending and economic growth nexus is still elusive (Yakovlev, 2007), our study presents some stimulating findings. We show that an increase in military expenditure (i.e., national armed forces, paramilitary forces, customs protection officers, and border guards) can have negative impact on tourism receipts and contributions to employment but insignificant impact of tourism arrivals. We assume that increased spending on military forces can portray higher perceived risks of security threats, or the likelihood of armed conflict break out, which can negatively impact tourist receipts. Khalid et al. (2020) show that high levels of military expenditure tend to depress the tourism demand compared to countries that devote different levels of military spending. In

addition, different studies (i.e., P. Dunne & Watson, 2000; Huang & Kao, 2005; Malizard, 2014; Tang et al., 2009; Yildirim & Sezgin, 2003) indicate that military expenditure can negatively affect a country's employment rate both in the short and long run. However, we also found that a country's weapon imports, exports, armed services personnel, and stock of nuclear and heavy weapons have significant positive impact on at least one of the tourist demand and economy indicators. The possession of nuclear and heavy weapons, higher active armed services personnel in military forces, and/or trading weapons might signal the strength of countries' national security and capability to protect itself and tourist destinations from external threats (Nassani et al., 2017). To our knowledge, this is the first study to offer empirical evidence regarding the effect of defense capability indicators on tourism demand and economic outcomes.

Finally, our results confirm that overall geopolitical power-plays have a negative influence on tourism demand and the tourism economy. We found that the number and duration of extraterritorial conflicts a country is involved in has a negative impact on its tourist arrivals, leisure spending, T&T contribution to employment, and GDP, which is similar to the defense economic literature (Demir et al., 2019; Farmaki, 2017; Tiwari et al., 2019). While the results show that deaths from fatality related to external conflict only has negative relationship with tourism leisure spending, we did not find significant relationships between neighboring countries relations (e.g., aggressiveness in politicians' speeches or in protectionist measures, serious tensions, economic and diplomatic restrictions, etc.) and tourist demand and economy variables.

We also reveal that a refugee population and the number of internally displaced people have negative influences on the tourism industry. Our results contradict prior studies' notion of "immigration-led tourism" (e.g., Balli et al., 2016; Etzo et al., 2014; Mehmood et al., 2016), but our finding is in line with the argument that refugee crises hurt tourism economy (e.g., Ivanov & Stavrinoudis, 2018; Pappas & Papatheodorou, 2017). Host communities' intimidating behavior toward refugees also affects the tourist experience and contributes to an unfriendly destination image, resulting in lower tourism demand (Ivanov & Stavrinoudis, 2018; Moufakkir, 2015). In addition, UN funding for peacekeeping has a negative impact on tourism demand and the tourism economy. Generally, UN peacekeepers tends to prevent conflicts, minimize violence, strengthen national security, and restore peace in a region/nation. Hence, one of the reasons for such negative relationships could be that increased funding on peacekeeping missions generate a sense of insecurity of related destinations and higher perceived risk to the T&T industry, leading to a negative impact on the industry performance. While such results are unique, it opens an intriguing avenue for future investigation into UN funding for peacekeeping and the tourism economy.

Long-run Spillover Effects

Table 7 and Appendix D present the marginal impacts (long-run spillover effects) and partial derivatives (coefficients) of our SDM estimators respectively. It should be noted that, unlike the coefficients of PCSE estimators in Table 6, which assume spatial independence, the partial derivative of the dependent variables with respect to covariates for the SDM estimators are not simply equivalent to the marginal effects of the covariates on the outcome variables (Golgher & Voss, 2016; LeSage & Pace, 2009). Therefore, the coefficients in Appendix D are mainly used for hypotheses testing in spatial econometrics practice because they are considered inaccurate for interpreting spatial effects in the models (Elhorst, 2012). Consequently, we will limit our discussion of spatial effect in the models to spillover effects from the impact measures presented in Table 7. However, the results in Appendix D show statistically significant spatial lag coefficients and/or ancillary variances for all the models. These results indicate significant overall spatial dimensions to the relationship between the outcome variables and the covariates in our models.

Table 7 reports estimate of the long-run spillover effects (direct/own-country effects), long-run indirect spillover effect (indirect/cross-country effects), and total effects of the outcome variables attributed to each of the covariates the models. The direct effects capture the average impact of the outcome variable attributable to the covariates in each country, while the indirect effects are the average effects across neighboring countries. Consequently, the long-run effects indicate spatial feedback effects of the covariates on the outcome variables due to spillover effects (LeSage & Pace, 2009). This implies that a change in the outcome variable for a particular country, connected with each covariate, will affect that country directly and possibly influence other (neighboring) countries indirectly (Elhorst, 2012).

Specifically, the results show that a change in the perception of criminality relates to large negative indirect (cross-country) and total spatial spillover effects on leisure tourism spending and tourism contribution to GDP but has insignificant spillover effects on tourism contribution to employment and no discernable effect on tourism arrivals and receipts. This implies that a change in the perception of criminality of a particular country tends to have negative cross-country impact on leisure tourism spending and tourism contribution to employment in neighboring countries, but negligible direct effect on other tourism economy variables. While previous studies have shown negative own-country effect of criminality on tourism arrivals (see, de Albuquerque & McElroy, 1999;

Table 7. Long-Run Spatial Spillover Effect.

Variables	Long-run spillover effects														
	International tourism arrival			International tourism receipts			Leisure tourism spending			Direct contribution to employment			Direct Contribution to GDP		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
Perceptions of criminality							0.00929	−0.297***	−0.288***	0.0306	0.0409	0.0715	−0.00569	−0.293***	−0.299***
							(0.0420)	(0.0864)	(0.109)	(0.0208)	(0.0646)	(0.0709)	(0.0223)	(0.0954)	(0.0965)
Homicide	−0.0408	−1.093	−1.133	−0.199***	−1.284*	−1.483**	−0.0995**	0.0224	−0.0772	−0.0645**	−0.507**	−0.571***	−0.147***	−0.402	−0.549**
	(0.0735)	(0.742)	(0.773)	(0.0739)	(0.715)	(0.736)	(0.0430)	(0.379)	(0.380)	(0.0285)	(0.212)	(0.213)	(0.0413)	(0.248)	(0.251)
Access to weapons	−0.109	−0.535	−0.644	−0.117*	−0.667	−0.784	−0.155***	−0.578	−0.733				−0.0633	−1.034**	−1.097**
	(0.0908)	(1.321)	(1.376)	(0.0670)	(0.742)	(0.771)	(0.0518)	(0.430)	(0.456)				(0.0418)	(0.448)	(0.457)
Incarceration	0.0656	0.797	0.863	0.115**	0.844	0.959	0.111**	1.266***	1.376***	−0.0171	0.347*	0.329*	0.00991	0.679**	0.689**
	(0.0557)	(0.617)	(0.633)	(0.0511)	(0.604)	(0.614)	(0.0459)	(0.219)	(0.238)	(0.0285)	(0.179)	(0.178)	(0.0329)	(0.275)	(0.281)
Violent crime										−0.000539	−0.0496	−0.0502			
										(0.0104)	(0.0376)	(0.0365)			
Impact of terrorism	0.0571	1.942**	1.999**	0.0101	0.401	0.411	0.00918	0.0955	0.105	−0.00236	0.0980	0.0956	−0.00276	0.498**	0.495**
	(0.0407)	(0.796)	(0.816)	(0.0425)	(0.415)	(0.419)	(0.0238)	(0.110)	(0.117)	(0.0154)	(0.0877)	(0.0926)	(0.0215)	(0.224)	(0.230)
Terrorism incidents	−0.000506*	−0.0123**	−0.0129**	−0.00043***	−0.00131	−0.00173	0.000113	0.00234***	0.00245***				1.58e−05	−0.00142	−0.00140
	(0.000268)	(0.00546)	(0.00559)	(0.000128)	(0.00254)	(0.00258)	(0.000109)	(0.000553)	(0.000531)				(7.06e−05)	(0.00159)	(0.00161)
Political instability	−0.105	−0.681	−0.785	−0.145***	−1.608***	−1.753***	−0.0906**	−0.0827	−0.173	−0.0436	0.0390	−0.00465	−0.0769**	−1.028***	−1.105***
	(0.0645)	(0.540)	(0.561)	(0.0462)	(0.513)	(0.525)	(0.0355)	(0.144)	(0.149)	(0.0267)	(0.0774)	(0.0830)	(0.0318)	(0.337)	(0.351)
Political terror	0.00693	−0.375	−0.368	0.00845	0.277	0.285	−0.0316	0.0457	0.0141	−0.0107	−0.0610	−0.0718	−0.00370	0.0707	0.0670
	(0.0332)	(0.421)	(0.433)	(0.0354)	(0.329)	(0.342)	(0.0241)	(0.0577)	(0.0588)	(0.0153)	(0.0499)	(0.0518)	(0.0195)	(0.189)	(0.192)
Intensity of internal conflict	−0.0150	−0.0878	−0.103	−0.00974	0.357	0.348	−0.0367	0.117*	0.0801	−0.0251	0.0426	0.0175	−0.0301	−0.118	−0.148
	(0.0457)	(0.611)	(0.629)	(0.0547)	(0.545)	(0.560)	(0.0237)	(0.0708)	(0.0809)	(0.0204)	(0.0741)	(0.0819)	(0.0217)	(0.350)	(0.356)
Internal conflicts fought	−−0.0960***	−0.793	−0.889	−0.0573	−0.768*	−0.825*							0.0227	−0.136	−0.113
	(0.0356)	(0.680)	(0.705)	(0.0353)	(0.427)	(0.445)							(0.0207)	(0.327)	(0.333)
Deaths from internal conflict	−0.0430**	−0.119	−0.162	−0.0365**	−0.000941	−0.0375	−0.00992	−0.0621	−0.0720				−0.0286***	−0.283***	−0.312***
	(0.0183)	(0.196)	(0.197)	(0.0175)	(0.238)	(0.238)	(0.0184)	(0.0503)	(0.0587)				(0.0109)	(0.109)	(0.105)
External conflicts fought	−0.0345	0.0675	0.0330				−0.0132	−0.0917*	−0.105**	−0.0293**	−0.00660	−0.0359	−0.0290**	0.0571	0.0281
	(0.0234)	(0.239)	(0.245)				(0.0109)	(0.0469)	(0.0488)				(0.0119)	(0.0761)	(0.0774)
Deaths from external conflict	0.0523	2.218**	2.270**				0.0126	−0.0620	−0.0494				0.0334	−0.149	−0.115
	(0.0425)	(0.951)	(0.967)				(0.0339)	(0.343)	(0.355)	(0.0121)	(0.0345)	(0.0348)	(0.0256)	(0.423)	(0.425)
Displaced people	0.0823	−0.257	−0.175	0.0633	0.666	0.729				−0.0751	0.0144	−0.0607	0.0376	−0.289	−0.251
	(0.0540)	(0.884)	(0.920)	(0.0548)	(0.512)	(0.546)				(0.0500)	(0.141)	(0.137)	(0.0444)	(0.436)	(0.443)
UN peacekeeping funding	−0.0225	−0.332	−0.354	−0.0437**	−0.398**	−0.441**	−0.0387**	−0.0576**	−0.0963***				−0.00352	−0.324***	−0.328***
	(0.0223)	(0.247)	(0.259)	(0.0189)	(0.191)	(0.195)	(0.0166)	(0.0282)	(0.0335)				(0.0120)	(0.112)	(0.116)
Neighboring countries relations	−0.0134	−0.496**	−0.509**				0.00736	0.00535	0.0127	0.00131	−0.0619	−0.0606	−0.00536	−0.0307	−0.0360
	(0.0200)	(0.241)	(0.239)				(0.0203)	(0.0466)	(0.0436)	(0.0108)	(0.0431)	(0.0465)	(0.0101)	(0.0731)	(0.0714)
Military expenditure	−0.0615	−0.589	−0.650	−0.133***	−0.366	−0.499	−0.0590	−0.00647	−0.0654	−0.0113	−0.00886	−0.0202	0.00351	−0.0842	−0.0807
	(0.0514)	(0.491)	(0.513)	(0.0454)	(0.443)	(0.461)	(0.0498)	(0.0538)	(0.0799)	(0.0361)	(0.0413)	(0.0600)	(0.0277)	(0.227)	(0.225)
Nuclear and heavy weapons	0.236	−6.069**	−5.833**	0.147	−2.226	−2.078	0.260***	−0.414	−0.153	0.173*	0.0963	0.269	0.280**	0.795	1.075
	(0.192)	(2.918)	(2.967)	(0.169)	(1.393)	(1.458)	(0.0852)	(0.401)	(0.437)				(0.129)	(0.994)	(1.069)
Weapons imports				0.0927***	1.138***	1.230***	0.0991***	0.466*	0.565*				0.0199	−0.176	−0.156
				(0.0335)	(0.356)	(0.366)	(0.0373)	(0.268)	(0.290)	(0.100)	(0.425)	(0.481)	(0.0225)	(0.228)	(0.236)
Weapons exports	0.00542	−0.381*	−0.375				0.00824	0.0287	0.0369	0.0103	−0.0249	−0.0146	−0.00652	−0.0253	−0.0318
	(0.0155)	(0.227)	(0.229)				(0.0116)	(0.0741)	(0.0764)	(0.00838)	(0.0390)	(0.0375)	(0.00800)	(0.0861)	(0.0888)
Armed services personnel	0.247**	3.457*	3.704**	0.210***	2.007***	2.217***				0.0422	0.00492	0.0471			
	(0.105)	(1.802)	(1.833)	(0.0428)	(0.654)	(0.661)				(0.0373)	(0.394)	(0.410)			
Reliability of police services	0.0357	−0.132	−0.0963	−0.0509	0.178	0.127							0.0420	0.318	0.360
	(0.0515)	(0.430)	(0.442)	(0.0429)	(0.330)	(0.337)							(0.0403)	(0.206)	(0.219)
Security officers & police	−0.0232	1.263*	1.240*							−0.0401	−0.188	−0.228	0.00406	0.0969	0.101
	(0.0317)	(0.715)	(0.720)							(0.0244)	(0.156)	(0.167)	(0.0303)	(0.236)	(0.255)

Note. Robust standard errors in parentheses *$p < .1$, **$p < .05$, ***$p < .01$. Direct = own-country effects; Indirect = cross-country effects.

Levantis & Gani, 2000; Michalko, 2004) these findings on negative cross-country spillover effects of perception of criminality on leisure tourism spending and tourism contribution to GDP, but non-discernable own-country spillover effects, is unique.

While the results of PCSE indicate that perception of criminality has negligible causal impacts on tourism demand and tourism economy variables, our results from spatial panel data analysis show that the perception of crime has significant negative spillover effects on destinations in neighboring countries. To the best of our knowledge, this is the first attempt to show that perception of criminality tends to have negligible own-spillover effects on leisure tourism spending and tourism contribution to GDP but it leads to significantly negative cross-country spillover effects on neighboring countries.

Moreover, the results indicate significant negative own-country spillover effect of tourism receipt, leisure tourism spending, contributions of tourism to employment, and GDP to change in homicide rates, but no cross-country effects on tourism in neighboring countries except for employment. The results further show that higher incarceration rates generate strong positive own- and cross-country spillover effects on leisure tourism spending. This result confirms that incapacitation and deterrent benefits of incarceration directly benefits tourism spending of a country, and the benefits indirectly spillover to neighboring countries.

In addition, we show that incarceration rates significant positive own-country spillover effects on tourism receipts as well as positive cross-country spillover effects on tourism contribution to GDP of neighboring countries. Consistent with the security threats theory and literature, the results show that political instability exert negative effect on own-country and cross-country spillover effects on tourism receipts and contribution to GDP. This indicates that unstable political environment in a country directly hurts tourism outcomes of a country, and also generates negative externalities, which immiserate neighboring countries' tourism performance. Interestingly, the results further show that internal conflicts and deaths resulting from internal conflicts render a significant negative own-country spillover effect on tourism arrivals but insignificant cross-country and total spillover effects. However, the results show that deaths from internal conflicts exert significant negative influence on own-and cross-country (and total) spillover effects on tourism contribution to GDP.

The results further show that UN peacekeeping funding exert significant negative influence on own-spillover effects of tourism receipts and leisure tourism spending, as well as significant cross-country effects on contribution to GDP. Additionally, signs and magnitude of statistical of significance of the spillover effects are in line with results from the PCSE models. While results from the PCSE model in Table 6 did not show discernible effect of neighboring countries relations on tourism arrivals, the FE-SDM results attribute significant negative cross-country and total spillover effects of tourism arrivals to neighboring countries relations. However, results from both PCSE and FE-SDM models attribute significant negative causal and own-country spillover influence tourism receipts, respectively, to military spending relationship. Furthermore, the results of PCSE and RE-SDM model results are, albeit with positive signs, for causal effects and own-country spillover effects of leisure tourism spending and contribution to GDP attributable to nuclear and heavy weapons.

While PCSE estimator results show that nuclear and heavy weapons render significant positive causal effect on tourism arrivals, possession of nuclear and heavy weapons generate significant negative cross-country and total spillover effects on tourism arrivals in neighboring countries. Moreover, weapons imports demonstrate significant positive long run spillover effects on tourism receipts and leisure spending, while significant negative cross-country spillover effects of tourism arrivals emanate from weapons exports. Finally, armed services personal of a country render significant positive own- and cross-country and total spillover effects on tourism arrivals and tourism receipts.

Conclusions and Policy Implications

This study elucidates, synthesizes, and integrates the existing body of knowledge to offer a clear conceptualization of security threats. Thus, it advances our understanding of the direct, indirect, and long-run spillover effects of global security threats on service industries. The empirical results clearly show that security issues strongly affect the performance of a country's tourism sector and have substantial impacts on the spatial inter-connectivity in tourism service satellite accounts (Frechtling, 2010; Smeral, 2006).

This study has answered calls from scholars (e.g., Corbet et al., 2019; Duan et al., 2022; Krajňák, 2021; C.-C. Lee & Chen, 2021; A. Liu & Pratt, 2017; Pizam & Mansfeld, 2006; Seabra et al., 2020) for in-depth insights into tourism security theory and related tourism economy issues. Given the new empirical evidence, a large proportion of tourist expenditure related to service sectors in a host country can positively or negatively contribute to economic growth. Our results indicate that security threats have significant negative causal and spillover effects on international tourist arrivals, and the contribution of tourism to employment and GDP. These findings are in line with the report of Shah and Aneez (2019), which shows that the Easter Sunday bombing in Sri Lanka resulted in 70% decline in tourist arrivals, a

shortfall of $800 to 900 million in tourism revenue, 3% deficit to GDP, and thousands lost their jobs. A supportive report of World Trade Organization (WTO, 2002) also substantiates that the Bali bombs cost US$2 billion in international and domestic tourism earnings and rendered 2.7 million people jobless. Our findings reveal the need for authorities and stakeholders to take decisive measures against security threats and manage risk perceptions of destinations to protect the tourism service sector. Besides, international cooperation is extremely important in reducing the risk of terrorist attacks in destination countries. While terrorist incidents are relatively unpredictable, appropriate intelligence sharing can provide information that can be leveraged to alert destinations and identify weaknesses in security systems.

Moreover, to minimize security crises in a particular destination, transformative crisis management plans need to be developed by all tourism stakeholders (e.g., governments, agents, media, and the local tourism industry). In the case of terrorist incidents, a rapid crisis management strategy should be implemented to accelerate the recovery process. Reinstating a secure image of destinations involves a multi-step, holistic approach that synthesizes pragmatic measures using marketing strategies (Avraham, 2015). Such an approach eases tourists' psychological barriers in selecting travel destinations and may help destinations contain spillover effects. Tourism managers in conflict-prone destinations should be prepared to modify their marketing strategies quickly (e.g., reduce hotel and associated supplementary service prices, enhance safety measures, booking alterations, flight prices, etc.) to repair the destinations' image after a crisis.

Additionally, assessing police service reliability can be a valuable approach for managing destination image. Ensuring the reliability of police services will rebuild confidence and reassure prospective tourists, which will subsequently boost tourism demand and the tourism economy. While increasing the number of security and police forces can generate anxiety or fear within the tourist community, our research sheds light on enhancing police reliability to ensure sustainable tourism sector development. Preventing crime through arrests and confinement and fewer homicides and internal conflicts can project an image of reliable police forces, which can help build the required confidence to reassure prospective travelers. Consequently, demonstrating reliability safety can help develop an image of a resilient destination, thus attracting a growing number of visitors to boost destinations' service economies. Hence, policymakers in destination countries should raise awareness on the reliability of police services to reassure travelers.

We also propose extending the role of destination management organizations to tourism security-related strategic development planning. Along with such implementation, we also suggest that increasing social capital (e.g., trust and collective community relationships) should be prioritized to enhance countries' resilience and recovery from security threats. Such social capital can project a sense of communal assurance for tourists, which can also lead to improved economic activities.

In addition, our study presents some thought-provoking findings worthy of further investigation. Although global terrorism has dual effects on the tourism industry's receipts, employment, travel services, leisure expenditure, and the service sector's contribution to GDP, scholars have overlooked the spillover effects of dark tourism. Additionally, there is a lack of panel data on global dark tourism. Therefore, scholars should undertake empirical investigations on dark tourism's impact on the T&T service industry. Moreover, other potential factors, such as corruption and socio-cultural issues, may also have significant negative effects on the five dependent variables. Economic policy's effect on T&T service sector investments also warrants further attention. In addition, the proposed framework needs refinement through more empirical studies to confirm this study's results, which can provide further evidence to corroborate tourism security theory and health outbreaks.

This study is also subject to certain limitations, which unfolds avenues for future research. One of the main limitations of this study is the unavailability of industry-level of mediating variables (e.g., hospitality services, transport services, business services, the retailing industry, supply chain, etc.) to explore the indirect and long-run effect of security threat variables. In addition, seasonality, visitors' socio-economic and cultural differences, or attractiveness of destination can affect tourist's travel patterns and preferences, which future research should consider deepening the understanding of different T&T demand patterns and economic contribution. Moreover, travel purposes (i.e., business/professional, visiting friends/health/religion, or leisure/recreation/holidays) can influence tourists response to security issues, which should also be considered by the future research. Furthermore, we augment Pizam and Mansfeld (2006)'s study with additional typologies such as natural disasters, health-related threats, industrial hazards, and cybercrime as crucial security threats to the T&T industry (see Table 8). Hence, we suggest to investigate the impact of these security threats on T&T performance. For example, there is insufficient data on disease outbreaks such as SARS, H1N1, MERS, Ebola, and COVID-19 to empirically estimate their spillover effects on the tourism economy and tourism demand. It is evident that the upsurge in the COVID-19 pandemic has substantially ruined the T&T service industry. This is in line Financial Times Reporters (2020) who conveyed that COVID-19 is the worst crisis since the Second World War. Moreover, UNWTO (2020) reports a 74% reduction in international tourist arrivals in 2020. Furthermore, UNWTO (2021), the COVID-19 pandemic

Table 8. Travel and Tourism Related Threats: Potential Research Agenda.

Group A: The nature of tourism-related security incidents and crises	Group B: Impacts of security incidents	Group C: Reaction to tourism crises by all tourism stakeholders
1. Types of security incidents *(i) Crime-related incidents can be in the form of:* • Larceny • Theft • Robbery • Rape • Murder • Piracy • Kidnapping. *(ii) Terrorism can take the form of:* • Domestic terrorism • International terrorism • Cross-border terrorism *(iii) Civil and/or political unrest* • Coup d'état • Violent demonstrations • Uprising • Riots *(iv) Wars to a given region* • Cross-border wars • Trans-border wars • Wars of attrition • Civil wars *(v) Health-related threats* • COVID-19 • Ebola • SARS • H1N1 • Influenza (flu) • HIV/AIDS • Tuberculosis • Hepatitis: A, B, and C • Dengue fever • Lassa fever • Monkeypox • Chickenpox • Meningococcal disease (meningitis) • Mumps • Rabies • Zika • Measles *(vi) Catastrophic natural disasters* (a) Geological disasters • Volcanic eruption • Earthquake • Landslide and Mudslide • Invasive species (swarms of locust) (b) Cold, hot, and dry weather incidents (meteorological and climatological disasters) • Blizzards • Avalanche • Hailstorm • Ice storm • Snowstorm • Heatwaves • Wildfire • Firestorms • Dust storm • Drought (c) Hydrological disasters • Tsunami • Riverine Flood • Flash flood • Tornado • Cyclone • Hurricane • Thunderstorms *(vii) Industry-related threats* • Radioactive materials • Waste disposal • Air and water pollution *(viii) Cybercrime* • Unauthorized access • Hacking and cracking activities • Cyber terrorism • Use of mobile and wireless technology in terrorist activities • Cyber fraud/online fraud	**1. Impact on the destination itself** • Tourist overall arrivals in a given period • Tourist segmented arrivals in any given period • Tourist overall receipts in any given period • Tourist segmented receipts in any given period • Duration of impact (crisis) • Destination life cycle **2. Impact on tourists' behavior** • Intention to travel to affected destination • Actual cancelations • Actual bookings • Actual avoidance of unsafe destinations • Risk-taking tendency of various tourist segments • Change in use of risk-related travel information prior to destination choice • Perceived vulnerability to specific types of crimes • Characteristics of tourist image projection • Familiarity with safe and unsafe areas within a given destination • Involvement in illicit activities **3. Impact on the tourism industry** • Evacuation of tourists by tour operators • Local investors' behavior • Transnationals' investing behavior • Human resource restructuring behavior • Inclusion/exclusion of destination in tour operators' brochures • Cost of doing or ceasing doing business • Cash flow assessment • Profitability • Projection of destination image by tour operators and travel agents • Extent of economic interest in tourism business at the destination **4. Impact on host governments** • Changes in level of security measures in affected destinations • Changes in short-, medium-, and long-term government policies toward tourism • Extent of governmental direct/indirect operational involvement in tourism • Extent of governmental direct/indirect financial involvement in tourism • Extent of governmental direct/indirect marketing involvement in tourism *5. Impact on governments of generating markets* • Availability of travel advisories in given generating markets • Level of exposure to travel advisories in generating markets • Position on travel advisories' risk scale • Frequency of travel advisory updates **6. Media behavior** • Extent of coverage of the incident • Types of media coverage • Forms of media coverage (informative vs. interpretive) • Relative coverage of security situations by media platforms • Level of biased information • Level of biased interpretation of security situations • The impact of media warnings • Extent of media messages directly aimed at potential tourists	**Expected and actual efforts made by the various stakeholders in the tourism system in response to security incidents that either:** • Might affect tourist destinations in the future • Are currently affecting tourist destinations causing a crisis situation • Affected tourist destinations in the past **1. Destination behavior** • Extent of publicity and public relations activities • Availability of contingency and crisis plans • Availability of marketing campaigns and PR campaigns • Level of implementation of contingency and crisis plans • Level of cooperation among stakeholders on planning and implementation of crisis management operations • Characteristics of marketing campaigns • Availability of tourist security education programs • Availability of image enhancement programs • Availability of crisis management funding • Implementing measures to claim the exaggeration of the media and/or other entities outside the area about the he magnitude of the incident **2. Image and perception management** • Nature of perceived destination image following security incidents • Levels of perceived risk • Effect of mass media on destination image • Effect of travel trade on destination image • Effect of friends and relatives on destination image • Effect of risk-taking tendency on destination image • Effect of risk takers' experience on destination image **3. Risk and crisis management techniques (prevention/reduction/mitigation)** • Availability of risk related information to tourists and potential tourists • Availability of integrated contingency marketing plans for each crisis stage • Availability of media and image-management plans • Availability of attractive incentives for domestic tourists • Level of labor cost reduction in private enterprises • Level of dissemination of positive communication • Development, operation, and updating of travel advisories among generating markets and host destinations • Presence of law enforcement or the military in tourist zones • Level of technologically based means of protection in and around tourism installations • Availability of dedicated tourist police units • Level of dedicated tourism policing • Level of visibility of security measures • Availability of rewards for information leading to arrests of offenders • Facilitation of tourist victims' testimony in criminal cases • Training of tourism employees in security matters • Public–private cooperation in security provisions • Availability of tourism and security education programs • Adoption of CPTED (Crime Prevention Through Environmental Design) principles in the design of tourism physical plants • Designating crime against tourists a major criminal offense • Maintaining a database of crimes against tourists • Educating local citizens • Creating and maintaining safe roads • Partnership between the leaders of the local community and governments. **4. Recovery methods** • The effect of price reduction strategies • Availability of funds for marketing recovery plans • Ability to develop new market segments • Availability of new and innovative promotional campaigns • Availability of destination-specific marketing strategies • Effectiveness of marketing campaigns by the private sector • Availability of comprehensive marketing campaigns by Destination Management • Comprehensive cooperative marketing campaign (between Organizations (DMOs), Non-Governmental Organizations (NGOs), and governments) • Scheduling of special events • Availability of incentives to tourists • Availability of financial assistance from governmental agencies • Level of local community involvement in recovery-oriented efforts • Level of tourism enterprises involvement in recovery-oriented efforts • Reduce labor costs • Decrease prices for their services and goods • Initiate new promotional campaigns • Develop new products • Identify and develop new market segments • Postpone major expenditures on maintenance and renovation • Request financial assistance from governmental agencies • Level of positive public relations campaigns to improve public opinion among the media, tourists, and locals • Level of disseminating positive information to existing and potential tourists.

(continued)

Table 8. (continued)

Group A: The nature of tourism-related security incidents and crises	Group B: Impacts of security incidents	Group C: Reaction to tourism crises by all tourism stakeholders

- Spoof websites and email security alert
- Grooming and cyber stalking
- Extortion/romance fraud
- Email spamming, fraud, and virus hoax emails
- Lottery frauds/scams
- Financial cybercrime and credit card fraud
- Cyber identity theft
- Cyber defamation
- Phreaking
- Denial of service attack
- Cyber hate, bullying, and harassment
- Breach of privacy and confidentiality
- Theft of password
- Cross-site scripting
- Virus dissemination
- Logic bomb
- Phishing
- Web jacking
- Data diddling
- Salami slicing attack
- Software piracy
- Botnets
- Ransomware
- Prohibited content

2. Frequency of security incidents

- Number of security incidents in a given period of time
- Scaled frequency pattern within a given period of time

3. Motives and targets of security incidents

(i) Possible motives:

- Political
- Religious
- Social
- Economic
- Hostility to tourists
- Publicity seeking
- Destruction of an area's economy
- Financial gain
- Hacktivism
- State-sponsored actors
- Blackmail
- Recognition, popularity and achievement

(ii) Potential targets

- Tourists on the way to and from their travel destinations
- Tourists vacationing in a given travel destination
- Tourism and hospitality installations and facilities
- Strategic and non-strategic transportation facilities serving tourists
- Public and private services and businesses also serving tourists
- T & T infrastructure

4. Severity of Security Incidents

- Extent of overall damage to tourism properties caused by security incidents
- Extent of damage to private sector tourism properties caused by security incidents
- Extent of damage to public sector tourism properties caused by security incidents
- Extent of damage to life caused by security incidents
- Electrical blackouts
- Failure of military defensive equipment
- Breaches of national security secrets
- Cybercrime's estimated global damage cost US$10.50 trillion per annum by 2025

(i) Location

- Geographical range of impact
- Geographical distribution of affected areas
- On- vs. off-the-premises of tourist enterprises
- High vs. low crime areas
- Physical characteristics of the urban environment
- Physical characteristics of the tourist installations
- Location of potentially crime-generating tourist activities
- Use of the internet and cyberspace
- Global electronic networks

Source. Adapted from Pizam and Mansfeld (2006) and extended.

has had a massive impact on the global economy and livelihoods, affecting 100 million direct tourism jobs and resulting in an estimated economic loss of US$1.3 trillion. Indeed, the dramatic variation and severity of COVID-19 have noticeably increased the perceived risks and threats associated with the T&T industry (C.-C. Lee & Chen, 2021; Zheng et al., 2021)

The findings of this study indicate that travelers and tourists react to insecurity, which leads to suspension, cancelation, or substitution of their travel plans. This inherent reaction to insecurity is not dissimilar to the traveler's reaction to the COVID-19 pandemic. For instance, international tourism may give way to domestic tourism or staycations. Hence, we can argue that the pandemic has transformed the perception of health risks associated with tourism (Qiu et al., 2020). However, we lack COVID-19 panel data to include in this empirical modeling investigation/exercise of security threats' spillover effect on service industries. Zhang et al. (2021) made the observation that COVID-19 "data limitations and the unprecedented context of this pandemic, traditional statistical forecasts could not incorporate the effects of the related factors." Due to limitations of COVID-19 panel data, we put forward the use of the revised framework for further studies; this study on security threats could be extended by examining the spillover effects of the COVID-19 pandemic and other disease outbreaks (e.g., MERS, Ebola) on the tourism economy and tourism demand. Based on the above reasoning, our conceptual framework of security threats' spillover effects can be useful in determining wider empirical impact pathways of COVID-19 on global service industries. As modern-day policymakers and managers often draw on ideas in scholarly works, this study offers conceptual understanding and empirical evidence of the spillover effects of global security threats on the T&T service industry.

Appendix A.

Appendix A. Review of Some Key Studies.

Study	Global security threats						Tourism demand		Tourism economy			Theoretical concepts		Sample and key results	
	Perception of crime	Political environment	Terrorism	Police and security services	Geopolitical powerplay	Defense capability	Tourist arrival	International tourist receipts	Leisure expenditure	Contribution to employment	Service T&T contribution to GDP	Theoretical background	Other variables used	Study country	Major findings
de Albuquerque and McElroy (1999)	♦						♦					• Routine activities theory • Hot spot theory	Murder, major wounding, rape, robbery, property crime, burglary/ house breaking, larceny-vehicle, person, accommodation, beaches	Barbados, Jamaica, St Maarten, the U.S. Virgin Islands South Florida, Honolulu	• Tourists' victimization of ■ Serious crime ↑ than residents. ■ Property crime ↑ than residents. ■ Robbery ↑ than residents • Tourist victimization rates ± visitor density levels.
Alvarez and Campo (2014)		♦										• Country image	Affective country image, overall country image, country respect and reputation, level of development	Israel	• Political incidents ■ Overall country image ↓ ■ Visit intentions ↓
Araña and León (2008)			♦									• Discrete choice modeling	Beach space, accommodation services, natural landscapes, availability of theme parks, time to entertainment and shopping centers, quality of urban environment	Balearics, Turkey, Greeks, Cyprus, Canary Islands	• Terrorism incidents ■ Decision to travel ↓ ■ Preferences for attributes of tourism product ↓ ■ Relative importance of the package characteristics ±
Bhattarai et al. (2005)		♦	♦				♦		♦			• Tourism demand	Mountaineering, trekking, religious pilgrimage	Nepal	• Political turmoil, civil conflict, and violence ■ Mountaineering and trekking tourist's arrival ↓ ■ Pilgrims' tourist's arrival ↓ ■ Employment ↓
Boakye (2010)	♦						♦					• Routine activities theory • Hot spot theory	Accommodation type, travel arrangement, travel party size	Ghana	Tourists' suitability for being a victim depends on ■ Accommodation preference↑↓ ■ Travel arrangement ↑↓ ■ Travel party size ↑↓

(continued)

Appendix A. (continued)

Study	Global security threats						Tourism demand		Tourism economy			Theoretical concepts		Sample and key results	
	Perception of crime	Political environment	Terrorism	Police and security services	Geopolitical powerplay	Defense capability	Tourist arrival	International tourist receipts	Leisure expenditure	Contribution to employment	Service T&T contribution to GDP	Theoretical background	Other variables used	Study country	Major findings
Boakye (2012)	♦						♦					• Routine activities theory • Hot spot theory	Accommodation type, travel arrangement, continent of origin, property theft, phone snatching, physical assault, fraud, verbal abuse	Ghana	• Perception of crime/ vulnerability varies. ■ Socio-demographics (age/gender) ↑↓ ■ Accommodation type ↑↓ ■ Continent of origin ↑↓
Causevic and Lynch (2013)		♦								♦		• Critical theory	Qualitative study: political setting, internal cooperation, cooperation with neighboring countries, social dimension	Bosnia and Herzegovina	• Political conflict affects tourism development and employment. • Peace needs to be put forward as a prerequisite for tourism development. • Collaboration between divided communities can aid tourism.
Corbet et al. (2019)			♦									• Tourism demand and flows	Number of airline seats supplied (business seats, economy seats, total seats), available seat kilometers, passenger demand, fares and revenues earned by airlines	EU-28 countries	• Terrorist attacks ■ Business travel ↓ ■ Tourist travel ↑ • Corporate damage and revenue loss occur in the short-term.
Cruz-Milán et al. (2016)				♦								• Signaling theory	Community life, community security, community economy, satisfaction with life (SWL), intention to return and recommend	Rio Grande Valley	• Perceived safety of security forces. ■ Community security and SWL at destination ↑ ■ Community economy and SWL at destination ↑ ■ Community life benefits and SWL at destination ↓
Fourie et al. (2020)	♦	♦	♦				♦					• Gravity model derived from consumer choice theory	Corruption, GDP per capita in the origin and the destination country, regional trade agreement, cultural distance	171 countries	• Similarities between the level of terrorism/ crime in destination and origin countries affect. ■ Tourist arrival ↑↓ • Corruption/Cultural distance/knowledge gap about the destination country affects. ■ Tourist arrival ↓

(continued)

Appendix A. (continued)

Study	Global security threats						Tourism demand		Tourism economy			Theoretical concepts		Sample and key results	
	Perception of crime	Political environment	Terrorism	Police and security services	Geopolitical powerplay	Defense capability	Tourist arrival	International tourist receipts	Leisure expenditure	Contribution to employment	Service T&T contribution to GDP	Theoretical background	Other variables used	Study country	Major findings
George (2003)	♦											• Routine activities theory • Hot spot theory	Safety perception of Cape Town and TMN park, risk perception of TMN park, revisit intention, willingness to recommendation	Cape Town	• Perceived Unsafe environment ■ Intentions to revisit & to recommend ↑ ■ Attitudes toward risk ■ Tourist perceptions of crime-safety ± ■ Intentions to revisit & to recommend ± • Age, Nationality, Frequency/Purpose of visits ■ Tourist perceptions of crime-safety ↑↓
Gozgor et al. (2022)					♦							• Objective macro-risks	Geopolitical risks, tourism development, social globalization, and tourism investment	18 developing economies	• Geopolitical risks affect tourism investment
Groizard et al. (2022)	♦	♦	♦			♦	♦					• Spill-over effect	Political stability, international tourism, spillovers, terrorism, Arab spring, tourism inflows, international tourist arrivals	Mediterranean region	• Arab Spring Revolution decreases tourism inflows and international tourist arrivals and has spillover effects
Lanouar and Goaied (2019)		♦	♦				♦					• Transitory or persistent shocks on tourism demand	Number of overnights, stays, tourism activity	Tunisia	• Tourism activity is influenced by local shocks than international shocks. • Terrorist shocks have a long duration compared to political violence shocks.
Lepp and Gibson (2003)	♦	♦	♦									• Tourist behavior: utility of the sensation seeking	Risk factors, health and well-being, strange food, political and religious dogma, cross cultural differences	United States	• Tourists perceived terrorism as a greater risk. • Experienced tourists downplay threat of terrorism. • Familiarity seekers are most risk adverse. • Novelty seekers perceive lower risk.

(continued)

Appendix A. (continued)

Study	Global security threats						Tourism demand		Tourism economy			Theoretical concepts		Sample and key results	
	Perception of crime	Political environment	Terrorism	Police and security services	Geopolitical powerplay	Defense capability	Tourist arrival	International tourist receipts	Leisure expenditure	Contribution to employment	Service T&T contribution to GDP	Theoretical background	Other variables used	Study country	Major findings
A. Liu and Pratt (2017)			♦				♦					• Theory of international tourism demand models	Gross Domestic Product (GDP), political regimes	95 countries	• Relationship with terrorism with ■ Tourism demand in the long run ± ■ Degree of democracy ↓ • Open political regime, highly tourism dependent destinations and high level of national income are less impacted by terrorism.
Pizam (1999)	♦	♦	♦				♦					• Tourism demand	Context analysis, nature of criminal/violent act, effects on tourism demand, prevention methods, parties responsible for prevention, recovery methods, parties responsible for recovery	300 incidents analyzed in major tourist destinations around the world	• Political motives have the most intense, widespread, and lengthy effects on tourism demand. • War and mass terrorism had the strongest and most devastating effects on tourism demand. • Riots and political or civil unrest had a stronger effect on tourism demand than crimes
Pizam and Fleischer (2002)			♦				♦					• Tourism demand	The severity of terrorism, the frequency of terrorism	Israel	• Severity/frequency of the terrorist act ■ Tourist arrival ↓ • Frequency of terrorist act has greater impact on tourist arrival than the severity of terrorist acts.
B. N. Rittichainuwat & Chakraborty, 2009			♦				♦					• Perceived risk	Increase of travel costs, lack of novelty seeking, disease, deterioration of tourist attractions, travel inconvenience	Thailand	• Perceived terrorism risks deter tourists in the short run but do not have a long-term impact. • Perceived disease risk is mitigated by travelers' prior experience. • Perceived risks are the most important travel inhibitors that would deter both first-time and repeat travelers

(continued)

Appendix A. (continued)

Study	Global security threats						Tourism demand		Tourism economy			Theoretical concepts		Sample and key results	
	Perception of crime	Political environment	Terrorism	Police and security services	Geopolitical powerplay	Defense capability	Tourist arrival	International tourist receipts	Leisure expenditure	Contribution to employment	Service T&T contribution to GDP	Theoretical background	Other variables used	Study country	Major findings
Saha and Yap (2014)		♦	♦				♦					• Tourism demand model	Income-tourists' affordability to visit, relative prices-comparative costs of goods and services, destination attractiveness-tourism supply, exchange rate-competitiveness of the country's tourism industry	139 Countries	• Terrorism increases tourism at a very low to moderate level of political instability. • The impact of political instability shows greater volatility in terms of tourism demand. • Tourist arrivals depends on ■ Exchange rate ■ Historical and natural heritage
Seabra et al. (2020)			♦				♦					• Spill-over effect	Perceived risk of terrorism, destination risk, substitution	Portugal	• Terrorist attacks have a strong impact on tourist arrivals. • Terrorist attacks has spillover effect on neighboring country, namely the substitution and generalization effects. • Similarities of neighboring countries enhances the causal relationship between terrorist attacks and tourist arrivals. • Past tourist arrivals influence current tourist arrivals.
Sönmez and Graefe (1998a)		♦	♦									• Information integration theory • Protection motivation theory	Functional risk, financial risk, physical risk, psychological risk, satisfaction risk, social risk, time risk, likelihood to travel, and avoid travel	United Sattes, the U.S. Virgin Islands Puerto Rico	• Previous travel experience and risk perception influence further travel behavior. • Risk and safety perceptions determine future travel and influence destination avoidance.

(continued)

Appendix A. (continued)

Study	Global security threats						Tourism demand		Tourism economy			Theoretical concepts		Sample and key results	
	Perception of crime	Political environment	Terrorism	Police and security services	Geopolitical powerplay	Defense capability	Tourist arrival	International tourist receipts	Leisure expenditure	Contribution to employment	Service T&T contribution to GDP	Theoretical background	Other variables used	Study country	Major findings
Sönmez and Graefe (1998b)		♦	♦									• Prospect theory • Information integration theory	International experience, risk perception level, international attitude, personality type, age, Gender, education, income, and no. of children	United States, the U.S. Virgin Islands Puerto Rico	• International attitude, risk perception level and income directly influence international vacation destination choice. • Touristic experience and education have indirect influences with international vacation destination choice. • Perceived risk has no association with international tourism but concern regarding terrorism or political turmoil is present.
Tyagi et al. (2016)				♦								• Expressive model of confidence	Police culture, leadership behavior, tourist confidence in police, age, gender, experience, and education	India	• Police culture ■ Tourists' confidence in police ↑ • Quality of service ■ Confidence in the police ↑ • Leader behavior moderates between ■ Police culture and service quality↑
Walters et al. (2019)			♦									• Utility maximization theory	Travel package attribute preferences, knowledge, sensation seeking, and age, gender, income, and education	Australia	• Tourist's travel choices in relation to accommodation, independent versus group travel, cancelation policy, and price vary significantly as the threat of terrorism increases.
Wolff and Larsen (2014)		♦	♦									• Risk perception	Perceived destination risk, risk for terrorism or actions of war during trip to Norway, tourist worries, tourist worries about acts of terror or war during trip to Norway	Norway	• Perceived risks for terror in Norway and for Norway as a destination are relatively low. • Tourist's worries, including worries about terrorism, during their trip to Norway are also low.

(continued)

Appendix A. (continued)

Study	Global security threats						Tourism demand		Tourism economy			Theoretical concepts		Sample and key results	
	Perception of crime	Political environment	Terrorism	Police and security services	Geopolitical powerplay	Defense capability	Tourist arrival	International tourist receipts	Leisure expenditure	Contribution to employment	Service T&T contribution to GDP	Theoretical background	Other variables used	Study country	Major findings
This study	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	• Tourism security theory • Spill-over effects	Global Security Threats with 24 explanatory indices and five outcome variables (see Table 3).	161 countries	• Impact of terrorism ■ Five outcomes variables↑ • Political terror ■ Contribution to employment ↑ • Armed services personnel ■ Tourism demand variables ↑ but contribution to employment ↓ • Reliability of police services ■ Tourism demand variables ↑ and contribution to GDP ↑ • Security officers & police ■ Tourist arrivals↓, contribution to employment ↓ and contribution to GDP ↓ • Nuclear and heavy weapons ■ Five outcome variables ↑ • More details (see Table 6)

Note. ↑ = increase; ↓ = decrease; ± = no effect.

Appendix B

Proof:

Consider equation (1). Following from econometric theory,

$$\boldsymbol{\beta} = (\mathbf{X}'\mathbf{X})^{-1}\mathbf{X}Y = \frac{Cov(Y,\mathbf{X})}{Var(\mathbf{X})} \qquad (A.1)$$

Substitution equation (1) into equation (p.1)—ignoring the subscripts

$$\begin{aligned}\frac{Cov(\mathbf{X}+v,\mathbf{X})}{\text{var}(\mathbf{X})} &= \frac{Cov(\mathbf{X}\beta,\mathbf{X})}{\text{var}(\mathbf{X})} + \frac{Cov(v,\mathbf{X})}{\text{var}(\mathbf{X})} \\ &= \boldsymbol{\beta}Cov\left[\frac{(\text{var}(\mathbf{X})}{\text{var}(\mathbf{X})}\right] + \frac{Cov(v,\mathbf{X})}{\text{var}(\mathbf{X})} \\ &= \boldsymbol{\beta} + \frac{Cov(v,\mathbf{X})}{\text{var}(\mathbf{X})}\end{aligned} \qquad (A.2)$$

The problem of endogeneity due to unobserved endogeneity arise in equation (1) if the second term in equation (A.2) is non-zero, therefore, $Cov(\mathrm{X}_{it}, u_{it}) = 0$. This problem introduces bias in the estimate in $\boldsymbol{\beta}$.

Appendix C. Pairwise Correlations.

(IV)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(1)	1.00																							
(2)	.02	1.00																						
(3)	.52***	−.05*	1.00																					
(4)	−.03	.26***	.17***	1.00																				
(5)	.58***	.00	.54***	−.15***	1.00																			
(6)	.47***	.07***	.30***	−.07***	.61***	1.00																		
(7)	.60***	−.11***	.56***	−.09***	.65***	.54***	1.00																	
(8)	.45***	.05*	.27***	−.11***	.62***	.73***	.51***	1.00																
(9)	.48***	.00	.37***	.02	.55***	.72***	.53***	.64***	1.00															
(10)	−.30***	.13***	−.32***	.03	−.29***	−.20***	−.34***	−.17***	−.20***	1.00														
(11)	.24***	−.05**	.03	−.10***	.30***	.54***	.35***	.32***	.54***	−.04*	1.00													
(12)	.27***	.02	.10***	−.12***	.32***	.48***	.36***	.31***	.53***	.01	.67***	1.00												
(13)	.29***	−.08***	.16***	−.18***	.39***	.52***	.41***	.35***	.55***	−.09***	.73***	.73***	1.00											
(14)	.09***	.27***	−.06**	.10***	.17***	.35***	.04	.33***	.33***	.33***	.26***	.28***	.22***	1.00										
(15)	−.06**	.27***	−.13***	.26***	−.11***	.09***	−.19***	.09***	.14***	.35***	.02	.07***	.01	.47***	1.00									
(16)	.35***	−.02	.33***	−.17***	.43***	.33***	.35***	.44***	.36***	−.20***	.05*	.08***	.15***	.03	−.09***	1.00								
(17)	−.04	.11***	−.19***	.20***	−.10***	.07***	−.15***	−.08***	.17***	.11***	.34***	.17***	.15***	.27***	.27***	−.23***	1.00							
(18)	−.20***	−.03	−.22***	.10***	−.20***	−.22***	−.26***	−.27***	−.21***	.13***	.08***	−.05**	−.09***	.03	.10***	−.22***	.40***	1.00						
(19)	.25***	.03	.10***	−.10***	.32***	.45***	.30***	.36***	.40***	−.06**	.39***	.43***	.45***	.29***	.18***	.19***	−.10***	−.12***	1.00					
(20)	.21***	.09***	.04*	.12***	.31***	.56***	.19***	.54***	.48***	−.01	.30***	.30***	.30***	.37***	.33***	.14***	.24***	−.05**	.35***	1.00				
(21)	−.17***	−.07***	−.16***	.14***	−.19***	−.22***	−.17***	−.18***	−.19***	.09***	−.08***	−.11***	−.10***	−.04*	.01	−.16***	.11***	.12***	−.03	−.06**	1.00			
(22)	−.07***	−.10***	−.09***	.11***	.02	−.03	−.08***	−.07***	.05**	.09***	.16***	.08***	.14***	.15***	.13***	−.13***	.46***	.36***	.00	.26***	.26***	1.00		
(23)	.23***	.11***	.06***	−.10***	.23***	.31***	.26***	.19***	.33***	.02	.50***	.51***	.47***	.27***	.02	−.01	.19***	−.04*	.32***	.17***	−.05*	.15***	1.00	
(24)	−.63***	.03	−.56***	.01	−.61***	−.52***	−.64***	−.53***	−.55***	.45***	−.15***	−.16***	−.21***	.13***	.13***	−.40***	.11***	.31***	−.10***	−.22***	.13***	.07**	−.17***	1.00

Note. (IV) Independent variables, (1) Perceptions of criminality, (2) Number of security officers and police, (3) Homicide, (4) Incarceration, (5) Access to weapons, (6) Intensity of internal conflict, (7) Violent crime, (8) Political instability, (9) Political terror, (10) Weapons imports, (11) Impact of terrorism, (12) Deaths from internal conflict, (13) Internal conflicts fought, (14) Military expenditure, (15) Armed services personnel, (16) UN peacekeeping funding, (17) Nuclear and heavy weapons, (18) Weapons exports, (19) Displaced people, (20) Neighboring countries' relations, (21) External conflicts fought, (22) Deaths from external conflict, (23) Terrorism incidents, (24) Reliability of police services. $^{*}p < .1$. $^{**}p < .05$. $^{***}p < .01$.

Appendix D. Partial Derivatives (Coefficients) of FE-SDM Variables.

Variables	International tourism arrival		International tourism receipts		Leisure tourism spending		Direct contribution to employment		Direct Contribution to GDP	
	Coeff.	Wx	Coeff.	Wx	Coeff.	Coeff.	Wx	Coeff.	Wx	Coeff.
Perceptions of criminality					0.0228 (0.0347)	−0.695*** (0.165)	0.0284 (0.0201)	0.0778 (0.161)	−0.00265 (0.0217)	−0.169** (0.0685)
Homicide	−0.0198 (0.0715)	−0.457 (0.285)	−0.177** (0.0702)	−0.579 (0.371)	−0.0929** (0.0442)	0.146 (0.856)	−0.0522* (0.0313)	−1.261** (0.539)	−0.145*** (0.0431)	−0.162 (0.132)
Access to weapons	−0.101 (0.0821)	−0.0964 (0.446)	−0.111* (0.0654)	−0.323 (0.414)	−0.132*** (0.0433)	−1.295 (1.100)			−0.0490 (0.0434)	−0.603** (0.287)
Incarceration	0.0473 (0.0559)	0.314 (0.224)	0.101* (0.0527)	0.382 (0.299)	0.0475 (0.0356)	2.901*** (0.599)	−0.0267 (0.0291)	0.938** (0.475)	0.00157 (0.0326)	0.403** (0.178)
Violent crime							0.000308 (0.0109)	−0.132 (0.0993)		
Impact of terrorism	0.0261 (0.0384)	0.787*** (0.237)	0.00464 (0.0470)	0.213 (0.214)	0.00348 (0.0232)	0.223 (0.273)	−0.00593 (0.0152)	0.255 (0.233)	−0.00987 (0.0216)	0.296** (0.131)
Terrorism incidents	−0.000309 (0.000232)	−0.00499** (0.00216)	−0.000408*** (0.000126)	−0.000566 (0.00140)	1.36e−05 (8.29e−05)	0.00549*** (0.00170)			4.08e−05 (7.10e−05)	−0.000880 (0.000922)
Political instability	−0.0946 (0.0637)	−0.235 (0.210)	−0.115** (0.0488)	−0.809*** (0.232)	−0.0860** (0.0360)	−0.112 (0.306)	−0.0429 (0.0267)	0.132 (0.199)	−0.0635** (0.0284)	−0.574*** (0.134)
Political terror	0.0131 (0.0312)	−0.175 (0.163)	0.00198 (0.0351)	0.154 (0.166)	−0.0324 (0.0242)	0.136 (0.141)	−0.00884 (0.0160)	−0.150 (0.126)	−0.00435 (0.0193)	0.0435 (0.115)
Intensity of internal conflict	−0.0132 (0.0445)	−0.0114 (0.213)	−0.0175 (0.0540)	0.224 (0.290)	−0.0418* (0.0235)	0.308* (0.180)	−0.0264 (0.0201)	0.121 (0.192)	−0.0294 (0.0218)	−0.0619 (0.196)
Internal conflicts fought	−0.0843*** (0.0297)	−0.279 (0.227)	−0.0436 (0.0340)	−0.398* (0.208)					0.0233 (0.0196)	−0.0780 (0.177)
Deaths from internal conflict	−0.0431** (0.0190)	−0.0305 (0.0824)	−0.0385** (0.0184)	0.0294 (0.130)	−0.00758 (0.0178)	−0.141 (0.113)			−0.0245** (0.0122)	−0.147*** (0.0448)
External conflicts fought	−0.0348 (0.0214)	0.0466 (0.0959)			−0.00874 (0.0105)	−0.199* (0.104)	−0.0290** (0.0121)	0.000516 (0.0877)	−0.0299*** (0.0115)	0.0477 (0.0407)
Deaths from external conflict	0.0186 (0.0402)	0.905*** (0.287)			0.0140 (0.0319)	−0.161 (0.826)			0.0354 (0.0240)	−0.0903 (0.240)
Displaced people	0.0878* (0.0469)	−0.147 (0.341)	0.0510 (0.0530)	0.338 (0.259)			−0.0782 (0.0491)	0.0836 (0.371)	0.0380 (0.0469)	−0.217 (0.244)
UN peacekeeping funding	−0.0160 (0.0216)	−0.126 (0.0924)	−0.0352* (0.0198)	−0.203** (0.0987)	−0.0361** (0.0176)	−0.110* (0.0659)			0.000177 (0.0114)	−0.188*** (0.0659)
Neighboring countries relations	−0.00580 (0.0202)	−0.201** (0.0863)			0.00695 (0.0226)	0.00669 (0.114)	0.00371 (0.0110)	−0.150 (0.101)	−0.00471 (0.00987)	−0.0131 (0.0421)
Military expenditure	−0.0498 (0.0502)	−0.202 (0.194)	−0.125*** (0.0440)	−0.129 (0.240)	−0.0582 (0.0523)	0.0152 (0.126)	−0.0117 (0.0350)	−0.0146 (0.104)	0.00677 (0.0287)	−0.0583 (0.137)
Nuclear and heavy weapons	0.325* (0.191)	−2.821*** (1.075)	0.182 (0.159)	−1.368* (0.803)	0.278*** (0.0795)	−1.193 (0.928)	0.168* (0.0944)	0.0768 (1.026)	0.270** (0.126)	0.362 (0.539)
Weapons imports			0.0706** (0.0311)	0.595*** (0.194)	0.0746*** (0.0281)	1.001* (0.553)			0.0206 (0.0225)	−0.120 (0.132)
Weapons exports	0.0119 (0.0159)	−0.162** (0.0754)			0.00749 (0.0115)	0.0759 (0.181)	0.0115 (0.00883)	−0.0674 (0.0987)	−0.00646 (0.00731)	−0.0128 (0.0490)
Armed services personnel	0.186* (0.0966)	1.282*** (0.471)	0.171*** (0.0428)	1.018*** (0.380)			0.0419 (0.0356)	0.0287 (0.954)		
Reliability of police services	0.0387 (0.0503)	−0.0931 (0.164)	−0.0561 (0.0428)	0.138 (0.185)					0.0371 (0.0387)	0.174 (0.114)
Security officers and police	−0.0446 (0.0315)	0.560** (0.282)							0.00426 (0.0285)	0.0519 (0.119)
Constant	—		—		1.183** (0.480)		—		2.668*** (0.566)	
Spatial ρ	0.674*** (0.0844)		0.620*** (0.0718)		0.666*** (0.120)		0.514*** (0.0886)		0.544*** (0.0976)	
Variance (sigma2_e)	0.0541*** (0.00895)		0.0509*** (0.00884)		0.0657** (0.0298)		0.0234*** (0.00489)		0.0250** (0.0100)	
Observations	970		850		1,470		1,470		1,120	
Log-pseudolikelihood	29.566		52.241		−542.40		670.52		93.02	
Number of _ID	97		85		147		147		112	

Note. Robust standard errors in parentheses *$p < .1$, **$p < .05$, ***$p < .01$.

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References

Abadie, A., & Gardeazabal, J. (2008). Terrorism and the world economy. *European Economic Review*, *52*(1), 1–27. https://doi.org/10.1016/j.euroecorev.2007.08.005

Abu Murad, M. S., & Alshyab, N. (2019). Political instability and its impact on economic growth: The case of Jordan. *International Journal of Development Issues*, *18*(3), 366–380. https://doi.org/10.1108/ijdi-02-2019-0036

Afonso-Rodríguez, J. A., & Santana-Gallego, M. (2018). Is Spain benefiting from the Arab Spring? On the impact of terrorism on a tourist competitor country. *Quality & Quantity*, *52*(3), 1371–1408. https://doi.org/10.1007/s11135-017-0527-2

Aizenman, J., & Marion, N. P. (1993). Policy uncertainty, persistence and growth. *International Economic Review*, *1*(2), 145–163. https://doi.org/10.1111/j.1467-9396.1993.tb00012.x

Akadiri, S. S., Eluwole, K. K., Akadiri, A. C., & Avci, T. (2020). Does causality between geopolitical risk, tourism and economic growth matter? Evidence from Turkey. *Journal of Hospitality and Tourism Management*, *43*, 273–277. https://doi.org/10.1016/j.jhtm.2019.09.002

Akerlof, G., & Yellen, J. L. (1994). *Gang behavior, law enforcement, and community values*. Canadian Institute for Advanced Research.

Ali, A. M. (2001). Political instability, policy uncertainty, and economic growth: An empirical investigation. *Atlantic Economic Journal*, *29*(1), 87–106. https://doi.org/10.1007/bf02299934

Alleyne, D., & Boxill, I. (2003). The impact of crime on tourist arrivals in Jamaica. *International Journal of Tourism Research*, *5*(5), 381–391. https://doi.org/10.1002/jtr.444

Altindag, D. T. (2014). Crime and international tourism. *Journal of Labor Research*, *35*(1), 1–14. https://doi.org/10.1007/s12122-014-9174-8

Alvarez, M. D., & Campo, S. (2014). The influence of political conflicts on country image and intention to visit: A study of Israel's image. *Tourism Management*, *40*, 70–78. https://doi.org/10.1016/j.tourman.2013.05.009

Ammermann, P. A., & Patterson, D. M. (2003). The cross-sectional and cross-temporal universality of nonlinear serial dependencies: Evidence from world stock indices and the Taiwan stock exchange. *Pacific-Basin Finance Journal*, *11*(2), 175–195. https://doi.org/10.1016/s0927-538x(02)00113-0

Anselin, L. (2003). Spatial externalities, spatial multipliers, and spatial econometrics. *International Regional Science Review*, *26*(2), 153–166. https://doi.org/10.1177/0160017602250972

Anselin, L., & Rey, S. (2010). Properties of tests for spatial dependence in linear regression models. *Geographical Analysis*, *23*(2), 112–131. https://doi.org/10.1111/j.1538-4632.1991.tb00228.x

Antonakakis, N., Dragouni, M., Eeckels, B., & Filis, G. (2019). The tourism and economic growth enigma: Examining an ambiguous relationship through multiple prisms. *Journal of Travel Research*, *58*(1), 3–24. https://doi.org/10.1177/0047287517744671

Araña, J. E., & León, C. J. (2008). The impact of terrorism on tourism demand. *Annals of Tourism Research*, *35*(2), 299–315. https://doi.org/10.1016/j.annals.2007.08.003

Archer, B. H., & Owen, C. B. (1972). Towards a tourist regional multiplier. *Journal of Travel Research*, *11*(2), 9–13. https://doi.org/10.1177/004728757201100202

Avraham, E. (2015). Destination image repair during crisis: Attracting tourism during the Arab spring uprisings. *Tourism Management*, *47*, 224–232. https://doi.org/10.1016/j.tourman.2014.10.003

Bagchi, A., & Paul, J. A. (2018). Youth unemployment and terrorism in the MENAP (Middle East, North Africa, Afghanistan, and Pakistan) region. *Socio-Economic Planning Sciences*, *64*, 9–20. https://doi.org/10.1016/j.seps.2017.12.003

Bai, J., & Ng, S. (2008). Forecasting economic time series using targeted predictors. *Econometrics Journal*, *146*(2), 304–317. https://doi.org/10.1016/j.jeconom.2008.08.010

Bailey, D., & Katz, J. N. (2011). Implementing panel-corrected standard errors in R: The PCSE package. *Journal of Statistical Software*, *42*(Code Snippet 1), 1–11. https://doi.org/10.18637/jss.v042.c01

Balli, F., Balli, H. O., & Jean Louis, R. (2016). The impacts of immigrants and institutions on bilateral tourism flows. *Tourism Management*, *52*, 221–229. https://doi.org/10.1016/j.tourman.2015.06.021

Balli, F., Uddin, G. S., & Shahzad, S. J. H. (2019). Geopolitical risk and tourism demand in emerging economies. *Tourism Economics*, *25*(6), 997–1005. https://doi.org/10.1177/1354816619831824

Barker, M., & Page, S. J. (2002). Visitor safety in urban tourism environments: The case of Auckland, New Zealand. *Cities*, *19*(4), 273–282. https://doi.org/10.1016/s0264-2751(02)00024-0

Barker, M., Page, S. J., & Meyer, D. (2003). Urban visitor perceptions of safety during a special event. *Journal of Travel*

Research, *41*(4), 355–361. https://doi.org/10.1177/0047287503041004004

Baum, C. F., & Hurn, S. (2021). *Environmental econometrics using Stata*. Stata Press.

Bausch, T., Gartner, W. C., & Ortanderl, F. (2021). How to avoid a COVID-19 research paper tsunami? A tourism system approach. *Journal of Travel Research*, *60*(3), 467–485. https://doi.org/10.1177/0047287520972805

Beck, N., & Katz, J. N. (1995). What to do (and not to do) with time-series cross-section data. *American Political Science Review*, *89*(3), 634–647. https://doi.org/10.2307/2082979

Belotti, F., Hughes, G., & Mortari, A. P. (2017). Spatial panel-data models using stata. *The Stata Journal*, *17*(1), 139–180. https://doi.org/10.1177/1536867x1701700109

Benedikter, R., & Ouedraogo, I. (2019). Saving West Africa from the rise of terrorism: Burkina Faso's 'Emergency Program for the Sahel' and the need for a multidimensional strategy. *Global Change Peace & Security*, *31*(1), 113–119. https://doi.org/10.1080/14781158.2018.1449101

Bhattarai, K., Conway, D., & Shrestha, N. (2005). Tourism, terrorism and turmoil in Nepal. *Annals of Tourism Research*, *32*(3), 669–688. https://doi.org/10.1016/j.annals.2004.08.007

Biran, A., Liu, W., Li, G., & Eichhorn, V. (2014). Consuming post-disaster destinations: The case of Sichuan, China. *Annals of Tourism Research*, *47*, 1–17. https://doi.org/10.1016/j.annals.2014.03.004

Birkland, T. A. (2004). "The world changed today": Agenda-setting and policy change in the wake of the September 11 terrorist attacks. *Review of Policy Research*, *21*(2), 179–200. https://doi.org/10.1111/j.1541-1338.2004.00068.x

Blake, A., Durbarry, R., Eugenio-Martin, J. L., Gooroochurn, N., Hay, B., Lennon, J., Thea Sinclair, M., Sugiyarto, G., & Yeoman, I. (2006). Integrating forecasting and CGE models: The case of tourism in Scotland. *Tourism Management*, *27*(2), 292–305. https://doi.org/10.1016/j.tourman.2004.11.005

Blomberg, S. B., Hess, G. D., & Orphanides, A. (2004). The macroeconomic consequences of terrorism. *Journal of Monetary Economics*, *51*(5), 1007–1032. https://doi.org/10.1016/j.jmoneco.2004.04.001

Boakye, K. A. (2010). Studying tourists' suitability as crime targets. *Annals of Tourism Research*, *37*(3), 727–743. https://doi.org/10.1016/j.annals.2010.01.002

Boakye, K. A. (2012). Tourists' views on safety and vulnerability. A study of some selected towns in Ghana. *Tourism Management*, *33*(2), 327–333. https://doi.org/10.1016/j.tourman.2011.03.013

Bonham, C., Edmonds, C., & Mak, J. (2006). The impact of 9/11 and other terrible global events on tourism in the United States and Hawaii. *Journal of Travel Research*, *45*(1), 99–110. https://doi.org/10.1177/0047287506288812

Bonn, M. A., & Harrington, J. (2008). A comparison of three economic impact models for applied hospitality and tourism research. *Tourism Economics*, *14*(4), 769–789. https://doi.org/10.5367/000000008786440148

Breusch, T. S., & Pagan, A. R. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. *The Review of Economic Studies*, *47*(1), 239–253. https://doi.org/10.2307/2297111

Buigut, S., Kapar, B., & Braendle, U. (2022). Effect of regional terrorism events on Malaysian tourism demand. *Tourism and Hospitality Research*, *22*(3), 271–283. https://doi.org/10.1177/14673584211021895

Bülbüloğlu, B. (2022, March 02). Turkey's tourism sector to pay price for Russia-Ukraine war. *Daily Sabah*. https://www.dailysabah.com/business/tourism/turkeys-tourism-sector-to-pay-price-for-russia-ukraine-war

Bulligan, G., Marcellino, M., & Venditti, F. (2015). Forecasting economic activity with targeted predictors. *International Journal of Forecasting*, *31*(1), 188–206. https://doi.org/10.1016/j.ijforecast.2014.03.004

Burnham, K. P., & Anderson, D. R. (2002). *Model selection and multimodel inference*. Springer.

Campos, N. F., Karanasos, M. G., & Tan, B. (2012). Two to tangle: Financial development, political instability and economic growth in Argentina. *Journal of Banking & Finance*, *36*(1), 290–304. https://doi.org/10.1016/j.jbankfin.2011.07.011

Cárdenas-García, P. J., Sánchez-Rivero, M., & Pulido-Fernández, J. I. (2015). Does tourism growth influence economic development? *Journal of Travel Research*, *54*(2), 206–221. https://doi.org/10.1177/0047287513514297

Causevic, S., & Lynch, P. (2013). Political (in)stability and its influence on tourism development. *Tourism Management*, *34*, 145–157. https://doi.org/10.1016/j.tourman.2012.04.006

Cavlek, N. (2002). Tour operators and destination safety. *Annals of Tourism Research*, *29*(2), 478–496. https://doi.org/10.1016/s0160-7383(01)00067-6

Chan, Y. M., Hui, T.-K., & Yuen, E. (1999). Modeling the impact of sudden environmental changes on visitor arrival forecasts: The case of the Gulf war. *Journal of Travel Research*, *37*(4), 391–394. https://doi.org/10.1177/004728759903700409

Chen, J., & Chen, Z. (2008). Extended Bayesian information criteria for model selection with large model spaces. *Biometrika*, *95*(3), 759–771. https://doi.org/10.1093/biomet/asn034

Chhetri, A., Chhetri, P., Arrowsmith, C., & Corcoran, J. (2017). Modelling tourism and hospitality employment clusters: A spatial econometric approach. *Tourism Geographies*, *19*(3), 398–424. https://doi.org/10.1080/14616688.2016.1253765

Chudik, A., & Pesaran, M. H. (2015). Large panel data models with cross-sectional dependence: A survey. In B. H. Baltagi (Ed.), *The Oxford handbook of panel data* (pp. 3–45). Oxford University Press.

Corbet, S., O'Connell, J. F., Efthymiou, M., Guiomard, C., & Lucey, B. (2019). The impact of terrorism on European tourism. *Annals of Tourism Research*, *75*, 1–17. https://doi.org/10.1016/j.annals.2018.12.012

Coshall, J. T. (2003). The threat of terrorism as an intervention on international travel flows. *Journal of Travel Research*, *42*(1), 4–12. https://doi.org/10.1177/0047287503253901

Crouch, G. I. (1994). The study of international tourism demand: A review of findings. *Journal of Travel Research*, *33*(1), 12–23. https://doi.org/10.1177/004728759403300102

Cruz-Milán, O., Simpson, J. J., Simpson, P. M., & Choi, W. (2016). Reassurance or reason for concern: Security forces as a crisis management strategy. *Tourism Management*, *56*, 114–125. https://doi.org/10.1016/j.tourman.2016.04.002

de Albuquerque, K., & McElroy, J. (1999). Tourism and crime in the Caribbean. *Annals of Tourism Research*, *26*(4), 968–984. https://doi.org/10.1016/s0160-7383(99)00031-6

Dekimpe, M. G., Peers, Y., & van Heerde, H. J. (2016). The impact of the business cycle on service providers: Insights from international tourism. *Journal of Service Research*, *19*(1), 22–38. https://doi.org/10.1177/1094670515604846

Demir, E., Díez-Esteban, J. M., & García-Gómez, C. D. (2019). The impact of geopolitical risks on cash holdings of hospitality companies: Evidence from emerging countries. *Journal of Hospitality and Tourism Management*, *39*, 166–174. https://doi.org/10.1016/j.jhtm.2019.04.004

Demir, E., Gozgor, G., & Paramati, S. R. (2020). To what extend economic uncertainty effects tourism investments? Evidence from OECD and non-OECD economies. *Tourism Management Perspectives*, *36*, 100758. https://doi.org/10.1016/j.tmp.2020.100758

Demiralay, S., & Kilincarslan, E. (2019). The impact of geopolitical risks on travel and leisure stocks. *Tourism Management*, *75*, 460–476. https://doi.org/10.1016/j.tourman.2019.06.013

Dogru, T., Sirakaya-Turk, E., & Crouch, G. I. (2017). Remodeling international tourism demand: Old theory and new evidence. *Tourism Management*, *60*, 47–55. https://doi.org/10.1016/j.tourman.2016.11.010

Doran, H. E., & Kmenta, J. (1986). A lack-of-fit test for econometric applications to cross-section data. *The Review of Economics and Statistics*, *68*(2), 346–350. https://doi.org/10.2307/1925519

Dowd, C., & Raleigh, C. (2013). The myth of global Islamic terrorism and local conflict in Mali and the Sahel. *African Affairs*, *112*(448), 498–509. https://doi.org/10.1093/afraf/adt039

Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *The Review of Economics and Statistics*, *80*(4), 549–560. https://doi.org/10.1162/003465398557825

Drukker, D. M. (2003). Testing for serial correlation in linear panel-data models. *The Stata Journal*, *3*(2), 168–177. https://doi.org/10.1177/1536867x0300300206

Drukker, D. M., Peng, H., Prucha, I. R., & Raciborski, R. (2013). Creating and managing spatial-weighting matrices with the spmat command. *The Stata Journal*, *13*(2), 242–286. https://doi.org/10.1177/1536867x1301300202

Duan, J., Xie, C., & Morrison, A. M. (2022). Tourism crises and impacts on destinations: A systematic review of the tourism and hospitality literature. *Journal of Hospitality & Tourism Research*, *46*(4), 667–695. https://doi.org/10.1177/1096348021994194

Dunne, J. P., Smith, R. P., & Willenbockel, D. (2005). Models of military expenditure and growth: A critical review. *Defence and Peace Economics*, *16*(6), 449–461. https://doi.org/10.1080/10242690500167791

Dunne, P., & Watson, D. (2000). Military expenditure and employment in South Africa. *Defence and Peace Economics*, *11*(4), 587–596. https://doi.org/10.1080/10430710008404968

Dwyer, L., Forsyth, P., & Spurr, R. (2007). Contrasting the uses of TSAs and CGE models: Measuring tourism yield and productivity. *Tourism Economics*, *13*(4), 537–551. https://doi.org/10.5367/000000007782696096

Efron, B., Hastie, T., Johnstone, I., & Tibshirani, R. (2004). Least angle regression. *Annals of Statistics*, *32*(2), 407–499. https://doi.org/10.1214/009053604000000067

Egan, D. J., & Nield, K. (2003). The economic impact of tourism: A critical review. *Journal of Hospitality and Tourism Management*, *10*(2), 170–178.

Elhorst, J. P. (2012). Dynamic spatial panels: Models, methods, and inferences. *Journal of Geographical Systems*, *14*(1), 5–28. https://doi.org/10.1007/s10109-011-0158-4

Elhorst, J. P. (2014). *Spatial econometrics: From cross-sectional data to spatial panels*. Springer.

Etzo, I., Massidda, C., & Piras, R. (2014). Migration and outbound tourism: Evidence from Italy. *Annals of Tourism Research*, *48*, 235–249. https://doi.org/10.1016/j.annals.2014.07.002

Farmaki, A. (2017). The tourism and peace nexus. *Tourism Management*, *59*, 528–540. https://doi.org/10.1016/j.tourman.2016.09.012

Farzanegan, M. R., Gholipour, H. F., Feizi, M., Nunkoo, R., & Andargoli, A. E. (2021). International tourism and outbreak of coronavirus (COVID-19): A cross-country analysis. *Journal of Travel Research*, *60*(3), 687–692. https://doi.org/10.1177/0047287520931593

Fayissa, B., Nsiah, C., & Tadasse, B. (2008). Impact of tourism on economic growth and development in Africa. *Tourism Economics*, *14*(4), 807–818. https://doi.org/10.5367/000000008786440229

Feickert, J., Verma, R., Plaschka, G., & Dev, C. S. (2006). Safeguarding your customers: The guest's view of hotel security. *Cornell Hotel and Restaurant Administration Quarterly*, *47*(3), 224–244. https://doi.org/10.1177/0010880406288872

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

Financial Times Reporters. (2020, March 14). BA chief warns of job cuts and axed routes in crisis 'more serious' than 9/11. *Financial Times*. https://www.proquest.com/newspapers/ba-chief-warns-job-cuts-axed-routes-crisis-more/docview/2389089223/se-2?accountid = 14680

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

Frechtling, D. C. (2010). The tourism satellite account: A primer. *Annals of Tourism Research*, *37*(1), 136–153. https://doi.org/10.1016/j.annals.2009.08.003

Frechtling, D. C., & Horváth, E. (1999). Estimating the multiplier effects of tourism expenditures on a local economy through a regional input-output model. *Journal of Travel Research*, *37*(4), 324–332. https://doi.org/10.1177/004728759903700402

Fuggle, S. (2020). État présent: Dark heritage. *French Studies*, *74*(3), 438–455. https://doi.org/10.1093/fs/knaa144

Gaibulloev, K., & Sandler, T. (2011). The adverse effect of transnational and domestic terrorism on growth in Africa. *Journal of Peace Research*, *48*(3), 355–371. https://doi.org/10.1177/0022343310395798

Gaventa, J., & Barrett, G. (2012). Mapping the outcomes of citizen engagement. *World Development*, *40*(12), 2399–2410. https://doi.org/10.1016/j.worlddev.2012.05.014

George, R. (2003). Tourist's perceptions of safety and security while visiting Cape Town. *Tourism Management*, *24*(5), 575–585. https://doi.org/10.1016/s0261-5177(03)00003-7

George, R. (2010). Visitor perceptions of crime-safety and attitudes towards risk: The case of Table Mountain National Park, Cape Town. *Tourism Management*, *31*(6), 806–815. https://doi.org/10.1016/j.tourman.2009.08.011

Gettleman, J., Yasir, S., & Kumar, H. (2021, September 24). India and China face off again at border as troops move in. *New York Times*. https://www.nytimes.com/2020/08/31/world/asia/india-china-troops-border.html

Ghysels, E., & Marcellino, M. (2018). *Applied economic forecasting using time series methods*. Oxford University Press.

Gillen, J., & Mostafanezhad, M. (2019). Geopolitical encounters of tourism: A conceptual approach. *Annals of Tourism Research*, *75*, 70–78. https://doi.org/10.1016/j.annals.2018.12.015

Goldman, O. S., & Neubauer-Shani, M. (2017). Does international tourism affect transnational terrorism? *Journal of Travel Research*, *56*(4), 451–467. https://doi.org/10.1177/0047287516649059

Golgher, A. B., & Voss, P. R. (2016). How to interpret the coefficients of spatial models: Spillovers, direct and indirect effects. *Spatial Demography*, *4*(3), 175–205. https://doi.org/10.1007/s40980-015-0016-y

Gozgor, G., Lau, M. C. K., Zeng, Y., Yan, C., & Lin, Z. (2022). The impact of geopolitical risks on tourism supply in developing economies: The moderating role of social globalization. *Journal of Travel Research*, *61*(4), 872–886. https://doi.org/10.1177/00472875211004760

Greenbaum, R. T., Dugan, L., & LaFree, G. (2007). The impact of terrorism on Italian employment and business activity. *Urban Studies*, *44*(5-6), 1093–1108. https://doi.org/10.1080/00420980701255999

Greene, W. H. (2018). *Econometric analysis* (8th ed.). Pearson Education.

Groizard, J. L., Ismael, M., & Santana-Gallego, M. (2022). Political upheavals, tourism flight, and spillovers: The case of the Arab spring. *Journal of Travel Research*, *61*(4), 921–939. https://doi.org/10.1177/00472875211002652

Hännikäinen, J. (2017). The shadow rate as a predictor of real activity and inflation: Evidence from a data-rich environment. *Applied Economics Letters*, *24*(8), 527–535. https://doi.org/10.1080/13504851.2016.1208347

Harrell, F. E. (2001). *Regression modeling strategies: With applications to linear models, logistic regression, and survival analysis*. Springer-Verlag.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, *46*(6), 1251–1271. https://doi.org/10.2307/1913827

Heilmann, K. (2016). Does political conflict hurt trade? Evidence from consumer boycotts. *International Economic Journal*, *99*, 179–191. https://doi.org/10.1016/j.jinteco.2015.11.008

Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *The Stata Journal*, *7*(3), 281–312. https://doi.org/10.1177/1536867x0700700301

Hooper, G., & Lennon, J. J. (2016). *Dark tourism: Practice and interpretation*. Taylor & Francis.

Huang, J., & Kao, A. (2005). Does defence spending matter to employment in Taiwan? *Defence and Peace Economics*, *16*(2), 101–115. https://doi.org/10.1080/10242690500070094

Iliev, D. (2020). The evolution of religious tourism: Concept, segmentation and development of new identities. *Journal of Hospitality and Tourism Management*, *45*, 131–140. https://doi.org/10.1016/j.jhtm.2020.07.012

Institute for Economics & Peace. (2020). *The global terrorism index*. https://www.visionofhumanity.org/maps/global-terrorism-index/#/

Ivanov, S., & Stavrinoudis, T. A. (2018). Impacts of the refugee crisis on the hotel industry: Evidence from four Greek islands. *Tourism Management*, *67*, 214–223. https://doi.org/10.1016/j.tourman.2018.02.004

Jacobs, J. (2004). From the profane to the sacred: Ritual and mourning at sites of terror and violence. *Journal for the Scientific Study of Religion*, *43*(3), 311–315. http://www.jstor.org/stable/1387628

Jetter, M. (2017). The effect of media attention on terrorism. *Journal of Public Economics*, *153*, 32–48. https://doi.org/10.1016/j.jpubeco.2017.07.008

Jonas, A., Mansfeld, Y., Paz, S., & Potasman, I. (2011). Determinants of health risk perception among low-risk-taking tourists traveling to developing countries. *Journal of Travel Research*, *50*(1), 87–99. https://doi.org/10.1177/0047287509355323

Jong-A-Pin, R. (2009). On the measurement of political instability and its impact on economic growth. *European Journal of Political Economy*, *25*(1), 15–29. https://doi.org/10.1016/j.ejpoleco.2008.09.010

Jus, N., & Misrahi, T. (2021). *Travel & Tourism Economic Impact 2021 (Issue, June)*. World Travel and Tourism Council. https://wttc.org/Portals/0/Documents/Reports/2021/Global%20Economic%20Impact%20and%20Trends%202021.pdf?ver=2021-07-01-114957-177

Kang, E. J., Scott, N., Lee, T. J., & Ballantyne, R. (2012). Benefits of visiting a 'dark tourism' site: The case of the Jeju April 3rd Peace Park, Korea. *Tourism Management*, *33*(2), 257–265. https://doi.org/10.1016/j.tourman.2011.03.004

Kapuściński, G., & Richards, B. (2016). News framing effects on destination risk perception. *Tourism Management*, *57*, 234–244. https://doi.org/10.1016/j.tourman.2016.06.017

Karl, M., Reintinger, C., & Schmude, J. (2015). Reject or select: Mapping destination choice. *Annals of Tourism Research*, *54*, 48–64. https://doi.org/10.1016/j.annals.2015.06.003

Khalid, U., Okafor, L. E., & Aziz, N. (2020). Armed conflict, military expenditure and international tourism. *Tourism Economics*, *26*(4), 555–577. https://doi.org/10.1177/1354816619851404

Khan, M. M. (1997). Tourism development and dependency theory: Mass tourism vs. ecotourism. *Annals of Tourism Research*, *24*(4), 988–991. https://doi.org/10.1016/s0160-7383(97)00033-9

Kilian, L., & Hicks, B. (2013). Did unexpectedly strong economic growth cause the oil price shock of 2003–2008? *Journal of Forecasting*, *32*(5), 385–394. https://doi.org/10.1002/for.2243

Kim, H. J., Chen, M.-H., & Jang, S. S. (2006). Tourism expansion and economic development: The case of Taiwan. *Tourism Management*, *27*(5), 925–933. https://doi.org/10.1016/j.tourman.2005.05.011

Koch, M. (2022, March 2). Ukraine: What Russia's war means for the global travel industry. *Deutsche Welle*. https://www.dw.com/en/ukraine-what-russias-war-means-for-the-global-travel-industry/a-60987329

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

Kumar, J., & Hussain, K. (2014). Evaluating tourism's economic effects: Comparison of different approaches. *Procedia - Social and Behavioral Sciences*, *144*, 360–365. https://doi.org/10.1016/j.sbspro.2014.07.305

Lanouar, C., & Goaied, M. (2019). Tourism, terrorism and political violence in Tunisia: Evidence from Markov-switching models. *Tourism Management*, *70*, 404–418. https://doi.org/10.1016/j.tourman.2018.09.002

Lee, C. C., & Chang, C. P. (2008). Tourism development and economic growth: A closer look at panels. *Tourism Management*, *29*(1), 180–192. https://doi.org/10.1016/j.tourman.2007.02.013

Lee, C.-C., & Chen, M.-P. (2021). Do country risks matter for tourism development? International evidence. *Journal of Travel Research*, *60*(7), 1445–1468. https://doi.org/10.1177/0047287520954539

Lee, L.-F., & Yu, J. (2010). Estimation of spatial autoregressive panel data models with fixed effects. *Econometrics Journal*, *154*(2), 165–185. https://doi.org/10.1016/j.jeconom.2009.08.001

Lennon, J., & Foley, M. (2000). *Dark tourism: The attraction of death and disaster*. Continuum.

Lepp, A., & Gibson, H. (2003). Tourist roles, perceived risk and international tourism. *Annals of Tourism Research*, *30*(3), 606–624. https://doi.org/10.1016/s0160-7383(03)00024-0

LeSage, J., & Pace, R. K. (2009). *Introduction to spatial econometrics*. Chapman and Hall.

Levantis, T., & Gani, A. (2000). Tourism demand and the nuisance of crime. *International Journal of Social Economics*, *27*(7), 959–967. https://doi.org/10.1108/03068290010336964

Lewis, C. (2008). Deconstructing grief tourism. *The International Journal of the Humanities*, *6*(6), 165–170. https://doi.org/10.18848/1447-9508/cgp/v06i06/42476

Light, D. (2017). Progress in dark tourism and thanatourism research: An uneasy relationship with heritage tourism. *Tourism Management*, *61*, 275–301. https://doi.org/10.1016/j.tourman.2017.01.011

Lim, K. F. (2012). What you see is (not) what you get? The Taiwan question, geo-economic realities, and the "China Threat" imaginary. *Antipode*, *44*(4), 1348–1373. https://doi.org/10.1111/j.1467-8330.2011.00943.x

Li, S., Yang, Y., Zhong, Z., & Tang, X. (2021). Agent-based modeling of spatial spillover effects in visitor flows. *Journal of Travel Research*, *60*(3), 546–563. https://doi.org/10.1177/0047287520930105

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

Liu, B., Schroeder, A., Pennington-Gray, L., & Farajat, S. A. D. (2016). Source market perceptions: How risky is Jordan to travel to? *Journal of Destination Marketing & Management*, *5*(4), 294–304. https://doi.org/10.1016/j.jdmm.2016.08.005

Malizard, J. (2014). Defense spending and unemployment in France. *Defence and Peace Economics*, *25*(6), 635–642. https://doi.org/10.1080/10242694.2013.857450

Mao, C. K., Ding, C. G., & Lee, H. Y. (2010). Post-SARS tourist arrival recovery patterns: An analysis based on a catastrophe theory. *Tourism Management*, *31*(6), 855–861. https://doi.org/10.1016/j.tourman.2009.09.003

Marrocu, E., & Paci, R. (2013). Different tourists to different destinations. Evidence from spatial interaction models. *Tourism Management*, *39*, 71–83. https://doi.org/10.1016/j.tourman.2012.10.009

Mawby, R. I. (2014). Crime and disorder, security and the tourism industry. In M. Gill (Ed.), *The handbook of security* (pp. 383–403). Palgrave Macmillan.

Mehmood, S., Ahmad, Z., & Khan, A. A. (2016). Dynamic relationships between tourist arrivals, immigrants, and crimes in the United States. *Tourism Management*, *54*, 383–392. https://doi.org/10.1016/j.tourman.2015.12.010

Michalko, G. (2004). Tourism eclipsed by crime: The vulnerability of foreign tourists in Hungary. *Journal of Travel & Tourism Marketing*, *15*(2–3), 159–172. https://doi.org/10.1300/j073v15n02_09

Morakabati, Y., & Beavis, J. (2017). Do terrorist attacks leave an identifiable 'fingerprint' on international tourist arrival data? *International Journal of Tourism Research*, *19*(2), 179–190. https://doi.org/10.1002/jtr.2095

Moufakkir, O. (2015). The stigmatized tourist. *Annals of Tourism Research*, *53*, 17–30. https://doi.org/10.1016/j.annals.2015.04.004

Mylonidis, N. (2008). Revisiting the nexus between military spending and growth in the European union. *Defence and Peace Economics*, *19*(4), 265–272. https://doi.org/10.1080/10242690802164801

Nassani, A. A., Zaman, K., Aldakhil, A. M., & Abro, M. M. Q. (2017). War economy and pleasure: Assessing the effects of military expenditure on tourism growth. *Quality & Quantity*, *51*(4), 1733–1754. https://doi.org/10.1007/s11135-016-0362-x

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*, 195–206. https://doi.org/10.1007/s11127-016-0359-y

Öcal, N., & Yildirim, J. (2010). Regional effects of terrorism on economic growth in Turkey: A geographically weighted regression approach. *Journal of Peace Research*, *47*(4), 477–489. https://doi.org/10.1177/0022343310364576

Oh, C. O. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management*, *26*(1), 39–44. https://doi.org/10.1016/j.tourman.2003.09.014

Pappas, N., & Papatheodorou, A. (2017). Tourism and the refugee crisis in Greece: Perceptions and decision-making of accommodation providers. *Tourism Management*, *63*, 31–41. https://doi.org/10.1016/j.tourman.2017.06.005

Paraskevas, A., & Arendell, B. (2007). A strategic framework for terrorism prevention and mitigation in tourism destinations. *Tourism Management*, *28*(6), 1560–1573. https://doi.org/10.1016/j.tourman.2007.02.012

Parkin, B., & Ratnaweera, M. (2022, March 7). Ukraine crisis batters Sri Lanka's tea and tourism recovery strategy. *Financial Times*. https://www.ft.com/content/3a6d3822-7c7a-4c62-9a0e-dcff37e2a175

Parks, R. W. (1967). Efficient estimation of a system of regression equations when disturbances are both serially and contemporaneously correlated. *Journal of the American Statistical Association*, *62*(318), 500–509. https://doi.org/10.1080/01621459.1967.10482923

Partridge, M. D., Boarnet, M., Brakman, S., & Ottaviano, G. (2012). Introduction: Whither spatial econometrics? *Journal of Regional Science*, *52*(2), 167–171. https://doi.org/10.1111/j.1467-9787.2012.00767.x

Peeters, P. M., & Eijgelaar, E. (2014). Tourism's climate mitigation dilemma: Flying between rich and poor countries. *Tourism Management*, *40*, 15–26. https://doi.org/10.1016/j.tourman.2013.05.001

Pesaran, M. H. (2007). A simple panel unit root test in the presence of cross-section dependence. *Journal of Applied Economics*, *22*(2), 265–312. https://doi.org/10.1002/jae.951

Pesaran, M. H. (2015). Testing weak cross-sectional dependence in large panels. *Econometric Reviews*, *34*(6-10), 1089–1117. https://doi.org/10.1080/07474938.2014.956623

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, *22*(1), 435–480. https://doi.org/10.1093/rfs/hhn053

Pieroni, L. (2009). Does defence expenditure affect private consumption? Evidence from the United States. *Economic Modelling*, *26*(6), 1300–1309. https://doi.org/10.1016/j.econmod.2009.06.004

Pizam, A. (1999). A comprehensive approach to classifying acts of crime and violence at tourism destinations. *Journal of Travel Research*, *38*(1), 5–12. https://doi.org/10.1177/004728759903800103

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

Pizam, A., & Mansfeld, Y. (2006). Toward a theory of tourism security. In Y. Mansfeld & A. Pizam (Eds.), *Tourism, security and safety* (pp. 1–27). Butterworth-Heinemann.

Podoshen, J. S., & Hunt, J. M. (2011). Equity restoration, the Holocaust and tourism of sacred sites. *Tourism Management*, *32*(6), 1332–1342. https://doi.org/10.1016/j.tourman.2011.01.007

Qiu, R. T. R., Park, J., Li, S., & Song, H. (2020). Social costs of tourism during the COVID-19 pandemic. *Annals of Tourism Research*, *84*, 102994. https://doi.org/10.1016/j.annals.2020.102994

Reisinger, Y., & Mavondo, F. (2005). Travel anxiety and intentions to travel internationally: Implications of travel risk perception. *Journal of Travel Research*, *43*(3), 212–225. https://doi.org/10.1177/0047287504272017

Rittichainuwat, B. N., & Chakraborty, G. (2009). Perceived travel risks regarding terrorism and disease: The case of Thailand. *Tourism Management*, *30*(3), 410–418. https://doi.org/10.1016/j.tourman.2008.08.001

Rittichainuwat, N. (2008). Responding to disaster: Thai and Scandinavian tourists' motivation to visit Phuket, Thailand. *Journal of Travel Research*, *46*(4), 422–432. https://doi.org/10.1177/0047287507308323

Ryan, C. (1993). Crime, violence, terrorism and tourism: An accidental or intrinsic relationship? *Tourism Management*, *14*(3), 173–183. https://doi.org/10.1016/0261-5177(93)90018-g

Saha, S., Su, J.-J., & Campbell, N. (2017). Does political and economic freedom matter for inbound tourism? A cross-national panel data estimation. *Journal of Travel Research*, *56*(2), 221–234. https://doi.org/10.1177/0047287515627028

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

Schaffer, W.A. (1999). *Regional Impact Models*. 2nd edn. edited by L. Scott and J. Randall . WVU Research Repository, 2020. https://researchrepository.wvu.edu/cgi/viewcontent.cgi?article = 1006&context = rri-web-book

Seabra, C., Dolnicar, S., Abrantes, J. L., & Kastenholz, E. (2013). Heterogeneity in risk and safety perceptions of international tourists. *Tourism Management*, *36*, 502–510. https://doi.org/10.1016/j.tourman.2012.09.008

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*, 102811. https://doi.org/10.1016/j.annals.2019.102811

Seaton, A. V. (2002). Thanatourism's final frontiers? Visits to cemeteries, churchyards and funerary sites as sacred and secular pilgrimage. *Tourism Recreation Research*, *27*(2), 73–82. https://doi.org/10.1080/02508281.2002.11081223

Shah, A., & Aneez, S. (2019, July 15). "They bombed our livelihoods": Sri Lanka's tourism firms struggle after attacks. *Reuters*. https://www.reuters.com/article/us-sri-lanka-blasts-tourism-idUSKCN1UA0ZR

Sharpley, R. (2003). Tourism, modernisation and development on the island of Cyprus: Challenges and policy responses. *Journal of Sustainable Tourism*, *11*(2-3), 246–265. https://doi.org/10.1080/09669580308667205

Sinclair, M. T. (1998). Tourism and economic development: A survey. *The Journal of Development Studies*, *34*(5), 1–51. https://doi.org/10.1080/00220389808422535

Smeral, E. (2006). Tourism satellite accounts: A critical assessment. *Journal of Travel Research*, *45*(1), 92–98. https://doi.org/10.1177/0047287506288887

Sönmez, S. F., Apostolopoulos, Y., & Tarlow, P. (1999). Tourism in crisis: Managing the effects of terrorism. *Journal of Travel Research*, *38*(1), 13–18. https://doi.org/10.1177/004728759903800104

Sönmez, S. F., & Graefe, A. R. (1998a). Determining future travel behavior from past travel experience and perceptions of risk and safety. *Journal of Travel Research*, *37*(2), 171–177. https://doi.org/10.1177/004728759803700209

Sönmez, S. F., & Graefe, A. R. (1998b). 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

Stone, P., & Sharpley, R. (2008). Consuming dark tourism: A thanatological perspective. *Annals of Tourism Research*, *35*(2), 574–595. https://doi.org/10.1016/j.annals.2008.02.003

Stone, P. R. (2006). A dark tourism spectrum: Towards a typology of death and macabre related tourist sites, attractions and exhibitions. *Tourism: An Interdisciplinary International Journal*, *54*(2), 145–160. https://hrcak.srce.hr/161464

Stone, P. R. (2012). Dark tourism and significant other death: Towards a model of mortality mediation. *Annals of Tourism Research*, *39*(3), 1565–1587. https://doi.org/10.1016/j.annals.2012.04.007

Strange, C., & Kempa, M. (2003). Shades of dark tourism: Alcatraz and Robben island. *Annals of Tourism Research*, *30*(2), 386–405. https://doi.org/10.1016/s0160-7383(02)00102-0

Stynes, D. J., & Sun, Y.-Y. (2003). *Economic impacts of national park visitor spending on gateway communities: Systemwide estimates for 2001*. National Park Service Social Science Program, Department of Park, Recreation and Tourism Resources, Michigan State University.

Sullivan-Taylor, B., & Wilson, D. C. (2009). Managing the threat of terrorism in British travel and leisure organizations. *Organization Studies*, *30*(2–3), 251–276. https://doi.org/10.1177/0170840608101480

Tang, J., Lai, C., & Lin, E. S. (2009). Military expenditure and unemployment rates: Granger causality tests using global panel data. *Defence and Peace Economics*, *20*(4), 253–267. https://doi.org/10.1080/10242690903105257

Tarlow, P. E., & Santana, G. (2002). Providing safety for tourists: A study of a selected sample of tourist destinations in the United States and Brazil. *Journal of Travel Research*, *40*(4), 424–431. https://doi.org/10.1177/0047287502040004 009

The Global Terrorism Database. (2020). *Global Terrorism Database*. University of Maryland. https://www.start.umd.edu/gtd/contact/

The World Bank Databank. (2020). *International tourism, number of arrivals*. World Development Indicators, The World Bank. https://data.worldbank.org/indicator/ST.INT.ARVL

Tibshirani, R. (2011). Regression shrinkage and selection via the lasso: A retrospective. *Journal of the Royal Statistical Society Series B*, *73*(3), 273–282. https://doi.org/10.1111/j.1467-9868.2011.00771.x

Tibshirani, R., Saunders, M., Rosset, S., Zhu, J., & Knight, K. (2005). Sparsity and smoothness via the fused lasso. *Journal of the Royal Statistical Society Series B*, *67*(1), 91–108. https://doi.org/10.1111/j.1467-9868.2005.00490.x

Tiwari, A. K., Das, D., & Dutta, A. (2019). Geopolitical risk, economic policy uncertainty and tourist arrivals: Evidence from a developing country. *Tourism Management*, *75*, 323–327. https://doi.org/10.1016/j.tourman.2019.06.002

Tobler, W. R. (1970). A computer movie simulating urban growth in the Detroit region. *Economic Geography*, *46*(1), 234–240. https://doi.org/10.2307/143141

Tugcu, C. T. (2014). Tourism and economic growth nexus revisited: A panel causality analysis for the case of the Mediterranean Region. *Tourism Management*, *42*, 207–212. https://doi.org/10.1016/j.tourman.2013.12.007

Tyagi, A., Dhar, R. L., & Sharma, J. (2016). Police culture, tourists and destinations: A study of Uttarakhand, India. *Tourism Management*, *52*, 563–573. https://doi.org/10.1016/j.tourman.2015.08.008

UNWTO. (2018). *Tourism highlights: 2018 edition*. World Tourism Organisation. https://www.e-unwto.org/doi/pdf/10.18111/9789284419876

UNWTO. (2020, December 17). *Tourism back to 1990 levels as arrivals fall by more than 70%*. World Tourism Organisation. https://www.unwto.org/news/tourism-back-to-1990-levels-as-arrivals-fall-by-more-than-70

UNWTO. (2021). *UNWTO world tourism barometer and statistical annex*. World Tourism Organisation. https://www.e-unwto.org/doi/abs/10.18111/wtobarometereng.2021.19.1.1

UNWTO. (2022). *Impact of the Russian offensive in Ukraine on international tourism*. World Tourism Organisation. https://www.unwto.org/impact-russian-offensive-in-ukraine-on-tourism

Walters, G., Wallin, A., & Hartley, N. (2019). The threat of terrorism and tourist choice behavior. *Journal of Travel Research*, *58*(3), 370–382. https://doi.org/10.1177/0047287518755503

Wang, Y.-S. (2009). The impact of crisis events and macroeconomic activity on Taiwan's international inbound tourism demand. *Tourism Management*, *30*(1), 75–82. https://doi.org/10.1016/j.tourman.2008.04.010

Wedel, M., & Kannan, P. K. (2016). Marketing analytics for data-rich environments. *Journal of Marketing*, *80*(6), 97–121. https://doi.org/10.1509/jm.15.0413

Wijeweera, A., & Webb, M. J. (2009). Military spending and economic growth in Sri Lanka: A time series analysis. *Defence and Peace Economics*, *20*(6), 499–508. https://doi.org/10.1080/10242690902868301

Wilhite, A., & Allen, W. D. (2008). Crime, protection, and incarceration. *Journal of Economic Behavior & Organization*, *67*(2), 481–494. https://doi.org/10.1016/j.jebo.2006.10.013

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

Wolf, M. (2020, April 14). The world economy is now collapsing. *Financial Times*. https://www.ft.com/content/d5f05b5c-7db8-11ea-8fdb-7ec06edeef84

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT Press.

WTO. (2002). *Tourism between 'moderate optimis', and 'structural changes'*. https://www.hospitalitynet.org/news/4013925.html

Yakovlev, P. (2007). Arms trade, military spending, and economic growth. *Defence and Peace Economics*, *18*(4), 317–338. https://doi.org/10.1080/10242690601099679

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

Yechiam, E., Barron, G., & Erev, I. (2005). The role of personal experience in contributing to different patterns of response to rare terrorist attacks. *Journal of Conflict Resolution*, *49*(3), 430–439. https://doi.org/10.1177/0022002704270847

Yildirim, J., & Sezgin, S. (2003). Military expenditure and employment in Turkey. *Defence and Peace Economics*, *14*(2), 129–139. https://doi.org/10.1080/10242690302919

Yildirim, J., Sezgin, S., & Öcal, N. (2005). Military expenditure and economic growth in Middle Eastern countries: A dynamic panel data analysis. *Defence and Peace Economics*, *16*(4), 283–295. https://doi.org/10.1080/10242690500114751

Zhang, H., Song, H., Wen, L., & Liu, C. (2021). Forecasting tourism recovery amid COVID-19. *Annals of Tourism Research*, *87*, 103149. https://doi.org/10.1016/j.annals.2021.103149

Zheng, D., Luo, Q., & Ritchie, B. W. (2021). Afraid to travel after COVID-19? Self-protection, coping and resilience against pandemic 'travel fear'. *Tourism Management*, *83*, 104261. https://doi.org/10.1016/j.tourman.2020.104261

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