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 and 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 & Chen, 2006; 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 (Arana & 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 of 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 (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, 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 the 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 global T&T industry performance 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., 2021).

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 inter-connectivity related to security threats and the tourism economy. Although international tourism has received some attention at country and international levels, inter-country spatial units have largely been ignored (Krajňák, 2021). Further, Duan et al. (2021) 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 Arana and León (2008), Corbet et al. (2019), and Liu and Pratt (2017), call for a further examination of the relationship between security and tourism issues. Specially, 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) noted 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. It 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., Arana & León, 2008; Corbet et al., 2019; Lee & Chen, 2021; Liu & Pratt, 2017; Saha & Yap, 2014) as we test the universiality 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; Liu & Pratt, 2017; Pizam, 1999; Saha & Yap, 2014). While tourism is regarded as one of the main contributors to destination economies GDP (Lee & Chen, 2021; Lee & Chang, 2008; 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 empahsise on US, Europe, Central Asia or MENA countries (Duan et al., 2021; 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 inter-connectivity of the T&T industry (see Fig. 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.

Insert Figure 1 here

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. Section 2 discusses the theoretical underpinnings and related literature on terrorism-led tourism and its spillover effects. Section 3 presents the models, describes the data and sample, and offers a preliminary analysis and tests. Section 4 presents the empirical results of the models and discusses the spillover effects of security threats. Finally, Section 5 presents the conclusions and policy implications.

Review of Global Security Threats and the T&T Economy

Security threats related to sporadic terrorist acts (Arana & León, 2008; Pizam, 1999), wars (Chan et al., 1999; 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 (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, 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).

Insert Table 1 and Figure 2 here

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, Arana 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 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 impacated 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 (Stone, 2012, p. 1), referred to as dark tourism (Lennon & Foley, 2000; Stone, 2006; Strange & Kempa, 2003), morbid tourism (Stone, 2012), atrocity heritage tourism (Kang et al., 2012), thanatological framework and thanatourism (Light, 2017; 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 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-Urkraine 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., Dunne et al., 2005; Mylonidis, 2008; Pieroni, 2009) have

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

233 Furthermore, law enforcement officials/forces can play a pivotal role in preventing
234 future terrorist attacks and restoring communal faith and a destination's image (Paraskevas &
235 Arendell, 2007; Sönmez et al., 1999). Studies have ascertained that an increase in the number
236 of security forces and police services in a tourist destination can help elevate tourists'
237 perception of a destination's attractiveness (Albuquerque & McElroy, 1999; Tyagi et al.,
238 2016) and safety (Barker & Page, 2002; Tarlow & Santana, 2002). An increase in the
239 presence of security forces can also enhance tourists' perception of police effectiveness
240 (George, 2003; Tyagi et al., 2016), crime prevention (Mawby, 2014), and security (Cruz-
241 Milán et al., 2016). However, a few studies have argued that an overt display of security has
242 an opposite effect on tourists' perception of safety. For instance, Boakye's (2012) study in
243 Ghana found that the prominence of law enforcement agencies made tourists feel insecure
244 and served as a constant reminder of the need to remain vigilant.

245 Terrorism and conflicts are major security threats that have spillover effects on
246 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., 2021; Fayissa et al., 2008; Krajňák, 2021; Saha et al., 2016; 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, 2020), 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 framwork 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. While ARDL models possess the advantages of over VARs, ARDL framework 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. (2016) 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 Section 3.2 for an outline LASSO model-reduction approach). 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., 2016; 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 to 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 robust, parsimonious and estimable models. Morever, we used the extended Bayesian information criterion to search for 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 (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; Liu & Pratt, 2017). The data analysis was conducted using Stata v.16.

Insert Table 2 here

Modeling the Framework

Consider a panel-data structure with *k* distinct explained and explanatory variables $\{Y_{it},\ X_{it} = (x_{1,it}, x_{2,it}, ..., x_{k,it})\},\ i = 1,...N,\ t = 1,...,T$, 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:

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

where Y_{it} denotes a panel T&T dependent (outcome) variable of the countries in our sample. Specifically, Y_{it} is a $N \times 1$ vector of international tourist arrivals, leisure tourism spending, international tourism receipts, direct contribution to employment, and direct contribution to GDP. $\mathbf{X}_{it}\boldsymbol{\beta} = \beta_0 + \beta_1 PerCri_{it} + \beta_2 Hom_{it} + \beta_3 AccWea_{it} + ... + \beta_k SecOffPol_{it}$; $\mathbf{X}$ 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 time-fixed effects. β denotes vector of parameters, $\varepsilon_{it}(t = 1,...,T)$ is the vector of idiosyncratic residuals, which are serially uncorrelated and homoscedastic, and $\xi_{it}(t = 1,...,T)$ 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 exogeneity in the relationship between the explanatory variables and the idiosyncratic errors $Cov(\mathbf{X}_{it}, u_{it}) = 0,\ t = 1,...,T$, which in conditional mean terms evaluates to $E(y_{it} \mid \mathbf{X}_{it}, \alpha_i) = \mathbf{X}_{it}\boldsymbol{\beta} + v_{it}$, $\frac{\partial E(y_{it} \mid \mathbf{X}_{it}, \alpha_i)}{\partial \mathbf{X}_{itj}} = \beta_j$. 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 Harrell, 2001; Burnham, & Anderson, 2002; Tibshirani, et al. (2005).

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

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

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, $RSS = \xi_{it}^2 = \sum(y_{it} - \boldsymbol{X\beta})^2$.

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 $\boldsymbol{X}$ 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:

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

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 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 regarding residual properties and covariance matrices without empirical justification.

Insert Table 3 here

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-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 $t = 1,...,T_i$ (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 $\mathbf{\Omega}$ is a block diagonal matrix $(NT \times NT)$ of the matrix $N \times N$ of contemporaneous covariance, $\mathbf{\Sigma}$, 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 $\hat{\mathbf{\Omega}}$ can be obtained from the block diagonal matrix comprising the $\hat{\mathbf{\Sigma}}$ matrices on the diagonal line. Assuming that the error terms are spherical, $\mathbf{\Omega} = \sigma^2\mathbf{I}$ where $\mathbf{I}$ is the identity matrix and our panel is balanced $T = T_{ij}$, $\forall_i = 1,...,N$,

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

where $\mathbf{\Xi}$ is $T \times N$ a matrix of residuals and, therefore, $\mathbf{\Omega}$ is obtained from

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

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

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

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.

Insert Table 4 here

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, 1991; 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:

$$\begin{aligned} Y_{it} &= \rho_{it}\mathbf{W}Y_{it} + X_{it}\beta + \mathbf{W}X_{it}\theta_{it} + \zeta_{it} \\ \zeta_{it} &= \mu_i + \alpha_t \iota_N + \varepsilon_{it} \end{aligned} \tag{11}$$

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 $\mathrm{N}\times\mathrm{N}$ row-normalized spatial weights matrix depicting sample units, ρ_{it} and θ_{it} denote the spatial parameters relating to dependent and independent variables,

480 respectively, μ_i is the vector of spatial fixed effects, and α_t is the vector of time-fixed
481 effects, ε_{it} are independently and identically distributed error terms for all country units
482 with zero mean and variance σ^2. Notice that the μ_i and α_t parameters can also be spatial
483 random effects. The weighting matrix was derived in two stems. First, longitude and latitude
484 coordinates were used to develop the matrix of distances D_{ij} in kilometers of capital cities of
485 all the countries in our sample. Second, we used D_{ij} spatial weighting matrices, $\mathbf{W}$, of
486 countries in our sample (Drukker et al., 2013).

487 The advantage of the spatial panel econometric approach lies in the ability to capture
488 the extent to which neighboring countries' explanatory variables affect tourism outcome
489 variables in our model (Partridge et al., 2012). In addition, the approach can address
490 empirical challenges relating to non-randomly distributed error terms (Elhorst, 2014) and
491 render spillover effects which are inherent in our framework. We brought the spatial
492 dimension to our analyses to complement the PCSE results with spatial spillover effects.
493 The estimations of spatial panel data used a combination of Stata in-built and user-written
494 spatial panel-data commands (Belotti et al., 2017; Drukker et al., 2013). Our approach to
495 spatial panel-data model estimation for this paper followed six steps. First, we augmented
496 variables in our original model (used to obtain PCSE results) with geographical location
497 variables in the form of longitude and latitude coordinates of capital cities of all the
498 countries in our dataset. Second, we declared the data a spatial panel-data dataset. Third, we
499 used longitude and latitude coordinates to generate distances in kilometers between the
500 countries (Baum & Hurn, 2021). Fourth, we generated normalized inverse-distance
501 weighting matrices using the Stata *spmatrx create* command combined with *normalize*
502 *(spectral)* (Drukker et al., 2013). Fifth, we used the spatial weight matrices to conduct
503 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.

Insert Table 5 here

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 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 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

529 and promotion of a destination. Alternatively, travelers can take precautions to reduce their
530 perceived risk of crime without limiting their travel behavior (Barker et al., 2003).

Insert Table 6 here

531 Our findings also reveal that homicide rate and level of access to weapons in a
532 country have direct significant negative influences on international tourist demand and
533 economy indicators. Specifically, these findings show that destinations, which are notorious
534 for high homicide rates and have easy access to weapons, face challenges to attract visitors,
535 get lower tourism receipts, leisure spending, and benefit from lower tourism contribution to
536 GDP. This implies that tourism demand and tourism economy tend to dwindle in countries,
537 which experience high levels of homicide and preponderance of weapons used to commit
538 homicide and violent crimes. The evidence from tourism-crime literature suggests that
539 homicide/murder incidents have a greater impact on tourist arrivals than property crime (e.g.,
540 Alleyne & Boxill, 2003; Fourie et al., 2020; George, 2010; Pizam, 1999). However, the
541 results show that incarceration has a significant positive effect on tourism arrivals, tourism
542 receipt and leisure spending. We argue that incarcerations have deterrent effects on
543 perpetrators of crime rendering wider physical, psychological, and public safety benefits,
544 which positively influence the intention to visit and spend time in destination and boost
545 overall tourism demand and economy (Akerlof & Yellen, 1994; Wilhite & Allen, 2008).
546 Our analysis further shows that the total number of terrorist incidents has a negative
547 influence on the growth rate of international tourist arrivals and the tourism receipts of
548 destination countries. Moreover, highly insecure destinations affected by terrorism incidents
549 fail to benefit from tourism. Tourism declines when perceived safety risks from terrorism
550 incidents are high, or related information is communicated through the media (Kapuściński &
551 Richards, 2016; Rittichainuwat & Chakraborty, 2009; Seabra et al., 2013). Terrorism
552 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; Rittichainuwat, 2007; 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; 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., Arana & 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. (2021) 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 negtively 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, and 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., Campos et al., 2012; Jong-A-Pin, 2009;

603 Murad & Alshyab, 2019) have shown that political instability and/or violence can have a
604 positive or inconclusive impact on economic growth. One of the reasons for such a counter-
605 intuitive relationship is that economic growth may be more responsive to a country's
606 economic policies than its instability (Aizenman & Marion, 1993). A country can have an
607 unstable internal political environment, but it would not necessarily alter overall rate of
608 employment in a country while the country pursue consistent economic policies (Ali, 2001).
609 Besides, we did not find any relationship between deaths from internal conflict and T&T
610 service demand and economy variables. Overall the results show that tourism is sensitive to
611 the state and nature of a destinations' political uncertainty.

612 Contrarily to Albuquerque and McElroy (1999), Cruz-Milán et al. (2016), and
613 Feickert et al. (2006), our results indicate that the number of security officers and police has a
614 negative influence on tourist arrivals, T&T contribution to employment, and GDP. This result
615 challenges the predominant notion that an increased number of uniformed security officers
616 can increase tourists' perception of safety. Rather, our findings suggest that it might make
617 tourists apprehensive, have a direct negative impact on tourist demand, and can indirectly
618 affect the tourism economy. However, our results confirm that the reliability of police
619 services can significantly enhance tourist demand (i.e., tourist arrivals and receipts) and have
620 a positive impact on T&T contribution to GDP. Our results indicate that a high level of
621 confidence in police may improve the sense of destination security, reassuring visitors and
622 increasing tourist arrivals. This finding is in line with Cruz-Milán et al. (2016), who observed
623 that the perceived effectiveness of security forces offers tourists a sense of protection, which
624 eventually has a positive impact on the destination's economy. Our results show that tourists'
625 perception of security is more reliant on the quality of police services than the quantity of
626 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., 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

677 estimators are not simply equivalent to the marginal effects of the covariates on the outcome
678 variables (Golgher & Voss, 2016; LeSage & Pace, 2009). Therefore, the coefficients in
679 Appendix D are mainly used for hypotheses testing in spatial econometrics practice but they
680 are considered inaccurate for interpreting spatial effects in the models (Elhorst, 2012).
681 Consequently, we will limit our discussion of spatial effect in the models to spillover effects
682 from the impact measures presented in Table 7. However, the results in Appendix D show
683 statistically significant spatial lag coefficients and/or ancillary variances for all the models.
684 These results indicate significant overall spatial dimensions to the relationship between the
685 outcome variables and the covariates in our models.
686

Insert Table 7 here

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

697 Specifically, the results show that a change in the perception of criminality relates to
698 large negative indirect (cross-country) and total spatial spillover effects on leisure tourism
699 spending and tourism contribution to GDP but has insignificant spillover effects on tourism
700 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, Albuquerque & McElroy, 1999; 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., 2021; Krajňák, 2021; Lee & Chen, 2021; 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

775 $800-900 million in tourism revenue, 3% deficit to GDP and thousands lost their jobs. A
776 supportive report of World Trade Organization (WTO 2002) also substantiates that the Bali
777 bombs cost US $2 billion in international and domestic tourism earnings and rendered 2.7
778 million people jobless. Our findings reveal the need for authorities and stakeholders to take
779 decisive measures against security threats and manage risk perceptions of destinations to
780 protect the tourism service sector. Besides, international cooperation is extremely important
781 in reducing the risk of terrorist attacks in destination countries. While terrorist incidents are
782 relatively unpredictable, appropriate intelligence sharing can provide information that can be
783 leveraged to alert destinations and identify weaknesses in security systems.

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

795 Additionally, assessing police service reliability can be a valuable approach for
796 managing destination image. Ensuring the reliability of police services will rebuild
797 confidence and reassure prospective tourists, which will subsequently boost tourism demand
798 and the tourism economy. While increasing the number of security and police forces can
799 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 and 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 invesitigate 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 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 (Lee & Chen, 2021; Zheng et al., 2021)

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

Insert Table 8 here

866

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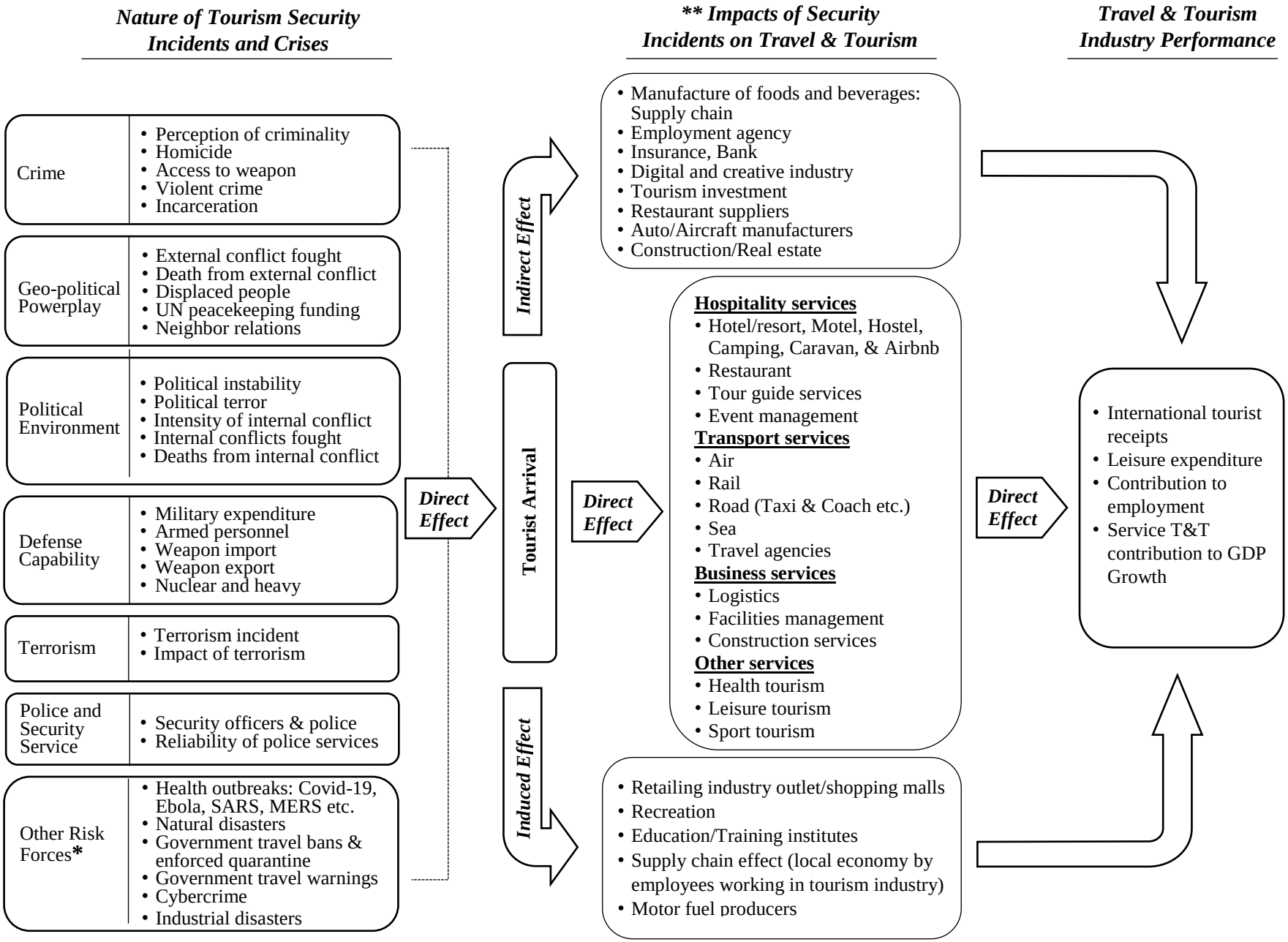
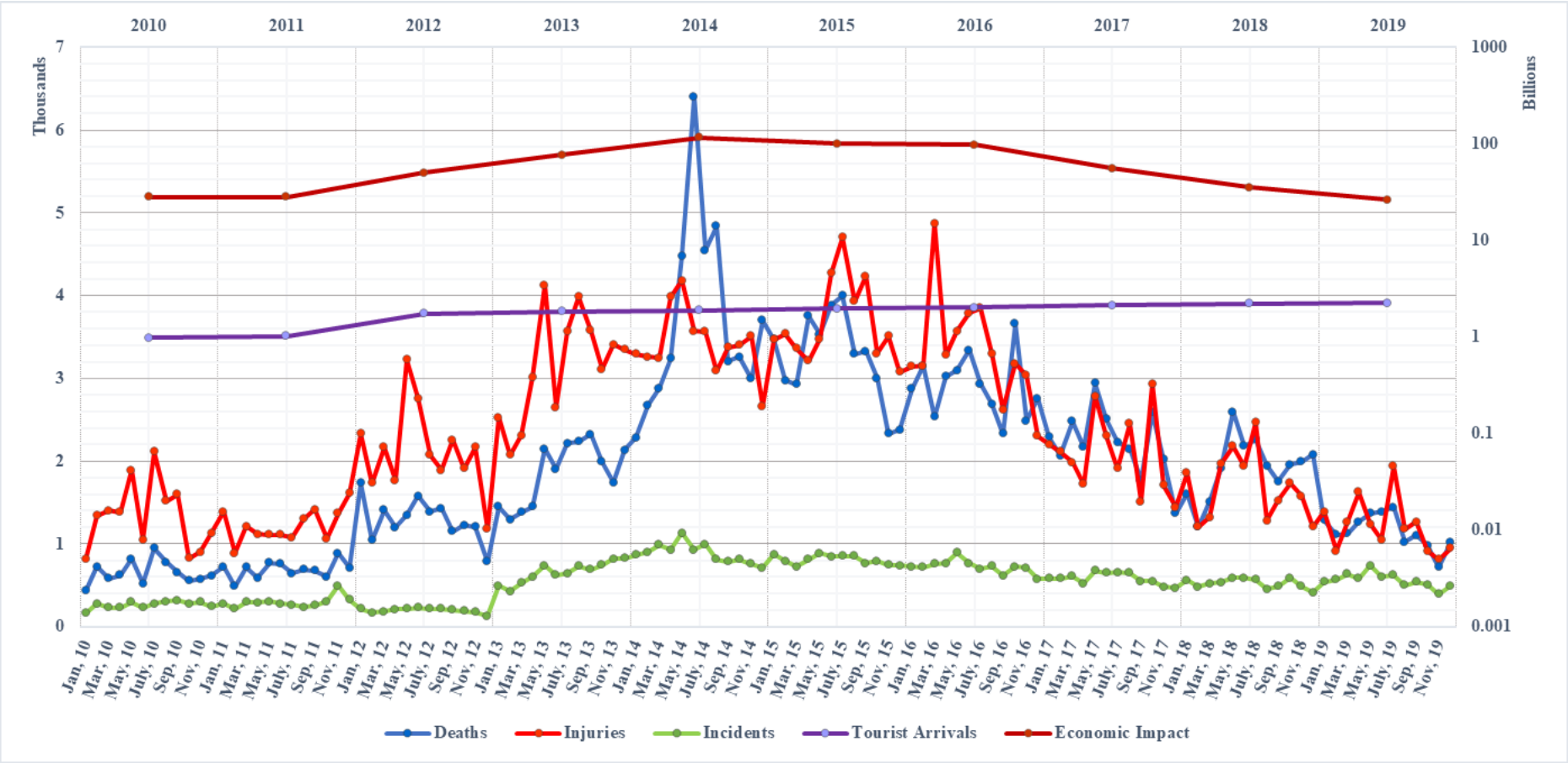
Figure 1: Impact of Security Threats on Service Industries Economy: Spillover Effect Model



* 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

Figure 2: Tourist Arrivals, Terrorist Acts and Economic Cost of Terrorism in Between 2010-2019



Source: Data collected from The Global Terrorism Database, (2020), Institute for Economics & Peace, (2020), The World Bank Databank, (2020)
Bottom & Left Axis: Explaining Time and Amount of Terrorist Incidents, Injuries and Deaths in Thousands,
Top & Right Axis: Explaining Years, Amount of Tourist Arrivals and Economic Cost of Terrorism in Billions (Log scale)

Table 1: Precis of Some Terrorist Attacks and Effects

Place			Time	Incident Tactics /Type	Effects	
Region	**Country**	**City**	**Date**	**Details**	**Killed**	**Injured**
North America	USA	New York	11-Sep-01	**9/11 Attack on World Trade Centre:** 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 Centre 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: T**wo 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, three days before Spain's General Elections.	192	2,000
	UK	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 four 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

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 6 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 worshippers 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 ten customers and eight 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)

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 travelling to a country that is not the country of origin for a duration between one 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 towards goods and services consumed in the country.	Current US$ millions		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	Arana 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)
		Homicide	Death deliberately inflicted on a person by another person, including infanticide. The figures refer to the total number of penal code offences or their equivalent, but exclude minor road traffic and other petty offences, 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); Liu and Pratt (2017); Sönmez and Graefe (1998b)
		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	
		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	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 three 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)
		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	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	

Table 3: Summary Statistics

Panel A: Dependent variables	**Mean**	**SD**	**CV**
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

Notes: CV = coefficient of variation. SD = standard deviation. 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.

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	χ^2 (21) = 90.44 $Prob > \chi^2$ =0.0000	$\overline{\chi}^2$ (01) = 3180.81 $\Pr ob > \overline{\chi}^2$ =0.0000	F (1,133) = 618.366 $\Pr ob > F$ =0.0000	χ^2 (136) = 1.1e^{+05} $\Pr ob > \chi^2$ =0.0000	CD_1 = 3.929 (0.000) CD_2 = 122.363 (0.000)
Leisure Tourism Spending	χ^2 (18) = 161.91 $Prob > \chi^2$ =0.0000	$\overline{\chi}^2$ (01) = 4573.25 $\Pr ob > \overline{\chi}^2$ =0.0000	F (1,148) = 228.581 $\Pr ob > F$ =0.0000	χ^2 (149) = 67023.16 $\Pr ob > \overline{\chi}^2$ =0.0000	CD_1 = 0.027 (0.978) CD_2 = 46.481 (0.000)
International tourism receipt	χ^2 (16) = 96.60 $Prob > \chi^2$ =0.0000	$\overline{\chi}^2$ (01) = 2988.13 $\Pr ob > \overline{\chi}^2$ =0.0000	F (1,134) = 14.615 $\Pr ob > F$ = 0.0002	χ^2 (139) = 54233.48 $\Pr ob > \chi^2$ =0.0000	CD_1 = 0.860 (0.390) CD_2 = 46.481 (0.000)
Contribution to Employment	χ^2 (16) = 144.83 $Prob > \chi^2$ =0.0000	$\overline{\chi}^2$ (01) = 4661.67 $\Pr ob > \overline{\chi}^2$ =0.0000	F (1,147) = 183.743 $\Pr ob > F$ =0.0000	χ^2 (148) = 2.0e^{+05} $\Pr ob > \chi^2$ =0.0000	CD_1 = -0.352(0.724) CD_2 = 103.476(0.000)
T&T Services Contribution to GDP	χ^2 (21) = 149.95 $Prob > \chi^2$ =0.0000	$\overline{\chi}^2$ (01) = 3923.14 $\Pr ob > \overline{\chi}^2$ =0.0000	F (1,134) = 188.216 $\Pr ob > F$ =0.0000	χ^2 (137) = 1.6e^{+05} $\Pr ob > \chi^2$ =0.0000	CD_1 = 0.641 (0.522) CD_2 = 147.636 (0.000)

Notes: 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 (2002) for serial correlation/autocorrelation in panel data. Heteroscedasticity test refers to Greene's (2018) modified Wald test for groupwise heteroscedasticity.

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 = BIC =	 28.868 243.469	 -32.481 138.347	 1164.806 1376.527	 -1273.04 -1093.078	 -90.03947 150.9726
SDM FE AIC = BIC =	 126.761 336.726	 58.568 225.603	 -	 -999.544 -823.164	 -

Notes: *** p<0.01, ** p<0.05, * p<0.1.

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

	Outcome Variables				
	Tourism demand		Tourism economy ^		
	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 & police	-0.0677***	---	---	-0.173***	-0.0770***
	(0.0243)	---	---	(0.0256)	(0.0224)
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-squared	0.992	0.996	0.687	0.961	0.601
Wald Chi2	2539	280.1	2010	683	4232
Prob > Chi2	0.000	0.000	0.000	0.000	0.000

Notes: *** p<0.01, ** p<0.05, * p<0.1. 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.

^ 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.

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**				-0.0290**	0.0571	0.0281
	(0.0234)	(0.239)	(0.245)				(0.0109)	(0.0469)	(0.0488)	-0.0293**	-0.00660	-0.0359	(0.0119)	(0.0761)	(0.0774)
Deaths from external conflict	0.0523	2.218**	2.270**				0.0126	-0.0620	-0.0494	(0.0121)	(0.0345)	(0.0348)	0.0334	-0.149	-0.115
	(0.0425)	(0.951)	(0.967)				(0.0339)	(0.343)	(0.355)				(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				0.280**	0.795	1.075
	(0.192)	(2.918)	(2.967)	(0.169)	(1.393)	(1.458)	(0.0852)	(0.401)	(0.437)	0.173*	0.0963	0.269	(0.129)	(0.994)	(1.069)
Weapons imports				0.0927***	1.138***	1.230***	0.0991***	0.466*	0.565*	(0.100)	(0.425)	(0.481)	0.0199	-0.176	-0.156

				(0.0335)	(0.356)	(0.366)	(0.0373)	(0.268)	(0.290)				(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<0.01, ** p<0.05, * p<0.1. Direct = Own-country effects; Indirect = Cross-country effects

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	**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 cancellations • 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 towards 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**	**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

vi) Catastrophic natural disasters
a) Geological disasters
• Volcanic eruption
• Earthquake
• Landslide & Mudslide
• Invasive species (Swarms of locust)
b) Cold, Hot and Dry weather incidents (Meteorological & 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 & Cracking activities
• Cyber terrorism
• Use of mobile and wireless technology in terrorist activities
• Cyber fraud/Online fraud
• Spoof websites and email security alert
• Grooming & Cyber stalking
• Extortion / Romance fraud
• Email spamming, fraud, and virus hoax emails
• Lottery frauds/scams
• Financial cybercrime & Credit card fraud
• Cyber identity theft
• Cyber defamation
	• 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
		• 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.

• Phreaking • Denial of service attack • Cyber hate, bullying & 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		

Note: Adapted from Pizam and Mansfield (2006) and extended

Appendix A: Review of Some Key Studies

	Global Security Threats						Tourism Demand		Tourism Economy			Theoretical Concepts		Sample & Key Results	
Study	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
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 US 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 ↓

Arana and León (2008)			♦									• Discrete choice modelling	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, Conway, and Shrestha (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 ↑↓
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 & 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, O'Connell, Efthymiou, Guiomard, and Lucey (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, Simpson, Simpson, and Choi (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, Rosselló-Nadal, and Santana-Gallego (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 ↓

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 towards 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. (2021)	♦	♦	♦			♦	♦					• 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	US	• Tourists perceived terrorism as a greater risk. • Experienced tourists downplay threat of terrorism. • Familiarity seekers are most risk adverse.

												dogma, Cross cultural differences		• Novelty seekers perceive lower risk.
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.

Rittichainuwat and 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
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, Reis, and Abrantes (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	US The 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.
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	US The 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, Dhar, and Sharma (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, Wallin, and Hartley (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, cancellation 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.
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)

Notes: ↑= increase, ↓=decrease, ±= no effect

Appendix B

Proof:

Consider equation (1). Following from econometric theory,

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

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

$$\frac{Cov(\mathbf{X} + v, \mathbf{X})}{\text{var}(\mathbf{X})} = \frac{Cov(\mathbf{X}\boldsymbol{\beta}, \mathbf{X})}{\text{var}(\mathbf{X})} + \frac{Cov(v, \mathbf{X})}{\text{var}(\mathbf{X})}$$

$$= \boldsymbol{\beta} Cov\left[\frac{(\text{var}(\mathbf{X})}{\text{var}(\mathbf{X})}\right] + \frac{Cov(v, \mathbf{X})}{\text{var}(\mathbf{X})}$$

$$= \boldsymbol{\beta} + \frac{Cov(v, \mathbf{X})}{\text{var}(\mathbf{X})} \qquad \text{(A.2)}$$

The problem of endogeneity due to unobserved endogeneity arise in equation (1) if the second term in equation (A.2) is non-zero, therefore, $Cov(\mathbf{X}_{it}, u_{it}) = 0.$ 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)	0.02	1.00																						
(3)	0.52***	-0.05*	1.00																					
(4)	-0.03	0.26***	0.17***	1.00																				
(5)	0.58***	0.00	0.54***	-0.15***	1.00																			
(6)	0.47***	0.07***	0.30***	-0.07***	0.61***	1.00																		
(7)	0.60***	-0.11***	0.56***	-0.09***	0.65***	0.54***	1.00																	
(8)	0.45***	0.05*	0.27***	-0.11***	0.62***	0.73***	0.51***	1.00																
(9)	0.48***	0.00	0.37***	0.02	0.55***	0.72***	0.53***	0.64***	1.00															
(10)	-0.30***	0.13***	-0.32***	0.03	-0.29***	-0.20***	-0.34***	-0.17***	-0.20***	1.00														
(11)	0.24***	-0.05**	0.03	-0.10***	0.30***	0.54***	0.35***	0.32***	0.54***	-0.04*	1.00													
(12)	0.27***	0.02	0.10***	-0.12***	0.32***	0.48***	0.36***	0.31***	0.53***	0.01	0.67***	1.00												
(13)	0.29***	-0.08***	0.16***	-0.18***	0.39***	0.52***	0.41***	0.35***	0.55***	-0.09***	0.73***	0.73***	1.00											
(14)	0.09***	0.27***	-0.06**	0.10***	0.17***	0.35***	0.04	0.33***	0.33***	0.33***	0.26***	0.28***	0.22***	1.00										
(15)	-0.06**	0.27***	-0.13***	0.26***	-0.11***	0.09***	-0.19***	0.09***	0.14***	0.35***	0.02	0.07***	0.01	0.47***	1.00									
(16)	0.35***	-0.02	0.33***	-0.17***	0.43***	0.33***	0.35***	0.44***	0.36***	-0.20***	0.05*	0.08***	0.15***	0.03	-0.09***	1.00								
(17)	-0.04	0.11***	-0.19***	0.20***	-0.10***	0.07***	-0.15***	-0.08***	0.17***	0.11***	0.34***	0.17***	0.15***	0.27***	0.27***	-0.23***	1.00							
(18)	-0.20***	-0.03	-0.22***	0.10***	-0.20***	-0.22***	-0.26***	-0.27***	-0.21***	0.13***	0.08***	-0.05**	-0.09***	0.03	0.10***	-0.22***	0.40***	1.00						
(19)	0.25***	0.03	0.10***	-0.10***	0.32***	0.45***	0.30***	0.36***	0.40***	-0.06**	0.39***	0.43***	0.45***	0.29***	0.18***	0.19***	-0.10***	-0.12***	1.00					
(20)	0.21***	0.09***	0.04*	0.12***	0.31***	0.56***	0.19***	0.54***	0.48***	-0.01	0.30***	0.30***	0.30***	0.37***	0.33***	0.14***	0.24***	-0.05**	0.35***	1.00				
(21)	-0.17***	-0.07***	-0.16***	0.14***	-0.19***	-0.22***	-0.17***	-0.18***	-0.19***	0.09***	-0.08***	-0.11***	-0.10***	-0.04*	0.01	-0.16***	0.11***	0.12***	-0.03	-0.06**	1.00			
(22)	-0.07***	-0.10***	-0.09***	0.11***	0.02	-0.03	-0.08***	-0.07***	0.05**	0.09***	0.16***	0.08***	0.14***	0.15***	0.13***	-0.13***	0.46***	0.36***	0.00	0.26***	0.26***	1.00		
(23)	0.23***	0.11***	0.06***	-0.10***	0.23***	0.31***	0.26***	0.19***	0.33***	0.02	0.50***	0.51***	0.47***	0.27***	0.02	-0.01	0.19***	-0.04*	0.32***	0.17***	-0.05*	0.15***	1.00	
(24)	-0.63***	0.03	-0.56***	0.01	-0.61***	-0.52***	-0.64***	-0.53***	-0.55***	0.45***	-0.15***	-0.16***	-0.21***	0.13***	0.13***	-0.40***	0.11***	0.31***	-0.10***	-0.22***	0.13***	0.07**	-0.17***	1.00

Note: **** p<0.01, ** p<0.05, * p<0.1*

(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

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	-0.695***	0.0284	0.0778	-0.00265	-0.169**
					(0.0347)	(0.165)	(0.0201)	(0.161)	(0.0217)	(0.0685)
Homicide	-0.0198	-0.457	-0.177**	-0.579	-0.0929**	0.146	-0.0522*	-1.261**	-0.145***	-0.162
	(0.0715)	(0.285)	(0.0702)	(0.371)	(0.0442)	(0.856)	(0.0313)	(0.539)	(0.0431)	(0.132)
Access to weapons	-0.101	-0.0964	-0.111*	-0.323	-0.132***	-1.295			-0.0490	-0.603**
	(0.0821)	(0.446)	(0.0654)	(0.414)	(0.0433)	(1.100)			(0.0434)	(0.287)
Incarceration	0.0473	0.314	0.101*	0.382	0.0475	2.901***	-0.0267	0.938**	0.00157	0.403**
	(0.0559)	(0.224)	(0.0527)	(0.299)	(0.0356)	(0.599)	(0.0291)	(0.475)	(0.0326)	(0.178)
Violent crime							0.000308	-0.132		
							(0.0109)	(0.0993)		
Impact of terrorism	0.0261	0.787***	0.00464	0.213	0.00348	0.223	-0.00593	0.255	-0.00987	0.296**
	(0.0384)	(0.237)	(0.0470)	(0.214)	(0.0232)	(0.273)	(0.0152)	(0.233)	(0.0216)	(0.131)
Terrorism incidents	-0.000309	-0.00499**	-0.000408***	-0.000566	1.36e-05	0.00549***			4.08e-05	-0.000880
	(0.000232)	(0.00216)	(0.000126)	(0.00140)	(8.29e-05)	(0.00170)			(7.10e-05)	(0.000922)
Political instability	-0.0946	-0.235	-0.115**	-0.809***	-0.0860**	-0.112	-0.0429	0.132	-0.0635**	-0.574***
	(0.0637)	(0.210)	(0.0488)	(0.232)	(0.0360)	(0.306)	(0.0267)	(0.199)	(0.0284)	(0.134)
Political terror	0.0131	-0.175	0.00198	0.154	-0.0324	0.136	-0.00884	-0.150	-0.00435	0.0435
	(0.0312)	(0.163)	(0.0351)	(0.166)	(0.0242)	(0.141)	(0.0160)	(0.126)	(0.0193)	(0.115)
Intensity of internal conflict	-0.0132	-0.0114	-0.0175	0.224	-0.0418*	0.308*	-0.0264	0.121	-0.0294	-0.0619
	(0.0445)	(0.213)	(0.0540)	(0.290)	(0.0235)	(0.180)	(0.0201)	(0.192)	(0.0218)	(0.196)
Internal conflicts fought	-0.0843***	-0.279	-0.0436	-0.398*					0.0233	-0.0780
	(0.0297)	(0.227)	(0.0340)	(0.208)					(0.0196)	(0.177)
Deaths from internal conflict	-0.0431**	-0.0305	-0.0385**	0.0294	-0.00758	-0.141			-0.0245**	-0.147***
	(0.0190)	(0.0824)	(0.0184)	(0.130)	(0.0178)	(0.113)			(0.0122)	(0.0448)
External conflicts fought	-0.0348	0.0466			-0.00874	-0.199*	-0.0290**	0.000516	-0.0299***	0.0477
	(0.0214)	(0.0959)			(0.0105)	(0.104)	(0.0121)	(0.0877)	(0.0115)	(0.0407)
Deaths from external conflict	0.0186	0.905***			0.0140	-0.161			0.0354	-0.0903
	(0.0402)	(0.287)			(0.0319)	(0.826)			(0.0240)	(0.240)
Displaced people	0.0878*	-0.147	0.0510	0.338			-0.0782	0.0836	0.0380	-0.217
	(0.0469)	(0.341)	(0.0530)	(0.259)			(0.0491)	(0.371)	(0.0469)	(0.244)
UN peacekeeping funding	-0.0160	-0.126	-0.0352*	-0.203**	-0.0361**	-0.110*			0.000177	-0.188***
	(0.0216)	(0.0924)	(0.0198)	(0.0987)	(0.0176)	(0.0659)			(0.0114)	(0.0659)
Neighboring countries relations	-0.00580	-0.201**			0.00695	0.00669	0.00371	-0.150	-0.00471	-0.0131
	(0.0202)	(0.0863)			(0.0226)	(0.114)	(0.0110)	(0.101)	(0.00987)	(0.0421)
Military expenditure	-0.0498	-0.202	-0.125***	-0.129	-0.0582	0.0152	-0.0117	-0.0146	0.00677	-0.0583
	(0.0502)	(0.194)	(0.0440)	(0.240)	(0.0523)	(0.126)	(0.0350)	(0.104)	(0.0287)	(0.137)
Nuclear and heavy weapons	0.325*	-2.821***	0.182	-1.368*	0.278***	-1.193	0.168*	0.0768	0.270**	0.362

	(0.191)	(1.075)	(0.159)	(0.803)	(0.0795)	(0.928)	(0.0944)	(1.026)	(0.126)	(0.539)
Weapons imports			0.0706**	0.595***	0.0746***	1.001*			0.0206	-0.120
			(0.0311)	(0.194)	(0.0281)	(0.553)			(0.0225)	(0.132)
Weapons exports	0.0119	-0.162**			0.00749	0.0759	0.0115	-0.0674	-0.00646	-0.0128
	(0.0159)	(0.0754)			(0.0115)	(0.181)	(0.00883)	(0.0987)	(0.00731)	(0.0490)
Armed services personnel	0.186*	1.282***	0.171***	1.018***			0.0419	0.0287		
	(0.0966)	(0.471)	(0.0428)	(0.380)			(0.0356)	(0.954)		
Reliability of police services	0.0387	-0.0931	-0.0561	0.138					0.0371	0.174
	(0.0503)	(0.164)	(0.0428)	(0.185)					(0.0387)	(0.114)
Security officers & police	-0.0446	0.560**							0.00426	0.0519
	(0.0315)	(0.282)							(0.0285)	(0.119)
Constant	---		---		1.183**		---		2.668***	
					(0.480)				(0.566)	
Spatial rho	0.674***		0.620***		0.666***		0.514***		0.544***	
	(0.0844)		(0.0718)		(0.120)		(0.0886)		(0.0976)	
Variance (sigma2_e)	0.0541***		0.0509***		0.0657**		0.0234***		0.0250**	
	(0.00895)		(0.00884)		(0.0298)		(0.00489)		(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<0.01, ** p<0.05, * p<0.1