



Impact of Terrorism on Tourism Demand in the EU and the Mediterranean*

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Abstract: *The impact of terrorism on tourism causes the specific context in which tourism trips are realised. The relationship between terrorism and tourism was researched many decades ago. There are many open questions regarding the stated impact.*

The main goal of this paper is to find out some important facts considering the impact of terrorism regarding global and regional tourist demand. The article emphasises that security is an important factor for stable tourism growth. Security is certainly one of the most important factors for a tourist when deciding for a destination. However, this is all more important in the countries where the political and economic situation is not stable. There are still doubts what is the reason for a greater negative effect on tourism in the countries that are not considered western. Is it only about perception and media coverage or are non-western countries negating the effects with better responses and PR activities?

Using methodology applied in this research, country statistical offices can estimate when tourism will return to its pre-terrorist period.

1. INTRODUCTION

The relationship between tourism and terrorism was established many decades ago and has been described in several published papers (for more detailed content, please see: Enders & Sandler, 1991; Ryan, 1993; Sönmez & Graefe, 1998; Sönmez, Sevil F., Apostolopoulos, & Tarlow, 1999; Pizam & Smith, 2000; Pizam, 2002; Pizam & Fleischer, 2002; Lepp & Gibson, 2003; Bianchi, 2006; Dolnicar, 2007; Fletcher & Morakabati, 2008; Llorca-Vivero, 2008; Feridun, 2011; Thompson, 2011; Korstanje & Clayton, 2012; Baker, 2014; Crenshaw, 2014; Saha & Yap, 2014; Seabra, Abrantes, & Kastenholz, 2014; Afonso-Rodríguez, 2016; Adeloye & Brown, 2017; Bassil, Saleh, & Anwar, 2017; Buigut, Braendle, & Sajeewani, 2017; Goldman & Neubauer-Shani, 2017; Liu & Pratt, 2017; Samitas, Asteriou, Polyzos, & Kenourgios, 2018; Walters, Wallin, & Hartley, 2018). In the present paper, we would like to take into account that terrorism is affecting different regions of the world differently (economically, by the number of visitors, etc.).

Tourism is by definition (Vukonić, 1985; Middleton, 1986; Kobašić & Senečić, 1989; Slobodan Unković, Bakić, Čačić, & Popesku, 1991; Bakić, 2008; Radović, 2010; Kotler, Bowen, & Makens, 2010; S. Unković & Zečević, 2011) the movement of people caused by many reasons, but mostly the purposes of tourism are leisure and recreation or in general, looking for some kind of excitement to escape from daily routine. Besides, the tourists want to rest in peace and get to know the local culture and cuisine. This is exactly the point that we are interested in; the relationship between tourism and terrorism.

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According to Pizam & Smith, “Terrorism is a systematic and persistent strategy practiced by a state or political group against another state, political or social group through a campaign of acts of violence, such as assassinations, hijacking, use of explosives, sabotage, murder and the like, with the intent of creating a state of terror and public intimidation to achieve political, social or religious ends” (Pizam & Smith, 2000). Even terrorism as a phenomenon is not something new.

At some of the most attractive tourist destinations in the world, that will be presented in this paper, occurred terrorist attacks. In relation to that issue, the following question could be raised: Is the fear of terrorist attacks stronger than the level of excitement by tourist attractions?

There are several answers to the question. Risk perception concerning terrorist attacks could lead to “travel anxiety” and consequently to the search for a new tourist destination. Baker explained that “different levels of risk perception together with other internal factors may determine a tourist’s motivation to travel ... An individual with negative attitudes toward a certain destination due to a terrorist incident may exhibit high levels of safety concern, and this is likely to result in a negative outcome for the travel decision” (Baker, 2014).

However, there might be additional factors influencing risky travel decisions such as attitude toward international travel, level of risk perception and income (Sönmez & Graefe, 1998). Yet another opinion stresses determination of perceived risk by the potential act of terrorism by the sense of hazard seekers to be on risky travel rather than those who prefer familiarity, or in other words, as Lepp and Gibson explain “what may be a source of fear for the organised mass, tourist may be a source of excitement for the drifter” (Lepp & Gibson, 2003).

There is a dilemma that the question regarding the relationship between crime (terrorism) and tourism might be a false question because both are reflections of some fundamental social forces, found in urban lifestyle as responses to the complex network of work, family and peer groups. Those are derived patterns of action caused by “the social mores, cultures and economic systems”. Both tourism and crime are “mechanisms of escape from a status quo” with the main difference in social acceptability concerning the behaviour patterns (Ryan, 1993).

A. Pizam raises the question “whether these acts of terrorism should be considered as factors caused by wider social and political circumstances and therefore uncontrollable by tourism destinations” (Pizam, 2002).

On the other hand, the efforts in creating “a risk-free” environment for tourism could lead to “a myopic form of global travel which does little to reveal the true nature of uncertainty in which significant numbers of people at the world’s destinations live” (Bianchi, 2006), and consequently, make an unclear perspective in the travel decision process.

Another study confirms that terrorism has stronger negative effects in developing countries than in developed countries, due to the reason that developed countries recover more quickly from terrorist attacks, with “more resources to provide additional security to prevent future attacks” (Thompson, 2011).

The findings in one study regarding tourism’s vulnerability and resilience to terrorism point out the fact that more open destinations are more resilient to the impact of terrorism than nations who are not; destinations with higher income per capita are also more resilient compared to

less income per capita countries. This means low-income countries that need tourism are more impacted by terrorist attacks, which could “deter international tourists from traveling to these countries”(Liu & Pratt, 2017). In relation to what has been just mentioned, we are dealing with similar research.

Another consequence due to terrorist attacks on tourist destinations is an increase in operating costs of tourism companies. They have to “hire trained security personnel, install metal detectors, search the belongings of their guests, devise crisis plans and educate their guests to spot suspicious behaviours (Pizam, 2016). A. Pizam poses a question regarding the ability to accept these additional costs of operating activities, especially when it comes to smaller tourism and hospitality businesses (Pizam, 2016).

Therefore, the research frame of the subject and nature of terrorism impact on tourism in this paper highlights and investigates this dilemma via three hypotheses by searching for the answers to what are the main observations considering the impact of terrorism on global and regional tourist demand.

Returning to the above-mentioned question, it could be stressed that the tourist’s risk perception against expected satisfaction is the frame for the mentioned dilemma and influences on tourist demand.

2. LITERATURE REVIEW

Both tourism and terrorism are following different philosophies, as Korstanje and Clayton point out (Korstanje & Clayton, 2012), although they have some “disturbing commonalities” such as a need for modern technology, media management and use of the manipulation of perceptions and attitudes. Tourists are at the same time critical terrorism targets and travellers who very gladly visit sites known for terrorist attacks in the context of so-called “dark tourism”.

In the nature of “systematic terrorism” is the fact that it is “usually aimed at territorial autonomy, often with an additional political ideology or religion. Besides, the killing of political or religious opponents, to repress dissent, is also a form of “systematic terrorism”. However, “random terrorism” in its nature (al-Qaeda, for example) is “usually aimed at the destabilisation or destruction of the existing political, religious or ideological order and seeks maximum destruction in terms of killing and property damage” (Korstanje & Clayton, 2012).

In one paper concerning the literature about terrorism, there were stressed four interrelated areas: “the effectiveness of terrorism as a strategy of the opposition, the determinants and consequences of counterterrorism policies, how campaigns or waves of terrorism end, and how analysis of terrorism can be situated in a broader theoretical framework rather than treated as a phenomenon sui generis” (Crenshaw, 2014).

In a different study, it was found that “the fear of terrorism and contagious diseases is present in today’s tourist’s mind and has the power of dramatically modifying tourist behaviour” (Dolnicar, 2007).

Another study reveals factors which stimulate the decisions to travel despite the terrorism risk: the one-off nature of previous attacks, the presence of security services, the reason for travel,

the determination not to let the terrorist win and finally, previous experiences of terrorism (Adeloye & Brown, 2017).

One study confirmed that the level of terrorism threat has an impact on the tourist's choice behaviours in relation to the general tendency that tourist is not willing to travel as the level of terrorist threat increases. Detailed insights from this research show that "while the low-level threat of terrorism condition (attack has occurred, but a future attack is unlikely) did not see a change in tourist package considerations, there was a shift toward increased choices of not to travel in response to the threat of terrorism. The impact of the high possibility (attack has not occurred but an attack is likely) and the extreme condition (attack has occurred and another is likely) resulted in notable changes to tourist package preferences" (Walters, Wallin, & Hartley, 2018).

In terms of investigating the influence of terrorism risk perception on purchase involvement in the domain of tourism, the researchers in a separate study revealed that "the interest in and attention given to terrorism in the media by tourists increase the risk perception in international travel, their involvement in seeking information for travel and the consequent safety concern" (Seabra, Abrantes, & Kastenholz, 2014).

The researcher of terrorism and international tourism, Rafael Llorca-Vivero, stated that "both domestic and international terrorism has a moderate but significant negative influence on tourist flows" (Llorca-Vivero, 2008).

Baker stressed that the fear caused by the danger of terrorism tends to "intimidate potential tourists more severely" than natural and human-caused disasters and impact on tourism flow (Baker, 2014).

There is also a difference between random and persistent acts of terrorism concerning the consequences for the tourism industry, in a sense that random acts of terrorism could gradually become forgotten by the public but persistent terrorism could severely harm the tourism industry in terms of perceptions of destinations and travel behaviour (Sönmez, Sevil F., Apostolopoulos, & Tarlow, 1999).

The frequency and the level of organisation regarding terrorist acts have a significant influence on tourism demand flows. Some researched findings point out that the highest influence on tourist demand flow has in background frequent and organised terrorist acts and the lowest influence have the opposite effects. Consequentially, the countries such as Turkey and Israel, with organised and frequent terrorism acts, are perceived as the riskiest destinations. The countries such as Spain (ETA) where were infrequent but organised terrorist acts or countries such as the USA (gun-downs at high schools) where unorganised but more frequent terror is present, would be perceived as moderately risky countries. Last but not least, the countries such as the Nordic Countries or Germany, where terrorist acts were infrequent and unorganised, are perceived as the safest destinations (Wolff & Larsen, 2017).

It has been demonstrated that the magnitude and length of an expected negative effect, like the number of tourists visiting the destinations struck by terrorists, depend on the stability of such a country and the government reaction. In the case of Turkey, it was found that terrorism negatively affected the positive economic growth, but this negative impact was concentrated between three and six months after the event occurrence and "thereafter vanished". However, as

the author of this article stated, “the increasing violence in Turkey and neighbouring countries would, after the Arab Spring, compromise its long-run economic growth if policy measures that aim to increase safety and to restore the safe image after a terrorist attack, be not implemented” (Afonso-Rodríguez, 2016).

The negative effect of terrorism on tourism demand could be followed by the reduction of revenues in other main economic sectors of the attacked country such as oil production and foreign direct investments, which was the case in Nigeria (Ajogbeje, Adeniyi, & Folarin, 2017).

The results of the study concerning the terrorist attack in Mumbai, India, confirm that these attacks have a significantly negative impact on tourism demand (Gunasekar, Patri, & Narayanan, 2017).

In another study, it was found that terrorist attacks in Lebanon lead to positive spillover effects on visitor arrivals to Turkey and Israel, which indicates that those countries are perceived as substitute destinations. Looking at other countries, the researchers found that terrorist attacks in one country have a negative spillover effect on visitor arrivals in other countries (Bassil, Saleh, & Anwar, 2017).

There is also an insight into a “stable, long-run relationship between terrorist attacks in the MENA region and inbound tourist arrivals in Spain”, which points towards possible “cross-country substitution effects of tourism in the Mediterranean area as a consequence of the Arab Spring (AS) and subsequent rise of instability”. In this research, it was observed that “the MENA region is a natural tourist competitor to Spain, and the safer the area, the fewer tourist arrivals in Spain”. It was also concluded that the Arab Spring “has diverted tourists from the MENA region to Spain” with one remark that this effect could vanish when terrorism and instability disappear in this region (Afonso-Rodríguez & Santana-Gallego, 2017).

The next survey regarding the cruising industry revealed that passengers considered terrorism as a serious safety issue, and the cruise shipping industry sees that any terrorist attack on a vessel could have a devastating effect on business. In case of simultaneous attacks on several vessels, it would be the cause to cancel trips or delay the booking of a cruise holiday and in the case of smaller cruise shipping companies, it would be the moment for reconsidering their business operations to form the aspect of sustainability (Bowen, Fidgeon, & Page, 2014).

In a dynamic panel model research, it was found that terrorist attacks (fatalities and casualties) decrease tourism demand. It was also found that casualties (or fatalities) without travel advisory lead to significantly lower tourism demand. The casualties (or fatalities) combined with travel advice also significantly lower up tourist arrivals but with a higher effect than in previous case (casualties or fatalities alone). Travel advice alone without any casualties (or fatalities) is generally not significant in the combined dataset. Taking into account the country’s income level, it was revealed that casualties (or fatalities), as well as travel advice, significantly affect tourism demand for low-income countries but have no significant impact on high-income countries. Travelers from high-income countries show more concern regarding terrorist attacks in the countries that are “less able to contain the aftermath of such an event” (Buigut, Braendle, & Sajeewani, 2017).

Using the dataset from 1985 to 1998, it was found that in 71% of terrorism incidents also tourists were victims of the attacks and not only citizens. Further, it was found some relationship between terrorism characteristics and tourism demand, such as (Pizam & Smith, 2000):

1. “Acts of terrorism motivated by “social injustice” had a stronger negative effect on tourism demand than those motivated by “independence”.
2. Acts of terrorism that victimized both tourists and residents had a stronger impact on tourism demand than those that victimized residents only.
3. Acts of terrorism that resulted in bodily harm had a longer negative effect on tourism demand than acts that resulted in property loss.
4. Acts of terrorism committed with guns had a more negative and longer-lasting effect on tourism demand than those committed with bombs.
5. No statistically significant differences were found between the location of the terrorist act and the effect on tourism demand. “

In some research, it was observed the fact that a large portion of terrorist attacks (79%) “caused a significant decline in tourism demand that lasted from 1 to 6 months, with recovery in approximately 50% of the cases within three months or less” (Pizam & Smith, 2000).

Another study shows that the effect of a terrorist attack is particularly strong in high season. In the same study, it was found a shorter period (1 to 3 months) for German tourists to book again a tourist trip to Israel compared to all other destinations (3 to 4 months). The study explains the reasons for the changing safety and security at that destination (Karl, Winder, & Bauer, 2017).

It could be noted that tourist destinations may recover from a strong terrorist attack as long as that attack is not repeated (Pizam & Fleischer, 2002). The international tourism industry is vulnerable to terrorism but there is a directly proportional relationship between the level of vulnerability and the country’s reliance on peace and stability (Sönmez & Graefe, 1998), and there is long-run equilibrium level relationship between tourism and terrorism (Feridun, 2011). However, in another research, it was confirmed: “international tourism, measured by several arrivals to a country, has a positive effect on transnational terrorism”. It was found that the relationship between tourism and terrorism is reciprocal, meaning that “terrorism could be influenced by tourism as well” (Goldman & Neubauer-Shani, 2017).

In one research regarding the consequences of terrorism on tourism, which were observed in the case of Spain, where in one study, by using VAR methodology, in a period from 1970 to 1988, there were found opposite research results meaning that transnational terrorism significantly reduced Spanish tourism, and “the causality was unidirectional: terrorism affects tourism but not the reverse” (Enders & Sandler, 1991). Yet another research confirms the mentioned by stating that “the effect is unidirectional (terrorist incidents affect tourism demand and not vice versa) and persistent in the long run”, which is demonstrated in the case of Greece, (Samitas, Asteriou, Polyzos, & Kenourgios, 2018).

The next important topic considering the impact of terrorism on tourism is research on the impact of terrorism and political instability. It was observed that political instability has a “more lasting negative effect” concerning tourism than “one-off terrorist” attacks. Additionally, it was found which are some factors that influence recovery periods: the timing of the attack, the stage of tourism development, the scale of the attacks, the frequency of the attacks and the response to the attacks (Fletcher & Morakabati, 2008).

In another similar study, it was found that “political instability reduces tourist arrivals at any level of terrorism. Terrorism has a mixed effect on the number of tourists in a country if terrorism

increases and decreases depending if a country has low or high political risk level.” This means that countries with the below-average terrorist attack but with high political instability attract fewer international tourists, and in countries with lower political risks, terrorist attacks do not cause a decline in tourist arrivals due to the speed of recovery from such events (Saha & Yap, 2014).

Finally, if we look at the global data prepared by WTTC, one can observe the fact that the frequency of terrorist attacks might be detrimental to tourism sustainability and openness. This is supported by cognition that “there is substantial variation in the relationship between tourism decline and terrorism depending on the region: South Asia, Sub-Saharan Africa, MENA (the Middle East and North Africa), South America and the Asia-Pacific. Those regions correlate with higher levels of the Tourism Index and lower levels of terrorism, while Europe, Russia and Eurasia, North America, Central America and the Caribbean show the opposite relationship (WTTC, 2016).

Some key findings from this report suggest (WTTC, 2016):

- The countries with more sustainable and open tourism industries tend to be more peaceful.
- In non-conflict-affected countries, tourism sustainability and openness are resilient to deteriorations in violence, conflict and positive peace.
- In conflict-affected countries, tourism sustainability and openness are vulnerable to even small deteriorations in violence and conflict.
- The Tourism Index is a good predictor of levels of external peace and a reasonable predictor of overall levels of violence and conflict. This result is driven by non-conflict-affected countries.
- Both conflict-affected and non-conflict-affected countries show a correlation between the Tourism Index and higher positive peace, indicating that higher scores on the Tourism Index correlate with higher levels of positive peace. The strength of the correlation is significantly higher for non-conflict-affected countries.
- The Tourism Index is a good predictor of future levels of overall positive peace: the countries that have more open and sustainable tourism sectors will likely enjoy higher levels of positive peace in the future.
- Europe and North America are historically the strongest performers on Tourism, Global Peace and Positive Peace Indexes, while sub-Saharan Africa and South Asia are the weakest performers.
- Tourism sustainability is resilient to deteriorations in terrorism even when terrorism is targeted at tourists.

On the ground of the above-presented literature review, three hypotheses were formed to find out whether:

Hypothesis One: Comparable terrorist attacks in European countries would have a smaller negative effect on tourist arrivals than in the North African or Arabic countries.

Hypothesis Two: Negative effects of terrorism are longer-lasting in North African or Arabic countries compared to European countries.

Hypothesis Three: Terrorist attacks have not stopped the growth of tourism in any European, North African and Arabic countries.

In the subsequent chapters, we will present our methodological approach to test the above three hypotheses, the research done and in conclusion frame the whole topic of terrorism’s impact on tourism.

3. METHODOLOGY

Sample

The chosen countries were included in the sample according to the number of arrivals in these countries in the past 20 years (from 2018). The countries with a big number of tourists' arrivals were considered major tourist destinations. We covered the main tourist countries of the Mediterranean and the United Kingdom. The reason for that is because most terrorist attacks have occurred in the mentioned tourist countries. After the inclusion of the countries in the sample, those were split into two groups. The first group consisted of countries considered to be western: Spain, Italy, the UK and France. The second group of countries considered more exotic ones: Turkey, Tunisia and Egypt. Turkey, Tunisia and Egypt can also be classified as MENA (the Middle East and North Africa) countries. Italy was added as an example of an important tourist destination without recent terrorist attacks and we used it as a benchmark for other countries.

All of the data used was secondary data. It was collected from the World Bank database that is available online. We also used some indexes calculated by the Vision of Humanity. They include Peace Index, Terror Index, and Positive Peace Index.

Design

By using the predictions based on the year where the most significant terrorist act was committed and later comparing it with the actual values, we tried to show what was the effect of a terrorist act compared with actual predictions. The difference between predicted values and actual values serves as the size of the effect. The long-term effect can again be seen from the predictions based on the last year available. By combining the actual data, predicted data based on the year of a significant terrorist act and the predictions based on the last available year where data is available, we try to see the real effect of a terrorist attack on the number of arrivals to the country.

Data analysis

Software package Tableau (Tableau, 2014) was used to make comparison and forecasts with obtained data used in this paper. The software uses method called exponential smoothing. The most important thing we have to know is that the all the observations are not weighed equally. Later observations are given more weight. The method implies that the predictions should be taken as a rule of thumb. More advanced predictive models such as ARIMA were not made as we did not have enough data. Besides, in this case the application would also be difficult as it requires many more assumptions to be complied with.

Evaluation

The quality of the predictions was still found to be a bit poor as we did not get access to monthly or weekly arrival data for all countries, which we needed to compare. In any case, the goal of this paper is to show the short and, in some cases, long-term effects of terrorism on different countries. For this goal, the exponential smoothing models were deemed sufficient. The quality of predictions can also be seen in the tables attached to the paper. Statistics such as RMSE (Root Mean Square Error), MAE (Mean Absolute Error), MASE (Mean Absolute Scaled Error),

MAPE (Mean Absolute Percentage Error) and AIC (Akaike Information Criterion) are used to evaluate the quality of the models.

Forecasting process

Forecasting is the process of estimating the unknown. It can be defined as the science of predicting future outcomes. Forecast should have the following characteristics: it should be timely; as accurate as possible; reliable; and meaningful units. In order to do the forecasting process, the following steps should be computed (Nolan 1994; Armstrong 2001):

1. definition of the purpose of forecasting;
2. data preparation;
3. preliminary analysis;
4. choosing and fitting the best model;
5. forecasting;
6. evaluation.

Data preparation

For analysing the data on tourist arrivals each year from 1995–to 2017 we use the data of the World Bank Database.

Preliminary analysis

A good way to understand the data is a visualisation to find out some consistent patterns or a significant trend. With the help of Tableau 10.4, a powerful statistic tool for exploration and visualisation of the datasets, the graphics for different periods are constructed (Tableau, 2014).

Choosing and fitting the model

The next step is to determine the appropriate model that fits the data. For that purpose, we used the Box and Jenkins approach (Box, Jenkins, Reinsel, & Ljung, 2015) which allows selecting from a group of forecasting models the one that is the best to fit the time series data. The ARIMA (autoregressive integrated moving average) modeling can be applied to most types of time series data. The forecasting accuracy of the ARIMA model is considered by scientists to be of a high degree (Beliaeva, Petrochenkov, & Bade, 2013).

Forecasting

The data comparison is done from the period 2017 to 2020 and then forecasting (1) for the period from 2020 to 2027. The results of the prediction concerning the year are presented in Figures 1–7.

$$\begin{aligned}
 \hat{y}_{t+h|t} &= \ell_t + s_{t-m+h_m^*} \\
 \ell_t &= \alpha(y_t - s_{t-m}) + (1 - \alpha)\ell_{t-1} \\
 s_t &= \gamma(y_t - \ell_{t-1}) + (1 - \gamma)s_{t-m}
 \end{aligned} \tag{1}$$

Comparing the performance

This is the last and final step of the proposed methodology. We have given the screenshots, which were obtained at the time of analysing the dataset.

Evaluation

The evaluation was made by using the Mean absolute scaled error (MASE) which is the most reliable according to Hyndman and Koehler (table 1).

If the MASE is lower than 1, the forecast model is right (Hyndman & Koehler, 2006). In table 1, you will see that in some cases MASE is higher than 1. From this point of view, the forecast is not reliable. On the other hand, MAPE measures the magnitude of the error compared to the magnitude of data, as a percentage. So, a MAPE of 10% is better than a MAPE of 60%. As we see, a MAPE is between 4.90% and 18.80%. These results represent the mean value accuracy of the forecast.

Below we can see the summary of all models used.

In the charts, we can see the actual arrivals as the coloured area in the chart, while predictions are seen as lines. Two predictions were made for each analysed country. The first one is made based on all the available data, while the other tries to show how many arrivals there would be if the terrorist act had not happened.

Table 1. Forecast error measures

	Model			Quality Metrics				Smoothing Coefficients			
	Level	Trend	Season	RMSE	MAE	MASE	MAPE	AIC	α	β	γ
Egypt 2018	Additive	None	None	1.79	1.40	1.01	18.80%	33	0.50	0.00	0
Egypt 2010	Additive	Additive	None	0.89	0.77	0.81	13.80%	6	0.50	0.50	0
Spain 2018	Multiplicative	Multiplicative	None	3.60	3.20	1.13	6.30%	69	0.50	0.50	0
Spain 2003	Additive	Additive	None	2.76	1.92	0.86	5.20%	28	0.50	0.03	0
France 2018	Additive	Additive	None	2.74	2.27	1.04	3.10%	56	0.50	0.00	0
France 2014	Additive	Additive	None	2.83	2.34	1.08	3.20%	52	0.50	0.00	0
Great Britain 2018	Additive	Additive	None	1.77	1.54	1.27	5.80%	36	0.50	0.00	0
Great Britain 2004	Additive	None	None	1.19	0.85	0.81	3.70%	10	0.00	0.00	0
Italy 2018	Additive	Additive	None	2.24	1.70	0.96	4.20%	47	0.50	0.00	0
Tunisia 2018	Additive	None	None	0.75	0.60	1.07	10.00%	-7	0.50	0.00	0
Tunisia 2010	Multiplicative	Multiplicative	None	0.32	0.25	0.77	4.90%	-27	0.50	0.07	0
Turkey 2018	Additive	Additive	None	3.18	2.27	0.88	12.80%	63	0.50	0.50	0
Turkey 2014	Additive	Additive	None	2.13	1.85	0.88	13.10%	40	0.50	0.50	0

Source: Authors

4. FINDINGS AND RESULTS

Firstly, we will present all the countries and their actual arrivals compared with our predictions for the time after the terrorist attacks that most shook the countries in our sample.

In the second part, we will present the findings in general. Some basic descriptive statistics were calculated to show how each country performed.

Aggregated data by country shows how different countries performed after the terrorist acts. Some terrorist attacks happened lately and therefore we, unfortunately, do not have a 10-year window to analyse the effects of the attacks, but we can still compare the countries to each other.

We start by examining Egypt (Figure 1). We can see the country enjoyed steady growth in the number of arrivals in the country until the revolution in 2011. The predictions suggest the big growth would continue, but the actual number of arrivals show that the revolution had a strong negative impact on the number of tourist arrivals.

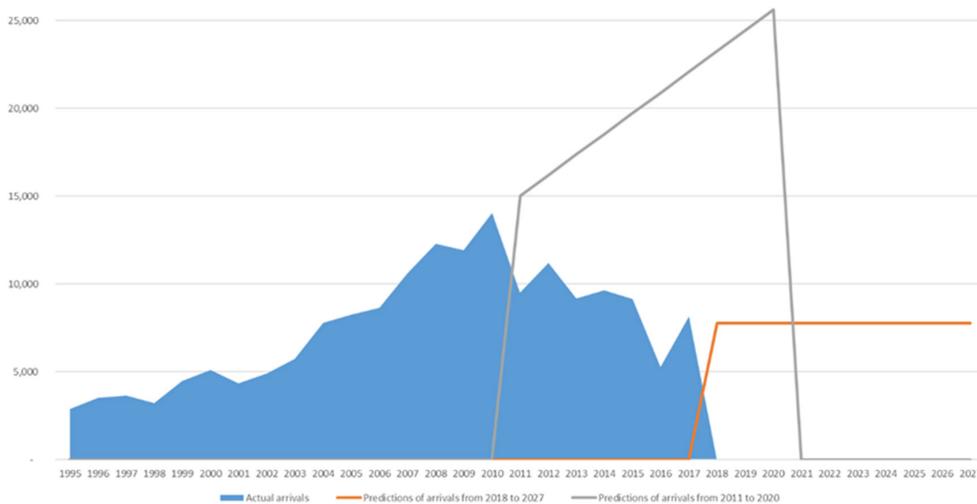


Figure 1. Egypt Tourist Arrivals and Forecasts (1995–2027)

Source: Authors

As the revolution was followed by another coup and also other instabilities, the growth has still not returned and the number of arrivals has not reached pre-revolution numbers. Our model predicted that the future looks uncertain and that the number of arrivals will be steady for the foreseeable future.

Tunisia is next. We can see (Figure 2) that similarly to Egypt and according to our model, Tunisia was supposed to continue the growth they were experiencing before the revolution. The revolution then struck and the number of tourist arrivals declined instead of growing. Similarly, for Egypt, our model predicts that the number of arrivals will hover around the number of arrivals achieved in 2017.

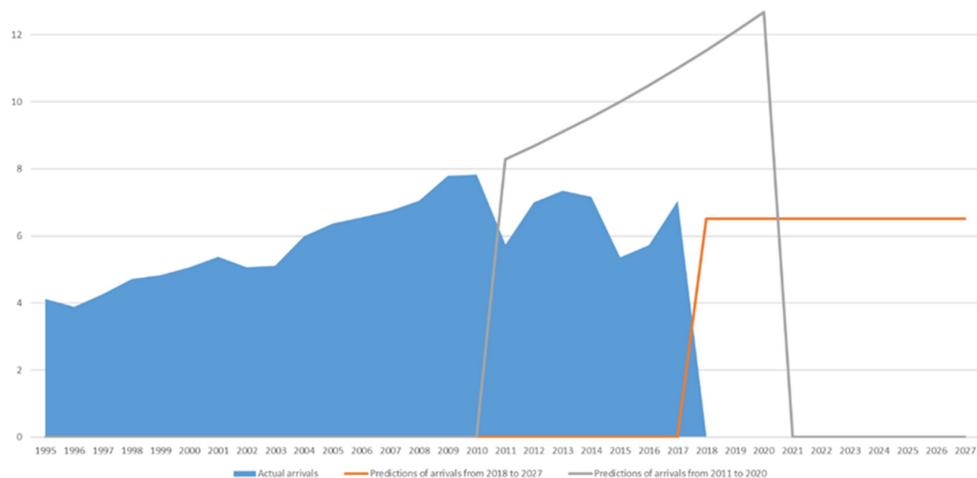


Figure 2. Tunisia Tourist Arrivals and Forecasts (1995–2027)

Source: Authors

Turkey showed a big trend of a constant increase in arrivals to the country until 2015 when the Ankara bombings were conducted (Figure 3). They were followed by the New Year’s Eve shooting and a coup attempt in 2016. The number of arrivals fell instead of the growth that was predicted by our model. The current prognosis of our model is that the arrivals to the country will continue to fall for the next couple of years.

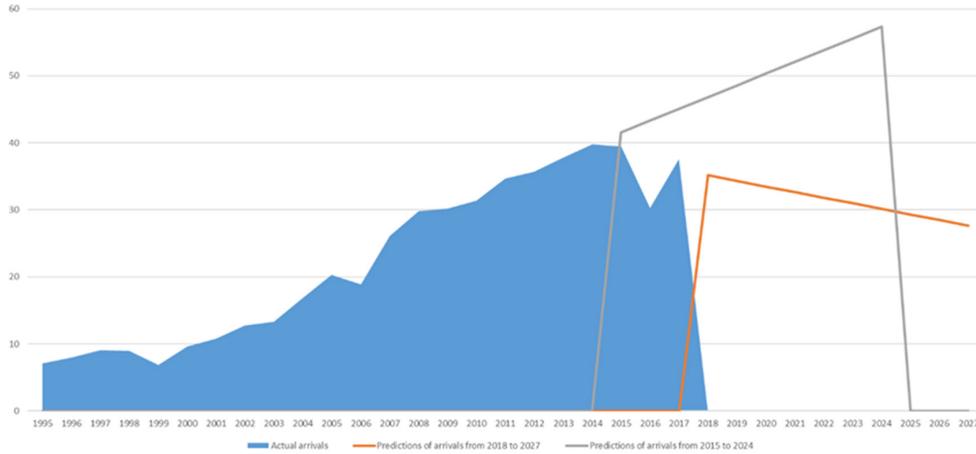


Figure 3. Turkey Tourist Arrivals and Forecasts (1995–2027)

Source: Authors

Spain experienced (Figure 4) a deadly attack on the Madrid subway in 2004. The bombings were not followed by other terrorist acts and Spain kept to the predicted number of arrivals until 2007 when the growth stopped. Lately, Spain has again been experiencing a big uptick in the number of arrivals to the country. Because of that, our model shows that the number of arrivals will continue to grow very fast in the foreseeable future.

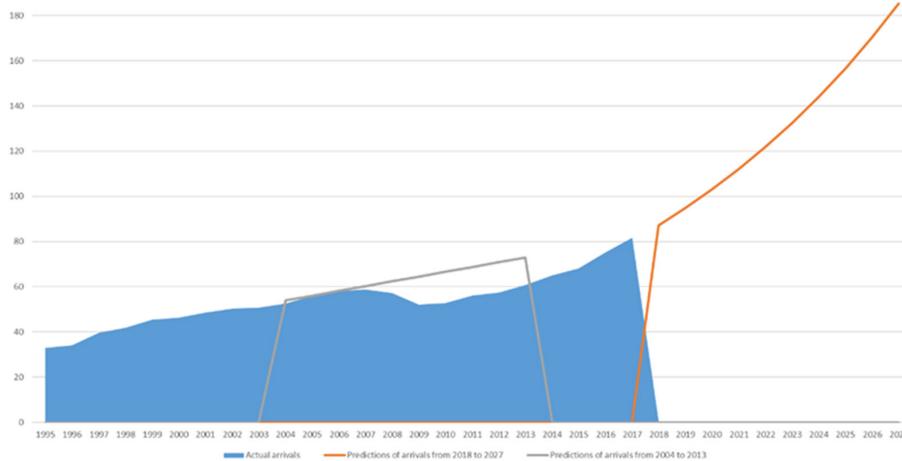


Figure 4. Spain Tourist Arrivals and Forecasts (1995–2027)

Source: Authors

France experienced a terrorist attack on the Bataclan theatre at the end of 2015. But as we can see from the chart, the terrorist attacks did not decrease the number of arrivals greatly and the prognosis shows the number of arrivals to the country will continue to grow (Figure 5). We must also add that France also experienced a Nice truck attack and the attack on Charlie Hebdo so we cannot claim that Bataclan shootings were an isolated attack.

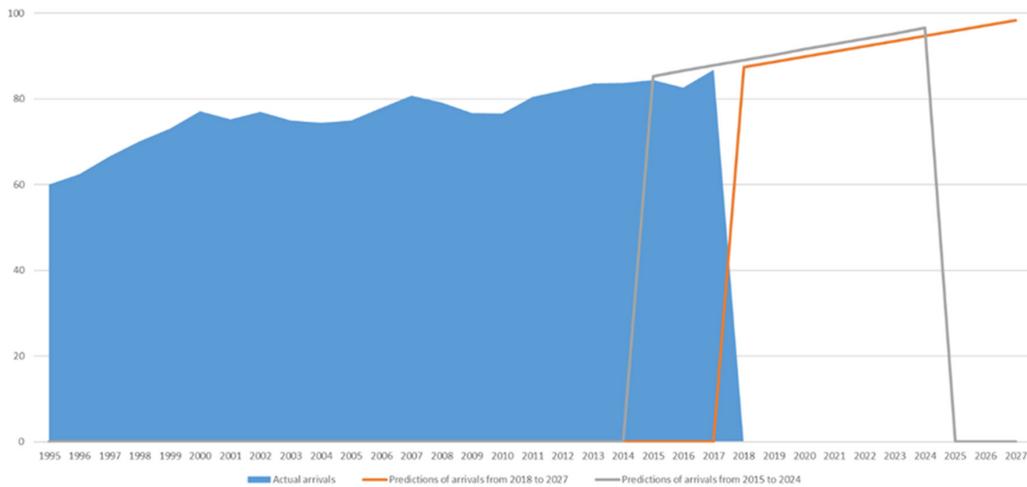


Figure 5. France Tourist Arrivals and Forecasts (1995–2027)

Source: Authors

The 7th July bombing in London at the underground trains was the most significant terrorist act London has experienced lately (Figure 6). Manchester shootings happened in 2017, but the data for tourist arrivals have not been analysed well. 2005 was supposed to be the year when the number of arrivals to the UK would stop growing and be kept that way for 10 years. But even despite the London bombings, the UK outperformed the predictions and posted big growth in the number of tourist arrivals which, as our model shows, will continue into the foreseeable future.

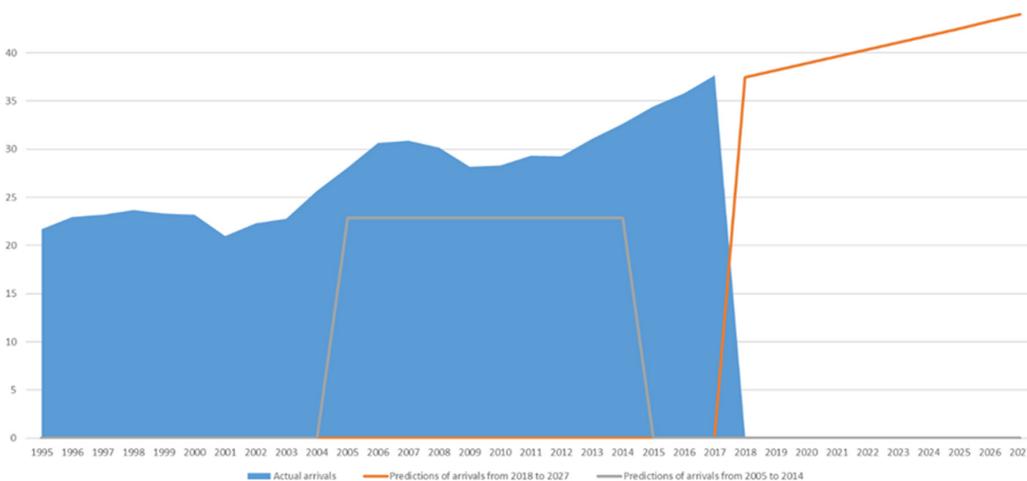


Figure 6. Great Britain Tourist Arrivals and Forecasts (1995–2027)

Source: Authors

Italy was the analysed country that did not experience a serious terrorist act in the last 25 years (Figure 7). The growth of arrivals has been present since 1995 and as our model shows will continue.

Because the growth in tourism on the world stage has been big since 1995, we can expect that all the reviewed countries on average will experience growth in the number of tourist arrivals. Between 2018 and 2027, the number of arrivals to Turkey will decrease on average by 2.6 %, while it will not grow nor fall in Egypt and Tunisia. In Spain, France, Italy and the UK, the number of arrivals will grow according to our model.

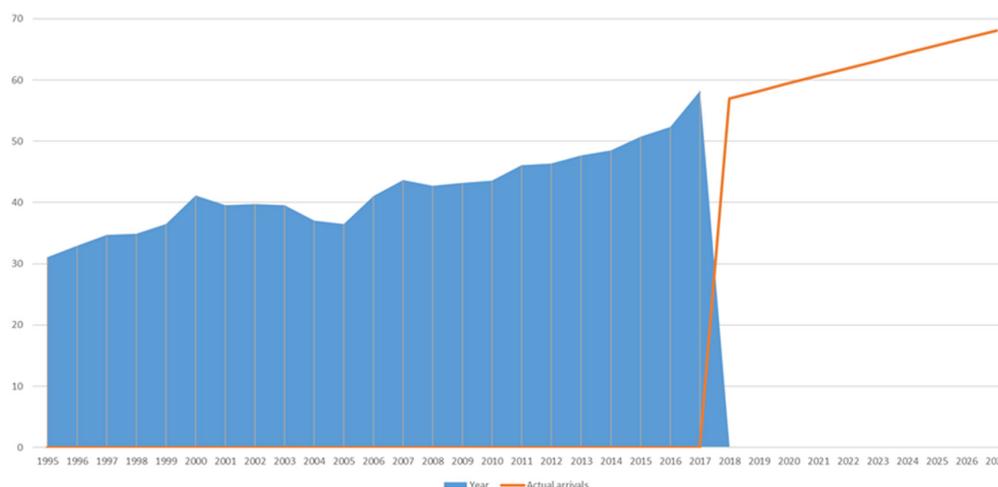


Figure 7. Italy Tourist Arrivals and Forecasts (1995–2027)

Source: Authors

What is interesting by looking at the summary tables (2 and 3), is that even after the terrorist attacks, on average, the growth was present in all the analysed countries but was much smaller in the cases of Egypt and Turkey. In the case of Spain, it was a bit smaller, while it stayed the same in France and Tunisia. In the case of the UK, it even increased.

Table 2. Average growth of tourist arrivals after terrorist attacks (in percentages)

	Egypt	Spain	France	UK	Italy	Tunisia	Turkey
The number of years after terrorist attacks with data	7	10	3	10	0	7	3
Actual average growth between 1995 and 2017	7.4%	4.3%	1.7%	2.7%	3.0%	3.2%	9.0%
Average predicted growth between 2018 and 2027	0.0%	8.7%	1.3%	1.8%	2.0%	0.0%	-2.6%
Actual average growth for the time after terrorist attacks	2.1%	1.7%	1.5%	1.8%	/	4.9%	0.4%
Predicted average growth for the time after terrorist attacks	6.6%	3.4%	1.4%	0.0%	/	4.8%	4.1%
Difference between predicted and actual average growth for the time after terrorist attacks	-4.6%	-1.7%	0.0%	1.8%	/	0.0%	-3.7%

Source: Authors

If we also take a look at the actual number of arrivals, we see that all countries except for the UK experienced a decrease in the number of arrivals when compared to the predictions from the time before the attacks.

Table 3. Average growth of tourist arrivals after terrorist attacks (in thousands)

	Egypt	Spain	France	UK	Italy	Tunisia	Turkey
Years after terrorist attacks with data	7	10	3	10	0	7	3
Actual Arrivals for the period after terrorist attacks	62.0	561.4	254.0	298.5	/	45.4	107.4
Predicted arrivals for the period after terrorist attacks	129.8	634.1	259.8	229.0	/	67.1	130.0
Difference between actual arrivals after terrorist attacks and predicted arrivals for terrorist attacks	-67.8	-72.8	-5.8	69.5	/	-21.8	-22.6

Source: Authors

We also calculated correlations between the number of arrivals and some key factors that measure violence in each country (Table 4). Statistically, significant correlations are coloured red. The variable year is also added, which shows correlations of arrivals with the time. We see that the relationship is always positive, which indicates growth over the years.

We see that the lower Peace Index (lower score indicates higher peacefulness) negatively correlates with arrivals to the country for each one of the analysed countries that were expected.

What is more surprising is that the relationship between the Terror Index and arrivals to the country is not as straightforward. We only identified a negative correlation between the number of arrivals and the terror index (higher score indicates more terrorist activity) in Spain, Italy, and Tunisia.

The correlations between the Positive Peace Index and the number of arrivals to a country show that the relationship was negative in the case of MENA countries and the UK and positive in the case of Italy, France and Spain.

We also found that the correlation between the number of departures and arrivals to a country in our sample is positive, which means that the factors influencing the choice to travel to a country could also influence the number of arrivals to a country.

Table 4. Correlation table

		Year	Peace Index	Terror Index	Positive peace	Departures
Spain arrivals	Pearson corr.	0.854	-0.911	-0.690	0.849	0.771
	p	0.000	0.001	0.004	0.000	0.000
Italy arrivals	Pearson correlation	0.895	-0.233	-0.210	0.780	0.761
	p	0.000	0.547	0.453	0.003	0.000
France arrivals	Pearson corr.	0.837	-0.066	0.408	0.449	0.778
	p	0.000	0.866	0.131	0.143	0.000
Egypt arrivals	Pearson corr.	0.473	-0.778	0.073	-0.553	0.663
	p	0.055	0.014	0.797	0.062	0.013
UK arrivals	Pearson corr.	0.898	-0.773	0.591	-0.162	0.478
	p	0.000	0.015	0.020	0.615	0.052
Turkey arrivals	Pearson corr.	0.942	-0.186	0.377	-0.849	0.397
	p	0.000	0.633	0.166	0.000	0.115
Tunisia arrivals	Pearson corr.	0.447	-0.141	-0.530	-0.154	0.729
	p	0.072	0.718	0.042	0.633	0.001

Source: Authors

5. DISCUSSION AND CONCLUSION

The results are hard to generalise as every country is different and has a different perception in the mind of a tourist. What we can see from our sample, is that continuous terrorist or violent activities in a non-European country have a bigger negative impact on the number of tourist arrivals when compared with rarer such events in a European country, which is consistent with the research results dealing with random and persistent acts of terrorism (Sönmez, Sevil F. et, al., 1999) and the frequency and level of the organisation regarding terrorist acts (Wolff & Larsen, 2017). We can observe that the more they are politically and economically stable, the faster they normalise, as already established in previous studies (Thompson, 2011).

On the other hand, some findings show a pattern similar to the things happening in the other parts of the world as well. The latest attacks in Sri Lanka had a different effect on the arrivals of tourists to the country like the ones in New Zealand. The news coverage was also different. After all the data is in, that case would be interesting to analyse.

We discover a similar pattern as Liu & Pratt (Liu & Pratt, 2017) because the high income per capita countries were less affected by terrorist acts even if they were repeated as in the case of France. It was also shown that the effects were longer-lasting in lower-income per capita countries, but that could also be the case of overall political instability, which Fletcher & Morakabati (Fletcher & Morakabati, 2008) showed - can be even a greater factor than terrorism.

The observation about the relationship between the Terror Index and arrivals is partially consistent with WTTC report regarding higher levels of Tourism Index and lower levels of terrorism in the MENA countries and the opposite relationship in the European countries (WTTC, 2016), which could be explained by limitations in this research; that will be explained in the section below.

The findings regarding the negative correlation between the number of arrivals and the Terror Index in Spain and Tunisia confirm the results of some previous research related to the unidirectional causality between terrorism and tourism (Enders & Sandler, 1991; Samitas et al., 2018), which is, on the other hand, opposite to the findings in relation to the reciprocal relationship between tourism and terrorism (Goldman & Neubauer-Shani, 2017).

Many factors have an influence on the tourists' decision and we cannot claim that only terrorist attacks were the reason for a decrease in arrivals in war-torn countries, but we can show a decrease in tourist arrivals in the years following the terrorist attacks even in cases where the number of arrivals had steadily been rising in the years before the attack.

The strongest point of our article is to show a hypothetical scenario where the terrorist attacks did not happen. In such a case, we see if now the increase/decrease of arrivals to a country was expected or not; when combined with the data about the terrorist attacks that show great value in demonstrating the effect size of the terrorist act. One weakness is a lack of a statistically proven causality link between terrorism and tourism. In this area, there is still room for improvement.

After looking at the result, we have to find out what is the reason for a bigger negative effect on the countries that are not considered western. If it is only about the perception and media coverage, non-western countries should try to negate the effects with better responses and PR activities that should be cultivated all the time and not only after the attacks. Longitudinal research of all countries affected by terrorism would greatly contribute to knowledge in this field. Right now, the focus of this study was only on high-profile tourist destinations. Maybe the effect would be different in countries that are not so popular with tourists.

We have confirmed all three hypotheses. Comparable terrorist attacks in European countries did have a smaller negative effect on tourist arrivals than in the North African or Arabic countries. Negative effects of terrorism were also longer-lasting in North African or Arabic countries compared to European countries. But the terrorist attacks have not stopped the growth of tourism in any European, North African and Arabic countries.

The article emphasises that security is an important factor for stable tourism growth (Fletcher & Morakabati, 2008; Saha & Yap, 2014; Wolff & Larsen, 2017). However, this is all the more important in countries where the political and economic situation is not stable. Using this method, country statistical offices can estimate when tourism will return to pre-terrorist status. Security is certainly one of the most important factors for a tourist in deciding on a destination because only a few tourists search for dangerous areas.

Even traditional tourist destinations can greatly suffer from a surge of violence or even from a single terrorist attack as can be seen in the case of Sri Lanka. A short-term drop of tourist arrivals seems impossible to avoid for non-western tourist destinations. Western countries show that recovery after a terrorist attack is possible if the violence is not constant. In the case of the analysed non-western countries, those had other problems as the terrorist attacks or revolutions were usually followed by more violence. Even in the case of Turkey, where the violence levels did not reach the ones of Syria, we can see that the tourism industry was hit harder and is recovering more slowly.

We have found no case study on how to soften the blow of violent acts in a non-western country. Especially in the case of Turkey, it would be interesting to see what is the biggest reason as France had a similar level of violent activity as Turkey, but their tourism industry did not suffer nearly as much from it.

Our research and results are backed up by the current literature and the data used – violent activity negatively influences tourism in countries. In some countries, tourism is a big part of the economy and therefore an important part of society. In those countries, targeting tourists is a viable option for terrorists as it is an easy way to get attention. How to resolve a complicated political question and guarantee safety, is outside of the scope of this article.

6. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Some shortcomings of our study have to be pointed out. Repeated attacks are not accounted for in this research. As several studies have found, repeated attacks can have a strong impact on tourism where the attacks are committed. As only the variable arrivals to the country are used, control variables are missing. But we can counter that by saying that exact predictions are not the goal of this article. What we tried to show was the difference in the effect of terrorism on tourism between developed European countries and the most popular destinations outside of Europe for European tourists.

Also, we were not able to obtain weekly or monthly data for all countries and all variables, which would have been more accurate. The immediate effect of arrivals was therefore not possible to study. Our models would have also worked better on more detailed data. When talking about data, we would have also liked to see a cross-national survey of countries' safety perception over time. Comparing it with objective indices would be interesting as it would have shown us the differences between perception and actual violence levels in analysed countries.

Another aspect that would be interesting to research is after how many years do the effects of a significant terrorist attack stop being felt. It is possible that a big terrorist act only has a short-term effect on the arrival of tourists to the affected country.

Finally, the analysis of how the attacks were communicated in the media and also by affected governments would also be interesting to see. Analysing official responses would provide an insight into how to react in the case of a terrorist attack. Maybe a different kind of response shortens the time in which the number of arrivals returns to pre-terrorist attack levels. It can maybe even soften a short-term drop in the number of arrivals. Tourists' perception of safety in a country may not be as strongly correlated with actual safety in a country. That problem would be interesting to research.

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