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The Effects of Terrorist Attacks on Destination Preferences of Domestic and Foreign Tourists: A Spatial Analysis for Turkey's NUTS-II Regions

Terör Saldırılarının Yerli ve Yabancı Turistlerin Destinasyon Tercihleri Üzerindeki Etkileri: Türkiye İBBS-II Bölgeleri'ne Yönelik Mekansal Bir Analiz

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Abstract

Tourism is one of the most affected sectors in the economy by terrorist attacks that have been increasing dramatically in all over the world. This study aims to investigate the effects of terrorist attacks on domestic and foreign tourism demand in Turkey. In terms of terrorist activities both the frequency degree and severity degree are taken into account as determinants of demand. The empirical analysis covers the time period between 2001-2015 and all 26 NUTS-II regions in Turkey. The model considers the possibility of spatial dependency because of clustering patterns of the tourists' destination preferences and employs Spatial Error-Fixed Effects Panel Model.

Our findings indicate that the severity degree of terrorism has distortion effects on tourism preferences unlike the frequency degree. We also find that though the distorting effects of terrorism are more significant for domestic tourists compared to foreign tourists. The control variables such as income level and exchange rates are found to be more significant determinants for foreign demand rather than domestic demand. Finally, there is strong and positive spatial effects on foreign tourists' preferences toward Turkey's tourism destinations.

Keywords: *Tourism Demand, Terrorist Attacks, Turkey, Spatial Dependency, Panel Data Analysis.*
JEL Codes: *C31, D74, R11, Z32.*

Öz

Turizm sektörü, dünya genelinde dramatik bir şekilde artan terör saldırılardan en çok etkilenen sektörlerin başında gelmektedir. Bu sebeple, çalışmada, terör saldırılarının Türkiye'ye yönelik yerli ve yabancı turizm talebi üzerindeki etkilerinin

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incelenmesi amaçlanmış ve terör saldırılarının sıklık ve sertlik derecesi turizm talebinin önemli bir belirleyicisi olarak dikkate alınmıştır. 2001-2015 dönemi ve Türkiye'nin 26 adet İBBS-II Bölgesinin incelendiği çalışmada, turistlerin destinasyon tercihlerinde gözlemlenen kümelenme örüntüleri sebebiyle mekansal bağımlılık olasılığı dikkate alınmıştır.

Tahmin edilen Mekansal Hata Sabit Etkiler Panel Modeli'nin bulguları, turizm tercihleri üzerindeki saptırıcı etkilerin terör saldırılarının sıklık derecesinden ziyade sertlik derecesi ekseninde ortaya çıktığını göstermektedir. Bununla birlikte, terör olaylarının yerli ve yabancı turistler üzerindeki etkilerinin de farklı olduğu öne çıkan bulgular arasındadır. Buna göre, terör olaylarının saptırıcı etkilerinin yabancı turistlerden ziyade yerli turistler üzerinde istatistiksel açıdan anlamlı olduğu görülmektedir. Ayrıca, gelir düzeyi ve döviz kuru gibi kontrol değişkenlerin yerli turistlerden ziyade yabancı turistlerin turizm talebi üzerindeki etkilerinin daha belirgin olduğu görülmektedir. Son olarak, yabancı turistlerin Türkiye'ye yönelik destinasyon tercihlerinin daha güçlü bir pozitif kümelenme deseni sergilediği öne çıkan bir diğer bulgudur.

Anahtar Kelimeler: *Turizm Talebi, Terör Saldırıları, Türkiye Mekansal Bağımlılık, Panel Veri Analizi*

JEL Kodları: *C31, D74, R11, Z32.*

Introduction

The economic aspects of terrorism, which have been globalized and threatens the international system, have been more evident recently. The distorting effects of terrorism by targeting tourists and tourism destinations is one of the most visible effects on the economic issues for both developing and developed countries.

Terrorist attacks may cause deforming effects on the preferences of tourists and may damage tourism sector which has a crucial place on the economy in terms of employment, income, foreign exchange and added value potentials. In particular, the fear caused by terrorist attacks has been increasing dramatically, and terrorist attacks targeting especially public spaces and civilian population is the main reason for that fear and anxiety. Indeed, according to the statistics compiled from Global Terrorism Database, 23 % of the annual 3058 attacks targeted tourists and civilians between 1990 and 2000. This ratio increased abruptly to 31 % between 2001 and 2015. More strikingly, the 57 % of these attacks occurred only between 2012 and 2015. As a result, the anxiety perceptions caused by terrorism have become tangible in all over the world. For this reason, we investigate the potential effects of security problems like terrorist attacks that affect tourism and tourism destinations directly and indirectly, to obtain more consistent and comprehensive appraisal of economic dynamics of tourism demand.

Although the empirical studies analysing the relationship between terrorist attacks and tourism demand are widespread in the literature; it is rather a recent attempt to cover the topic in a spatial context. Mostly, the studies on this agenda analyse cross-section of countries or country groups; others focus on a single country. For instance, several studies such as Santana-Gallego, Rossello-Nadal and Fourie (2016), Yap and Saha (2013), Saha and Yap (2013) analysing cross-section of countries from macro perspective, indicate that terrorist attacks have negative effects on touristic activities and tourism sector. On the other hand, studies focusing on country groups such as Akıncı and Yılmaz (2015), Rafael (2008), Thompson (2008) show that the negative effects of terrorist attacks on tourism demand are more devastating in developing countries rather than in developed countries. Yazdi and Khanalizadeh (2016) analyse tourism demand for the USA; Gazopoulou (2011)analyses tourism and travel income for Greece; Enders and Sandler (1991)investigate touristic visits towards Spain, in single country studies, and find that terror has negative effects on tourism. Additionally, Aly and Strazicich (2002)find that the effects of external shocks such as terror on tourism demand towards Egypt and Israel are temporary. Fleischer and Buccola (2002) also find that distorting effects of terrorist attacks on tourism appear after 2 months. Pizam and Fleischer (2002)focusing on Israel, suggest that the frequency degree of terrorist attacks has more distorting effects on tourism demand than the severity degree of terrorist attacks.

In this study we focus on Turkey as an example of a developing country perspective, and one of the main touristic destination in Europe. In terms of Turkish case, there are only limited numbers of studies focusing on the relationship between terror and its effects on the tourism sector. This is rather interesting because not only tourism sector constitutes a high share in GDP, but also Turkey is a country that has been suffering from terrorism for the last 40 years. According to the findings of Güvenek and Alptekin (2015), there is no significant relationship between terrorist attacks and tourist numbers. However; Altay, et al. (2013) analysing Turkey with Egypt and Saudi Arabia; Drakos and Kutan (2001) investigating Greece, Turkey and Israel find that terrorist attacks have negative effects on tourism demand. Çelik and Karaçuka (2017), Karaçuka and Çelik (2014)also analyse tourism demand from OECD countries to Turkey over 1991-2011 periods and find that the distorting effects of terrorism are not remarkable. On the other hand, Karaçuka and Çelik (2015) focusing on the terror-tourism relation at regional level over 2001-2011 periods argue that terrorist attacks do not have any statistically significant effects on tourism demand for Turkey. However, there is a change in the pattern of terrorism that Turkey faces in the recent years such that terrorist attacks are not anymore constricted in the southeast and eastern parts of the country but spread out

all over the country. This shift of terrorist threat is expected to also have distorting effects on tourism sector.

Tourism demand is crucial especially for developing countries as a foreign exchange source and for employment which consistent with the findings of Eugenio-Martin et al. (2004), Fayissa et al. (2008), Elias and Proenca (2008), Khalil et al. (2007), Dritsakis (2004), Gunduz and Hatemi (2005), Bahar (2006). However, the demand depends on socio-economic dynamics of both home and hosting countries. Although this study analyses the effects of terrorist attacks on domestic and foreign tourism demand from a spatial perspective, we also investigate the effects of economic factors such as income level, exchange rates; overall price level and public capital investments in tourism sector. Accordingly, in this study we first discuss the criteria that determine the sensitivity of tourism demand towards terrorist attacks, and present a brief information about terrorist attacks towards tourist and tourism destinations in Turkey. Then, we investigate the effects of frequency and severity degree of terrorist attacks on destination preferences of domestic and foreign tourists empirically covering Turkey's NUTS-II regions (26 regions).

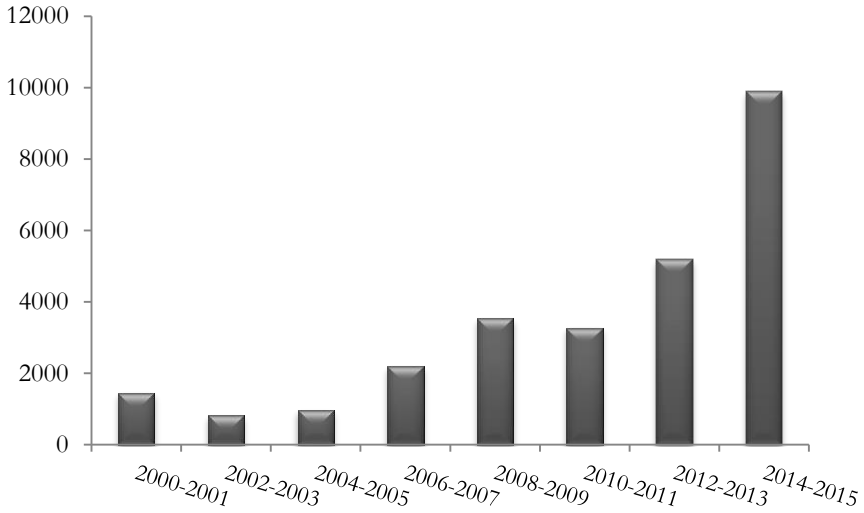
The main distinctions, and possible contributions of this study to the growing body of empirical literature on tourism demand- terror relationship are threefold. First we distinguish tourism demand as domestic and foreign visitors; second, we analyse the effects of terrorist attacks on tourism demand in terms of both frequency and severity degree separately, and third we use spatial econometric techniques to take spatial effects and dependency into account.

1. The Tourism and Terror Relation

1.1. Tourism Destinations and Terrorist Attacks

Terrorism defined as *the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation* in Global Terrorism Database by START and it is fed by anxiety on civilians. The first reason of targeting tourism destinations by terrorist groups is that they are easier to target rather than militaristic regions and elements. So, terrorist groups can easily reach their ultimate aims by targeting tourists and tourism destinations if they want to harm a government or country. For this reason, such attacks have been increasing dramatically all over the world as it can be seen in Figure 1 that shows terrorist attacks targeting tourists and civilians between 2000 and 2015.

Figure 1. Terrorist Attacks Targeting Tourists and Civilians in the World (2000-2015)



Source: Global Terrorism Database (GTD)

Another reason of targeting tourists and tourism destinations is that such attacks cause diplomatic problems such as loss of reputation and reliability in the international system. Meanwhile, by damaging tourism sector, which is a crucial source in the economy in terms of added value, employment and foreign exchange, terrorist organizations can create economic problems that would also cause political instability. Indeed, according to World Travel and Tourism Council's 2016 report, income generated by tourism sector corresponds to 9.8% of world income. Also, tourism sector with 284 million of employment capacity is 7 times larger than automotive sector.[3] These figures reveal the importance of tourism sector in the economy and reasons of being a target of terrorist attacks.

1.2. The Sensitivity of Tourism Demand Against Terrorist Attacks

The distorting effects of terrorist attacks on destination preferences of tourists; in other words, the sensitivity of tourism demand to terrorist attacks, depend on certain elements such as the percentage of terrorist attacks targeting tourism destinations in total, the "frequency degree" of terrorist attacks, and the severity degree of terrorist attacks measured by the injured and dead people caused by them (Karaçuka and Çelik, 2015). As these elements increase, the anxiety of terror on civilians also increases; and

[3] WTTC, http://www.wttc.org/research/economic-research/economic-impact-analysis/, Accessed Date: February 2, 2017.

the distorting effects of terrorist attacks emerge. In other words, the sensitivity of tourism demand against terrorist attacks increase by such elements. Table 1 shows information about terrorist attacks targeting tourist and tourism destinations over 2001-2015 period in Turkey to give an idea about the dimensions of terrorist activities. Only 7 out of total 1045 terrorist attacks occurred targeted tourists and tourism destinations in Turkey between 2001 and 2015. Also, the frequency degree and the severity degree of such attacks are low because of their minor effects.

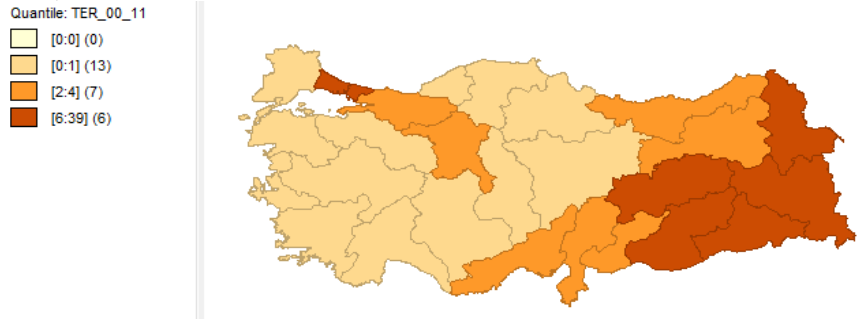
Table 1. Terrorist Attacks Targeting Tourists and Tourism Destinations in Turkey (2001-2015)

Date	***Location***	***Perpetrators***	***Event***
10.09.2001	Taksim	DHKP/C	A female suicide bomber launched an attack against police in Taksim, Turkey. Two police officers and the attacker died as a result of the explosion. Another 16 people, including 11 police officers, were injured in the bombing.
10.07.2005	Çeşme	TAK	A bomb was detonated at a beach resort in Cesme, Turkey. In the attack 20 civilians got injured.
16.07.2005	Kuşadası	-	A transit bus carrying tourists in Kusadasi, Turkey was destroyed by a bomb planted on board. Five people were killed and 14 more were injured.
24.07.2005	Istanbul	-	A bomb exploded in a restaurant in Istanbul, Turkey, injuring three people.
02.08.2005	Antalya	-	An explosion caused by a small device planted in a trash bin injured four people in Antalya, Turkey.
06.02.2012	Diyarbakır	PKK	Assailants set up a roadblock comprised of burning cars along the Diyarbakir-Bingol highway in Turkey. The attackers stopped a passenger bus and kidnapped a British tourist on board; he was released on June 3, 2012.
07.08.2015	Van	PKK	Armed attack on a bus carrying Iranian citizens and caused 2 deaths and 3 people injured.

PKK : Kurdistan Worker's Party
TAK : Kurdistan Freedom Hawks
Source: Global Terrorism Database (GTD)

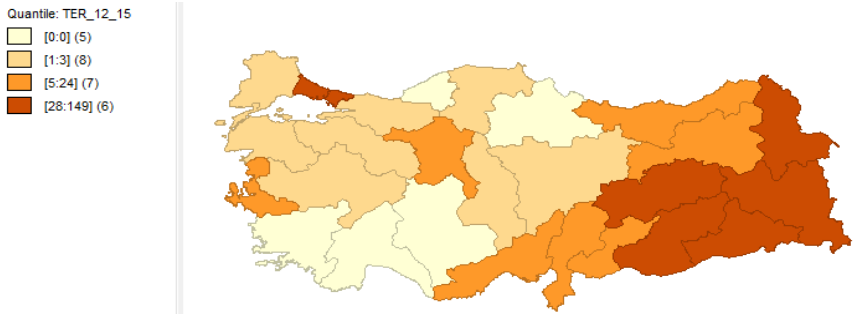
However, domestic and foreign tourist's destination preferences not only depend on such attacks that target tourists but also depend on all terrorist attacks especially increased dramatically after 2012, since international media coverage of such attacks gives an impression that the country is not safe. Indeed, Figure 2 and Figure 3 generated by statistics form Global Terrorism Database show the expansion of terrorist attacks occurred frequently in the eastern and south eastern regions in terms of severity.

Figure 2. The Regional Distribution of Terrorist Attacks in Turkey (2001-2011)



Source: Compiled from Global Terrorism Database (GTD)

Figure 3. The Regional Distribution of Terrorist Attacks in Turkey (2012-2015)



Source: Compiled from Global Terrorism Database (GTD)

2. Methodology and Analysis

2.1. Data and Variables

In this study we analyse the effects of frequency and severity degree of terrorist attacks on destination preferences of domestic and foreign tourists towards Turkey over 2001-2015 period with alternative econometric models. Dependent variables are the number of domestic tourists and the number of foreign tourists in touristic facilities. We employ the number of terrorist attacks occurred in Turkey's 26 NUTS-II regions, the number of casualties

(injured and dead people caused by such attacks), the frequency degree and severity degree of terrorist attacks ($TER_{FREQUENCY}$ and $TER_{SEVERITY}$) that effect tourism demands of both domestic and foreign visitors as independent variables. All these variables are expected to have negative coefficients. Also, economic variables such as income level of tourists, real exchange rate and public capital investments towards tourism sector are taken into consideration as determinants of tourism demand.[4] Table 2 includes the main characteristic properties of these variables.

In this study we consider tourism demand as a classical demand function. The coefficient of income level of domestic and foreign tourist represents income elasticity of demand; and the coefficient of real exchange rate variable gives the price elasticity of tourism demand. The econometric model includes also the number of foreign tourists, average income per capita of OECD countries in purchasing power parity; and income per capita of Turkey in purchasing power parity. [5]

Tourism demand is usually seen within luxury goods and services. Hence, tourism demand should have a high coefficient of income elasticity; in other words, the coefficient of income variable is expected to be greater than 1. Real exchange rate variable is taken as direct quotation that is national currency per foreign currency (US dollar). Therefore, an increase in exchange rate means depreciation of national currency against foreign currency or appreciation of Dollar ($) against Turkish Lira (₺) relatively. It is expected that real exchange rate variable gets a positive coefficient. Considering possible externalities of public investments on tourism sector, it is also expected that this variable gets a positive coefficient as well.

[4] For income variable, national income level of OECD countries was taken into consideration to establish a balanced panel dataset. Indeed, according to TURSAB statistics, the share of foreign tourists arrived from OECD countries to the Turkey is about 60 % in 2001-2015 period on average.

[5] There is no information about nationalities of foreign tourist at regional level. And also, the percentage of tourist arrivals from OECD countries is very high in total tourist arrivals. Therefore, OECD countries' average income was preferred as the income level of foreign tourists.

Table 2. Characteristic Properties of Variables

2001-2015 26 Regions	*Variables*	*Definition*	*Expected Sign*	*Sources*
Number of Tourist Arrivals *(Dep. Var.)*	$TOURIST_{DOMESTIC}$	*Total number of domestic tourists coming to the tourism management certified facilities*		TSI
	$TOURIST_{FOREIGN}$	*Total number of foreign tourists coming to the tourism management certified facilities*		TSI
Income Level	INC_{OECD}	*Total national income per head of the 34 OECD countries (ppp)*	+	$OECD_{STAT}$
	INC_{TR}	*Total national income per head of the Turkey (ppp)*	+	$OECD_{STAT}$
Real Exchange Rate	$EXC_{₺/\$}$	*The effective exchange rate defined as direct quotation (₺/$)*	+	CBRT
Public Fixed Capital Investment	$PFCI_{TOURISM}$	*Public fixed capital investments in tourism sector(Billion ₺)*	+	The Ministry of Development
Terror	$TER_{FREQUENCY}$	*The number of terrorist attacks*	-	START
	$TER_{SEVERITY}$	*The number of casualties that means died and injured people caused by terrorist attacks*	-	START

TSI: Turkish Statistical Institute
CBRT: Central Bank of the Republic of Turkey
START: National Consortium for the Study of Terrorism and Responses to Terrorism
W: *Row-standardized weighted matrix that means sum of the rows of neighbourhood matrix equals 1.*

We use all variables, other than terror, in logarithmic forms. Table 3 includes the descriptive statistics of these variables.

Table 3. Descriptive Statistics of Variables

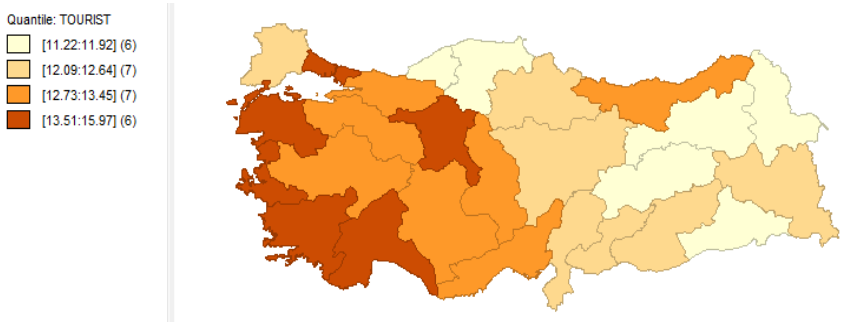
	Mean	Median	Max.	Min.	Std. Dev.	N*T
$TOURIST_{FOREIGN}$	10.97	10.54	16.29	5.05	2.13	390
$TOURIST_{DOMESTIC}$	12.64	12.53	15.03	10.58	0.92	390
$TER_{FREQUENCY}$	2.03	0.00	96.00	0.00	8.43	390
$TER_{HARDNESS}$	8.05	0.00	413.00	0.00	36.32	390
$EXC_{₺/\$}$	0.46	0.41	1.00	0.20	0.20	390
INC_{OECD}	10.40	10.43	10.59	10.16	0.13	390
$PFCI_{TOURISM}$	5.63	6.90	11.41	0.00	3.45	390

2.2. Econometric Model and Analysis

We use panel data models that cover 2001-2015 period and 26 NUTS-II regions of Turkey in order to analyse the effects of frequency and severity degrees of terrorist attacks on tourism demand and destination preferences in Turkey by domestic and foreign tourists. We use Fixed Effects and Random Effects Panel Model, as it is the most appropriate approach to model the relations among the variables since each of the 26 NUTS-II regions in Turkey has evident differences and different characteristics.[6] On the other hand, while cross-sections (regions) have the remarkable characteristic features, they are not randomly drawn from the large sample considered, Fixed Effects Panel Model will reflect the relationship between the variables truly. Additionally, tourism demand and terrorist attacks have cluster characteristics in Turkey as Figure 4, Figure 5 and Figure 6shows the spatial patterns of tourism demand and terrorist attacks respectively.

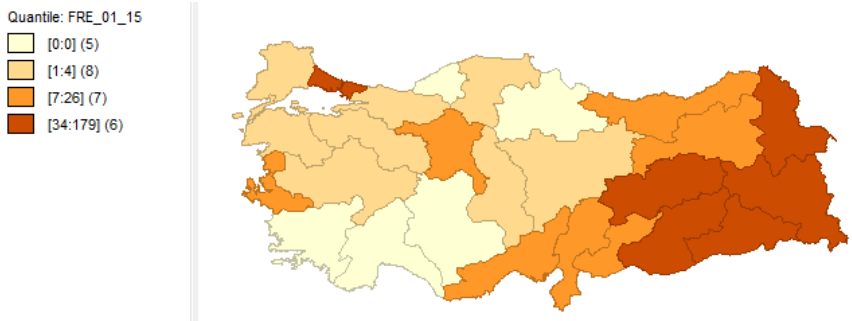
[6] The Pooled Panel Model does not discriminate between cross-sections and cannot say whether or not inter-variable relationship is the same as all cross-sections in time (Gujarati and Porter, 2012, p.594).

Figure 4. The Spatial Patterns of Tourism Demand (2001-2015 Arithmetic Mean)



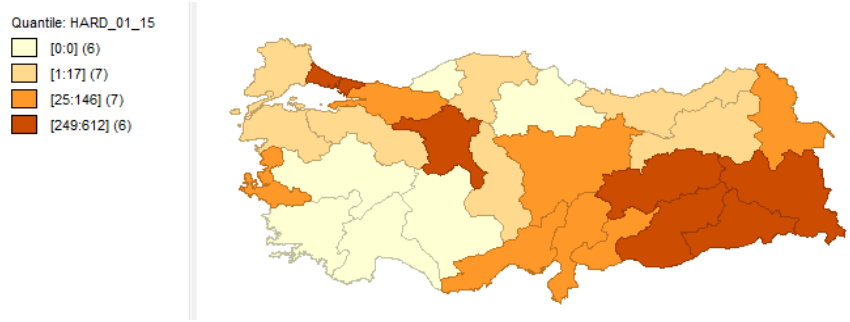
Source: Compiled from Turkish Statistical Institute (TSI) Statistics

Figure 5. The Spatial Patterns of Terrorist Attacks as Frequency Degree (2001-2015)



Source: Compiled from Global Terrorism Database (GTD)

Figure 6. The Spatial Patterns of Terrorist Attacks as Severity Degree (2001-2015)



Source: Compiled from Global Terrorism Database (GTD)

When spatial dependency occurs on dependent variable, spatial lag model must be taken into consideration.

Spatial Lag Model is defined as:

$y = \rho W^* y X\beta + \mu$

Spatial Error Model is defined as:

$y = X\beta + \varepsilon \qquad \varepsilon = \lambda W \varepsilon + \mu$

$\varepsilon \sim N(0, \sigma^2 I_N)$

where ρ ve λ are the spatial autoregressive coefficients, W is an NxN spatial weights matrix and μ is an Nx1 vector of i.i.d. errors (Anselin and Rey, 1991: 116-117).

Because of the evident cluster structure, first we investigate the potential spatial dependency relation of tourism demand in Turkey in the empirical analysis. The main reason is that if spatial dependency between variables were ignored, the OLS estimators would have several problems. For instance, in the presence of spatial residual autocorrelation, OLS estimators will still be unbiased, but inefficient; and in the presence of spatially lagged dependent variable, OLS estimators will be biased as well as inconsistent (Anselin, 1998). The findings of Spatial Error Lagrange Multiplier Test and Spatial Lagged Lagrange Multiplier Test are employed to investigate the spatial dependency and these tests indicate that there is spatial dependency on error term.

Table 4. The Results of Spatial Dependency Test

	$TOURIST_{DOMESTIC}$		**$TOURIST_{FOREIGN}$**	
	Value	*Prob.*	*Value*	*Prob.*
LM_{LAG}	-1.2791	1.000	-2.0915	1.000
LM_{LAG*}	-0.0001	1.000	-0.0009	1.000
LM_{ERR}	3.2282	0.072	5.9708	0.015
LM_{ERR*}	4.5072	0.034	8.0615	0.005

Note: * symbol stands for robust form of LM test.

Therefore, the spatial error panel model with fixed effects is used in the estimation procedure. The functional forms of alternative econometric models are presented as follows:

$$TOURIST_{FOREIGNit} = a_0 + a_1*INC_{OECDt} + a_2*EXC_{₺/\$t} + a_3* PFCI_{TOURISMit} + a_4*TER_{FREQUENCYit} + u_{it} \quad (1)$$

$$TOURIST_{FOREIGNit} = \beta_0 + \beta_1*INC_{OECDt} + \beta_2*EXC_{₺/\$t} + \beta_3* PFCI_{TOURISM\ it} + \beta_4*TER_{SEVERITY\ it} + u_{it} \quad (2)$$

$u_{it} = \lambda\, Wu_{it} + \varepsilon_{it,}$ $\qquad E(\varepsilon_{it}) = 0,\ Var(\varepsilon_{it}) = \sigma^2$

In these equations, W represents 26x26 dimension row-standardized spatial weight matrix, which is generated in terms of vizier neighbourhood criteria, while λ represents spatial autocorrelation coefficient.

3. Empirical Results

Empirical analysis includes alternative two econometric modelsthat use the number of domestic tourists and the number of foreign tourist in that region as dependent variables. Model 1 and Model 2 show the findings about foreign tourists; Model 3 and Model 4 show the findings about domestic tourists in Table 5 and Table 6.

Findings indicate that the most powerful factor on domestic and foreign tourism is income level. However, income elasticity of foreign tourists is more elastic than domestic tourists. It shows that in Turkey, tourism services are within luxury goods category for both foreign and domestic tourists. Indeed, a 10% increase in income level of foreign tourists, the demand increases by 19,9%, while this ratio is only by 17,1% for domestic tourists. On the other hand, as real exchange rate increases, in other words, when there is an appreciation of US Dollar against Turkish Lira, number of foreign tourists also increases, which is consistent with the law of demand. An increase by 10% points in exchange rate, tourism demand of foreign tourists increases by 6,6%.

Table 5. The Results of Spatial Error Autocorrelation Panel Model with Fixed Effects

Dep. Variable	**$TOURIST_{FOREIGN}$**		**$TOURIST_{DOMESTIC}$**	
	Model 1	*Model 2*	*Model 3*	***Model 4***
INC_{OECD}	1.99***	1.99***	1.70***	1.71***
$EXC_{₺/\$}$	0.64***	0.66***	0.40***	0.40***
$PFCI_{TOURISM}$	0.01	0.01	0.006**	0.006**
$TER_{FREQUENCY}$		-0.0004	-0.001	
$TER_{SEVERITY}$	-0.0003			**-0.0005****
Spat.aut. (λ)	0.26***	0.26***	0.13*	0.12*
R^2	0.97	0.97	0.97	0.97
Log-likelihood	-110.93	-110.50	211.40	213.64

LR-test	1372.5989 [0.0000]	13.74.1320 [0.0000]	1300.4525 [0.0000]	1305.0355 [0.0000]
Hausman-test	0.2783 [0.9980]	0.2322 [0.9987]	0.3065 [0.9975]	0.2803 [0.9980]
N*T	390	390	390	390

Note: *, **, *** symbols stands for %10, %5 and %1 significance level respectively, statistic in square parentheses [] stands for p-values.

Table 6. The Results of Spatial Error Autocorrelation Panel Model with Random Effects

Dep. Variable	**$TOURIST_{FOREIGN}$**		**$TOURIST_{DOMESTIC}$**	
	Model 1	*Model 2*	*Model 3*	***Model 4***
INC_{OECD}	1.98***	1.99***	1.70***	1.70***
$EXC_{₺/\$}$	0.64***	0.65***	0.40***	0.40***
$PFCI_{TOURISM}$	0.01	0.01	0.006**	0.006**
$TER_{FREQUENCY}$	-0.0004		-0.001	
$TER_{SEVERITY}$		-0.0004		**-0.0005****
Spat.aut. (λ)	0.26***	0.26***	0.13*	0.12*
R^2	0.97	0.97	0.97	0.97
Log-likelihood	-208.32	-207.92	115.32	117.39
LR-test	1177.8199 [0.0000]	1179.3000 [0.0000]	1108.2841 [0.0000]	1112.5373 [0.000]
Hausman-test	0.2783 [0.9980]	0.2322 [0.9987]	0.3065 [0.9975]	0.2803 [0.9980]
N*T	390	390	390	390

Note: *, **, *** symbols stands for %10, %5 and %1 significance level respectively, statistic in square parentheses [] stands for p-values.

The results also indicate that the distorting effects of terrorist attacks on tourism demand occurred severity degree of terrorist attacks rather that the frequency degree. This shows that there is a relationship between tourism preferences and anxiety level on civilians caused by terror; and also, terrorist

attacks with low impact power do not cause distorting effects touristic preferences. On the other hand, the findings indicate that there is a difference between the effects of terrorist attacks on the preferences of domestic tourists and foreign tourists. The distorting effects of terror are obvious on domestic tourists rather than foreign tourists. And also, Model 4 indicates that as severity degree of terrorist attacks in a region increases, the preferences of domestic tourists towards that region decrease. However, it's negligible level.

Finally, tourism demand for Turkey in terms of both domestic and foreign tourists has positive spatial dependency that has a cluster characteristic. This means that an increase in the average tourism demand in a region's neighbours also increases tourism demand for that region. In other words, tourism demand has positive spillover effects for Turkey's NUTS-II regions. Also, these spillover effects are 2 times greater for foreign tourists than domestic tourists. Indeed, an increase by 10% points in average numbers of foreign tourists towards regions' neighbours, the number of foreign tourists that region increase by 2.6%. This ratio is 1.2% for domestic tourists.

Conclusion

Tourism sector is the vital income and employment source thanks to its strong forward-backward linkages with several sectors as well as crucial foreign currency source especially in developing countries. It is main reason of terrorist attacks targeting tourism destinations and tourists to create political and economic instability. The study analysing the effects of terrorist attacks on tourism sector in Turkey, focuses on potential descriptive effects of the frequency and severity degree of terrorist attacks on the preferences of domestic and foreign tourists about tourism destinations.

The findings in this study indicate that the main decisive factors on tourism demand for both domestic and foreign tourists are economic variables such as income level and exchange rate. Therefore, we can claim that tourism sector in Turkey is vulnerable to economic conjunctures of foreign countries. For this reason, international economic conjuncture should be taken into account for investment decisions in the tourism sector. And also, tourist diversity by their nationalities should be increased to minimize external shocks on tourism demand towards Turkey. For this perspective, tourism diversity by topic such as health tourism and cultural tourism should be increased. On the other hand, stability on exchange rates contributes to the stability of tourism demand. Therefore, main monetary policies should be designed for considering tourism demand stability.

Furthermore, we find that tourism sector in Turkey positively creates regional spillovers especially in terms of foreign tourists. It indicates that

tourism sector is productive for regions rather than provinces. In order to benefit from these spillovers, governments should invest more in transportation facilities and generate interactions among touristic regions. Thus, as interaction among regions increase, the potential spillovers of tourism sector will expand to larger locations.

The situation of terrorism in Turkey, although worrying enough for the casualties and political stability, did not pose as a major security problem for the tourism sector and the distorting effects of terrorism on tourism sector is small though such effects exist. One reason for such small distorting effects is that terrorist attacks usually occur far away from tourism destinations in Turkey. However, the potential tourism level of regions locating in the east and southeast of Turkey highly suffering from terrorism, would be damaged and repressed because of terrorist attacks. For this reason, further research will be focusing on the distorting effects of terrorist events on tourism sector in the specific regions such as east and southeast regions in terms of their potentials and restricts.

On the other hand, the study does not include the recent years due to the lack of data. The situation might change in recent years, as terrorist attacks that target civilians in the major metropolitan areas in Turkey via suicide attacks and car bombs have increased. During post-2015 period, the severity and frequency of terror also increased and these results should be read considering this fact. For this perspective, the effects of terrorist attacks on tourism sector should not be ignored and proactive and active security measures must be at high level especially in tourism destinations.

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