
THE EFFECT OF TERRORISM AND INFRASTRUCTURE ON TOURISM INDUSTRY: A CASE OF PAKISTAN

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Abstract

The purpose of this article is to empirically determine the impact of terrorism and infrastructure on tourism industry of Pakistan. The article answers the questions such as “How terrorism (proxy number of terrorism related incidents) effect on tourism (tourists arrival) in Pakistan?” and “How infrastructure (% of paved roads) on tourism in Pakistan?” To answer these questions data on annual tourist’s arrival in Pakistan (proxy for tourism), number of fatalities in a year (proxy for terrorism) and percentage of paved roads (proxy for infrastructure) have been collected for 1989 to 2011 and linear regression was applied to find the results. The article finds that terrorism significantly influences tourism in adverse manner and infrastructure positively influences tourism industry in Pakistan. The article will be helpful for policymakers to make corrective measures to improve tourism in Pakistan. It will realize the government to improve infrastructure and to uproot the terrorism for the development of tourism.

Key Words: terrorism, tourism, infrastructure, Pakistan

Introduction

Tourism industry is regarded to be of significant importance for the economic growth of a host country as it is a vital source to pile up foreign exchange reserve, to increase government earnings and to improve balance of payment (BOP) of the host country (Abadie et al. 2003). In 2011, it shared 9% of the worldwide GDP valued US\$ 6 trillion. It created more than 225 million jobs worldwide. It is estimated that the industry will grow with 4% growth rate and by 2022 it will create more than 328 million jobs and will constitute about 10% of the worldwide GDP valued US\$ 10 trillion (www.wttc.org). Tourism has to face strict economic, political and natural challenges in 2011. But the industry did not only sustain but grew by 3% in its contribution to worldwide GDP, and witnessed 3% growth in tourists' exports and capital investment each.

Tourism industry is always at the risk of terrorism. According to Charles Townshend (2002) the terrorism is the use of violence to communicate fear that is intended to compel governments or societies.

Terrorism has abruptly changed social and economic picture of the world. The tree of terrorism is being consistently growing and extremist groups act as branches of that tree are spreading over and darkening the world under their shade. Terrorism is the creation of several factors like Helplessness and Hopelessness, Political and Economic Deprivation (Abadie et al. 2003).

Terrorism is viewed to affect the economy in four aspects effects. These include (1) reduction of capital stock (2) increased uncertainty (3) increased security expenditure and (4) negative impact on businesses. The literature evidence that the countries that have severe terrorism risk have significant negative impact on their economic variables, as suggested by Chen et al. (2004), Abadie et al. (2003), Pshisva and Suarez (2006), Enders and Sandler (1996).

Although the devastations of terrorism are seen throughout the world, but Pakistan is facing the immeasurable social and economic destructions due to it. Prior to 1979, Pakistan was reckoned to be a peace-loving country. But since Russia-Afghan war in 1979, it lost its peace-loving status. It might not be wrong to say that Pakistan was forced to enter into matters pertaining to terrorism. The super power provided Pakistan government and other organization with ammunitions, wealth and moral persuasion to uproot Russia from Afghanistan. Although Russia excreted Afghanistan, but it's after effects had to be faced by Pakistan. The super power support to different organization for war against Russia caused these organizations to be equipped with arms and ammunitions. After war, these groups that were made financially strong by super power used their strength to achieve their vested interest. Pakistan did not had more international support after war, and being politically and economically instable, could not eradicate these extremists that turned into a severe form of terrorism. Moreover, the tragic event of 9/11 initiated a new fire of terrorism and shook the world. Pakistan played effective role against terrorism but it continuously intensified and now terrorism is the most dreadful evil for the social and economic development of Pakistan (Pshisva and Suarez 2006).

War on terror in Afghanistan has been pressurizing the economy of Pakistan for the last several years. Since 2006, war in Afghanistan had cost Pakistan with lives of thousands of innocent masses, devastation of infrastructure, increased level of unemployment, stagnation of economic activities and movement of inherent from infected areas to other areas. According to estimate by South Asia Terrorism Portal (SATP), Pakistan witnessed 6303 fatalities that include 2738 civilians, 2800 military personnel, and 765 security force personnel in 2011. The figures in 2012

were marginally lesser i.e. total fatalities in terrorism acts were 6211, including 3007 civilians, 2472 military personnel and 732 security force personnel. The situation is worse in 2013 as 882 civilian fatalities have been recorded with 655 fatalities of security force personnel (Enders and Sandler 1996).

In terms of economic implications of terrorism, at the beginning of war in 2001-02, it cost Pakistan US\$ 2.7 billion. The cost to Pakistan continuously rose and in 2009-2010, it amounted to US\$ 13.6 billion and in 2010-11 it cost to US\$ 17.9 billion. For the years 2000-2010, war on terror cost Pakistan US\$ 67.93 billion. It has badly affected exports, foreign investment, and quality of infrastructure, privatization process and tourism.

In this article we are concerned with only tourism industry of Pakistan. In 2011, tourism receipt was US\$ 1123 million that was higher than in 2010 i.e. US\$ 998 million and tourist's arrival in 2010 were 907,000. Travel & Tourism Competitiveness Report shows that Pakistan stands at 122nd position in tourism ranking in 2013. This a very disappointing situation of tourism industry for a country like Pakistan that has the world's oldest civilization, a vast coastal zone, sacred places and plenty of natural blessings (Mowforth et al 2003).

On the other hand, infrastructure also has great contribution for the growth of tourism industry. There are many studies that evidence the relationship between infrastructure and tourism e.g. (Hultsman et al 1999; Swarbrooke 1999; Mowforth et al 2003; Gunn 1994; Eagles and McCool 2002, Williams 1998; Gunn et al 2002). The infrastructure of a country is considered to be a competitive advantage over the other countries and works as a strong determinant for tourism (Crompton, 2003; Bigné et al., 2001; Yoon et al, 2005; Alegre et al 2006; Kozak and Rimmington, 2000).

According to our best knowledge, there is always a lack of empirical studies in Pakistan that empirically identified the impact of terrorism and we did not find any study that empirically investigates the impact of infrastructure on tourism. So the purpose of this article is to empirically find the influence of terrorism and infrastructure on tourism industry in Pakistan.

The remaining part of the paper is systemized as follows: 2. Literature. 2.1. Terrorism and Tourism. 2.2. Infrastructure and tourism. 3. Econometric Model and Data. 4. Estimation strategy 5, Estimations & Empirical Results 6. Conclusion.

Literature

There exists a numerous literature on determinants of tourism inflow e.g. transportation cost, relative price level, infrastructure and terrorism. This section is divided into two categories (1) terrorism and tourism (2) infrastructure and tourism.

Terrorism and Tourism

If we understand the motives behind the terrorist activities, it might be helpful in understanding how terrorism affects tourism. Richter and Waugh (1986) states ideological, strategic and tactical types of terrorism. The ideological terrorism has long term and wide scope objectives usually covering nation. For example, the terrorists may target the tourists to defame and weaken the host country's government (Hall and O'Sullivan 1996). Tactical terrorism involves short term objectives like robbery. According to Richter and Waugh (1986) the motive behind targeting tourists for terrorism is to accomplish strategic objectives e.g. obtaining international

media exposure. The literature evidences that there are several examples when terrorists targeted tourists to achieve their objectives as they are ambassadors of their countries (Richter 1983; Richter and Waugh 1986). Terrorism on tourists not only activate host country media, but also guest country media. This is what that the terrorists lust i.e. media exposure (Richter 1983). Aziz (1995) argued welcome behaviour of Islam towards tourists. He explained socio-economic factors to be the cause of terrorism on tourists in Egypt. His argument is consistent with that of Richter's (1983) that poor locals become frustrated when they see tourists relishing luxuriously that igneous their wrath and it results in terrorism on tourists. Cultural differences may also provoke terrorism on tourists. Like in case of Egypt, in addition to economic reasons, certain undesirable cultural differences like use of anti-Islam food and beverages and anti-Islam dress may cause restrict locals to welcome tourists (Aziz, 1995). Kozak and Rimmington, (2000) state, it is the threat that the local culture would be overcome by the guest countries culture that cause unwelcome attitude of a group of locals.

So, according to different authors there are different purposes of terrorist activities. However, they agree on proposition that targeting tourists help terrorists a lot in achieving their goals. By targeting tourists, terrorism cost a lot to the government by reducing the tourists thus declining foreign exchange inflows (Hall and O'Sullivan 1996; Richter and Waugh 1986). For example, Egypt suffered about 43% declines in tourism industry due to terrorists' activities in 1992. The records show that tourists are reluctant to go to the country where terrorist activities are found. For instance, American tourists to Europe were reduced by more than 50% from 1985 (seven million) to 1986. In 1986, US attacked Libya that severely damaged tourist industry of Europe. For example, Greece lost about 30% and UK lost about 70% due to that event%. China also suffered loss of US\$430 million in tourism industry and 30% decline in hotel occupancy rate in Beijing due to student demonstration in Beijing in 1989 (Hall, 1996). In Egypt, movement of Islamic group against Egyptian President Hosni Mubarak's government was carried on for several years that were started in late seventy's. Several attacks were carried on tourists from 1990 to 1995. Approximately, during this period, 13 tourists were assassinated in more than hundred attacks. It resulted in more than 20% decline in international tourists to Egypt (Aziz 1995). Israel and Palestine have been facing continuous unrest in the region since formation in 1948. These non-pleasure events have always been a constraint for tourism industry there. In 1994, when Mexican Government went into free trade agreement that is (NAFTA), EZLN started revolt against the government. Moreover, the murder of a well supported presidential candidate further deformed the situation. It resulted in sharp decline in tourists by 70% only in 2 months with respect to identical months in last year. Terrorist activities also have witnessed steep decline in tourism in Peru. Records show that tourists decreased to less than by more than 90% from 1989 to 1991. In 1991, Slovenia had war with Yugoslav only for ten days. But its effect on tourism industry remained even after two years (Kozak and Rimmington, 2000).

Many studies have been conducted on terrorism-tourist relationship e.g. (Aziz 1995; Richter 1983). There are few researches for example Enders et al, (1991) that empirically determined the influence of terrorism on tourism industry and they consistently found negative impact on it. Kozak and Rimmington (2000) stated that terrorism deviate the tourists intention to tour the country and ultimately damage to tourism industry. The tourists assume such behaviour as a securing measure.

Some researchers (Enders et al. 1992) also state that terrorism does not only affect the tourism industry of a country that is facing it but it also harm the neighbouring countries as well.

Infrastructure and Tourism

Enders and Sandler (1991) states that tourists must have easy reach to the destination country and easy reach to tourists places there. For this purpose, infrastructure is very important. Infrastructure, particularly transport infrastructure, has been cited by many authors as a strong determinant of tourism e.g. Gunn (1988). Transport infrastructure is the aggregate of roads infrastructure, airport infrastructure and seaport infrastructure. Paved roads facilitate the easy approach to the destination country and sound airport infrastructure in the host country ensures tourists to have a comfortable journey to and from the destination. Gunn (1988) also stated transportation facilities, residence facility, and information technology as determinants of tourism inflow.

There are many empirical studies (both survey and estimation) that evidence relations between infrastructure and tourism. The study of Hultsman et al (1999) taking Turkey as a destination country explained infrastructure as important factor attracting tourists. He takes sum of roads, services (safety and medical), and communication facilities. A study by Gunn et al (2002) found infrastructure to be an important factors for the recognition of Thailand as a favorable country for tourism. Gunn et al (2002) found government infrastructure to be an important determinant for South African Tourism industry. Yoon et al, (2005) also recognized the importance of infrastructure for tourism development in 51 islands. Alegre et al (2006) used panel data to study factors responsible for tourism inflow in Africa and found infrastructure, political stability and safety of individuals as strong determinants.

Econometric Model and Data

$$Tour = \beta_0 + \beta_1 Trr + \beta_2 Infra$$

Where “Tour” is the number of tourist’s arrival in a year, “Trr” is the number of terrorism related incidents and “Infra” is the percentage of paved roads in Pakistan. We expect β_1 to be negative as terrorism negatively affects tourism industry and β_2 to be positive as good infrastructure is supposed to attract tourists into the country.

For the estimation purpose, data has been collected for the period 1988 to 2011. The data for tourism and infrastructure has been collected from World Development Indicators (data.worldbank.org/) whereas data for terrorism has been collected from Global Terrorism Database.

Estimation Strategy

The long run equilibrium relationship between tourism and explanatory variables i.e. terrorism and infrastructure is tested using ARDL bounds test. The ARDL is superior to other co integration techniques. First, it can comfortably be used whether variables are integrated at level form I(0) or at first difference I(1) or mixture of both (Pesaran and Pesaran, 1997). Second, it produces better results than Johanson co integration technique where sample size is small. Third, ARDL also works to derive ECM that amalgamates short term adjustments along with long run information. Fourth, the problem of serial correlation is dealt with ARDL appropriate lag length.

The equation of ARDL is:

$$\Delta \ln Tour_t = C_t + \sum_{i=1}^q \delta_i \Delta \ln Tour_{t-i} + \sum_{i=0}^q \gamma_i \Delta \ln Trr_{t-i} + \sum_{i=0}^q \varphi_i \Delta \ln Infra_{t-i} + \vartheta_1 \ln Tour_{t-1} + \vartheta_2 \ln Trr_{t-1} + \vartheta_3 \ln Infra_{t-1} + \varepsilon_t \dots \dots \dots Eq. 1$$

In the above equation, C_t denotes drift component and ε_t is white noise. The signs of \sum represent the error correction dynamics and long run relationship is represented by ϑ_i . ARDL bounds test approach starts with the identification of long run relationship using F-test values. The null hypothesis of test is $\vartheta_1 = \vartheta_2 = \vartheta_3 = 0$ i.e. all coefficients are statistically equal to zero against the alternative hypothesis $\vartheta_1 \neq 0, \vartheta_2 \neq 0, \vartheta_3 \neq 0$. The null hypothesis is rejected if calculated F value is greater than upper critical bound that interpreted as there is cointegration between the variables. If the calculated value is less than lower critical bound and the results are ambiguous if the calculated value falls between upper and lower critical bounds. The optimal lag length of the model and that of each Variable is selected using Schwarz Bayesian Criterion. Second, If there is long run relationship in the selected variables, it will be estimated using ARDL approach. Third, after obtaining coefficients of long run relationship among the variables that is terrorism, infrastructure and tourism, ECM will be estimated using the following equation:

$$\Delta \ln Tour_t = C_t + \sum_{i=1}^q \delta_i \Delta \ln Tour_{t-i} + \sum_{i=0}^q \gamma_i \Delta \ln Trr_{t-i} + \sum_{i=0}^q \varphi_i \Delta \ln Infra_{t-i} + \vartheta_1 ECM_{t-1} + \varepsilon_t \dots \dots \dots Eq. 2$$

Where ECM is the speed of adjustment, Finally, the model goodness-of-fit is ensured by diagnostics and stability tests. Serial correlation, functional form, problem of heteroscedasticity is tested using diagnostic test. The stability of the model is tested by Brown et al. (1975) stability test that is CUSUM and CUSUMSQ.

Estimations & Empirical Results

As described before, ARDL bounds test can be run whether variables are integrated at level form $I(0)$ or at first difference $I(1)$ or mixture of both (Pesaran and Pesaran, 1997). However, as the assumption behind ARDL bounds test is that the variables are $I(0)$ or $I(1)$; therefore, Ouattara (2004) argues that in case any variable is $I(2)$, the calculated F-values given by Pesaran et al. (2001) becomes invalid. Thus, before using ARDL as estimation technique, it is necessary to apply unit root test to test whether any variable is $I(2)$. For this purpose, Augmented Dicky Fuller test has been used. Table 1 shows the results of unit root test. The results show that all variables are stationary at first difference with constant term.

Table 1

Variable: TRR		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-6.392322	0.0000
Test critical values:	1% level	-3.769597	
	5% level	-3.004861	
	10% level	-2.642242	
Variable: INFRA		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-1.897628	0.0565
Test critical values:	1% level	-2.674290	
	5% level	-1.957204	
	10% level	-1.608175	
Variable: TOUR		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.646722	0.0001
Test critical values:	1% level	-2.674290	
	5% level	-1.957204	
	10% level	-1.608175	

In the second step bounds testing approach is used to test the existence of long run relationship. For this purpose, equation (1) was estimated using OLS procedure and Wald test was used to check whether long run coefficients are jointly statistically equal to zero i.e. $\vartheta_1 = \vartheta_2 = \vartheta_3 = 0$ and calculated F values are compared with critical F values at lag length 3 selected Schwarz Bayesian Criterion. The results show that the calculated F values are larger than upper bounds at 5% significance level ensuring the existence of long run relationship among the variables. (See table 2)

After the identification of the existence of long run relation, next step is to check the nature of long run relation. The estimation of long run relation shows that % of paved roads (proxy for infrastructure) has positive impact on tourists arrival in Pakistan at 10% significance level i.e. 1% change in infrastructure facilities would cause 3.34% change in tourist arrival in Pakistan in same direction whereas we did not find any evidence of long run relationship between terrorism and tourism in Pakistan. (See table 2)

The table 2 also shows short run relationship between tourist arrival and explanatory variables i.e. terrorist incidents and % of paved roads as a proxy of infrastructure. The results show that error correction term is converging and statistically significant. The short coefficients of both infrastructure and terrorism are statistically significant and interpreted as 1% change in % of

paved roads cause s10% change in tourists arrival in Pakistan in same direction. Moreover, 1 % changes in terrorist incidents causes 0.057% change in tourist’s arrival in Pakistan in opposite direction.

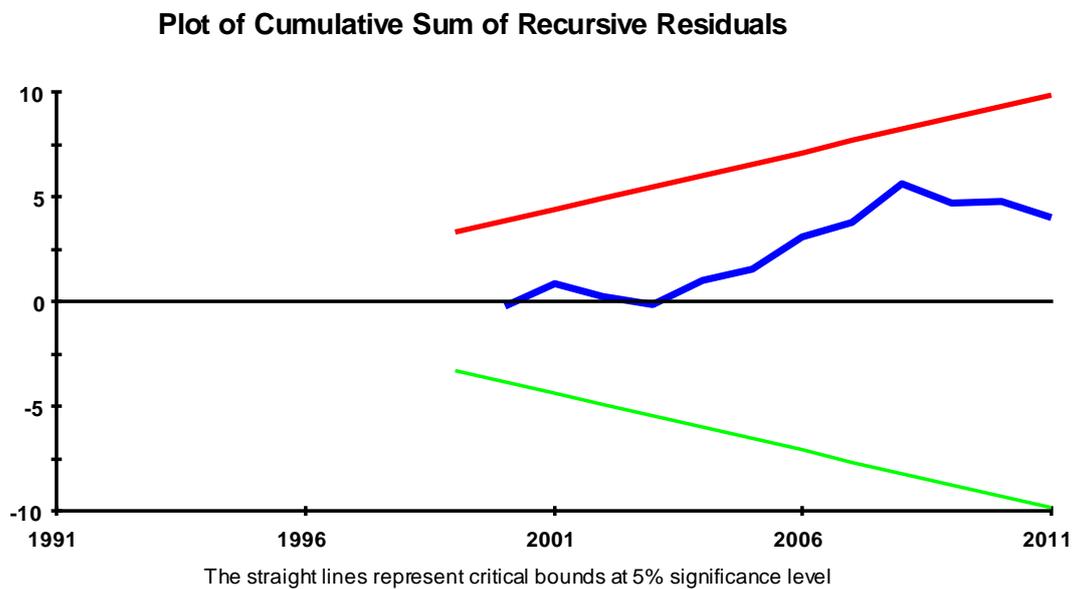
The obtained results are consistent with the literature i.e. terrorism has negative coefficient with tourism and infrastructure has positive coefficient with tourism. In case of terrorism, the results are consistent with that found by (Aziz 1995; Lea 1996; Richter 1983) and in case of infrastructure the results also shown the same behaviour as per literature.

Finally, the diagnostic test evidence that there is no heteroscedasticity, serial correlation, functional form specification or normality. The stability of ECM coefficients is evidence by CUSUM and CUSUMSQ as all the plots are within the critical bounds. (See graph 1 and 2)

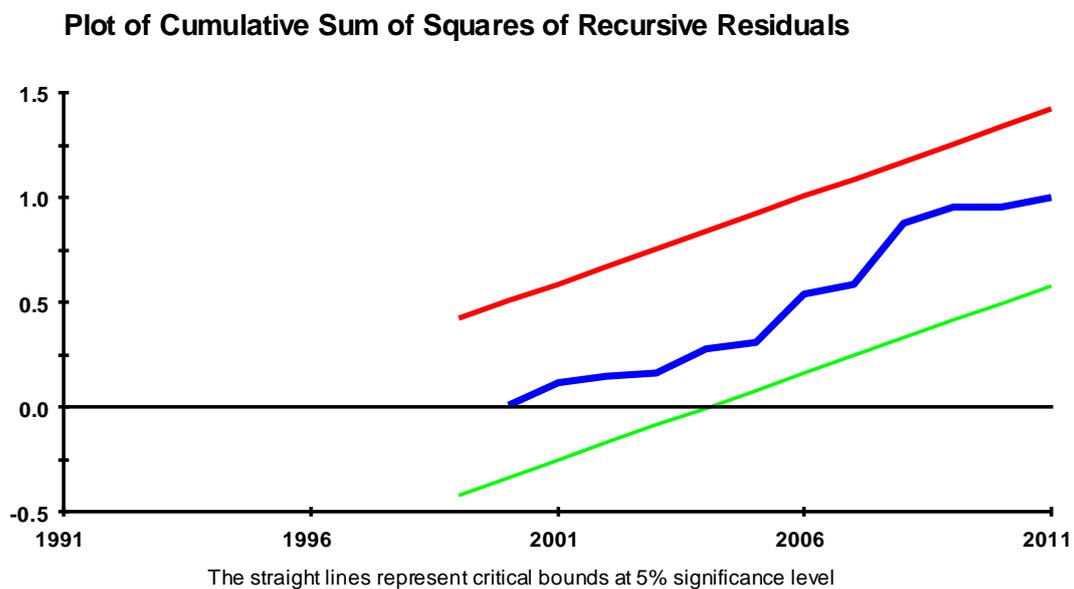
Table 2

Estimated Long Run Coefficients using the ARDL Approach ARDL(1,1,3) selected based on Schwarz Bayesian Criterion				
Regressor	Coefficients	Standard Error	T - Ratio	Prob.
LNINFRA	3.3441	1.6118	2.0748	.058
LNTRR	.031436	.077620	.40500	.692
C	-.60897	6.4356	-.094625	.926
Error Correction Representation for the Selected ARDL Model ARDL(1,1,3) selected based on Schwarz Bayesian Criterion				
dLNINFRA	10.0305	2.5518	3.9308	.001
dLNTRR	-.048907	.041228	-1.1863	.254
dLNTRR1	-.11712	.038300	-3.0580	.008
dLNTRR2	-.057132	.032533	-1.7561	.099
ecm(-1)	-.57625	.17600	-3.2742	.005
Diagnostic Test (p-values)		F-statistic	95% Lower Bound	95% Upper Bound
X^2 SC	.189			
X^2 FF	.626	5.8550	4.5422	5.8147
X^2 NOR	.924			
X^2 HET	.494			

Graph 1



Graph 2



Conclusion

The purpose of the study is to investigate the impact of terrorism and infrastructure on tourism industry in Pakistan. The study is conducted using annual data for the year 1988 to 2011. The estimation has been done using ARDL bounds test approach. The results show that infrastructure has significant short run as well long run positive impact on tourism. Whereas the impact of terrorism on tourism is insignificant in the long run whereas it is significantly negative in short run. The government should play its role in improving the infrastructure facilities to

increase tourist's arrival in Pakistan. Moreover, terrorist activities should be halted for the development of tourism industry.

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