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The Dynamic Effects of Terrorism on Tourism: A Bound Testing Co-integration Approach

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Abstract

Tourism industry is considered a key driver promoting socioeconomic development in under development economy, but there are several factors which hindering this development. The terror incidence in swat valley have severely affected tourism industry of the area. Terrorism is a growing hazard across the globe with severs socio-economic consequences. Pakistan is also playing it's was against terrorism that it has affected its various economic activities including tourism. During the first decade of the ongoing century, northern mountainous area of Khyber Pakhtunkhwa, which was famous for tourism, was badly affected by incidences of terror2. The objective of this research work is to estimate the impact of terror incidents on domestic tourism in Pakistan, Khyber Pakhtunkhwa, Swat Valley (TA –domestic visitors' arrivals).The current research is an effort to evaluate the short-term and long-term association between events of terror and domestic visitation. Primary data was collected using stratified random sampling techniques and interview method and secondary data was taken from various sources to evaluate the model. Auto Regressive Distributive Lag (ARDL) model is used to evaluate the data. The ARDL bound test confirms the co-integration between terror incidents and tourism. Additionally, the examined findings undoubtedly ensure the negative short-term and long-term impact of events of terror on domestic tourism in the study area.

Keywords: *Terrorism, Tourists, ARDL*

JEL Classification: *L83, Z32, P23, Z21, Z31*

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1) INTRODUCTION

Since begin of the ongoing century, it is a reality that the number of terror events have been increased manifold throughout the globe. These incidents are commonly is the side effect of cold wars among countries across the world. Nevertheless, its associations with internal political issues has no way except to acknowledge. Pakistan has been competing terror since its came into being from 1947, even she has vanished its first prime minister in event of terror. In the first phase Pakistan was facing only internal sectarian disorder. Slowly, it has under fire the masses of the nation. As time passed events of terror have been embattled nearly all locals as well as racial groups. In addition, there are different causes of terror incidents in Pakistan, like religious radicalism, poverty, joblessness, lack of education, haves and haves not in the society, wrong interpretation and ill-use of Jihad, absence of good governance and rule of law, etc. Moreover, events of terror have been seen drastically augment after 9/11 episode. Because of being a non-NATO element and close neighbor with Afghanistan, Pakistan has come under the frontline of intimidation. And currently, Pakistan is among top five the most suffered nations by terror incidents. Terror events craft vagueness, apprehension, uncertainty and horror in the general surrounding of the country (Sonmez, 1998, and Basil 2014,). According to WTTC (2017), world terrorism has been decreased its strength however its keep on to extend to additional nations of the globe. Even in 2016, there were almost Seventy-seven nations that practice at least one martyr due to terror incidence; this is the huge in the previous Seventeen years. Nevertheless, this is twenty-two percent lesser fatalities and deaths from terror events since 2014, which was the climax year of the incidences of terror.

In spite oftotally coddled by terrorism, visitation industry of Pakistan is playing its economic role at a significant level.Because, Pakistan is an all year travel destination for domestic as well as for foreign tourists and like other countries of the modern world the hospitality industry of Pakistan is the main pillar of its economy. The land is prosperous of variouscultures, momentous sites, multicoloredspots with different languages and civilizations. In Pakistan, particularly, Khyber Pakhtunkhwa (KP) has one of the most attractive and picturesque visitors' resorts analogous with any part of the globe; having snow dressed climax; flourishing green plains; mountains, and dazzling valleys. God has given the province with prime gorgeousness and civilization well-off legacy. Indisputably, Pakistan has plenty of picnic resorts specifically in Swat Valley of KP. Khyber Pakhtunkhwa is a central part of Pakistan. The province of KP is very much famous for its natural beauty.

The tourism industry has a considerable direct and secondary blow in Pakistan's financial system, along a prudent expansion. Its share to Gross Domestic Product of Pakistan was five point three (5.3) percent in 1996 and increased to 7.4 percent in 2017. The direct share of the visitation industry in 2016 was PKR793 billion (US$ 7.6 billion), which is almost three percent of total gross domestic product whereas entire payment of the industry to gross domestic product is 19.4 billion US$, 6.9 percent of the whole gross domestic product. Moreover, the total share of the visitation to entire capital formation is 9.3 percent and share to exports was near to four percent in 1916 (WTTC, 1917).

But, visitation industry is very much elastic in its nature and more prone to external shocks, like natural disasters, political instability, extremism, incidence of terror etc. as compared with other sectors of the economy like agriculture (Maditinos and Vassiliadis (2008)3. In addition, the particular tributes of its services and the hazards that overlaps with political turmoil likely to frighten potential tourists more brutally (Mansfeld and Pizam, 2006; Zeithaml et al., 2006)4. There is extremely opposite relation between terror events and hospitality industry from biblical time, one suggests feelings of death, disorder, fear and the other proposed mind peace as well as enjoyment.

The world of today has badly failed in cashing economic benefits of tourism due to time and again occurrence of terror events across the countries of the globe, particularly at various destinations. These incidences of error not only affected the visitation industry in the developed countries but also paralyzed in the developing nations together with Pakistan. Moreover, the Khyber Pakhtunkhwa province of Pakistan in general and especially Swat Valley, once was known as Switzerland of the East, its hospitality as well as characteristic visitation industries were badly affected by events of terror in the first decade of the 21st century.

There are various researches on Pakistan who have examined the blow of terror incidents on visitation and hospitality sector independently. With the best of the researcher's information, none has studied the impact of terror incidence on visitation industry, that is, on arrivals of domestic tourists to the Valley. This study is a struggle to fill up this space.

The remaining of this research is ordered as below: section-2 includes the comprehensive prior literature interrelated to terror events and visitation. Part-3 shows the data and methodology implemented in the research work. Section-4 demonstrates the findings and detail discussions and finally part-5 winds up the research.

2) LITERATURE REVIEW:

A lot of numerical researches be present that have been studied the effect of hospitality on various large-scale economic variables in various nations for equally panel as well as time series data. Most of the numerical researches examined the relationship between foreign tourism and its impact on economic growth of a country. Like Lee and Chang (2008), Tugcu (2014), Shahzad, Shahbaz (2017) have confirmed a direct blow of hospitality on financial expansion of different countries. Similarly, Leung, Law (2013) and Zeng and Gerritsen (2014) observed the function of communal media whereas choosing a specific traveler spot. There is abundance of research works in visitation writing that have mentioned the dynamic factors that stimulate the tourists to select the paramount destination to pass spare moment. According to Buhalis (1999) that chronological monuments as well as civilizing means are the main elements that inclined visitors to select the visitors' spots at different destinations. Poirier (1999), Webster and Ivanov (2013) and Saha and Yap (2014) have focused on the significance of political constancy in inbound visitation. They too exhibit by what means a healthy visitation sector can be a

political mean to decrease disorder in opinionated and political system. Neumayer (2010), Li and Song (2013) studied the various bottlenecks that can slow down the course of international visitor to a specific nation. They confirmed that the visa constraint is an additional imperative obstacle for options of visitor targets or destinations.

In visitation literature, researches associated to the impact of terrorism on the visitation industry are basically stressed on observing the downfall in the strength of visitors gush, the decrease in visitors' receiving and the increasing nature of the consequence of terror events. While applying dissimilar econometric techniques, the final winding up bears the unfavorable outcome of terror incidents on the visitation industry and the on the whole financial system of any nation. Earlier literature actually found that inbound visitors are not unwilling protection and security; their responses to the terrorist incidents are fairly normal and settle on to take a trip to a protected and safe visitor's spot. As a result visitation sector turns down and injure the economic body of any nation (Enders, et al., 1992, Enders and Sandler, 2003, Sloboda, 2003). Most of the current researches measure the mutual relationship and recognized the one way causal inverse link fromincidence of terrorists and hospitality. Not many of them Samitas, Asteriou (2018) for Greece, Bhattacharya and Basu (2010) and Gunasekar, et al., (2018) for India, similarly, for Middle East Basu and Marg (2010) and Bassil, (2014), Hamadeh and Bassil (2017) study in favor of Lebanon and Lennon and O'Leary (2004) in support of Germany. Likewise, Trindade (2017), examine the impact of activist' shits in Turkey as well as Egypt on visitation of Portugal, and established a direct and optimistic effect. It shows that transnational touristsconstantlystruggle to locate another picnic spot if terror events aretaking place in a specific nation. Nevertheless, an up to date research Liu and Pratt (2017) examine the temporary and permanent impacts of events of terror on visitation for the panel of Ninety-five nations. He proof that only 9 nations have long-term effect of terrorist incidence on hospitality whereas no more than 25 nations have short-term effect implying time series examination. Moreover, Fleischer and Buccola (2002) support that the impact of terror events is more on internal visitation as compared to transnational tourism of a country. They additionally pointed out that international visitation is more elastic to relative prices.

3) METHODOLOGY

3.1) DATA

Biannual time series data from 2000 to 2016 is used in the present research work. The variable terrorism (TERR) is obtained from South Asian Terrorism Portal, KP Time Line 2016. The variable terrorism (TERR) is all kind of annual number of fatalities and casualties caused by terror events taken place in the study area. TOUR is the number of domestic visitors' arrivals (TA) is obtained from secondary as well as primary sources; researcher's field survey and own estimation in the Valley. The secondary data was driven from the visitors trends supported by different researches and also obtained from PTDC; HIS; Foreign Tourist Survey; a Survey Report of Ministry of Culture etc., Government of Pakistan; and Khyber Pakhtunkhwa Bureau

of Statistics.

3.2) UNIT ROOT TEST

Another stair in the time series data is the confirmation about the stationarity of the data in order to decide about further econometric techniques like; VAR procedure, OLS method, ARDL technique etc., for achieving the aim of the study. If the time series fulfill the characteristics like; (a) if its mean is the same over time in the long-term; E (Yt) =unvarying for all t, (b) if it has a constant variance over the period of time; V (Yt) =constant for all t, and (c) if the series has a time-invariant co-variance; Cov (Y1, Yt+k>=stable for the entire t and every one k t= 0, would be stationary, otherwise not. For testing the stationarity of the variables of a series different test have been suggested by various researchers. For example, ADF (Augmented Dickey-Fuller), Phillips-Perron, and Ng-Perron, though, the ADF test was used for the current research work for confirmation of stationarity of the variables. The null hypothesis of being non-stationary is projected not in favor of the alternative hypothesis of stationarity. The judgments took three variant shapes, Unit root (a) along a time trend as well as intercept, (b) no trend but along an intercept $\{\beta1= 0\}$ and (c) without trend, without intercept, $\{\beta0 = \beta1 = 0\}$.

3.3) ARDL BOUND TESTING PROCEDURE

Despite the fact that estimating the time series, various econometric techniques and methods, based on permanent and temporary correlation amongst the variables, have been proposed by different researchers. Like Engle and Granger co-integration method (1987), Phillips and Perran (1988), Johansen co-integration test (1990), ECM (Error Correction Model) t-test based on Banerjee et al. (1998); ECM depending on F-test of Boswijk (1994), etc. Although, all these methods and approaches will be applied when all the variables if be integrated of order one, that is, at I (1) (at 1st difference). But, for relaxing the strict principle of I (1) for the above said techniques and to strengthen the influence of co-integration in various variables in a time series, Pesaran et al. (2001) have been presented the method of ARDL bound testing model, depending on the F-statistics or Wald-Statistics. By utilizing this method there is no restriction on variables of their order of integration; either I(0) or I(1) or in both. However, the ARDL approach is not applicable if the variables of the series are integrated of order two, that is of 2nd difference I (2). As, the variables of the current research work are integrated at 1st difference and at level, therefore the ARDL procedure is used by the researcher in the present research. The same technique also applied by Alam and Mingque (2018) in their researches. For analyzing the permanent and temporary impacts of events of terror on tourism in the study area, the ARDL bound testing model has been developed by the researcher for co-integration given below:

$$\Delta \text{ TOUR}(t) = \beta0 + \sum\beta1 \Delta \text{ TOUR } (t\text{-}i) + \sum \beta2\text{TERR } (t\text{-}i) + \delta1\text{TOUR } (t - 1) + \delta2 \text{ TERR } (t\text{-}1) + \varepsilon(t) \quad \text{----------(Eq.3.1)}$$

Where,
TOUR is Y; the number of arrivals of domestic tourists in the Valley, visitors proceeds

also used as a substitute of number of tourists, however, the current research work used the number of domestic visitors, proxy for visitation, to the study area,
TERR or X is the number of fatalities and casualties is proxy for terror incidents and war on terror, in the Valley, and ε shows error term

The null hypothesis represents the nonexistence of co-integration amongst independent as well as dependent variable, while the alternating hypothesis reveals the co-integration amongst the variables. The null hypothesis is determined by the judging of the estimated figure of F-statistics and the decisive value of the bound test, according to the known degree of freedom (Narayan, 2005). For acceptance of null hypothesis the calculated value of F-statistics must be greater than the critical value, otherwise there will be no co-integration amongst the variables in the long-run. Furthermore, according to Hassan and Kalim (2012) the permanent association in the variables is full of loopholes and indecisive if the F-statistic value takes place between the boundaries of the critical value.

4) RESULTS AND DISCUSSIONS

4.1) DATA DETAILS

In order to analyze the numerical information, biannual time series data was used by the current research work, the descriptions are shown in the Table below.

Table 4.1: Detail of the Variables

Variables	Definition	Sources
TOUR	Tourism(Number of Domestic Tourists Arrivals to the Valley)	Own Estimations of the Researcher from Field Survey and Tourism Trends in the Study Area
TERR	Terrorism (Quantity of Fatalities and Casualties due to Incidents of Terrorism in the Study Area)	The South Asian Terrorism Portal, KP, Time Lines, 2016.

4.2) DATA ANALYSIS

For testing the unit root of the series, the present study applied Augmented Dickey-Fuller (ADF) test (Dickey and Fuller, 1979, 1981). The outcomes of ADF test are shown in Table 4.2. It is obvious from ADF test calculations that the incidence of terror and visitation is integrated of order zero and one respectively i.e. stationary at I(0) or I(1).Moreover, it is too clear that none of the variables is unit root at second difference; integrated of order two or more, this is the essential clause of applying the Auto Regressive Distributive Lag techniques. Consequently, it is rational and defensible to apply the model (Khalid et al, 2015).

Table 4.2. Results of the ADF Test

Variables	Level	Z(t)*	Critical values			P-values
			1%	5%	10%	
Tourism	At1st difference	-5.062	-4.273	-3.557	-3.212	0.001
Terrorism	At level	-2.797	-2.636	-1.951	-1.610	0.007

Source: Researcher's Own Estimations

Table 4.2 presents ADF-test findings of the unit root for the case of the study area. The null and alternative hypotheses may be accepted or rejected based on ADF test's value as well as critical values. The acceptance of null hypothesis supports the presence of stationarity in the series otherwise not. As the results of the Table ensured that the tourism was made integrated of order one; i.e. I (1), after confirming its non-stationary with the help of the three possible forms of test, like; with as well as without constant and with both constant and trend. The Table 4.2 further confirmed the unit root of the variable incidences of terror at level, i.e. I (0). Moreover, the test statistics value (tau value) is more than the decisive values, so Hoof the stationarity of the series is accepted not in favor of the other hypothesis.
Table 4.3 indicates the ARDL bound test results for co-integration among the variables. The estimated results points up that the F-calculated value is 5.070. The concerned maximum and minimum limits at the level of 10% are 3.223 and 3.757 correspondingly. The findings confirm that the estimated value of F-statistics is more than the critical value of the upper limit, which implies that the co-integration is present between the independent as well as dependent variable and the alternative hypothesis no co-integration in the variables is fail to accept.

Table 4.3: Results of ARDL Bound Test

F-statistics	Critical value at 1%		Critical value at 5%		Critical value at 10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
5.070*	5.763	6.480	3.957	4.530	3.223	3.757
N=33 K=1						

Sources: Researcher's Own Calculations

4.2.1. Results and Discussions of Long-Run and Short-Run Auto Regressive Distributive Lag Bound Test for Co-integration

Table 4.4 presents details of long-term ARDL bound test relationship between the variables. In the current research work the impact of terror events on tourism

in the Valley is calculated. And as projected and aimed, the findings support a long-run the inverse association between domestic visitors arrivals and events of terror. The findings are noteworthy at 5% level of significance. The co-efficient of terror incidence is (-0.406), this shows that a one percent raise in incidences of terror shows to reduce 0.40 percent in domestic visitors influx to the study area. The relationship between terror events and visitation is investigated soundly in the earlier numerical researches. The results of the present study are in line with the most resent numerical research work. Like, Pizam and Smith (2000), Lennon and O'Leary (2004), Mansfeld and Pizam (2006), Bhattacharya and Basu (2010), Raza and Jawaid (2013), Bassil (2014), Trindade (2017), Liu and Pratt (2017), and Samitas, Asteriou (2018). Hence this is defensible in hospitality writing, for example, Seghir, et al. (2015) and Shahzad, et al., (2017), that visitation is among of the vital elements to improve the economic system of whichever nation. Consequently, Pakistan should to give intense concentration to maintain the country secure to increase the national and inbound visitation activities in order that it could attain the aim of financial expansion and economic development as well.

Similarly, the results of the short-term calculations between terror events and tourists arrivals in the Valley are shown in Table 4.5 below. The short-term results are alike in terms of the symbol of the long-term and alike with the previous expectations, but in the short-term the calculated variable is statistically significant at one percent level of significance in the Valley. These findings are in line with the abundant of preceding researches, for example Sönmez (1998), Lepp and Gibson (2003), Feridun (2011), Raza and Jawaid (2013), and Gunasekar, Patri (2018).

Table 4.4: Calculated Results of Long-Term ARDL

Dependent Variable: Tourism(t)			
Regressors	**Coefficient**	**t-statistics**	**P-value**
Constant	7.533	8.228	0.000
Terrorism(t)	-0.406**	-2.240	0.044
Diagnostic Test			
Test statistics			
Jarque-Bera (normality)	10.99 [.408]		
LM test (1) correlation	1.586 [.207]		
Heteroscedasticity	2.661[.264]		
CUSUM test	Stable		

CUSUMQ test	Stable		

** Shows Coefficient Significant at 5% level. Source: Researcher's Own Calculations

Table 4.5: Estimated Results of Short-Run ARDL

Dependent variable: Tourism(t)

Regressors	**Coefficient**	**t-ratio**	**P-value**
Terrorism(t)	-0.209*	-4.659	0.004
ECT(t-1)	-0.105*	-2.488	0.018
Diagnostic test statistics			
R-square	0.906		
D-W Statistics	1.572		

* Indicates Co-efficient of Significant at 1% Level. Source: Author's Own Estimations

Furthermore, the outcomes of various diagnostic tests are shown in 4.4 and 4.5 Table above. The $\chi 2$-statistics P-value indicates the absence of heteroscedasticity as well as serial correlation. Similarly, the p-values of around 0.4, means the failure of the rejection of H0 of the normality in the model. Likewise, the worth of Durbin-Watson (D-W) statistics is shown in table 4.5. The value of D-W statistics is around 2 in the model which is a proof of the absence of autocorrelation in the sample.

4.3) STABILITY TESTS

The present research work also confirmed the constancy of the coefficients in the short and long-term, followed Pesaranet al., (2001) which is mentioned in Bahmani-Oskooee (2001). The concern of the stability test is to point out about the regression coefficient to confirm whether the equation of the model is firm overtime or otherwise. The stability test is only suitable for annual time series empirical information; mainly in the episode that investigators are ambiguous about a basic change in the data or suspicious about structural alteration in the information. In order to check the constancy of the coefficients CUSUM and CUSUMQ figures are plotted along the limits which are normally identified as critical borders. It is highlighted by Bahmani-Oskooee (2001) and Khalid et al., (2015), if the plotted estimates leisure rounded by the critical boundaries, then no one is able to refuse

the null hypothesis and admit that the coefficients are constant and stable overtime. As the Figures 1 and 2 presents the plotted of the two residuals; CUSUM and CUSUMQ, which lie inside the 5 % level of significance basic borders and point out constancy of the coefficients. Therefore, both of the graphs CUSUM as well as CUSUMQ are constant and support the long run firmness of the coefficients.

Figure 1: CUSUM (Cumulative Sum of Recursive Residuals)

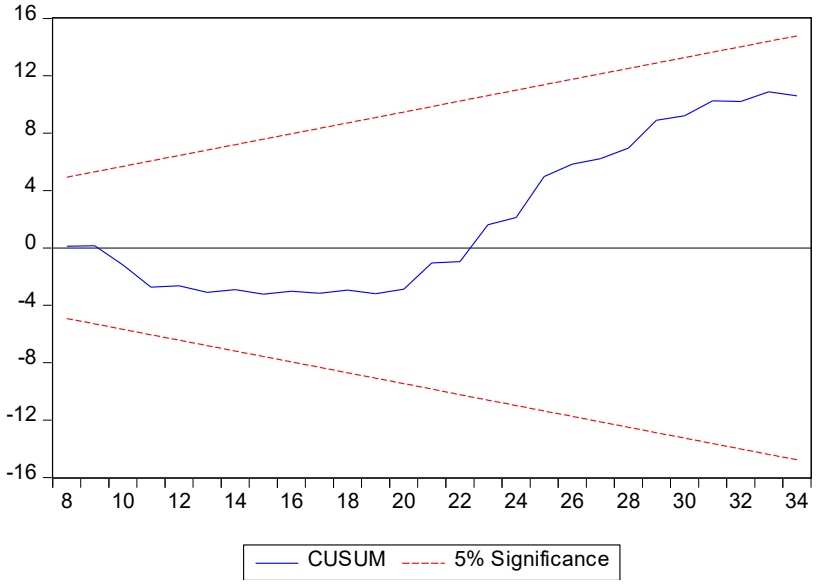
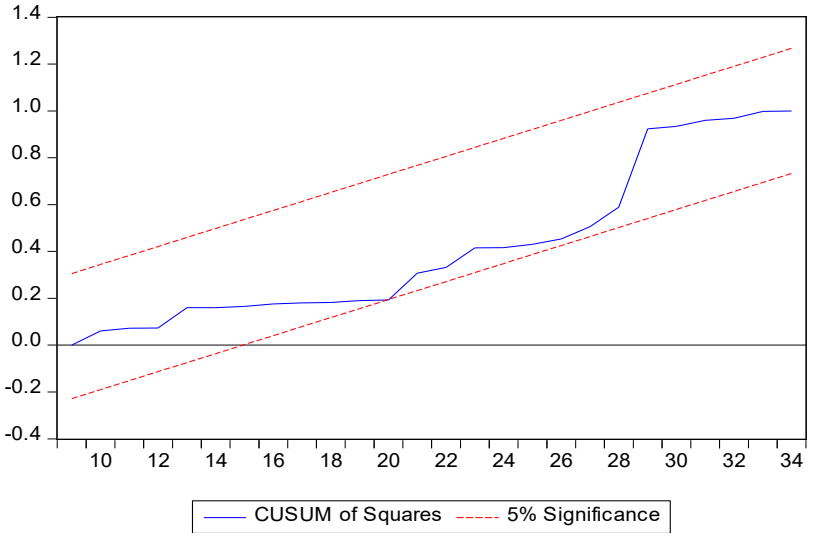


Figure 2: CUSUMS (Cumulative Sum of Squares of Recursive Residuals)



5) CONCLUSIONS

An overabundance of researches exists in the earlier literature, which focus on the impact of terror events on visitation. But, there was no research work structured at the Pakistan level in general and at Khyber Pakhtunkhwa (KP), especially at Swat Valley, level to dig out the effects of terror incidences on domestic tourism. This empirical research estimates the association between events of terror and visitation in KP applying biannual time series data from 2000 to 2016. Calculation support co-integration between incidences of terror and domestic tourism demand. The findings of the research work also ensure a short-term and long-term association between incidences of terror and visitation in case of KP. The outcomes of the present research work authenticate the inverse effect of terror events and visitation in the study area. The present study use ARDL technique to obtain these results due to its abundant merits over other techniques. The long-term and short-term co-integration is significant at 5 % and 1 percent significance level correspondingly in the Valley.

It is analyzed that in the long term a 1% raise in terror events leads to reduce 0.40% domestic tourist's arrivals to the Valley. The outcomes are strong and robust in the calculations for long term. These numerical proofs are justified because in the long run due to substitution effect visitors arrivals are more elastic as compared to short rum effects.

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