



An analysis of a causal relationship between economic growth and terrorism in Pakistan



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ABSTRACT

The present study investigates the causal relationship between terrorism and economic growth in Pakistan by incorporating capital and trade openness in production function. The study covers the time period of 1973–2010. The ARDL bound testing approach has been applied to cointegration to examine the long-run relationship between terrorism and economic growth. The VECM Granger causality approach is used to test the direction of causality between terrorism and economic growth. Our empirical results confirm the existence of long-run relationship between terrorism and economic growth. The Granger causality analysis indicates that terrorism is Granger cause of economic growth. The feedback effect is found between terrorism and trade openness. The relationship between terrorism and capital is bidirectional.

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1. Introduction

The question of the economic consequences of war and internal conflicts has historically received much attention by academics and researchers. However, a closely related significantly different form of disruption, terrorism and its impact on economic growth has not been as heavily analyzed or deliberated upon in existing economic literature. Academic literature focusing on the development of terrorism has mainly focused on and dealt with the effects of political and institutional factors on terrorism (Gassebner and Luechinger, 2011; Krieger and Meierriecks, 2011). These mostly transnational studies have shown that political and institutional factors have played an important and influential role on the growth of terrorism than economic factors. However, previous articles tended to focus on a more transnational approach while this study takes a country specific approach by focusing specifically on Pakistan. Sanchez-Cuenca and Calle (2009) posited that studies focusing on transnational terrorism may bring about incorrect assumptions on domestic or country specific acts of terrorism. Therefore an economic approach to the development of terrorism in Pakistan is vital in developing a country specific model and better understanding country specific effects of terrorism development in Pakistan, instead of the traditional transnational approach as seen in Piazza (2006), Krieger and Meierriecks (2011) and Gassebner and Luechinger (2011).

Now focusing on economic effects of terrorism development in Pakistan there should theoretically be a negative relationship between terrorism events and economic growth. Terrorism has the potential

to impede economic activity via its multipronged affects including, but not limited to, the redirection of government expenditures from growth-enhancing investment activities to less productive expenditures such as defense related activities. Also the reduction of foreign direct investment (FDI) and portfolio investment (PI) can arise as a result of the increase in the perceived political and country specific risk of the economy, and destruction of physical infrastructure. Furthermore, with the increase in terrorist activities the probability of death also increases and individuals tend to associate less utility towards future consumption. As a result, individuals may substitute savings for current consumption which further weighs down the capital formation process and thus hinders economic growth. Conversely, low levels of economic development, unequal distribution of wealth, and high unemployment rates can reduce the opportunity costs of engaging in terrorist activities and therefore may increase terrorism.

This study focuses on the causal relationship between terrorism and economic growth in the case of Pakistan. Our findings show that economic growth is responsible for terrorists' activities as Granger causality is running from economic growth to terrorism in the long run and the feedback hypothesis exists in the short run. A feedback relationship is found between terrorism and trade openness and the same inferences can be drawn for terrorism and capital, as well as capital and trade openness. This study provides new directions for policy makers to control terrorism by distributing the fruits of economic growth equally to all segments of population. The rest of the study is organized as follows: Section 1.1 reports terrorism events in Pakistan; Section 2 highlights the review of related literature; Section 3 details the estimation strategy; Section 4 covers the results and discussion and Section 5 concludes the study with policy implications.

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1.1. Terrorism in Pakistan

Pakistan shares its international borders with Afghanistan, China, Iran and India. Pakistan shares its longest border with India and Indo-Pakistani relations have been marked by decades of severe adversity including three wars and frequent minor cross-border military infiltrations by both sides. The governments of both countries have blamed their counterparts for funding and supporting separatist/terrorist organizations' activities in their territories. Pakistan shares its second longest border with Afghanistan and Pakistani–Afghan relations have been affected by the issues of Pashtunistan, the Soviet war, the advent of the Taliban, the current war in Afghanistan and Afghanistan's relations with India. The American–Afghan war in the post 9/11 era has adversely affected the security situation in Pakistan. Retreating from Afghan territory, the Taliban were pushed into the bordering zones with Pakistan. At present Khyber Pakhtunkhwa (KPK) province, a border province with Afghanistan, is the source of almost all terrorist activities in Pakistan. There is a clear influx of terrorists across Pakistani–Afghan border in the wake of military operations against Al-Qaeda in Afghanistan led by U.S. forces. In fact, Pakistan has been the largest sufferer in terms of the number of terrorist activities in the past decade. Table 1 below summarizes terrorism events in Pakistan over the seven-year period 2004–2010 by type of terrorist activity.

Despite the overall reduction in the number of terrorist attacks, the severity of the terrorist attacks in Pakistan has increased recently. According to the South Asia Terrorism Portal (SATP), a terrorism database, 2654 civilians were killed in terrorist violence from January 2010 to May 2011, as compared to around 1600 civilian deaths from 2003 to 2006. The reasoning behind this is the willingness of terrorists to engage in suicide bomb attacks. According to SATP, there were seventy-six suicide attacks in Pakistan in 2009 as compared to only two in 2003. From the post-attack evidence, it has been observed that terrorists are increasingly using younger children from financially deprived households to carry out their suicide attacks. The terrorist activities have grown in response to the antiterrorist military initiatives of the Government in certain areas of the KPK. Though some of the attacks listed in Table 1 may have been relatively localized due to the limited destructive reach of many of the acts of terrorism, the overall combination of numerous smaller attacks combined with larger attacks can be seen as an overall destruction of physical infrastructure in Pakistan.

2. Literature review

Terrorism is defined as the use of violence or the threat of violence to induce psychological fear in noncombatant targeted audience(s)

Table 1
Terrorism events in Pakistan.

	2004	2005	2006	2007	2008	2009	2010	Total
Armed attack	50	166	106	315	779	850	500	2766
Arson/firebombing	1	3	4	12	75	64	44	203
Assault		8	12	43	82	70	30	245
Assassination	3			1				4
Barricade/hostage		1		7	9	22	8	47
Bombing	97	246	247	460	673	687	415	2825
Hijacking				2	18	7	2	29
Kidnapping	2	15	19	96	312	284	112	840
Near miss/non-attack incident	1	2	1	7	18	23	18	70
Other			3	2	5	1	1	12
Suicide	1	1	5	41	58	84	40	230
Theft			2	12	12	18	2	46
Threat			1	15	1	1		18
Unknown		8	2	13	49	102	18	192
Vandalism		1		3		2		6
Total	155	451	402	1029	2091	2215	1190	7533

Source: Worldwide Incidents Tracking System.

typically by an illicit and usually clandestine political, religious, ideological, revolutionist or separatist organization in order to induce political and/or economic disruptions as a short-term objective and thus to achieve other medium-to-long-run objectives through this short-term goal. The economic literature does not provide a conclusive answer regarding bidirectional causal linkage between terrorism and economic growth. In hindsight, an increase in economic growth rate should lead to a decline in terrorism by increasing the opportunity costs of engaging in terrorist activities, however on the other hand if the benefits of economic growth are not widespread and there is an unequal distribution of wealth, geographically or otherwise, it may cause domestic terrorism to rise. Alternatively, an increase in terrorist activities may lead to a decline in economic growth. It is also possible that causality exists from both sides or there may be no causality at all between economic growth and terrorism.

Additionally, Krieger and Meierriecks (2010) analyzed the effect of income inequality on terrorist activities in their study covering 65 countries from 1975 to 1999. They found a positive and significant correlation between income inequality and terrorist activities. They also noted that income inequality is a highly significant predictor of the number of terrorist attacks. This becomes rather relevant when looking at Pakistan in particular. Yasmeen et al. (2011) exposed that the national poverty rate in Pakistan is 34% and over 80% of the population lives on less than two US dollars a day.

This would be in contradiction to Gassebner and Luechinger's (2011) assessment of 70 plus previous terrorism studies. Using extreme bound testing they used infant mortality rates as their proxy for poverty and saw that it had a robust and negative relationship with terrorism activities. The study reviewed numerous previous studies and compiled an overall broad transnational model for different factors relating to terrorist activities. They also found that economic development had a minor effect on terrorist activities.

Inter alia, Collier (1999), Frey et al. (2007), Enders and Sandler (2008), Eckstein and Tsiddon (2004) and Mirza and Verdier (2008) have discussed the theoretical framework regarding channels through which terrorism impedes economic growth. The potential costs of terrorism borne by an economy, in terms of hampered economic growth, can be classified as direct and indirect costs. Collier (1999) identified the most obvious and direct perils of civil wars, of which terrorism can be considered a related phenomenon, as destruction of physical capital including the destruction of public infrastructure and the loss of human capital. Simultaneously, transaction costs are amplified as a result of the reduced security and the effectiveness of government institutions is compromised. A key factor affecting economic growth is the share of GDP directed toward investment spending. Blomberg et al. (2004) and Gaibulloev and Sandler (2008) pointed out that terrorism diverges economic activities away from investment spending to government spending mainly for instituting non-productive defense mechanisms against terrorist activities.

Knight et al. (1996) quantified the impact of military spending on gross domestic product (GDP) and showed that an additional 2.2% of GDP spent on the military, sustained over seven years (the length of a typical conflict) would lead to a permanent loss of around 2% of GDP. Abadie and Gardeazabal (2008) showed that significant reductions exist in net foreign investment positions in a country due to terrorist risk. Enders and Sandler (1996) investigated the impact of terrorism on the net foreign direct investment (NFDI) in Spain and Greece using VAR analysis. They found that terrorism reduced the NFDI by 13.5% and 11.9% in these countries respectively as investors sought out less violence-prone countries; however the impact is expected to be smaller for larger diversified economies. In addition, Coe and Helpman (1995) identified that foreign direct investment (FDI) plays a vital role in technology transfer which enhances total factor productivity. Moreover, terrorism can adversely disrupt financial markets, thereby decreasing investment flows (Abadie and Gardeazabal, 2003).

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