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## Article

# Socioeconomic and political fallouts of terrorism : a comparative analysis of developed and developing countries

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## **SOCIOECONOMIC AND POLITICAL FALLOUTS OF TERRORISM: A Comparative Analysis of Developed and Developing Countries**

**Humaira KHANUM\*, Zainab JEHAN\*\* and Tahir MUKHTAR\*\*\***

### **Abstract**

This research strives to investigate the socioeconomic and political fallouts of terrorism for developing and developed countries over the time period from 1970 to 2016. For this purpose, the research has used separate indicators for social, economic and political dimensions of the economy; namely, per capita income is taken as an indicator for economic performance; secondary school enrollment is used to capture the societal impact of terrorism, and the political dimension is captured through political stability index. For the terrorism variable, four different measures, the total number of terrorist incidents, the total number of injured persons, the total number of persons killed and a composite index of terrorism, have been employed. The major finding of the study is that terrorism has adverse economic, political and social fallouts for both developed as well as developing countries. In developing countries, however, the severity of the terrorism consequences is far greater than in developed countries.

*Keywords:* Terrorism, Political Stability, Secondary School Enrolment, Per Capita Income, GMM.

*JEL Classification:* O4, P16, J24, I21, H52.

### **I. Introduction**

The global economy is facing severe economic and non-economic challenges, resulting in worsened economic performance in several economies and deepening of recession in other economies [Stiglitz (2000)]. Economic challenges, for instance, include poor strategising of stabilisation policies, financial crisis, external debt, escalating defence spending, and inflationary pressures. On the other hand, non-economic challenges such as uncertainty, deteriorating law and order situation, and violence mainly instigated by terrorism impose serious threats to the socioeconomic and political stability of global economies [Shahbaz (2013)].

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Terrorism has emerged as a serious threat to global economies in recent years. It is defined as an act of violence used to achieve ideological or political goals by extortion and intimidation against people and governments [Humphreys (2006)]. Terrorist organisations work together to achieve common aims, including fundamental transformation in a country's social, economic and political structure by altering the government's actions, policies and choices using military forces and threats [Özdamar (2008)]. Terrorist operations have increased dramatically worldwide in recent decades, particularly in the aftermath of 9/11 [Haider and Anwar (2014)]. These activities are primarily intended to cause instability in a country and undoubtedly have disastrous socioeconomic and political consequences for the victims. The consequences, however, are set to be severe, especially for poor-developing countries [Çinar (2017)]. It is generally recognised that developing countries have weak economic and political structures, poor governance and limited shock absorption ability. As a result, many of these countries are unable to adopt effective measures not only to combat terrorism but also to deal with its consequences [Hyder, et al., (2015)]. On the other hand, developed countries have strong economic structures, better institutional setups and governance indicators, which enable them to effectively counter the reverberations of terrorist activities [Sandler and Enders (2008)].

Terrorism has multidimensional implications for an economy. For instance, it deters economic activity by creating uncertainty and shattering investors' confidence, thereby lowering investment and employment [Gaibullov, et al., (2013) and Freytag, et al., (2011)]. Theoretically, the economic implications of terrorism can be explained through the theory of irreversible investment. The uncertain environment created by terrorism hinders investment by delaying investment expenditures; resultantly, overall economic activity declines [Bernanke (1983), Pindyck (1990), Dixit and Pindyck (1994)]. Furthermore, several studies Hyder, et al., (2015), Gaibullov, et al., (2013), Freytag, et al., (2011), Gaibullov and Sandler (2009), Gries, et al., (2011) and Shahzad, et al., (2016), among others explain that it can entail costs on a targeted state through several possible ways such as by destroying infrastructure, discouraging Foreign Direct Investment (FDI), redirecting public expenditures toward security purposes and by limiting international trade. Furthermore, the increased likelihood of casualties leads to low savings, less capital formation and low economic growth [Shahbaz and Shabbir (2012)].

Additionally, Terrorism has major social and political consequences by creating uncertainty and chaos [Barro (1992) and Badshah (2012)]. Because the social sector of an economy (which includes education, human development, and skilled labour force) is a crucial part of economic development, the social ramifications of terrorism cannot be overlooked. Terrorism is a breach of human rights that causes a variety of psychological and physiological problems, ethnic tensions, and religious upheaval. The social consequences, particularly in terms of education, are severe;

for example, infrastructure destruction and the killing and injuring of students contribute to a drop in the general enrollment ratio [UNESCO (2014)]. Similarly, political stability in a country plays a significant role in strengthening the economic order [Barro (1992)]. Terrorism causes political unrest by putting pressure on a government, which can lead to the government's disintegration or collapse. Furthermore, it causes political instability and the reallocation of resources from productive to non-productive sectors, primarily for defence purposes [Mukhtar and Jehan (2021) and Michael (2007)].

Policymakers and researchers are making conscious efforts to not only examine the economic and human costs of terrorism but also to identify the possible hazards of future terrorist acts [Blomberg, et al., (2011)]. In this regard, policymakers have initiated a global counter-terrorism strategy that is assisting in the reduction of sudden terrorist strikes; however, there are certain budgetary costs associated with it in the form of rising non-productive security expenses [Freytag, et al., (2011), Chuku, et al., (2019), Zakaria, et al., (2019) and Mukhtar and Jehan (2021)].

Researchers have largely focused on investigating the economic implications of terrorism. For instance, Zakaria, et al., (2019), Chuku, et al., (2019), Bayar and Gavriletea (2018), Çinar (2017), Gaibullov, et al., (2013), and Freytag, et al., (2011) observe a negative and significant impact of terrorism on economic growth. During the 9/11 incidents, the US lost 0.06 per cent of its total productive assets [Becker and Murphy (2001)]. Similarly, in Israel, the incidence of terrorism reduced per-capita annual consumption by 5 per cent, while total output declined by 3 to 5 per cent [Eckstein and Tsiddon (2004) and Haider and Anwar (2014)]. Despite the importance of the political and social implications of terrorism, not much attention is paid to these aspects. Some researchers have explored these dimensions through qualitative or descriptive analysis [Omirin (2016), Kazmi and Ali (2015), Arowolo (2013), Eubank and Weinberg (2001)]. On the other hand, limited research is done for the reverse causality for social and political dimensions [Richardson (2011), Najeeb, et al., (2010), Burgoon (2006), Chenoweth (2013), Choi (2010), Savun and Phillips (2009) and Wade and Reiter (2007)].

The present study is an empirical endeavour to examine the socioeconomic and political fallouts of terrorism for developed and developing countries for the period 1970 to 2016. This study is distinctive on various grounds. To begin with, despite voluminous literature on estimating the economic cost of terrorism, there is a paucity of writing on the social and political consequences of terrorism. Although some reports exist, particularly for developing countries, that state/describe the effects of a terrorist attack on school enrolments, school buildings and student injuries, there is no empirical evidence that explains the social implications of terrorism over a long period of time across a number of countries. Furthermore, the link is explored in reverse rather than focusing on the political ramifications. Therefore, to abridge this gap, we endeavour to empirically estimate the social and po-

litical repercussions of terrorism and its economic consequences. We consider per capita income, secondary school enrolment, and the political stability index as indices of economic, social, and political dimensions. Second, the literature is mainly based on a sample of developing nations, with little emphasis on including developed countries in such analyses. We conducted a comparative examination of 28 developed and 86 developing nations to fill this void. Thirdly, existing empirical research have primarily concentrated on a particular terrorist measure. We used different measures of terrorism, such as the number of terrorist occurrences, the number of wounded persons, the number of deaths, and a consolidated terrorism index, to test the relative impact of each measure of terrorism and for robustness purposes. This will assist us in determining which measure of terrorism poses the greatest threat to the socioeconomic and political stability of a group of countries. Finally, we conducted various robustness tests to guarantee the validity of our findings and to test the relevance of our findings.

After the introduction, Section II provides an overview of the literature review of existing empirical studies. Section III outlines the methodology and data, while Section IV presents a detailed discussion of empirical results. Finally, section V concludes the study and presents some policy recommendations based on the empirical estimates of the research.

## **II. Literature Review**

Theoretically, the link between terrorism and economic performance is explained through the theory of irreversible investment [Hyder, et al., (2015), Bernanke (1983), Pindyck (1990) Dixit and Pindyck (1994), Caballero (1991) and Kellogg (2014)]. These studies state that the initial costs of investment are sunk costs and these costs are irreversible. The instability and turmoil produced by terrorism cause delays in investment decisions by domestic as well as foreign investors.

Empirically, a large body of literature concluded that terrorism is detrimental to economic growth, directly as well as indirectly. Specifically, it shatters investors' confidence, creates uncertainty and lowers economic growth. Moreover, terrorism affects economic growth indirectly by curtailing government expenditures or diverting these from the development sector to the non-development sector, mainly to the defence sector. Qamar (2020) evaluated the relationship between terrorism, economic growth, employment and FDI. The outcome revealed that terrorism has a long-run relationship with GDP and FDI. Chuku, et al., (2019) examined the economic and fiscal costs of terrorism in Nigeria by using different measures of terrorist incidence. The results revealed that terrorism has a statistically significant and negative impact on economic growth.

Moreover, it enforces the reallocation of resources from development to non-development expenditures. Precisely, terrorism has the potential to crowd out in-

vestments at a higher rate rather than crowding in government spending, thus leaving an adverse impact on an economy. Meanwhile, Zakaria, et al., (2019) explored the indirect effect of terrorism on economic growth using three variables: government consumption expenditures, FDI and domestic investment. The results revealed that terrorism negatively affects economic growth through FDI and investment, whereas it positively affects growth through government consumption expenditures. Additionally, it is observed that both internal and external conflicts impart an adverse impact on economic growth in Pakistan. Bayar and Gavriltea (2018) also suggested that a peaceful environment is favourable for economic growth, while terrorism has a negative effect on economic growth.

Moreover, they reported that there exists a bilateral causality between peace and economic growth and terrorism and economic growth. In the same way, Çinar (2017) observed the adverse consequences of terrorism for the economic growth of developing countries. However, the study documented that the fallouts of terrorism are more severe in low-income countries because of their weak macroeconomic structure and poor performance of monetary and fiscal policies. In contrast, advanced economies are stable and strong in their macroeconomic aspects and have a better capacity to absorb the adverse shocks caused by terrorism. The study also stresses that macroeconomic stability and high economic growth can reduce the extent of terrorist activities in a country. Along the same lines, Gaibullov, et al., (2013), Freytag, et al., (2011), Gaibullov, et al., (2010), Gaibullov and Sandler (2009), Gries, et al., (2011), Sandler and Enders (2008) and Abadie and Gardeazabal (2008) concluded the adverse consequences of terrorism on economic growth. Similarly, Abadie and Gardeazabal (2003) reported that over two decades, terrorist activity (measured by the number of victims) caused a 10 per cent reduction in the GDP per capita of the Basque Country.

As stated above, terrorism not only has economic implications but it also has serious social repercussions. For instance, the link between education and terrorism is observed to have a detrimental impact on the education sector, which hinders development in the education sector [Malhotra, et al., (2017)]. The longer-term consequences of terrorist incidents on education are mostly seen as psychological and material based, but these attacks over a long-time span lead to educational vulnerability, state weakness and barriers to educational development [O'Malley (2011)]. Some researchers have conducted qualitative/descriptive analyses to evaluate the relationship between terrorism and education attainment. In this regard, Omirin (2016), Kazmi and Ali (2015), and Bradford and Wilson (2013) have concluded that terrorism is a serious threat to education. Particularly, Omirin (2016) explored that the Boko Haram insurgency in Nigeria is obstructing education access and causing a significant decline in school enrollment. The other strand of literature documented that education has a negative and significant impact on terrorism [Richardson (2011), Najeeb, et al., (2010), Burgoon (2006) and Krueger (2002)].

The argument posits that education discourages support for terrorism because it generates awareness, tolerance, pluralism, skills and values that reduce support for violent terrorist attacks and suicide bombing [Hefner and Zaman (2007) and Najeeb, et al., (2010)].

Most recently, the link between terrorism and political stability is also under examination. The turmoil and uncertainty apprehended by terrorism lead to political instability and cause state weakness, increasing government vulnerability and policy disruptions [Michael (2007) and Badshah (2012)]. In addition, counter-terrorism activities increase non-productive defence expenditures, which lead to the reallocation of resources from the productive sector [Mukhtar and Jehan (2021) and Cevik and Ricco (2020)]. Alternatively, terrorist groups achieve their political goals by disrupting and demolishing the political structure of a country [Esberg (2009)]. Pape (2003) proposed the hypothesis that suicide attackers particularly like to molest democratic states out of nationalist motivations. They attack democracies because they observe these states as mainly insightful to suffering fatalities. Similarly, democracies experience high terrorism due to more involvement in foreign affairs [Arowolo (2013), Savun and Phillips (2009), Eubank and Weinberg (2001)]. Another strand of literature explores the impact of democracy on terrorist activities and concludes that the characteristics of democracy reduce violent terrorist activities [Chenoweth (2013), Choi (2010), Savun and Phillips (2009), Wade and Reiter (2007)]. Democracies enable peaceful resolution of political disagreement by permitting rebels to convey their interest and seek concessions [Ross (1993) and Eubank and Weinberg (1994, 2001)].

The review of existing literature highlights extensive literature exploring the impact of terrorism on economic growth, whereas the literature is scant in identifying the social and political consequences of terrorism. In addition, a large body of literature has focused on exploring the consequences of terrorism for developing countries, while not much work has been done for developed countries. Therefore, there is a need to estimate the fallouts of terrorism for all major sectors, not only for developing countries but also for developed ones.

### III. Methodology and Data

#### 1. Methodology

By following various existing studies, a detailed framework has been formulated to estimate the economic, social, and political fallouts of terrorism for both developing and developed countries. The basic/generalised model takes the following form in Equation (1).

$$Y_{it} = \alpha_0 + \alpha_1 Y_{it-1} + \alpha_2 Terror_{it} + \alpha_3 Terror_{it} \times CD + \sum_{j=1}^n \beta_j X_{j,it} + \mu_{it} \quad (1)$$



where 'i' refers to the  $i^{th}$  country (i = No of countries (114) comprising 86 developing countries and 28 developed countries) and 't' to the time period (t = 1970 to 2016).  $Y_{it}$  is the vector of economic, social and political dimensions of selected countries while  $Y_{it-1}$  is the lagged of respective indicators of each dimension. To capture economic, social, and political dimensions, we have used per capita income (PCI), Secondary School Enrolment (SSE) and Political Stability (PS), respectively, of selected countries.

CD refers to the country dummy, where 1 refers to developing countries and 0, otherwise.  $X_{j,it}$  Indicates the vector of explanatory variables for each respective dimension, where  $j$  reflects different types of explanatory variables used in each equation.

$PCI_{it}$  Indicates the log of per capita income (constant prices 2010 \$ US),  $SSE_{it}$  refers to gross secondary school enrollment (per cent gross),  $PS_{it}$  denotes the political stability index. It ranges between -2.5 to +2.5, where positive values are depicting political stability and negative values indicate political instability [Kaufmann, et al., (2011)].  $Terror_{it}$  refers to the measure of terrorism. We have used a consolidated measure of terrorism, i.e. terrorism index. By following Dreher, et al., (2011), the terrorism index is constructed by using total terrorist incidents (number of occurrences) and total victims (sum of the total killed and wounded persons) for  $i^{th}$  country at time period 't', as follows:

$$Terror_{it} = \ln \left[ e + \frac{Incidents_{it}}{TotalPopulation_{it}} + \frac{Victims_{it}}{TotalPoulation_{it}} \right]$$

The index is adjusted for total population size to see the potential extent of terrorism, where it is estimated to be highly threatening for states having smaller populations. While  $e$  is a constant and has a value of 2.71828 [Dreher, et al., (2011)].  $CD$  Indicates country dummy where '1' refers to developing countries and '0' otherwise.  $Terror_{it} \times CD$  refers to the interaction term of terrorism index with a country dummy. A positive coefficient of the interaction term renders higher socioeconomic and political fallouts for developing countries as compared to developed countries and the reverse holds for a negative coefficient.

In addition to the focus variables, each dimension is regressed against its fundamental determinants( $X_{j,it}$ ) to ensure validity and also to avoid the omitted variable bias. First, for estimating the economic fallouts of terrorism, we have used per capita income as the dependent variable. Following Barro (1999), Gaibullov and Sandler (2009) and Gries, et al., (2011), we have used the following variables as regressors: gross fixed capital formation (percentage of GDP), the log of consumer price index, human capital index, based on years of schooling and returns to education; trade openness measured as a sum of imports and exports (percentage of GDP).



Second, to capture the social fallouts of terrorism, we have used secondary school enrollment as the dependent variable. The reason for using SSE as the social indicator is that education measures human capital, which is a clear indicator of social development. Similarly, existing literature depicts that terrorism causes the closure of schools and a decline in the enrollment of students [Joda and Abdulrasheed (2015)]. Therefore, the perspective of terrorism, SSE was found as the best proxy for measuring the social fallouts of terrorism. The most relevant example in this regard is the Boko Haram insurgency in Nigeria which obstructs education by limiting education access. Nigeria has faced a significant decline in school attendance due to threats and the kidnapping of students [Omirin (2016)]. Following Flug, et al., (1998) and Edrees (2016), we use the following variables: log of per capita income (constants prices 2010 \$US); government expenditure on education (percentage of GDP); Polity II index of democracy, which ranges between -10 and +10. A negative value of the variable depicts autocracy, whereas a positive value shows democracy.

Third, to estimate the political fallouts of terrorism on both sets of countries, we have used the political stability index as the dependent variable. Following Barro (1999), we use the following variables as regressors of this model: per capita income growth (annual percentage); human capital index based on years of schooling and returns to education; the log of consumer price index; control of corruption index which ranges between 0 to 6.

## ***2. Data Sources and Data Transformation***

The empirical analysis of socioeconomic and political fallouts of terrorism is carried out by utilising the panel data for 86 developing and 26 developed countries for a time period ranging from 1970 to 2016. The data on most of the variables are extracted from World Development Indicators by World Bank (2017). Data on democracy is taken from the Polity IV project of Political Regime Characteristics and Transitions (1800-2016) compiled by the Integrated Network for Societal Conflict Research Program and the Center for International Development and Conflict Management [Marshall, et al., (2017)]. The data on the political stability index are extracted from the Worldwide Governance Indicators WGI (2017). This project assembles aggregate indicators of six wide aspects of governance, i.e. Political Stability and Absence of Violence/Terrorism, Voice and Accountability, Regulatory Quality, Government Effectiveness, Control of Corruption and Rule of Law. The data are collected from a huge number of survey institutes, non-governmental organisations, think tanks, private sector firms and international organisations [Kaufmann, et al., (2011)].

Furthermore, we have used the data on the corruption control index from International Country Risk Guide by the PRS group (2013) and data on the human capital

index is extracted from Penn World Table (PWT) [Feenstra (2015)]. The human capital index is compiled on the basis of returns to education and years of schooling. Moreover, per capita income and consumer price index are taken in log form, while capital formation, government expenditure and trade openness are taken as a percentage of GDP. Other variables in the estimation are used in their original form.

The data on our focused variable are taken from Global Terrorism Database (2017) by National Consortium for the Study of Terrorism and Responses to Terrorism (START). We have used four measures of terrorism. Data is available on three measures, namely, total killed persons, total wounded persons and total terrorist attacks, while the fourth measure is constructed by using the methodology of Dreher, et al., (2011). In GTD, the data is available on a monthly basis; therefore, we transformed it into an annual basis by summing up the number of incidents/deaths/wounded persons of each month of a particular year.

### **3. *Estimation Technique***

For empirical exercise, the dynamic panel data model Equation (1) has been estimated by means of the Generalized Method of Moments (GMM) developed by Arellano and Bond (1991), Arellano and Brover (1995) and Blundel and Bond (1998) which is capable enough to efficiently deals with the issue of endogeneity.

## **IV. Discussions**

### **1. *Descriptive Statistics: Developing Vs. Developed Countries***

The summary statistics presented in Table 1 depict that, in the case of developing countries, the mean value for all measures of terrorism is higher as compared to developed countries. The data additionally explains that both sets of countries experience the highest average for a total number of wounded persons with the highest standard deviation, which further reveals the huge spread of terrorism in these countries. In contrast, the total number of terrorist incidents has the lowest mean and standard deviation in the case of developing countries, while the total number of persons killed shows the lowest average value in the case of developed countries. Similarly, the average value for the terrorism index is depicting that overall terrorism is high in developing countries as compared to developed countries. In terms of selected macroeconomic variables, developed countries have a higher average rate of PCI than developing countries. Meanwhile, the average value of political stability in developing countries reflects political disruption and instability, while stability is seen in developed countries. The average rate of secondary school enrollment explains that developed countries are highly endowed with human capital compared to developing states.

**TABLE 1**  
Descriptive Statistics: Developing Vs. Developed Countries

| Var.                          | No. of obs. | Mean    | S.D    |
|-------------------------------|-------------|---------|--------|
| Panel A: Developing Countries |             |         |        |
| NIN                           | 2261        | 61.730  | 216.36 |
| NK                            | 2235        | 160.560 | 667.93 |
| NW                            | 2224        | 193.990 | 913.68 |
| Terror                        | 2203        | 2.870   | 1.91   |
| LPCI                          | 3934        | 7.580   | 1.22   |
| DEM                           | 4202        | -0.420  | 6.85   |
| PS                            | 1534        | -0.686  | 0.89   |
| GSSE                          | 2680        | 51.590  | 29.90  |
| Panel A: Developed Countries  |             |         |        |
| NIN                           | 854         | 33.200  | 63.32  |
| NK                            | 853         | 23.970  | 129.61 |
| NW                            | 847         | 73.910  | 574.92 |
| Terror                        | 847         | 1.920   | 1.24   |
| LPCI                          | 1365        | 9.980   | 0.76   |
| DEM                           | 1395        | 7.390   | 5.32   |
| PS                            | 468         | 0.646   | 0.71   |
| GSSE                          | 1082        | 94.100  | 20.16  |

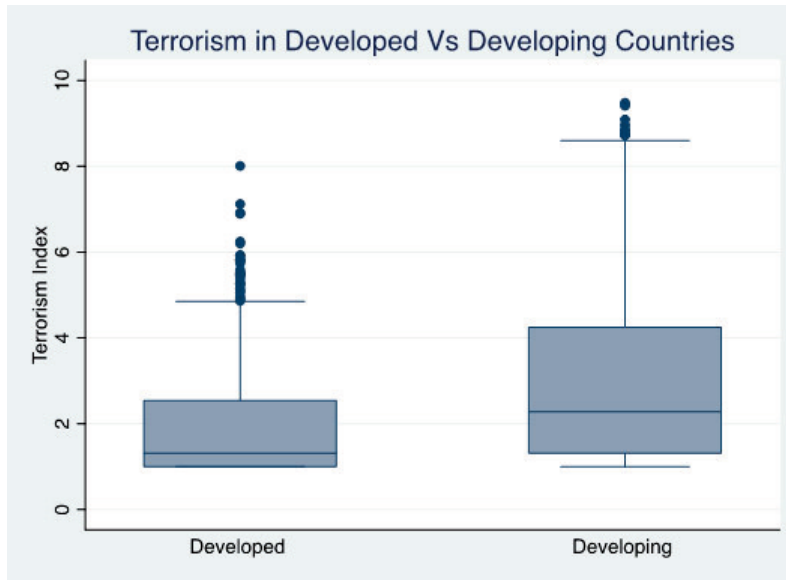
*Source:* Authors' estimation.

Additionally, the incidence of terrorism can be described by using box whisker plots, presented in Figure 1.<sup>1</sup> The box plot for developing countries shows that the average incidence of terrorism in developing countries is higher as compared to their developed counterparts. Furthermore, the average incidence of terrorism in developing countries is even higher than the maximum incidence of terrorism in developed countries.

## 2. Discussion of Empirical Results

The estimated outcome (Model 1) is reported in columns 2, 3, and 4 of Table 2 for economic, social and political fallouts of terrorism, respectively. Further, the diagnostic tests (Panel B), namely the Hansen test, is applied for the instrument validity while AR (2) is used for testing the Autocorrelation. Both test statistics reveal that all models are correctly specified.

<sup>1</sup> Box whisker plots are developed by (Mosteller and Tukey, 1977).



Source: Authors' estimation.

**FIGURE1**

Incidence of Terrorism in Developing Vs. Developed Countries

***a) Economic Fallout of Terrorism: Developing Vs. Developed Countries***

As described earlier, the economic performance is measured by taking the log of per capita income (PCI), and to capture the dynamics in the per capita income, we have used the lag of per capita income. The coefficient of lagged PCI is positive and significantly associated with its current value for a selected sample of countries, indicating persistence and consistency in the behaviour of per capita income [Barro (1991) and Levine and Renelt (1992)].

Moving to terrorism proxied by the terrorism index, we see that terrorism adversely impacts the per capita income in a selected group of countries. This finding can be explained through the theory of irreversible investment. Terrorism shatters the confidence of investors and weakens the assurance of expected profit by creating uncertainty, thus, reducing investment and output [Dixit and Pindyck (1994)]. Furthermore, terrorism contracts profitability expands security expenditures, damages the infrastructure, and reduces investment and per capita income. In addition, the reallocation of resources from productive to non-productive sectors such as defence and military reduces productivity and per capita income [Zakaria, et al., (2019)].

In order to find the differential impact of terrorism on both sets of countries, we introduce an interaction term of terrorism and country dummy (1= developing and 0, otherwise). The empirical estimate of the interaction term conveys that the

growth-distorting impact of terrorism is 0.028 per cent higher in developing countries as compared to developed countries. This finding is justified on various grounds. It is widely accepted that developed countries are strong and stable compared to developing countries, so their shock-absorbing capacity is much higher than their developing counterparts. These results are consistent with other studies, for instance, Combey (2017), Çinar (2017), Tabassam, et al., (2016), Shahzad, et al., (2016), Hyder, et al., (2015), Gaibullov, et al., (2010, 2013), Gries, et al., (2011), Gaibullov and Sandler (2009) and Blomberg, et al., (2004).

Among other macroeconomic determinants, per capita income, investment and human capital are the most important sources of economic growth. All growth models, such as Solow Growth Model, Neoclassical Growth Model, and New Growth Model, consider capital formation as one of the fundamental determinants of economic growth. The process of capital formation not only induces income generation but also helps in increasing the productive capacity of an economy [Eltis (1987)]. Moreover, the Keynesian Multiplier theory also confirms the multiplier effect of investment on economic growth. The findings identify that investment has a favourable impact on the per capita income of both sets of countries. These empirical findings are consistent with those of Combey (2017), Hyder, et al., (2015), Gaibullov, et al., (2013) and Gaibullov and Sandler (2009), which have documented a positive effect of investment on income. Moreover, the findings also confirm the Keynesian Multiplier Theory, which states that any change in investment will have a multiplier effect on the income; however, the change in income depends upon the size of the multiplier [Haberler (1936)].

Similarly, the AK and New Growth Models advocate the importance of human capital. An educated labour directly contributes in the production process through its high marginal product [Feng (1997)] and improvement in total factor productivity through innovation activities. Our empirical findings substantiate the theoretical expectations as human capital appears significant and portrays a favourable impact on the per capita income of both sets of countries. These results are consistent with Combey (2017), Hyder, et al., (2015), Bassanini and Scarpetta (2002), Barro (2001, 1995, 1992) and Durlauf, et al., (2001).

As far as inflation is concerned, the existing literature reports both positive Mallik and Chowdhury (2001), Umaru and Zubairu (2012), Mahmoud (2015) as well as negative Saaed (2007), Barro (1995), Faria and Carneiro (2001), Khan and Senhadji (2001) impact of inflation on per capita income. Our findings, however, depict an insignificant impact of inflation on PCI.

As advocated by Adam Smith, international trade is an engine of economic growth, but it is not a magic stick, implying that the impact of international trade is conditional on various factors in a country. Our findings reveal a negative impact of trade openness, though of negligible size. The adverse impact of trade may be due to the large number of developing countries in the sample. Developing countries'

imports are technologically advanced, and the export base is narrow, which not only creates a trade deficit but also reduces the advantages of trade liberalisation.

***b) Social Fallout of Terrorism: Developing Vs. Developed Countries***

The social fallout of terrorism are measured by taking Secondary School Enrollment (SSE) as an indicator of the social sector. The empirical estimates presented in column 3 of Table 2 highlight that the lag of SSE is positively and significantly related to the current value of SSE for both sets of countries. This shows the persistency in enrollment rate over a long time period [Shuaibu and Oladayo (2016)].

As far as the impact of terrorism on school enrolment is concerned, it can be seen that terrorism yields discouraging ramifications for SSE. This outcome can be justified because the killing of students and the destruction of school buildings are likely outcomes of terrorist incidents. This finding corroborates the evidence reported by Patrick and Felix (2013), Kazmi and Ali (2015), Joda and Abdulrasheed (2015) and Omirin (2016). Notably, the impact is 0.88 per cent higher in developing countries relative to developed counterparts, as depicted by the positive sign of the interaction term. The most relevant example in this regard is the Boko Haram insurgency in Nigeria which obstructs education by limiting education access. Nigeria has faced a significant decline in school attendance due to threats and kidnapping of students. Similarly, Khan and Seltzer (2016) reported that terrorist incidents reduce school enrolment in Pakistan, specifically in the Khyber Pakhtunkhwa (KPK) province.

Specifically, the decline in enrolment is higher for girls as compared to boys. UNESCO (2011) and Justino (2011) also documented that terrorism/conflict imparts serious implications on the educational attainment of children. In addition, as per Amnesty International research, almost 1000 children and 70 teachers have been wounded and killed since 2012. Many students are forced out of schools in different areas in Kaduna, Yobe, Borno states and Adamawa. Borno State has experienced the highest number of terrorist attacks on educational institutes [Ugwumba and Odom (2015)]. According to UNESCO (2014), Afghanistan has experienced above 1,110 incidents on schools, including suicide bombings and explosions. Likewise, Bradford and Wilson (2013) explain that terrorist attacks on schools have taken several forms: hostage takings, bombings and armed attacks. The recurrence of this kind of assault on educational institutions has expanded pointedly since 2003. The states which experience the highest impact of terrorism on educational institutions since 1998 are Thailand, Iraq, Nepal, Afghanistan, Colombia, Pakistan, India, Spain, Turkey and Sweden [UNESCO (2007)].

Among other determinants, per capita income depicts a positive and significant impact on SSE. These results are consistent with the existing literature such as

Orhan (2017), McGrath (2016), Edrees (2016), Khan, et al., (2015), Sharma and Sahni (2015) and Awel (2013), Goldin and Katz (1997); Doucouliagos (1997) and Diebolt and Litago (1997) among others. These studies have concluded that per capita income is the most fundamental determinant of school enrollment; therefore, countries with higher per capita income experience higher school enrolments. Furthermore, democracy is negatively and significantly related to SSE, implying that the more the democratic state is lower will be the school enrolment. These results are in contrast with the findings of Brown and Hunter (2004), Baum and Lake (2003), Lake and Baum (2001), Brown (1999), and Saint-Paul and Verdier (1993). According to these studies, democratic governments increase the prospects of human capital formation by maintaining higher expenditures on education. As depicted by the estimates, Government expenditure is insignificant for SSE. These results are in contrast with Flug et al., (1998), Gupta and Verhoeven (2001), Jung and Thorbecke (2003) and Devi and Devi (2014).

***c) Political Fallouts of Terrorism: Developing Vs. Developed Countries***

The political fallouts of terrorism are measured by using the political stability index. The empirical findings are presented in column 4 of Table 2. The lagged value of the political stability index reveals a positive and significant relation with its current value, thus showing persistence in the political structure of both sets of countries [Arowolo and Lawal, (2008)].

When we examine the impact of terrorism on the political stability of a selected sample of countries, it is observed that terrorism deteriorates the political stability of a selected sample of countries. Notably, the adverse impact of terrorism on political stability is 0.12 per cent higher in developing countries as compared to developed ones. This finding is important as developing countries are flooded with other political and economic challenges, so any increase in conflict and terrorist activities adversely affect the political structure of these states. Conflict and terrorism threaten societies or governments for the accomplishment of ideological, religious and political goals [Arowolo and Lawal (2008)]. This political unrest decreases the government's legitimacy and credibility if political institutions are failed to maintain law, stabilise the economy and control the acts of terrorism. On the other hand, if governments do not solve political issues, it results in violence, leading to terrorism and conflicts. Any type of unrest, conflict and disturbance in the country creates instability in the government structure, whether a democracy or autocracy [Large (2005)].

Moving towards the next determinant of political stability, i.e. economic growth, is positively and significantly related to the political stability of developing and developed countries. The results are consistent with that of Feng (1997), which demonstrates that high growth increases the probability of the same government



remaining in power; therefore, countries with higher growth usually have a stable political structure. According to Bollen (1979) and Bollen and Jackman (1985), high economic growth ensures less political turmoil and instability in the government structure [Qureshi and Ahmed (2012)]. In addition, Alesina et al., (1996) explain that poor economic performance increases political disturbance and encourages political coup.

Moreover, inflation appears statistically significant with a positive sign. The results are consistent with Feng (1997), Dornbusch and Fischer (1993). According to these studies, inflation is an easy way of financing the government budget deficit. Even the weakest government finds it effortless to pay its debt by printing more money. The seigniorage argument is reasonable because, in a given tax structure, it is considered less costly to generate government revenues [Bailey (1956)]. Furthermore, Gasiorowski (1995) explains that inflation has a time-varying impact on the political structure of a country.

Our findings explain the positive and significant impact of human capital on political stability. It is widely documented that education enhances the political structure of a country by increasing awareness and participation in political affairs such as voting and systematising [Brady, et al., (1995)]. Another important variable, namely control of corruption, also posits a positive impact on political stability. It indicates transparency in financial institutions, and hence it leads to improvement in the efficiency of government bodies. Control of corruption increases economic prosperity and improves political structure and social harmony [Liu and Lin (2012)].

When we look at the socioeconomic and political fallouts of terrorism, it is important to note that terrorism has a detrimental impact on all the dimensions of selected sample countries. However, the size of the adverse impact is higher on the social sector, or it has an extremely devastating impact on human capital accumulation, followed by political stability and PCI. As stated above, it is also evident from recent experience that terrorism and/or terrorist activities have direct and indirect implications on school enrolment, thus putting education attainment in extreme danger.

### 3. *Robustness Analysis*

This section presents a robust analysis for the socioeconomic and political fallouts of terrorism. First, we split the sample of developing and developed countries in order to check the robustness of our findings by testing the severity of terrorism for each set of countries separately.<sup>2</sup> The findings for this robustness test are presented in Column 2 of Tables 3a and 3b.

<sup>2</sup> It is important to mention here that by splitting the sample, we obtain 86 developing countries while 28 developed countries for time period 1970-2016. In case of developed countries, we apply instrumental variable technique due to  $n < t$  condition of GMM technique. Since both techniques are instrumental based therefore, the comparison of empirical findings is justified on technical grounds.

**TABLE 2**  
Socioeconomic and Political Fallouts of Terrorism:  
Comparison Between Developed and Developing Countries

| Model 1                     |                       | Model 2       |                       | Model 3     |                       |
|-----------------------------|-----------------------|---------------|-----------------------|-------------|-----------------------|
| Dep. Var. PCI               |                       | Dep. Var. SSE |                       | Dep. Var.PS |                       |
| Panel A: Empirical Estimate |                       |               |                       |             |                       |
| Var.                        | Coeff. (S.E)          | Var.          | Coeff. (S.E)          | Var.        | Coeff. (S.E)          |
| C                           | 0.1727<br>(0.1400)    | C             | -4.723<br>(3.17)      | C           | -1.424***<br>(0.339)  |
| L.LPCI                      | 0.959***<br>(0.024)   | L.GSSE        | 0.998***<br>(0.0160)  | L.PS        | 0.714***<br>(0.073)   |
| GFCFG                       | 0.0029**<br>(0.0014)  | LPCI          | 0.888*<br>(0.447)     | PCIG        | 0.0105*<br>(0.0056)   |
| LCPI                        | -0.0013<br>(0.0028)   | GEXPG         | -0.135<br>(0.238)     | LCPI        | 0.1913***<br>(0.064)  |
| HK                          | 0.0655*<br>(0.034)    | DEM           | -0.163*<br>(0.092)    | HD          | 0.1174***<br>(0.036)  |
| TO                          | -0.00001<br>(0.00015) |               |                       | CC          | 0.1319***<br>(0.036)  |
| Terror                      | -0.0318**<br>(0.0157) |               | -0.778*<br>(0.436)    |             | -0.1991**<br>(0.076)  |
| D × Terror                  | 0.0281*<br>(0.015)    |               | 0.877*<br>(0.488)     |             | 0.1169*<br>(0.060)    |
| Panel B: Diagnostics Tests  |                       |               |                       |             |                       |
| AR(2)                       | -1.2<br>(0.231)       | AR(2)         | 0.877<br>(0.150)      | AR(2)       | -0.29<br>(0.772)      |
| Hansen Test                 | 62.88<br>[0.166]      | Hansen Test   | 79.41<br>[0.621]      | Hansen Test | 53.74<br>[0.702]      |
| F. stat                     | 3439.87***<br>(0.000) | F. stat       | 5624.60***<br>(0.000) | F. stat     | 1862.15***<br>(0.000) |
| Obs.                        | 2092                  | Obs.          | 1116                  | Obs.        | 3243                  |

Source: Authors' estimation.

Note: Table 2 displays the overall impact of terrorism on the economic, social, and political dimensions of selected countries comprising both developed and developing samples. Model-1 (Col 2) shows the economic fallouts of terrorism, model-2 (Col 3) is for social fallouts and model-3 (Col4) shows the political fallouts of terrorism. In panel A, values in parenthesis display the robust standard errors. In Panel B, p-values of diagnostics tests are shown in parenthesis, and square brackets show while. \*, \*\*, \*\*\* means significance level at 10, 5 and 1 per cent. The instruments include (1-4) lagged values of variables such as GFCFG, Terror, HK, PCI, TO, and LCPI, GEXPG, DEM, SSE, PCIG, CC, NIN, FDI, external conflict, UPOPG. AR (2) and Hansen tests are given in panel B of the above table with the following null hypothesis. Arellano-Bond test for AR (2): (Ho = No autocorrelation) and Hansen test: (Ho = all instruments are valid). So both null hypotheses are accepted. The P-value of F stats confirms the overall significance of all models.

The findings reveal that the impact of terrorism is deterring per capita income, school enrolment, and political stability in both sets of countries. Further, by closely observing the coefficient of terrorism, we can conclude that the socioeconomic and political fallouts of terrorism are higher in developing countries as compared to developed countries. Once again, we observe that not only for developing countries but also for developed countries, the social sector is the most affected sector in consequent to terrorism.

Our second set of robustness is carried out by using alternate measures of terrorism instead of using the consolidated terrorism index for each set of countries. Three measures of terrorism, i.e. (i) the total number of terrorist incidents, (ii) the total number of killed persons, and (iii) the total number of wounded persons, are utilised to estimate the impact of each on economic, social and political dimensions. The findings are reported in Tables 3, 4, and 5 (columns 3-5). Our findings for this empirical exercise entail an adverse impact of all measures of terrorism on the socioeconomic and political aspects of selected economies. Moreover, we also observe that, for all measures of terrorism, the magnitude of the impact remains higher for developing countries. This further supports our findings reported in section 5.2 that the adverse consequences of terrorism are higher in developing countries as compared to developed countries. Other determinants of each dimension show robust results.

To conclude, the empirical findings depict that terrorism has an adverse impact on the socioeconomic and political dimensions of both developed and developing. The adverse consequences are higher in developing countries as compared to developed ones. These countries have unstable macroeconomic conditions, poor governance, weak institutions and ineffective fiscal and monetary policies. Due to this, developing countries are brutally hit by terrorism and experience serious and deep macroeconomic downturns. In contrast, developed countries are more diversified, have strong and transparent institutions, stable fiscal and monetary policies and maintain good governance, which is why these countries are able to combat the menace of terrorism. Also, due to strong macroeconomic performance and excessive capacity to absorb shocks, the adverse consequences of terrorism in these countries are relatively low.

**TABLE 3a**  
Economic Fallout of Terrorism: Developing Countries

| <b>Panel A. Empirical Estimates</b>                     |                       |                        |                       |                       |
|---|-----------------------|------------------------|-----------------------|-----------------------|
| <b>Dependent Variable: Per Capita Income</b>            |                       |                        |                       |                       |
|   | Model 1               | Model 2                | Model 3               | Model 4               |
| Var.  | Coef. (S.E)           | Coef. (S.E)            | Coef. (S.E)           | Coef. (S.E)           |
| C   | 0.184*<br>(0.101)     | 0.185*<br>(0.105)      | 0.119<br>(0.092)      | 0.118<br>(0.072)      |
| L. LPCI   | 0.966***<br>(0.017)   | 0.961***<br>(0.020)    | 0.972***<br>(0.016)   | 0.971***<br>(0.013)   |
| Terror  | -0.0145**<br>(0.007)  |                        |                       |                       |
| LNIN  |                       | -0.0074*<br>(0.003)    |                       |                       |
| NK  |                       |                        | -0.000041*<br>(0.00)  |                       |
| NW  |                       |                        |                       | -0.000037*<br>(0.00)  |
| GFCFG   | 0.0019***<br>(0.0007) | 0.0022**<br>(0.0008)   | 0.00119*<br>(0.0006)  | 0.00109**<br>(0.0005) |
| LCPI  | 0.0117**<br>(0.005)   | 0.0096*<br>(0.005)     | 0.0134**<br>(0.005)   | 0.0121**<br>(0.005)   |
| HK  | 0.0366*<br>(0.02)     | 0.0378*<br>(0.019)     | 0.03<br>(0.019)       | 0.0458*<br>(0.025)    |
| TO  | -0.00020<br>(0.0001)  | -0.00006<br>(0.00017)  | -0.00017<br>(0.000)   | -0.00043<br>(0.000)   |
| <b>Panel B. Diagnostics Tests: Developing Countries</b> |                       |                        |                       |                       |
| AR(2)   | -0.61<br>(0.54)       | -0.55<br>(0.58)        | -0.22<br>(0.82)       | -1.34<br>(0.18)       |
| Hansen Test   | 53.76<br>(0.23)       | 62.77<br>(0.99)        | 57.33<br>(0.25)       | 54.44<br>(0.34)       |
| F-stats   | 3006.24***<br>(0.000) | 19495.18***<br>(0.000) | 2619.51***<br>(0.000) | 4760.16***<br>(0.000) |
| Obs.  | 1396                  | 1405                   | 1405                  | 1400                  |

Source: Authors' estimation.

Note: Table 3a refers to the results of economic fallout of terrorism for developing countries for time period (1970-2016). Separate models are estimated for each measure of terrorism for both sets of countries. Terror is the overall terrorism index; LNIN, NK, NW is log of the total number of terrorist incidents, the total number of killed persons due to terrorist attacks, the total number of wounded persons due to a terrorist attack in a year, respectively. Panel A of each part displays the empirical estimates, while panel B is for diagnostic tests. AR(2) and Hansen tests are given in panel B for developing countries with the following null hypothesis, Arellano-Bond test for AR (2): (H<sub>0</sub> = No autocorrelation) and Hansen test: (H<sub>0</sub> = all instruments are valid). Both null hypotheses are accepted. \*, \*\*, \*\*\* significance level at 10, 5 and 1 per cent.

**TABLE 3b**

Economic Fallout of Terrorism: Developing Countries : Developed Countries

| <b>Panel A. Empirical Estimates</b>                    |                       |                         |                        |                          |
|--|-----------------------|-------------------------|------------------------|--------------------------|
| Var.   | Model 1               | Model 2                 | Model 3                | Model 4                  |
|  | Coef. (S.E)           | Coef. (S.E)             | Coef. (S.E)            | Coef. (S.E)              |
| L. LPCI  | 0.954***<br>(0.01)    | 0.955***<br>(0.014)     | 0.951***<br>(0.01)     | 0.954***<br>(0.01)       |
| Terror   | -0.0042***<br>(0.001) |                         |                        |                          |
| LNIN   |                       | -0.0020*<br>(0.001)     |                        |                          |
| NK   |                       |                         | -0.0000187*<br>(0.000) |                          |
| NW   |                       |                         |                        | -1.00e-06*<br>(5.66e-07) |
| GFCFG  | 0.0028***<br>(0.001)  | 0.0030***<br>(0.0008)   | 0.00312***<br>(0.001)  | 0.0031***<br>(0.001)     |
| LCPI   | -0.0006<br>(0.001)    | -(0.0038)**<br>(0.0015) | -0.0014<br>(0.001)     | -0.0015<br>(0.001)       |
| HK   | 0.040*<br>(0.02)      | 0.0454**<br>(0.021)     | 0.045**<br>(0.02)      | 0.051**<br>(0.02)        |
| TO   | 0.00023**<br>(0.00)   | 0.00053***<br>(0.0001)  | 0.00025**<br>(0.00)    | 0.00023**<br>(0.00)      |
| <b>Panel B. Diagnostics Tests: Developed Countries</b> |                       |                         |                        |                          |
| Under ID   | 80.55***<br>(0.000)   | 104.6***<br>(0.00)      | 77.16***<br>(0.000)    | 76.94***<br>(0.000)      |
| Test   |                       |                         |                        |                          |
| Weak ID Test   | 38.91                 | 18.92                   | 37.47                  | 37.48                    |
| 5% critical Value                                      | 16.85                 | 21.18                   | 16.85                  | 16.85                    |
| Hansen Test  | 5.00<br>[0.17]        | 17.92<br>[0.16]         | 4.98<br>[0.17]         | 3.796<br>[0.28]          |
| F-stat   | 8729.84***            | 8634.46***              | 8471.78***             | 8459.41***               |
| P value  | (0.000)               | (0.00)                  | (0.000)                | (0.000)                  |
| Obs.   | 605                   | 588                     | 608                    | 605                      |

Source: Authors'estimation.

Note: Table 3b represents the estimates for developed countries for time period (1970-2016) by employing the instrumental variable estimation technique for developed countries  $I=26$  and  $t=46$ . Panel B lists diagnostic tests. There are 3 diagnostic tests for this estimation technique; under ID test ( $H_0$ = instruments are under-identified), weak ID test ( $H_0$ = instruments are weakly identified), and Hansen test of instrument validity. All tests confirm the instrument's validity. The P-value of diagnostic tests is given in parenthesis. The probability value of F-statistics confirms the overall significance of all models for both sets of countries. Values in parenthesis are displaying the robust standard errors while \*, \*\*, \*\*\* means significance level at 10, 5 and 1 per cent. The instruments include (1-4) lagged values of variables such as, GFCF, LPCI, TO, HK, FDI, and LRER for both sets of countries.

**TABLE 4a**  
Social Fallouts of Terrorism: Developing Countries

| <b>Panel A. Empirical Estimate</b>                      |                       |                      |                       |                        |
|---|-----------------------|----------------------|-----------------------|------------------------|
| <b>Dependent Variable: Secondary School Enrollment</b>  |                       |                      |                       |                        |
|   | Model 1               | Model 2              | Model 3               | Model 4                |
| Var.  | Coef. (S.E)           | Coef. (S.E)          | Coef. (S.E)           | Coef. (S.E)            |
| C   | -5.96<br>(5.45)       | -18.18**<br>(7.708)  | 1.609<br>(1.665)      | 0.625***<br>(3.506)    |
| L. GSSE   | 0.932***<br>(0.023)   | 0.891<br>(0.031)     | 0.980***<br>(0.017)   | 0.970***<br>(0.018)    |
| Tidx  | -0.573*<br>(0.31)     |                      |                       |                        |
| LNIN  |                       | -0.0042*<br>(0.0024) |                       |                        |
| NK  |                       |                      | -0.0019*<br>(0.0011)  |                        |
| NW  |                       |                      |                       | -0.00093*<br>(0.00053) |
| LPCI  | 1.532*<br>(0.863)     | 3.29***<br>(1.14)    | -0.032<br>(0.3051)    | 0.155*<br>(0.569)      |
| GEXPG   | 0.0644<br>(0.121)     | 0.225<br>(0.22)      | 0.220*<br>(0.122)     | 0.206<br>(0.116)       |
| DEM   | 0.177**<br>(0.082)    | 0.146*<br>(0.081)    | 0.126*<br>(0.068)     | 0.141*<br>(0.053)      |
| <b>Panel B. Diagnostics Tests: Developing Countries</b> |                       |                      |                       |                        |
| AR(2)   | 1.34<br>(0.18)        | 1.35<br>(0.178)      | 1.22<br>(0.22)        | 1.2<br>(0.23)          |
| Hansen Test   | 61.34<br>[0.98]       | 62.39<br>[1.000]     | 48.59<br>[0.74]       | 66.69<br>[1.00]        |
| F-stat  | 2712.26***<br>(0.000) | 536.13***<br>(0.000) | 5188.90***<br>(0.000) | 6818.02***<br>(0.000)  |
| Obs.  | 608                   |                      | 614                   | 608                    |

Source: Authors' estimation.

Note: Table 4a refers to the results of social fallouts of terrorism for developing countries for time period (1970-2016). Separate models are estimated for each measure of terrorism for both sets of countries. Tidx is the overall terrorism index, LNIN, NK, NW is log of total number of terrorist incidents, the total number of killed persons due to terrorist attacks, and the total number of wounded persons due to a terrorist attack in a year, respectively. Panel A of each part displays the empirical estimates, while panel B is for diagnostic test. AR(2) and Hansen tests are given in panel B for developing countries with the following null hypothesis, Arellano-Bond test for AR (2): (Ho = No autocorrelation) and Hansen test: (Ho= all instruments are valid). Both null hypotheses are accepted. \*, \*\*, \*\*\* significance level at 10, 5 and 1 per cent.

**TABLE 4b**  
Estimates of Instrumental Variable Technique: Developed Countries

| <b>Panel A. Empirical Estimates</b>                    |                       |                      |                       |                       |
|--|-----------------------|----------------------|-----------------------|-----------------------|
|  | Model 1               | Model 2              | Model 3               | Model 4               |
| Var  | Coef. (S.E)           | Coef. (S.E)          | Coef. (S.E)           | Coef. (S.E)           |
| L. GSSE  | 0.904***<br>(0.024)   | 0.893<br>(0.039)     | 0.902***<br>(0.027)   | 0.929***<br>(0.025)   |
| Terror   | -0.474*<br>(0.28)     |                      |                       |                       |
| LNIN   |                       | -1.488*<br>(0.765)   |                       |                       |
| NK   |                       |                      | -0.0146*<br>(0.0084)  |                       |
| NW   |                       |                      |                       | -0.0016<br>(0.0038)   |
| LPCI   | 3.55**<br>(1.702)     | -0.434<br>(1.88)     | 2.831*<br>(1.53)      | 2.415*<br>(1.33)      |
| GEXPG  | 0.499*<br>(0.254)     | 1.413***<br>(0.48)   | 0.919***<br>(0.333)   | 0.577**<br>(0.28)     |
| DEM  | 0.044<br>(0.06)       | 0.352**<br>(0.174)   | 0.034<br>(0.065)      | 0.131*<br>(0.074)     |
| <b>Panel B. Diagnostics Tests: Developed Countries</b> |                       |                      |                       |                       |
| Under ID Test  | 46.34***<br>(0.0003)  | 18.07***<br>(0.003)  | 19.00*<br>(0.0082)    | 11.28*<br>(0.079)     |
| Weak ID Test   | 4.39                  | 4.83                 | 2.65                  | 1.75                  |
| 5% critical Value                                      | 21.34                 | 18.37                | 19.86                 | 19.28                 |
| Hansen Test  | 13.45<br>[0.70]       | 1.79<br>[0.77]       | 3.96<br>[0.68]        | 7.14<br>[0.21]        |
| F-stat   | 2712.26***<br>(0.000) | 442.98***<br>(0.000) | 1376.25***<br>(0.000) | 1291.81***<br>(0.000) |
| Obs.   | 384                   | 297                  | 378                   | 351                   |

Source: Authors' estimation.

Note: Table 4b represents the estimates for developed countries for time period (1970-2016) by employing the instrumental variable estimation technique for developed countries I=26 and t=46. Panel B lists diagnostic tests. There are three diagnostic tests for this estimation technique; under ID test (Ho= instruments are under-identified), weak ID test (Ho= instruments are weakly identified), Hansen test of instrument validity. All tests confirm the instruments validity. P-value of diagnostic tests is given in parenthesis. The probability value of F-statistics confirms the overall significance of all models for both sets of countries. Values in parenthesis are displaying the robust standard errors while \*, \*\*, \*\*\* means significance level at 1010, 5 and 1 per cent. The instruments include (1-4) lagged values of variables such as LPCI, TO, HK, SSE, GEXP, POPG, Tidx, NIN, UPOPG, FDI, DEM, GFCFG both set of countries.



**TABLE 5a**  
Political Fallouts of Terrorism: Developing Countries

| <b>Panel A. Empirical Estimate</b>                      |                       |                      |                          |                          |
|---|-----------------------|----------------------|--------------------------|--------------------------|
| <b>Dependent Variable: Political Stability</b>          |                       |                      |                          |                          |
| Var.  | Model 1               | Model 2              | Model 3                  | Model 4                  |
|   | Coef. (S.E)           | Coef. (S.E)          | Coef. (S.E)              | Coef. (S.E)              |
| C   | 1.112***<br>(0.386)   | -1.524***<br>0.411   | -1.136***<br>(0.373)     | -1.254***<br>(0.338)     |
| L. PS   | 0.750***<br>(0.065)   | 0.790***<br>(0.076)  | 0.857***<br>(0.0643)     | 0.811***<br>(0.068)      |
| Terror  | -0.0704***<br>(0.018) |                      |                          |                          |
| LNIN  |                       | -0.0438**<br>(0.020) |                          |                          |
| NK  |                       |                      | -0.0000904**<br>(0.0004) |                          |
| NW  |                       |                      |                          | -0.000050**<br>(0.00002) |
| PCIG  | 0.00641*<br>(0.003)   | 0.0143*<br>(0.007)   | 0.0137*<br>(0.007)       | 0.0114*<br>(0.006)       |
| LCPI  | -0.0704**<br>(0.0189) | 0.207***<br>(0.063)  | 0.1579**<br>(0.064)      | (0.1324**<br>(0.057)     |
| HK  | 0.1239**<br>(0.058)   | 0.136***<br>(0.045)  | 0.0819**<br>(0.039)      | 0.154***<br>(0.0494)     |
| CC  | 0.0814*<br>(0.047)    | 0.062<br>(0.063)     | 0.0343<br>(0.071)        | 0.0515<br>(0.0521)       |
| <b>Panel B. Diagnostics Tests: Developing Countries</b> |                       |                      |                          |                          |
| AR(2)   | 1.05<br>(0.294)       | 0.91<br>(0.364)      | 1.05<br>(0.294)          | 1.26<br>(0.208)          |
| Hansen Test   | 25.27<br>(0.504)      | 22.17<br>(0.774)     | 22.47<br>(0.551)         | 21.89<br>(0.743)         |
| F. stats  | 396.36***<br>(0.000)  | 501.01***<br>(0.000) | 167.04***<br>(0.000)     | 176.83***<br>(0.000)     |
| Obs.  | 338                   | 334                  | 341                      | 338                      |

Source: Authors' estimation.

Note: Table 5a refers to the results of social fallouts of terrorism for developing countries for the time period (1970-2016). Separate models are estimated for each measure of terrorism for both sets of countries. Terror is the overall terrorism index, LNIN, NK, NW is the log of the total number of terrorist incidents, the total number of killed persons due to terrorist attacks, and the total number of wounded persons due to a terrorist attack in a year, respectively. Panel A of each part displays the empirical estimates, while panel B is for diagnostic tests. AR(2) and Hansen tests are given in panel B for developing countries with the following null hypothesis, Arellano-Bond test for AR (2): (Ho = No autocorrelation) and Hansen test: (Ho= all instruments are valid). Both null hypotheses are accepted..\*, \*\*, \*\*\* significance level at 10, 5 and 1 per cent.

**TABLE 5b**  
Estimates of Instrumental Variable Technique: Developed Countries

| <b>Panel A. Empirical Estimates</b>                   |                        |                        |                        |                          |
|---|------------------------|------------------------|------------------------|--------------------------|
| Var.  | Model 1<br>Coef. (S.E) | Model 2<br>Coef. (S.E) | Model 3<br>Coef. (S.E) | Model 4<br>Coef. (S.E)   |
| L. PS   | 0.516***<br>(0.076)    | 0.472<br>(0.088)       | 0.554***<br>(0.075)    | 0.497***<br>(0.071)      |
| Tidx  | -0.0391**<br>(0.018)   |                        |                        |                          |
| LNIN  |                        | -0.063<br>(0.022)      |                        |                          |
| NK  |                        |                        | -0.000682*<br>(0.0003) |                          |
| NW  |                        |                        |                        | -0.0000928*<br>(0.00005) |
| PCIG  | 0.027***<br>(0.009)    | 0.0168**<br>(0.008)    | 0.0165**<br>(0.0068)   | 0.0246***<br>(0.008)     |
| LCPI  | -0.681**<br>(0.314)    | -0.736***<br>(0.252)   | -0.552*<br>(0.293)     | -0.729**<br>(0.312)      |
| HK  | 1.210**<br>(0.584)     | 1.310**<br>(0.508)     | 0.751<br>(0.575)       | 1.035*<br>(0.597)        |
| CC  | -0.0323<br>(0.046)     | 0.025<br>(0.079)       | -0.022<br>(0.042)      | -0.008<br>(0.045)        |
| <b>Panel B. Diagnostics Test: Developed Countries</b> |                        |                        |                        |                          |
| Under ID Test   | 24.25*<br>(0.06)       | 16.257*<br>(0.09)      | 15.88*<br>(0.069)      | 26.70*<br>(0.062)        |
| Weak ID Test  | 2.89                   | 1.35                   | 1.28                   | 2.68                     |
| 5% critical Value                                     | 21.23                  | 20.74                  | 20.53                  | 21.31                    |
| Hansen Test   | 14.48<br>[0.41]        | 10.381<br>[0.32]       | 8.198<br>[0.414]       | 13.57<br>[0.630]         |
| F-stat  | 16.80***<br>(0.000)    | 14.64***<br>(0.000)    | 17.37***<br>(0.000)    | 17.28***<br>(0.000)      |
| Obs.  | 94                     | 92                     | 92                     | 94                       |

Source: Authors' estimation.

Note: Table 5b represents the estimates for developed countries for time period (1970-2016) by employing the instrumental variable estimation technique as for developed countries I=26 and t=46. Panel B lists diagnostic tests. There are three diagnostic tests for this estimation technique; under ID test (Ho= instruments are under-identified), weak ID test (Ho= instruments are weakly identified), and Hansen test of instrument validity. All tests confirm the instrument's validity. The P-value of diagnostic tests is given in parenthesis. The probability value of F-statistics confirms the overall significance of all models for both sets of countries. Values in parenthesis display the robust standard errors while \*, \*\*, and \*\*\* mean significance levels at 10, 5 and 1 per cent. The instruments include (1-4) lagged values of variables such as PCIG, SSE, NIN, GFCFG, LCPI, NK, UPOPG, and TO for both sets of countries.

## V. Conclusion and Policy Recommendations

Terrorism is violence against people and government to accomplish ideological or political goals by producing threats and fear. This concept of terrorism became prevalent, particularly after the 9/11 incident, which is considered the most thriving single terrorist attack. Developing and developed countries are experiencing serious threats, but the adverse consequences are very deep in developing countries due to their weak macroeconomic and political conditions and inability to endure such shocks.

There is extensive evidence available on the economic costs imposed by terrorism; however, the literature is at its exploratory stage for examining the non-economic consequences of terrorism. This study contributes in the existing literature by estimating the economic, social, and political consequences of terrorism in developing and developed countries from 1970-2016. We have used per capita income, secondary school enrolment, and political stability index to examine the impact of four different measures of terrorism on the economic, social, and political dimensions of selected economies. We have employed the system-GMM technique for developing countries for empirical analysis, while the instrumental variable technique is used for developed countries.

The empirical results revealed the adverse impact of terrorism on the economic and non-economic dimensions of selected economies. Notably, our findings identify that the terrorism fallouts are severe in developing countries compared to their developed counterparts. The reason is that developing countries have weak economic structures and are considered fragile towards external and internal shocks. On the other hand, developed countries are strong, stable, more diversified and have the excess capacity to absorb adverse shocks. Furthermore, we also observed that among all dimensions, the social dimension is experiencing the highest negative impact of terrorism in the case of both countries, followed by political stability.

Our findings highlight a few key policy recommendations. To begin with, the socioeconomic and political implications of terrorism have the potential to be considerable, indicating the need for a redoubling of public policy efforts to determine how to limit the risk best. In order to reduce to the adverse impact of terrorism, a strong institutional mechanism is required in both sets of countries. Particularly, developing countries need to improve both economic and political institutions, such as the governance structure, democratic accountability, regulatory quality, the rule of law, voice and accountability, and socioeconomic conditions, among other pillars of institutional quality as the fallouts of terrorism are higher in developing countries so these countries need to initiate rigorous plans not just to reduce terrorist activities but also to combat its adverse impact. Political cooperation at the international level, economic planning and widespread awareness are potential avenues to be utilised.

Finally, the decision-makers in the developing world should strive to improve their economic growth performance and democratic culture in order to enhance their terrorism-bearing and combating capacity. Moreover, governments in developing economies should incorporate the likelihood of terrorism-related shocks in their policies related to their economy's socioeconomic and political dimensions.

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