Pakistan Journal of Applied Economics, Vol.34 No.2, (227-253), Winter 2024

FISCAL FALLOUTS OF TERRORISM IN DEVELOPING COUNTRIES: Does Institutional Quality Matter?

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Abstract

The increasing incidence of terrorist activities and armed conflicts worldwide has significantly increased socio-economic and political challenges. The present study aims to examine the fiscal consequences of terrorism in developing countries, with a particular focus on the role of institutional quality in response to counter terrorism activities. For an in-depth analysis, we classify developing countries into two groups, namely emerging and low-income countries and gauge the fiscal response towards terrorism in the presence of institutional quality from 2002 to 2016.Utilising both static and dynamic panel data techniques, the findings indicate that terrorism has adverse fiscal implications; it tends to reduce the tax revenue of the governments and at the same time, burdens the fiscal account by increasing the defence expenditures. Moreover, terrorist activities trigger fiscal instability by increasing the budget deficit volatility. However, it is interesting to see that institutional quality mitigates the adverse impact of terrorism on fiscal accounts, in all respects.

Keywords: Terrorism, Fiscal Consequences, Institutional Quality, Developing Countries.
JEL Classification: E62, E02, H61, H71.

I. Introduction

Over the past few decades, the world has witnessed serious security concerns on economic, social and political fronts. Notably, the growing number of terrorist activities and armed conflicts around the globe has significantly increased the socio-economic and political challenges[Haroon and Jehan (2022)].Terrorist activities are motivated to achieve various ideological, political, and religious goals by threatening states and people [Humphreys (2006)]. Since the last decade, the world has been witnessing the re-emergence of terrorism research, primarily because of pressing policy interests in the aftermath of the September 11, 2001 (also known as 9/11) attacks in New York, the United States of America (USA). Recent efforts in the field of eco-

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nomics of terrorism have not only brought to light an abundance of topics, but they have also uncovered various approaches that make the mapping of existing knowledge a critical and important endeavour. From what causes terrorism, its consequences for various aspects of a political economy, and the best way to counter its effects, terrorism research has made striking progress in an extremely eclectic way [Llussa and Tavares (2011a)].

Terrorism can be defined as a number of terrorist attacks, fatalities, injuries, and physical destruction, which have direct as well as indirect adverse repercussions for the affected countries [Çinar (2017), GTD (2020) and Khanum, et al.,(2023)]. For instance, terrorism directly shatters economic activity by creating uncertainty, reducing productive capacity and human capital, destroying infrastructure and capital structure in a target state [Badshah (2012) and Çinar (2017)]. At the same time, terrorism indirectly affects economic and social activity by changing the composition of public finance in the affected countries, causing the collapse of government and policy discontinuity. This forces the government to shift more resources towards law and order enforcement and the reconstruction of affected areas. In the developing countries, this increase in non-development expenditures takes place at the expense of development expenditures [Michael (2007)].Terrorist activities also have a bearing on the confidence of consumers and investors, which results in reducing incentives to spend or invest. The uncertainty associated with consumption and investment behaviour will lead to fiscal volatility because public spending is positively associated with growth expectation [Yogo (2015)]. Therefore, managing public finance in response to terrorist attacks is a serious concern among policymakers and researchers alike. In this regard, the quality of institutional setup is considered a prerequisite to overcome the adverse fiscal outcomes of terrorism.

According to North (1990), institutions are the social rules of the game that set 'constraints' on human behaviours, which subsequently stimulate economic incentives. Similarly, Acemoglu and Robinson (2010) emphasise the importance of institutions and argue that better institutional quality is essential to advance transparency, accountability and responsibility of policy decision-making. Therefore, it is imperative for the developing countries to adopt and achieve the target of good governance because it has profound benefits for the macroeconomic management of their economies. Similarly, the conduct of fiscal policy becomes more transparent and effective in the presence of good quality of institutions. Most of the developing countries lack existence of strong and stable institutions which is considered one of the key impediments to their economic uplift. Corruption, poor governance, absence of the rule of law, and lack of transparency are common features of many developing countries, which inhibit tax revenue generation. This, along with wasteful and incongruous allocation of public money to non-development projects, is the major reason for mounting public debt, where fiscal deficits have become iconic hallmarks of the economies.

Due to low quality of institutions, the domestic and external shocks bearing capacity of developing countries is quite miserable. Valiño, et al., (2010) maintain that the existence of well-designed and efficiently managed institutions plays an important role in countering the adverse impacts of terrorist attacks on consumers' and investors' confidence. To this end, increasing the expenditure on home security and defence seems to be a vital instrument at the hands of policymakers. Therefore, it is of utmost importance to empirically examine the moderating role of institutions while quantifying fiscal response to terrorism in developing countries.

Research focusing on the fiscal outcomes of terrorism and the role of institutions has a limited domain as described in Section II. Therefore, the present study attempts to estimate the fiscal response to terrorism in developing countries by bringing into focus the moderating role of institutional quality. The main motivation behind the choice of focusing on the developing countries is the fact that the negative impacts of terrorism are relatively more detrimental to the developing countries as compare to the developed countries [Gaibulloev and Sandler (2009)].The significant vulnerabilities of developing countries amid terrorism stem from several key factors. For instance, these countries tend to have less diversified economies, limited resources, and a lack of technological advancement, thus making them less resilient to external shocks like terrorism. Moreover, these countries are always experiencing strained public finances and have limited resources to address economic or social needs. Terrorist activities further strain these finances by increasing spending on security, defence, and recovery efforts, which puts even more pressure on already tight budgets. Additionally, their fiscal position is undoubtedly weak as compared to their developed counterparts, so terrorism has the potential to further exacerbate their fiscal challenges in terms of tax collection, allocation of resources between development and non-development expenditures, and create instability in the fiscal policy.

We contribute to the relevant academic discourse in two ways. Firstly, we have explicitly incorporated the role of institutional quality in quantifying the fiscal response to terrorism in a panel of 107 developing countries. Despite having a strong theoretical justification, the existing literature to terrorism fiscal policy nexus has overlooked the moderating effect of institutional quality. In this regard, terrorism is measured as total number of incidents in a country in a year. It is mentioned that different studies have used different measures of terrorism, including the number of terrorist attacks/incidents, the number of victims, including injuries and casualties, and an overall index of terrorism. However, the most widely used indicator of terrorism is total number of terrorist incidents and number of victims [Çinar (2017), Mukhtar and Jehan (2021a) and Khanum, et al., (2023)]. Hence, our study will used both indicators of terrorism. Secondly, while estimating the impact of terrorism on fiscal policy instability, the present study has used budget deficit volatility as an indicator of fiscal policy instability. Budget deficit volatility, to the best of our knowledge, has not yet been used by any study in determining fiscal policy volatility in response to terrorism.

Furthermore, the present study also performs multiple robustness tests to validate the main findings. The first robustness test classifies the sample countries into two subcategories: (i) high and low affected countries based on the number of terrorist attacks above/below the average terrorist attacks in the sample countries in a year. This exercise helps to examine whether fiscal response to terrorism changes with varying degree of terrorism (number of terrorist attacks). (ii) emerging economies and low-income countries. This classification helps identify whether income level plays any role in determining the fiscal response towards terrorism. For the second robustness test, we use an alternate measure of terrorism, namely the number of fatalities in a terrorist attack.

The rest of the study is organised as follows: Section II presents a review of the existing literature; Section III explains the methodology, data and estimation technique; Section IV discusses the empirical findings, followed by Section V, which presents robustness checks; and finally, Section VI concludes the study.

II. Survey of Literature

There exists a considerable body of literature on the economic costs of conflict, violence, terrorism and political instability [Richardson and Samarasinghe (1991), Arunatilake, et al., (2001), Venieris and Gupta (1986), Barro (1991), Alesina and Perotti, (1993, 1996), Alesina, et al., (1996) and Rodrik (1999)]. Major findings emerging from these studies show that any kind of conflict, violence and instability creates economic destruction in the form of lower economic growth and investment. Moreover, the level of financial development is also adversely affected by terrorist activities as they shatter the public confidence in the currency, shift the resources from productive to non-productive usage, and more importantly weaken the monitoring and regulation of the financial system. Terrorist activities also reduce international trade by increasing the transaction costs as evidenced by Nitsch, et al., (2002). Llussá and Tavares (2011b) point out that terrorism has more damaging consequences for consumption as compared to investment and economic growth.

The growing number of terrorist activities and armed conflict around the globe significantly increases the challenges faced by the policymakers, therefore a new strand of literature has emerged that draws attention towards the fiscal encumbrance of conflict and terrorism. These studies show that the governments are compelled to spend more on defence and home security for maintaining law and order therefore economic activities are constrained resulting in lower tax revenue generation. Davoodi, et al., (2001) support this argument as they show a decline in military spending as a result of lower international and regional tensions. Similarly, Ndikumana (2001) shows that in Africa tax base is adversely affected due to armed conflicts which further disturbs the working of the tax administration.

While analysing the macroeconomic consequences of terrorism, Blomberg, et al., (2004) document that terrorism has an adverse impact on economic growth but less

than internal and external conflict. Interestingly, the adverse impact terrorism on investment is significantly higher relative to both measures of conflict (internal and external). However, terrorism is triggered by internal and external conflicts. An important conclusion of the study is that terrorist activities instigate reallocation of resources from productive to non-productive uses as governments in terrorist-hit areas need to spend more in order to improve the security situation.

Gupta, et al., (2004) estimate the fiscal policy and some important macroeconomic consequences of armed conflict and terrorism in selected low and middle-income countries. They conclude that terrorist activities lead to low economic growth and higher inflation. Furthermore, persistent acts of terrorism are certain to result in the shift of resources to defence and security at the expense of macroeconomic stability. The study also concludes that the share of military expenditures in total government expenditures increases with the increase in conflict and terrorist activities in a country. The authors, however, do not report any significant impact of terrorist activities and conflict on government revenues of selected countries.

Tavares (2004) along with Sandler and Enders (2008) argues that the impact of terrorism on an economy is conditional on various factors such as the size and the political structure of the economy. In particular, larger and relatively diversified economies are less affected by the terrorism. Moreover, democratic countries are also less affected by the incidence of terrorism. In a similar vein, Gaibulloev and Sandler (2008) show that countries with higher than median level of terrorism experience larger increase in military spending by governments as compared to the countries with lower than median level of terrorist incident. Their study finds an insignificant impact of terrorism on tax collection.

Drakos and Konstantinou (2014) report that terrorism increases challenges for fiscal policy through direct and indirect channels. For instance, it leads to higher government expenditures on defence while reducing the spending on social safety net. On the other hand, it reduces productive activities in the economy by creating uncertainty which distorts the tax base and contracts government revenues thus putting pressure on fiscal management. Furthermore, terrorist activities disturb government spending and law and order, however, higher public spending does not help in reducing the incidence of terrorism and other crimes in the European countries.

Cevik and Ricco (2015) endeavour to gauge the effects of frequency and severity of incidence of terrorism on fiscal accounts using a panel dataset on 153 countries over the period 1970 to 2013. Their results show that the adverse impact of terrorism on tax revenue is only marginal while a significant increase in military spending has been observed in response to increasing terrorist activities. Notably, the developing and low-income countries are more prone to uncertainties created by terrorism. Similarly, the estimates of Yogo (2015) reveal that terrorist activities create uncertainty in the conduct of fiscal policy in a panel of 66 developing countries. The basic contention of the study is that terrorism negatively impacts the conduct of fiscal actions of the governments

through uncertainty. The findings of the study confirm the assertion that the incidence of terrorism leads to increase the fiscal policy volatility in developing countries. Furthermore, the study also reports that terrorist activities make the fiscal policy more volatile in smaller countries and less volatile in more democratic developing countries. Chuku, et al., (2019) explained that terrorism (number of incidence, number of fatalities, terrorism index) not only leas to relocation of resources form productive to non-productive heads but also affects but also alters the composition of government expenditures towards higher spending on national security. Mukhtar and Jehan (2021a) examine the fiscal response to terrorism for Pakistan and concluded that terrorism not only reduces tax revenue, but it also increases government defence spending, hence creating an unfavourable impact from both the revenue and expenditures side. Their study further highlighted that institutional quality plays a significant role in diminishing the adverse impact of terrorism. Similarly, Mukhtar and Jehan (2021b) report that terrorism leads to fiscal policy instability in Pakistan by creating uncertainty in government expenditure. Moreover, the study provided evidence of strong and favourable impact of institutional quality in reducing the fiscal policy instability amid terrorism. More recently, Khanum, et al., (2023) evaluated the socioeconomic and political fallouts of terrorism in developed and developing countries and provided the evidence that terrorism instigates political instability in both sets of countries with higher impact in developing countries. Bayale and Gado (2023) identify an increase in government military expenditure in response to terrorist activities.

Unfortunately, as far as we have reviewed, except for two studies for a single country case namely Pakistan, the existing literature fails to investigate the vital role of institutions in terrorism-fiscal policy association. We overcome this shortcoming of the related literature by including institutional quality variable as moderator in examining fiscal outcomes of terrorism in developing countries.

III. Analytical Framework

1. The Model

The main aim of the present study is to empirically investigate the fiscal consequences of terrorism in developing countries. For this purpose, the study tests the hypotheses that: (i) increase in number of terrorist attacks adversely affects tax revenue collection effort;(ii) terrorist incidents tend to bring a rise in defense spending and budget deficit volatility; and (iii) institutional quality does matter for offsetting ill repercussions of terrorism for fiscal accounts.

Along the lines of the relevant literature Gupta, et al., (2004), Cevik and Ricco, (2015) and Yogo (2015)[1] we have preferred to work with single equation model to

[1] For budget deficit volatility model, we make some modifications to the model used by Agnello and Sousa (2009).

achieve the objectives of the present study. To this end, following Equation (1) has been specified to explore fiscal response to terrorism in developing countries keeping in view the role of institutional quality:

$$FS_{it} = \alpha + \beta FS_{it-1} + \gamma IQ_{it} + \phi TER + \delta (TER * IQ)_{it} + \varphi X_{it} + \lambda_i + \kappa_t + \varepsilon_{it} \quad (1)$$

where, *i* and *t* refer to country and time period respectively, FS_{it} denotes fiscal variable (tax revenue as per cent of GDP, defense spending as per cent of GDP and budget deficit volatility) and FS_{it-1} represents lagged fiscal variable in order to capture persistence in each of all the three fiscal variables over the specified period of time. TER_{it} stands for the number of terrorist attacks in a year, IQ_{it} is the indicator of institutional quality computed from the Principle Component Analysis by using six dimensions of institutional quality[2] and $(TER*IQ)_{it}$ symbolises interaction of the number of terrorist attacks with institutional quality which shows role of institutions in altering the marginal effect of terrorism on fiscal variables. X_{it} is a set of control variables. We have basically used three different sets of control variables. The first group of control variables includes natural log of real per capita income, consumer price index-based inflation rate, trade openness as percentage of GDP, foreign aid as per cent of GDP, share of agriculture sector in GDP and urbanisation. The second group consists of the growth rate of GDP, trade openness as per cent of GDP, foreign aid as per cent of GDP, trade balance and natural log of total population, while the third group comprises of growth rate of GDP, budget deficit as per cent of GDP, trade openness as per cent of GDP, foreign aid as per cent of GDP and consumer price index-based inflation rate in gauging budget deficit volatility response to terrorism. The first, second and third group of control variables are used in estimating tax revenue, defense spending and budget deficit volatility response to terrorism, respectively. κ_t and λ_i represent time-invariant country effects and year specific effects which capture common year shocks, respectively. ε_{it} is the white noise disturbance term.

2. Data and Estimation Technique

The dataset used in the present study consists of an unbalanced panel of annual observations on 107 developing countries over the period from 2002 to 2016 (Table 10). The sample of countries is selected based on the availability of required data on most of the variables. Undoubtedly, the issue of terrorism has been prevalent in the human society for centuries, however, this menace has received significant attention of the economists in the wake of 9/11 incident in the United States of America. The historic 9/11 terrorist attacks have transformed the world geo-politics, and a number of important studies came to surface pertaining to gauge effects of terrorism on various

[2] Table A-2 in Appendix.

aspects of macro economy across the globe. Accordingly, we select the post 9/11 period to achieve the basic objective of the study. The terrorism data used in the present study has been gathered from the Global Terrorism Database (GTD). As we are only interested in the frequency of terrorist attacks, therefore, we use the number of terrorist incidents by the year. To this end we extract information about the number of terrorist attacks which took place in our sample of 107 developing countries. For the robustness check we also use the data on the number of victims from the GTD as an alternative measure of terrorism.

The data on the institutional variables are sourced from the World Bank's (WB) Worldwide Governance Indicators (WGI). An institutional quality index is constructed using six broader dimensions of institutional framework, namely, (i) control of corruption, (ii) government effectiveness, (iii) political stability and absence of violence, (iv) regulatory quality, (v) rule of law, and (vi) voice and accountability provided by the WGI. It is more likely that all the six indicators of institutional quality are closely associated, therefore, we construct institutional quality index using the Principal Component Analysis (PCA) technique. The main advantage of the PCA is that the selection of weights to be assigned to variables is determined by the dataset itself. Data on general government revenue and spending are gathered from the International Monetary Fund's (IMF)World Economic Outlook for computing the budget deficit variable. Budget deficit volatility variable is computed as three years country specific standard deviation of budget deficit. The sources of the rest of economic variables include the IMF's International Financial Statistics and the WB's World Development Indicators.

To ensure that our estimation results are not spurious we apply alternative econometric methodologies. We begin with estimating the static version of the model (1), excluding the lagged dependent variable, by employing the fixed effects regression. However, the dynamic nature of the model (1) calls for the application of some suitable technique which ought to be capable enough to yield consistent coefficient estimates in the presence of endogeneity of the explanatory variables. To this end, we employ difference generalised method of moments (GMM) technique developed by Arellano and Bond (1991) which not only eliminates any endogeneity that may be due to the correlation of time-invariant country specific effects and other explanatory variables, but first differencing helps ensure that all regressors are stationary [Baltagi, et al., (2009)].

IV. Results and Discussion

For model with tax revenue as dependent variable, log of real per capita income, inflation rate and agriculture output share in GDP are taken as endogenous variables while terrorism indicator, trade openness, foreign aid, urbanisation, institutional quality and interaction term of terrorism indicator and institutional quality are treated as exogenous variables. In defence spending model, we treat the dependent variable, growth

rate of GDP and trade balance as endogenous and terrorism indicator, institutional quality, interaction term of terrorism indicator and institutional quality, and other control variables as exogenous. Finally, in budget deficit volatility model, dependent variable, growth rate of GDP, budget deficit and inflation are treated as endogenous whereas terrorism indicator, institutional quality, interaction term of terrorism indicator and institutional quality and other control variables as exogenous.

Tax Revenue Response to Terrorism: Measuring the Role of Institutional Quality

We begin with quantifying the tax revenue response to terrorism in a fixed effects model setting excluding and including the role of institutional quality as reported in columns (1) and (2) of Table 1.

It can be seen from both the columns (1 and 2) that whether the institutional variable is included or excluded in the model, the coefficient on the number of terrorist attacks variable is negative but is insignificant. This implies that in the selected developing countries, tax revenue efforts are not affected from the terrorist attacks; this outcome is supported by Gupta, et al., (2004)[3] and Gaibulloev and Sanders (2008). However, Drakos and Konstantinou (2014), Ndikumana (2001).Civik and Ricco (2015) and Chuku, et al., (2019) report that tax revenue generation is adversely affected in wake of terrorist attacks in developing and poor countries. The coefficient of institutional quality is not only positive but also significant, which is in accordance with our prior expectations. Better working institutions exert a positive influence on the health of the economy and efficiency of tax administration, which paves the way for a significant increase in tax revenue collection. No doubt the coefficient on the interaction of terrorism indicator and institutional quality is negative, but it emerges as insignificant, which indicates that the incidence of terrorism does not affect tax revenue effort even in the presence of institutional quality. This finding is consistent with the individual effect of the number of terrorist attacks on tax revenue collection. The results also provide support to the impact of majority of the control variables on tax revenue collection. For example, log of real per capita income, trade openness and urbanisation positively and agriculture share in GDP negatively contribute in tax revenue collection. Inflation rate is important for tax revenue collection only when we exclude the role of institutional quality in the analysis while foreign aid has no role in the tax revenue collection.

Columns (3) and (4) of Table 1 report the findings based on the difference GMM technique. The results reveal that the coefficient on the lagged tax revenue variable is positive and significant, indicating a high degree of persistence in tax revenue as a per cent of GDP. This finding also points to the appropriateness of dynamic panel data estimation for statistical analysis. The regression coefficient on the number of

[3] Gupta, et al., (2004) actually used government revenue (as per cent of GDP) which is composed of tax revenue and foreign grants.

TABLE 1

Terrorism and Tax Revenue Collection: Role of Institutional Quality

Variable	Dependent Variable: Tax Revenue(as per cent of GDP)			
	1	2	3	4
	FE	FE	GMM	GMM
	Coefficient	Coefficient	Coefficient	Coefficient
Tax revenue(t-1)	-	-	0.416***	0.422***
			-18.72	-15.92
Number of terrorist attacks	-0.005	-0.009	-0.002**	-0.007*
	(-0.61)	(-1.32)	(-2.29)	(-1.98)
Log (Real per capita income)	1.674***	1.997***	1.750***	1.113***
	(3.35)	(4.19)	(14.25)	(12.55)
Inflation	0.714**	0.37	-0.479***	0.096
	(2.17)	(1.49)	(-5.61)	(1.39)
Trade openness	0.023***	0.0193***	0.020***	0.020***
	(5.02)	(3.30)	(16.50)	(32.98)
Urbanisation	0.075*	0.092***	-0.016	0.004
	(1.96)	(4.14)	(-0.74)	(0.24)
Foreign aid	-0.549	-0.15	-0.095**	0.031*
	(-0.52)	(-0.14)	(-2.14)	(-1.73)
Agriculture output	-0.048**	-0.065***	-0.151***	-0.122***
	(-2.12)	(-3.90)	(-26.05)	(-30.16)
Institutional quality	-	0.361***	-	0.235***
		(2.66)		(6.26)
Number of terrorist attacks*Institutional quality	-	-0.053	-	0.005*
		(-1.07)		(1.76)
Number of Observations	1229	1131	1099	989
Number of Countries	100	100	98	98
Poolability Test (p value)	31.059	19.91	-	-
	0.000	0.000		
Year FE	Yes	Yes		
Hansen J-Test (p value)	-	-	0.47	0.425

Source: Authors' estimation based on econometric analysis.
Note: . The t values in parentheses are based on White robust standard errors. ***,** and * indicate significant at 1, 5, and 10 per cent levels, respectively. Models 1 and 2 reflect the findings based on within group estimator. Poolability test suggests suitability of fixed effects model vis-à-vis pooled OLS model.

terrorist attacks is negative and significant at 5 per cent level when institutional quality variable is not incorporated in the model. However, the inclusion of the institutional quality variable in the estimation changes the value and significance level of the terrorism indicator from -0.002 to -0.007 and from 5 to 1 per cent level, respectively. This finding confirms the tax revenue reducing role of terrorism in developing countries. Persistent occurrence of terrorist activities in developing countries is likely to disrupt economic activity by damaging physical infrastructure and creating an environment of uncertainty in the economy. Consequently, the tax collection ability of the revenue departments of the developing countries will be undermined. This finding substantiates the argument put forward by Gupta, et al., (2004) that terrorism results in crumbling tax base through destruction of business firms and hampering the tax administration with net outcome fall in tax revenue collection. Moreover, this outcome corroborates what has been documented by Civik and Ricco (2015) using dynamic panel data technique.

The coefficient on institutional variable is not only positive but also significant at 1 per cent level, indicating a crucial role of governance structure in tax revenue collection in developing countries. This finding contradicts the evidence provided by Cevik and Ricco (2015) that institutional characteristics do not affect tax to GDP ratio in a dynamic panel data framework. However, this study is beset with a serious caveat that Cevik and Ricco (2015) have not explicitly modelled institutional quality in their estimation endeavour. Instead, they use democracy as a proxy for quantifying the role of institutions in tax collection effort in a panel of 153 countries. As far as interaction term of indicator of terrorism and institutional quality is concerned, it is positively and significantly associated with tax to GDP ratio. This implies that improved institutional structure is a crucial element in overcoming the adverse consequences of terrorism for tax revenue collection. Presence of good governance ensures smooth working of different sectors of the economy. Well-functioning institutions lead to higher investment levels, better policies, increase in social capital stock of a community, and better management of ethnic diversity and conflicts [Aron (2000), Rodrik, et al.,(2002) and Kemal (2003)]. This implies that institutions play a role in enhancing the shock bearing capacity of aneconomy. Consequently, terrorist incidents are expected to remain less effective in reducing tax revenue collection in developing countries provided efficient working of institutions is ensured. Institutions also contribute in efficient working of public revenue administration and management department.

Among the control variables, we find that real per capita income and trade openness impact tax revenue collection positively while foreign aid and agriculture share in GDP affect tax revenue to GDP ratio negatively. This implies that foreign aid discourages tax revenue collection efforts in the sample of developing countries. Urbanisation emerges as insignificant determinant of tax to GDP ratio while inflation rate influences tax to GDP ratio adversely when we estimate a dynamic model without institutional quality variable. Nonetheless, there is no role of inflation rate when role of

institutions is made a part of our dynamic model.

Finally, validity of instruments used in difference GMM is checked by means of the Hansen J-test as given at the bottom of Table 1. From the results of the Hansen test we are unable to reject the null hypothesis of overall exogeneity of the instruments used in the estimation of tax response to terrorism models in the absence and presence of institutional quality.

Defence Spending Response to Terrorism: Measuring the Role of Institutional Quality

The regression results for defence spending response to terrorism are reported in Table 2. Columns (1) and (2) show estimates of fixed effects models. The coefficient of terrorism indicator bears a positive and significant association with defence spending in both the columns as expected. Terrorism brings an upturn in defence spending as more funds are likely to be earmarked for defence component of public expenditure for curbing present and potential terrorist threats. Contrary to the expectations, the regression coefficient of institutional quality is negative but insignificant. This is surprising because governance does matter in shaping the extent of defence expenditure. One reason for this outcome may be the static nature of panel data model. However, it may also be taken to imply that the interaction between the number of terrorist attacks and institutional quality fails to form any significant association with defence spending.

For control variables we see that growth rate of GDP and trade balance tend to increase defence spending significantly whereas size of population forms a negative association with defence budget, indicating that big countries seem to inherently feel safer than the smaller ones as reported by Dunne and Perlo-Freeman (2003), Collier and Hoeffler (2007),and Dunne, et al., (2008). Dunne and Perlo-Freeman (2003) offer two explanations for this. First, they consider that having a large population in itself offers security and, second, larger populations may make civil consumption needs more of a priority than security needs. However, foreign aid and trade openness do not appear as significant factors in affecting defence spending. This outcome is contrary to the prior expectations.

The results reported in columns (3) and (4) of Table 2 reveal that defence spending appears to be persistent over the selected period, with positive coefficients and significant at 1 per cent level. Hence, our preferred technique of estimation for defence spending is dynamic with difference GMM approach. In both the columns, coefficients of the indicator of terrorism are positive and significant at 1 per cent level, indicating increased budget allocation for homeland security, military operations, and counter terrorism activities in response to increased terrorist incidents. This outcome is likely to adversely affect the composition of public spending by reducing funds going to social sector in the developing countries. This finding is consistent with results obtained by Gupta, et al., (2004) and Cevik and Ricco (2015). Importantly, Gupta, et al., (2004) successfully demonstrate that the terrorist incidents lead to an upsurge in military ex-

TABLE 2

Terrorism and Defense Spending: Role of Institutional Quality

Variable	Dependent Variable: Defense Spending(as per cent of GDP)			
	1	2	3	4
	FE	FE	GMM	GMM
	Coefficient	Coefficient	Coefficient	Coefficient
Defense spending(t-1)	-	-	0.534***	0.557***
			(24.88)	(13.97)
Number of terrorist attacks	0.003**	0.009**	0.093***	0.020***
	(2.30)	(2.78)	(8.74)	(2.85)
GDP growth rate	0.028***	0.026***	0.016***	0.011***
	(6.19)	(5.57)	(16.72)	(16.79)
Trade balance	0.042*	0.005**	0.011***	0.012
	(1.91)	(2.02)	(11.20)	(14.53)
Trade openness	0.001	-0.001	-0.002***	-0.009***
	(0.79)	(-0.66)	(-22.47)	(-30.74)
Foreign aid	-0.177	-0.201	0.643***	0.704***
	(-0.56)	(-0.62)	(29.87)	(11.67)
Log(total population)	-0.433***	-0.268	-0.084***	-0.050***
	(-2.84)	(-1.53)	(-3.92)	(-2.24)
Institutional quality	-	-0.043	-	-0.038***
		(-1.32)		(-9.24)
Number of terrorist attacks*Institutional quality	-	0.001	-	-0.002***
		(1.15)		(-3.28)
Number of Observations	1501	1359	1099	989
Number of Countries	107	107	98	98
Poolability Test (p value)	96.84	88.66	-	-
	0.000	0.000		
Year FE	Yes	Yes	-	-
Hansen J-Test(p value)	-	-	0.424	0.426

Source: Authors' estimation based on econometric analysis.t

Note: . The t values in parentheses are based on White robust standard errors. ***,** and * indicate significant at 1, 5, and 10 per cent levels, respectively. Model 1 and 2 reflects the findings based on within group estimators. Poolability test suggests suitability of fixed effects model vis-à-vis pooled OLS model.

penditure at the cost of macroeconomic stability. In column (4) institutional quality is found to be negatively and significantly associated with defence spending, implying that in the presence of better managed and governed institutions, countries do not necessarily increase their military budgets. Well-performing institutions ensure rule of law and transparency in decision making process which carefully takes into consideration competing demand for various priorities pertaining to the social and economic welfare of the general masses vis-à-vis defence related heads of government budget. Moreover, countries with better institutional qualities will have lesser likelihood of using military force to settle external and internal conflicts [Desta, (2009)]. Hence, institutional quality tends to bring a downturn in defence spending. Similarly, the regression coefficient on the interaction term of the number of terrorist attacks and institutional quality is also negative and significant at 1 per cent level, indicating that incidence of terrorism does not lead to increase defence expenditure in developing countries with improved governance quality.

The coefficient estimates on growth rate of GDP, trade balance and foreign aid remain positive and significant in both columns (3 and 4). However, trade liberalisation and size of population variable bear a negative and significant association with defence expenditure. Thus, we see that the association between all the control variables anddefence spending remains the same whether the variable of institutional structure is incorporated in the models or not. Finally, the validity of instruments used in dynamic panel data estimation is confirmed by the Hansen J test given as shown at the bottom of Table 2.

Budget Deficit Volatility Response to Terrorism: Measuring the Role of Institutional Quality

High and volatile budget deficits may lead to serious challenges for a long run fiscal sustainability of a country by raising debt to GDP ratio, compromising the living standards of coming generations. Furthermore, high and volatile budget deficits are bound to push up the level and volatility of inflation which may further pave the way for macroeconomic instability, particularly in the countries lacking independence of the central bank [Agnello and Sousa, (2009)]. Fiscal policy volatility is one of the critical impeding factors of economic activity and budget deficit volatility is one of the important measures of fiscal policy volatility[4] [Woo (2011)].Hence, for quantifying the fiscal policy volatility response to terrorism, we estimate the impact of terrorism on budget deficit volatility for the sample of developing countries. Moreover, the role of institutions on the relationship between terrorism and budget deficit volatility has also been examined. Results obtained from static and dynamic panel data techniques are reported in Table 3.

[4] Public spending volatility and tax revenue volatility are the other two commonly used indicators of fiscal policy volatility.

TABLE 3

Terrorism and Budget Deficit Volatility: Role of Institutional Quality

Variable	Dependent Variable: Budget Deficit Volatility			
	1	2	3	4
	FE	FE	GMM	GMM
	Coefficient	Coefficient	Coefficient	Coefficient
Budget deficit volatility(t-1)	-	-	0.522***	0.602***
			(14.39)	(10.39)
Number of terrorist attacks	0.025	0.031	0.139***	0.097**
	(1.56)	(0.85)	(6.49)	(2.29)
GDP growth rate	-0.049**	-0.084*	-0.116***	-0.174***
	(2.13)	(-1.94)	(-2.89)	(-6.60)
Budget deficit	0.074***	0.039**	0.771***	0.518***
	(5.03)	(2.32)	(8.44)	(8.42)
Trade openness	-0.026*	-0.071	-0.354***	-0.132**
	(1.72)	(-1.54)	(-6.99)	(-2.20)
Foreign aid	-0.093**	-0.105**	-0.064***	-0.253**
	(-2.31)	(-2.43)	(-11.06)	(2.47)
Log(total population)	-0.202	-0.193	0.029*	0.014*
	(-1.16)	(-1.07)	(1.96)	(1.83)
Inflation	0.135**	0.271***	0.362**	0.283**
	(2.08)	(4.86)	(2.21)	(2.19)
Institutional quality	-	-0.082**	-	-0.115***
		(-2.11)		(-7.49)
Number of terrorist attacks* Institutional quality	-	-0.044	-	-0.088***
		(1.39)		(-7.95)
Number of Observations	923	808	808	627
Number of Countries	92	90	90	89
Poolability Test (p value)	23.32	20.03	-	-
	0.000	0.000		
Year FE	Yes	Yes	-	-
Hansen J-Test(p value)	-	-	0.583	0.311

Source: Authors' estimation based on econometric analysis.t

Note: . The t values in parentheses are based on White robust standard errors. ***,** and * indicate significant at 1, 5, and 10 per cent levels, respectively. Model 1 and 2 reflects the findings based on within group estimators. Poolability test suggests suitability of fixed effects model vis-à-vis pooled OLS model.

Column (1) reports the results from fixed effects regression on the budget deficit volatility response to terrorism in the absence of the institutions variable. The regression coefficient on the incidence of terrorism is positive as expected but insignificant. This implies that the terrorism does not lead to any changes in the behaviour of the budget deficit variable. Furthermore, this outcome remains the same even when the institutional quality variable is introduced in the model (see column 2). This unexpected outcome may be due to the endogeneity bias. However, we see that the coefficient estimate of institutional quality is negative and it is significant at 5 per cent level, implying an important role of institutional setup in reducing budget deficit volatility. This finding is consistent with the findings of Yogo (2015) that institutional characteristics matter for reducing the fiscal policy volatility. However, there is no significant role of interaction between incidence of terrorism and institutional quality in inducing any variation in the trend of budget deficit, as the coefficient attached with the interaction term is insignificant. The results presented in columns (1) and (2) also lend support to the contributions of all the macroeconomic controls in increasing or decreasing budget deficit volatility except for the size of population variable that appearsan insignificant factor of budget deficit volatility.

In columns (3) and (4), it is seen that budget deficit volatility shows a reasonable degree of persistence as the regression coefficient associated with lagged dependent variable is highly significant. This result is consistent with the inertia of budgetary process in our sample of developing countries which justifies the application of dynamic panel data regression. In column (3) coefficient estimates of the number of terrorist attacks and different control variables show that contrary to the case of fixed effect regression given in column (1), terrorism has positive and significant effect on budget deficit volatility. Furthermore, the inclusion or exclusion of the institutional variable in the model does not change the nature of association between terrorism and budget deficit volatility (see column 4). Thus, it is confirmed that terrorism tends to increase budget deficit volatility irrespective of the fact that institutional structure is incorporated or not in the dynamic panel data model. This finding supports the evidence pertaining to the contribution of terrorist incidents in fiscal policy volatility in developing countries as reported in Yogo (2015).Column (4) demonstrates that the impact of institutional quality is negative and highly significant, implying vital role of the governance quality in controlling variations in fiscal deficit. The coefficient on the interaction between the number of terrorist attacks and institutional quality bears a negative sign and is significant at 1 per cent level, indicating the significance of institutional factors in offsetting the increase in budget deficit volatility arising due to acts of terrorism. Institutions work like a shield to protect fiscal accounts from the unfavourable consequences of terrorism. In short, the incidence of terrorism is associated with a small though positive and significant impact on budget deficit volatility. Nonetheless, quality of governance is capable of mitigating the increased fluctuations in budget deficit a rising due to terrorism.

For all the macroeconomic controls, it can be seen that they are significant with regard to their effect on budget deficit volatility. The nature of association between budget deficit volatility and all the control variables is borne out analogous to the fixed effects' results contained in columns (1) and (2) except for population size which is found to be a significant driver of budget deficit volatility in the GMM estimation outcome. This finding indicates that larger developing countries have more volatile budget deficits, which may be because these countries lack effective fiscal management along with significant level of poverty in their economies. However, this finding contradicts the results of Agnello and Sousa (2009). Finally, from the estimates of Hansen J test, displayed at the bottom of Table 3,we fail to reject the null hypothesis of the validity of over-identifying restrictions in case of both the specifications of the GMM technique in columns (3) and (4). This implies that our dynamic panel data models are correctly specified.

V. Robustness Tests

In this section we carry out the robustness tests of our findings concerning fiscal response to terrorism by employing three different approaches. Our regression specifications are based upon model (1) as given in Tables 1 to 3. Considering the space issue, we have reported parameter estimates of focus explanatory variables obtained under dynamic panel data estimations. Firstly, we divide our sample of developing countries into two sub-samples, namely, emerging economies and low-income countries. The basic reason behind this splitting is primarily the likely occurrence of unobserved heterogeneity in our sample of developing countries. The results obtained for tax revenue response using the GMM technique are summarised in Table 4. The coefficient estimates on the number of terrorist attacks, institutional quality and the interaction term are all significant and bear the expected signs for both groups of developing countries. These outcomes are quite consistent with the results shown in Table 1. Nonetheless, the magnitude of negative impact of terrorism on tax revenue collection is relatively higher in low-income countries vis-à-vis emerging economies. It implies greater fiscal vulnerability of low-income countries, affected by terrorism. Overall, the results of the study support the argument that tax revenue collection is vulnerable to incidence of terrorism in developing countries irrespective of their income rankings. Furthermore, results for institutional quality and the interaction term are also in line with the main findings of Table 1.

Analogously, on visual inspection of Tables 5 and 6 we do not find any significant change with regard to the impact of terrorism, institutional structure and their interaction on defence expenditure and budget deficit volatility in both the sub-samples of developing countries vis-à-vis the results contained in Tables 2 and 3 respectively.

Secondly, we use alternative measure terrorism (namely number of persons affected by terrorist attacks) to quantify the fiscal response to terrorism and the results are reported in Table 7. It is interesting to see that the use of alternative indicator of terrorism

TABLE 4

Tax Revenue Response to Terrorism in Emerging and Low Income Countries

Variable	Dependent Variable: Tax Revenue(as per cent of GDP)			
	Emerging Economies		Low Income Countries	
	1	2	3	4
	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient
Number of terrorist attacks	-0.002**	-0.001***	-0.004**	-0.007***
	(-2.11)	(-3.73)	(-2.56)	(-5.89)
Institutional quality	-	0.086**	-	0.178***
		-2.21		-2.96
Number of terrorist attacks* Institutional quality	-	0.008**	-	0.004**
		-2.52		-2.26
Hansen J-Test (p value)	0.444	0.224	0.334	0.286
Wald Test (p value)	10.58	12.06	18.47	19.66
	0	0	0	0

Source: Authors' estimation based on econometric analysis.t
Note: The t values in parentheses are based on White robust standard errors. *** and ** indicate significant at 1, and 5 per cent levels, respectively. Wald test statistic represents joint significance of estimated coefficients.

TABLE 5

Defense Spending Response to Terrorism in Emerging and Low Income Countries

Variable	Dependent Variable: DefenseSpending (as per cent of GDP)			
	Emerging Economies		Low Income Countries	
	1	2	3	4
	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient
Number of terrorist attacks	0.032**	0.038***	0.006*	0.032***
	(2.33)	(5.40)	(1.87)	(2.17)
Institutional quality	-	0.037***	-	0.031*
		(3.51)		(1.96)
Number of terrorist attacks* Institutional quality	-	-0.002*	-	-0.001**
		(1.83)		(-1.87)
Hansen J-Test (p value)	0.452	0.509	0.461	0.564
Wald Test (p value)	22.24	12.06	13.96	18.27
	0	0	0	0

Source: Authors' estimation based on econometric analysis.t
Note: The t values in parentheses are based on White robust standard errors. *** and ** indicate significant at 1, and 5 per cent levels, respectively. Wald test statistic represents joint significance of estimated coefficients.

TABLE 6

Budget Deficit Volatility Response to Terrorism in Emerging and Low Income Countries

Variable	Dependent Variable: Budget Deficit Volatility			
	Emerging Economies		Low Income Countries	
	1	2	3	4
	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient
Number of terrorist attacks	0.311*** (12.65)	0.196*** (6.02)	0.288** (2.51)	0.131*** (6.03)
Institutional quality	-	-0.939*** (-6.05)	-	-0.269* (-5.14)
Number of terrorist attacks* Institutional quality	-	-1.104** (-2.22)	-	-0.684** (-5.58)
Hansen J-Test (p value)	0.569	0.592	0.173	0.157
Wald Test (p value)	9.7 0	7.62 0	9.16 0	11.26 0

Source: Authors' estimation based on econometric analysis.t
Note: The t values in parentheses are based on White robust standard errors. ***,** and * indicate significant at 1%, 5%, and 10% levels, respectively . Wald test statistic represents joint significance of estimated coefficients.

TABLE 7

Fiscal Response to Terrorism (Alternative Indicator of Terrorism)

Variable	Dependent Variable: Tax Revenue (as per cent of GDP)		Dependent Variable: Defense Spending (as per cent of GDP)		Dependent Variable: Budget Deficit Volatility	
	1	2	3	4	5	6
	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient
Number of victims	-0.001*** (-5.89)	-0.002** (-2.14)	0.002*** (10.72)	0.006*** (7.75)	0.019*** (6.96)	0.231*** (9.54)
Institutional quality	-	0.366*** (8.48)	-	-0.042*** (-8.00)	-	-0.964*** (-3.75)
Number of victims* Institutional quality	-	0.048*** (4.62)	-	-0.001*** (-9.81)	-	-0.479*** (-9.74)
Hansen J-Test (p value)	0.627	0.548	0.477	0.655	0.364	0.487
Wald Test (p value)	8.37 0	10.86 0	92.04 0	2.06 0	20.24 0	17.33 0

Source: Authors' estimation based on econometric analysis.t
Note: The t values in parentheses are based on White robust standard errors. *** and ** indicate significant at 1and 5 per cent levels, respectively. Wald test statistic represents joint significance of estimated coefficients.

TABLE 8

Fiscal Response to Terrorism (Most Affected Countries)

Variable	Dependent Variable: Tax Revenue (as per cent of GDP)		Dependent Variable: Defense Spending (as per cent of GDP)		Dependent Variable: Budget Deficit Volatility	
	1	2	3	4	5	6
	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient
Number of victims	-0.001*	-0.042**	0.096***	0.116**	0.668***	0.207**
	(-1.93)	(-2.18)	(4.23)	(2.34)	(4.21)	(2.21)
Institutional quality	-	0.299***	-	-0.191*	-	-0.889**
		(4.39)		(-1.87)		(-2.16)
Number of victims* Institutional quality	-	0.094**	-	-0.052*	-	-0.121***
		(2.22)		(-1.74)		(-4.29)
Hansen J-Test (p value)	0.698	0.339	0.364	0.452	0.228	0.385
Wald Test (p value)	27.84	33.87	17.85	24.92	14.41	11.92
	0	0	0	0	0	0

Source: Authors' estimation based on econometric analysis.t
Note: The t values in parentheses are based on White robust standard errors. ***,** and * indicate significant at 1, 5, and 10 per cent levels, respectively. Wald test statistic represents joint significance of estimated coefficients.

TABLE 9

Fiscal Response to Terrorism (Less Affected Countries)

Variable	Dependent Variable: Tax Revenue (as per cent of GDP)		Dependent Variable: Defense Spending (as per cent of GDP)		Dependent Variable: Budget Deficit Volatility	
	1	2	3	4	5	6
	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient	GMM Coefficient
Number of victims	-0.005***	-0.004**	0.001***	0.002***	0.184***	0.145**
	(-5.89)	(-2.19)	(9.79)	(14.02)	(6.98)	(8.15)
Institutional quality	-	0.247***	-	-0.447*	-	-0.202***
		(7.04)		(-8.11)		(-6.27)
Number of victims* Institutional quality	-	0.024**	-	-0.002*	-	-0.358***
		(2.48)		(-7.31)		(-14.04)
Hansen J-Test (p value)	0.413	0.449	0.397	0.456	0.252	0.208
Wald Test (p value)	18.14	15.26	53.59	49.17	21.38	27.46
	0	0	0	0	0	0

Source: Authors' estimation based on econometric analysis.t
Note: The t values in parentheses are based on White robust standard errors. ***,** and * indicate significant at 1, 5, and 10 per cent levels, respectively. Wald test statistic represents joint significance of estimated coefficients.

yields the similar results as presented in Tables 1, 2, and 3, respectively. Thus, different indicators of terrorism do not impact the fiscal variables' behaviour differently.

Finally, we divide our sample of developing countries into two groups, namely, most affected and less affected countries based on average of the number of terrorist incidents. All countries having experienced more (less) than average number of terrorist incidents occurred in all 107 developing countries during the sample period of study are categorised as more (less) affected countries. It is quite expected that the adverse implications of terrorism for fiscal accounts of most affected developing countries will be more as compared to their less affected counterparts. From Tables 8 and 9, it transpires that the impact of our primary variables on three fiscal variables are in line with our main findings. Nonetheless, we find that in the most affected developing countries, the magnitude of adverse repercussions of the incidence of terrorism for all the three fiscal variables is greater vis-à-vis the less affected developing countries' case.

VI. Conclusion and Policy Implications

Terrorism is a historical phenomenon, and human societies have been facing this menace for centuries. However, it attracted due attention of the economists in wake of the 9/11 attacks in the USA and its impact on various aspects of economic activities. In this regard, voluminous literature has surfaced analysing the economic growth effects of the acts of terrorism in and across the countries. It is universally agreed that terrorism has serious consequences for the growth process. Nonetheless, efforts are still in progress to accurately identify the various channels through which the terrorist incidents may cause harm to economic growth and development. One critical channel is the fiscal sector of the economy which is considered to be a vital source of transmitting effects of incidence of terrorism to macroeconomic activities. Persistent occurrence of terrorist activities leads to increasing uncertainty pertaining to the conduct of fiscal policy which certainly has adverse repercussions for economic growth. Unfortunately, there is a dearth of literature aiming at quantifying fiscal response to terrorism.

The present study is an attempt to understand the fiscal costs and consequences of terrorism in developing countries by incorporating the role of institutions in the empirical analysis. The study has examined the case of 107 developing countries over the period from 2002 to 2016. The number of terrorist attacks is used as an indicator of terrorism in the main estimation task. An index of institutional quality is constructed using important governance indicators. Three fiscal variables, namely, tax revenue (as per cent of GDP), defence spending (as per cent of GDP) and budget deficit volatility are used as dependent variables to capture the fiscal effects of terrorism in the presence of institutional structure. Although both the static as well as the dynamic panel data techniques are employed yet we primarily focus on the dynamic panel data specifications due to endogeneity issue.

The analysis reveals that incidence of terrorism has negatively impacted the tax revenue efforts that is comparable to a public revenue shock triggered by the phenomenon of terrorism having far-reaching concerns for fiscal management in the developing countries. Nonetheless, the governance and institutional structure not only tends to uplift tax revenue to GDP ratio, but it also works significantly to mitigate the adverse impact of terrorism on tax revenue performance. Defence expenditure has emerged as an increasing function of terrorism which is in accordance with our prior expectations. It implies that the incidence of terrorism is more likely to influence composition of public spending where higher public finances are allocated for national security related heads of public expenditure at the expense of social sector and public sector development programs. This type of outcome certainly has devastating implications for economic activities. However, increased defence spending may have some positive spill over effects due to improved law and order situation. We also find that good quality of institutional setup does matter for reducing defence spending and it helps in completely offsetting the defence spending increasing effect of terrorism.

Furthermore, the analysis shows that budget deficit volatility tends to escalate as a result of incidence of terrorism which indicates that terrorism leads to increase fiscal policy volatility in developing countries. However, the budget deficit volatility increasing effect of terrorism has significantly dwindled in the presence of better institutional infrastructure. The main findings of the study are placed for some robustness checks which confirm a consistency of results related to fiscal response to terrorism in developing countries. Strong evidence is found by the study that public finances in developing countries are vulnerable to terrorism but this situation is relatively more serious in low-income countries than that of the emerging economies. Moreover, the magnitude of fiscal impacts of terrorism is relatively bigger in most terrorism affected developing countries as compared to less terrorism affected developing countries.

From the perspective of policy recommendation, Since strong institutions help counteract the negative impacts of terrorism on tax revenue, defense spending, and budget stability, policymakers should place a high priority on improving institutional quality in order to lessen the budgetary implications of terrorism in developing nations. In order to increase the effectiveness of tax collection and lower revenue losses brought on by terrorism, governments should first strengthen accountability, transparency, and the rule of law. Second, resources should be distributed efficiently to avoid shifting financial resources away from social and development initiatives due to excessive defense spending. Third, in order to maintain macroeconomic stability in the face of security risks, fiscal policies should include tools to control the volatility of the budget deficit. Finally, in order to promote long-term resilience against the economic repercussions of terrorism, international cooperation and foreign aid should concentrate on institutional capacity-building rather than short-term financial support.

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APPENDIX

TABLE A-1

List of Countries

Emerging Economies		Low-Income Countries	
Albania	Kazakhstan	Bangladesh	Niger
Algeria	Kuwait	Benin	Nigeria
Angola	Lebanon	Bhutan	Papua New Guinea
Argentina	Libya	Bolivia	Rwanda
Armenia	Lithuania	Burundi	Senegal
Azerbaijan	Macedonia	Cambodia	Sierra Leone
Bahrain	Malaysia	Cameroon	Sudan
Belarus	Mauritius	Central African Republic	Tajikistan
Bosnia	Morocco	Chad	Tanzania
Botswana	Namibia	Comoros	Togo
Brazil	Oman	Congo, Dem. Rep.	Tonga
Bulgaria	Pakistan	Congo, Rep.	Uganda
China	Panama	Djibouti	Uzbekistan
Colombia	Paraguay	Eritrea	Vietnam
Costa Rica	Peru	Ethiopia	Yemen
Croatia	Philippines	Ghana	Zambia
Cyprus	Qatar	Guinea	Zimbabwe
Dominican Republic	Romania	Haiti	
Ecuador	Russia	Honduras	
Egypt	Saudi Arabia	Kenya	
El Salvador	Serbia	Lao People's DR	
Fiji	South Africa	Lesotho	
Georgia	Sri Lanka	Liberia	
Guatemala	Syria	Madagascar	
Guyana	Thailand	Malawi	
India	Tunisia	Mali	
Indonesia	Ukraine	Mozambique	
Iran	United Arab Emirates	Myanmar	
Jamaica	Uruguay	Nepal	
Jordan	Venezuela	Nicaragua	

TABLE A-2

Results from PCA

Eigenvalues: (Sum = 6, Average = 1)						
Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion	
1	4.471742	3.840792	0.7453	4.471742	0.7453	
2	0.630950	0.155438	0.1052	5.102691	0.8504	
3	0.475512	0.248984	0.0793	5.578203	0.9297	
4	0.226528	0.124674	0.0378	5.804731	0.9675	
5	0.101853	0.008437	0.017	5.906584	0.9844	
6	0.093416	-----	0.0156	6.000000	1.0000	
Eigenvectors (loadings):						
Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
CC	0.437969	-0.000858	-0.137079	-0.668903	-0.033698	0.583803
GE	0.427958	-0.415018	-0.142485	-0.020031	0.714460	-0.336831
RQ	0.409283	-0.464854	0.151736	0.597604	-0.281296	0.396379
RL	0.451457	-0.032715	-0.126159	-0.182645	-0.608586	-0.612752
VA	0.356927	0.411859	0.820781	-0.009710	0.152677	-0.076751
PS	0.355405	0.664058	-0.498284	0.401975	0.124887	0.085132

Note: According to the PCA results, PC 1 accounts for 74.53% of the variance. The contrast in between government effectiveness (GE) and political stability (PS) is depicted in PC 2 (10.52% variance). Political stability (PS) and voice and accountability (VA) are inversely correlated, as shown by PC 3 (7.93% variance). The remaining elements (PC 4–6) represent less important aspects and account for very little variance.