TERRORISM AND FISCAL POLICY INSTABILITY IN PAKISTAN: ROLE OF INSTITUTIONS

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ABSTRACT

Following the September 11 terrorist attacks, countries are pushed to develop efficient strategies for combating terrorism and improving law and order. This study looks into the relationship between fiscal policy instability and terrorism in Pakistan in the context of institutional quality. The empirical evaluation, which employs the autoregressive distributive lag (ARDL) technique, uses annual time series data from 1984 to 2016. The findings demonstrate that terrorism in Pakistan generates long run fiscal policy instability, implying that terrorism increases fiscal policy uncertainty significantly. The study emphasizes the relevance of institutions in reducing fiscal policy instability brought on by terrorism. Hence, good quality institutions are critical to maintain fiscal stability in Pakistan.

JEL Classification: E62; N2; F43; F35

Key Words: Terrorism; Fiscal Policy Instability; Institutional Quality; ARDL

1. Introduction

It is indisputably accepted that countries which face more uncertainty experience lower levels of economic performance. Recently, terrorism has turned out to be one of the major drivers of uncertainty which not only distorts economic performance of a country but also disturbs the political stability. The term terrorism has regained attention after the 9/11 violent attacks in the United States of America (USA). Moreover, these incidents have enticed the attention of researchers and policy makers for examining the socio-economic-political consequences of terrorism. The economic consequences of terrorism have largely been discussed by the existing literature. It is universally documented that terrorism deteriorates economic performance of a country through various channels such as loss of saving (Enders et al., 1992), transfer of resources from investment and consumption towards military expenditures (Eckstein and Tsiddon, 2004) and a decline in international trade (Nitsch and Schumacher, 2003). Furthermore, Hyder et al., (2015), Freytag et al., (2011), Gaibulloev and Sandler (2008,2009,2011) and Gries et al., (2009) conclude that terrorism distorts economic performance by damaging infrastructure, physical and human capital, squeezing investment, increasing unemployment and inequality, thus, lowering economic growth. Despite the existence of voluminous literature on the economic implications of terrorism, the investigations have not yet diverted towards the fiscal implications of terrorism.

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It is a well-known fact that the fiscal accounts of developing countries are deteriorating and, at large, remain in deficit. Moreover, incidents like terrorism further burden the fiscal accounts and make it difficult for respective governments to allocate resources optimally. For instance, governments need to spend more to improve law and order, and security situation which diverts the resources from productive to non-productive uses. This, not only, increases the current expenditures of governments but also curtails the funds for development projects. In addition, the physical and human capital destructions caused by terrorism force governments to increase social safety net programs and rebuild infrastructure. Thus, terrorism is more likely to further aggravate the crippling state of fiscal accounts of developing countries. The empirical literature, in this regard, is limited and confined to a sample of some developing countries. For instance, Gupta et al., (2004), Drakos and Konstantinou (2014), Nasir and Shahbaz (2015), Yogo (2015), Chuku (2019), Zakaria et al., (2019), Cevik and Ricco (2020) explain an adverse impact of terrorism on fiscal accounts of victim countries. Moreover, the findings of these studies show that increase in terrorism diverts government spending towards military expenditures from development expenditures. More recently, Mukhtar and Jehan (2021) report that terrorism distorts fiscal accounts of Pakistan by not only reducing tax revenues but also by increasing military expenditures of the country. However, institutional quality helps in reducing/mitigating the adverse impact of terrorism on fiscal policy. Hence, terrorism not only has direct implications for economic performance but it also hinders the economic growth indirectly by curtailing government capacity for development expenditures.

Pakistan, being a developing country, has been facing socio-economic and political challenges since its inception that not only hinder the process of economic development but also impose burden on fiscal fronts. In particular, Pakistan has a long history of domestic[2] as well as global terrorism. Pakistan became part of global terrorism from 1979 onwards in wake of the Soviet invasion to Afghanistan. In early 2000s, Pakistan joined the USA-led "war on terror" which yielded devastating consequences for the country. Militancy attained momentum and to control the militants' wrath, the government spent heavily on improving the law and order, and security environment at all levels. One of the most significant counter terrorism actions taken by the government is the Zarb-e-Azab which has affectively reduced terrorist activities in the country. From 2001 to 2016, the overall cost incurred by government due to terrorism is US$ 118.31billion. Specifically, there was 75% increase in the cost of terrorism in 2011. The country has witnessed a decline in the cost of terrorism in the post 2011 period (Pakistan, 2015-16). Moody's (2015)[3] also reported that the terrorism has increased government borrowing costs in Pakistan. Furthermore, the immense increase in government expenditures is witnessed to finance the purchase of armament. Thus, the war on terrorism initiated in the post 9/11 scenario has engorged the current government expenditures and created pressure on fiscal fronts. Additionally, reconstruction of

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[2] For instance, the domestic terrorist activities can be traced back to the assassination of the first Prime minister of Pakistan, the establishment of ethnic and religious based groups which carried out violent activities.

[3] Moody's (2015). Terrorism Has a Long-Lasting Negative Impact on Economic Activity and Government Borrowing Cost. https://www.moodys.com/ researchdocumentcontentpage. aspx?docid=PBC_1008825

infrastructure, rehabilitation, and rebuilding business trust has also put additional burden on the country.

Historically, fiscal accounts of Pakistan do not present an encouraging picture. There are social, economic, political, institutional, and strategic factors responsible for the continuously deteriorating position of fiscal deficit and increasing instability in fiscal policy. Specifically, huge inflow of foreign aid, structural reforms through the structural adjustment programs are notable institutional factors while excessive non-developmental expenditures by the government are reported as the most significant economic factors for higher budget deficit. Additionally, higher defence spending due to Afghan war is another significant factor contributing towards escalating fiscal deficit during 1980s. On the other hand, in 1990s, the political instability, financial mismanagement, corruption, tight conditions by the International Monetary Fund (IMF) and slow economic growth can be marked as the main reasons for generating adverse developments in fiscal position. Moving to 2000s, a slight improvement in the fiscal accounts is observed owing to political stability as well as efficient management of the fiscal account. However, it is evident that from 2007 and onwards, budget deficit does not show a clear trend and keeps on fluctuating from low(high) to high(low) (Zaidi,2015).

Notably, the average budget deficit is observed as higher in 1980s and 1990s as compared to 2000s. However, budget deficit volatility is higher in the latter than the former. One of the major factors contributing to high budget deficit volatility is the exposure to external shocks such as the incident of 9/11. This war has exposed Pakistan to global terrorism and the initiation of the "war on terror", undoubtedly, has levied both direct and indirect implications on the economy of Pakistan. For instance, at one hand, it has increased the inflow of foreign aid to finance the war, on the other hand, it has pressurised the government to divert the resources towards improving law and order situation, reconstruction and rebuilding of the infrastructure, financial assistance to victims, and higher defence expenditures.

It is an undeniable fact that persistently occurring incidence of terrorism lead to produce an uncertain environment which, on one hand, reduces tax revenue while, on the other hand, it increases government expenditures. In such state of affairs, tax revenues are likely to decline with falling trends of overall investment which is sure to induce fiscal policy instability. To combat the menace of terrorism, various factors can play important role such as government effectiveness, natural resources, institutional quality, and democracy, among others. It is widely documented that institutional setup is an essential instrument for building the shock absorbing capacity. North (1990) documented that institutions affect economic performance by defining and restricting human behavior. Moreover, institutions also facilitate the functioning of various sectors, improve the transmission mechanism of policy variables, improve dissemination of information, and above all better institutions help in controlling the detrimental outcomes of any adverse shock. Acemoglu and Robinson (2010) also emphasized the importance of institutions and explained that institutional quality ensures accountability and transparency in decision making. Thus, better institutions are integral for effective policy management, particularly fiscal policy.

Despite theoretical and empirical prominence, there is no single study which evaluates the role of institutional quality in the terrorism-fiscal policy relationship. Our study is

distinctive on various grounds. Firstly, it the first empirical investigation to examine the direct and indirect impact of terrorism on fiscal policy instability in case of Pakistan. Secondly, we empirically test the direct impact of institutional quality on fiscal policy instability. Thirdly, we test the moderating role of institutional quality in the relationship of terrorism and fiscal policy instability. For doing so, an interaction term of institutional quality and terrorism is introduced. The interaction term will indicate to what extent institutions play a role in minimizing/mitigating the pitfalls of terrorism in terms of fiscal behavior in Pakistan. Finally, our findings will provide some interesting insights for researchers and policymakers.

The rest of the study is structured as follows: section 2 reviews the existing literature covering macroeconomic consequences of terrorism; section 3 explains the methodology, data and estimation technique; section 4 contains empirical findings and discussion; and section 5   concludes the study with some policy implications.

2. Literature Review

The theoretical underpinnings regarding macroeconomic implications of terrorism can be explained through the irreversibility theory of investment (Hyder et al., 2015), whereas, terrorist activities also influence government structure, political stability, and effectiveness of stabilization policies. The rational extremism as proposed by Lake (2002) explains that extremists achieve their goals and preferences for shift of power and related gains through bargaining with political leaders which ultimately leads to adverse consequences in terms of political disruption and collapse of government (Michael, 2007). Empirically, the literature is vast and diverse in terms of examining the macroeconomic implications of terrorism (particularly on economic growth, domestic investment, and FDI) with a unanimous conclusion that distorts economic performance directly as well as indirectly (see, for instance, Malik and Zaman, 2013; Shahbaz, 2013; Mehmood, 2014; Hyder et. al., 2015; Khan et al., 2016; Khan and Yusof, 2017; and Zakaria et al., 2019, among others). However, it is well documented fact that one of the major objectives of terrorists is to pressurize governments to acquire political gains which ultimately generates uncertainty in the political structure, government failure, ineffectiveness of stabilization policies, and policy uncertainty (Large, 2005).

There has been a surge in empirical literature to gauge the repercussion of terrorism in terms of political instability, government effectiveness, and implementation of stabilization policies specifically, fiscal policy since the incident of 9/11. To this end, Gupta et al., (2004) analyze the fiscal repercussions of armed conflict and terrorism in low-and-middle income countries. The findings reveal that armed conflict and terrorism damage economic performance through direct and indirect means. Specifically, both armed conflict and terrorism curtail tax revenues, however, escalate government defense spending at the cost of development expenditures. By reducing government spending on development sector, armed conflict and terrorism indirectly hinders macroeconomic performance in selected sample of countries. Choi (2010) investigates the impact of terrorism on rule of law in 131 countries over the period 1984-2004. By taking total number of yearly terrorist assaults in a state, the study finds that improvement in rule of law (measured as fairness of legal system and legitimacy and fair system to reconcile claims) ensures low level of terrorism in a country or it reduces the probability of terrorist activities. Similarly, Sheikh and

Chaudhry (2013) explore the economic, political, and strategic determinants of defense spending in Pakistan and India over the period 1972-2010. The findings highlighted that real GDP, democracy as measure of regime change, internal threats and wars, and atomic threats significantly contributed in defense expenditures of both countries. Drakos and Konstantinou (2014) estimate the dynamic effects of terrorism and crime on public safety spending in European countries. The authors provide the evidence that an increase in terrorism and crime leads to higher public order and safety spending with the note that the impact of crime is higher than that of terrorism. The study also reports that government spending in selected countries is insignificant in controlling the level of terrorism. Anderson (2015) examines the link between terrorism, trade and public policy and documents that governments having more advanced knowledge may predict the terrorism activities and introduce enforcement policy in order to maximize their objective function. Nasir and Shahbaz (2015) scrutinize the association between terrorism and military spending in Pakistan. The study has highlighted three important factors responsible for higher defense expenditures; war on terror in Pakistan is the most significant contributor in increasing military expenditures followed by severity of terrorist attacks and number of terrorist incidents. The findings reveal that the causal relationship runs form terrorist attacks and their severity towards military expenditures only. Based on the finding, the study recommends that in order to control the menace of terrorism, there is a need to improve the efficiency of civil intelligence instead of only increasing military expenditures. In their study, Syed et al., (2015) evaluate the factors which instigate terrorist activities during 1980-2010 in Pakistan. They find that expenditures on maintenance of law and order, public education expenditures, ethnic diversity, domestic military operations, and military aid significantly increase the incidence of terrorism in Pakistan. Finally, the study suggests that law enforcement bodies should be out of political pressures and strategic relationship with USA should be reexamined by taking into account the recent surge in terrorist activities in Pakistan. Yogo (2015) examines the terrorism implications for fiscal policy instability in 66 countries over the period from 1970-2012. The results of the study indicate that terrorism instigates instability in fiscal policy. Moreover, smaller countries are more prone to fiscal policy instability in response to terrorism as compared to democratic states.

Chuku (2019) strives for quantifying the economic and fiscal consequences of terrorism in Nigeria. The findings disclose an adverse impact of terrorism on economic growth and investment. Moreover, the findings also show that an increase in terrorism diverts government spending towards military expenditures from development expenditures. Furthermore, Zakaria et al., (2019) investigate the economic and fiscal consequences of terrorism in Pakistan covering the time period from 1973 to 2014. The study explains an adverse impact of terrorism on economic growth, FDI and domestic investment. Moreover, the findings reveal that terrorism leads to higher government spending on defense which indirectly distorts economic performance in the country. Hence, terrorism not only has direct implications for economic performance but it also hinders the economic growth indirectly by curtailing government capacity for development expenditures. Cevik and Ricco (2020) attempt to examine the fiscal consequences of terrorism in 156 developing countries over the period from 1970 to 2016. The findings show that terrorism affects government expenditure and revenue position adversely. Specifically, the study highlights that terrorism has marginal impact on tax revenues, whereas, it leads to significant increase in military and defense expenditures in the selected sample of countries and the magnitude

of this impact rises with the increase in the severity and extent of terrorism. Moreover, it is also revealed that fiscal position of developing and low- income countries is more vulnerable towards terrorism. In the similar vein, Mukhtar and Jehan (2021) have evaluated fiscal response to terrorism in presence of institutional quality for Pakistan over the time period from 1984 to 2016. By employing the ARDL estimation technique, the study finds that on the one hand, terrorism distorts government tax revenues, whereas, on the other hand, it increases government defense expenditures, thus escalating fiscal burden of the country on both the fronts. Notably, the study has documented the significant moderating role of institutional quality in mitigating (diminishing) the impact of terrorism on defense spending (tax revenues) of Pakistan. Hence, the study recommends the need for an improvement in institutional quality in order to combat the menace of terrorism in case of Pakistan.

The existing literature unanimously concluded that terrorism instigates uncertainty which deteriorates macroeconomic performance of a country on various fronts. For instance, it diminishes economic growth, distorts government spending towards development expenditures, curtailed tax revenues, and creates instability in policy making. However, the literature is scant on the fiscal consequences of terrorism for Pakistan, therefore, requires more research in this area to understand the dynamics of the relationship between fiscal policy and terrorism. In order to bridge the gap in the existing literature, the present study intends to empirically test the fiscal consequences of terrorism, in Pakistan, in presence of institutional quality.

3. Analytical Framework

3.1. Model Specification and Data

There is a scarcity of research on fiscal response to terrorism. We identify the use of single equation models for conducting empirical tasks to assess fiscal repercussions of terrorism for fiscal outcomes in the existing body of relevant literature (see, for example, Gupta et al., 2004; Yogo,2015; Cevik and Ricco,2020). As a result of this prevalent practise, we outline the following two models for achieving the study's primary goal[4]:

$$FPI = F(TER, GDPGR, BD, AID, IR) \qquad (1)$$
$$FPI = F(TER, GDPGR, BD, AID, IR, INS, TER*INS) \qquad (2)$$

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[4]We got assistance from Gupta et al., (2004), Agnello and Sousa (2009), and Yogo (2015) for specifying our econometric models.

Table 1.Variables' Description	
Variable	**Construction**
FPI	Fiscal Policy instability is proxied by budget deficit volatility which is measured as standard deviation of the growth rate of budget deficit
TER	Number of terrorist attacks (or incidents) reported in a year
GDPGR	Economic growth performance is proxied by growth rate of real GDP
BD	Overall budget deficit (as percent of GDP)
IR	Call money rate
AID	Foreign aid i.e. foreign Loans and foreign Grants (as percent of GDP)
INS	Institutional quality index (composite index of five aspects relating to institutional quality)
TER*INS	Interaction term of number of terrorist attacks and institutional quality index

The time period covered in the study's empirical analysis is 1984 to 2016. Data on GDP growth rate, budget deficit and foreign aid have been collected from Pakistan Economic Survey (various issues), Ministry of Finance, Government of Pakistan, Islamabad. The standard deviation of the budget deficit growth rate is used to determine the budget deficit volatility variable. For interest rate we employ call money rate (or money market rate) data which are taken from the IMF's International Financial Statistics. We have constructed the institutional quality index by means of principal component analysis (PCA) technique using the five indicators of institutional environment: (i) bureaucratic quality; (ii) corruption; (iii) democratic accountability; (iv) ethnic tensions and (v) law and order. Data on all these five indicators of institutional quality have been sourced from International Country Risk Guide (ICRG). These five indicators are converted into scale of 1-10 respectively for comparability purpose. Finally, data on number of terrorist attacks (or incidents) are drawn from the Global Terrorism Database (GTD) introduced by LaFree and Dugan (2007) and maintained by the University of Maryland. Number of terrorist attacks variable is logarithmic throughout our estimation task.

3.2. Estimation Technique

The use of specific estimation technique relies on the feature and nature of dataset used in estimation process. As the present study deals with time series data, so the very first step is to examine the unit root properties of all the variables given in models (1) to (2). To this end, the study employs well-known Augmented Dickey-Fuller test which tests the null hypothesis that a time series contains a unit root. For the estimation purpose of the two models pertaining to fiscal policy instability (measured through budget deficit volatility) response to terrorism the study has employed the autoregressive distributed lag (ARDL) cointegration technique developed by Pesaran et al., (2001). Whether the selected regressors are I(0), I(1), or a combination of both, this technique is considered very beneficial in getting consistent parameter estimates. Moreover, it is capable enough to yield efficient and consistent results for the small data set, such as ours. The ARDL representations of the equations (1) and (2) can be formulated as:

$$\Delta FPI_t = \phi_0 + \sum_{i=1}^{p} \phi_1 \Delta FPI_{t-i} + \sum_{i=0}^{p} \phi_2 \Delta TER_{t-i} + \sum_{i=0}^{p} \phi_3 \Delta GDPGR_{t-i} + \sum_{i=0}^{p} \phi_4 \Delta BD_{t-i} + \sum_{i=0}^{p} \phi_5 \Delta AID_{t-i}$$

$$+ \sum_{i=o}^{p} \phi_6 \Delta IR_{t-i} + \phi_7 FPI_{t-1} + \phi_8 TER_{t-1} + \phi_9 GDPGR_{t-1} + \phi_{10} BD_{t-1} + \phi_{11} AID_{t-1} + \phi_{12} IR_{t-1} + u_{1t} \qquad (3)$$

$$\Delta FPI_t = \kappa_0 + \sum_{i=1}^{p} \kappa_1 \Delta FPI_{t-i} + \sum_{i=0}^{p} \kappa_2 \Delta TER_{t-i} + \sum_{i=0}^{p} \kappa_3 \Delta GDPGR_{t-i} + \sum_{i=0}^{p} \kappa_4 \Delta BD_{t-i} + \sum_{i=0}^{p} \kappa_5 \Delta AID_{t-i} +$$

$$\sum_{i=0}^{p} \kappa_6 \Delta IR_{t-i} + \sum_{i=0}^{p} \kappa_7 \Delta INS_{t-i} + \sum_{i=0}^{p} \kappa_8 \Delta (TER*INS)_{t-i} + \kappa_9 FPI_{t-1} + \kappa_{10} TER_{t-1} + \kappa_{11} GDPGR_{t-1} +$$

$$\kappa_{12} BD_{t-1} + \kappa_{13} AID_{t-1} + \kappa_{14} IR_{t-1} + \kappa_{15} INS_{t-1} + \kappa_{16} (TER*INS)_{t-1} + u_{2t} \qquad (4)$$

The coefficients associated to difference operators in equations (3) to (4) measure short run dynamics, while the coefficients of one period lagged variables capture long run relationships. For equations (3) to (4), we establish two null hypotheses of no cointegration to test the presence of the long run association between fiscal policy instability and all explanatory variables as:

$$\phi_7 = \phi_8 = \phi_9 = \phi_{10} = \phi_{11} = \phi_{12} = 0$$

$$\kappa_9 = \kappa_{10} = \kappa_{11} = \kappa_{12} = \kappa_{13} = \kappa_{14} = \kappa_{15} = \kappa_{16} = 0$$

Equations (3) to (4) display two error correction models in which the lagged error correction term (ECT) is derived in each case through the linear combination of lagged level variables. To test the null hypothesis of no cointegration, Pesaran et al., (2001) provided critical values for the standard F test. In this regard, an upper bound critical value is used when all variables in a given model are I(1). A lower bound critical value is employed when all regressors are I(0).They do, however, show that the upper bound critical values are still valid even if some regressors are I(0) and others are I(1).

4. Results and Discussion

Because we are working with time series data, we must begin our empirical effort by utilising the ADF unit root test to investigate the stationarity qualities of all variables contained in models (1) and (2). Table 1 shows that all time series are integrated of order one, i.e., I (1), with the exception of terrorism, foreign aid, and interest rate, which are integrated of order zero, i.e., I (0). (0). The adoption of the ARDL technique in this study is justified by the heterogeneous order of integration of a selected set of variables.

Table 1. Unit Root Test Results				
Variable	Test Statistic		Mackinnon Critical Values at 5% Level of Significance	Order of Integration
	At Level	At First Difference		
FPI	-3.368	-5.747	-3.558	I(1)
TER	-4.079	-	-3.558	I(0)
GDPGR	-3.423	-7.118	-3.558	I(1)
BD	-2.770	-5.796	-3.558	I(1)
AID	-4.003	-	-3.558	I(0)
IR	-4.006	-	-3.558	I(0)
INS	-1.282	-4.599	-3.558	I(1)
TER*INS	-1.920	-7.782	-3.558	I(1)

As a first critical step, the value of the F-test statistic is estimated after selecting optimal lag using the Schwartz Bayesian Criteria to test the null hypotheses of no cointegration in case of the two models i.e. (3) to (4). It can be seen from table 2 that when the estimated values of the F-test statistic are compared to the critical equivalent provided by Pesaran et al., (2001), the null hypothesis of no cointegration between fiscal policy instability and all regressors are rejected in both models (3) and (4). (4). Hence, it turns out that fiscal policy instability appears to have a long run equilibrium relationship with the explanatory variables in models (3) and (4).

Table 2. Bound Test for Cointegration Results					
Dependent Variable	Independent Variable	F-statistic Value	F-statistic Critical Value (5% Significance Level)		Outcome
			I(0)	I(1)	
FPI	TER,GDPGR,BD,AID,IR	5.85	2.62	3.79	Cointegration
FPI	TER,GDPGR,BD,AID,IR,INS , TER*INS	14.56	2.32	3.50	Cointegration

Rising and persistent budget deficits have become a fundamental feature of wide range of developing and developed countries across the globe. High and volatile budget deficits may pose serious challenges to a country's long run fiscal sustainability by raising the debt to GDP ratio, thus sowing the seeds of injury to future generations' living standards. Moreover, they are more likely to push up the level and volatility of inflation, thus paving the way for macroeconomic instability, particularly in a country where the central bank lacks independence (Agnello and Sousa, 2009). Considering significance of fiscal policy instability, we are interested to examine its response to terrorism in Pakistan. Table 3 presents the short- and long- run estimates of the parameters in model (3). To begin, we look at table 3's upper section. In Pakistan, the number of terrorist incidents has been identified as a long run stimulus factor for fiscal policy instability. This result is consistent with prior expectations, as continuous acts of terrorism are likely to have a negative influence on both the revenue and expenditure sides of the budget in a country like Pakistan.

It is understandable that terrorism has a detrimental impact on both the revenue base and the effectiveness of tax administration. For example, tax receipts vary depending on the state of the economy. Economic downturns brought on by insecurity and violence may have an impact on tax receipts. Terrorism, in addition to its effects on economic activity, can erode a portion of the tax base (for example, by eliminating business firms) and reduce the effectiveness of tax administration. Terrorist attacks also alter the government's spending mix (Gupta et al., 2004).

Military spending rises in response to conflict and terrorism, and it remains high even after the violence has subsided. As a result, the end result will be discrepancies in government budgetary accounting. Terrorist attacks also create uncertainty, particularly in the areas of investment and fiscal policy. As a result, it's not surprising that fiscal policy instability in Pakistan has a favourable long run response to the frequency of terrorist occurrences. As a result, terrorism could be treated as a new source of fiscal policy volatility in Pakistan, which could assist us prove the negative relationship between terrorism and growth in the country. Our finding corroborates that of Yogo (2015), who examined the fiscal volatility response to terrorism in 66 developing countries, including Pakistan.

Table 3. Terrorism and Fiscal Policy Instability: Short- and Long- Run Estimates		
Dependent Variable: FPI Selected Model: ARDL(1,1,1,1,2,1)		
Regressor	Coefficient	t-value
TER	0.276**	2.136
GDPGR	-0.202***	-4.472
BD	0.167**	2.183
AID	-0.314***	-3.447
IR	0.068**	2.371
Error Correction Model: Short Run Estimates Dependent Variable: D(FPI)		
Regressor	Coefficient	t-value
Constant	1.523***	4.474
D(TER)	0.116	0.533
D(GDPGR)	0.078	1.031
D(BD)	0.092***	3.288
D(AID)	-0.124	1.540
D(AID)$_{t-1}$	0.035	0.897
D(IR)	0.011	0.992
ECT$_{t-1}$	-0.882***	-4.916
Diagnostic Tests		
$\chi^2_{SC} = 0.272(0.624)$ $\chi^2_{H} = 0.741(0.383)$ $\chi^2_{FF} = 0.680(0.391)$ $\chi^2_{N} = 2.184(0.301)$		

Note:***and ** indicate significant at 1%, 5% and 10% levels respectively.

$$\chi^2_{SC}, \chi^2_{H}, \chi^2_{FF} \quad \text{and} \quad \chi^2_{N} \quad \text{denote LM test for serial correlation,}$$

heteroscedasticity, functional form and normality respectively. The associated p values are in parentheses.

Economic growth performance and foreign aid are highly significant and have the expected negative sign, implying that economic growth and foreign aid are effective tools for reducing fiscal policy instability in Pakistan. Growing economies, according to Woo (2003), have more resources and may be better able to deal with fiscal volatility. Because Pakistan has traditionally relied on foreign economic assistance to manage its finances, timely disbursement of foreign aid to Pakistan is expected to reduce budget deficit volatility and, as a result, fiscal policy instability. As far as budget deficit and interest rate are concerned, we find their positive relationship with fiscal policy instability in the long run. However, budget deficit plays relatively more dominating role vis-à-vis interest rate in stimulating fiscal policy instability. The economy of Pakistan is characterized by persistent and higher budget deficit and this type of situation is very conducive to frequent changes in public expenditure and tax revenue. Our finding is in line with that of Agnello and Sousa (2009). When it comes to the positive influence of interest rate on fiscal policy instability, we know that fluctuations in interest rate will certainly cause monetary uncertainty, which will worsen fiscal policy instability.

Except for the budget deficit, all explanatory variables have failed to create a significant relationship with fiscal policy instability in the short run. The noteworthy outcome is that terrorism does not induce fiscal policy instability in the short run in Pakistan. It could be because the shock caused by an act of terrorism takes time to affect a country's fiscal administration and accounts. As a result, it is clear that Pakistan's fiscal policy instability responds to terrorism only in the long run. The coefficient of lagged ECT is highly significant and negative, meaning that if the long run equilibrium position is disturbed, an almost 88 percent correction will occur every year to restore it. It denotes a rapid adjustment to long run equilibrium. Model (3) is devoid of serial correlation, heteroscedasticity, functional form, and normalcy problems, as can be seen in the lower section of table 3. Furthermore, plots of CUSUM and CUSUMSQ tests confirm the stability of parameter estimates of the estimated model (see figure 1).

Figure 1. Plots of CUSUM and CUSUM SQ Tests

(a)   (b)
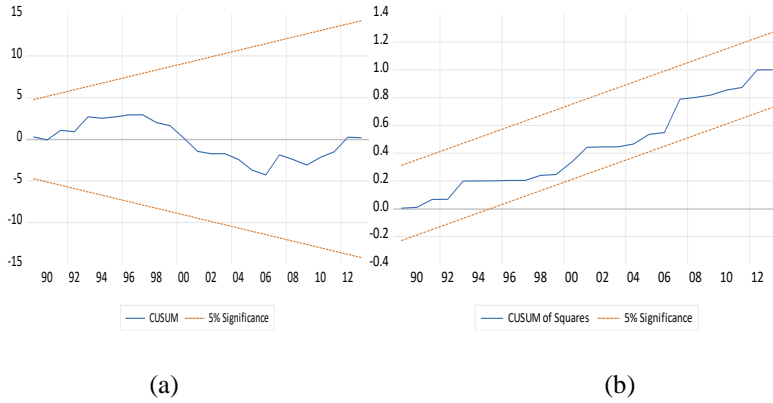
Model (4), which is constructed by adding the role of institutional quality for fiscal policy instability in Pakistan, produces short- and long- run outcomes in table 4. The interaction term assesses whether institutional quality contributes to decreasing or moderating the negative impact of terrorism on Pakistan's fiscal stability.

The addition of the institutional dimension in the research demonstrates that in the long run, the role of terrorism, economic growth performance, budget deficit, foreign aid, and interest rate remains unchanged (see upper section of table 4). In Pakistan, the quality of institutions has a negative long-run connection with fiscal policy instability, showing that good working institutions play a substantial role in reducing budget deficit variability and uncertainty. This is attributable to the economy's strong and effective fiscal discipline, as well as the presence of good functional institutions. Unfortunately, we are still struggling to improve our institutional structure. Agnello and Sousa (2009) documented the role of institutional quality in reducing fiscal policy instability (budget deficit volatility) for 125 countries, and Yogo (2015) documented the role of institutional quality in reducing fiscal policy instability (budget deficit volatility) for 66 developing countries, including Pakistan.

It is interesting to note that when terrorist attacks interact with institutional quality, terrorism does not appear to play a long run role in producing fiscal policy instability in Pakistan. Instead, we find that in the presence of high-quality institutions, terrorism tends to decrease fiscal policy instability. This means that institutional quality can help mitigate the negative effects of terrorism on the economy. Institutions act as a barrier, shielding fiscal accounts from the adverse effects of terrorism.

Our findings are noteworthy in that they emphasize the relevance of institutions in terms of not just minimizing fiscal policy instability but also mitigating the negative effects of terrorism on fiscal stability. Notably, when we compute the entire impact of terrorism on fiscal policy instability through institutional quality, we can see that the total impact of terrorism is still positive, but the size has decreased from 0.154 to 0.07 (+0.154 - 0.080 =

+0.07). This finding is crucial because it shows that, while institutional quality lessens the threat of terrorism, it does not totally alleviate it in Pakistan. As a result, the current status of institutional quality in Pakistan must be improved.

Table 4. Terrorism and Fiscal Policy Instability: Role of Institutions		
Dependent Variable: FPI		
Selected Model: ARDL(1,2,2,1,2,1,1,1)		
Regressor	Coefficient	t-value
TER	0.154**	2.291
GDPGR	-0.243*	-1.993
BD	0.375**	2.816
AID	-0.220***	-6.672
IR	0.123***	3.788
INS	-0.151**	-2.165
TER*INS	-0.080**	-2.326
Error Correction Model: Short Run Estimates		
Dependent Variable: D(FPI)		
Regressor	Coefficient	t-value
Constant	-0.968***	-12.214
D(TER)	0.023	0.555
D(TER)$_{t-1}$	0.081	0.678
D(GDPGR)	-0.075**	-3.020
D(GDPGR)$_{t-1}$	-0.032***	-9.081
D(BD)	0.105***	4.847
D(AID)	-0.148	1.181
D(AID)$_{t-1}$	0.047	0.468

D(IR)	0.082	0.744
D(INS)	-0.065	-1.373
D(TER*INS)	-0.112	1.595
ECT$_{t-1}$	-0.707***	-12.249
	Diagnostic Tests	
$\chi^2_{SC} = 0.404(0.534)$ $\quad$ $\chi^2_{FF} = 0.849(0.353)$		$\chi^2_H = 0.792(0.372)$ $\quad$ $\chi^2_N = 2.212(0.297)$

Note:***, **and * indicate significant at 1%, 5% and 10% levels respectively.

χ^2_{SC}, χ^2_H, χ^2_{FF} and χ^2_N denote LM test for serial correlation, heteroscedasticity,

functional form and normality respectively. The associated p values are in parentheses.

Only economic growth and the budget deficit are found to be significant determinants in the country's fiscal policy instability in the short run (see middle section of table 4). Number of terrorist incidents, institutional quality, their interaction term and interest rate have no bearing on fiscal policy instability. The long run findings of both the models (3) and (4) are consistent, since the inclusion of institutional quality has no effect on the sign and significant connection of fiscal policy instability with the regressors, as shown in tables 3 and 4. Some trivial changes in the magnitudes of impact of terrorism and other explanatory variables can been seen.

When we move to the short run comparison it is evident that in case of model (3) only budget deficit variable appears to be significant determinant of fiscal policy instability. While, the short run estimated parameters of model (4) exhibit that economic growth and budget deficit are the main determinants of fiscal policy instability in Pakistan. The coefficient of lagged ECT is significant and negative, implying the stability of the long run equilibrium between fiscal policy instability and all the explanatory variables of model (4). Specifically, in the event of a disruption in the long run equilibrium position, a nearly 70% correction will occur every year to restore the equilibrium. Model (4) does not have serial correlation, heteroscedasticity, functional form, or normality concerns, as seen in the lower section of table 4. Furthermore, plots of CUSUM and CUSUMSQ tests confirm the stability of parameter estimates of the estimated model (see figure 2).

Figure 2. Plots of CUSUM and CUSUM SQ Tests

(a)   (b)
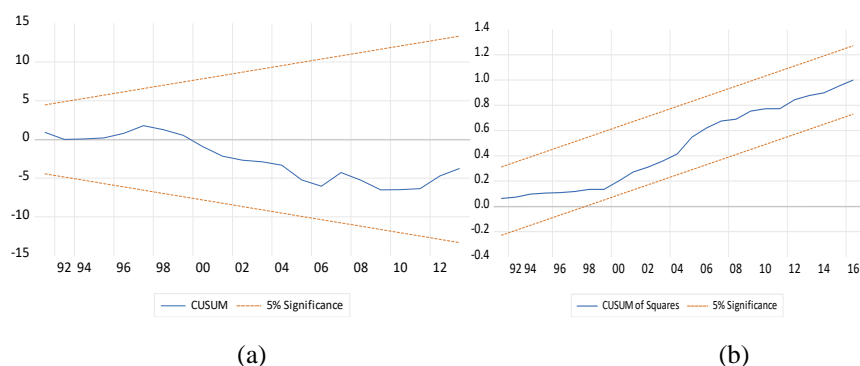
5. Conclusions and Policy Implications

Terrorism is not a new phenomenon. However, the severity of terrorist activities is intensified over the time and so are the socio-economic and political implications. Terrorism not only distorts economic activity but it also destabilizes the physical, financial, and economic structure of economies. The macroeconomic consequences of terrorism are widely analyzed by the existing literature, however, there is a dearth of literature concerning the fiscal cost of terrorism. The fiscal accounts are adversely impacted by the terrorism in affected countries as the respective governments need to take security measures which divert resources form productive to non-productive projects and programs.

The present study aims at analyzing the fiscal consequences of terrorism in Pakistan by incorporating the moderating role of institutional quality over the period 1984 to 2016. In this regard, the study has estimated the instability of fiscal policy response to terrorism in Pakistan. To measure the extent of terrorism, we have taken number of terrorist attacks in the country while institutional role is captured through institutional quality index which is constructed by employing the principal component analysis. Moreover, the empirical investigation is carried out by using the ARDL technique.

The empirical findings reflect a detrimental impact of terrorism on Pakistan through intensifying the variations in the fiscal policy. Terrorism gives rise to uncertainty in the economy which leads to produce instability in the fiscal policy formation as governments need to alter their priorities and developmental plans in response to persistently occurring incidents of terrorism. Therefore, our study shows that after controlling for the traditional determinants of fiscal policy volatility, terrorism significantly induces uncertainty in the conduct of fiscal policy in Pakistan.

We do find, however, that institutional quality has a significant impact in sinking fiscal policy instability in Pakistan. Institutional quality and good governance help in the reduction of corruption and the improvement of fiscal management, both of which are necessary for avoiding abrupt swings in the government budget. Furthermore, better working institutions strengthen shock absorbing capacity in a country, therefore, terrorism

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fails to stimulate abrupt variations in fiscal policy in the presence of good quality institutional setup in a country like Pakistan.

Based on the findings, this paper proposes that the threat of terrorism in Pakistan be adequately controlled in order to mitigate fiscal policy instability. To achieve this, special focus should be paid to improving the quality of institutions. Better institutions will promote transparency, ensure the rule of law, and combat corruption, paving the path for the implementation of proper fiscal rules to ensure a stable and sustainable fiscal policy.

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