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Impact of Terrorism on Economic Growth of Pakistan (1994-2020)

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Abstract

Terrorism has long been a serious problem in Pakistan, affecting not only the safety and security of its residents but also its economic development. This study attempts to examine the relationship between terrorist activities and economic growth and take into consideration the ways that ongoing threats to security affect investor confidence, government expenditures, and the economy as a whole. Secondary data are taken from different sources, including the World Bank and the Global Terrorism Database, taking time series data from 1994 to 2020 and using GDP as the dependent variable, while terrorism, foreign direct investment (net inflow), and gross national expenditure are the independent variables. The long- and short-term impacts of terrorism on economic growth are estimated using the ARDL model. The study concluded that terrorism has a negative impact on Pakistan's economic growth. The findings provide significant insights into the effects of terrorism on Pakistan's economic growth, highlighting the extent to which terrorism has hindered the country's economic growth. By knowing the relationship between terrorism and economic growth, policymakers may formulate strategies to decrease the negative consequences of terrorism and advance Pakistan's sustainable economic growth.

Keywords: *Terrorism, GDP, foreign direct investment (FDI), Gross national expenditure, ARDL Model, Pakistan*

1. Introduction

According to the World Bank, terrorism is:

"The deliberate use of violence or the threat of violence by non-state actors to incite fear, panic, and instability in society—typically for ideological, religious, political, or social objectives" (World Bank, n.d., p. 1).

Terrorism is a serious problem that has significant sociopolitical and economic effects on the entire world.

There have been several incidences of terrorist strikes throughout history that have targeted significant economic sectors, infrastructure, and innocent populations. These attacks cause significant harm to human capital and physical infrastructure, disturb regular economic activity, and cause fear and terror in the general population. The purpose of this research is to determine the ways in which terrorism hinders economic development and growth, as well as to offer suggestions for countermeasures.

Terrorism has a major effect on economic growth because it makes people fearful and uncertain, which discourages investment, trade, and tourism. An environment of insecurity brought on by the ongoing fear of assaults discourages both foreign and domestic investors from putting money into the impacted areas. Additionally, if people grow careful when participating in activities like traveling, shopping, and eating out, businesses may witness a reduction in customer demand. The economy may eventually become even more stressed as a result of this decreased economic activity, which may ultimately lead to slower growth, job losses, and higher government spending on security measures. Thus, by obstructing investment, consumption, and societal well-being, the threat of terrorism hinders economic development.

The economy can be significantly harmed by terrorism. It may result in a drop in foreign direct investment (FDI), fewer traveler arrivals, delays in global trade, lower productivity, higher costs for businesses, and a reduction in investor and customer confidence. In addition, governments frequently shift large sums of money from social welfare programs and other essential development initiatives to the fight against terrorism.

1.1.1 Terrorism in Pakistan

Pakistan is among the Nations most impacted by terrorism worldwide because of the long-standing terrorist attacks (Global Terrorism Index, 2020). Several assaults on civilians, security forces, and religious minorities have been carried out by extremist groups over the years, including the Tehrik-i-Taliban Pakistan (TTP) and Lashkar-e-Taiba (LeT).

In terms of the number of terrorist killings, Pakistan has continuously been among the top nations, according to the Global Terrorism Index (2019). Early in the twenty-first century, the nation saw a significant increase in terrorism, especially in the context of the US-led War on Terror in neighboring Afghanistan, which led to a rise in cross-border terrorist activity. Due to this, organizations such as the Tehrik-i-Taliban Pakistan (TTP) emerged and began carrying out large attacks.

The emergence of terrorist networks in Pakistan has been aided by the influence of extreme ideologies and the open border with Afghanistan. Furthermore, the nation's general security state has been exacerbated by sectarian conflict. (Perlez, 2009)

In the case of Pakistan, terrorism primarily has a negative effect on economic growth. It makes obvious theoretically that a rise in terrorism would have an effect on a decline in economic growth. The explanation for the adverse effect on economic growth can be attributed to the strong correlation between foreign direct investment and economic growth. Therefore, terrorist strikes reduce the rate of foreign direct investment, and massive bombings wipe out and completely eliminate huge amounts of infrastructure in a matter of seconds. In general, it indicates a decline in growth in the economy.

1.2 Problem Statement

The economy of Pakistan is negatively obstructed by terrorism. The rise in terrorist attacks may result in a decrease in foreign direct investment (FDI), a decline in exports, rise in capital flight, an increase in inflation, the closure of businesses in conflict zones, a decline in tourism, the destruction of infrastructure and roads. The general loss of self-assurance in economy resulting helplessness to catch the attention of foreign investors and high defense and security expenditure lead to economic distortions which further impact the economic growth and instability in the country. That is why it becomes important to know the impact of terrorism on different macro-economic variables, particularly on the economic growth of Pakistan.

1.3 Research Objectives

- To analyze the Impact of Terrorism on Economic growth of Pakistan.
- To examine the impact of FDI and Gross National Expenditures on GDP of Pakistan.
- To provide recommendations for policy makers to combat Terrorism from Pakistan.

1.4 Research Hypotheses

The following null hypotheses have been developed to achieve the above objectives:
H_1**:** Terrorism (No. of Fatalities) has no significant impact on economic growth.
H_2**:** Foreign Direct Investment (FDI, net Inflow) have no significant impact on economic growth.
H_3**:** Gross national expenditure has no significant impact on economic growth.

1.5 Significance of the Study

Pakistan has suffered greatly as a result of terrorism. Even though, academic research on terrorism in Pakistan has received relatively little attention. Therefore, this study should be viewed as an attempt at filling this information gap. Hence, in gaining insight on the fundamental causes of terrorism and the elements that are damaging Pakistan's economy, a study that is grounded in empirical research with clearly defined variables, recent new data, and modern dynamic modeling techniques is needed. This study will make it easier for investors and policymakers to understand the dynamics of terrorism and will also give recommendations for how to deal with it as at grows and how to eradicate it from Pakistan.

2. Literature Review

2.1 Theoretical Framework

Many theories suggest the relationship between economic growth and terrorism. Some of these theories are explain below:

Disruption theory

Presented by Martha Crenshaw in 1981. According to this theory, Terrorism can disrupt supply chains, damage infrastructure, and cause investor and company fear, leading to reduced investment, increased consumer caution, and potential economic slowdown.

Risk and uncertainty theory

The theory of Risk and uncertainty, Presented by Bruce Schneier's 2003 book "Beyond Fear: Thinking Sensibly About Security in an Uncertain World", suggests that, Terrorism can reduce investment, consumption, and economic progress by creating uncertainty and fear.

Human capital theory

Theory of Human capital was Proposed by Alan B. Krueger and Jitka Maleckova in 2003. This theory suggests that,Terrorist acts can reduce human capital due to dangers, discouragement of education, and potential economic decline.

2.2 International Work

Koh, W. T. (2007) investigated how recent acts of terrorism, especially the 9/11 attacks in 2001, had caused havoc with the world economy. The airline and worldwide tourist industries, together with the financial markets, had short-term effects. Higher risk premiums in asset markets and a reallocation of resources to counterterrorism are two long-term effects of the world's increased security risk, even while the global economy has rebounded and is adjusting to the new circumstances. The ongoing war on terrorism will have an impact on the pace and trajectory of technological trends, much as World War II had accelerated the development of nuclear energy and played a significant role in the founding of Silicon

Valley. This is because efforts are being directed toward creating technologies to counter terrorism. This study examined how the ongoing war on terrorism has affected the economy, how resources are allocated to research and development, and how future research and development will proceed.

Gaibulloev, Sandler (2008) examined the impact of domestic and transnational terrorism on income per capita growth in 18 Western Europe countries from 1971-2004. The research reveals that each additional transnational terrorist incident reduces economic growth by about 0.4 percentage points, while domestic terrorism has a smaller effect. The negative impacts are attributed to the adverse influence of terrorism on investment shares and government spending. The study concludes that curbing transnational terrorism has a higher economic payoff than reducing domestic terrorism.

Gaibulloev, Sandler. (2009) measured how wars and terrorism affected the rise of GDP per capita in Asia between 1970 and 2004. Transnational terrorist acts significantly slowed growth, according to panel estimates. A terrorism attack every million people lowers the growth of the gross domestic product per capita by around 1.5%. Many more assaults are required in populated nations to have this kind of significant an impact. Growth is inhibited by transnational terrorism because it concentrates government spending. Rich countries, as opposed to poor ones, can tolerate terrorism without experiencing negative economic effects. The biggest rising risk is domestic conflict—more than twice as much as global terrorism. Smaller investor shares and more government expenditure were linked to conflict factors, with the crowding-in of government spending having the most effect.

Gries, T., et al. (2011) tested the relationship between terrorism and growth for seven Western European nations using the Hsiao-Granger technique. The relationship between economic performance and domestic terrorism is highly significant in bivariate circumstances. Performance has less of an effect on terrorism in trivariate contexts. Overall, research indicates that just three of the seven nations have strong correlations between economic performance and terrorist violence. It is rare to find evidence of a causal relationship between terrorism and growth in bivariate and trivariate assumptions. The study's conclusions showed that while all targeted economies have been effective in adapting to the danger of terrorism, certain nations appear to have been more affected by economic performance when it comes to terrorist violence.

Buscaglia, van Dijk (2013) looked at how terrorism affected the economic development of Latin American nations. The results showed that terrorism significantly hampered economic expansion, which in turn caused a decrease in foreign direct investment and an increase in government spending on security measures. This study emphasizes how crucial it is to deal with terrorism as a hindrance to regional economic growth.

2.3 National Work

Khan, A. (2010) looked into the effects of terrorism on Pakistan's economy. The report outlined the several ways that terrorism has hurt Pakistan's economy, such as by interfering with corporate operations, deterring foreign investors from investing there, and lowering consumer confidence. The report also looked at how Pakistan's image as a risky travel and business destination has impeded the country's efforts to thrive economically. The study highlights the necessity of implementing efficient counterterrorism measures in order to tackle the root causes of terrorism and bring stability back to the Pakistani economy. Overall, the study shed light on the difficulties encountered and offered insightful information on the intricate relationship between terrorism and economic growth in Pakistan.

Shahbaz, M. (2013) examined the relationship between inflation, economic growth, and terrorism in Pakistan using annual frequency data from 1971-2010. The study used the ARDL bounds testing approach and the rolling window approach to establish the long-run relationship. The empirical evidence confirmed the cointegration between inflation, economic growth, and terrorism in Pakistan. An increase in inflation led to increased terrorist attacks, while economic growth was a significant contributor to terrorism. Bidirectional causality was found between inflation and terrorism, as supported by the VECM

Granger-causality approach and variance decomposition approach. The study suggests that pursuing low inflation can reduce terrorism, but also presents challenges for Pakistani policymakers in pursuing economic growth.

Fatima et al. (2014) examined the impact of terrorism on economic growth in developing countries. The research uses data from the World Bank and the ADF test to analyze the relationship between terrorism and economic growth in India and Pakistan. The results show that India's economic growth does not significantly impact terrorist activities, while Pakistan's does. The study also reveals that Indian terrorist activities have a short-term impact on Pakistani terrorist activities, but this impact is not stable in the long run. The findings highlight the ongoing issue of terrorism in developing countries.

Hyder, S., et al. (2015), found that Pakistan has been confronted with the threat of terrorism in recent times. Pakistan is not only dealing with the aftermath of the Afghan War, but also with a number of ethnic, religious, and linguistic disputes that have exacerbated the operations of terrorists. Pakistan's socioeconomic structure has been significantly impacted by these conflicts. Using the Solow economic development model, the effect of terrorism on Pakistan's economic growth has been evaluated. Co-integration analysis for the years 1981–2012 has been conducted using data on terrorism from the Global Terrorism Database. The data indicates that Pakistan's economic growth has been adversely impacted by terrorism. Terrorism is the most important and main factor among the several factors that were employed to reduce economic growth. However, research indicates that foreign aid, grants, debt restructuring, and other forms of help that are given to Pakistan following its involvement in the war in Afghanistan and the fight against terrorism have a favorable effect on the country's economic growth.

Irfan, M., Awan, M. (2018) investigated the connection between Pakistan's economic expansion and terrorism. According to the report, terrorism hinders economic expansion by instilling fear and uncertainty, which discourages investment, discourages travel, and lowers total economic activity. The authors examined the precise effects of terrorism on Pakistan's economy using a case study methodology, noting the nation's high rates of violence and instability. The report also emphasized the importance that government policies play in combating terrorism and made the case that strong anti-terrorist policies are essential to fostering economic expansion. Overall, the study offered insightful information on the intricate connection between economic development and terrorism, highlighting the necessity of all-encompassing approaches to both prevent terrorism and promote nations' ability to prosper economically.

The summary of the literature concludes by indicating that terrorism can negatively impact a nation's economic growth through a variety of means, such as higher security costs, decreased investment and tourism, and business interruptions. However, there is some confidence for terrorism-affected nations due to the stability of economies and the importance of strong governance in reducing these effects.

3. Research Methodology

3.1 Data Type

An annual time series of data is utilized in the present study.

3.2 Research Area

To determine how terrorism affects Pakistan's economic growth, a study covering the entire country from 1994 to 2020 will be conducted.

3.3 Sources of Data Collection

Secondary data is taken from the database for the given variables in order to get more reliable results. Data will be acquired from the following sources:

- World Bank reports
- Global Terrorism Database (GTD)
- World Development Indicators (WDI)

Other sources include academic journals, official reports, and other relevant publications.

3.4 Econometric Model

The Impact of Terrorism on Economic Growth of Pakistan is examined in this study. The operational form of the model is given below:

GDP = β0+ β1X1+ β2X2+ β3X3+μ0

WHERE;

β0=Intercept

Dependent variable

Y= GDP growth (Annual %)

Independent variables

X1= Terrorism (Number of Fatalities)

X2= Foreign Direct Investment net Inflows (% of GDP)

X3= Gross National Expenditure (% of GDP)

μo=Error term

Table 1: Description of the variables

Variables	Denoted By	Explanation of the Variables	Measuring units	Sources
GDP	**Y**	Gross Domestic Product	Annual growth (%)	World Development Indicators
Terrorism	**X1**	Terrorism (Number of Fatalities)	(No. of Fatalities)	Global Terrorism Database
Foreign Direct Investment	**X2**	Foreign Direct Investment (net Inflows)	(% of GDP)	World Development Indicators
Gross National Expenditure	**X3**	Gross National Expenditure (% of GDP)	(% of GDP)	World Development Indicators

4. Data Analysis

4.1 Descriptive Statistics

Table 4.1 provides an overview of the basic statistical characteristics associated with the data.

Table 2: Descriptive Statistics of the Variables

Variables	Mean	Median	Maximum	Minimum	Std. Dev	Skewness	Kurtosis	Jarque Bera	Prob
GDP growth (annual %)	3.932170	4.116428	7.831256	-1.274087	1.972099	-o.286587	3.493903	0.644028	0.724688

Terrorism (no. of fatalities)	1541.185	712.000	5800.000	51.00000	1546.079	1.201696	3.571872	6.866245	0.032286
FDI, net Inflows (% of GDP)	1.014473	0.813610	3.035719	0.309595	0.713529	1.706460	5.022774	17.70710	0.000143
Gross national expenditures (% of GDP)	105.5454	106.5353	110.5973	100.3209	3.167980	-0.136864	1.804746	1.684277	0.430788

4.2 Unit Root Test

The unit root test analysis analyzes the observations to determine if the data is stationary. In these situations, the Augmented Dickey Fuller (ADF) test is often used.

4.2.1 Augmented Dickey-Fuller (ADF) Test

Table 3: Unit Root Test Results of the variables

Variables	Probability	Stationarity level
GDP growth	0.0011	I (1)
Terrorism	0.0016	I (1)
FDI net Inflows	0.0200	I (1)
Gross National Expenditure	0.0029	I (1)

All variables show stationary behavior at the 1st difference as well as at the level. The ARDL model is utilized in this study to examine the short- and long-term relationships between the variables.

4.3 Co integration Test

The co-integration test is used to determine if variables are co-integrated, or whether they will eventually impact one another. The absence of co-integration suggests the variables do not have a long-term connection.

Table 4: Co-integration (F-Bound) Test Results

Test Statistics	Value	Significant	Critical value at I(0)	Critical value at I(1)	Co-integration
F-Statistics	795.6710	5%	2.79	3.67	Co- Integration Exist

The F-statistics value (795.6710) is greater than the critical values at I(0) 2.79 and I(1) 3.67, indicating the existence of co-integration and a long-term relationship between the variables.

4.4 Auto Regressive Distributed Lag (ARDL) Model

Figure 5: depicts the results of short run analysis through ARDL Model.

Variable	**Coefficient**	**Std. Error**	**t- Statistic**	**Probability**
Terrorism	-0.000718	-7.76E-05	-9.250895	0.0027
FDI	0.746424	0.155170	4.810360	0.0171
Gross National Expenditure	-1.180098	0.0571371	-20.65364	0.1637

(source: Author's calculation from Eviews 12)

The ARDL estimation indicates that terrorism has a short-term negative effect on GDP. According to the estimation provided above, the variable's coefficient indicates that a unit increase in terrorism will result in a 0.000718 unit decrease in GDP. Probability values indicate that they are statistically significant. According to the ARDL estimation, FDI has a short-term positive effect on GDP. According to the estimation provided above, the variables' coefficient indicates that a one percent increase in FDI net inflow will result in a 0.746424 percent rise in GDP. Probability values indicate that they are statistically significant. The short-term impact of gross national expenditure on GDP is negative, according to the ARDL estimation. Based on the estimation provided above, the variables coefficient indicates that a one percent increase in gross national expenditure will result in a 1.180098 percent decrease in GDP. Probability value indicates that they are not statistically significant.

Table 6: ARDL long run analysis

Variable	Coefficient	Std. Error	t- Statistic	Probability
Terrorism	-0.000639	1.29E-05	-49.37408	0.00200
FDI net Inflows	-0.327861	0.027000	-12.14313	0.0012
Gross National Expenditure	-0.373588	0.010042	37.20168	0.0000

(source: Author's calculation from Eviews 12)

The ARDL analysis indicates that terrorism has a long-term negative effect on GDP. According to the variable coefficient in the above estimation, a single unit increase in terrorism will result in a 0.000639 unit decrease in GDP. Probability values indicate that they are statistically significant. The ARDL estimate shows that FDI has a long-term negative effect on GDP. Based on the estimation provided above, the variables coefficient indicates that a one percent increase in FDI net inflow will result in a 0.327861 percent rise in GDP. Probability values indicate that they are statistically significant. The ARDL estimation indicates that gross national expenditure has a long-term negative effect on GDP.

Based on the estimation provided above, the variables coefficient indicates that a one percent increase in gross national expenditure will result in a 0.373588 percent decline in GDP. Probability values indicate that they are statistically significant.

4.5 Stability Tests

4.5.1 CUSUM and CUSUM of Square (CUSUMSQ)

The CUSUM of Square (CUSUMSQ) and the cumulative sum (CUSUM) of recursive residuals tests are used to assess the parameter stability.
Figures 1 and 2 display the results of the CUSUM and CUSUMSQ tests.

Figure 1: CUSUM Test Result

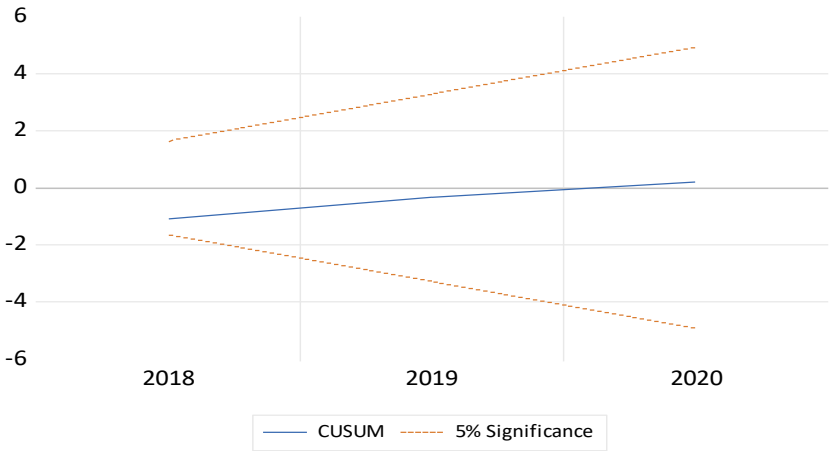
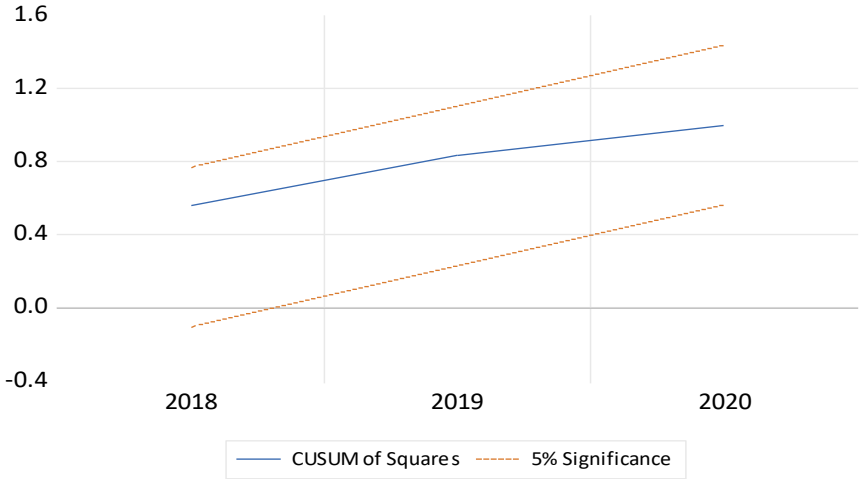


Figure 2: CUSUMSQ Test Result



At 5% significance, both CUSUM and CUSUMSQ results concluded that the model is stable.

4.5.2 Ramsey's RESET method

To further verify stability, the Ramsey's RESET Test technique is applied.

Table 7: Ramsey's RESET Test results

Test statistics	Value	Probability
T- Statistics	1.606634	0.2494
F- Statistics	2.581274	0.2494

(Source: Author's calculation from Eviews 12)

The Probability values of test statistics show that, model is correctly specified.

4.6 Diagnostics Tests

The next step after the stability test is to check if autocorrelation and heteroscedasticity are not problems with the model.

Table 8: LM serial correlation Test results

LM correlation test: Breusch- Godfrey serial	
F- Statistics	**Probability**
0.334141	0.7742

(Source: Author's calculation from Eviews 12)

Table 4.6.2: Heteroscedasticity Test results

Heteroscedasticity test: Breusch-Pagan Godfrey	
F- Statistics	**Probability**
1.003296	0.5843

(Source: Author's calculation from Eviews 12)

The results of both tests shows that the model is free from issue of Auto-correlation and Hetroscedaticity.

5. Conclusions and Recommendations

5.1 Conclusion

The study's objective is to use yearly time series data from 1994 to 2020 to examine how terrorism impacts Pakistan's GDP growth. We have used the Autoregressive Distributed Lag model to investigate the long-term relationship between terrorism and economic growth in Pakistan. The empirical findings show that there is a negative relationship between the two variables—GDP and terrorism—in both the short and long run. GDP is also impacted by other factors such as gross national expenditure and foreign direct investment inflows. In the short run, gross national expenditure has a negative impact on GDP (economic growth), whereas net inflows of foreign direct investment has a positive impact. Both net foreign investment inflows and gross domestic product have a long-term negative effect on GDP. Stability tests are undertaken, that shows that the data are stable. The diagnostic test indicates that there is no serial correlation, no hetroskedasticity. Normality test shows model is normally distributed and correctly specified. Finally, the study concludes that the terrorism has to reduce for improving economic growth.

5.2 Policy Recommendations

In response to the findings, the government of Pakistan is recommended to take following measures:

- These steps may include strengthening law enforcement agencies, improving intelligence capacities, and putting into practice successful counter-terrorism strategies. Moreover, initiatives to increase foreign direct investment (FDI) inflows and increase domestic spending to promote economic growth should be undertaken, as can investments in infrastructure, healthcare, and education.
- The government should also plan foreign policy to end external conflict with bordering countries.

- Improvements to roads, infrastructure, and industrialization in terrorist affected areas must be made using local resources and assets; this will ensure that residents not only have jobs but also actively contribute to the nation's development. The attractive security conditions will also attract foreign investors, boosting economic growth.
- In order to lower the amount of terrorist-related deaths, tighten security and step up counterterrorism operations. Economic growth depends on fostering an environment that is more stable and secure for both domestic and foreign investors. Enhance Pakistan's business environment to draw in more foreign direct investment (FDI). This could involve simplifying rules, and boosting investor confidence with practical government initiatives.
- In order to enhance gross national expenditure and encourage economic activity, the government should spend more on public services and infrastructure. This could serve to counteract whatever detrimental effects that terrorism may have had on the economy.
- Engage together with foreign organizations and partners to fight terrorism and reduce its effects on global economic growth.

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