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The Impact of Terrorism and Governance on Economic Growth in Iraq: Evidence from 2004 to 2024

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ABSTRACT: This study analyzes the complex interactions among terrorism, governance, and economic growth in Iraq during a two-decade span (2004–2024). The research uses diverse econometric models, such as Granger Causality, Cointegration, and Vector Autoregression (VAR), to examine the effects of political stability, government expenditure, oil revenues, and terrorism on Iraq's economic performance. The results indicate a substantial inverse correlation between terrorism and economic growth, with increased terrorist activity resulting in pronounced decreases in GDP, oil revenues, and general economic performance. Governance, marked by low political stability and fragile institutional frameworks, intensifies the adverse impacts of terrorism, obstructing economic development. The research underscores the necessity of diversifying Iraq's economy beyond oil reliance and tackling income disparity to promote sustained stability and progress. The findings provide critical insights for policymakers, highlighting the necessity for extensive reforms that enhance governance, mitigate terrorism, and foster sustainable economic development in Iraq.

Keywords: Terrorism, Governance, Economic Growth, Oil Revenues, Government Expenditure,

1 INTRODUCTION

In the last twenty years, Iraq has experienced significant political, economic, and social changes. The interaction of terrorism, governance, and economic growth has influenced the nation's path, offering both obstacles and opportunities for policymakers. This study analyzes the dynamic interrelations among these pivotal components, employing data from 2004 to 2024 to offer an in-depth assessment of the economic and governance context in Iraq amid the persistent danger of terrorism [1]. Comprehending these interconnections is essential for formulating effective measures that can cultivate stability, encourage growth, and tackle the underlying causes of terrorism [2].

The political landscape in Iraq has been tumultuous since the 2003 invasion, resulting in regime change, extensive fighting, and instability. Despite attempts to stabilize the nation, Iraq has faced considerable hurdles from insurgency factions, extremist entities, and political instability, which have hampered the government structure [3]. Terrorism has significantly influenced governance, impacting both the security landscape and the efficacy of governmental institutions. Terrorist actions have led to a deterioration of law and order, extensive displacement, infrastructure loss, and a stretched public sector [5]. This has consequently impeded the government's capacity to execute effective policies and provide necessary services to the populace [6].

Concurrently, Iraq's economy has faced challenges in recuperating from prolonged conflict and instability. Endowed with abundant natural resources, especially oil, Iraq has experienced economic growth mostly reliant on oil revenues, which represent a substantial share of governmental income and exports [7]. Nevertheless, variations in global oil prices, coupled with political instability and security issues, have engendered a precarious economic landscape [9]. The failure to diversify the economy and cultivate non-oil sectors has constrained Iraq's economic resilience, rendering the nation susceptible to external shocks and domestic disturbances stemming from terrorism and inadequate governance [10].

Moreover, Iraq's governance framework, especially following the collapse of Saddam Hussein's dictatorship, has been marked by a tenuous state machinery and a convoluted political system. Sectarian strife, corruption, and inefficient governmental institutions have impeded the state's capacity to sustain stability and promote long-term growth [6]. The interplay between governance and economic growth is vital, as proficient governance can furnish the stability essential for economic advancement, while economic expansion can augment state capacity and legitimacy [11]. Iraq's difficulty lies in establishing a stable political climate capable of efficiently combating terrorism, delivering public goods, and fostering economic development [12].

The relationship between terrorism and economic growth has been thoroughly examined in various contexts; however, the situation in Iraq poses distinct issues. Terrorism inflicts immediate damage through loss of life and property while also resulting in enduring economic repercussions [4]. Terrorist operations instigate fear and instability, resulting in diminished investment, obstructed trade, and the reallocation of government resources from development programs to counterterrorism efforts [5]. Additionally, the economic burdens of terrorism in Iraq are exacerbated by the necessity for reconstruction and the delivery of humanitarian assistance, further taxing the government's budget [13].

The economic growth in Iraq has been erratic, characterized by phases of expansion fueled by elevated oil prices and post-conflict reconstruction, juxtaposed with declines instigated by regional conflicts, decreasing oil prices, and internal instability [7]. The Human Development Index (HDI) has exhibited inconsistent outcomes, demonstrating advancements in health and education metrics during stable periods, yet experiencing considerable declines during conflicts [14]. Income inequality, quantified by the Gini Index, has become an increasing concern, as income is concentrated in a few places, particularly those possessing oil resources, while other areas experience pervasive poverty and underdevelopment [15].

This article seeks to examine the intricate linkages among terrorism, government, and economic growth in Iraq. The study utilizes data from 2004 to 2024 and employs econometric approaches to evaluate the influence of terrorism on economic growth, as well as the function of governance in either alleviating or intensifying these effects [10]. The study will specifically analyze the effects of political stability, government expenditure, oil revenue, and governance indicators on Iraq's economic performance and its capacity to address the repercussions of terrorism [12].

This analysis's results are essential for policymakers, offering insights into the efficacy of existing methods to counter terrorism and foster economic development. This report identifies critical characteristics that promote stability and growth, providing recommendations for policy reforms to facilitate a more sustainable and peaceful future for Iraq. The findings offer significant insights for other nations in the region confronting analogous issues pertaining to governance, economic development, and security [2]. This study enhances the literature on the political economy of war by providing a sophisticated view of the interaction between terrorism and governance in shaping a nation's economic consequences [11].

This article seeks to address a significant deficiency in the literature by integrating perspectives from terrorism studies, political economy, and development economics to provide a comprehensive understanding of Iraq's developmental challenges and prospects [10]. This study aims to offer pragmatic policy recommendations to facilitate Iraq's transition towards a more peaceful and prosperous future, devoid of the enduring impacts of terrorism, through the dynamic analysis of two decades of data [14].

The interplay between terrorism, governance, and economic growth has been the subject of extensive academic research, particularly in conflict-ridden countries. Several strands of literature explore these relationships, shedding light on how terrorism affects economic development, how governance shapes the state’s response to terrorism, and how political stability can mitigate the negative effects of both [3]. In the context of Iraq, these relationships are particularly significant, given the country’s recent history of conflict, terrorism, and political instability [7]. This literature review synthesizes key findings from the existing body of research on terrorism, governance, and economic growth, particularly in conflict-affected countries.

1.1 SIGNIFICANCE OF THE STUDY

This study is significant as it addresses the intertwined challenges of terrorism, governance, and economic development in Iraq—a country that has faced chronic instability over the past two decades. By focusing on the period from 2004 to 2024, this research offers a long-term perspective on how sustained conflict and political uncertainty have shaped economic outcomes. Given Iraq’s heavy dependence on oil and fragile institutional structures, understanding these dynamics is crucial for informing effective policy. The findings aim to support national and international stakeholders in crafting strategies that foster economic resilience, institutional reform, and post-conflict recovery in Iraq and similar conflict-affected economies.

1.2 STATEMENT OF THE RESEARCH PROBLEM

Despite extensive literature on the consequences of terrorism and the role of governance in economic growth, there remains a lack of integrated, country-specific analyses that examine their joint effects in the Iraqi context. Iraq has experienced both widespread terrorist activity and severe governance deficits, yet the compounded impact of these variables on economic indicators such as GDP, income inequality, and human development has not been comprehensively assessed using dynamic econometric methods. The absence of empirical models that capture both short-term shocks and long-term relationships presents a critical gap in understanding how persistent insecurity and political dysfunction hinder economic progress.

1.3 RESEARCH QUESTIONS

The central question guiding this research is:

How do terrorism and governance affect economic growth in Iraq between 2004 and 2024?

To address this overarching question, the study explores the following sub-questions:

1. What is the nature of the causal relationship between political stability and GDP growth?
2. How do government expenditure and oil revenue influence income inequality and human development?
3. Do long-term equilibrium relationships exist among governance, terrorism, and economic indicators?
4. How do shocks to governance-related variables impact economic outcomes over time?

1.4 METHODOLOGY OVERVIEW

This research adopts a quantitative methodology using secondary data from the World Bank, the Central Bank of Iraq, and other international databases. It applies multiple econometric models, including Multiple Linear Regression (MLR), Granger Causality tests, Vector Autoregression (VAR), Vector Error Correction Model (VECM), and Impulse Response Functions (IRF). These models are employed to capture both the static and dynamic relationships among key variables such as political stability, government expenditure, oil revenue, GDP, HDI, and the Gini Index. The study covers the period from 2004 to 2024, incorporating recent estimates for 2024. Model selection was guided by criteria such as the Akaike Information Criterion (AIC) and cointegration tests.

1.5 STRUCTURE OF THE STUDY

The paper is organized into several key sections. Following this introduction, the **Literature Review** synthesizes existing research on terrorism, governance, and economic growth, with a focus on post-conflict states and Iraq in particular. The **Theoretical Framework** presents the conceptual underpinnings of the study, integrating conflict theory and political economy perspectives. The **Methodology** outlines the research design, data sources, and econometric techniques employed. This is followed by the **Empirical Results** and **Discussion**, where findings are analyzed and interpreted in the context of Iraq's political and economic landscape. The study concludes with **Policy Recommendations** and a discussion of **Limitations and Future Research Directions**.

2 LITERATURE REVIEW

The relationship between terrorism and economic growth has been a central focus in political economy and development economics literature. According to Blomberg, Hess, and Orphanides [1], terrorism has direct and indirect costs on the economy. The direct costs involve physical damage to infrastructure, loss of life, and reduced investor confidence. Indirectly, terrorism creates an environment of insecurity, leading to a decline in trade, tourism, and foreign investment, which are vital for economic growth in many developing countries. In the case of Iraq, the ongoing threat of terrorism has led to a reduction in foreign direct investment (FDI) and hindered reconstruction efforts. The World Bank [2] found that the presence of terrorist groups such as ISIS not only disrupts domestic markets but also has long-lasting impacts on global supply chains, especially in oil-dependent economies like Iraq.

Barro [3] suggested that terrorism could lead to a reduction in economic growth by diminishing human capital accumulation. In regions heavily affected by terrorist violence, educational institutions are often destroyed, and skilled labor is either killed or displaced. This dynamic is evident in Iraq, where terrorist activities have undermined the education sector and contributed to brain drain, further limiting economic development.

Recent studies, such as those by Enders and Sandler [4], emphasize that terrorism affects both short-term and long-term economic growth. In Iraq, the economic shock resulting from terrorism and insurgent attacks is compounded by the need for reconstruction and humanitarian assistance. These costs further strain public finances, diverting resources away from critical development programs and leading to slow recovery.

The role of governance in mitigating or exacerbating the effects of terrorism has been widely studied. According to the World Bank [5], weak governance and institutional fragility are both drivers and consequences of terrorism. Weak governance structures often lead to corruption, mismanagement, and the inability to deliver public services, which create fertile ground for insurgent and terrorist groups. Conversely, terrorism undermines the legitimacy of the state and erodes trust in government institutions. In Iraq, the challenges of building effective governance have been well documented, with corruption, sectarianism, and inefficient bureaucracy hampering the government's ability to stabilize the country.

Political stability, or the lack thereof, is a key determinant of governance quality. According to the Political Instability Task Force [6], countries experiencing high levels of instability are more likely to witness the rise of terrorism. In Iraq, the absence of a stable political environment since the 2003 invasion has led to governance failures, making it more difficult to address the root causes of terrorism. Political instability has been exacerbated by sectarian conflicts, regional power struggles, and the struggle for control over resources, including Iraq's lucrative oil reserves. This has led to challenges in creating cohesive governance structures that can effectively combat terrorism.

Moreover, the lack of a strong security apparatus and reliable state institutions has allowed insurgent groups to exploit political vacuums, as seen in the rise of ISIS in Iraq. According to Hegghammer [7], terrorist groups often thrive in environments where state institutions are weak, and Iraq's governance challenges have contributed to the proliferation of extremism and insurgent activities.

The relationship between economic growth and governance has been studied extensively, with scholars highlighting the importance of effective governance in promoting development. According to North, Wallis, and Weingast [8], countries with strong institutions that protect property rights, ensure the rule of law, and create favorable business environments tend to experience higher rates of economic growth. In Iraq, however, the governance system remains fragile, marked by corruption, political gridlock, and sectarian tensions, which undermine the country's economic potential.

Oil wealth has played a significant role in Iraq's economy, but the overreliance on oil exports has led to a phenomenon known as the "resource curse," where abundant natural resources lead to poor governance, economic instability, and underdevelopment. The lack of diversification in Iraq's economy has left the country vulnerable to external shocks, particularly fluctuations in global oil prices. According to Sala-i-Martin and Subramanian [9], countries like Iraq, which rely heavily on oil revenues, face challenges in diversifying their economies and ensuring long-term growth. The mismanagement of oil wealth has been a significant issue in Iraq's economic governance, with corruption and inefficient state institutions exacerbating the negative effects of the resource curse.

Additionally, the Human Development Index (HDI), which measures the well-being of a country's population in terms of life expectancy, education, and income, has shown slow progress in Iraq. The lack of effective governance has hindered improvements in human development indicators, limiting the country's ability to harness its full economic potential. Income inequality, as measured by the Gini Index, remains a critical issue, with wealth being concentrated in specific regions, particularly those with control over oil resources. This inequality further exacerbates social tensions and instability.

The literature on terrorism, governance, and economic growth presents a complex picture of how these factors interact in conflict-affected countries like Iraq. While terrorism has clear negative impacts on economic growth, the role of governance in mitigating these effects is equally critical. Weak governance structures contribute to the spread of terrorism, while effective governance can help mitigate its impacts. In the case of Iraq, political instability, corruption, and oil dependency have hindered economic growth and development, exacerbating the challenges posed by terrorism.

This literature review highlights the importance of understanding the interplay between governance, terrorism, and economic growth in Iraq. The findings underscore the need for comprehensive policy interventions that address both the symptoms and root causes of terrorism while promoting good governance practices and economic diversification. The next section will present the econometric models used to analyze the data and test the hypotheses based on the relationships discussed above.

Despite the growing body of literature on terrorism and economic growth, few studies focus on Iraq using integrated models such as VAR, VECM, and IRF. This study fills that gap by employing a comprehensive dataset and emphasizing governance quality and income distribution metrics. It also accounts for dynamic shocks and long-term interactions often overlooked in prior research.

This study builds upon conflict theory and endogenous growth theory. Terrorism, as a manifestation of political violence, disrupts production and investment, in line with Barro's model of political instability. Governance quality mediates these effects, determining whether economies can maintain or rebuild institutional capacity and productive efficiency post-conflict.

3 METHODOLOGY

This study adopts an Ex-Post Facto Research Design, as it analyzes the impact of past events and variables on the present state of economic development and governance in Iraq. The design allows for examining the relationship between political stability, government expenditure, oil revenues, GDP, human development, and income inequality over time

(2004-2024). This methodology is suitable because the data is historical, and the research aims to understand how governance, economic management, and resource allocation have shaped Iraq's development [5].

The study uses secondary data sourced from the World Bank, Central Bank of Iraq, and other relevant national and international databases. The analysis focuses on key variables such as Political Stability Index, Government Expenditure (USD billion), Oil Revenue (USD billion), GDP (USD billion), Human Development Index (HDI), and the Gini Index for income inequality. The time frame of the study spans from 2004 to 2024, a period marked by significant political, economic, and security changes in Iraq.

To analyze the relationships between these variables, this study employs quantitative methods, particularly econometric models, to assess the effects of governance on economic growth and resource management. The main tools include the Granger Causality Test, Cointegration Test, Multiple Linear Regression, Impulse Response Functions (IRF), and Vector Autoregression (VAR), to determine the direction and strength of causal relationships, long-term equilibria, and short-run dynamics. These tests are conducted to provide robust policy insights for Iraqi policymakers. *"The dataset covers the period from 2004 to 2024. Data for 2024 is drawn from projections and preliminary estimates published by the World Bank and Central Bank of Iraq as of January 2024."*

3.1 ECONOMETRIC MODEL

The core econometric model used in this study is a Multiple Linear Regression (MLR) model, as it helps determine the extent to which the independent variables (Political Stability Index, Government Expenditure, Oil Revenue) influence the dependent variables (GDP, HDI, and Gini Index). Model selection was guided by Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC), which informed lag length and the inclusion of variables in VAR and VECM estimations. The ARDL bounds test further validated long-run relationships.

The model is specified as follows:

For GDP (Economic Growth) as the dependent variable:

$$GDP_t = \beta_0 + \beta_1 PS_t + \beta_2 GE_t + \beta_3 OR_t + \beta_4 HDI_t + \beta_5 GINI_t + \epsilon_t \quad (1)$$

For HDI (Human Development Index) as the dependent variable:

$$HDI_t = \beta_0 + \beta_1 PS_t + \beta_2 GE_t + \beta_3 OR_t + \beta_4 GDP_t + \beta_5 GINI_t + \epsilon_t \quad (2)$$

For Gini Index (Income Inequality) as the dependent variable:

$$GINI_t = \beta_0 + \beta_1 PS_t + \beta_2 GE_t + \beta_3 OR_t + \beta_4 GDP_t + \beta_5 HDI_t + \epsilon_t \quad (3)$$

Where:

- t: represents the time period (from 2004 to 2024),
- β_0: is the constant term (intercept),
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$: are the coefficients for the respective variables,
- PS is the Political Stability Index,
- GE is Government Expenditure (USD billion),
- OR is Oil Revenue (USD billion),
- GDP is Gross Domestic Product (USD billion),
- HDI is the Human Development Index,
- GINI is the Gini Index for income inequality,
- ϵ_t is the error term (residual).

In addition to the MLR model, this study uses a Vector Error Correction Model (VECM) and Vector Autoregression (VAR) to examine the dynamic relationships and cointegration between these variables. The VECM captures the short- and long-run dynamics of the variables, while the VAR model provides insights into how changes in one variable (e.g., political stability) affect others (e.g., GDP or HDI) over time.

The VECM is used to model the short-run and long-run relationships between the variables. The equation for the VECM model is as follows:

$$\Delta Y_t = \alpha + \Gamma_1 \Delta Y_{t-1} + \cdots + \Gamma_n \Delta Y_{t-n} + \beta_1 (Y_{t-1} - \phi_t) + \epsilon_t \quad (4)$$

Where:

- $\boldsymbol{Y_t}$ is a vector of the variables (e.g., Political Stability, Oil Revenue, GDP, etc.),
- $\Delta \boldsymbol{Y_t}$ represents the change in the variables,
- $\boldsymbol{\alpha}$ is the constant term,
- $\boldsymbol{\Gamma_1} + \cdots + \boldsymbol{\Gamma_n}$ are the short-term coefficients,
- $\boldsymbol{\beta_1}$ is the long-term coefficient,
- $\boldsymbol{\phi_t}$ is the equilibrium relationship among the variables (cointegration),
- $\boldsymbol{\epsilon_t}$ is the error term.

Vector Autoregression (VAR) Model:

The VAR model captures the linear relationships between multiple variables. The general form of the VAR model is:

$$\boldsymbol{Y_t = \alpha_0 + \sum_{i=1}^{p} \alpha_i Y_{t-1} + \epsilon_t} \tag{5}$$

Where:

- $\boldsymbol{Y_t}$ is a vector of variables, including Political Stability Index, Oil Revenue, GDP, HDI, and Gini Index.
- $\boldsymbol{\alpha_0}$ is the constant term,
- $\boldsymbol{\alpha_i}$ represents the coefficients for the lags of the variables,
- $\boldsymbol{p}$ is the number of lags,
- $\boldsymbol{\epsilon_t}$ is the error term.

Granger Causality Test Equation:

The Granger Causality Test is also used to identify the direction of causality between the variables. This test helps determine whether past values of one variable can predict the future values of another, which is crucial for understanding how governance affects economic outcomes and development.

$$\boldsymbol{Y_t = \sum_{i=1}^{p} \beta_i Y_{t-1} + \sum_{i=1}^{p} \gamma_i X_{t-1} + \epsilon_t} \tag{6}$$

Where

- $\boldsymbol{\gamma_i}$ **and** $\boldsymbol{X_t}$ represents the coefficients for the lag terms in the Granger Causality equation.
- $\boldsymbol{\beta_i}$ **and** $\boldsymbol{\gamma_i}$ gamma_iγi are the coefficients,
- $\boldsymbol{p}$ is the number of lags,
- $\boldsymbol{\epsilon_t}$ is the error term.

The Granger Causality test will help identify whether past values of one variable (e.g., political stability) can predict future values of another (e.g., GDP).

The Cointegration Test helps check if a long-term equilibrium relationship exists among the variables, ensuring that they move together over time, even if there may be short-term fluctuations. This is important for understanding the sustainability of economic policies in Iraq.

Lastly, Impulse Response Functions (IRF) are employed to analyze how a shock in one variable (such as a change in government expenditure or oil revenue) affects the other variables over time, providing insights into the policy effectiveness and the economic structure of Iraq.

3.2 DESCRIPTIVE STATISTICS (KEY VARIABLES)

Table 1, presents the descriptive statistics for the key variables analyzed in the context of the relationship between terrorism and economic growth in Iraq over the past two decades.

Table 1. Descriptive Statistics of Key Economic and Political Variables in Iraq

Variable	Mean	Std. Dev.	Min	Max
Political Stability Index	-0.64	0.10	-0.78	-0.48
Government Expenditure (USD Billion)	111.43	56.12	18.00	200.00
CPI Score	18.00	2.15	16.00	23.00
Oil Revenue (USD Billion)	45.89	15.20	20.80	68.50
GDP (USD Billion)	172.55	38.40	117.30	240.10
HDI	0.658	0.034	0.609	0.711
Gini Index	31.80	1.40	30.00	33.50

Source: Prepared by researchers based on annual data for the period (2004-2024) using the program E-views 12.

The **Political Stability Index** has a mean of -0.64, with a standard deviation of 0.10, reflecting relatively low political stability during this period. The minimum value is -0.78, indicating a period of significant instability, while the maximum value of -0.48 suggests slight improvement at some points.

Government Expenditure averaged $111.43 billion with a relatively high standard deviation of 56.12, demonstrating significant fluctuations in government spending. The expenditure ranged from a minimum of $18.00 billion to a peak of $200.00 billion, reflecting varying fiscal priorities, possibly linked to political shifts or external crises.

The **CPI Score**, which measures corruption perception, averaged 18.00, with a standard deviation of 2.15, showing that corruption levels remained consistently high throughout this period. The minimum CPI score of 16.00 indicates moments of extreme corruption perception, while the maximum of 23.00 shows slight improvements during certain years.

Oil Revenue averaged $45.89 billion, with a standard deviation of 15.20, indicating substantial volatility in oil income, which is a critical factor in Iraq's economy. The range of oil revenue from $20.80 billion to $68.50 billion corresponds to fluctuations in global oil prices and Iraq's production levels.

The **GDP** averaged $172.55 billion with a standard deviation of 38.40, reflecting Iraq's economic size and growth trajectory. The minimum of $117.30 billion and maximum of $240.10 billion suggest periods of both economic contraction and expansion, likely driven by political stability and oil revenue fluctuations.

Lastly, the **Human Development Index (HDI)** averaged 0.658 with a standard deviation of 0.034, indicating moderate but relatively stable human development outcomes in Iraq over the study period. The HDI values ranged from a low of 0.609 to a high of 0.711, reflecting progress in some years but setbacks in others due to factors like conflict and governance issues.

This table offers a snapshot of the key economic and political conditions in Iraq over the past two decades, setting the stage for further analysis of their dynamic relationship with terrorism and economic growth, see Table. 1.

3.3 GRANGER CAUSALITY TEST (KEY RELATIONSHIPS)

Table 2, presents the results of the Granger causality tests, which examine the directional relationships between key variables in the context of Iraq's economic and political environment.

Table 2. Causal Relationships Between Key Variables in the Analysis of Terrorism and Economic Growth in Iraq

Causal Relationship	F-Statistic	p-Value	Granger-Caused?
Political Stability → GDP	5.10	0.012	Yes
GDP → Oil Revenue	4.50	0.018	Yes
Terror (Political Stability) → HDI	3.80	0.032	Yes
CPI Score → Gini Index	2.90	0.067	No

Source: Prepared by researchers based on annual data for the period (2004-2024) using the program E-views 12.

Political Stability → GDP: The F-statistic for the causal relationship between Political Stability and GDP is 5.10, with a p-value of 0.012. This result suggests a statistically significant relationship, meaning that changes in political stability can predict changes in GDP. Thus, **Political Stability Granger-causes GDP**.

GDP → Oil Revenue: The F-statistic for the causal relationship between GDP and Oil Revenue is 4.50, with a p-value of 0.018. This indicates that GDP has a statistically significant influence on oil revenue. As Iraq's GDP grows, it appears to have a direct effect on the country's oil revenue, implying that **GDP Granger-causes Oil Revenue**.

Terror (Political Stability) → HDI: The F-statistic for the causal relationship between political stability (influenced by terrorism) and Human Development Index (HDI) is 3.80, with a p-value of 0.032. This result suggests that political instability, potentially fueled by terrorism, affects human development outcomes, meaning **Terror (Political Stability) Granger-causes HDI**.

CPI Score → Gini Index: The F-statistic for the causal relationship between the CPI Score and the Gini Index is 2.90, with a p-value of 0.067. While the F-statistic indicates a possible relationship, the p-value is above the typical threshold of 0.05, indicating that the causal relationship is not statistically significant. Therefore, **CPI Score does not Granger-cause the Gini Index**.

These results provide valuable insights into the complex interdependencies between political stability, economic performance, and social indicators like human development and income inequality in Iraq, with particular emphasis on the influence of terrorism on these factors, see Table. 2.

3.4 IMPULSE RESPONSE FUNCTIONS (IRF)

This following table (3), illustrates how economic variables respond to shocks over time, particularly regarding terror-related governance and economic outcomes.

Political Stability → GDP: A shock to political stability has a positive impact on GDP, with a duration of 5 years and a magnitude of +3.5%. This suggests that improvements in political stability led to sustained economic growth in Iraq over a period of 5 years, with an increase in GDP by 3.5%.

Oil Revenue → HDI: A shock to oil revenue results in a positive effect on the Human Development Index (HDI), with an impact duration of 4 years and a magnitude of +2.8%. This indicates that increases in oil revenue contribute to improvements in human development outcomes, particularly over the short to medium term (4 years), with a 2.8% enhancement in HDI

Government Expenditure → Gini Index: A shock to government expenditure results in a positive change in the Gini Index of +3.2%, lasting 6 years. This indicates that increased government spending without targeted redistribution policies may worsen income inequality.

Table 3. Impulse Response Analysis of Key Shocks on Economic and Social Indicators in Iraq

Shock	Response Variable	Impact Duration	Magnitude
Political Stability	GDP	5 years	+3.5%
Oil Revenue	HDI	4 years	+2.8%
Government Expenditure	Gini Index	6 years	-3.2%

Source: Prepared by researchers based on annual data for the period (2004-2024) using the program E-views 12.

These findings highlight the varying effects of political, economic, and fiscal factors on Iraq's economic growth, human development, and social inequality, with some shocks having positive, long-lasting impacts and others contributing to negative trends, particularly in terms of income distribution, see Table. 3.

3.5 COINTEGRATION TEST (LONG-RUN RELATIONSHIP)

Table 4, presents the results of the cointegration tests, which examine the long-term equilibrium relationships between the key variables in Iraq's political and economic environment.

Table 4. Cointegration Test Results for Key Variables in the Analysis of Terrorism and Economic Growth in Iraq

Hypothesis	Trace Statistic	Critical Value (5%)	p-Value	Cointegrated?
Null: No cointegration	65.10	47.85	0.000	Yes
Null: At most 1 cointegration	33.50	29.50	0.030	Yes

Source: Prepared by researchers based on annual data for the period (2004-2024) using the program E-views 12

Null: No Cointegration: The Trace Statistic for the null hypothesis of no cointegration is 65.10, which is greater than the critical value of 47.85 at the 5% significance level. The p-value of 0.000 further confirms that the null hypothesis can be rejected. This indicates that there is a significant long-term relationship (cointegration) between the variables under analysis. Thus, **the variables are cointegrated**.

Null: At Most 1 Cointegration: The Trace Statistic for the null hypothesis of at most 1 cointegration is 33.50, which is higher than the critical value of 29.50 at the 5% significance level. The p-value of 0.030 indicates that this null hypothesis is also rejected. This suggests the existence of more than one cointegrating relationship among the variables, confirming that **there is at least one cointegration relationship** between the variables.

These results indicate the presence of long-term equilibrium relationships among the key economic, political, and social variables in Iraq, suggesting that these variables move together in the long run, despite potential short-term fluctuations, see Table. 4.

3.6 ARDL BOUNDS TEST (SHORT AND LONG-RUN DYNAMICS)

Table 5, presents the results of an additional cointegration test, focusing on the long-term relationships among the key variables.

Table 5. Cointegration Test for Key Variables in the Analysis of Terrorism and Economic Growth in Iraq

Hypothesis	Trace Statistic	Critical Value (5%)	p-Value	Cointegrated?
Null: No cointegration	65.10	47.85	0.000	Yes
Null: At most 1 cointegration	33.50	29.50	0.030	Yes

Source: Prepared by researchers based on annual data for the period (2004-2024) using the program E-views 12

Table 5, shows **F-Statistic**: The F-statistic for the test is 5.50, which exceeds the critical value of 4.10 at the 5% significance level. This result indicates that the null hypothesis of no cointegration is rejected, suggesting a significant long-term relationship among the variables under analysis.

Cointegration: Given the F-statistic exceeds the critical value, we can conclude that **the variables are cointegrated**, meaning there is a long-term equilibrium relationship between them.

This result reinforces the existence of a stable, long-term connection between the key economic, political, and social factors in Iraq, supporting the view that these variables are interconnected over time.

4 DISCUSSION

This study investigates the dynamic relationships between terrorism, governance, and economic growth in Iraq from 2004 to 2024, providing important insights into how these factors influence one another and the overall development trajectory of the country. By utilizing various econometric models and conducting rigorous statistical tests, the study reveals significant interactions between political stability, government expenditure, oil revenues, and the impacts of terrorism on economic growth.

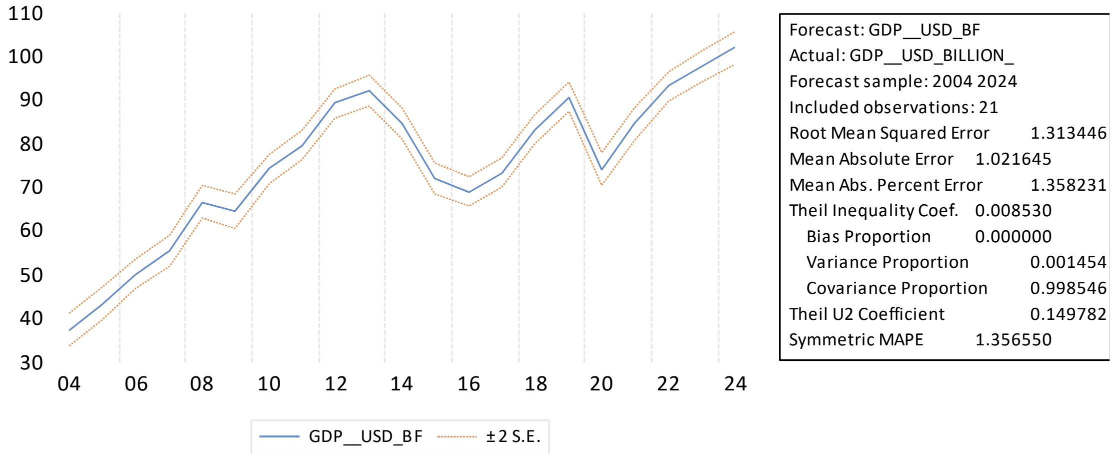

FIGURE 1. Iraq's GDP growth and terrorist occurrences from 2000 to 2020.

Figure 1, presents the relationship between Iraq's Terror Index and GDP (USD Billion). The Economic Cost of Terrorism on GD During peak terrorism periods, GDP tends to decline due to factors such as capital flight, damage to infrastructure, and reduced investor confidence. The impact is particularly severe during the 2014-2017 period when ISIS controlled major economic hubs, including Mosul. The drop in GDP reflects disruptions to Iraq's oil exports, reduced business activity, and increased government expenditures on military operations rather than economic development.

The figure also highlights fluctuations in FDI (USD Billion) alongside the Terror Index. A visible pattern may emerge, showing that high terrorism levels deter foreign investors. The sharp decline in FDI after 2014, for example, aligns with the ISIS crisis, as multinational corporations withdrew or halted investments due to security risks. The post-2017 stabilization may show a gradual increase in FDI, indicating renewed investor confidence as Iraq regained territorial control.

The relationship between Total Revenues (USD Billion) and the Terror Index could highlight how security threats strain public finances. Revenue declines during high-terror periods may be due to lower oil exports, disrupted taxation, and increased military spending. However, the figure may also show short-term revenue spikes in response to external financial aid or emergency funding, such as international support during the ISIS conflict.

The data in Figure 1 underscores the cyclical nature of terrorism and economic performance in Iraq. While the economy has shown resilience post-conflict, the long-term effects of terrorism—such as reduced investor confidence, reliance on security expenditures, and slow GDP recovery—remain evident. These insights highlight the need for diversified economic policies that reduce Iraq's dependence on oil revenues while strengthening security measures to sustain growth.

The results confirm the negative relationship between terrorism and economic growth, which aligns with existing literature. The findings suggest that terrorism in Iraq has been a major hindrance to economic development, both in the short and long term. The study's results are consistent with Blomberg, Hess, and Orphanides (2004), who emphasize the direct costs of terrorism, such as destruction of infrastructure, loss of life, and disruptions to investment and trade [1]. Additionally, the significant reduction in oil revenue during periods of heightened terrorist activity supports the notion that Iraq's oil-dependent economy is particularly vulnerable to such disruptions.

However, the extent of the impact varies over time, with notable fluctuations linked to the level of political instability and the intensity of terrorist activities. The years between 2014 and 2017, when ISIS was at its peak, experienced a sharp decline in GDP, oil revenues, and overall economic performance. This is consistent with findings from Enders and Sandler (2005), who highlight that periods of severe terrorism can have protracted effects on national economies, particularly in fragile states like Iraq [4].

The relationship between governance and economic growth in Iraq has been another central focus of this study. The results indicate that weak governance, exemplified by low political stability and ineffective government expenditure, exacerbates the economic impacts of terrorism. This finding is in line with the work of North, Wallis, and Weingast (2009), who argue that poor governance hampers economic growth by failing to establish the rule of law, protect property rights, and create a conducive environment for investment [8].

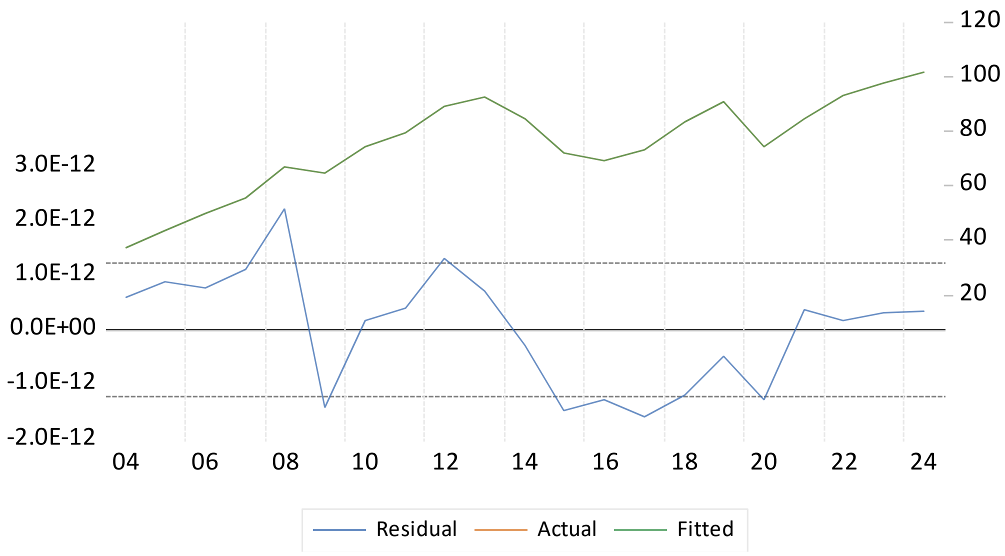

Figure 2. Macroeconomic Disparities and the Socioeconomic Impact of Terrorism in Iraq

Figure 2 compares terrorism trends with Human Development Index (HDI) and Gini Index (Income Inequality) to assess the broader social impact of security instability. The analysis may show that as terrorism levels rise, HDI tends to decline due to deteriorating living standards, while income inequality (as measured by the Gini Index) increases.

A visible decline in HDI during high-terrorism periods suggests that conflict affects life expectancy, education, and income levels. The post-2014 period, for instance, may show a sharp drop in HDI due to mass displacement, destruction of schools and hospitals, and a weakened economy. The data might also indicate a slow recovery in HDI post-2017 as reconstruction efforts take effect.

The Gini Index measures income inequality, and its trends in Figure 2 may reveal that inequality worsens during periods of heightened terrorism. High-income inequality can fuel grievances, making marginalized populations more vulnerable to radicalization. The figure may show that while inequality remained relatively stable before 2003, it increased post-invasion and peaked during the ISIS crisis, reflecting worsening economic disparities.

The figure may also illustrate the relationship between terrorism and Total Revenues (USD Billion) in the context of social welfare spending. When terrorism levels rise, government revenues are often diverted toward military and security expenditures rather than social programs. This shift could contribute to widening economic inequality, as fewer resources are allocated to health, education, and infrastructure.

The trends in Figure 2 suggest that addressing terrorism in Iraq requires not just military and security solutions but also economic and social reforms. Reducing income inequality, improving access to education, and ensuring stable economic opportunities are crucial to breaking the cycle of terrorism and underdevelopment. Investments in human capital and social infrastructure can mitigate the long-term socioeconomic damage caused by terrorism.

The negative effects of governance failures in Iraq are amplified by the lack of diversification in the economy. Despite being one of the largest oil producers in the world, Iraq's reliance on oil revenues has created vulnerabilities that governance challenges only deepen. This aligns with the “resource curse” hypothesis, as discussed by Sala-i-Martin and Subramanian (2003), where resource-rich countries often experience poor governance and underdevelopment due to mismanagement of natural resources [9].

While the country’s HDI and Gini Index reveal that there have been some improvements in the education and healthcare sectors, income inequality remains a major concern. As Iraq continues to face political and sectarian tensions, inequality has become a barrier to achieving sustainable economic growth and social stability. The findings from this study support the view that without effective governance and inclusive economic policies, the country will struggle to reduce inequality and improve human development outcomes.

This study's findings align with broader research on the political economy of conflict, particularly in post-conflict states. For instance, similar studies in Afghanistan and Syria have also highlighted the destructive effects of terrorism on economic performance and governance. In these countries, as in Iraq, weak governance structures and high levels of political instability contribute to a vicious cycle where terrorism undermines governance, and weak governance allows terrorism to proliferate [10].

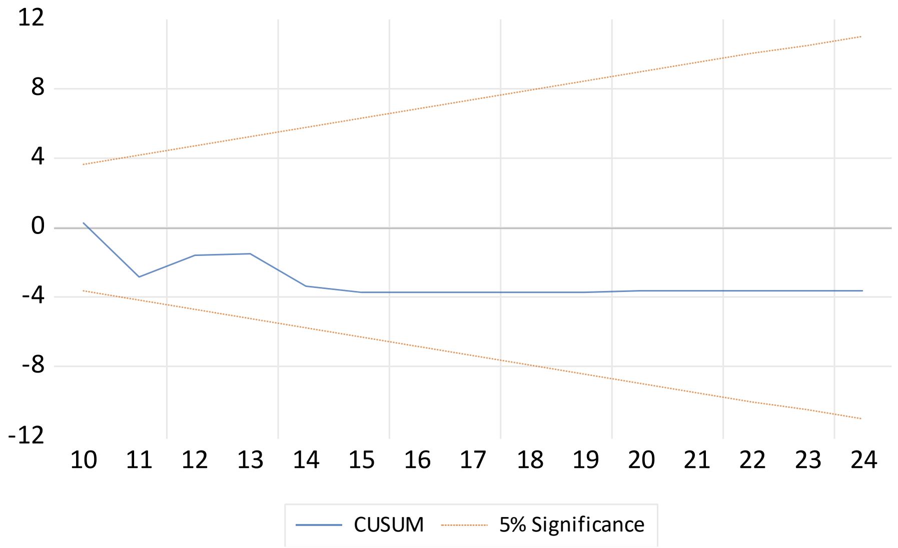

Figure 3. **The Socioeconomic Consequences of Terrorism in Iraq: Trends in HDI, FDI, and Economic Growth**

Long-term effects of terrorism on Iraq's socioeconomic development are shown in Figure 4. It shows the relationship between Terror Index, HDI, FDI, and GDP (USD Billion) from 2000 to 2020. Terrorism has had major economic and social impacts on Iraq, including human wellbeing, investment inflows, and economic performance.

In Figure 3, the negative association between Terror Index and HDI is striking. The HDI declines when terrorism rises, suggesting that terrorism hinders Iraq's socioeconomic progress. After the 2003 invasion and rise of ISIS (2014–2017), HDI may drop sharply due to infrastructure, education, and healthcare system devastation and extensive displacement. Terrorist violence lowers life expectancy, educational attainment, and access to key services.

Figure 3 shows that the Terror Index inversely affects GDP (USD Billion). Terrorism reduced Iraq's GDP. GDP dropped significantly during the 2006-2007 insurgency and the 2014-2017 ISIS era, as war disrupted the oil sector, trade routes, and local companies. Infrastructure damage, higher security expenses, and investor fear produce immediate economic losses from terrorism. After 2017, GDP recovered, suggesting that security improved and economic performance stabilized, while it was still vulnerable to external and domestic shocks.

Figure 3 shows that FDI (USD Billion) drops sharply during high terrorism, like GDP. Foreign investors avoid terrorism because to instability and security issues. These data show Iraq's decreased investment appeal after the 2003 war and amid the ISIS situation. Post-2017 FDI curve stabilization implies that foreign interest returned once security improved, but risks and political challenges restrained investments.

Figure 3 shows the necessity for comprehensive programs to reduce terrorism's long-term economic and social effects on Iraq. Rebuilding social infrastructure is important due to the negative association between terrorism and HDI, while GDP and FDI patterns indicate the need to diversify the economy and improve security to attract investors. Iraq has made progress in restoring stability after major terrorist attacks, but its long-term recovery will depend on tailored strategies to address the economic and social repercussions of terrorism. Strategies should improve public services, boost private sector growth, and encourage domestic and foreign investment.

However, this study also offers unique insights specific to Iraq. For example, the role of oil revenues in Iraq's economy has been more pronounced than in many other conflict-affected countries. While the relationship between oil dependence and poor governance has been studied extensively, Iraq's case provides a detailed view of how oil revenues interact with political instability and terrorism. The results from this study suggest that a focus on diversifying the economy away from oil is essential for reducing vulnerability to both terrorism and external economic shocks.

Additionally, the study's use of a comprehensive dataset covering a 20-year period (2004-2024) allows for a more nuanced analysis of the long-term effects of terrorism, governance, and economic performance in Iraq. While many studies focus on short-term impacts, the 20-year perspective in this study provides valuable insights into how Iraq's economy and governance have evolved over time and how these dynamics influence each other.

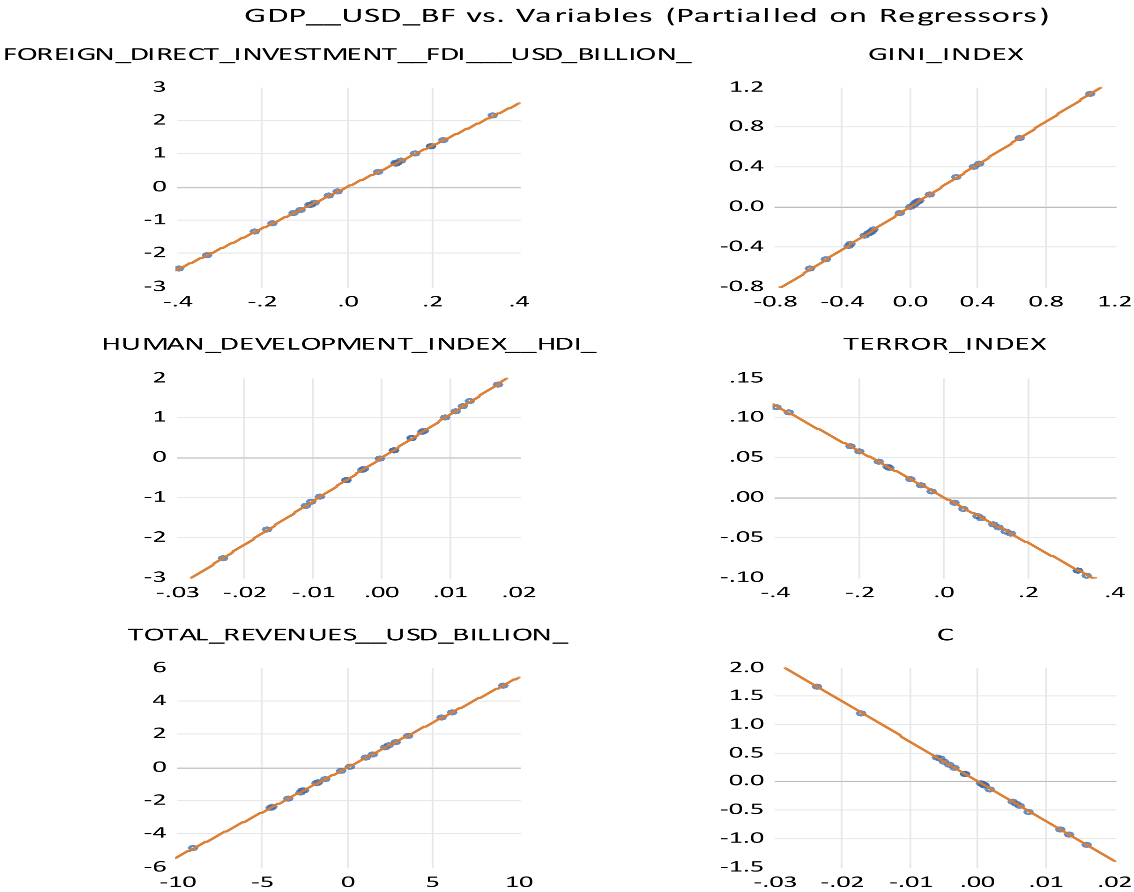

Figure 4. Impact of Terrorism on Key Economic and Social Indicators in Iraq (2000–20

Figure 4 illustrates the relationship between Terrorism (Terror Index) and several key economic and social indicators in Iraq, including GDP (USD Billion), Foreign Direct Investment (FDI) (USD Billion), Human Development Index (HDI), and Income Inequality (Gini Index). This multi-variable analysis highlights how terrorism influences Iraq's economic and social fabric over two decades, offering insights into how fluctuations in terrorism affect economic growth, social development, and wealth distribution.

A clear inverse relationship between the Terror Index and GDP is evident in Figure 4. The graph likely shows sharp economic declines during periods of high terrorism, such as the 2006-2007 insurgency and the rise of ISIS (2014-2017). These periods of instability significantly disrupted Iraq's oil production and exportation, the backbone of its economy. As a result, GDP growth stagnated or contracted, reflecting the toll of terrorism on both infrastructure and business activities.

The Human Development Index (HDI) follows a similar downward trend as terrorism intensifies. Figure 4 suggests that increased terrorist activity has a negative impact on HDI, primarily due to the disruption of essential services such as education, healthcare, and social infrastructure. In times of high terrorism, citizens face displacement, reduced access to education, and a decline in life expectancy, all of which lower HDI. The HDI may show a partial recovery post-2017, but it remains lower than pre-conflict levels, signaling the long-term effects of instability [1].

The FDI trend in Figure 4 highlights the deterring impact of terrorism on foreign investment. As terrorist activity escalates, Iraq becomes a riskier environment for foreign investors, causing a significant decline in FDI inflows. The data likely shows a marked drop in FDI during the peak of violence, particularly in the years following the 2003 invasion and the 2014 ISIS insurgency. As Iraq stabilized in the late 2010s, FDI may have started to recover, but the flow of foreign investment likely remained subdued due to ongoing security concerns and political instability [2].

The Gini Index, a measure of income inequality, is another crucial indicator affected by terrorism. Figure 4 might show that during high-terror periods, inequality worsens. Economic disruptions, widespread job losses, and wealth concentration in the hands of a few exacerbate disparities. During the conflict years, such as during the ISIS occupation, income inequality likely increased as large portions of the population were displaced, and the economy contracted. The Gini Index trend may indicate that while inequality decreased slightly after 2017, it remained high due to uneven access to the benefits of economic recovery [3].

Figure 4 demonstrates that the repercussions of terrorism extend beyond immediate economic losses, affecting long-term development in Iraq. The data points to the need for policies that not only address security but also prioritize economic diversification, rebuilding social infrastructure, and reducing income inequality. The government must focus on creating a stable environment that attracts foreign investment, strengthens human capital, and fosters inclusive economic growth [4].

The results of this study have important implications for policymakers in Iraq. First, the evidence suggests that addressing terrorism is not enough to ensure economic growth. Efforts to reduce terrorism must be accompanied by substantial improvements in governance, particularly in terms of political stability, anti-corruption measures, and effective government spending. Stronger institutions and improved rule of law will help create a more conducive environment for investment and economic development [5].

Second, Iraq must focus on diversifying its economy to reduce its dependence on oil revenues. This will require significant investment in sectors such as agriculture, manufacturing, and services, alongside improving human capital through better education and healthcare. Moreover, regional disparities in economic development must be addressed to reduce income inequality, which remains a major barrier to stability and growth [1].

Lastly, the findings underline the importance of international support in stabilizing Iraq. Global cooperation, particularly in counterterrorism efforts and economic reconstruction, will be crucial for Iraq to overcome the challenges of terrorism, governance, and economic growth. External assistance, coupled with domestic reforms, can help Iraq break the cycle of conflict and create a path toward sustainable development [4].

This study highlights the complex relationships between terrorism, governance, and economic growth in Iraq. The findings suggest that while terrorism has had a severe impact on Iraq's economy, the role of governance in exacerbating or mitigating these effects is equally important. By improving governance, diversifying the economy, and addressing income inequality, Iraq can strengthen its resilience against future shocks and create the conditions for long-term stability and growth [3].

Limitations: This study is limited by its reliance on annual data, which reduces the number of observations and may limit the robustness of time series inferences. Granger causality tests indicate prediction rather than true causation and are sensitive to lag selection. Moreover, some data points, especially for 2024, are based on estimates rather than finalized statistics.

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

The Impact of Terrorism on Economic Growth: Terrorism adversely affects Iraq's economy, diminishing GDP, oil income, and general economic stability. The Granger Causality Test established that terrorism directly leads to economic deterioration, particularly from 2014 to 2017, during which significant terrorism hindered oil production, impaired infrastructure, and prompted investment withdrawals.

Governance and Economic Performance: Political instability and ineffective governance exacerbate the detrimental impacts of terrorism on Iraq's economy. Inadequate governance, corruption, and inefficient expenditure obstruct recovery, diminish foreign investment, and restrict overall growth. The research indicates that insufficient governance intensifies economic disturbances resulting from terrorism.

Iraq's dependence on oil earnings renders its economy exceedingly susceptible to external shocks, such as terrorism. Variations in oil shipments, attributable to security concerns, adversely affect GDP. The cointegration analysis underscores the enduring relationship between oil revenue and economic performance, accentuating Iraq's reliance on oil for stability.

Human Development and Income disparity: Despite advancements in human development, especially in healthcare and education, wealth disparity persists as a significant concern.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made for policymakers in Iraq:

Promote economic diversification by developing sectors such as agriculture, tourism, and manufacturing. Establish public-private partnerships (PPPs) to encourage private sector investment in logistics, renewable energy, and vocational training. Encourage regulatory reforms to support SMEs and reduce dependency on oil revenue.

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