THE ROLE OF GOVERNMENT SPENDING IN STIMULATING IRAQI ECONOMIC GROWTH FOR THE PERIOD (2010–2024)

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Abstract
The ARDL method is used to estimate and test the dynamic interdependence between the variables under investigation; government expenditure acts as an independent variable while GDP represents the dependent one. In line with the study hypothesis, there is a significant positive relationship between the two variables. The empirical analysis was done using annual data for the period 2010–2024. The long-run relationship between GDP and government spending is established through the use of cointegration using the ARDL bounds test. It is clear from the findings of the dynamic correlation that there is a positive relationship between the two variables both in the short run and in the long run. This is in support of the findings of the study. Thus, the study suggests that instead of competing or taking over the role of the private sector, the government should complement it through its involvement. In addition, for increasing the GDP growth rate in order to achieve the economic development of the nation, the study also suggests the re-engineering of public expenditure in such a way that generates money.

1. Introduction

Government spending is one of the most important instruments of fiscal policy that a government uses to influence overall economic activity, and it plays a significant role in stimulating that activity.

The Iraqi economy was exposed to numerous shocks and setbacks during the period 2010–2024 as a result of the circumstances the country has gone through, not to mention its near-total dependence on crude oil exports and the absence of a broad and diversified production base. This led to a general deterioration of the economy and, consequently, had an adverse effect on the country's GDP.

1.1. Research Problem

GDP growth has failed to meet the expected level because of various reasons including the difficult economic, security and political situation of Iraq, the general deteriorated economic condition, absence of diversified productive base, and government expenditure focused more on consumption than on production.

1.2. Research Significance

The significance of this study is that government spending plays a big role in GDP growth. In order to give a clear picture of the economy of Iraq, the study aims at highlighting the above aspect.

1.3. Research Hypothesis

There is a positive correlation between government expenditures and Gross Domestic Product (GDP).

1.4. Research Objectives

The objectives of the research are to: 1) Study the relationship between GDP and government expenditure in the Iraqi economy. 2) Use the ARDL model for analyzing the dynamic relationship between GDP and government expenditure.

1.5. Structure of the Research

This research work is divided into three parts. First part discusses the theories of GDP and government spending. Second part is about real GDP and government spending and the connection between them in Iraqi economy. Third part is about determining and analyzing the connection between GDP and government spending in Iraq.

1.6. Theoretical Framework of Government Spending and GDP

1.6.1. Theoretical Framework of Government Spending

The Concept of Government Spending

The concept of government spending has evolved alongside the ideas of the various schools of economic thought. The Classical school holds that government spending is, in general, consumption spending that should be confined to the state's traditional functions (defence, security and justice). The Keynesian school takes the opposite view, calling for state intervention in economic life in order to achieve economic and social objectives through the instruments of fiscal policy, above all government spending (Al-Bermani, 2017). Government spending is a principal component of aggregate demand. It comprises everything the state spends to keep public services running, such as employees' salaries, subsidies, transfer payments and interest paid on government loans, as well as government expenditure on final goods and services, including the government's own output of various goods and services; in this respect it resembles the household sector, as the government builds schools and hospitals by contracting with builders and by employing teachers and engineers (Al-Umairi, 1988).

By economic criteria, government spending is divided into two main categories: consumption spending and investment spending.

Government Consumption Spending

Government consumption expenditure on goods and services is a principal component of aggregate demand. It consists of government spending on final goods and services. The public sector in any economy produces large quantities of goods and services, whether tangible productive goods (schools, hospitals and roads) or services (judicial services and public security), among others. In return, the government purchases many different kinds of goods; some of these purchases (such as public roads, airports and buildings) constitute long-term investment and generate a stream of benefits over time, while other government purchases are consumer goods used during the current period, such as school feeding programmes and police services, or the purchase of productive services in return for wages and salaries (Andolfatto, 2005).

The government sector affects economic activity through spending and public taxation. It can raise aggregate demand through its purchases of various goods and services, or by stimulating private spending through lower taxes on private activity. Likewise, it can reduce aggregate demand by cutting its own spending or raising taxes on private activity, or by using both approaches together (Andolfatto, 2005).

Government Investment Spending

Government investment expenditure not only increases the number of capital goods in society but is an expenditure that includes expenditure on capital goods or on goods which are used to produce capital goods. Government investment expenditure is termed as "Expenditure on capital goods, or on goods used in the production of capital goods, or services." Government investment expenditure is also known as capital formation which includes expenditure on land, machinery, and production inputs (Musa, 2015).

1.6.2. Theoretical Framework of the Concept of GDP

The Concept of GDP

The GDP of a nation stands for the total value of all goods and services that have been produced in the designated period, which could be a year. This concept is inherently territorial since it is associated with economic activity taking place within the geographical confines of the nation, regardless of who performs the activities. (Gregory, 2004).

Methods of Measuring GDP

There are several methods by which the size of GDP can be measured, including the following:

The Final Product (Output) Method

This method measures income (domestic product) at its source, that is, at the stage at which it is created in the production process. The values of all final goods and services produced using the factors of production available in society during a specified period (one year) are added together, and the value of domestic product over a given period is usually estimated at current prices (Al-Khatib, 2013).

The Income Method

This method is used to calculate GDP and comprises the total income earned by the factors of production that contributed to the production process during the year. The factors of production are labour, land, capital and organisation. On this basis, domestic product under this method is the sum of the incomes earned by the factors of production from goods and services (wages + rent + interest + profit) (Emara, 2016).

The Final Expenditure Method

This is one of the principal methods for estimating GDP in a society. Under this method, domestic income is viewed from the standpoint of final expenditure on the total goods and services produced over a specified period of time, usually one year (Ali, 1984).

2. Method

Along with the use of econometric methods to analyze the time series data on the variables under study, the research uses a combination of descriptive and analytical methods. Spatial scope: the Iraqi economy. Temporal scope: 2010–2024.

3. Results and Discussion

3.1. The Reality of Government Spending and GDP and an Analysis of the Relationship between Them in the Iraqi Economy

This analysis aims to interpret the trends in government spending and GDP in Iraq during the period 2010–2024, linking economic changes to oil-price fluctuations, security conditions and external shocks. This relationship is particularly important in the Iraqi economy because of the central role of the oil sector in generating public revenue and financing government spending. Nevertheless, the coincidence of rising spending with rising output is not sufficient to establish a causal relationship between them; doing so requires consistent data, a distinction between nominal and real output, and the use of appropriate econometric methods (World Bank, 2022; IMF, 2025).

3.1.1. Economic Analysis by Phase

Economic Expansion, 2010–2013

The values in the table indicate that both GDP and government spending rose during this phase. The general trend can be explained by increasing oil activity and the revenues derived from oil exports, which expanded the state's capacity to finance salaries, public services and projects. However, this expansion does not necessarily mean that a structural shift towards a diversified economy took place; the dependence of public finances on oil leaves economic activity exposed to fluctuations in prices, production and exports. The World Bank confirms that oil and fiscal

developments remain among the principal determinants of the performance of the Iraqi economy (Al-Husseini, 2024).

The Oil and Security Shock, 2014–2015

The data in the table show a decline in output and government spending in 2014 and 2015. This trend is linked to the coincidence of falling oil prices with security challenges and rising military and humanitarian needs. These conditions put pressure on public revenues and on the government's ability to sustain spending at previous levels, and made it harder to finance investment projects. The decline therefore cannot be explained by a single factor; rather, it should be viewed as the result of the interaction of the oil shock with security conditions and fiscal constraints (Mankhi, 2024).

Relative Recovery, 2016–2018

The data presented reflect a gradual rise in GDP during this phase, while government spending remained below its earlier levels in some years. This may be linked to a relative improvement in oil conditions, alongside the continuing fiscal constraints imposed by the preceding crisis. Moreover, a fall in the ratio of government spending to output does not in itself indicate improved efficiency; it may result from output growing faster than spending, from a cut in spending, or from changes in prices. This ratio should therefore be considered in light of the distribution of spending between current and investment expenditure and of the results achieved in services and infrastructure (Abdul-Ali, 2024).

2019 and the COVID-19 Pandemic in 2020

The year 2019 is a reference point preceding the twofold shock that Iraq suffered in 2020. The spread of the COVID-19 pandemic, the fall in global demand for oil, the decline in prices and the restrictions on production led to a contraction in economic activity and increased pressure on the budget. The World Bank reports a decline in real GDP of about 11.3% in 2020, following growth of 5.5% in 2019, according to the series given in its report (World Bank, 2022). This experience underscores the importance of building fiscal buffers, reducing reliance on volatile oil revenues, and developing targeted social protection instruments.

Recovery, 2021–2022

The recovery after the COVID-19 pandemic was associated with the reopening of economic activities and improvements in oil prices and public revenues. According to the World Bank series, real output growth reached 2.8% in 2021 and 8.7% in 2022, while nominal output rose from 301.4 trillion dinars to 406.3 trillion dinars. However, nominal growth is affected by price changes and therefore must not be equated with real growth. Furthermore, improved oil revenues expand the government's capacity to spend, but they may not guarantee sustainable growth unless they are translated into productive investment and improved productivity (Ahmed, 2024).

Developments in 2023–2024 and Fiscal Pressures

According to the International Monetary Fund's Article IV consultation report, total government expenditure rose from 146.7 trillion dinars in 2023 to 155.4 trillion in 2024, while total revenues fell from 142.6 to 140.4 trillion dinars, and the overall deficit widened from 4.1 to 15.0 trillion dinars. Current expenditure rose from 120.0 to 126.6 trillion dinars, and capital expenditure from 26.7 to 28.8 trillion dinars. These figures indicate that rising spending combined with declining revenues increases pressure on public finances, particularly given the growing weight of wages, pensions and current commitments. The Fund recommends improving public financial management, expanding non-oil revenues and enhancing spending efficiency (Al-Hamidi, 2024).

Table 1. The Evolution of Government Spending and GDP in Iraq, 2010–2024

Year	GDP	Annual growth rate (%)	Government spending	Annual growth rate (%)	Government spending as a share of GDP (%)
2010	162064565.5	24.05	70134201	26.1	43.2
2011	217327107.40	34.09	78757667	12.2	36.2
2012	254225490.7	16.9	105139575	33.4	41.3
2013	273587529.2	7.6	119127556	13.3	43.4 / 42.1
2014	266332655.1	-2.6	112192126	-5.8	—
2015	194680971.8	-26.9	82813611	-26.1	42.5
2016	196924141.7	1.1	73571003	-11.1	37.3
2017	225722375.5	14.6	75490115	2.6	33.4
2018	251064479.9	11.2	72052900	-0.04	28.6
2019	2779005346.9	10.45	111,700,000	17.56	40.19
2020	277,900,765	-28.47	76,100,000	-31.87	38.28
2021	198,800,657	51.51	102,800,000	35.09	34.13
2022	301,200,374	27.19	116,900,000	13.72	30.51
2023	383,100,879	-7.65	142,400,000	21.81	40.25
2024	353,800,783	2.74	150,500,000	5.69	41.40

Source: Prepared by the researchers based on: Republic of Iraq, Ministry of Planning, Government Investment Programmes Department, Investment Budget Section; and Republic of Iraq, Ministry of Planning, Central Statistical Organization, National Accounts Directorate.

3.2. Quantification and Study of the Relationship between Gross Domestic Product and Government Spending in the Iraqi Economy

3.2.1. Description of the Variables Used in the Model

In this respect, we identify the key variables in accordance with the economic theory to evaluate the validity of the hypothesis, to reach the primary aim of the research, and support the results of previous analysis. The government expenditure is the independent variable and GDP is the dependent variable.

Stationarity properties of time series of the study variables have been provided in a table 2 using the Phillips-Perron test before moving on to model testing. Since the P.P. test is more accurate, the P.P. test alone has been used for all models.

Table 2. Phillips–Perron (P.P) Test Results for Government Spending and GDP

Variables	Model	Level I(0) [Prob]	First difference I(1) [Prob]
Government spending	Constant only	0.8058	0.0029
	Constant and trend	0.7766	0.0159
	No constant, no trend	0.7529	0.0002
GDP	Constant only	0.9554	0.0053
	Constant and trend	0.5160	0.0242
	No constant, no trend	0.9437	0.0008

Source: Prepared by the researcher based on EViews 10 outputs.

3.2.2. Estimating and Analysing the Relationship between Government Spending and GDP

Testing the Autoregressive Distributed Lag (ARDL) Model

The stationarity tests revealed that the economic variables tested, government expenditure as the dependent variable and GDP as the independent variable, are stationary at first difference, meaning that they are I(1). Considering this fact, the ARDL model can be applied. The results of the test for the given model are provided below..

Table 3. ARDL Model Test Results for the Government Spending Model

Variable	t-Statistic	Std. Error	Coefficient	Prob*.
G(-1)	2.513258	0.197109	0.495385	0.0288
G(-2)	1.834439	0.220785	0.405017	0.0938
Y	4.809181	0.074667	0.359086	0.0005
C	0.937049-	.3649227	.3419504-	0.3689
Adjusted R-squared	0.98			
Durbin–Watson stat	1.996619			
Prob(F-statistic)	0.0000			

Source: Prepared by the researcher based on EViews 10 outputs.

The endogenous lag structure of the variables, G and Y, as shown in Table 3, is determined by the ARDL method; the variable Y is found with one lag and the variable G is with two lags. From the Adjusted R-Squared value, 98 percent of the variability of the dependent variable G is explained by the independent variable Y (income), while the rest 2 percent is attributed to other unmeasured variables. Given the probability level at approximately (Prob = 0.0000) that is less than 5%, the F-test provides information regarding the overall significance of the model. The Durbin Watson statistic, having the value of 1.996619, implies no presence of autocorrelation in the residual terms.

Results of the Bounds Test for Cointegration

Conducting the Bounds Test will reveal whether there is a long-term equilibrium between the GDP, which is the independent variable, and the government expenditure, which is the dependent variable, as can be seen from the Table 4

Table 4. Bounds Test Results

Test Statistic / Bound Level	Value / Significance	I(0) Bound	I(1) Bound	K (independent variables)
F-statistic	9511.9	—	—	1
%10	Significance level	3.02	3.51	—
%5	Significance level	3.62	4.16	—
%2.5	Significance level	4.18	4.79	—
%1	Significance level	4.94	5.85	—

Source: Prepared by the researcher based on EViews 10 outputs.

According to Table 4, it can be seen that the value of F-statistics at the 5% level of significance is 9511.9, which is greater than both the minimum and maximum values of the test statistics, which are 3.62 and 4.16, respectively. Therefore, the alternative hypothesis is accepted while the null hypothesis is rejected.

Testing the Estimated Parameters (Short Run)

Through the short-run parameters estimated, the test is able to establish the form of short-run association as well as the effect that the independent variable has on the dependent variable. From the error correction term from the UECM below, one can determine the rate at which the GDP-government expenditure association reaches the long run equilibrium.

Table 5. Estimation Results of the Error Correction Model and the Short-Run Relationship for the Government Spending Model

Variable	t-Statistic	Std. Error	Coefficient	Prob*.
C	0.000000	.3649227	.3419504-	0.0000
D(G(-1))	1.730326	0.314268	0.543786	0.1115
D(G(-2))	3.336139	0.284401	0.948803	0.0066
D(Y)	4.809181	0.074667	0.359086	0.0005
CointEq*(1-)	6.070873-	0.172693	1.048400-	0.0001

Source: Prepared by the researcher based on EViews 10 outputs.

The values of the estimated parameters of the independent variable in the short run are provided in Table 5. There is a positive correlation between G and Y, meaning that for any change in the value of income (Y), government expenditure (G) changes by 0.35 units; that is, when Prob = 0.0005. This relationship is natural in the Iraqi economy, which is characterised by rising expenditure throughout the study years. That rising expenditure has been linked to the roles the government plays, whether through employment, increased purchases, unjustified lavish

consumption spending, or military spending connected with the abnormal conditions Iraq has experienced from the 1990s to the present day.

The unrestrictive error correction coefficient of UECM shows a negative and significant value of −1.048400 (Prob = 0.0001). It implies that there exists an equilibrium relationship between the variables G and Y in the short run as it moves towards the long-run equilibrium as per the direction. Any kind of disturbance or change in the independent variable leads to disequilibrium in G in the prior period (t−1), which is then adjusted in the current period (t) due to the error correction coefficient. Upon the occurrence of any impulse on the model or change in the exogenous variable, G converges back to its equilibrium position within about 0.9 years due to its high error-correction coefficient.

Testing the Estimated Parameters (Long Run)

As demonstrated in the Table 6, this test displays the long-run predicted parameters in an attempt to ascertain the type of relationship in the long run and how much the independent variable impacts the dependent variable:

Table 6. Long-Run Parameter Estimation Results for the Government Spending Model

Levels Equation: Case 2: No Trend and Restricted Constant				
Variable	t-Statistic	Std. Error	Coefficient	Prob*.
Y	9.126136	0.034037	0.350626	0.0000
C	1.216242-	.2681736	.3261639-	0.2493

Source: Prepared by the researcher based on EViews 10 outputs.

Estimates of parameters in the long run are provided in Table 6. According to the findings, there is a positive relation between (Y) and (G): for a probability value of Prob = 0.0000, an increase in (Y) by one unit leads to an increase in (G) by 0.35 units. This relationship is natural in the Iraqi economy, in which the state dominates most of the output generated, which derives from the public sector and from crude oil exports; the size of output is therefore a measure of the state's capacity to spend.

The estimation of the short-run parameters in Table 5 showed a positive relationship between government spending and GDP, and this short-run positive relationship will continue in the long run between (G) and (Y); that is, the more income increases, the more government spending increases, which is consistent with economic theory.

Examining the Estimated Residuals Diagnostically

The major tests that have been carried out in order to verify the accuracy and precision of the analysis include testing for serial correlation using the LM test. This test is conducted in order to ascertain whether there is any serial correlation in the estimated residuals.

Table 7. Serial Correlation LM Test Results for the Government Spending Model

Breusch–Godfrey Serial Correlation LM Test			
F-statistic	0.026733	Prob. F(2,9)	0.9737
Obs*R-squared	0.135826	Prob. Chi-Square(2)	0.9343

Source: Prepared by the researcher based on EViews 10 outputs.

Table 7 illustrates the outcomes of the serial correlation test. The test generates a value of p-value Prob = 0.9739 from the F-test statistic, which is greater than the 5% level of significance. Therefore, there is no serial correlation as we fail to reject the null hypothesis, but we reject the alternative hypothesis of correlation. This outcome confirms the reliability of the findings of the ARDL model.

Heteroskedasticity test (ARCH). This is a test of the heteroskedasticity of the residuals of the estimated model. The following shows the results of the test.

Table 8. ARCH Heteroskedasticity Test Results for the Government Spending Model

Heteroskedasticity Test: ARCH		
F-statistic	0.110570	Prob. F(1,20) = 0.7430
Obs*R-squared	0.120959	Prob. Chi-Square(1) = 0.7280

Source: Prepared by the researcher based on EViews 10 outputs.

Results from the ARCH test for heteroskedasticity have been presented in Table 8. The p-value of the F-statistic is found to be 0.7430, which is greater than 5%. As a result, the null hypothesis of no heteroskedasticity can be accepted while the alternative hypothesis of heteroskedasticity cannot be confirmed. This finding is indicative of the appropriateness of using the ARDL model since no heteroskedasticity exists in random errors..

Testing for Normality of Error Terms (Histogram-Normality Test) is carried out to determine if the estimated model's residuals are normally distributed.

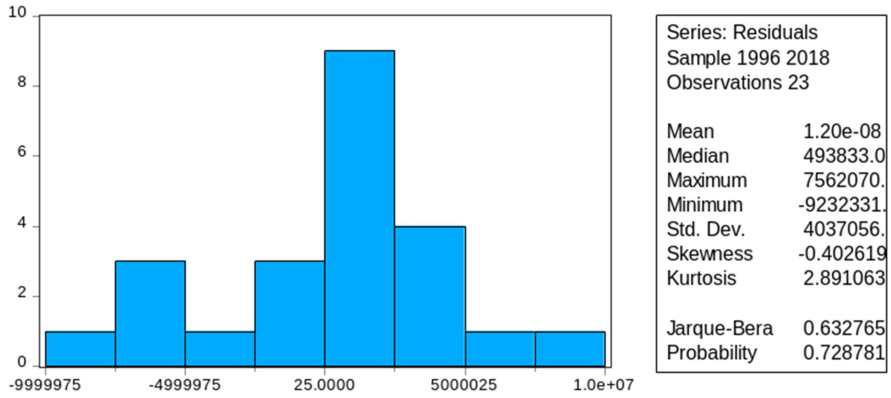


Figure 1. Normality Test Results for the Government Spending Model
Source: Prepared by the researcher based on EViews 10 outputs.

Test results on normality have been presented in Figure 1. It can be observed that there is no breach of normality as the probability value (P = 0.728781) is more than 5%. This means that both the alternative and null hypotheses cannot be rejected because the null hypothesis postulates that the error terms follow a normal distribution.

Structural Stability Test for the Government Spending Function. One of the main tests that should be conducted to ensure there are no structural shifts in the data set being analyzed is the structural stability test of the estimated ARDL model. Recursive Residuals test as well as Cumulative Sum of Residuals (CUSUM) test are used.

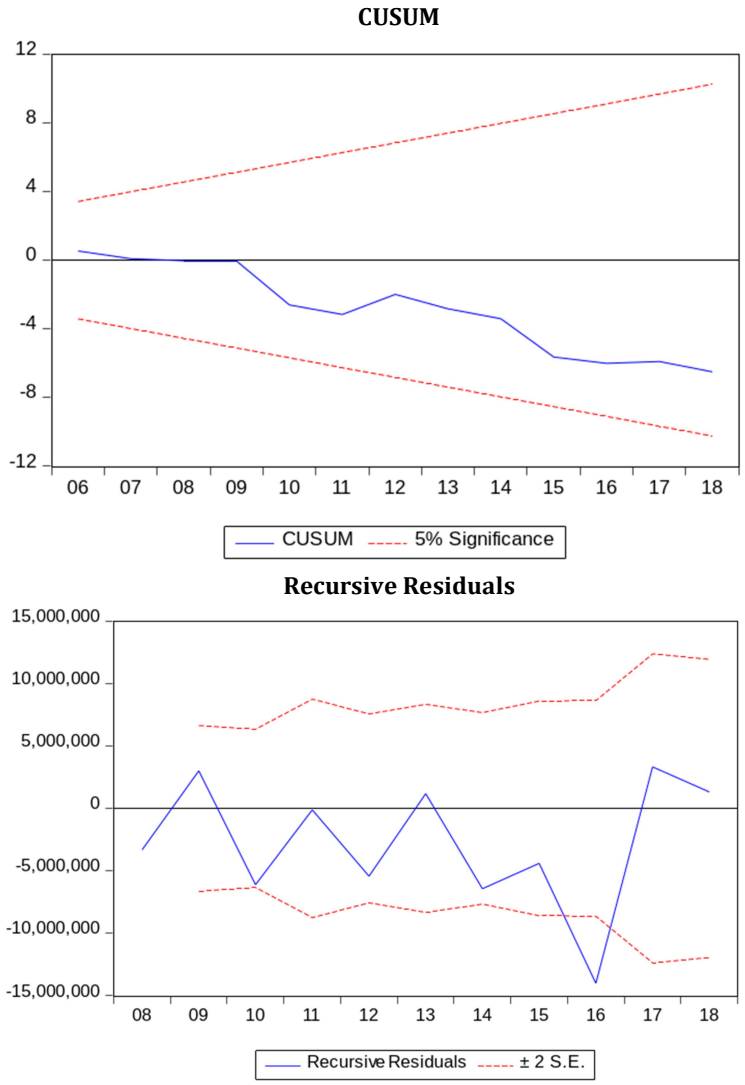


Figure 2. Structural Stability Tests for the Government Spending Model
Source: Prepared by the researcher based on EViews 10 outputs.

The CUSUM Panel graph shown in Figure 2 above shows that the cumulative sum of the residuals is stable within the critical limits at the 5% significance level, implying that the estimated parameters have short-term stability. On the other hand, the Recursive Residuals test at 5% significance level shows the existence of movements and fluctuations about the mean (zero) within the critical limits. The two tests above help to demonstrate the stability of the model and the consistencies of the relationship between GDP and government expenditure.

4. Conclusion

The Iraqi economy is highly affected by fluctuations in oil prices, production and exports, which are reflected in public revenues, spending and GDP. In this context, the 2014–2015 crisis and the COVID-19 pandemic demonstrate the importance of a fiscal policy capable of absorbing shocks and reducing volatility in spending. Moreover, rising government spending does not guarantee a rise in output of the same magnitude, as the effect depends on the efficiency of expenditure allocation and its productive content. At the same time, rising current expenditure reduces the flexibility available for investment spending if revenues do not grow sustainably. Furthermore, the 2023–2024 data in the International Monetary Fund's report point to rising expenditure and a widening fiscal deficit, which reinforces the importance of controlling expenditure and improving non-oil revenues. In addition, the original table must be corrected and the statistical series unified before any econometric analysis is conducted or any causal relationship is drawn. The Bounds Test

results revealed cointegration and a long-run equilibrium relationship between the independent variable (government spending, GS) and the dependent variable (GDP). Similarly, the estimated short-run parameters for the two variables (GS and GDP) revealed a positive relationship, and in the long run there is likewise a positive relationship between the two variables. The results of the analysis also showed that the government was supportive of the private sector, a support that stemmed from the economic sanctions of the 1990s. Nevertheless, this private investment spending contributed only marginally to GDP. Finally, the results of the analysis showed that government spending was in continuous growth throughout the study period, except in certain years, owing to the circumstances to which the Iraqi economy was exposed. Based on these findings, it is recommended to adopt a unified annual series from a single official source, and specify whether the values are nominal or real. In addition, growth rates and ratios should be recalculated from the original, unrounded values and their arithmetic consistency should be verified. It is also important to strengthen the diversification of public revenues and develop non-oil revenues in order to reduce dependence on oil. Furthermore, the efficiency of investment spending should be raised and directed towards infrastructure, production and services projects that enhance productive capacity. Appropriate econometric models should also be used to test the relationship between spending and output, taking into account inflation, oil shocks and structural changes. Moreover, the government must support the private sector, and there must be a complementary relationship between the two rather than competition or substitution. The private sector should have a role in the philosophy of a market economy and should be encouraged through tax exemptions and the regulation of border crossings. In addition, government spending, particularly current expenditure, should be re-engineered: there are ghost jobs, excessively inflated salaries, unjustified tax exemptions on high salaries, and many unjustified expenditures. The cost of current expenditure should therefore be reduced gradually and redirected in favour of investment spending in order to address this imbalance, in addition to directing government spending in a way that generates financial returns. Finally, government spending should be reduced except in necessary areas that help support the productive sectors, in order to expand aggregate supply on the one hand and reduce aggregate demand on the other.

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