

Rentier Economy Dependence and Economic Policies in Iraq: An Econometric Analysis of the Determinants of Economic Reform (2004–2024)

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ABSTRACT: This study examines the impact of rentier dependence on the effectiveness of economic policies in Iraq during the period 2004–2024 by analyzing the relationship between several macroeconomic variables—such as oil revenues, government spending, inflation, money supply, and exchange rates—and their influence on economic performance. The study employs a descriptive-analytical approach and utilizes econometric models (ARDL and NARDL) to measure short- and long-term relationships.

The results revealed a long-run equilibrium relationship among the variables under study, alongside the Iraqi economy's continued heavy reliance on oil revenues—a dependency that renders it vulnerable to fluctuations in global oil prices. It was also found that negative shocks to oil revenues have a greater impact on economic growth than positive shocks, whereas the impact of government spending remained limited due to the predominance of current expenditure over investment expenditure. Furthermore, the results indicated that the money supply positively influences economic activity, while the effects of inflation and the exchange rate were relatively weak.

The study recommends adopting structural reforms to diversify revenue sources, boost non-oil sectors, and improve the efficiency of public resource management in order to achieve sustainable economic growth in Iraq.

KEYWORDS: Rentier economy, economic policies, oil revenues, economic growth, ARDL model, Iraq.

I. INTRODUCTION

Economic policies are among the most critical tools nations employ to steer economic activity and achieve macroeconomic stability and sustainable growth. These policies—comprising fiscal, monetary, and trade measures—work in an integrated manner to address structural imbalances and stimulate investment and production. In rentier states—and Iraq in particular—these policies take on heightened significance due to a heavy reliance on oil revenues as the primary source of public funding, a factor that limits the effectiveness of economic policies in achieving economic diversification and fiscal sustainability.

The Iraqi economy suffers from a reliance on rentier income, with oil revenues accounting for the largest share of public revenue and exports; this renders the economy vulnerable to global oil price fluctuations and hinders long-term economic planning. Numerous studies indicate that rentier economies often struggle to build a diversified production base, a factor that negatively impacts the efficiency and effectiveness of economic policies in achieving sustainable development.

In light of this, post-2003 economic policy in Iraq faces complex challenges—namely, limited economic diversification, high unemployment rates, and an increasing reliance on oil-funded government spending—which have constrained the ability of fiscal and monetary policy tools to stimulate real economic growth. Furthermore, fluctuations in global oil prices create instability in public revenues, directly impacting the effectiveness of economic planning and sustainable development.

Thus, the significance of this research lies in its attempt to analyze the relationship between economic policies and the issue of rentier dependency in Iraq. It employs an econometric study aimed at measuring the impact of key economic variables on economic performance and assessing the effectiveness of economic policies within this rentier framework. The research seeks to provide an analytical perspective that assists policymakers in adopting more effective economic reforms capable of achieving economic diversification and macroeconomic stability.

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II. GENERAL FRAMEWORK OF THE STUDY

FIRST: THE RESEARCH PROBLEM

For many years, the Iraqi economy has suffered from the oil sector's clear dominance over the structure of public revenues and exports, rendering it akin to a rentier economy that relies primarily on a single resource subject to global price volatility. This heavy reliance on oil has posed significant challenges for economic policies aimed at achieving economic stability and diversifying production, as fiscal and monetary policy tools are frequently affected by sharp fluctuations in global oil prices. The research problem is encapsulated in the following question:

To what extent has rentier dependence in Iraq affected the effectiveness of economic policies during the period 2004–2024, and what is the nature of the relationship between this dependence and economic performance indicators?

Secondly: Significance of the Research

The significance of this research stems from its focus on a fundamental issue within the Iraqi economy: the relationship between economic policies and rentier dependency—a matter considered one of the most critical challenges facing policymakers. The importance of the research is highlighted by the following aspects:

1. Economic Significance: It helps in understanding the impact of oil dependence on the effectiveness of economic policies.
2. Scientific Significance: It contributes to the economic literature concerning rentier economies.
3. Practical significance: It presents results that can assist decision-makers in improving economic policies.
4. Analytical Significance: It relies on an econometric method that helps explain the relationship in a precise, quantitative manner.

Third: Research Objective

This research aims to analyze and measure the impact of economic policies within the context of Iraq's reliance on rentier income during the period 2004–2024. By examining the relationships between key economic variables using the modern Autoregressive Distributed Lag (ARDL) model, the study evaluates the effectiveness of fiscal and monetary policies in achieving economic stability and growth in an environment heavily dependent on oil revenues. It presents findings intended to support economic reform efforts and decision-making processes in Iraq.

Fourth: Research Hypothesis

This research proceeds from the following main hypothesis:

There is a statistically significant relationship between rentier dependence in Iraq and the effectiveness of economic policies, whereby increased reliance on oil revenues diminishes the efficiency of economic policies in achieving economic stability and development.

It can also be broken down into sub-hypotheses:

- There is an inverse relationship between rentier dependence and economic growth.
- There is a relationship between government spending and economic performance.
- Oil shocks directly affect economic stability.

Fifth: Research Methodology

The research employed a descriptive-analytical approach for the theoretical component, analyzing the nature of economic policies and the rentier economy in Iraq.

Regarding the empirical analysis, an econometric approach was adopted—specifically the Autoregressive Distributed Lag (ARDL) model—to measure the relationship between economic variables over the period from 2004 to 2024. This model is distinguished by its ability to handle variables that are either stationary or partially non-stationary, making it well-suited to the nature of economic data in Iraq.

Sixth: Research Data Sources

The research relied on annual secondary data obtained from reliable international and local sources, most notably:

- World Bank
- International Monetary Fund (IMF)
- Central Bank of Iraq
- Iraqi Ministry of Planning
- United Nations Database (UN Data)

The data include variables such as gross domestic product, oil revenues, government spending, inflation, and investment.

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Seventh: Literature Review and Previous Studies:

Recent economic literature has addressed the subject of economic policies in rentier states—particularly oil-dependent economies like Iraq—with many studies focusing on analyzing the relationship between oil revenues, fiscal and monetary policies, and economic growth using modern econometric models.

Khan (2022) conducted an econometric study using the ARDL model to analyze the impact of monetary and fiscal policies on economic growth in Iraq during the period 1970–2017. The results revealed a long-run equilibrium relationship between government spending and economic growth; however, this relationship remains heavily dependent on fluctuations in oil revenues, reflecting the rentier nature of the Iraqi economy (Khan, 2022, p. 12).

In a recent study, Akawee and Atiyah (2024) examined the relationship between the coordination of monetary and fiscal policies and its impact on economic stability in Iraq during the 2005–2024 period, utilizing the ARDL model. The study found a long-term relationship between the variables; however, the impact of public revenues remains relatively weak due to a heavy reliance on oil, which limits the effectiveness of economic policies. (Akawee & Atiyah, 2024, p45).

Hameed et al. (2024) also examined the impact of oil revenues on inflation dynamics in Iraq using an ARDL model. The results demonstrated that the Iraqi economy is a rentier economy heavily reliant on oil as a primary source of public funding, and that any change in oil prices directly affects inflation levels and economic stability (Hameed, Maarof, & Yousif, 2026, p. 152).

In another study, Zaya (2024) analyzed the dynamic relationship between oil revenues and economic growth in Iraq during the period 1992–2024, employing an ECM model derived from the ARDL approach. The results indicated that oil revenues constitute the primary determinant of economic growth, with a long-run equilibrium relationship existing between the variables (Zaya, 2024, p. 8).

Furthermore, the study by Khaleel et al. (2023) demonstrated that oil prices and international financial markets have a direct impact on Iraq's economic performance, and that the Iraqi economy is highly sensitive to oil shocks, thereby reinforcing the rentier economy hypothesis (Khaleel et al., 2023, p. 23).

In a study examining the impact of fiscal policies amidst oil shocks, Al-Shammari and Bekheet (2025) noted that fiscal policy in Iraq is significantly influenced by oil price fluctuations and that the effectiveness of government spending depends on the stability of oil revenues, thereby limiting the efficiency of economic policy in achieving macroeconomic stability (Al-Shammari & Bekheet, 2025, p. 19).

Despite the diversity of previous studies addressing economic policies and the rentier economy in Iraq, they still lack a comprehensive treatment of the relationship between economic policies—viewed as an integrated system—and the phenomenon of rentier dependency. Most studies have focused on analyzing partial relationships between specific variables, such as oil revenues and economic growth or inflation, in isolation, without integrating fiscal and monetary policies into a unified analytical framework that elucidates the nature of their interaction within the context of a rentier economy.

Furthermore, most of these studies have not adequately addressed the evaluation of economic policy effectiveness as a comprehensive concept in recent times, nor have they clearly focused on the period extending to the present—a time marked by significant economic fluctuations in Iraq. Additionally, few studies have fully utilized modern econometric models to measure this impact within a recent timeframe. This highlights the need for a more comprehensive and up-to-date study that seeks to bridge this gap by analyzing the relationship between economic policies and the issue of rentier dependency in Iraq, employing an advanced econometric approach covering the period from 2004 to 2024.

III.ECONOMIC POLICIES AND THE RENTIER ECONOMY: THEORETICAL FRAMEWORK

SECTION ONE: THE THEORETICAL FRAMEWORK OF ECONOMIC POLICIES AND THE RENTIER ECONOMY

Economic policies are a fundamental pillar in the management of economic activity in any country, as they provide the framework for making decisions regarding the allocation of economic resources, the regulation of aggregate demand, the stabilization of price levels, and the support of sustainable economic growth. These policies include fiscal policy—which relies on instruments such as government spending, taxation, and public borrowing—and monetary policy, aimed at controlling the money supply and interest rates, as well as structural policies related to reforming economic sectors and improving the efficiency of resource allocation. In modern economic thought, these policies are no longer viewed as isolated tools operating independently; rather, they are analyzed within an interactive, holistic framework shaped by the state's economic and institutional structure, the diversity of its income sources, and its degree of openness to the global economy (Blanchard, 2021, p. 18).

Recent literature indicates that the effectiveness of economic policies varies significantly across countries; such policies are more successful in achieving their objectives within advanced, diversified economies, whereas they encounter structural constraints in developing economies—particularly those reliant on a single resource, such as oil. The greater an economy's dependence on a single source of income, the less flexible its economic policy becomes and the more vulnerable it is to external shocks, thereby diminishing its capacity to achieve long-term economic stability (Romer, 2021, p. 89).

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In this context, the rentier economy is an economic model that relies primarily on revenues derived from natural resources—particularly oil and gas—rather than on diversified domestic production or an industrial and agricultural base. A key characteristic of this type of economy is that a significant portion of public revenue is generated externally through the export of natural resources, rather than from domestic productive activity. This renders the economy vulnerable to global market fluctuations. Auty (2001, p. 19) noted that this economic pattern often leads to what is known as the "natural resource curse," wherein reliance on natural resources undermines long-term economic performance due to structural distortions—including limited economic diversification and declining productivity in non-rentier sectors.

Sachs and Warner (2001, p. 55) also emphasized that an abundance of natural resources does not necessarily lead to high economic growth; rather, in many cases, it is associated with lower growth rates compared to countries less dependent on resources. This is due to weak investment incentives in productive sectors and a heavy reliance on the state as the primary financier of the economy. This issue is further compounded by weak economic institutions, which leads to resource mismanagement and the channeling of resources toward consumption rather than investment.

On the other hand, the "Dutch Disease" concept—developed by Corden and Neary (1982, p. 12)—offers a significant explanation of how natural resources affect economic structure. It posits that large inflows of resource-based revenues drive up the real exchange rate, thereby undermining the international competitiveness of productive sectors such as manufacturing and agriculture and leading to a reallocation of economic resources toward the resource sector at the expense of other sectors. In recent literature, this concept has been expanded to encompass broader impacts—extending beyond the exchange rate to include labor markets, investment structures, and government policies (Van der Ploeg, 2011).

The Second Section: The Relationship Between Economic Policies, the Rentier Economy, and Economic Growth

Recent economic literature indicates that the relationship between economic policies and a rentier economy is highly complex, as the nature of the rentier economy directly influences the effectiveness of macroeconomic policies. In economies reliant on natural resources, fiscal policy becomes closely linked to fluctuations in resource prices—particularly oil—leading to instability in state public revenues. When oil prices rise, government budgets see an expansion in public spending and an increase in investment projects; conversely, when prices fall, the exact opposite occurs, leading to unstable economic cycles known as "boom-and-bust" cycles (Arezki & Brückner, 2011, p. 15).

Furthermore, these fluctuations directly impact the state's ability to implement long-term economic policies, as economic plans become heavily tied to global oil market conditions rather than domestic development needs. In this context, recent studies indicate that revenue instability undermines the efficiency of government spending and causes volatility in public investment, thereby negatively affecting economic growth and macroeconomic stability (Baffes et al., 2021, p. 78).

As for monetary policy, its effectiveness in rentier economies is often limited, as it is indirectly influenced by fiscal policy through the impact of oil revenues on domestic liquidity and aggregate demand. This indirect interdependence constrains the central bank's autonomy in managing inflation or stimulating economic growth, thereby diminishing monetary policy's capacity to fulfill its traditional role of ensuring monetary stability (Behar & Fouejieu, 2018, p. 15).

Economic growth is considered one of the key indicators reflecting a nation's economic performance; however, achieving it in rentier economies presents profound structural challenges. Literature suggests that growth in such economies is often unsustainable, as it relies on external revenues rather than a robust domestic production base. Sachs and Warner (2001) demonstrated that natural resource-rich economies frequently experience lower long-term growth rates due to limited economic diversification and underinvestment in human capital and productive sectors.

Recent studies also confirm that the quality of economic institutions plays a crucial role in determining the extent to which a state benefits from its natural resources; weak governance leads to resource mismanagement and directs resources toward consumption rather than investment, thereby exacerbating the negative impacts of a rentier economy on economic growth (Frankel, 2020, p. 32). Consequently, the relationship between economic policies and economic growth within a rentier economy is neither direct nor simple; rather, it is contingent upon the economy's structural makeup and its capacity for diversification and stability.

Section Three: Descriptive Analysis of Macroeconomic Indicators in Iraq (2004–2024)

This study aims to analyze the evolution of macroeconomic indicators in Iraq during the period 2004–2024, drawing on data regarding GDP at current prices, government expenditure, inflation rates, and oil revenues. This analysis is particularly significant given the rentier nature of the Iraqi economy—which relies heavily on the oil sector—rendering these indicators highly sensitive to fluctuations in global oil prices. Accordingly, the data will be analyzed across specific timeframes, with an explanation of the causes behind increases and decreases based on the actual figures presented in Table 1.

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Table (1): Evolution of macroeconomic indicators in Iraq (2004–2024)

Years	GDP at current prices	Government spending	Inflation	GDP at current prices
2004	53,235,358	121,236,262	%26.8	125,481,185
2005	73,533,598	86,604,331	%37.1	110,899,070
2006	95,587,954	68,797,172	%53.1	86,069,901
2007	111,455,813	55,053,710	%30.9	72,410,786
2008	157,026,061	83,678,104	%12.7	93,729,218
2009	130,643,200	63,749,680	%8.3	56,045,537
2010	162,064,565	78,537,738	%2.5	74,826,058
2011	217,327,107	83,518,206	%5.6	104,019,315
2012	254,225,490	105,139,576	%6.1	116,597,076
2013	273,587,529	116,335,503	%1.9	108,083,537
2014	266,332,655	111,686,531	%2.2	95,543,711
2015	194,680,971	67,885,745	%1.4	49,942,255
2016	196,924,141	64,425,968	%0.5	42,523,596
2017	221,665,709	72,377,866	%0.2	62,469,386
2018	268,918,874	77,242,778	%0.4	91,327,432
2019	276,157,867	106,912,462	%0.1	94,943,845
2020	215,661,516	72,390,526	%4.2	51,806,388
2021	304,053,321	92,241,848	%4.8	85,444,207
2022	416,689,736	99,965,455	%3.9	131,301,946
2023	353,780,243	115,613,341	%4.5	100,997,360
2024	363,533,635	195,986,412	%3.1	111,467,162

Source: Central Bank of Iraq, Statistics and Research Department, Annual Statistical Bulletin, various issues (2004–2024), Baghdad – Iraq.

The First Phase (2004–2007) – A Period of Fluctuation and the Beginning of Reconstruction

Data indicate that the Gross Domestic Product (GDP) rose from 53,235,358 in 2004 to 111,455,813 in 2007—an increase of approximately 109% over four years; however, this growth was not stable, as it was marked by significant fluctuations in government spending, which fell from 121,236,262 in 2004 to 55,053,710 in 2007.

As for inflation, it reached very high levels, rising from 26.8% in 2004 to a peak of 53.1% in 2006, before declining to 30.9% in 2007. This significant surge in inflation is attributed to a lack of monetary stability and rising aggregate demand—coupled with weak domestic supply—during the economic reconstruction phase.

This phase reflects an unstable economy reliant on reconstruction, where GDP growth was driven by public spending rather than real production, while high inflation reflects an imbalance between supply and demand.

The Second Phase (2008–2014)—The Phase of High Rentier Growth

Gross Domestic Product (GDP) saw a marked increase from 157,026,061 in 2008 to 273,587,529 in 2013, before declining slightly to 266,332,655 in 2014.

Oil revenues also rose from 93,729,218 in 2008 to 116,597,076 in 2012, subsequently falling to 95,543,711 in 2014.

Government spending experienced significant expansion, rising from 83,678,104 in 2008 to 116,335,503 in 2013—a trend reflecting fiscal expansion driven by higher oil revenues.

As for inflation, it dropped significantly from 12.7% in 2008 to 1.9% in 2013, reflecting relative stability in monetary policy compared to the preceding period.

This improvement is attributable to the rise in global oil prices during that period, which led to increased oil revenues and a subsequent expansion in government spending, thereby supporting economic growth. However, this growth remained tied to oil rather than to productive diversification.

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The Third Phase (2015–2019)—The Phase of Oil Shock and Contraction

Oil revenues fell sharply from 95,543,711 in 2014 to 49,942,255 in 2015—a decline of nearly 48%—which directly impacted the economy.

Gross Domestic Product (GDP) dropped from 266,332,655 in 2014 to 194,680,971 in 2015, subsequently fluctuating between 196,924,141 and 276,157,867 in the following years.

Government spending decreased significantly from 111,686,531 in 2014 to 67,885,745 in 2015, then gradually rose again to reach 106,912,462 in 2019.

As for inflation, it remained at very low levels—ranging between 0.1% and 1.4%—throughout most of this period.

This decline was driven by the global collapse in oil prices between 2014 and 2016, which triggered a financial crisis that impacted government spending and economic growth. The low inflation observed here does not reflect economic stability; rather, it signals weak aggregate demand and economic contraction.

The Fourth Phase (2020–2024) – The Phase of Recovery and Fluctuation

GDP rose from 215,661,516 in 2020 to 416,689,736 in 2022 (the highest value in the series), then fell to 353,780,243 in 2023 before stabilizing at 363,533,635 in 2024.

Oil revenues increased from 51,806,388 in 2020 to 131,301,946 in 2022, then declined to 100,997,360 in 2023 before returning to 111,467,162 in 2024.

Government spending saw a significant surge in 2024, reaching 195,986,412 compared to 99,965,455 in 2022—an increase of nearly 96% in just two years.

Meanwhile, inflation remained within a moderate range of 3.1% to 4.8%.

This period reflects the post-COVID-19 recovery and rising oil prices, which drove revenue growth; however, the volatility observed in 2023–2024 highlights instability in fiscal policy management and a direct reliance on oil.

Overall, the data confirms that the Iraqi economy is quintessentially rentier, as all key economic indicators—such as growth, spending, and inflation—are directly linked to oil revenue trends; this limits economic stability and undermines the ability of economic policies to achieve genuine economic diversification.

IV. ESTIMATING THE RELATIONSHIP BETWEEN RENTIER DEPENDENCE AND ECONOMIC POLICIES IN IRAQ (2004Q1–2024Q4)

The Iraqi economy is classified as a rentier economy that relies primarily on oil revenues; consequently, economic policies are directly influenced by fluctuations in oil prices over the period from the first quarter of 2004 to the fourth quarter of 2024. This reliance has shaped the nature of fiscal and monetary policies, leading to persistent structural imbalances and a lack of economic diversification. Annual data from the Central Bank of Iraq and the Central Statistical Organization were utilized for the study variables: Gross Domestic Product (representing economic performance, Y), oil revenues (X_1), government spending (X_2), inflation (X_3), broad money supply (X_4), and the parallel exchange rate (X_5).

Section One: Specification of the Econometric Model and the Theoretical Relationship Between Variables

To achieve the study's objective of measuring the impact of rentier dependence and economic policies on Iraq's economic performance, Gross Domestic Product (GDP) at current prices (Y) was adopted as the dependent variable representing the level of economic performance. The independent variables consisted of oil revenues (X_1), government spending (X_2), the inflation rate (X_3), broad money supply (X_4), and the parallel exchange rate (X_5). The econometric model is based on the hypothesis that changes in these variables directly or indirectly affect Iraq's economic performance during the study period.

The general relationship of the model can be expressed by the following formula:

$$Y = f(X_1, X_2, X_3, X_4, X_5)$$

Theoretically, a positive relationship is expected between oil revenues and economic performance, given the Iraqi economy's heavy reliance on oil proceeds to finance the general budget and various economic activities. A positive relationship is also assumed to exist between government spending and Gross Domestic Product (GDP), provided that spending is directed toward investment and productive activities capable of generating genuine value added.

As for inflation, it is expected to have an inverse relationship with economic performance when rates exceed acceptable limits, due to the erosion of purchasing power, rising production costs, and reduced efficiency in resource allocation. Conversely, an expansion in the money supply is expected to support economic activity by providing the liquidity needed to finance investment and consumption, provided it is not accompanied by significant inflationary pressures. Furthermore, exchange rate stability is expected to strengthen the economic environment and enhance the efficiency of trade and investment transactions, whereas sharp exchange rate fluctuations can negatively impact economic activity and increase market uncertainty.

Second Section: Stability Tests and Estimation of the Autoregressive Distributed Lag (ARDL) Model

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1. Summary of stability results:

The stationarity of the variables used in the study was tested using the statistical software EViews 13 by applying the Phillips-Perron (PP) test. This was done to determine whether the variables were stationary or non-stationary—that is, whether they contained a unit root. Additionally, the order of integration for each variable was determined. Upon conducting the test for all variables, the following results were obtained:

Table (2) Summary of Phillips-Perron (PP) test results for the stationarity of the study variables' time series (2004Q1–2024Q4)

UNIT ROOT TEST RESULTS TABLE (PP)							
Null Hypothesis: the variable has a unit root							
							At Level
		LOGY	LOGX1	LOGX2	LOGX3	LOGX4	LOGX5
With Constant	t-Statistic	-2.6522	-1.0253	-2.5149	-1.6834	0.3427	-0.7969
	Prob.	0.0869	0.7410	0.1156	0.4359	0.9792	0.8146
		*	n0	n0	n0	n0	n0
With Constant & Trend	t-Statistic	-2.7182	-1.6409	-2.4160	-1.7026	-2.6684	-1.0263
	Prob.	0.2323	0.7681	0.3688	0.7415	0.2523	0.9341
		n0	n0	n0	n0	n0	n0
Without Constant & Trend	t-Statistic	2.1168	0.4517	-0.0566	-0.3276	2.3070	0.3863
	Prob.	0.9915	0.8098	0.6610	0.5645	0.9948	0.7933
		n0	n0	n0	n0	n0	n0
							At First Difference
		d(LOGY)	d(LOGX1)	d(LOGX2)	d(LOGX3)	d(LOGX4)	d(LOGX5)
With Constant	t-Statistic	-4.6476	-4.4118	-4.7327	-5.3451	-3.5918	-4.2309
	Prob.	0.0003	0.0006	0.0002	0.0000	0.0080	0.0011
With Constant & Trend	t-Statistic	-4.7377	-4.8967	-4.7860	-5.3278	-3.6107	-4.6515
	Prob.	0.0013	0.0007	0.0011	0.0002	0.0350	0.0017
Without Constant & Trend	t-Statistic	-4.3110	-4.4191	-4.7622	-5.3603	-2.9521	-4.2423
	Prob.	0.0000	0.0000	0.0000	0.0000	0.0036	0.0000
Notes:							
a: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1% and (no) Not Significant							
b: Lag Length based on SIC							
c: Probability based on MacKinnon (1996) one-sided p-values.							

Source: Prepared by the researchers using EViews 13 software.

Table (2) reveals that, according to the Phillips-Perron (PP) test, the time series for the variables—Gross Domestic Product (Y, representing economic performance), oil revenues (X1), government spending (X2), inflation (X3), broad money supply (X4), and the parallel exchange rate (X5)—do not exhibit stationarity at the level; rather, they contain a unit root but become stationary after taking the first difference. This indicates that they are integrated of order one; therefore, the Nonlinear Autoregressive Distributed Lag (NARDL) method will be employed.

2. Estimating the study model using Autoregressive Distributed Lag (ARDL).

The first step, following the test for the stationarity of the variables under study, is to estimate the Autoregressive Distributed Lag (ARDL) model for economic performance in Iraq. Upon estimating the model, the results presented in the table were obtained:

Table (3) Summary of ARDL estimation results for the study model (2004Q1–2024Q4)

Dependent Variable: DLOGY			
Method: ARDL			
Date: 06/12/26 Time: 04:43			
Sample (adjusted): 2004Q3 2024Q4			

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Included observations: 82 after adjustments				
Maximum dependent lags: 3 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (0 lag, automatic): DLOGX1 DLOGX2 DLOGX3 DLOGX4 DLOGX5				
Fixed regressors: C				
Number of models evaluated: 3				
Selected Model: ARDL(2, 0, 0, 0, 0)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
DLOGY(-1)	1.349004	0.115441	11.68569	0.0000
DLOGY(-2)	-0.462194	0.105872	-4.365591	0.0000
DLOGX1	-0.050482	0.038626	-1.306948	0.1953
DLOGX2	0.059922	0.034538	1.734957	0.0869
DLOGX3	1.32E-05	0.005686	0.002313	0.9982
DLOGX4	0.120197	0.043127	2.787053	0.0068
DLOGX5	-0.065748	0.091891	-0.715495	0.4766
C	0.291214	0.523039	0.556772	0.5794
R-squared	0.990155	Mean dependent var		19.12255
Adjusted R-squared	0.989224	S.D. dependent var		0.488407
S.E. of regression	0.050700	Akaike info criterion		-3.033312
Sum squared resid	0.190217	Schwarz criterion		-2.798510
Log likelihood	132.3658	Hannan-Quinn criter.		-2.939042
F-statistic	1063.253	Durbin-Watson stat		1.951995
Prob(F-statistic)	0.000000			
*Note: p-values and any subsequent tests do not account for model				

Source: Prepared by the researchers using EViews 13 software

From Table (3) above, the following can be observed:

- The results of the ARDL model estimation indicate that the model's explanatory power (Adjusted R-squared = 0.98) means the independent variables included in the estimated model explain 98% of the variations in the dependent variable—economic performance in Iraq—while 2% of the variation is attributable to the stochastic variable (U_i).
- The model is statistically significant based on the F-test; the calculated F-statistic is 1063.253, which is significant at the 1% level (Prob F-statistic = 0.000000). This indicates that the estimated model is significant; consequently, we reject the null hypothesis ($H_0: b=0$) and accept the alternative hypothesis ($H_1: b \neq 0$).
- The Durbin-Watson statistic was 1.95—a value close to 2—indicating that the model does not suffer from autocorrelation among the residuals; consequently, the null hypothesis is accepted and the alternative hypothesis is rejected, as the null hypothesis posits the absence of autocorrelation..

2. Analysis of the Nonlinear Autoregressive Distributed Lag (NARDL) Model Results and Model Validity Tests.

First: Results of the NARDL (Non-linear Autoregressive Distributed Lag) model estimation.

After conducting unit root tests to assess the stationarity of the study variables and determining the order of integration for the economic performance variables in Iraq—and given that the time series for these variables exhibit stationarity at the first difference—it was determined that the Nonlinear Autoregressive Distributed Lag (NARDL) model could be employed. The study model was estimated by designating the natural logarithm of Gross Domestic Product (GDP) at current prices as the dependent variable, while the explanatory variables were defined as the natural logarithm of the cumulative sum of positive government expenditure values. ...and the natural logarithm of the cumulative sum of positive oil revenue values, the natural logarithm of the cumulative sum of positive inflation values, the natural logarithm of the cumulative sum of positive broad money supply values, and the natural logarithm of the cumulative sum of positive parallel exchange rate values, over the period (2004Q1–2024Q4). The model aims to measure the asymmetric impact of positive and negative shocks in oil revenues on economic growth in Iraq. The oil revenue variable was decomposed into two components—positive shocks and negative shocks—in accordance with the NARDL model methodology for analyzing the non-linear and asymmetric effects of economic variables.

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Table (4) Results of the NARDL model estimation

Dependent Variable: DLOGY				
Method: ARDL				
Date: 06/12/26 Time: 04:52				
Sample (adjusted): 2004Q3 2024Q4				
Included observations: 82 after adjustments				
Maximum dependent lags: 3 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (0 lag, automatic): DLOGX1_POS DLOGX1_NEG				
DLOGX2_POS DLOGX2_NEG DLOGX3_POS DLOGX3_NEG				
DLOGX4_POS DLOGX4_NEG DLOGX5_POS DLOGX5_NEG				
Fixed regressors: C				
Number of models evaluated: 3				
Selected Model: ARDL(2, 0, 0, 0, 0, 0, 0, 0, 0, 0)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
DLOGY(-1)	0.650217	0.113966	5.705383	0.0000
DLOGY(-2)	-0.134664	0.089244	-1.508950	0.1359
DLOGX1_POS	-0.028609	0.043038	-0.664747	0.5084
DLOGX1_NEG	-0.580651	0.135850	-4.274209	0.0001
DLOGX2_POS	0.045929	0.037703	1.218193	0.2273
DLOGX2_NEG	0.783987	0.098359	7.970630	0.0000
DLOGX3_POS	-0.000370	0.007742	-0.047812	0.9620
DLOGX3_NEG	-0.005495	0.012204	-0.450298	0.6539
DLOGX4_POS	0.598891	0.086612	6.914672	0.0000
DLOGX4_NEG	-0.785221	0.287583	-2.730417	0.0080
DLOGX5_POS	0.756340	0.167316	4.520418	0.0000
DLOGX5_NEG	-0.828058	0.203580	-4.067479	0.0001
C	8.499170	0.907730	9.363102	0.0000
R-squared	0.995407	Mean dependent var		19.12255
Adjusted R-squared	0.994608	S.D. dependent var		0.488407
S.E. of regression	0.035864	Akaike info criterion		-3.673722
Sum squared resid	0.088748	Schwarz criterion		-3.292169
Log likelihood	163.6226	Hannan-Quinn criter.		-3.520534
F-statistic	1246.113	Durbin-Watson stat		1.446022
Prob(F-statistic)	0.000000			
*Note: p-values and any subsequent tests do not account for model				

Source: Prepared by the researchers using EViews 13 software.

From Table (4), the following can be observed:

- Regarding the F-test for the significance of the regression equation representing economic performance in Iraq—measured by Gross Domestic Product (GDP) at current prices (y)—the calculated F-statistic value was 1246.113. This value is significant at any level of significance, as the probability value (Prob F-statistic) was 0.000000. Consequently, the null hypothesis is rejected, and the alternative hypothesis—which posits the significance of the model as a whole in influencing the dependent variable—is accepted.
- The adjusted R-squared value of 0.99 indicates that 99% of the variation in the dependent variable—Gross Domestic Product (GDP) at current prices (Y)—is attributable to the explanatory variables, while the remainder is due to unmeasurable variables or model estimation errors.
- The results of the Nonlinear Autoregressive Distributed Lag (NARDL) model indicate the presence of asymmetric effects of positive and negative macroeconomic shocks on Iraq's economic performance during the period from the third quarter of 2004 (2004Q3) to the fourth quarter of 2024 (2024Q4). The findings reveal that current economic growth is positively influenced by its

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past values; the coefficient for the lagged dependent variable, $DLOGY(-1)$, was approximately 0.650 and statistically significant at the 1% level, reflecting a degree of persistence in Iraqi economic activity.

- Regarding oil revenues, the results showed that positive shocks to oil revenues ($DLOGX1_POS$) were not statistically significant, whereas negative shocks ($DLOGX1_NEG$) were negative and statistically significant at the 1% level, with a coefficient of -0.581. This result reflects the rentier nature of the Iraqi economy, as increases in oil revenues do not necessarily translate into sustainable economic growth due to the concentration of public spending on operational and consumption-related areas and the weak contribution of non-oil productive sectors. Conversely, a decline in oil revenues leads to a direct contraction in economic activity, given the heavy reliance of public finances on oil proceeds to fund government spending and public investments. This finding indicates that the Iraqi economy is more sensitive to negative oil shocks than to positive ones, underscoring the continued dominance of oil rents over the trajectory of economic development.

- Regarding government spending, the results indicated that positive shocks to government spending were not statistically significant, whereas negative shocks had a positive and statistically significant effect, with a coefficient of 0.784. This result can be explained by the fact that reductions in government spending during certain periods were associated with the rationalization of public expenditure and a decrease in unproductive spending; this contributed to improved resource allocation efficiency and enhanced economic stability. This result may also reflect the limited impact of expanded public spending on economic growth, given low investment efficiency and the dominance of operational expenditure within the general budget.

- Regarding inflation, the results showed no significant impact from positive or negative shocks, indicating that inflation was not a primary determinant of economic performance during the study period. This can be attributed to the fact that the Iraqi economy remained more heavily influenced by rentier, fiscal, and monetary factors linked to the oil sector than by changes in the general price level.

- As for broad money supply, the results showed that positive shocks had a positive and statistically significant impact, with a coefficient of 0.599, whereas negative shocks had a negative and significant impact, with a coefficient of -0.785. This result underscores the vital role of monetary policy in supporting economic activity by providing the liquidity necessary to finance consumption and investment, while a contraction in liquidity leads to a decline in economic activity and lower growth rates.

- Regarding the parallel exchange rate, the results showed that positive shocks had a positive and statistically significant impact, with a coefficient of 0.756, whereas negative shocks had a negative and significant impact, with a coefficient of -0.828. This finding indicates that fluctuations in the parallel exchange market are a significant factor influencing economic activity in Iraq, given their link to foreign trade dynamics and the expectations of currency market participants, as well as their impact on liquidity levels and domestic prices.

- At the macro level, the results confirm that the Iraqi economy remains characterized by a high degree of rentier dependence; oil revenues constitute the most critical determinant of economic performance, while monetary policies and exchange rates serve as supporting tools influencing economic activity. Furthermore, the findings indicate that economic reform efforts during the study period did not fully succeed in reducing reliance on oil resources; the economy remained more vulnerable to declines in oil revenues than it benefited from increases, reflecting persistent structural imbalances and a lack of economic diversification.

- The results of the econometric study indicate that the Iraqi economy remains characterized by a high degree of rentier dependence, with oil revenues serving as the primary source of funding for economic activity and the general budget; this renders the economy highly vulnerable to external fluctuations and shocks associated with global oil markets. Furthermore, the findings reflect the persistently limited effectiveness of economic policies in achieving economic diversification and reducing reliance on the oil sector, a factor that explains the Iraqi economy's continued structural fragility throughout the study period.

- The NARDL model results also confirmed the existence of an asymmetric relationship between oil revenues and economic performance, revealing that negative shocks to oil revenues had a greater impact than positive shocks. This finding can be explained by the fact that a decline in oil revenues leads directly to a contraction in government spending, public investment, and economic activity; conversely, increases in oil revenues do not necessarily translate into sustainable economic growth due to limited economic diversification and the dominance of current expenditure over investment expenditure.

- These results align with the findings of Khan (2022), which confirmed a strong link between economic growth, oil revenues, and government spending in Iraq; they also concur with Zaya (2024), who indicated that oil revenues are the primary determinant of economic growth, reflecting the oil sector's enduring pivotal role in shaping Iraq's economic activity.

- The findings of the current study also align with the study by Hameed et al. (2026), which demonstrated that changes in oil revenues directly impact macroeconomic indicators due to the heavy reliance on oil as a primary source of public funding; furthermore, they are consistent with the results of Khaleel et al. (2023), which confirmed the Iraqi economy's high sensitivity to oil shocks and global market fluctuations.

- Regarding the long-term relationship, the bounds test results revealed a long-run equilibrium relationship among the study variables. This finding aligns with the study by Atiyah and Akawee (2024), which confirmed a long-term interrelationship

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between economic policy variables and economic stability in Iraq; this reinforces the reliability of the current results and confirms the existence of enduring structural links among the economic variables under study.

•The results also demonstrated that negative shocks to oil revenues had a more significant impact than positive ones—a finding that underscores the Iraqi economy's greater vulnerability to declines in oil prices compared to the benefits derived from temporary surges in oil revenues. This aligns with the observations made by Al-Shammari and Bekheet (2025) regarding the limited capacity of economic policies to absorb the effects of oil shocks amidst a continued, heavy reliance on rentier revenues.

•Furthermore, the results indicated that inflation did not have a statistically significant impact on explaining changes in economic performance during the study period, reflecting the dominance of rentier and oil-related factors over monetary factors in shaping economic activity. In contrast, the model results showed that the exchange rate had a statistically significant effect, highlighting the importance of exchange market stability in supporting economic activity and improving the business environment. The results also demonstrated that the money supply contributed positively to boosting economic activity by providing the liquidity necessary for consumption and investment. These results confirm that the primary challenge facing the Iraqi economy is not linked solely to monetary tools, but rather to the nature of an economic structure heavily reliant on oil revenues and the persistently weak contribution of non-oil productive sectors to the Gross Domestic Product.

1. Bounds test for the NARDL model.

The next step is to test for the existence of a cointegration relationship—that is, a long-run equilibrium relationship—using the Bounds Test, as shown in Table (5).

Table (5) Bounds Test for the estimated model of economic performance in Iraq.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	9.594816	10%	1.76	2.77
k	10	5%	1.98	3.04
		2.5%	2.18	3.28
		1%	2.41	3.61
Actual Sample Size	82		Finite Sample: n=80	
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1

Source: Prepared by the researchers using EViews 13 software.

Based on Table (5) above, which presents the results of the bounds test, the calculated F-statistic is 9.594816. This value exceeds both the lower critical value (1.76) and the upper critical value (2.77) at the 10% significance level. Consequently, a long-run equilibrium relationship exists; the null hypothesis—stating that there is no long-run equilibrium relationship among the study variables—is rejected, and the alternative hypothesis—affirming the existence of such a relationship—is accepted.

2. Conducting diagnostic tests.

Following the estimation of the model parameters for the long-run and short-run relationships, and to verify the quality of the model employed in the research, the following econometric model evaluation tests must be conducted:

a. Test for heteroskedasticity.

Table (6) Breusch-Pagan-Godfrey Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.143570	Prob. F(13,68)	0.3399
Obs*R-squared	14.71097	Prob. Chi-Square(13)	0.3257
Scaled explained SS	27.77955	Prob. Chi-Square(13)	0.0097

Source: Prepared by the researchers using EViews 13 software.

Table (6) indicates that the model does not suffer from the problem of heteroskedasticity, as the statistical indicators were insignificant—meaning the error variance is homogeneous. Specifically, $F = 1.143570$, and the associated probability value (Prob = 0.3399) exceeds 0.05.

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b. Test for serial autocorrelation among the residuals.

Table (7) LM Test

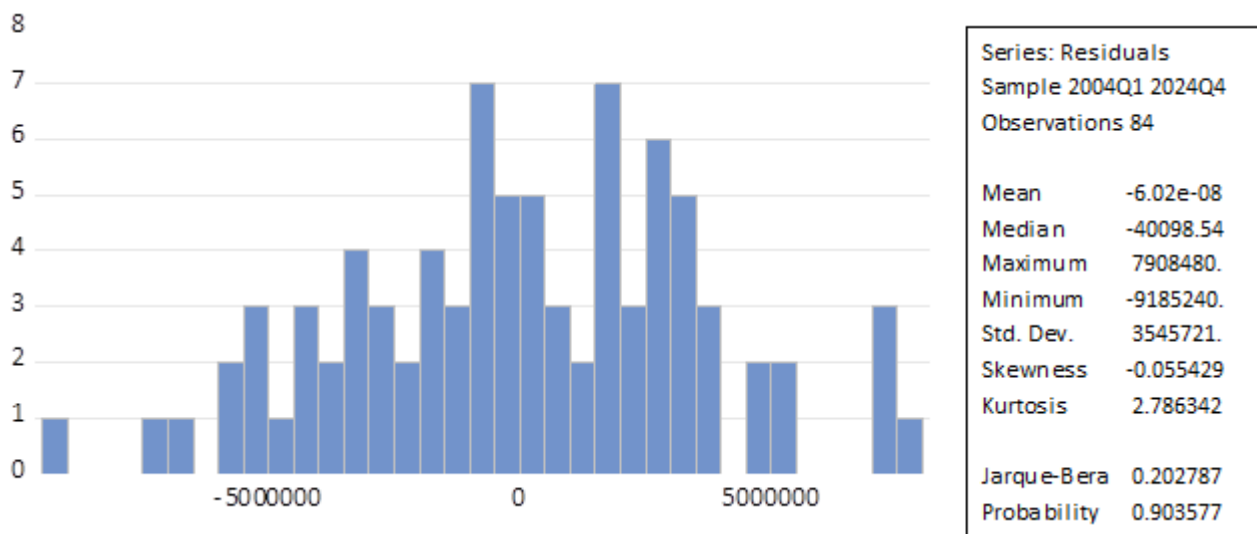
Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.130625	Prob. F(2,66)	0.8778
Obs*R-squared	0.323305	Prob. Chi-Square(2)	0.8507

Source: Prepared by the researchers using EViews 13 software.

Table (7) shows that the model does not suffer from serial autocorrelation among the residuals, as the statistical indicators were insignificant ($F = 0.130625$) and the probability value (Prob = 0.8778) exceeded 0.05.

C. Test for normal distribution

Figure (1) Jarque-Bera test for normal distribution



Source: Authors' calculations using EViews 13 software.

The Jarque-Bera test reveals a probability value (0.903577) greater than 5%, indicating a bell-shaped distribution; consequently, the null hypothesis—stating that the regression equation residuals are normally distributed—is accepted.

3. Structural stability test for model parameters.

To test the structural stability of the estimated model, the CUSUM test—illustrated in the following figure—can be used.

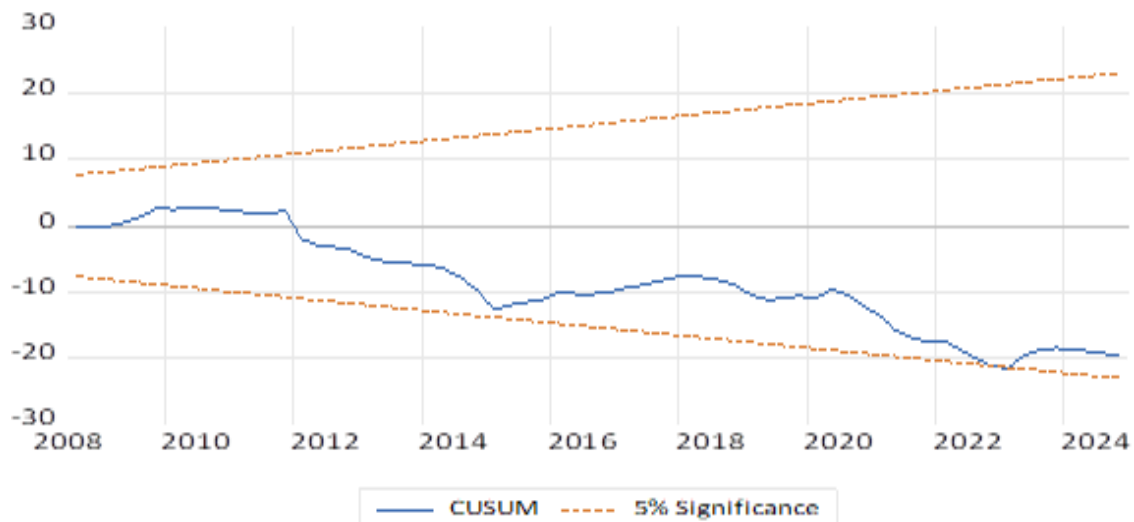


Figure (2) Structural stability of the estimated model using CUSUM.

Source: Prepared by the researchers using EViews 13 software.

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It is observed that the cumulative sum of residuals falls within the critical limits at a 5% significance level, indicating the stability of the estimated parameters for the study model.

CONCLUSIONS

1. The study's findings indicate the existence of a long-term equilibrium relationship linking Iraq's economic performance to several key economic variables—namely oil revenues, government spending, the inflation rate, the money supply, and the exchange rate—reflecting a clear interconnection among these factors in explaining economic dynamics during the study period.
2. It is evident that the Iraqi economy remains heavily reliant on oil revenues as the primary source of public income, rendering it highly sensitive to fluctuations in global oil prices and, consequently, impacting its overall economic stability.
3. The results indicated that the impact of negative shocks to oil revenues is greater than that of positive shocks, reflecting a lack of economic diversification and underscoring the Iraqi economy's high vulnerability to external crises.
4. The study also revealed that the effectiveness of government spending in achieving development goals remains limited, due to a heavy emphasis on current expenditures at the expense of investment spending—a factor that has reduced the capacity of public spending to directly support economic growth.
5. The analysis indicated that the money supply contributed positively to boosting economic activity during the study period, whereas the impact of both inflation and the exchange rate remained statistically relatively weak.
6. The results of the standard tests confirmed that the model employed possesses good explanatory power and is suitable for analyzing the relationship between the economic variables under study with an acceptable level of scientific validity.

RECOMMENDATIONS

1. The necessity of reducing excessive reliance on oil revenues by adopting effective policies to diversify national income sources, while focusing on developing productive sectors such as agriculture, industry, and services.
2. Reorienting the structure of government spending to increase the share of investment expenditure—particularly in infrastructure and productive projects—given its role in supporting sustainable economic growth.
3. The importance of establishing financial mechanisms and sovereign wealth funds capable of absorbing shocks resulting from oil price fluctuations, thereby contributing to the enhancement of financial and economic stability.
4. Enhancing coordination between fiscal and monetary policies to ensure coherence in macroeconomic management and improve the efficiency of public resource utilization.
5. Supporting the private sector and stimulating investment by improving the investment environment and providing the necessary facilities, thereby contributing to expanding the production base and creating new job opportunities.
6. Adopting comprehensive, long-term structural reforms aimed at enhancing the Iraqi economy's resilience to external shocks and building a more diversified and sustainable economy.

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