MEASUREMENT AND ANALYSIS OF THE DYNAMICS OF TRADE SHOCKS AND THEIR IMPACT ON THE PATH OF ECONOMIC DEVELOPMENT IN IRAQ FOR THE PERIOD 2010–2024

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Abstract
This study examines the impact of trade shocks on the path of economic development in Iraq during the period 2010–2024. It focuses on fluctuations in oil prices, the exchange rate, and trade openness, considering the Iraqi economy's dependence on oil revenues and its limited productive diversification. The study aims to measure the effects of these variables on economic performance and GDP per capita, as well as to analyze the relationships between the variables. Econometric analysis is conducted using the autoregressive distributed lag (ARDL) model to examine short-run and long-run relationships. Stationarity tests are applied to the time-series data, and the bounds test is used to investigate the existence of a long-run relationship. The results indicate a positive relationship between oil prices and both trade openness and GDP per capita. Exchange rate movements have mixed effects, increasing nominal revenues while reducing purchasing power. The findings also indicate the existence of a long-run cointegrating relationship among the economic variables. Based on these findings, the study recommends strengthening economic diversification, reducing dependence on oil, and addressing the risks associated with consumption-oriented trade openness and international fluctuations.

1. Introduction

In the time (2010–2024) the economic structure of Iraq has gone through changes, uses as an explanation of the economy by the movement in the macroscopic variables with international trade, oil price and exchange rate categories taking the sites on the principle seat of determining the way toward economic. Structural and no just a transient reaction or event happened to Iraq's economy but it became the structural variable revealing traits of the economy. and showed their effects on successive levels of demand, income and ultimately welfare. This has allowed them to better anticipate average GDP per capita which is now also looked for as a direct approximation of individual well being and as teller of the tale about the stability or disruption on the way of development for the country.

These shocks have parallels to clearly bring into the picture how international effects have been transmitted into economic structure and thereby how those hit the labor market, production part, and consumption market. Beyond just a theoretical interpretation, impetus from scientific requirements and practical necessity has spurred the current need to study reciprocating movements of oil prices interlaced with trade openness and exchange rates. And it is this reflection that sparks yet another query as to whether or not the structural weakness of Iraq's economy is revealed. Ultimately, this research provides knowledge to decision makers so that they can fathom the actual conditions and design their economic policies to handle fluctuations in an adaptive way in preventive terms, turning those shocks into opportunities for sustained growth, not just an obstacle to economic and social stability.

1.1. Research Problem

Regardless of the economic transformation Iraq has undergone (2010 - 2024), there have been several economic shocks stemming from research issues on the path of economic development. The problem at the core in short can be synthesized in the points

Nevertheless semiannual petroleum GDP decreased. Unanticipated shocks of uncertain levels of fluctuations were happening concurrently in the economy of Iraq, as evidenced by external and internal variables, thereby questioning the ability of the Iraqi economy to withstand such shocks.

The nature of the connectivity vis-a-vis oil price fluctuations/trade openness and the exchange rate with the GDP path is ambiguous, so the effect remains indeterminate.

Economic policies' responsiveness to economic shocks, and how these reflect on development. Can available instruments convert such shocks into opportunities for growth making the case for transforming the Iraqi Economy structurally deepening imbalances rather than

1.2. Research Significance

The importance of the present study can be tracked down in terms of scientific as well as practical affairs, On one hand, relishing parade of economic shock transmission and its impact on GDP (well grounded scientific justification of the fluctuations which Iraqi economy lived through during period of our interest.

On the other hand, helping policy and decision makers to understand trade openness, oil price fluctuations and effect on exchange rate and help them design a flexible policy regime in face of any surprises that economy brings to bear.

One would draw knowledge from its original contribution to Iraqi economic literature trough estimations of economic shocks to development (provided econometrically) to be used to predict future paths of economy

1.3. Research Objectives

The main practical and analytical objectives that this research seeks are: 1) To quantify the economic shock impacts associated with trade openness, oil prices, and the exchange rate on GDP in Iraq. 2) To test the causality link between these factors and the dependent variable and to determine whether these shocks facilitate the promotion of economic growth or block the way of achieving it. 3) To make policy proposals that are able to alter the economic course in Iraq and at the same time to decrease its dependence on external shocks

1.4. Research Hypotheses

Hence, the research poses the following hypotheses so that we can test them by means of empirical data

The relationship between GDP and trade openness in Iraq during the period (2010-2024) will vary with the intensity of the detected economic shocks, if at all. • As the Iraqi economy heavily depends on oil revenues, which are the main ingredient for growing GDP, fluctuations in their prices significantly impact GDP.

Exchange rate fluctuations are expected to influence Iraq's GDP by affecting domestic prices, the cost of imports, and the competitiveness of domestic production, reflecting the Iraqi economy's exposure to changes in exchange rate conditions.

1.5. Theoretical Framework of Trade Shocks

1.5.1. Trade Shocks

The concept of trade shocks: The economy of any country is often affected by numerous changes that interact with one another, and the effects of these changes are reflected on the economy in general depending on the nature of the change affecting it and, on the other hand, on the flexibility

and efficiency of the economy; hence the strength and effectiveness of this impact vary. A shock is understood as an unexpected event or change, either because models fail or because they fall short in forecasting due to mostly external changes, and it occurs with an outcome entirely different from what was generally expected (Jawad, 2022).

Definition of trade shocks: Trade shocks are defined as sudden and unexpected changes in the external terms of trade, whether in exports or imports. They may be favorable (a rise in export values, a fall in import values, or both) or adverse (a fall in export values and a rise in import values, or both). Such shocks may be temporary, in which case the government intervenes to address them through fiscal measures that limit adverse shocks, or permanent, in which case the government cannot address them quickly and they persist for a longer period (Al-Bakri, 2015).

Types of trade shocks

Favorable (positive) shocks: These refer to a sudden positive increase in exports or a sudden fall in imports, or both. When the economy is exposed to a positive shock in the terms of trade, the effects are neutral in terms of income distribution; that is, every factor of production benefits from the positive shock because there are no changes in the relative earnings of workers across domestically produced goods. In this type of shock, demand continues to rise as world prices rise (Al-Muhammadi & Al-Ghurairi, 2015). Favorable trade shocks resemble production shocks because they help the economy raise consumption permanently without a corresponding rise in factor prices. According to the permanent income theory, most individuals will increase consumption and demand for manufactured goods, meet their needs, and reduce imports as the trade balance improves. Temporary favorable trade shocks also increase net exports and improve the trade balance compared with permanent trade shocks (Rees, 2013).

Adverse (negative) shocks: These occur when exports suddenly fall or imports suddenly rise, leading to a deterioration in the terms of trade and a decline in the relative value of exported goods. This deterioration reduces the country's wealth and domestic demand for goods. In small economies, world prices are the main determinant, and given the inelastic supply of non-tradable goods in the short run, the fall in the prices of tradable goods leads to a decline in the real exchange rate and a shift of resources away from the export sector because the return to the factor there becomes lower. Adverse shocks reduce the economy's income and weaken the competitiveness of the export sector, leading to a movement of resources toward the non tradable sectors.

1.5.2. Economic Development

The nature of economic development: Development is a fundamental element of stability and of human and social progress. It is a continuous process of comprehensive or partial evolution that takes different forms and aims to elevate the human condition and to achieve welfare, stability, and progress in line with human needs and economic, social, and intellectual capabilities, etc.

The concept of economic development: (A dynamic process consisting of a series of structural and functional changes in society, occurring as a result of intervention to direct the volume and quality of the resources available to society, in order to raise the welfare of the majority of its members by increasing their effectiveness in investing the society's capacities to the maximum extent).

Definition of economic development: It can be defined as a set of policies adopted by a given society which, in turn, raise economic growth rates on the basis of domestic indicators to ensure that the needs of the members of society are met and to achieve the greatest possible degree of social justice (Al-Shammari, 2020).

GDP per capita

The conceptual aspect of GDP per capita: The concept of human development, as put forward by the United Nations Development Program, focuses on the importance of improving human capabilities and using these capabilities in production. Developing these capabilities requires investing in individuals, while investing in individuals requires their participation in employment and in the growth of GDP. Sustainable human development must therefore pay attention to economic growth to the same extent that it pays attention to distribution, because sustainable human

development and economic growth are achieved in the long run when people's needs are met through economic opportunities (Al-Da'ma, 2014).

2. Method

2.1. Measuring the Impact of Trade Shocks on Economic Development, 2010–2024

2.1.1. Study Variables

Table 1. Study Variables

Variable Symbol	Variable Name	Description
X1	Oil prices	Independent variable
X2	Exchange rate	Independent variable
X3	Trade openness	Independent variable
Y	GDP per capita	Dependent variable

Source: Based on the model specification.

2.1.2. Econometric Model Tests (Unit Root Test)

Before conducting the model tests, we present a table showing the stationarity test of the time series of the research variables according to the Phillips–Perron (P.P) test. Only the Phillips– Perron test was used for all models, as it is more accurate.

Table 2. Results of the Phillips–Perron Test Statistic

Variables	Level: PP	Sig.	Result	1st Difference: PP	Sig.	Result
X1	-1.8742	0.0891	Not stationary	-5.3127	0.0000	Stationary
X2	-2.4516	0.0624	Not stationary	-4.9278	0.0003	Stationary
X3	-1.6659	0.1187	Not stationary	-3.9883	0.0012	Stationary
Y	-2.1025	0.0745	Not stationary	-4.4441	0.0001	Stationary

Source: Prepared by the researcher based on EViews 13 outputs.

2.2. Third: Estimating the Impact of Trade Shocks on Economic Development

Initial estimation of the ARDL model: After the stationarity tests conducted on the trade shock variables and GDP per capita showed that they were stationary at the first difference, I(1), and with this condition satisfied, we were able to apply the ARDL model. The table below shows the results of the test for this model

Table 3. Initial Estimation Results of the ARDL Model

Dependent Variable: Y			
Method: ARDL	Selected model: ARDL (1,0,0,0)		
R-squared	0.903527	Mean dependent var	21286.7982
Adjusted R-squared	0.892404	S.D. dependent var	16870.6024
S.E. of regression	5281.616	Akaike info criterion	19.382611
Sum squared resid	24169252	Schwarz criterion	19.563082
Log likelihood	-701.33251	Hannan-Quinn criter.	20.3688026
F-statistic	81.23319	Durbin-Watson stat	1.892163
Prob(F-statistic)	0.000000		

Note: p-values and any subsequent test results do not account for model selection.

Source: Prepared by the researcher based on EViews 13 outputs.

Table 3 shows the Adjusted R-squared result: the trade shock variables, as independent variables, explained 89% of the changes in the dependent variable, GDP per capita (Y), and the remaining 11% is due to other factors not included in the model. The F-statistic indicates the overall statistical significance of the model at a probability level of about (Prob = 0.000000), which is less than 5%.

Bounds Test results for cointegration: To test whether a long-run equilibrium relationship (cointegration) exists between the trade shock variables as independent variables and GDP per capita (Y) as the dependent variable, the Bounds Test must be conducted, as shown in the following table:

Table 4. Bounds Test Results
Null hypothesis: No level relationship. Test statistic: F-statistic = 6.982145

Sample Size	10% I(0)	10% I(1)	5% I(0)	5% I(1)	1% I(0)	1% I(1)
40	3.190	3.730	3.877	4.460	5.607	6.193
Asymptotic	3.020	3.510	3.620	4.160	4.940	5.580

I(0) and I(1) are, respectively, the lower (stationary) and upper (non-stationary) bounds.
Source: Prepared by the researcher based on EViews 13 outputs.

It is observed from Table 4 above that the calculated F-statistic is (6.982145), which is greater than the critical value at the 5% significance level. This means we reject the null hypothesis and accept the alternative hypothesis, which indicates the existence of cointegration between the trade shocks as independent variables and GDP per capita (Y) as the dependent variable.

3. Results and Discussion

On one hand, this kind of shocks linked the "real" side of economy and open way (and space for good development performance) in another. Exposure of any economy to persistent trade shocks, especially those related with export price volatility, increasing import burden due to rising world prices and exchange rate as well, has a weakening development path impact over both a short and a long run period. These shocks are the high cost of national income leaking abroad, and also reducing the economy ability for generating its own value added, which negatively affected economic production and individual income. The detrimental effect of low foreign trade on the stability of the economy and it increase vulnerability and uncertainty to economic shock, it will make investment less effective and limit productive opportunities reduce the chances to the phase of economic development indicators. Pervasiveness in one's adoption and, in particular, the intensity of each of these trade shocks has a deeper negative impact on development, primarily in those economies that are dependent on export earnings to finance their economic activities. This kind is taken to be a stress factor to economic development of country as when this persist it bring both slow and stunted growth opportunity to a given country.

Table 5. Economic Development in Iraq: correlations between some trade shocks and 2010–2024

Year	Exports	Imports	Trade Openness	Oil Prices	Exchange Rate	GDP per Capita
2010	63,882,000	55,235,700	73.50	49,402,000,000	1170	4,988,141.1
2011	96,536,700	60,313,500	72.17	70,656,000,000	1170	6,518,752.6
2012	113,525,100	74,224,800	73.61	84,075,000,000	1166	7,431,918.8
2013	108,891,900	76,167,000	67.40	83,622,000,000	1166	7,795,455.5
2014	104,071,500	80,285,400	68.80	110,315,100,000	1166	7,648,994.9
2015	67,345,200	68,445,000	69.58	70,920,000,000	1190	5,527,830.4
2016	55,353,060	52,149,840	54.59	90,889,500,000	1190	5,444,537.4
2017	75,057,000	57,232,440	59.78	126,776,000,000	1190	6,985,469.4
2018	109,654,140	67,184,880	65.80	131,931,000,000	1190	6,685,263.0
2019	105,079,800	85,434,960	68.99	126,896,000,000	1190	6,719,431.0
2020	59,324,580	64,147,140	56.65	114,116,000,000	1190	5,210,000
Year	Exports	Imports	Trade Openness	Oil Prices	Exchange Rate	GDP per Capita
2021	113,477,000	72,877,000	61.83	59,606,600,000	1458	6,480,000
2022	208,549,429	138,946,346	83.39	49,725,000,000	1458	7,820,000
2023	149,583,115	133,381,493	80.95	64,209,000,000	1458	7,640,000
2024	149,497,386	152,442,703	83.06	82,212,000,000	1300	7,910,000

Source: Prepared by the researcher based on the Central Bank of Iraq, Directorate General of Statistics and Research, Statistical Bulletin, various years.

3.1. Development of Trade Shocks and Economic Development in Iraq (2010–2024) Development of oil prices in Iraq (2010–2024)

The price of oil effects the Iraqi economy more than any other variable and especially the state budget, providing as it does the main source of public revenue. The data for the period under consideration show these prices fluctuating sharply both affecting the economy through periods of expansion and recession according to the movements in the global oil markets. Oil prices started at 49,402,000 million dinars in 2010 and increased substantially to 84,075,000 million dinars in 2012, thus creating a surplus in the budget and providing significant spending capability to government. A peak was reached in 2014 at 110,315,100 million dinars on the back of a major shift in fiscal strategy that allowed the state to expand its investment budgets and hire for the public sector on a large scale. However, the oil shock in 2015 witnessed prices falling to 70,920,000 million dinars which resulted in the economy undergoing a fiscal stranglehold immediately expressed through austerity in government projects and a reduction in economic growth.Prices increased steadily during 2017-2019 to reach 126,776,000; 131,931,000; and 126,896,000 dinnars respectively before another period of turbulence in 2020 with the Covid-19 pandemic made prices hover at 114,116,000 million dinars.

Thus, these trends prove oil prices are not only a fiscal variable but the principal external shock that determines the resource envelope, steers fiscal policy and consequently effects economic activity level, placing the Iraqi economy at the mercy of cycles of boom and bust that are beyond the control range of its domestic productive capacity.

3.1.1. Development of the exchange rate in Iraq (2010–2024)

Exchange rate movements constitute an important mechanism through which monetary disturbances affect Iraq's domestic economic activity. This channel is particularly relevant because the country relies heavily on imported goods to satisfy domestic demand. Between 2010 and 2020, the official exchange rate fluctuated within a narrow range of approximately 1,170–1,190 dinars per US dollar. Nevertheless, exchange rate stability did not necessarily indicate an improvement in the economy's productive foundations or its ability to generate domestic value added. A major adjustment occurred in 2021, when the exchange rate reached 1,458 dinars per dollar, contributing to upward pressure on domestic prices and changes in the nominal value of economic transactions. The subsequent adjustment to 1,300 dinars per dollar in 2024 reflected a policy response intended to address the consequences of the previous exchange rate change. These developments illustrate how exchange rate policy can influence domestic economic conditions without necessarily strengthening productive capacity. In an oil-dependent economy, the conversion of dollar-denominated oil receipts into dinars is also affected by exchange rate movements. A depreciation of the dinar may increase the domestic-currency value of oil revenues, but this accounting effect should not be confused with an equivalent improvement in real income, productivity, or output. Therefore, nominal increases in revenues and expenditure must be distinguished from genuine gains in economic performance.

3.1.2. Development of trade openness in Iraq (2010–2024)

Trade integration, which is the third channel of shock, indicates how well a country has integrated with the world's economy and illustrates to what extent Iraq relies on foreign imports. The degree of trade integration was 73.50% in 2010 and continued to be high during the next several years until it reached 83.06% in 2024. However, it decreased significantly (54.59%) in 2016 due to low oil prices and reduced government expenditures; however, trade integration increased once again as revenue increased during the period 2021–2024.The fact that Iraq consumes products from other countries rather than producing its own, results from this trend. Every increase in international trade doesn't necessarily indicate a strong economy; rather, it indicates an increased dependency on other nations due to lack of a domestic production base.

3.1.3. Development of GDP per capita in Iraq (2010–2024)

The level of GDP per capita is one of the most significant measures of people's standard of living, how much they receive as a result of the country's economic activities and to what extent government economic policy results in improved social welfare. When analyzing the trend in GDP per capita over the period from 2010 through 2024, it becomes evident that there have been fluctuations that were

caused by the cycles of the Iraqi economy, which has suffered from various shocks, and the resulting periods of expansion and contraction that reflect the rentier nature of the Iraqi economy.

GDP per person increased significantly in the first few years (from 4,988,141.1 dinars in 2010 to 7,795,455.5 dinars in 2013), an increase of over 56 percent during these four years. The main reasons for this were: (1) there were more fiscal resources available to the state to spend on public goods and services after the increase in fiscal revenue; (2) total demand in the economy increased as a result of increased levels of commercial activity; and (3) there was a period of relative stability, allowing individuals to spend more on their consumption. The rise did not represent a rise in productivity or economic diversification; rather, it represented individuals benefiting from the financial liquidity flowing into the marketplace, i.e., in this period, the rise in income in Iraq was a monetary expansion rather than productive growth.

In terms of the relative peak reached by GDP per capita in 2013, it was followed by a gradual decrease to 5,527,830.4 dinars in 2015 and further down to 5,444,537.4 dinars in 2016. Among other things, the declining trend can be attributed to several factors such as the change in the priority of government spending from capital investment to operational expenses, resulting in fewer jobs being created and lower productivity; reduced purchasing power as a result of a decrease in real income; and the vulnerability of the domestic market and the lack of methods to provide alternate sources of income. Therefore, the decreasing trend demonstrates that the income generated in Iraq is susceptible to changes and relies more on external factors than on long-term sustainable development plans. After a short period of decline, GDP per capita rebounded with an increase to 6,985,469.4 dinars in 2017 and was stable at approximately 6,719,431 dinars in 2019. This was primarily attributed to the improvement of economic activities, the continuation of some public projects, the increase of aggregate demand within the markets as a result of the increased circulation of money, and the provision of short-term employment opportunities in several service and commercial sectors. Following this upward trend, GDP per capita experienced the largest drop throughout the entire series and fell to 5,210,000 dinars in 2020.

3.2. The Relationship between Trade Shocks and Economic Development, 2010–2024 The relationship between oil prices and GDP per capita

Data for the period (2010–2024) show that GDP per capita in Iraq moves almost in tandem with changes in oil prices, indicating a strong positive relationship between the two variables, since the Iraqi economy depends almost entirely on oil revenues to finance public spending and economic activity. The rise in oil prices from 49,402 million dinars (in 2010) to 84,075 million dinars in 2012 was accompanied by a rise in GDP per capita from 4,988,141.1 to 7,431,918.8 dinars, as a result of higher government revenues and productive spending.

The relative decline in oil prices after 2014, despite their reaching 110,315 million dinars in 2014, later led to a fall in GDP per capita because the economy entered fiscal pressures that affected reserves and investment. The COVID-19 shock of 2020 and the accompanying fall in oil to 114,116 million dinars coincided with a drop in GDP per capita to 5,210,000 dinars, the lowest level in the period studied.

Rising oil prices ⇒ increased revenues ⇒ government expansion in financing salaries and projects ⇒ higher GDP per capita. Falling oil prices ⇒ pressure on public finances ⇒ reduced investment and spending ⇒ lower GDP per capita. Every upward oil shock strengthens living standards, while any decline constitutes an immediate threat to individual income.

3.2.1. The relationship between the exchange rate and GDP per capita

Although the relationship initially seemed to have no linear association, further analysis revealed that there is a two-way association. On one hand, as the exchange rate increases, the purchasing power decreases; however, as the exchange rate increases, the value of the oil revenue converted to dinars also increases. Some of these increases are reflected in the public revenue. While the exchange rate remained stable between 1,170 – 1,190 dinars / dollar throughout the period of 2010 – 2019, the per capita GDP grew gradually, reaching 7,648,994 dinars in 2014 and 6,719,431

dinars in 2019 even though there were some fluctuations in the economy. After the government increased the exchange rate to 1,458 dinars / dollar in 2021, prices increased and purchasing power decreased, but due to an increase in oil revenue after being converted to dinars, the per capita GDP increased to 6,480,000 dinars. In 2024, after the government decreased the exchange rate to 1,300 dinars and both oil revenue and trade expanded, the per capita GDP grew to 7,910,000 dinars, indicating an increase in real income and regaining some of the purchasing power.

3.2.2. The relationship between trade openness and GDP per capita

Data analysis suggests that there is a conditional positive relationship between trade openness and GDP per capita. However, the extent to which trade openness affects GDP per capita depends on whether the domestic economy has the capacity to process imported goods and turn them into products rather than simply consuming them. In 2012, trade openness increased to 73.61 percent and GDP per capita rose to 7,431,918 dinars due to the increased flow of goods and technology into the country. When trade openness fell to 54.59 in 2016 came with a decline in GDP per capita to 5,444,537.4 dinars due to weak exports and rising non-productive imports. The rise in trade openness to 83.06 in 2024 was accompanied by the highest GDP per capita, 7,910,000 dinars, which is evidence of the role of trade in strengthening demand and income after recovery from the pandemic shock.

High openness + strong exports ⇒ economic expansion ⇒ higher individual income. High openness + consumption-oriented imports ⇒ pressure on the currency and higher prices ⇒ potential negative effect in the long run.

Test of the estimated parameters (short run): This test shows the estimation of the short-run parameters in order to reveal the degree of influence of the independent variable on the dependent variable. It also shows the error correction coefficient, which measures the speed with which the model returns to long-run equilibrium. The table 6 shows this.

Table 6. Results of the Error Correction Model and the Short-Run Relationship

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.291874	0.06712	-4.34619	0.0001
X1	0.612847	0.17493	3.50411	0.0010
X2	-43.81752	15.9482	-2.74831	0.0092
X3	0.238691	0.09126	2.61448	0.0136

Dependent Variable: D(Y). Method: ARDL.

Source: Prepared by the researcher based on EViews 13 outputs.

The results show a positive relationship between oil prices (X1) and GDP per capita (Y); that is, a one-unit increase in oil prices leads to an increase in GDP per capita of 0.61.

The results show an inverse relationship between the exchange rate (X2) and GDP per capita (Y); that is, a one-unit increase in the exchange rate leads to a decrease in GDP per capita (Y) of 43.81 units.

The results show a positive relationship between trade openness (X3) and GDP per capita (Y); that is, a one-unit increase in trade openness leads to an increase in GDP per capita (Y) of 0.23 units.

Test of the estimated parameters (long run): This test shows the estimation of the parameters in the long run in order to reveal the degree of influence of the independent variable on the dependent variable, in addition to determining the type of long-run relationship, as in the following table 7.

Table 7. Results of Long-Run Parameter Estimation

Variable*	Coefficient	Std. Error	t-Statistic	Prob.
X1(-1)	0.324512	0.081436	3.985271	0.0004
X2(-1)	52.76194	19.87321	2.656421	0.0116
X3(-1)	0.118345	0.049271	2.401785	0.0195
C	-94325.78	30214.67	-3.122910	0.0038

Note: * Coefficients derived from the CEC regression. Source: Prepared by the researcher based on EViews 13 outputs.

The results of the table 7 show the following: 1)The results show a relationship between oil prices (X1) and GDP per capita (Y); that is, when oil prices increase by one unit, GDP per capita rises by 0.23. 2) The results show a positive relationship between the exchange rate (X2) and GDP per capita (Y); that is, a one-unit increase in the exchange rate leads to an increase in GDP per capita (Y) of 52.7 units. 3) The results show a positive relationship between trade openness (X3) and GDP per capita (Y); that is, a one-unit increase in trade openness leads to an increase in GDP per capita (Y) of 0.11.

3.3. Post-Estimation (Confirmatory) Tests

To verify the validity and accuracy of the results obtained in the previous tests, we will carry out some important diagnostic tests to demonstrate this, as follows:

Autocorrelation problem: The results according to the LM test and the F-statistic are insignificant; therefore we reject the hypothesis that an autocorrelation problem exists. See Table 8.

Table 8. Autocorrelation (LM Test)

F-statistic	1.482317	Prob. F(2,37)	0.2406
Obs*R-squared	2.136591	Prob. Chi-Square(2)	0.3431

Source: Prepared by the researcher based on the statistical program EViews 13.

Heteroskedasticity test: The results according to the ARCH test and the F-statistic are insignificant; therefore we reject the hypothesis that a heteroskedasticity problem exists in the error variance

Table 9. Heteroskedasticity (ARCH Test)

F-statistic	2.947821	Prob. F(1,42)	0.3364
Obs*R-squared	2.102394	Prob. Chi-Square(1)	0.2930

Source: Prepared by the researcher based on the statistical program EViews 13.

Normal distribution problem: The results showed that the estimated model is free of the problem of non-normal distribution of residuals, as follows:

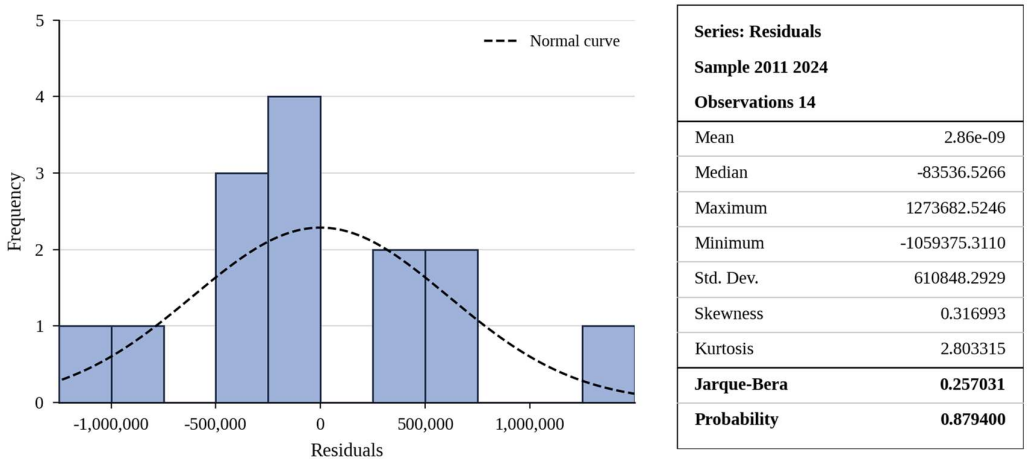


Figure 1. Normal Distribution (Jarque–Bera) of Residuals

Source: Prepared by the researcher based on the statistical program EViews 13.

4. Conclusion

The data showed that the Iraqi economy remains rentier, based on oil revenues as an almost sole source of national income, and GDP per capita levels move according to the movement of oil prices, which makes development hostage to global market fluctuations, while the absence of a domestic productive base prevents oil shocks from being turned into opportunities for sustainable growth. Furthermore, the exchange rate has a two-directional effect: its rise increases oil revenues denominated in dinars and raises nominal income, but in return weakens purchasing power because

of higher import costs, which deepens the fragility of economic welfare, revealing the limited capacity of monetary policy to stabilize the economic cycle. In addition, indicators show that Iraq's trade openness is based on imports rather than exports, which makes it a channel for the outflow of national income; the effect of openness turns positive only when oil liquidity is available and turns negative under fiscal contraction, and thus it has not been activated as a productive force capable of supporting growth. Likewise, the rise in GDP per capita in most years was not based on productive expansion or real value added, but rather resulted from oil-financed flows that raised income apparently without changing the structure of the economy, which confirms that the growth achieved is closer to nominal growth than to sustainable growth. Moreover, the absence of economic diversification and the market's lack of productive structures have made Iraq quickly affected by shocks and slow to recover, as income rises when oil revenues flow and falls immediately when they are choked off, which proves the absence of an internal capacity to generate sustainable income independent of oil. The ARDL approach also demonstrated a long-run equilibrium relationship among oil prices, the exchange rate, trade openness, and GDP per capita; these variables do not move individually but operate as an interconnected system of shocks, and accordingly, the development path is reshaped by their interaction in every economic cycle. Therefore, the productive base of the economy should be diversified and its reliance on oil should be lessened, as the development of alternative productive sectors (e.g., agriculture, industry, technology) through economic policies is necessary for creating new income streams which will reduce the sensitivity of the economy to changes in the prices of oil and make sure that growth moves away from being driven by monetary expansions to being based on long-term sustainability. At the same time, the recalibration of the exchange rate policy should be designed to promote development stability, and to achieve this objective, there must be a shift toward an alternative approach to monetary policy which has as its primary goal promoting the stability of the real exchange rate (not just the nominal exchange rate) by linking it to the production and export capacity of the country's economy; such a policy will help avoid the importation of inflation and provide individuals with increased purchasing power without causing further shocks to the fiscal position of the government. In addition, to transition from using trade as an avenue for imports to a platform for production, trade policies must be restructured to guide the use of imported resources as productive inputs and advanced technological applications instead of consumer products, thus enhancing the ability of local industries to utilize imported materials in generating domestic value-added rather than increasing foreign exchange requirements due to increased demand for foreign currencies. Furthermore, creating fiscal buffers to handle cyclical economic fluctuations requires creating fiscal and development stabilization funds that will be used during times when oil prices decline, so that continuous drops in GDP per capita are avoided and long-term investment projects can continue to be funded regardless of the volatility of the market. Public sector expenditure should also be redirected to investments in productive assets, as the allocation of funds by the public sector should move away from funding operating expenses (e.g., salaries, utilities) and towards investing in productive assets which can generate income and create jobs; this will allow the economy to transition from being a consumer-based economy that relies heavily on oil revenue to a producer-based economy that has some degree of fiscal autonomy. Finally, strengthening the system of econometric economic indicators is recommended through the development of accurate, high-frequency economic databases that enable decision-makers to read shocks in a timely manner, and to build predictive models able to measure the impact before it occurs rather than after, turning shock management from reaction into proactive action.

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