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A Study of the Impact of External Balance Fluctuations on the Sustainability of the General Budget in Iraq for the Period 2004-2023

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Abstract: This research aims to identify the actual effects of the public budget deficit on the trade balance, by focusing on the nature of the relationship between the two variables within the economic framework known as the twin deficit hypothesis through a study of the public budget in Iraq for the period 2004-2023. The research adopts financial and economic units of analysis represented by time series and percentages, and it also raises an important question: 'Can the impact of external balance fluctuations on the sustainability of the public budget be studied?' Based on this, the research presents several findings, the most important being the numerical aspects of public budgets in Iraq and the extent to which the trade balance is affected through multiple channels, notably the increase in effective aggregate demand and the resulting rise in foreign imports, in addition to the indirect effects of interest rates and the exchange rate. This reflects on the competitiveness of the Iraqi economy. Furthermore, the relationship between the public budget deficit and the external account deficit is a direct one, and in its simplest cases, a causal relationship is apparent. This necessitates, and the research recommends, the adoption of a highly capable fiscal policy, improving the efficiency of public expenditure, and diversifying sources of public revenue.

Keywords: Public Budget, External Balance, Fiscal Policie.

Introduction

Financial stability is the cornerstone of achieving sustainable development in any economic system. However, rentier economies—including the Iraqi economy—face exceptional challenges regarding the resilience of their public budgets to external fluctuations. Studying the relationship between external balance and the sustainability of the Iraqi public budget for the period 2003–2023 is of particular importance, given the structural and organic link between oil exports and the state's financing capacity (Al Ali, 2002).

The nature of the Iraqi economy as a mono-economy, relying on oil revenues for over 90% of its public income, has made "external balance"—represented by the balance of payments and the trade balance—a reflection of the health of public finances.

Previous studies have focused on determining the amount of deficit that the general budget can lead to if it is not given attention, as it represents one of the economic indicators

that reflect the policies of the organization (Al-Ali, 2002). In addition to this, the budget deficit is considered one of the public expenditures of the primary revenues collected, as it represents the general income during a specific period of time (Al-Dagher, 2018). Studies have also shown that the budget deficit affects the financing of government support programs for society and public services (Ali, 2018). Based on this, the budget deficit is viewed as an effective financial tool for achieving economic growth (Al-Asar, 2016).

The issue of fiscal sustainability in Iraq is highlighted not only by the ability to cover the current deficit but also by the extent to which government spending can continue without accumulating public debt that burdens future generations. With the excessive rise in consumer spending (salaries and grants) at the expense of investment spending, the general budget has become deficient in the "fiscal space" necessary to absorb external shocks (Mazhar, 2010).

Methodology

Importance of the Research:

The importance of the research stems from the fact that Iraq is a rentier economy with a single source of revenue, where oil exports constitute the sole driver of external balance and the main source of budget financing. It also highlights the close relationship between the trade imbalance and the budget deficit. Furthermore, the importance lies in addressing the issue of "sustainability" to guarantee the rights of future generations in light of the increasing public debt resulting from bridging deficit gaps.

Research Hypothesis

There is a relationship between fluctuations in the external balance (such as the trade deficit) and the weakness of the general budget in Iraq, making financial sustainability contingent on external variables.

Research Objectives

1. To analyze the development of external balance indicators (balance of payments, oil exports) in Iraq from 2003 to 2023.
2. To test the ability of the general budget to withstand external crises without resorting excessively to borrowing or Depletion of foreign currency reserves.
3. Proposing fiscal and monetary policies (such as activating sovereign wealth funds or diversifying the economy) to decouple external fluctuations from domestic economic stability.

Analytical Methodology

The research relied on the deductive method and standard quantitative analysis (ARDL - Autoregressive Distributed Lag) for the period 2003-2023.

Section One: Conceptual Framework (The General Budget Deficit and External Balance)

Requirement One: The General Budget Deficit (Concept, Importance, Objectives)

The general budget deficit is one of the most important economic indicators reflecting the government's fiscal policy. It also constitutes a part of the economic growth process. In

developed countries, it is a means to achieve growth in economic activities, unlike in developing countries, where it is often used to finance the government's operating current account and operational expenses in the form of wages and salaries. This, in itself, has a significant impact on the deterioration of domestic economic activities and their inability to compete with imported goods. There is a deficit in economic sectors that necessitates financing the deficit (Al-Ali, 2002).

Budget Deficit: This is the situation where public expenditures exceed the primary revenue collected from public income over a specific period. It is also defined as one of the financial tools used by the government to achieve economic objectives such as growth and employment. Some economists view the general budget deficit as the negative difference between expected revenues and public expenditures.

According to economic literature, deficits are divided into the following categories (Al-Dagher, 2018):

1. Structural Deficit: This is a chronic deficit that occurs even when the economy is fully operational. It reflects structural imbalances inherent in the financial system and appears periodically in the economy.
2. Cyclical Deficit: This type of deficit is linked to the economic cycle and is most pronounced during economic recessions. It is an inevitable result of decreased public revenues and increased public spending across all sectors.
3. Aggregate Deficit: This deficit includes all expenditures, including public debt interest. It is the most common type of deficit in financial and economic analysis.

Importance of the Deficit from an Economic Perspective:

Stimulating Economic Growth: As mentioned earlier in the introduction, a budget deficit can have a positive impact as it contributes to increased government spending. This, in turn, boosts effective aggregate demand and stimulates economic activity, particularly investment.

Improving Productive Efficiency: A budget deficit can incentivize producers to increase their output and improve its quality. This, in turn, leads to increased public spending and growth in local economic activity.

Achieving Financial Stability: A balanced budget helps mitigate economic shocks, both internal and external, and reduces the impact of economic factors. These fluctuations in the economic cycle

To combat recession: When an economic recession occurs, deficit spending is used as an effective tool to counter the contraction by increasing public spending and reducing taxes.

Social welfare is defined as the budget deficit in funding government-provided support programs for society and public services (Ali, 2018).

Objectives of Budget Deficits

Most economists with modern theories view the budget deficit from two perspectives: firstly, as an effective financial tool for achieving economic growth, and

secondly, as an imbalance in the economic structure. Based on this, the main objectives of budget deficits should be clarified as follows: (Al-Asar, 2016)

1. Achieving Economic Growth: Significant increases in economic growth rates are achieved by stimulating economic activity through increased public spending, which contributes to boosting aggregate demand for economic activities.
2. Reducing Unemployment: Most governments resort to budget deficits to reduce unemployment, as increased public spending is used to absorb as many workers as possible, thus achieving its goal of reducing unemployment. 3- Income Redistribution: This is achieved by increasing social spending and providing support to previously disadvantaged or low-income groups, as seen in the Iraqi economy. This involves funding social safety nets for a broad segment of the population, in addition to setting a specific limit on the number of people eligible for university scholarships to help them make ends meet.
3. Stimulating Investment: Increasing public spending is one of the traditional methods that leads to creating a fertile and active economic environment. This encourages individuals to increase their demand for goods and services, which in turn motivates producers to seek new projects or increase production in their existing projects.

External Balance (Concept, Importance, Objectives)

Conceptual Framework of External Balance

External balance is a reflection of the overall economic activity of any economy. It represents the true face of economic stability, a state in which the balance of payments is stable. In this state, the country can meet its external and internal obligations without experiencing any crisis or domestic pressure on its currency.

External balance can be defined as the balance between the current account and the capital account, where any deficit is financed permanently. It is also defined as the ability of the domestic economy to stabilize in financing external deficits without excessive debt accumulation or the occurrence of crises (Al-Ani, 2018).

Importance of External Balance:

The only vital indicator that reflects the true state of the economy, and through it, the country's economic condition can be assessed in various aspects. The importance of external balance can be broken down as follows: (Al-Dagher, 2018)

A. Achieving stability in local currency exchange rates: External balance helps avoid fluctuations in the value of the local currency.
B. It helps raise the confidence of local and foreign investors in the strength of the economy, thus stimulating investment and activity in the production process.
C. Avoiding crises: It reduces the severity of crises that affect economies, especially those that occur in the balance of payments.
D. It helps maintain public debt management and keep it at specific levels.

Objectives of External Balance:

Most countries strive to achieve external balance for a number of objectives that they set in formulating their economic policies. These objectives can be summarized as follows:

1. Macroeconomic stability: Achieving a balance between economic resources and external expenditures.
2. Maintaining safe levels of current account deficit.
3. Reducing the severity of fluctuations in local currency exchange rates.
4. Strengthening the role of the domestic economy. In sustainable integration with the global economy
5. Achieving balance through achieving investment savings elements at the local and international levels (Al-Thuwaini, 2018).

Table 1.
General Budget Deficit and External Balance in Iraq 2004-2023

Year	Deficit / Surplus % of GDP Independent	External balance (% of GDP) Continued
2004	18.5-	5.2
2005	12.3-	7.8
2006	8.7-	9.5
2007	3.1	12.4
2008	8.5	18.7
2009	20.1-	5.6-
2010	7.4-	3.2
2011	6.8	10.1
2012	4.3	7.6
2013	2.5	5.9
2014	5.2-	1.8-
2015	13.9-	8.7-
2016	12.1 -	6.5-
2017	4.8-	1.2
2018	2.9	6.4
2019	1.8	4.7
2020	20.6-	15.3-
2021	5.9-	2.1
2022	6.7	13.5
2023	3.9	8.2

Source: Ministry of Finance, Economic Department, Publications of the Central Bank of Iraq, Reports for various years.

The table above shows that the Iraqi economy operates within a cycle entirely dependent on global oil prices, highlighting a precise direct correlation between budget deficits or surpluses and external balance. In 2004, the economy experienced a severe budget deficit of -18.5% of GDP, despite a positive external balance of 5.2%. This reflected the massive government spending during the initial phase of development compared to limited resources. With improved oil prices, the economy entered a golden age in 2008, achieving a budget surplus of 8.5% and a record external balance of 18.7%. However, this stability collapsed rapidly in 2009 under the weight of the global financial crisis, with the budget

recording a shocking deficit of -20.1% and the external balance deteriorating to negative levels of -5.6%.

These sharp fluctuations continued into the second decade. After a temporary recovery in 2011 with a surplus of 6.8%, the country entered 2014 and 2016 due to the "double shock" of the war on terror and the collapse of oil prices, with 2015 recording a fiscal deficit of -13.9% and an external deficit of -8.7%. This pattern was repeated in 2020 as a result of the COVID-19 pandemic, which pushed the fiscal deficit to a peak of -20.6%, with the external balance deteriorating to -15.3%. These figures reflect a complete paralysis of public revenues. In the last two years, the economy has strongly recovered, driven by rising energy prices following the Russian-Ukrainian crisis. The fiscal surplus reached 6.7% in 2022, with the external balance jumping to 13.5%, before stabilizing at 3.9% in 2023. This confirms that Iraq's financial stability is not structural but rather a product solely of fluctuations in the global oil market.

The Analytical Aspect of the Study

Describing the Econometric Model

First, the formulation and description of the econometric model is one of the most important and challenging stages of model building. The relationship between economic variables is generally imprecise, and the selection of the independent variable that influences the dependent variable, or upon which the model is built, is determined by a set of influences or factors. Some of these factors are defined by concepts of economic theory, in which economic logic plays a significant role in their interpretation. Others have been identified in studies in this field. Econometric analysis is a quantitative method based on testing and estimating the relationship between several studied variables. This method is characterized by its simplicity, accuracy, and ability to interpret results. The independent variable was the budget deficit, and the dependent variable was external equilibrium.

Stationality Testing of Time Series

The stationary test in time series analysis is a primary condition for obtaining logical and sound results. Time series are characterized by their instability due to the presence of the unit root, which leads to the dependence of the mean and variance of the variable on time. Standard tests related to time series were used, and the stationary test was conducted. Stationary tests were adopted. The Augmented Dickey-Fuller (ADF) and Philips-Perron (PP) tests were used to determine whether the variables are stationary or non-stationary and at what order the series becomes complete. Table (1) shows the test results for the economic variables. (Al-Saidi, 2018)

Table 2.
ADF (Augmented Dickey – Fuller Phillips – Perron (PP)

	UNIT ROOT TEST TABLE (PP)		
	At Level		
		X	Y
With Constant	t-Statistic	-6.014	-4.547
	Prob.	0.000	0.002

		***	***
With Constant & Trend	t-Statistic	-6.716	-4.525
	Prob.	0.000	0.010
		***	**
Without Constant & Trend	t-Statistic	-2.259	-1.631
	Prob.	0.027	0.096
		**	*
	At First Difference		
		d(X)	d(Y)
With Constant	t-Statistic	-12.968	-17.492
	Prob.	0.000	0.000
		***	***
With Constant & Trend	t-Statistic	-12.611	-17.665
	Prob.	0.000	0.000
		***	***
Without Constant & Trend	t-Statistic	-10.639	-18.124
	Prob.	0.000	0.000
		***	***
Phillips – Perron (PP)			
	At Level		
		X	Y
With Constant	t-Statistic	-4.549	-4.547
	Prob.	0.003	0.002
		***	***
With Constant & Trend	t-Statistic	-4.626	-4.525
	Prob.	0.010	0.010
		***	**
Without Constant & Trend	t-Statistic	-0.609	-0.373
	Prob.	0.436	0.534
		NO	NO
	At First Difference		
		d(X)	d(Y)
With Constant	t-Statistic	-4.876	-4.095
	Prob.	0.002	0.007
		***	***
With Constant & Trend	t-Statistic	-4.652	-4.105
	Prob.	0.011	0.027
		**	**
Without Constant & Trend	t-Statistic	-5.073	-4.269
	Prob.	0.000	0.000
		***	***

Notes: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1%. and (no) Not Significant

The Phillips-Perron test results for variables X and Y indicate that they are statistically unstable at the equilibrium level in the absence of a constant and trend, as the p-values (0.436 and 0.534) are greater than the 5% significance level, thus accepting the null hypothesis with a unit root. However, upon considering the first difference, all p-values for both variables became statistically significant and significantly less than 0.05. This

demonstrates that the variables are completely stationary after the first difference, making them first-order complementary (I(1)). Based on this result, the most appropriate methodological approach for your research is to proceed with cointegration testing to confirm the existence of a long-term equilibrium relationship between them before estimating the final model.

Regarding the ADF test results at the "at level," the variables (X) and (Y) exhibit stability in the constant and trend conditions because the probability values are less than 0.05. However, they suffer from the "unit root" problem in the "no constant and trend" condition, where the probability values are greater than 0.05, indicating instability in that case. Nevertheless, once the "at first difference" is considered, all probability values for (X) and (Y) become zero (0.000). This is conclusive evidence that the series become stable at the first difference with a very high degree of significance, and that the ADF test results indicate that the two variables are first-order complementar

Distributed Lag Autoregressive (ARDL) Model: - The distributed lag autoregressive model for the independent factor on the dependent factor was analyzed using Eevies 13 software.

Table 3.
Distributed Lag Autoregressive (ARDL) Model

Dependent Variable: Y
Method: ARDL
Date: 04/10/26 Time: 14:07
Sample: 2005 2022
Included observations: 18
Dependent lags: 4 (Automatic)
Automatic-lag linear regressors (4 max. lags): X
Deterministics: Restricted constant and no trend (Case 2)
Model selection method: Akaike info criterion (AIC)
Number of models evaluated: 20
Selected model: ARDL(1,2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Y(-1)	0.2070	0.2353	0.8799	0.3949
X	0.3448	0.1830	1.8847	0.0820
X(-1)	-0.4465	0.1832	-2.4368	0.0299
X(-2)	0.4029	0.1850	2.1781	0.0484
C	3.6612	3.5078	1.0437	0.3156
R-squared	0.4739	Mean dependent var		7.8556
Adjusted R-squared	0.3120	S.D. dependent var		4.8066
S.E. of regression	3.9868	Akaike info criterion		5.8340
Sum squared resid	206.6266	Schwarz criterion		6.0813
Log likelihood	-47.5058	Hannan-Quinn criter.		5.8681
F-statistic	2.9277	Durbin-Watson stat		2.1806
Prob(F-statistic)	0.0627			

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

The results of estimating the ARDL(1,2) model for the period 2005–2022 show that the chosen model includes one slowdown for the dependent variable (Y) and two slowdowns for the independent variable (X). The R-squared value of 0.47 indicates that the model explains approximately 47% of the changes in the dependent variable. Regarding the independent variables, the immediate effect of (X) is not statistically significant at the 5% level ($p < 0.08$), while the first and second slowdowns of (X) are clearly significant ($p < 0.02$ and 0.04), meaning that the effect of (X) on (Y) requires time to manifest. The Durbin-Watson test value of 2.18 indicates that the model is free from the autocorrelation problem, while the F-test value of (0.06) is significant at the 10% level.

Table 4.
ECM Error Correction Model

Dependent Variable: D(Y)				
Method: ARDL				
Date: 04/10/26 Time: 14:07				
Sample: 2005 2022				
Included observations: 18				
Dependent lags: 4 (Automatic)				
Automatic-lag linear regressors (4 max. lags): X				
Deterministics: Restricted constant and no trend (Case 2)				
Model selection method: Akaike info criterion (AIC)				
Number of models evaluated: 20				
Selected model: ARDL(1,2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.7930	0.2095	-3.7848	0.0018
D(X)	0.3448	0.1241	2.7775	0.0141
D(X(-1))	-0.4029	0.1220	-3.3010	0.0048
R-squared	0.7589	Mean dependent var		0.0222
Adjusted R-squared	0.7268	S.D. dependent var		7.1003
S.E. of regression	3.7115	Akaike info criterion		5.6118
Sum squared resid	206.6266	Schwarz criterion		5.7601
Log likelihood	-47.5058	Hannan-Quinn criter.		5.6322
F-statistic	23.6080	Durbin-Watson stat		2.1806
Prob(F-statistic)	0.0000			
* p-values are incompatible with t-Bounds distribution.				

The results of the Error Correction Model for estimating the short-run relationship show that the rate of adjustment towards equilibrium, represented by the COINTEQ coefficient, is negative and statistically significant at -0.7930. This is an ideal result, confirming the existence of a cointegrating relationship and long-run equilibrium between the two variables. This value means that approximately 79% of short-run shocks are corrected and returned to equilibrium within one time unit.

In the short run, changes in the independent variable (D(X)) and its initial slowdown (D(X(-1)) have a very significant effect on the dependent variable. The probability values (0.014 and 0.004) are well below the 5% level, reflecting the high sensitivity of the dependent variable to fluctuations in the independent variable in the short run.

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
X(-1)	0.379792858	0.43811157	0.866886150	0.3988187714
C	4.616942138	3.82694508	1.206430203	0.2451878596

Note: * Coefficients derived from the CEC regression.

The results of the long-run coefficient estimation indicate that the independent variable (X) has no significant long-run effect on the dependent variable (Y), with a probability value (Prob) of approximately 0.398, which is significantly higher than the usual significance level of 5%. This means that the null hypothesis, which states that there is no effect, cannot be rejected.

While the coefficient for variable (X) yielded a positive sign (0.379), this effect remains statistically weak in the long run compared to the strong and significant effect observed in the previous study. Based on this result, it appears that the relationship between the two variables in your research is more of a dynamic, short-term relationship than a stable, long-term structural relationship.

Null hypothesis: No levels relationship
Number of cointegrating variables: 1
Trend type: Rest. constant (Case 2)
Sample size: 18

Test Statistic					Value	
F-statistic					4.13827871	
	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
30	3.303	3.797	4.09	4.663	6.027	6.76
Asymptotic	3.02	3.51	3.62	4.16	4.901	5.58

* I(0) and I(1) are respectively the stationary and non-stationary bounds.

When comparing this value to the critical thresholds, we find that at a 10% significance level, the calculated value (4.138) is greater than the upper limit of 3.797, indicating a cointegration relationship (a long-term relationship) but with a lower confidence level (90%).

This result explains why the long-term coefficients you previously provided were not statistically significant. The equilibrium relationship exists but is weak or not entirely stable in the long run due to the small sample size, while the short-term relationship (as measured by the error correction coefficient) remains the strongest and clearest in your model.

Heteroskedasticity Test: Breusch-Pagan-Godfrey

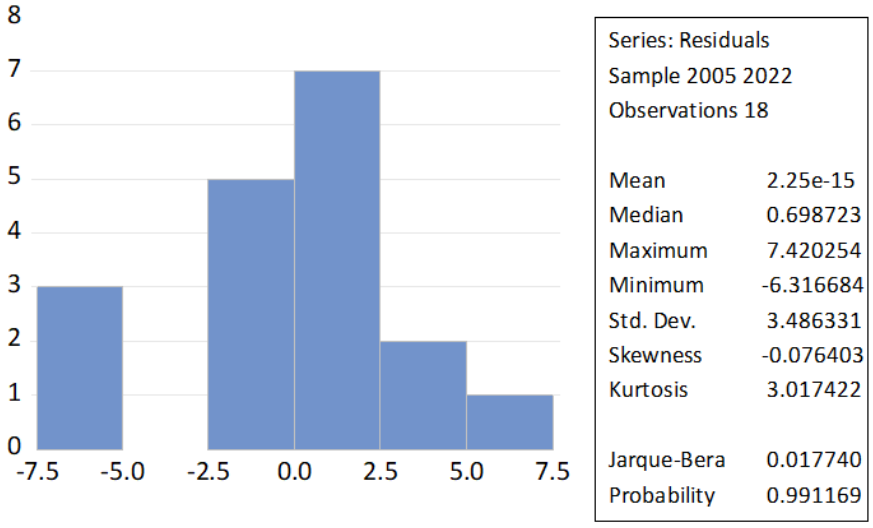
Null hypothesis: Homoskedasticity

F-statistic	1.69432366592	Prob. F(4,13)	0.21105858872
Obs*R-squared	6.168250310279	Prob. Chi-Square(4)	0.18693064555
Scaled explained SS	3.245416952618	Prob. Chi-Square(4)	0.51762671536

When conducting the variance test for the model and relying on the Breusch-Pagan Godfrey (BPG) test, as shown in Table ( ), the calculated F value was obtained, which amounted to (0.57) and its significance amounted to (0.57), which is greater than the significance level of (0.05). Also, the results of the homogeneity of variance test confirmed the error limits, and the value of the Chi-Square statistic amounted to (1.71), which is also greater than its significance level of (0.05). Therefore, we accept the null hypothesis that there is no problem of the consistency of homogeneity of variance.

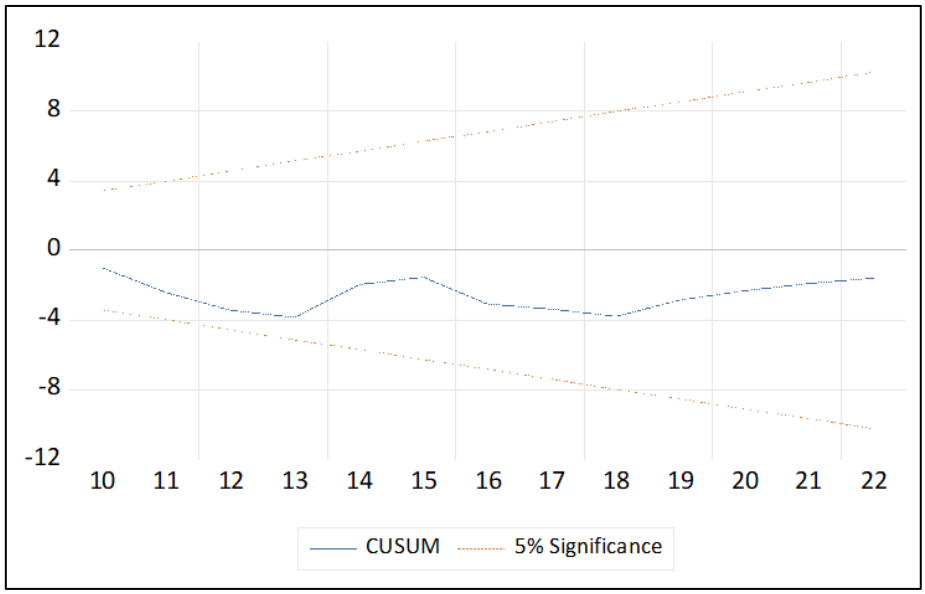
Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.577636599142	Prob. F(2,11)	0.57736942844
Obs*R-squared	1.710773359833	Prob. Chi-Square(2)	0.42511877440

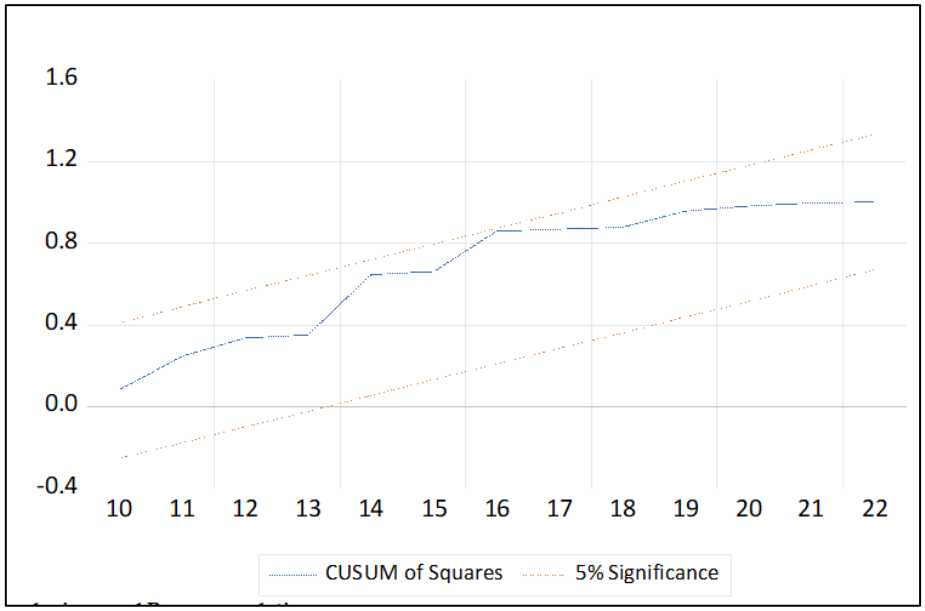
As we can see from Figure (2), the residuals are normally distributed in the model, and the Jarque-Bera ratio reached (0.01), which indicates acceptance of the null hypothesis, which states that the residuals of the estimated model follow a normal distribution because the probability value is greater than (0.05). This confirms acceptance of the null hypothesis, which states that random errors are normally distributed, and therefore this is a good indicator for the estimated model.



The Cumulative Sum of Residues and Repeated Residues Squares (CUSUM and CUSUMSQ) tests are among the most important tests for assessing the suitability of the model for regression. The CUSUM and CUSUMSQ tests were used to assess the structural

stability of the model in both the short and long runs. As shown in Figure ( ), the test results show that all coefficient values fall within the confidence intervals (critical limits) at a significance level of 5%. This indicates structural stability in the study variables and consistency of the model in both the short and long runs, meaning that the estimated model is well-designed.





Conclusions

1. A strong relationship exists between the external balance and the general budget. It has been shown that an imbalance in the external balance (current account) directly impacts the stability of the general budget.
2. The analysis revealed an excessive reliance on a single type of public revenue. This has significantly contributed to financial instability and, consequently, to the financial sustainability of the general budget, given the volatility of global oil prices.

3. The researcher concluded that there is a fragility in the external balance base due to the weak diversification of domestic exports, which increases the risk of external shocks.
4. A wide gap existed between imports and exports, which significantly widened the trade deficit, thus putting pressure on the state's financial resources.
5. The absence of a precautionary fiscal policy is clear evidence of the exacerbation of external shocks on the general budget

Recommendations

1. Develop a genuine strategy to diversify public revenue sources by reducing reliance on oil revenues and enhancing the role of non-oil revenues, such as strengthening tax administration to increase overall public revenue.
2. Focus on the agricultural, industrial, and tourism sectors to increase exports in the balance of payments and generate real revenues that reduce dependence on oil revenues and strengthen the general budget.
3. Focus on establishing a sovereign wealth fund to absorb external shocks and achieve long-term financial stability.
4. Strengthen the role of local production and reduce reliance on imports by directing national industry towards innovation and creating real opportunities to compete with foreign goods and services.
5. Give a broader role to monetary policy to enhance exchange rate stability, given its fundamental role in achieving external balance and reducing inflationary pressures affecting the Iraqi economy as a result of exchange rate fluctuations in the parallel market.

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