

The Impact of Some Monetary Variables on the General Budget Deficit in Iraq for the Period 1990-2021

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Abstract - Issues of deficit in public budgets are of great importance in academic studies and research, whether in developed or developing countries alike. The fact that the success of these countries is measured by the success of the effectiveness of their financial, economic and social policies, and the phenomenon of deficit in the public budget is one of the most important global phenomena; It is almost rare to find a country that does not suffer from this phenomenon. In the case of developed countries, the deficit in their public budgets is linked to the economic cycle. In the case of developing countries, the deficit in their general budgets has turned into a continuous characteristic closely related to the characteristics of the countries' economies, in addition to being an indication of the existence of a structural imbalance in them. The study aims to measure and analyze the impact of some monetary variables on the public budget deficit and surplus in Iraq, and using the (EViews-12) program, the unit root test (dormancy) was conducted as a preliminary step to determine the rank (degree) of variables integration for the purpose of choosing the estimation model, by applying the test The developed Dickey-Fuller Test, and the detection of a co-integration using the Bound Test methodology. Thus, the Autoregressive Distributed Time Lapse (ARDL) model was used to measure the effects in the long term and the short term.

The study covered annual data for a time series spanning 32 years for the period (1990-2021), relying on official data issued by the World Bank (WB), the International Monetary Fund (IMF), and the Iraqi Ministry of Planning, the Central Organization for Statistics and Information Technology (COS).

Keywords: The effect, monetary, variables, general budget, deficit.

1. Introduction

The subjects of deficit in public budgets are extremely important in academic studies and research, whether in advanced or developing countries alike; The fact that the success of these countries is measured by the success of the effectiveness of their financial, economic and social policies, and the phenomenon of deficit in the general budget is one of the most important global phenomena; It is almost rare to find a country that does not suffer from this phenomenon. In the case of developed countries, the deficit in their public budgets is related to the economic cycle. In the case of developing countries, the deficit in their general budgets turned into a continuous and close characteristic of the characteristics of the economies of those countries, as well as an indication of the presence of your structural imbalance in them. In this study, we chose to address one of the most problematic elements in the economies of the world in general and the economies of the chosen country (Iraq) in particular, which suffers from a significant increase in public spending resulting from unplanned spending as well as military spending on the one hand, and a decrease in public revenues and resulting from activities Unofficial as well as activities that lead to lower tax revenues and thus a decrease in the size of the tax bowl on the other hand. This led to an explosion of deficits in the general budget, and thus the government will have less money and fewer opportunities for future efforts.

2. Research Problem

The Iraqi economy suffers from an imbalance in the state's general budget. Because of the repeated deficits that occurred during the study period, it is therefore considered one of the most important issues and fundamental issues that aroused the interest of researchers. Being considered one of the financial problems that afflict the various economic, political and social sectors, so the research problem lies in the fact that there are many variables affecting the state's general budget, some of which have a negative effect, some of which are positive, some of which have a great impact and the other is less influential, Therefore, the questions that can be raised on the subject can be as follows:

- 1) What are the variables affecting the general budget in Iraq?

- 2) Which variables have a positive impact, which variables have a negative impact, and which variables do not affect the general budget in Iraq?
- 3) Which variables are more important in influencing the general budget in Iraq and which variables are less important?

3. Study Model

The stage of describing the model used in the study is considered one of the most important stages of building the standard model, through which the relationship between economic variables is described in the form of measurable mathematical equations, and we will rely in the study model on the standard analysis of the variables to be studied, as the data under study that will be adopted are Time series data for the period (1990-2021), as the model includes three main mathematical formulas, which will take the following form:

The impact of some monetary variables on the general budget deficit and surplus:

$$DEF= F (MS2, INT, EXR).....(1)$$

Since:

DEF: It represents the approved variable, which is the net general budget or what is called the state's general financial conditions; which was expressed in the general budget deficit and surplus as a percentage of the gross domestic product.

MS2: It represents the broad money supply (one million Iraqi dinars).

INT: represents the nominal interest rate (per annum).

EXR: It represents the parallel "market" exchange rate (Iraqi dinar against US dollar).

4. Study Hypotheses

The study is based on two main hypotheses:

- 1) There are some monetary variables that have a positive impact on the net state budget, while others have a negative impact.
- 2) There is a discrepancy in the effect of these variables on the state's general budget as a result of the different economic policies followed, as well as the dependence of the general budget on oil revenues, which are often hostage to fluctuations in global oil prices.

5. Objectives of the Study

- 1) Targeting the theoretical frameworks that pertain to the general budget deficit and surplus, which were dealt with by the critical literature proposals.
- 2) Studying the effect of some monetary variables on the general budget deficit and surplus in Iraq.
- 3) How to reduce the public budget deficit or increase its surplus through some monetary variables.
- 4) Measuring and analyzing the factors affecting the public budget deficit and surplus through the use of (Eviews 12) software, which is used recently in standard analysis.

6. Approved Research Methodology

The study adopted the economic analysis methodology in two basic ways. The first is the descriptive method. Which is based on the literature of economic theory, and the second method is the standard quantitative; Which is based on the methods of modern economic measurement and its tools in measuring the impact of some monetary variables on the general budget deficit and surplus, and then interpreting and analyzing the study's standard results to evaluate the applied side in the study country, Iraq.

The first topic

The concept of the general budget: its origins, rules and restrictions.

First: the concept of the general budget

The general budget is of great importance to states, as it has become the main tool for the state to carry out its functions and achieve its goals in various economic, social and political fields. The sponsor, the public budget now plays many major roles in influencing the economic and social life, so the economic and social nature of it prevailed and its types and objectives multiplied, and the role played by the public budget differs from one country to another depending on its systems. In developed countries, the general budget is drawn up to meet more consumer needs. of a service nature; The fact that the private sector is the one that carries out and develops the production process, while in developing countries it is the one that directs the economy through the general budget and investment expenditures, and accordingly its budget becomes more productive than consumption. -281).

Accordingly, we conclude from this that the general budget represents the translation of the financial policy for the next fiscal year in a digital form within the framework of the general economic plan of the state, as it can be defined as the decision issued by the legislative authority, which pertains to authorizing the use of public revenues in order to cover public expenditures for a future period that is often One year, and here the difference appears between the general budget and its final account, because the estimates of the general budget are future and may or may not be realized, while its final account is the public revenues and public expenditures that have actually been undertaken (Atlam and Al-Sayed, 2002, 403-406). It is also known as an official document that includes state revenues and public expenditures through a financial plan that makes the state able to take a number of decisions that enable it to activate policies so that the government can provide service to society (Aronson, 2008, 250).

Second: the rules of the general budget

The general budget in any country passes through many rules when preparing it, and these rules are as follows:

Annual rule for the general budget: The general budget is usually drawn up for the next year, and then it is presented to the legislative authority in the country in order to be approved. public, especially with regard to the issue of taxes, how to dispose of them and determine the aspects of their spending, and it was chosen that the period be a year in order to facilitate its monitoring because in the case if the period is more than a year, it is difficult to predict its estimates and find out its imbalances, in addition to that the general budget needs To a period of not less than one year until it is prepared, voted on and approved.

The annual budget has been adopted in most countries of the world, but it differed in terms of the date on which the fiscal year begins. For example, in Iraq, the fiscal year began on (1/4) of each year, and ended on (31/3) of the following year; The reason for this is that the public budget in Iraq was largely dependent on the production of the agricultural sector, and the general budget continued in this way until Resolution No. (104) of 1974 was issued to approve the fiscal year from the date (1/1) to the date (31) /12) of the same fiscal year; This is due to the low percentage of the contribution of the agricultural sector in financing the general budget on the one hand, and the high contribution of the oil sector in financing it on the other hand. As for other countries, there are countries in which the fiscal year starts from the date (1/7) of each year to the date (30/6) of the next year, such as Egypt and the United States of America. Because of the development of the role of the state in economic life, there have been many claims that there should be exceptions to this rule, and the reason for this is due to the existence of large economic projects that need many years to be implemented, such as city planning projects, bridges, and educational and health sector plans, and this contradicts the annual public budget (energy and Al-Azzawi, 2010, 179-180).

The rule of comprehensiveness of the public budget: This rule states that it is necessary to clarify all estimates related to the state's public expenditures and revenues before any offsetting is made between the items of these expenditures and public revenues. This rule also has a set of advantages, the most important of which is the right of the legislative authority to ratify it. And supervising their implementation, as well as showing the real financial conditions in the country clearly and honestly, which enables the financial authorities in that country to easily follow public expenditures and revenues, but they are reproached for not making more efforts for public state utilities (such as the Tax Authority or the General Authority for Border Crossings).) in increasing its revenues; This is because she knows in advance that these revenues will go to the state's financial treasury and will not benefit much from it (Al-Hassani, 2017, 193).

The rule of the general budget unit: This rule means that all details of the state's general revenues and expenditures for the coming fiscal year are included in one document so that the oversight authorities can follow up the implementation of the general budget procedures and the state's financial dispositions, as well as their conformity with the items of the general budget that were voted on by Legislature. This rule has many advantages, the most important of which is that it helps in arranging public needs according to social priorities, by unifying the financial policy of the state in order to reach the greatest amount of public benefit,

and it also helps in unifying the revenues generated in all sectors of the state, regardless of whether This sector or that achieves a surplus or deficit, as it leads, in the first, to extravagance, and in the second, to insufficient resources in running its affairs.

However, after the development of the role of the state in economic life, there have been some exceptions to this rule, that is, in addition to the main general budget of the state there should be other budgets such as the independent budget and the supplementary budget, and that the main difference between them lies in the degree of independence of the independent budget and the supplementary budget, because the surplus or deficit In the independent budget, it remains within the unit of the public sector for which this budget was set, while the surplus or deficit in the attached budget is included within the general budget (Atlam and Al-Sayed, 2002, 418).

The rule of balance of the general budget: After the occurrence of the Great Depression in the year (1929-1933), the role of the state evolved from a guardian to an interventionist in economic policy, as this rule witnessed many developments, but after 1933 it is no longer possible to accept this rule; This is due to the large expansion of the role of the state, and the public budget has become one of the most important financial policy tools that the state resorts to in order to achieve its economic, social and political goals. Increasing or reducing taxes, and increasing or reducing public expenditures, according to what is required by the general economic conditions of the state. The state of imbalance in the budget can also be used to revive the local economy by causing shocks to the economy when the automatic factors in the market economy fail to achieve balance. The state also intervenes. For example, through the budget deficit and inflationary financing, and in order to benefit from this policy in reducing high unemployment rates, which leads to an increase in demand among individuals when you find that there is a deficiency in effective demand, this will lead to transforming the economy from a state of stagnation to a state of recovery, but It must be taken into account that the introduction of this policy requires that the productive apparatus be highly flexible, in order to be able to respond to any increase or decrease in aggregate demand, as is the case in developed countries, but if this increase in expenditures is used for non-productive purposes or for Increasing the well-being of the state’s administrative apparatus, as this will lead to undesirable side effects, and thus this tool will turn from a tool with good results into a tool with bad results. For these and other reasons, the rule of budget balance has lost its character because the balance of the national economy has become the goal that the higher economic policy seeks. to the state (Al-Karkhi, 1999, 131).

Third: the nature of the relationship between the study variables (monetary) and the general budget deficit and surplus

First: Money supply and the general budget deficit

The money supply affects the state’s general budget through influencing prices, as its rise resulting from the increase in the money supply will inevitably lead to an increase in government expenditures to meet government needs for goods and services, as the increase in the money supply will lead to an inverse relationship with the budget. On the connection of taxes, which is the important source of revenue, with legislation, and this is what necessitates changing legislation and the difficulty of that and making it adapt to inflation conditions. As the tax revenues, and under the prevailing legislation before their change, cannot be maintained to cover expenses, which generates a double deficit in the public budget (Al-Ghalabi and Al-Jubouri, 2008, 19).

Second: the interest rate and the general budget deficit

Monetary policy affects public expenditures, which is one of the most important aspects of the public budget through interest rates and credit conditions. When interest rates fall, credit conditions will ease, which increases public spending in both its consumption and investment parts. The financial effects caused by changes in interest rates can be identified through The following differential equation:

$$\frac{\partial Dcc}{\partial i_M} = \frac{\partial G}{\partial i_M} - \frac{\partial T}{\partial Y} \frac{\partial Y}{\partial i_M} + \left(\frac{1}{P}\right) \sum_{m=1}^M \frac{\partial i_m}{\partial i_M} B_m^P + \left(\frac{1}{P}\right) \frac{\partial B_M^P}{\partial i_M} i_M - \frac{\partial p}{\partial i_M} \left[\frac{1}{P^2} \sum_{m=1}^M i_m B_m \right] \dots\dots(2)$$

From the above equation, the part $(\partial Dcc \partial i_M)$ refers to the differential formula for the general budget deficit to the interest rate, which is directly affected by monetary policy measures. The first item of the equation $(\partial G \partial i_M)$ also refers to the impact of public spending, which takes a positive sign as a result of the reaction that the government takes when facing cyclical fluctuations. The government may work to extend fluctuations in both output and employment by increasing government spending when production is It is lower than its expected level, and the economy may sometimes face an economic recession as a result of traditional monetary policy measures and high interest rates, which is reflected in reducing investment rates, and the government

may respond to this by increasing the public budget deficit by increasing public expenditures. As for $(\partial T \partial Y \partial Y \partial i_M)$, it refers to the effect of revenues, as the actions taken by the traditional monetary policy by raising the interest rate lead to a slowdown in the rate of economic growth and a decrease in national income in the short term, and thus the revenues of tax revenues decrease, which leads to This will lead to an increase in the public budget deficit, and a decrease in the rate of economic growth in general will lead to an increase in the ratio of public debt to GDP $\left(\frac{1}{P}\right) \sum_{m=1}^M \frac{\partial i_m}{\partial i_M} B_m^P$ It explains the effect of the debt and the part Shows the effect of prices. Finally, the part indicates $\left(\frac{1}{P}\right) \frac{\partial B_M^P}{\partial i_M} i_M$ (to the impact of issuance, as reducing the rate of monetary expansion through open market operations will lead to an increase in public debt and thus an increase in the public budget deficit in the coming periods (Abd, 297-298, 2018).

Third: the exchange rate and the general budget deficit

Exchange rates affect the state's general budget through its impact on one or both sides of the general budget represented by public expenditures and public revenues, as the impact is indirect; this is through changes in local prices. Exchange rate fluctuations have repercussions that may be negative or positive in the state's general budget, as its positive effects are represented in that when foreign exchange rates decline, this will lead to a decrease in the prices of imported goods (imported production requirements) and thus an increase in the net public budget or in other words a decrease in the deficit Public budget. As for the negative effect, it is represented in that when the foreign exchange rates rise, this will lead to a rise in the prices of imported commodities (imported production requirements), and thus an increase in the state's general expenditures, and then a decrease in the general budget, or in other words, an increase in the general budget deficit (Wali and Kazem, 2020, 108 -111).

The second topic

Measurement and analysis of the impact of some monetary variables on the general budget deficit and surplus in Iraq for the period (1990-2021) the first step: Unit root test for the variables of the study: Unit Root Test

Table 1: Results of the unit root test for variables in Iraq

Unit Root Test Table (Augmented Dickey-Fuller)					
At Level					
Variables		DEF	LNMS2	LNINT	LNEXR
With Constant	t-Stat.	-1.8630	-1.6241	-1.1534	-4.7760
	Prob.	0.3445	0.4587	0.6814	0.0009
	Sign.	No	No	No	***
With Constant & Trend	t-Stat.	-2.1765	-1.2833	-1.0845	-2.8200
	Prob.	0.4853	0.8735	0.9157	0.2041
	Sign.	No	No	No	No
Without Constant & Trend	t-Stat.	-1.9426	-0.1013	-0.5448	1.0968
	Prob.	0.0510	0.6408	0.4729	0.9253
	Sign.	No	No	No	No
At First Difference					
Variables		d(DEF)	d(LNMS2)	d(LNINT)	d(LNEXR)
With Constant	t-Stat.	-4.8400	-4.9622	-4.8483	-4.3128
	Prob.	0.0005	0.0004	0.0005	0.0087
	Sign.	***	***	***	***
With Constant & Trend	t-Stat.	-5.4890	-5.4215	-5.0465	-6.0007
	Prob.	0.0006	0.0006	0.0016	0.0003

	Sign.	***	***	***	***
Without Constant & Trend	t-Stat.	-4.6743	-5.0463	-4.9171	-1.8392
	Prob.	0.0000	0.0000	0.0000	0.0636
	Sign.	***	***	***	*
The symbols (***, **, *) indicate the level of significance at (1%, 5%, and 10%), respectively. No indicates non-significance.					

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

Table (1) above shows the unit root test for variables in Iraq, as it becomes clear to us that the study variables (the dependent variable and the independent variables) have all become static after taking their first difference, which indicates the acceptance of the null hypothesis, which states that these variables have a root nonlinearity; This is because the probability value of the test for a significant level is greater than (5%). Which means that all study variables are integrated in the first difference, and this indicates the possibility of applying the Autoregressive Distributed Time Lapses (ARDL) model. Signs of stagnation on these variables can be seen after taking the first differences through Figure (4.7) below, as follows:

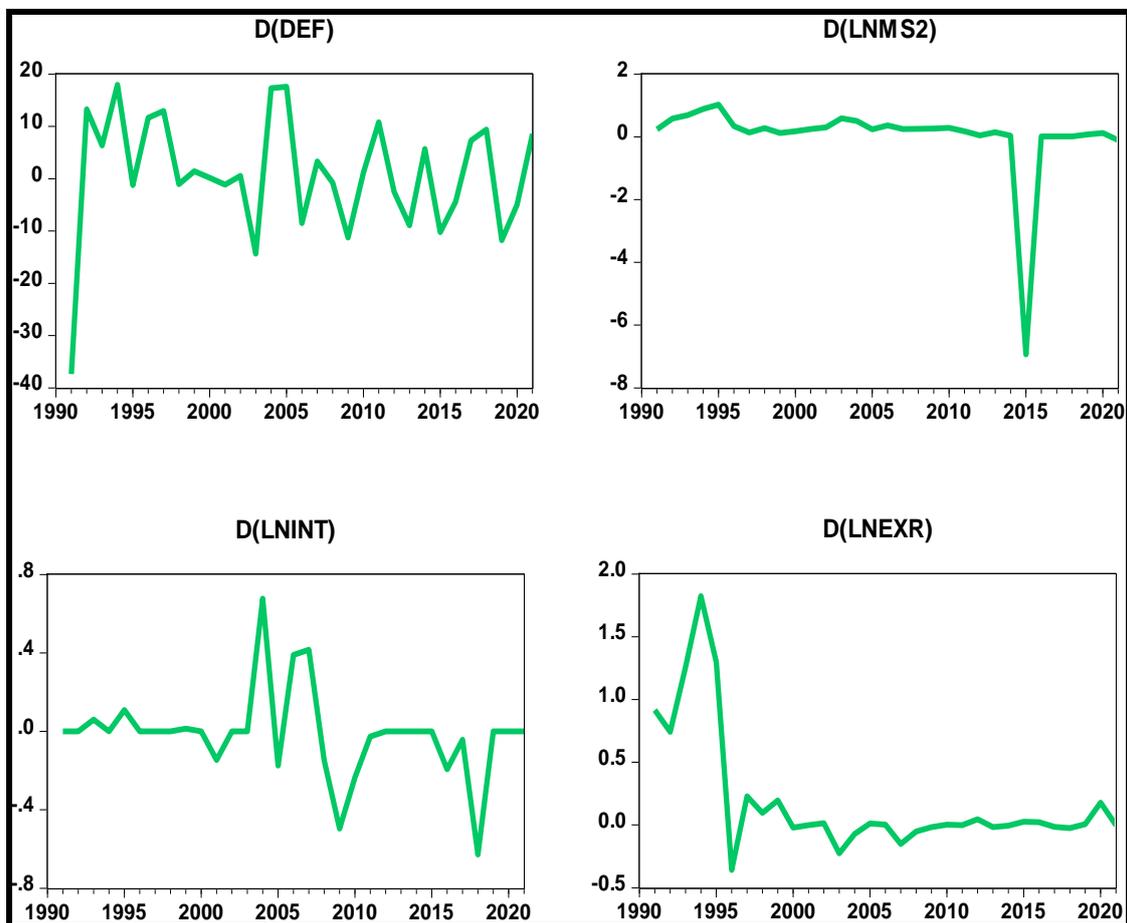


Figure 1: Trends in the time series of variables in Iraq for the duration (1990-2021)

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

Step two: Selected Optimal Lag

There are many criteria used to determine the optimal retardation times for variables; Which eliminates the model from the problem of autocorrelation between the residuals, and by relying on the AIC criterion, the model that will be selected according to the autoregressive distributed time gaps (ARDL) methodology is (1, 0, 0, 0), as the length of Slowness, which gives the lowest value for this criterion. Figure (2) below shows us this, my agencies:

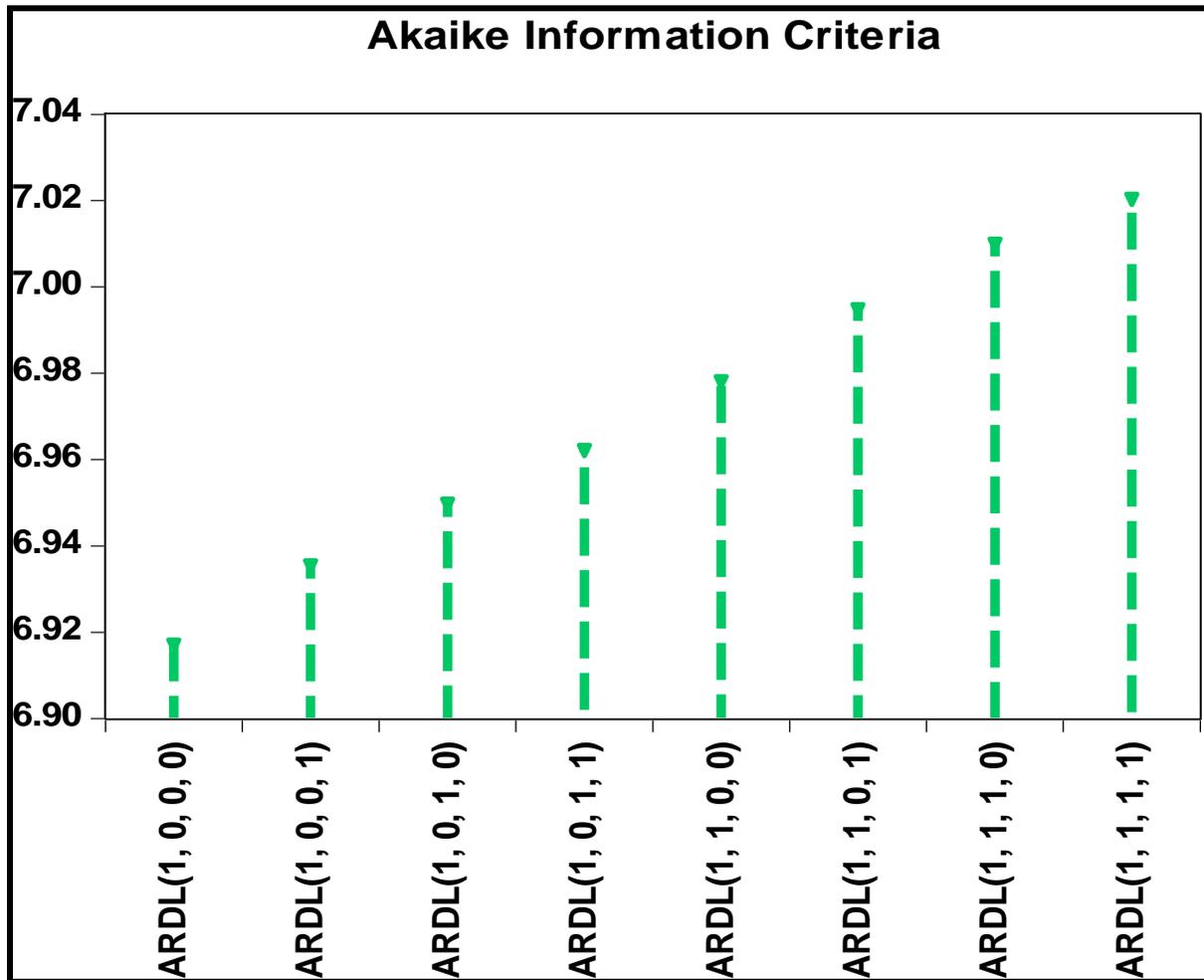


Figure 2: Results of lag times according to the AIC method in Iraq

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

The third step: the co-integration test

Table (2) shows the use of the Bound Test Approach, which is used to detect cointegration relationships between variables; As it becomes clear to us that the calculated (F) value has reached (13.685), which is greater than the tabular (F) value at the lower and upper limits and at a significant level (5%), and this indicates the rejection of the null hypothesis and the acceptance of the alternative hypothesis, which states the existence of cointegration relations Between variables, that is, there is a long-term relationship between the dependent variable and the independent variables.

Table 2: Cointegration test for variables in Iraq

Bounds test Approach				
Test Stat.	Value	Sign.	I(0)	I(1)
F-stat.	13.685	10%	3.47	4.45
K	3	5%	4.01	5.07

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

The fourth step: Estimating and analyzing the results of the long and short term and the error correction parameter

Table 3: Results of estimating the (ARDL) model for variables in Iraq

Selected Model: ARDL(1, 0, 0, 0)			Dependent Variable: D(DEF)	
Maximum dependent lags: 1 (Automatic selection)				
Dynamic repressors (1 lags, automatic): LNMS2 LNINT LNEXR				
Model Selection Method: AIC			Included observation: 31	
Variables	Coeff.	Std. Error	t-Stat.	Prob.
Long Run Coefficients				
LNMS2	7.522966	1.459872	5.153169	0.0000
LNINT	8.388494	4.730833	1.773154	0.0884
LNEXR	8.314760	1.572474	5.287695	0.0000
ECT = DEF - (17.5229*LNMS2 + 8.3885*LNINT + 8.3148*LNEXR)				
Short Run Coefficients				
C	-101.2583	13.42951	-7.539985	0.0000
@TREND	0.664803	0.164089	4.051488	0.0004
ECT*	-0.904772	0.115554	-7.829874	0.0000
R2	0.6877	Adjusted R2		0.6654
F-stat.	30.8247	Prob. (F-stat.)		0.000000
The symbols (***, **, *) indicate the level of significance at (1%, 5%, and 10%), respectively. No indicates non-significance. (*) denotes the value of the error limit correction coefficient.				

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

Table (3) shows the estimation results in the short and long term and the error correction parameter, as follows:

The value of the error correction coefficient appeared to be negative, significant and less than the correct one, as it reached (-0.904772), with a significant level of less than (1%). In order to return to the equilibrium position $\{1/0.904772=1.11 \cong 1.1\}$.

The existence of a direct and significant relationship in the long term only between the broad money supply and the deficit and surplus of the general budget with a significant level less than (1%), meaning that an increase in the broad money supply by (1%) will lead to an increase in the net public budget (meaning a decrease in the deficit or an increase in the surplus in general budget) by (7.523%).

The existence of a direct and significant relationship in the long term only between the nominal interest rate and the deficit and surplus of the general budget with a significant level less than (10%), meaning that an increase in the nominal interest rate by (1%) will lead to an increase in the net public budget (meaning a decrease in the deficit or an increase in the surplus in the general budget) by (8.388%).

The existence of a direct and significant relationship in the long term only between the parallel exchange rate and the deficit and surplus of the general budget at a significant level less than (1%), meaning that an increase in the parallel exchange rate by (1%) will lead to an increase in the net general budget (meaning a decrease in the deficit or an increase in the surplus in general budget) by (8.315%).

The value of R2 was (69%), meaning that the changes that occur in the model in Iraq are explained by the independent variables included in the model, and the remaining (31%) are explained by other variables outside the model or may be due to the random error limit.

The calculated value of (F) was (30.825) with a significant level of less than (1%), which indicates fatigue.

Fifth step: Post-estimation testing of the model:

First: Model Quality Tests:

Test for normal distribution of random errors

It is clear from Figure (3) below that the value of the statistical test was (0.6889) and at a significant level greater than (5%). Therefore, we accept the null hypothesis, which states that random errors are normally distributed in the estimator with a mean equal to zero and a standard deviation of (6,440).

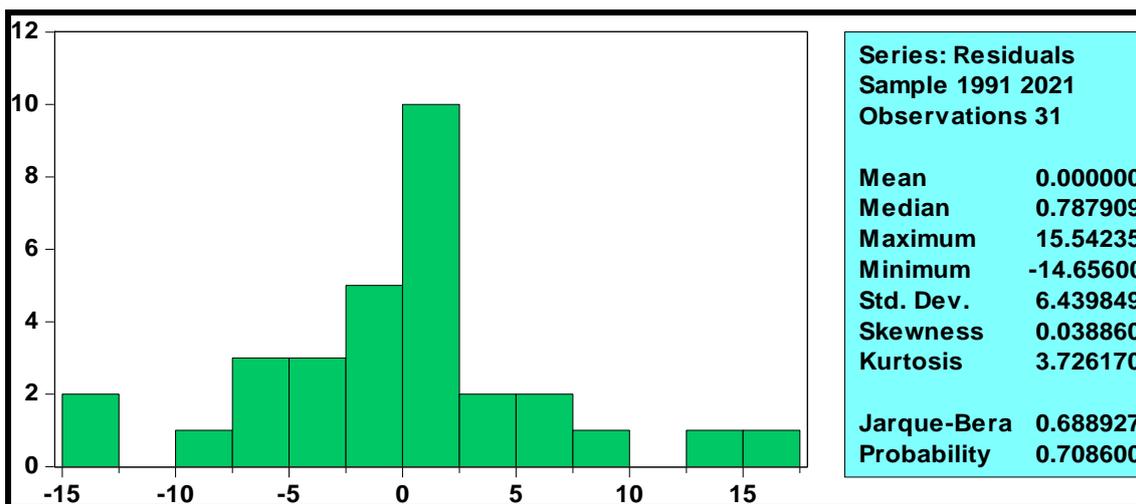


Figure 3: Test of normal distribution of random errors in Iraq

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

2. Testing the autocorrelation problem between residuals

It is clear from Table (4) below that the value of the statistical test was (0.0933) and at a significant level greater than (5%). Therefore, we accept the null hypothesis, which states that the estimator is free from the problem of autocorrelation between the remainder.

Table 4: Testing the autocorrelation problem between residuals in Iraq

Serial Correlation LM Test: Breusch-Godfrey			
F-stat.	0.0933	Prob. F (1,24)	(0.7627)No
Obs.*R2	0.1199	Prob. Chi-Square (1)	0.7290
No indicates non-significance.			

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

3. Test the contrast instability problem

It is clear from Table (5) below that the value of the statistical test amounted to (0.3307) and at a significant level greater than (5%). Therefore, we accept the null hypothesis, which states that the estimator has a constant of variance.

Table 5: Testing the problem of instability of variance in Iraq

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-stat.	0.3307	Prob. F (5,25)	(0.8896)No
Obs.*R2	1.9229	Prob. Chi-Square (5)	0.8597
No indicates non-significance.			

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

4. Polylinearity test between the independent variables

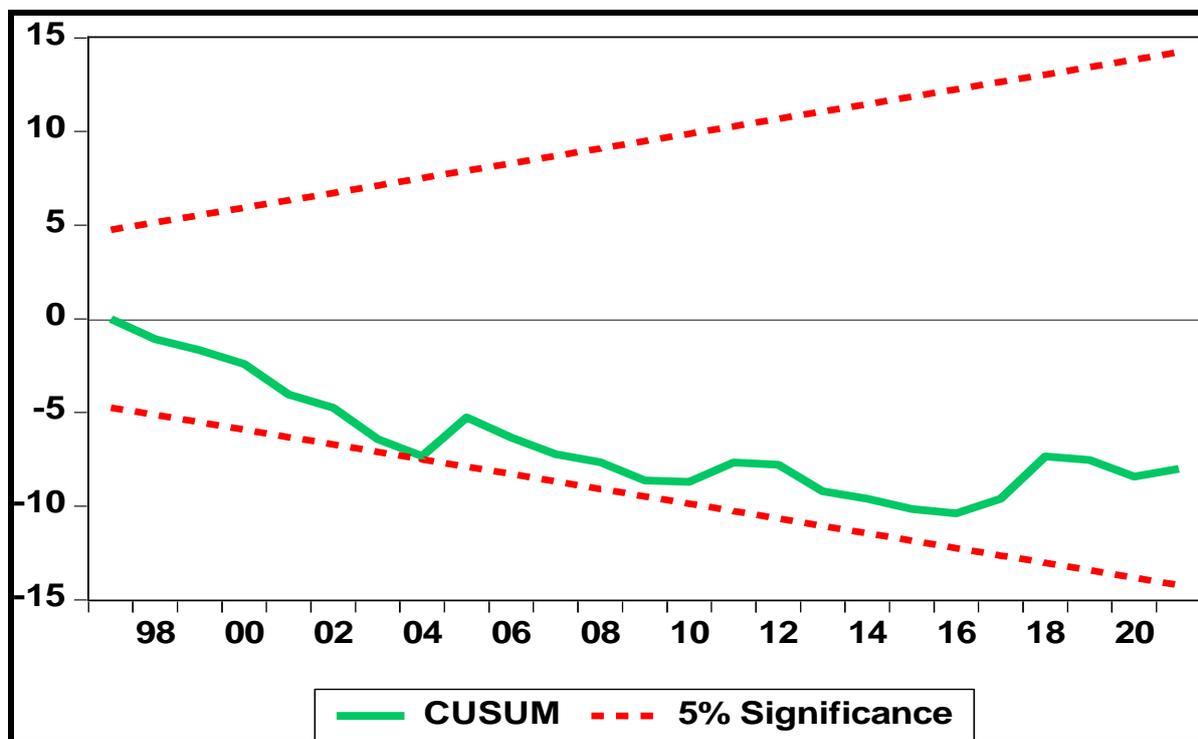
It is clear from Table (6) below that the square of the largest value of the simple correlation coefficient between any two independent variables in the model was (0.58), which is much less than the value of (R2) coefficient which is (0.69), and this indicates that there is no problem of multicollinearity between the independent variables in the form.

Table 6: Simple linear correlation matrix for variables in Iraq

Variables	DEF	LNMS2	LNINT	LNEXR
DEF	1.000000	0.623654	0.411655	0.762072
LNMS2	0.623654	1.000000	0.690200	0.504010
LNINT	0.411655	0.690200	1.000000	0.196853
LNEXR	0.762072	0.504010	0.196853	1.000000

Variables	DEF	LNMS2	LNINT	LNEXR
DEF	1.000000	0.623654	0.411655	0.762072
LNMS2	0.623654	1.000000	0.690200	0.504010
LNINT	0.411655	0.690200	1.000000	0.196853
LNEXR	0.762072	0.504010	0.196853	1.000000

Variables	DEF	LNMS2	LNINT	LNEXR
DEF	1.000000	0.623654	0.411655	0.762072
LNMS2	0.623654	1.000000	0.690200	0.504010
LNINT	0.411655	0.690200	1.000000	0.196853
LNEXR	0.762072	0.504010	0.196853	1.000000



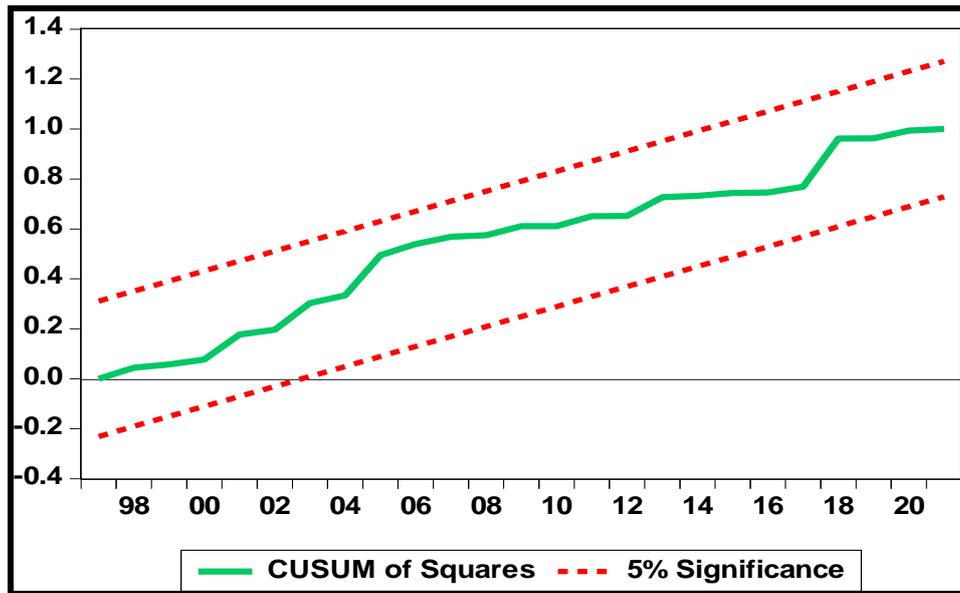


Figure 4: Structural stability test (CUSUM and CUSUM of Squares) in Iraq

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

Third: Testing the predictive performance of the error correction limit model

Figure (5) below shows the following:

- The value of Thiel's coefficient was (0.171679); It is less than the correct one.
- The bias ratio value was (0.000001); It is less than one and close to zero.
- The contrast ratio value was (0.032401); It is less than one and close to zero.
- The value of the covariance ratio was (0.967598); It is less than the correct one.

Accordingly, we infer that the second estimated model in Iraq has a high ability to predict the duration of the study, and accordingly, the results of this model can be relied upon in analysis, policy evaluation and prediction in the future.

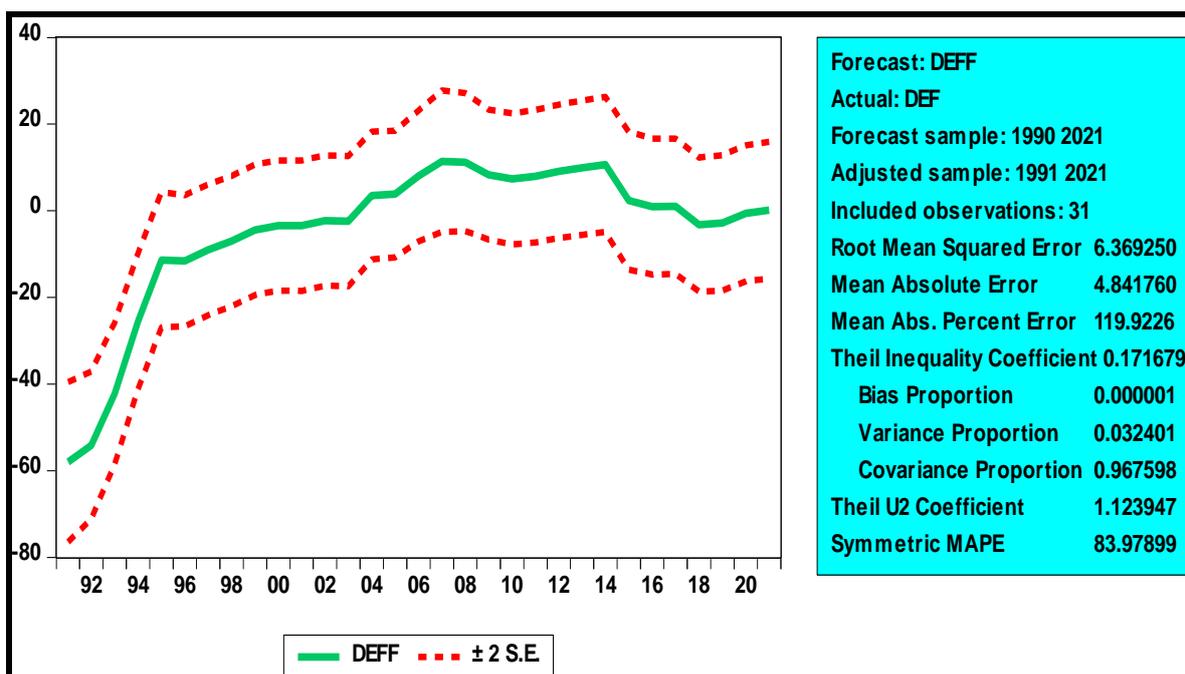


Figure 5: The actual and estimated values of the model in Iraq

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

Step Six: Granger Causality Test

Table (7) below shows the results of testing the causal relationship of Kranger between variables in Iraq during the period (1990-2021), as follows:

Table 7: Kranger causal relationship test between variables in Iraq

Pairwise Granger Causality Tests			
Sample: 1990 2021			
Null Hypothesis:	F-Stat.	Prob.	Direction of Causality
LNMS2 does not Granger Cause DEF	2.41283	0.1316	Not ExistCausality
DEF does not Granger Cause LNMS2	7.56485	0.0009	LNMS2 ⇒ DEF
LNINT does not Granger Cause DEF	0.75870	0.3911	Not ExistCausality
DEF does not Granger Cause LNINT	0.02385	0.8784	Not ExistCausality
LNEXR does not Granger Cause DEF	24.1527	0.0000	LNEXR ⇒ DEF
DEF does not Granger Cause LNEXR	3.65753	0.0661	Not ExistCausality
LNINT does not Granger Cause LNMS2	0.66761	0.4208	Not ExistCausality
LNMS2 does not Granger Cause LNINT	3.51156	0.0714	Not ExistCausality
LNEXR does not Granger Cause LNMS2	0.00769	0.9307	Not ExistCausality
LNMS2 does not Granger Cause LNEXR	0.81799	0.3735	Not ExistCausality
LNEXR does not Granger Cause LNINT	0.00911	0.9247	Not ExistCausality
LNINT does not Granger Cause LNEXR	0.82596	0.3712	Not ExistCausality
The symbols (**, **, *) indicate the level of significance at (1%, 5%, and 10%), respectively. No indicates non-significance.			

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

It is noted from table (8) above that:

- 1) There is a one-way causal relationship between (LNMS2) and (DEF), which indicates that (wide money supply) causes the general budget deficit and surplus at a significant level of less than (1%).
- 2) The existence of a one-way causal relationship between (LNEXR) and (DEF), which indicates that the (parallel exchange rate) causes the general budget deficit and surplus at a significant level of less than (1%).

The seventh step: Variance Decomposition

Table (8) below presents an analysis of the components of the variation in the general budget deficit and surplus in Iraq during the period (1990-2021), as the results of the analysis were as follows:

Table 8: Analysis of the components of the variation in the general budget deficit and surplus in Iraq during the period (1990-2021)

Variance Decomposition of Cholesky					
Cholesky Ordering: DEF LNCEX LNIEX LNOIL LNTAX LNDEB					
Period	S.E.	DEF	LNCEX	LNIEX	LNOIL
1	6.949840	100.0000	0.000000	0.000000	0.000000
2	8.328745	80.42709	5.058207	13.21491	1.299788
3	8.899622	70.50565	8.424346	18.92703	2.142974
4	9.257537	65.72512	9.430666	18.44613	6.398085
5	9.504270	63.01605	10.26725	17.68922	9.027484
6	9.644587	61.24512	11.16996	17.27958	10.30534
7	9.729873	60.18344	11.73890	16.99430	11.08336
8	9.775910	59.62873	12.05418	16.83462	11.48247

Variance Decomposition of Cholesky					
Cholesky Ordering: DEF LNCEX LNIEX LNOIL LNTAX LNDEB					
Period	S.E.	DEF	LNCEX	LNIEX	LNOIL
9	9.798343	59.36814	12.26537	16.75763	11.60886
10	9.810409	59.23950	12.41785	16.71792	11.62473
11	9.817981	59.16234	12.52785	16.69647	11.61335
12	9.823541	59.10265	12.61146	16.68568	11.60021
13	9.828380	59.04755	12.67983	16.68213	11.59049
14	9.832881	58.99461	12.73863	16.68373	11.58302
15	9.837054	58.94481	12.79076	16.68842	11.57601
16	9.840882	58.89898	12.83779	16.69447	11.56876
17	9.844356	58.85743	12.88052	16.70066	11.56139
18	9.847471	58.82028	12.91919	16.70623	11.55431
19	9.850227	58.78745	12.95384	16.71085	11.54786
20	9.852643	58.75871	12.98459	16.71449	11.54221
21	9.854742	58.73375	13.01160	16.71728	11.53736
22	9.856553	58.71220	13.03515	16.71940	11.53325
23	9.858110	58.69368	13.05555	16.72103	11.52975
24	9.859445	58.67781	13.07313	16.72229	11.52677
25	9.860587	58.66422	13.08826	16.72331	11.52422
26	9.861566	58.65258	13.10124	16.72415	11.52203
27	9.862405	58.64260	13.11240	16.72486	11.52014
28	9.863125	58.63403	13.12197	16.72548	11.51851
29	9.863745	58.62667	13.13020	16.72601	11.51711
30	9.864278	58.62033	13.13729	16.72648	11.51590
31	9.864738	58.61487	13.14338	16.72690	11.51485
32	9.865135	58.61016	13.14864	16.72726	11.51395

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

It is clear from Table (8) above, that the percentage of the forecast error variance, the variance of the general budget deficit and surplus (DEF) is self-explanatory and explained by its own shocks and shocks in the independent variables represented by (broad money supply, the nominal interest rate, and the parallel exchange rate). As this analysis covers the time period of the study, which is (32) years; this is in order to ascertain the effects when the independent variables are allowed to affect the general budget deficit and surplus for a relatively longer period.

It is noted from the results that the standard error (S.E) for the prediction error of the general budget deficit and surplus in the first period is equal to (6.950), then it increases with the passage of time to reach at the end of the period to (9.865), and the reason for the high value of the standard error is due to its inclusion of the effects of uncertainty To predict the general budget deficit and surplus during the previous periods.

In the short term (the future second year), (80.427%) of the variance in the error of predicting the general budget deficit and surplus is due to its own shocks, while the broad money supply contributes by (5.058%), the nominal interest rate by (13.215%), and the exchange rate Parallel at a rate of (1.299%), in explaining the variation in the prediction error of the general budget deficit and surplus.

As for the medium term (the future sixteenth year), (58.899%) of the variation in the error in predicting the deficit and surplus of the general budget is due to its own shocks, while the broad money supply contributes by (12.838%), and the nominal interest rate by (16.694%). And the parallel exchange rate by (11.569%), in explaining the variation in the prediction error of the general budget deficit and surplus.

Finally, in the long term (the future thirty-second year), (58.610%) of the variation in the error of predicting the general budget deficit and surplus is due to its own shocks, while the broad money supply contributes by (13.149%), and the nominal interest rate by (16.727%). And the parallel exchange rate by (11.514%), in explaining the variation in the prediction error of the general budget deficit and surplus.

Accordingly, from the foregoing, we conclude that the nominal interest rate variable is the variable that most contributes to explaining the error variance of the general budget deficit and surplus in, followed by the broad money supply variable, and finally the parallel exchange rate. Therefore, the occurrence of any sudden shock in the two most contributing variables (the nominal interest rate and the broad money supply) will affect the deficit and surplus of the general budget and this can be seen through Figure (6) below, as follows:

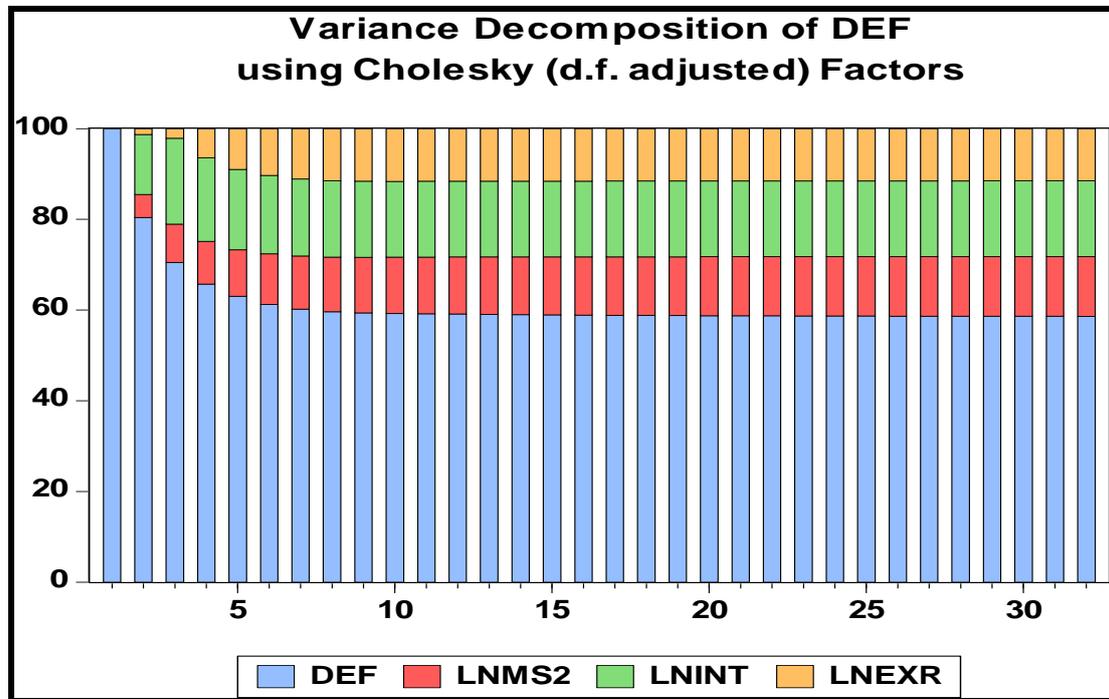


Figure 6: Analysis of the components of the variation in the general budget deficit and surplus in Iraq during the period (1990-2021)

Source: Prepared by the researcher based on the outputs of the Eviews-12 program.

7. Conclusions

Since the issuance of the first budget in the year (1921) and to this day, Iraq has relied on budget items, which focus on the volume of spending and not its purpose, in addition to the many advantages and disadvantages that surrounded it.

The Iraqi general budget witnessed a continuous deficit with an increasing curve during the period

(1990-2003), while during the period (2004-2021) witnessed continuous financial surpluses, with the exception of some years that witnessed financial crises, wars, and a drop in the price of oil in the global markets, and the budget started with a planned deficit and ended with a surplus, and this creates the impression that there are surpluses Increased financial year to year.

The results of the static test of the model variables showed that some of the results appeared static at the level, while others appeared static after taking the first difference, and this gives us an indication of the possibility of applying the Autoregressive Distributed Time Lapses (ARDL) model.

The value of the error correction coefficient appeared to be negative, significant and less than the correct one, as it reached (-0.680863), with a significant level of less than (5%), and this value confirms and indicates the validity of the equilibrium relationship in the long term, meaning that the imbalance of the model in Iraq requires a year and five months approximately in order to return to the equilibrium $\{1/0.680863=1.47 \cong 1.5\}$.

The results of the estimation showed that the most influential variable in the general budget deficit and surplus, compared to the macroeconomic variables included in the model, is the parallel exchange rate variable. (1%), meaning that an increase in the parallel exchange rate by (1%) will lead to an increase in the net public budget (meaning a decrease in the deficit or an increase in the surplus in the general budget) by (10.004%) in the short term and by (60.426%) in the long term.

8. Proposals

Work on integration between fiscal and monetary policies; this is because the most important variables that affect the public budget deficit are represented by the exchange rate, the interest rate, and the money supply. These variables are either managed by the Central Bank or are a result of those tools such as the inflation rate.

Initiating the establishment of what is known as the Generations Reserve Fund, similar to other Arab countries, such as Palestine, the Emirates, Qatar, Kuwait, Saudi Arabia, and other developed countries. The goal is to work on the sustainability of financial resources through sovereign funds that exercise their roles as financial intermediaries, support, investment, or their entry into financial markets and others.

The federal government must announce a project to purify its institutions from financial and administrative corruption, especially the military institution, which leads to most of the unknown financial allocations that have repercussions in increasing the volume of public spending and declining revenues, and thus the growing deficit in the state's general budget.

Increasing the effectiveness of tax revenues in financing the public budget by reforming the tax system from its administrative and legislative problems, as well as expanding the tax base to include segments of society with high incomes and developing tax collection methods in line with similar tax systems in many countries, especially Arab ones.

Work to stabilize the price of the Iraqi dinar in the long term, by raising production capacity, increasing commodity exports, limiting the effects of inflation, and not relying on short-term measures represented by international reserves.

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