The Impact of Public Government Spending on Public Debt in the Iraqi Economy

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ABSTRACT

Nations that depend intensely on external incomes, such as oil, and lack income broadening, financial changes, or a decrease in product costs, may resort to increased borrowing to cover money-related shortfalls. The investigation aims to illustrate the effect of the relationship between government investment and open obligation in Iraq by measuring this relationship and knowing the extent to which government investment impacts both residential and outside obligations. The study reveals a reverse relationship between venture investing and household obligations, a converse relationship between customer investing and external obligations in the short term, and a reverse relationship between them in the long term. The study also suggests that significant progress should be made in improving investing proficiency. The focus should be on enhancing the proficiency of government investing, eliminating waste and degradation, coordinating investments towards ventures with high financial and social returns, broadening sources of revenue, lessening dependence on a single source of salary such as oil, and expanding financial diversity.

Keywords: Consumer Spending, Current Spending, Domestic Debt, External Debt
JEL Classifications: G2, H2, H3, O4

1. INTRODUCTION

Open investing is one of the most critical devices of financial arrangement, reflecting the government's coordinated mediation to regulate the economy and guarantee a balanced economic performance. The relationship between open spending and economic development may be correlated, suggesting that expanding in open investing leads to an increase in total demand, which in turn contributes viably to accomplishing economic advancement (Al-Zubaidi, 2021). Fiscal policy also plays an important role in government efforts aimed at promoting growth and development in the economy by diversifying patterns of revenues and expenditures. It is one a government policy that affects economic activities by increasing revenues through taxes, controlling the level of spending, and influencing public debt (Al-Fawwaz, 2016). According to the simple Keynesian model,

expansionary fiscal policy aims to stimulate the economy by either increasing government spending, reducing taxes, or both. This spending is financed by revenues obtained from crude oil. It is expected that the government will not obtain the required tax revenues to finance its spending, and the failure of this policy to achieve the growth rate leads to non-payment of debts related to the state, prompting the government to use quick means of financing, such as borrowing. The increase in public debt will lead to the depletion of the proceeds from foreign exchange reserves. This, in turn, causes a ceaseless shortage in the state's ability to adjust installments, which may be a cause of financial retreat (Al-Bataineh, 2012). During the research period, the Iraqi economy was exposed to multiple shocks that caused a large financial deficit and a sharp increase in public debt (Abdul, 2022). The factors of indebtedness in Iraq are economic sanctions, fluctuations in oil prices, wars, and low economic growth, leading

to a significant budget deficit due to increased public spending (United Nations in Iraq, 2021). The sustainability of public debt depends on the expectations of public expenditures and revenues, such as rationalizing inefficient spending, focusing on the quality of spending and its return to achieve prosperity at the lowest possible cost (Zhang et al., 2021), and finding new sources of revenue to cover accumulated debts and obligations. The Keynesian school, unlike the classical and monetary schools, allows resorting to borrowing to achieve balance, provided that these loans are directed to financing investment projects, which in turn increases the productive capacity of the economy, forms capital, and increases the gross domestic product (GDP) (Sibel, 2019). In the case of using a loan to finance consumer spending in an economy that has not reached full employment, it leads to an increase in effective demand and will not be met by a similar increase in the volume of commodity supply, which results in an increase in the price level and inflation (Hassan and Khalaf, 2023). The accumulation of public debt leads to inflationary pressures, a decline and slowdown in the path of economic growth, and a reduction in the private sector's ability to carry out its investments and economic activities. Additionally, it tightens the constraints and increases restrictions on its mechanisms and operations. Fiscal policy is sustainable when the growth rate of government debt is less than the long-term interest rate, it does not lead to an excessive increase in debt, and it does not significantly reduce expenditures or increase taxes (Bostan et al., 2018). The inability to achieve financial sustainability leads to the state's economy drowning in debt due to misallocated spending in response to the increasing needs of government activities, which constitutes a significant strain on budget resources. Furthermore, the failure to use public debt in investment projects has resulted in its increase, which negatively affects economic growth due to increasing government expenditures expenditures (Alhamdany et al., 2024). The Iraqi economy depends on foreign trade to meet local demand for goods. This is due to the increase in public consumer spending, which is linked to oil revenues, and the inability of the production apparatus to keep pace with this demand. As the budget deficit increases, the state's need for domestic lending increases, leading to an increase in the government's debt in local currency. Alternatively, external lending increases the burden of debt in foreign currency, leading to the knowledge gap that this paper aims to address:

Does public spending affect public debt in the Iraqi economy for the period (2004-2023)?

Thus, the importance of the scientific paper lies in stating the relationship between public spending and public debt in the Iraqi economy, as well as explaining the relationship between the effectiveness of public spending and public debt in the country.

This paper aims to know the extent of the impact of government spending on the variable of public debt in the Iraqi economy.

Based on the above, the paper assumes that there is a direct relationship between general government spending and public debt in the Iraqi economy for the period 2004-2023.

2. LITERATURE REVIEW

Numerous analysts have attempted to clarify the relationship between government investing and open obligation within the economy without coming to an agreement. As a result, this paper discusses an audit of the literature on the effect of government spending on open obligation within the Iraqi economy and a few other nations.

A study by Reinhart and Rogoff (2010) analyzed the long-term relationship between public debt and economic growth, finding that when public debt exceeds 90% of GDP, economic growth slows down significantly. This result is evidence of a critical threshold of public debt that negatively affects economic performance in the long run.

According to a study by Al-Shammari and Kazem (2015), the estimated models in Egypt showed a positive impact of domestic debt on enhancing public spending and increasing the level of domestic credit. This resulted in an increase in investment rates and the achievement of acceptable rates of output growth, thereby demonstrating the rationality of using domestic debt. External debt service had a negative impact on exports, a decline in the current account position, and a subsequent decrease in the import rate. This requires focusing on addressing the negative effects of external debt and investing it in a way that raises economic growth rates.

The main result of a study by Taher (2016) indicates that different countries' government debt and macroeconomic determinants have different effects on the growth of GDP per capita, depending on their government debt ratios.

A study by Sims (2017) suggests that increased investment spending can reduce public debt in the long run by stimulating growth that increases revenues and reduces the deficit.

Putri et al. (2018) assert that an increase in government investment can lead to an increase in financial development. As arrangement producers, the government should play a dynamic part to invigorate the economy through countercyclical monetary arrangements. The labor constraint contains a positive impact on territorial financial development. This result indicates that the retention of laborers has energized territorial financial development.

According to Alshammary et al. (2020), in the Arab region, debt accumulation has raised concerns about fiscal sustainability. For countries that rely heavily on external sources of revenue (such as oil), economic fluctuations or falling commodity prices lead to increased borrowing to cover fiscal deficits. This trend has led to higher debt-to-GDP ratios, especially in the Gulf countries, which puts long-term economic stability at risk. Fiscal space challenges are of paramount importance for countries facing external and internal pressures, especially in light of volatile commodity prices.

In a previous study (Jouda and Saleh, 2020), it was explained that the continued deficit in the general budget leads to reliance on public debt for financing, which adds to its financial burden by increasing debt service obligations.

The study by Antoine et al. (2021) concluded that two factors had a modified U-shaped relationship, as demonstrated observationally. The modeling led to an ideal obligation level of 21.6% of GDP. The obligation effect depends on its relative weight in GDP. The investigation also permitted us to recognize a few selected factors that could potentially influence financial development within the Republic of Congo.

Thamer and Al-Shakri (2021) posited in their study that the Iraqi economy is one-sided and depends mainly on oil resources to finance their budget. Fluctuations in global crude oil prices affect the indicators of the sustainability of public debt in Iraq through the general budget and public debt channels.

The study by Al-Mashhadani et al. (2021) clarified the extent of public debt and its long-term impact on economic growth in Iraq. The deficit that many public budgets in Iraq incurred due to the decline in oil revenues resulted in an increase in internal and external public debt, which negatively affected the country's development and economic growth.

Ali and Al-Sabaawi (2022) found that there is a significant direct relationship between government spending and the variables (gross fixed capital formation, public debt, and population) and a significant inverse relationship between government spending and GDP growth. Therefore, methods and approaches must be followed to reduce government spending rates within the limits of available public revenues.

Umeh and Majed (2022) proposed a future viewpoint on administrative consumption that has the potential to reduce the obligation size. This paper also had some informative conclusions, highlighting positive and factually noteworthy factors. In other words, legislative consumption recorded a critical impact on obligations in Iraq. Typically, it is consistent with the speculations that have been considered. According to the proposal, enacting non-oil divisions in supporting legislative budget areas such as horticulture, industry, exchange, and framework is highly recommended.

Al-Baghlani and Al-Bu Ali (2023) discovered that the increase in the volume of debt, both internal and external, which resulted from decades of conflicts, economic fluctuations, and delays in paying debts due, were caused by increased public expenditures, decreased public revenues, and continued borrowing. This resulted in a public debt volume that exceeded the state's ability to meet its financial obligations to creditors.

Hassan and Khalaf (2023) concluded in their research that the increase in domestic public debt as a result of the decline in oil prices, which finances current expenditures at the expense of investment expenditures, has a negative impact on the real gross domestic product. Besides, public finances in Iraq do not adopt the opinion of any of the economic schools, whether classical or Keynesian.

The research by Abdullah and Al-Jawari (2023) examined the impact of internal public debt on various financial indicators of the Iraq Stock Exchange. This is one of the ways for the government to obtain internal debt depending on the size, efficiency, and development of the financial market. Standard tests indicated a weak impact of the internal debt on the market value index and trading volume. It was also clear that there was a reciprocal effect, according to Granger causality, between the internal debt and the number of shares index, while there was an absence of causality between the internal debt and the market value.

Jassim and Ibrahim (2023) explained that the high levels of both internal and external debt in Iraq have had a negative impact on the state's financial sustainability, due to the burdens resulting from debt repayment and interest borne by current and future generations. Therefore, diversifying the state's revenues, reducing dependence on oil resources, increasing the percentage of investment expenditures at the expense of operational expenditures, and reducing internal and external public debt will positively impact financial sustainability.

According to Heimerger (2023), obligation maintainability analysis (DSA) should be incorporated in EU monetary rules. After examining most of the presumptions made by DSAs about open obligation proportions, we examine four basic angles in planning such a change: making judgment calls with respect to DSA suspicions, guaranteeing straightforwardness and equitable legitimacy, promoting open venture within the setting of climate objectives, and handling cross-border impacts of monetary approach, specifically in relation to the euro region measurement.

Khalil and Abdul (2024) stated that the increase in the rates of independent economic variables has a positive impact on the public debt, leading to its decrease. The government needs to find ways and means to reduce dependence on external debt because it is a threat to the Iraqi economy. This is crucial given the economic and political dependence that results from this public debt, especially since Iraq enjoys financial abundance and fertile land.

A study by Al-Saadawi and Al-Tamimi (2024) discovered that expansion in government spending under security and health conditions, fluctuations in oil prices, and weak tax revenues may create significant pressure on the state budget. The impact of this pressure creates a financial deficit in the general budget, making it difficult to finance the expansion of government spending. The state may be forced to finance the deficit through internal and external public debt, which competes with the private sector for funds available for lending through higher interest rates. Despite the trend of private investment towards increasing in absolute values or as a percentage of the gross domestic product, this does not prevent public investment from competing with the private sector, especially competing with funds available for borrowing from the private sector when the government resorts to borrowing to finance the increase in public spending.

Al-Bayati and Muslim (2024) demonstrated that there is a long-term balance relationship between open obligation and gross domestic product. This indicates that open obligation was not utilized productively and did not contribute to the improvement of vital profitable segments. Hence, it is essential to oversee

the course of open obligation reserves towards vital profitable speculations, establish an Iraqi market for government securities to contribute to the enactment of financial segments, and strive to utilize open obligation reserves in productive speculations instead of buyer ones.

The study by Al-Asadi and Al-Jabouri (2024) shows that resorting to a policy of rationalization makes public spending productive when governments use their financial resources wisely and rationally. This is achieved by reducing the phenomenon of financial and administrative corruption, shifting to the method of balancing programs and performance and planning budgets, improving the efficiency of the tax system, and diversifying the national economy.

According to Jassim and Saud (2024), a shortage in the exchange rate often occurs when the flexibility of government customer investments rises with an increase in open incomes and falls with a decrease. This shortage is caused by the imbalance in government investing, with government consumer investments accounting for the biggest share compared to speculation investment. The exchange rate is affected by the dominance of crude oil exports, which are utilized to support open investment, despite the differences in the consequences.

The research by Zughair et al. (2024) aims to reduce or eliminate waste of public money and its negative effects on the budget. The researchers concluded that the public spending technique reduces extravagance and works to limit the deficit in the general budget, which in turn helps to boost public revenues.

In the study by Abdul-Wahab and Al-Jabri (2024), they showed that the impact of the sustainability of public debt on public investment spending in Iraq is an inverse effect, as increasing the sustainability of public debt by 1% will reduce public investment spending in Iraq by about 117%. The study also showed that there is a long-term direct equilibrium relationship between private investment spending and the sustainability of public debt in Iraq. It is concluded that managing public spending is crucial to control public funds, benefit from them, and avoid wasting them to achieve high growth rates. To achieve sustainability, it is necessary to work on developing a financial policy to address the public debt that has accumulated over a number of years.

Al-Khaikani et al. (2024) characterized the continuous increase in public debt in Iraq as a result of increased government operational spending. This leads to a general budget deficit and subsequent accumulation of public debt, thereby negatively affecting economic growth. The study also recommended setting a specific ceiling for the state's public expenditures and increasing the private sector's opportunities for investment.

An article by Heimerger (2023) presents DSA simulations that modify the official assumptions by focusing on the four largest euro area economies: Germany, France, Italy, and Spain. The results suggest that the debt sustainability framework in the reformed EU fiscal rules is sensitive to changes in assumptions and may underestimate the negative growth effects of fiscal adjustment. Hence, public debt ratios may turn out higher than expected.

The outcome of the study by Kabemba and Kabwe (2024) suggests that policymakers should ensure that Zambia borrows for generation, not for utilization. Borrowing for generation would increase the GDP and subsequently the genuine GDP. In this way, the obligation would have a positive effect on the economy. There is a need for policymakers to sincerely strive to create a steady macroeconomic database that supports more in-depth fundamentals and offers directional approaches.

3. CRITICAL THINKING ABOUT THE RELATIONSHIP BETWEEN PUBLIC SPENDING AND PUBLIC DEBT

When the government's spending is financed and the increasing general budget deficit is covered through internal and external government borrowing at high interest rates, this measure will incur long-term debt unless economic decisions are taken to address the deficit (International Monetary Fund, 2024). The impact of debt on the public and private sectors also narrows the scope of opportunities to obtain funds available for borrowing, which is known as financial crowding out. This is attributed to the intensification of competition to obtain government credit, which stimulates investment. The requirements of increasing and covering unproductive government spending, as well as the financing of private investment, cause interest rates to rise and the cost of borrowing to increase, thereby negatively affecting both the volume of investment and production (Jalles and Medas, 2022). Furthermore, the emergence of a new issue increases the percentage of public debt to the GDP, which is clearly reflected in the state's financial sustainability in the long term. This, in turn, reduces the welfare levels of future generations. Consequently, the government's reliance on either internal or external debt will negatively affect the economy in the future, unless it establishes productive industries based on religion (Angello et al., 2011).

The government's dependence on financing its investments through borrowing locally or overseas can lead to undesirable outcomes. This is clearly apparent in the interest rates resulting from household borrowing. We find that external borrowing causes a shortfall in the current account's installment payments, a rise in trade rates, a decline in net exports, and the emergence of signs of financial precariousness (Kumar and Woo, 2010). This swarming out often occurs under certain circumstances, which include a decrease in the affectability of the cash request estimate compared to changes in interest rates. This suspicion aligns with the classical speculation that the request for cash is determined by the pay level (Alhamdany et al., 2024). Moreover, swarming out occurs when speculations are influenced and found to be profoundly delicate as a result of changes in interest rates (Chakraborty, 2007).

4. RESEARCH ANALYTICAL APPROACH

The main objective of the paper is to study the impact of public spending on the economic public debt in Iraq.

4.1. Research Methodology

This section explains the research method used to estimate the model of this paper, the model specifications, the data source, and the variables used in the study. It also specifies the data analysis techniques used to estimate general government spending on public debt in Iraq. The following Figure 1 shows the development of government spending and public debt in the Iraqi economy.

4.2. Description of Variables

Table 1 shows a description of the research variables.

The research consists of two models, which are as follows:

1 Internal debt model:

$$Y_1 = a + \beta_1 x_1 + \beta_2 x_2 + Ui \qquad (1)$$

2 External debt model:

$$Y_2 = a + \beta_1 x_1 + \beta_2 x_2 + Ui \qquad (2)$$

4.3. Stability Test

Due to the short time series of the variables used for measurement, the researcher used a mechanism within the Eviews12 software to change the annual data to quarterly (Gujarati and Porter, 2009). This mechanism works according to the following steps (Enders, 2015: 265):

Estimate the ADF test models using the ordinary least squares (OLS) method, then calculate the joint probability statistics; let (e_t) be the estimated error term. Estimate the short-run error variance $\delta = \sum e$.

The following formula calculates the correction factor (S_t^2), which represents the variance of the error in the long run, based on the variances of the common residuals of the potential statistics.

$$S_t^2 = \frac{1}{n}\sum_{t=1}^{n} e_t^2 + 2\sum_{i=1}^{j}\left(1 - \frac{i}{\mathcal{J}+1}\right)\frac{1}{n}\sum_{t=i+1}^{n} e_t e_{t-i} \qquad (3)$$

Additionally, the formula below, which estimates the degree of delay or time lag (j) based on the number of observations (n), is required for estimating the long-term variance:

$$\mathcal{J} \approx 4\left(\frac{n}{100}\right)^{\frac{2}{9}} \qquad (4)$$

Figure 1: Development of government spending and public debt for the period 2004-2023million dinars
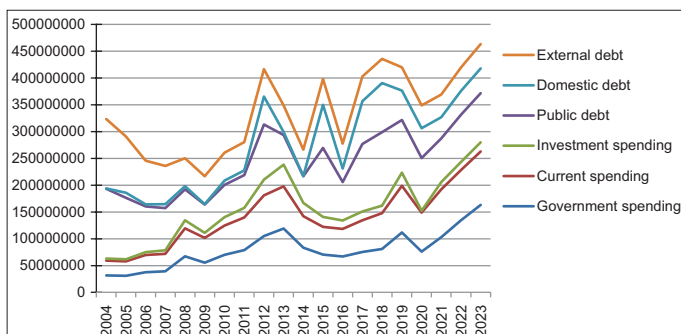
Finally, the Phillips-Perron statistic must be calculated by estimating the following equation:

$$\Delta Yt = \mu + \lambda Y_{t-1} + t \qquad (5)$$

The study variables need to be tested to determine their stability and the presence of a unit root (Wooldridge, 2013). The standard model must be tested to ensure its stability before estimation to avoid false regression, as stable variables tend to return to their long-term equilibrium state (Uppender, 2008). After testing the stability of the time series, we obtained the following results.

Table 2, which depicts the results of the stability test for the research variables, indicates that most of the research variables have not stabilized from their original levels, with the exception of the external debt variable. However, when taking the first difference for the same variables, we note that the variables have stabilized at significantly lower levels (<5%), as indicated by the Phelps-Perron test.

4.4. Normal Distribution Test

Normal distribution is important in statistical analysis because many tests assume that the data follow this distribution. Normal distribution tests help verify the appropriateness of this hypothesis (Ghasemi and Zahediasl, 2012).

Table 3 presents the results of the descriptive statistics, showing the common characteristics of the variables in the study. It is clear that the distribution is asymmetric and positive for most of the variables. The deviation values for consumer spending ($X_1 = 0.085$), investment spending ($X_2 = 0.835$), domestic debt ($Y_1 = 0.618$), and external debt ($Y_2 = 2.132$), and all positive and exhibit a long slope, with the exception of consumer spending and domestic debt, which show a normal distribution. All Kurtosis series reach a peak higher than 3, except for domestic debt (Y_1), which is flat at <3. According to the Jarque-Bera statistics, most of the series are statistically significant at a level <0.05, except for (X_1, Y_1), where statistical significance did not appear for them (Gujarati and Porter, 2009).

4.5. Estimation of the Autoregressive Distributed Lag (ARDL) Model for the Internal Debt Model

The test of stationarity of time arrangement is not a prerequisite for applying the autoregressive conveyed slack (ARDL) strategy. However, the prerequisite for its application is the nonattendance of coordinates time arrangement at the moment of arrange contrast I(2). Therefore, it was assessed (Nkoro and Uko, 2016), with the following results:

Table 4 shows the autoregressive model for the initial lag period of the ARDL distribution, with a coefficient of determination that reaches

Table 1: Description of research variables

Variable Name	Symbol	Type
Consumption Spending	X_1	Independent
Investment Spending	X_2	Independent
Domestic Debt	Y_1	Dependent
External Debt	Y_2	Dependent

Table 2: Phillips-Perron (pp) test for research variables

Model	Probabilities	At Level				At First Difference			
		X_1	X_2	Y_1	Y_2	d (X_1)	d (X_2)	d (Y_1)	d (Y_2)
With Constant	t-Statistic	−0.9186	−2.3307	−2.5392	−7.7331	−8.9801	−8.7326	−8.7304	−9.2549
	Prob.	0.7775	0.1651	0.1102	0.0000	0.0000	0.0000	0.0000	0.0000
		no	no	no	***	***	***	***	***
With Constant and Trend	t-Statistic	−2.3288	−2.2904	−3.5252	−4.2598	−8.9231	−8.7007	−8.6774	−10.1567
	Prob.	0.4136	0.4339	0.1435	0.0059	0.0000	0.0000	0.0000	0.0000
		no	no	no	***	***	***	***	***
Without Constant and Trend	t-Statistic	1.1575	−0.8171	−1.4672	−3.0421	−8.7750	−8.7750	−8.7750	−8.7750
	Prob.	0.9352	0.3589	0.1321	0.0028	0.0000	0.0000	0.0000	0.0000
		no	no	no	***	***	***	***	***

(*) Significant at 10%; (**) Significant at 5%; (***) Significant at 1%. no: Not significant

Table 3: Results of normal distribution

Model	X_1	X_2	Y_1	Y_2
Mean	60909560	15530850	31001729	57527059
Median	58825557	15449890	17371092	49701333
Maximum	99464288	40380749	91882241	1.30E+08
Minimum	27066124	3208912.	195209.0	42220000
Standard deviation	21557740	9133552.	29825018	22504210
Skewness	0.085608	2.835186	0.618017	2.132470
Kurtosis	4.038196	3.765195	2.035535	6.554263
Jarque-bear	3.181275	11.25223	8.193239	102.7417
Probability	0.203796	0.003603	0.116629	0.000000
Sum	4.87E+09	1.24E+09	2.48E+09	4.60E+09
Sum Sq. Deviation	3.67E+16	6.59E+15	7.03E+16	4.00E+16
Observations	80	80	80	80

Table 4: ARDL model estimation results

R^2	0.785263	F-statistic	26.41068
Adj R^2	0.755530	DW stat	1.884244
Prob (F-statistic)	0.000000		

0.78. This implies that the independent variables (X_2, X_1) can explain 78% of the changes in the dependent variable, while the remaining 22% are not included in the model. As for the dependent variable (Y_1), the Fisher statistical significance reaches 0.0000, indicating that the model used is an acceptable one for measuring the relationship between the study variables given the importance of the relationship. Moreover, the Durbin-Watson value is very high, reaching a value of 1.884244. This means that the Durbin-Watson value is greater than the coefficient of determination, thereby eliminating the possibility of spurious regression in the model (Wooldridge, 2015).

4.6. ARDL Bounds Co-Integration Test

The bounds testing procedure, used to assess cointegration in the autoregressive distributed lag (ARDL) framework, relies on the Fisher statistic. This statistic is compared against both lower and upper critical values, known as Basran bounds. The outcomes of this test are evaluated at various significance thresholds (Nkoro and Uko, 2016), as demonstrated in Table 5 below:

Table 5 reveals that the Fisher statistic has a value of 5.6326, exceeding both the lower and upper bounds at a 10% significance level. This confirms the presence of a cointegrated relationship between the dependent and independent variables. Consequently, the application of the error correction model is warranted, enabling the identification of error correction mechanisms and the evaluation

Table 5: Assessment of cointegration utilizing the ARDL bounds testing framework

Test Statistic	Value	k
F-statistic	5.6326	2
Critical value bounds		
Significance	**I0 Bound**	**I1 Bound**
10%	2.63	3.35
5%	3.1	3.87
2.5%	3.55	4.38
1%	4.13	5

of short- and long-term elasticities (Harris and Sollis, 2003).

4.7. ARDL Error Correction Model

The error correction model consists of two parts; the first part includes the studied relationship in the short- and long-run elasticity (Gujarati and Porter, 2009), as shown in Table 6.

Table 6 presents the findings from estimating the short- and long-term relationships between the dependent variable (household debt) and the independent variables (shopper spending and investment spending). In the short term, the significance of the estimates for shopper spending was below the 5% probability level. This indicates rejection of the null hypothesis, which assumes no short-term relationship between the dependent and independent variables. Instead, the alternative hypothesis is supported, suggesting a significant short-term relationship between shopper spending and household debt, as the probability is under the 5% threshold. This direct relationship aligns with the financial rationale outlined by Khalid and Guan (1999), where increased shopper spending leads to a higher demand for imported goods and services. This, in turn, exacerbates the trade deficit and raises the demand for foreign currency to settle imports, resulting in higher external debt. However, no substantial long-term relationship exists between shopper spending and household debt. Conversely, the relationship between investment spending and household debt is significant in both the short and long term. This implies that we should acknowledge the alternative theory and dismiss it. The invalid speculation, where the relationship is contrarily significant between venture investing and residential obligation, usually aligns with the rationale of the financial hypothesis (Sims, 2017). This is because investing in speculation leads to increased productivity, work, and business, which in turn increases financial development rates and lessens household obligations.

Table 6: Error correction model (short- and long-term versatilities) aligns to the ARDL strategy

Variable	Coefficient	Standard Error	t-Statistic	Prob.
D (X_1)	1.401101	0.641	2.1858	0.0324
D (X_2)	−2.227815	0.80901	−2.7538	0.0076
CointEq(−1)*	−0.11686	0.02101	−5.5624	0
Long Run Coefficients				
Variable	Coefficient	Standard Error	t-Statistic	Prob.
X_1	0.566043	0.57783	0.9796	0.0879
X_2	−0.0394	1.33123	−0.0296	0.0321
C	−402039.7	3.3E+07	−0.0121	0.0097

Table 7: Evaluation of variance stability for the errors in the ARDL model

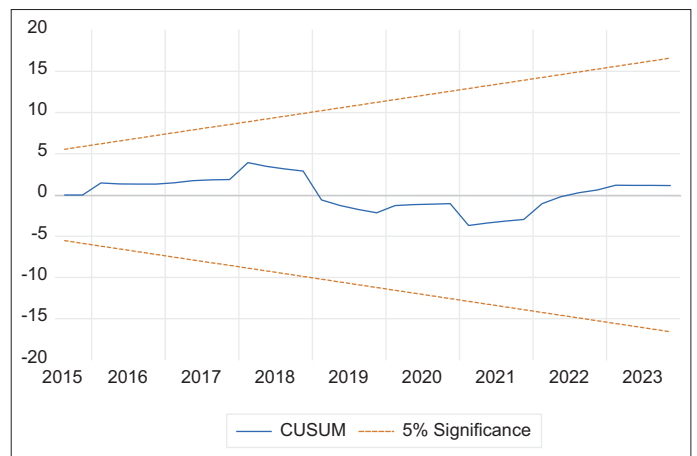| Heteroskedasticitya Test: ARCH			
F-statistic	18.676321	Prob. F (1,68)	0.7281
Obs*R^2	25.406351	Prob. Chi-square (1)	0.8031

Table 8: Assessment of serial autocorrelation in the residuals of the ARDL model

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.324869	Prob. F (3,67)	0.5705
Obs*R^2	0.332398	Prob. Chi-square (3)	0.5643

Table 9: ARDL model estimation results

R^2	0.964110	F-statistic	317.8805
Adj R^2	0.961077	DW stat	2.212801
Prob (F-statistic)	0.000000		

4.8. ARDL Model Quality Tests

The ARDL model undergoes several diagnostic tests to ensure its reliability and robustness:

a) Variance Stability Test for Errors

Various methods can evaluate whether the error variance remains consistent, including the Curve Test, which relies on the χ^2 probability value. The outcomes of this analysis are detailed in Table 7.

Table 7 presents a χ^2 probability value of 0.7281, indicating acceptance of the hypothesis that the model's error variance remains constant. This result confirms the absence of variance instability issues in the model. Consequently, the alternative hypothesis, which suggests variable error variance, is rejected as its significance level surpasses the 0.05 threshold.

b) Serial autocorrelation test for ARDL model residuals
The LM test detects whether there is an autocorrelation problem and also depends on the significance of the χ^2 value. The results are shown in Table 8.

The probability value of χ^2 is (0.5705), which demonstrates that we acknowledge the speculation that there is no serial autocorrelation issue. We dismiss the alternative theory that a serial autocorrelation issue exists in the result, as it is more significant than the centrality level of 0.05.

4.9. Structural Static Test Results

To ensure the accuracy and validity of the results, the cumulative residuals test (CUSUM) was conducted, as shown in Figure 2.

The cumulative test of the residuals of the internal debt equation over the research period shows an atmosphere of structural stability in the behavior of the estimated function. This means that these results can be used in economic policy and forecasting because the results have great credibility (Gujarati and Porter, 2009).

4.10. Estimation of the Autoregressive Distributed Lag (ARDL) Model for the External Debt Model

Table 9 depicts the autoregressive model demonstrated in the initial slack period of the ARDL conveyance. The coefficient of assurance is 0.96, which suggests that the independent factors (X_2, X_1) can explain 96% of the changes within the dependent variable, with the remaining 4% being factors not included within the model.

Figure 2: Cumulative test of residuals (CUSUM) for the internal debt equation

As for the dependent variable (Y_2), The Fisher statistic value is recorded as 0.0000, indicating that the methodology employed is appropriate for analyzing the relationship between the study variables, given the significance of the results. Furthermore, the Durbin-Watson value is notably high at 2.212801, exceeding the coefficient of determination. This suggests that the model is free from issues related to spurious regression.

4.11. ARDL Bounds Co-Integration Test

The cointegration test in the autoregressive distributed lag (ARDL) framework is referred to as the bounds test. This test relies on the Fisher statistic, which is evaluated against the lower and upper critical Basran bounds and interpreted across various significance levels, as demonstrated in Table 10.

Table 10 reveals a Fisher statistic value of 7.421501, which exceeds both the lower and upper bounds at a 10% significance level. This finding confirms the presence of a cointegrated relationship between the dependent and independent variables. Consequently, the error correction model is employed to identify correction mechanisms and to evaluate both short- and long-term elasticity.

Table 10: Bounds test for joint integration according to the ARDL Bounds methodology

Test Statistic	Value	K
F-statistic	7.421501	2
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.63	3.35
5%	3.1	3.87
2.5%	3.55	4.38
1%	4.13	5

4.12. ARDL Error Correction Model

The error correction model is divided into two components: the first part analyzes the relationship between short-term and long-term elasticity, as shown in Table 11.

Table 12 displays the results of estimating the short- and long-term relationships between the dependent variable (external debt) and the independent variables (consumer spending and investment spending). In the short term, the significance of the estimates for the consumer spending variable was found to be below the 5% probability threshold. This leads to the rejection of the null hypothesis, which posits no short-term relationship between the dependent and independent variables. Instead, the alternative hypothesis, which indicates a short-term relationship between consumer spending and external debt, is accepted. This relationship is negative in both the short and long term, which may contradict economic theory (Blanchard, 1993). An increase in consumer spending typically leads to higher demand for imported goods and services, thereby widening the trade deficit and increasing the need for foreign currency to pay for these imports, which raises external debt. In the short term, no significant relationship is observed between investment spending and external debt, leading us to reject the alternative hypothesis and accept the null hypothesis. However, in the long term, the relationship becomes significant and negative. The link between investment spending and external debt aligns with economic theory (Afonso and Sousa, 2012), as investing in speculation leads to raising productivity and increasing work, thereby increasing financial development rates and reducing outside obligations.

4.13. ARDL Model Quality Tests

a) Test of variance stability of errors

Table 12 presents the findings from the conducted test.

It is evident from Table 12 that the likelihood esteem χ^2 is 0.721, which suggests that we acknowledge the null hypothesis that the error model features a consistent change. There are no issues found in our investigation into the model. We reject the alternative hypothesis that the error correction model is variable because its significance level surpasses 0.05.

4.14. Serial Autocorrelation Test for ARDL Model Residuals

The LM test was utilized to identify if there is an autocorrelation issue, which also depends on the significance of the chi-square esteem χ^2. Table 13 displays the outcome.

Table 11: According to the ARDL methodology, the error correction model assesses both short-term and long-term elasticity, examining their respective relationships

| Variable	Coefficient	Standard Error	t-Statistic	Prob.
D (X$_1$)	−0.452045	0.152	−2.9741	0.004
D (X$_2$)	0.361428	0.19826	1.82301	0.0725
CointEq(-1)*	−0.11686	0.02101	−5.5624	0
Long-Run Coefficients				
Variable	Coefficient	Standard Error	t-Statistic	Prob.
X$_1$	−0.0076	0.27296	−0.0278	0.0479
X$_2$	−0.282009	0.51016	−0.5528	0.0221
C	53959258	1.8E+07	2.99769	0.0037

Table 12: Assessment of variance stability for the error correction model within the ARDL framework

Heteroskedasticity Test: ARCH			
F-statistic	16.31615	Prob. F (1,68)	0.721
Obs*R^2	45.21076	Prob. Chi-square (1)	0.735

Table 13: Serial autocorrelation test for ARDL demonstrate residuals

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	3.009879	Prob. F (3,67)	0.1861
Obs*R^2	2.970915	Prob. Chi-square (3)	0.1842

Figure 3: Cumulative test of residuals (CUSUM) for internal debt equation
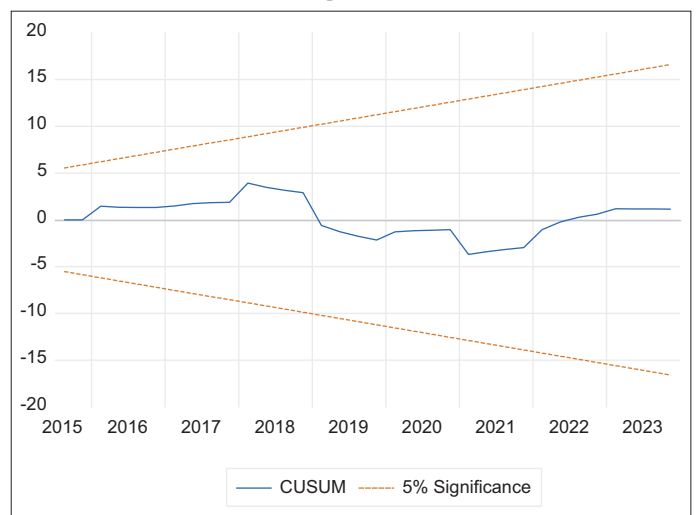
The likelihood Chi-square esteem of 0.186 shows that we accept the invalid theory that there is no serial autocorrelation issue in the model. We dismiss the alternative theory that there is a serial autocorrelation issue in the model because it is more prominent than the centrality level (0.05).

4.15. Structural Static Test Results

As shown in Figure 3. The results of the cumulative test of the residuals of the external debt equation over the research period show that the estimated function behaves in a way that is structurally stable. This allows the use of these results in economic policy and forecasting because they have great credibility.

5. CONCLUSION

Iraq is considered one of the countries that rely heavily on public debt to finance its general budget due to its reliance on a single source of income, represented by oil revenues, whose prices are unstable and determined according to global markets (Ali and Al-Sabaawi, 2022). On the other hand, it has current expenses that cannot be easily reduced, represented by the salaries of government sector employees. The decline in oil prices leads to an exacerbation of the public debt, which is necessary to finance current expenses (Umeh and Majed, 2022). Increasing public spending and methods of managing it are among the most important challenges facing the state due to their impact on the state's general budget. These concepts include achieving the goal for which the expenditure was issued, determining the amount of social benefit and economic return, and reducing the waste of public money. Additionally, public debt is considered one of the most important means used to finance the general budget deficit, which results from an increase in public spending that supports economic growth and stability (International Monetary Fund, 2023). The standard side for the residential obligation model showed a significant positive relationship between customer investing and residential obligation in the short term, consistent with the financial rationale (Khalid and Guan, 1999) and inconsequential in the long term. There is a significant inverse relationship between speculation investing and residential obligation in the long and short term, which aligns with the financial rationale (Sims, 2017). The standard side for the outside obligation model also showed a positive significant relationship between consumer spending and household obligation, both in the short and long term, which is not consistent with financial rationale (Blanchard, 1993). There is a significant inverse relationship between venture investing and domestic obligation in the long term, which is consistent with financial rationale. Additionally, there is no significant relationship in the short term due to the impacts of financial development (Afonso and Sousa, 2012).

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