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ASSESSMENT OF THE FINANCIAL SUSTAINABILITY OF EXTERNAL DEBT IN IRAQ: AN ECONOMETRIC ANALYSIS

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ABSTRACT

Purpose: This paper aims to study the possibility of external debt achieving financial sustainability by learning the most important economic variables affected by external debt and possible scenarios to achieve financial sustainability.

Theoretical framework: The sustainability of external debt is one of the critical issues in economies, especially emerging ones. Establishing structural projects, infrastructure projects, and economic investment is one of the essential factors in achieving financial sustainability. However, Iraq has resorted to external borrowing to confront the economic, political, and security crises represented by the drop in global oil prices.

Design/methodology/approach: The research seeks to explore developments related to Iraq's foreign debt and analyze developments related to financial sustainability in the Iraqi economy. To achieve the research goal, the paper uses an analytical approach by analyzing external debt and economic variables for the period 2004-2021 and interpreting indicators of external debt and financial sustainability in Iraq for the period 2004-2021 using the econometric model.

Findings: The results show that the external debt is not optimally exploited and directed towards consumer spending and imported goods. A few of them are towards projects with low income, which led to the lack of real financial sustainability in the Iraqi economy. Furthermore, the increase in reliance on public borrowing to finance the budget deficit led to a rise in the internal debt, especially in 2020, which means an increase in financial obligations on the state not only abroad but also internally, which made the revenue structure burdened with financial commitments internally and externally, as well as not directing domestic savings to contribute In building the economy and working on its consumption, which prevented the achievement of financial sustainability.

Research, Practical & Social implications: This paper contributes to the search for an alternative standard model capable of effectively explaining the financial sustainability of the external debt in Iraq.

Originality/value: This is one of the first papers that examine the possibility of achieving the financial sustainability of external debt in Iraq using the econometric approach.

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AVALIAÇÃO DA SUSTENTABILIDADE FINANCEIRA DA DÍVIDA EXTERNA NO IRAQUE: UMA ANÁLISE ECONOMÉTRICA

RESUMO

Objetivo: Este trabalho tem como objetivo estudar a possibilidade de a dívida externa alcançar a sustentabilidade financeira, estudando as variáveis econômicas mais importantes que podem ser afetadas pela dívida externa e os possíveis cenários para alcançar a sustentabilidade financeira.

Referencial teórico: A sustentabilidade da dívida externa é uma das questões críticas nas economias, especialmente nas emergentes. Estabelecer projetos estruturais, projetos de infraestrutura e investimento econômico é um dos fatores essenciais para alcançar a sustentabilidade financeira. No entanto, o Iraque recorreu a empréstimos externos para enfrentar as crises econômicas, políticas e de segurança representadas pela queda nos preços globais do petróleo.

Desenho/metodologia/abordagem: A pesquisa procura explorar os desenvolvimentos relacionados a dívidas externas do Iraque e analisar os desenvolvimentos relacionados à sustentabilidade financeira na economia iraquiana. Para atingir a meta de pesquisa, o artigo usa uma abordagem analítica analisando a dívida externa e as variáveis econômicas para o período de 2004-2021, além de analisar os indicadores de dívida externa e sustentabilidade financeira no Iraque para o período de 2004-2021 usando o Modelo de economia padrão.

Resultados: Os resultados mostram que a dívida externa não é usada da maneira ideal e sua orientação para gastos com consumidores e bens importados, e alguns deles para projetos de baixa receita, o que levou à falta de sustentabilidade financeira real na economia iraquiana. O aumento da dependência dos empréstimos gerais no financiamento do déficit orçamentário levou ao aumento da dívida interna, especialmente em 2020, o que significa aumentar as obrigações financeiras no estado não apenas no exterior, mas também o interior, o que fez a estrutura da carga de receita com a financeira financeira com Obrigações interna e externamente, além de não direcionar as economias locais para contribuir para a contribuição na construção da economia e no trabalho para consumi -la, que é um estado sem alcançar a sustentabilidade financeira.

Pesquisa, implicações práticas e sociais: Este artigo contribui para a busca de um modelo padrão alternativo capaz de explicar de forma mais efetiva a sustentabilidade financeira da dívida externa do Iraque.

Originalidade/valor: Este é um dos primeiros trabalhos que examinam a possibilidade de alcançar a sustentabilidade financeira da dívida externa do Iraque usando a abordagem econométrica.

Palavras-chave: Educação Gerencial, Educação executiva, Análise bibliométrica, Gestão e Educação Empresarial.

EVALUACIÓN DE LA SOSTENIBILIDAD FINANCIERA DE LA DEUDA EXTERNA EN IRAK: UN ANÁLISIS ECONOMÉTRICO

RESUMEN

Propósito: Este documento tiene como objetivo estudiar la posibilidad de que la deuda externa logre la sostenibilidad financiera al estudiar las variables económicas más importantes que pueden verse afectadas por la deuda externa y los posibles escenarios para lograr la sostenibilidad financiera.

Metodología: La investigación busca explorar los desarrollos relacionados con las deudas externas de Iraq y analizar los desarrollos relacionados con la sostenibilidad financiera en la economía iraquí. Para lograr el objetivo de investigación, el documento utiliza un enfoque analítico mediante el análisis de la deuda externa y las variables económicas para el período 2004-2021, así como el análisis de los indicadores de deuda externa y sostenibilidad financiera en Irak para el período 2004-2021 utilizando el modelo económico estándar.

Conclusiones: Los resultados muestran que la deuda externa no se usa de la manera óptima y su orientación hacia el gasto de los consumidores y los bienes importados, y algunos de ellos hacia proyectos de bajos ingresos, lo que condujo a la falta de sostenibilidad financiera real en la economía iraquí. El aumento en la dependencia de los préstamos generales en la financiación del déficit presupuestario condujo al aumento de la deuda interna, especialmente en 2020, lo que significa aumentar las obligaciones financieras en el estado no solo en el extranjero, sino también en el interior, lo que hizo la estructura de la carga de ingresos con financiación financiera obligaciones interna y externamente, así como no ordenar los ahorros locales para contribuir a la contribución en la construcción de la economía y trabajar para consumirla, que es un estado sin lograr la sostenibilidad financiera.

Implicaciones de la Investigación:

Este artículo contribuye a la búsqueda de un modelo estándar alternativo capaz de explicar de manera más efectiva la sostenibilidad financiera de la deuda externa en Irak.

Palabras clave: Sostenibilidad financiera, Deuda Pública, Indicadores de Sostenibilidad Financiera.

INTRODUCTION

The sustainability of external debt is one of the essential topics in economies, especially emerging ones (Lin, 2011). Establishing structural projects, infrastructure projects, and economic investment is critical for financial sustainability. Still, Iraq has resorted to external borrowing to confront the economic, political, and security crises represented by the drop in global oil prices (Wray, 2009). The war On terrorism, as well as the spread of the phenomenon of financial and administrative corruption in most parts of the Iraqi state, led to a rise in Iraq's indebtedness, whether internal or external (Alebadi & AlSaadi, 2021). Not a year passed for the Iraqi government after 2003 without borrowing and thus weakening Iraq's ability to achieve financial sustainability because Most of these loans were directed to financing operating expenses. Hence, the research problem lies in the increasing dependence on external debt to finance the operating expenditure deficit from the public budget. Despite the significant increase in oil revenues, the primary source of public revenues has caused an imbalance in the Iraqi economy in which it is difficult to achieve financial sustainability, and this debt has become a burden on the Iraqi economy. The Iraqi economy is due to the increase in interest deduction rates and the installments resulting from it annually, and the possibility of it reaching levels that may be difficult to meet in the future)), from here, the researcher set out his questions:

- What is the impact of external debt on other economic variables?
- Is there a relationship between external debt and financial sustainability?

The continued reliance of public budgets after 2003 on external debt as a source of financing the operating expenditure deficit from the general budget and its failure to direct it to finance investment expenditures has caused an imbalance in the Iraqi economy in which it is difficult to achieve financial sustainability unless this debt is used correctly.

The research seeks to monitor developments related to Iraq's foreign debt and analyze developments related to financial sustainability in the Iraqi economy.

External Debt Analysis and Economic Variables (2004-2021)

Analysis of the general budget, balance sheet, and revenue coverage ratio

Planning the general budget in the Iraqi economy depends on determining expenditures and then achieving revenues to cover them (Mohsin, Ullah, Iqbal, &. Therefore, public borrowing is a primary source of financing the general budget, even though the revenues cover the expenditures. Still, the resort to borrowing has been going on since 2003, and it has not passed General on the government without borrowing, whether internal or external. It is noted

from the table (1) that the percentage of the planned deficit continues to rise, as it rose from (3,249) million dollars in 2004 to (19,592 million dollars in 2010) and then began to decline to reach (9,958) One million dollars in 2014, then fluctuates between rising and fall until it arrived (23,298) million dollars in 2019. In contrast, the revenues were more significant than the actual expenditures, except for some years of study.

Table 1. Estimated and Actual Budgets and Planned Deficits (Million USD)

Years	{1} G.D.P.	Estimated budgets{1}			6,923		Coverage ratio(Abd AL & Salman) Actual revenue The expenses that are on him	Actual budget surplus and deficit	Foreign currency reserves(Mohsin, Ullah, Iqbal, Iqbal, & Taghizadeh-Hesary)	Externa l debt(Kasidi & Said)
		Estimated expenditure	12,107	Planned deficit	Actual expenses	Actual revenue				
2004	32,848	13,797	18,805	-3,249	22,595	21,589	105%	-5,927	6,923	88,788
2005	41,840	24410	31,532	-4,764	27,432	20,916	131%	5,874	12,107	71,280
2006	55,619	36,637	50,305	-4,004	35,266	26,953	131%	5,590	18,805	58,532
2007	88,601	42,503	44,635	-7,939	45,164	32,297	140%	8,706	31,532	58,902
2008	132,795	51,076	50,652	-7,753	68,806	57,403	120%	4,891	50,305	44,452
2009	119,085	59,115	60,785	-16,031	47,217	47,511	99%	-14,495	44,635	44,685
2010	146,971	72,357	69,735	-19,592	59,981	59,942	100%	2,652	50,652	44,653
2011	180,606	82,617	77,270	-13,442	92,997	67,313	138%	21,087	60,785	45,159
2012	210,279	100,456	66,014	-12,697	102,759	90,169	114%	10,600	69,735	43,814
2013	229,327	118,717	53,667	-16,404	97,632	102,166	96%	4,786	77,270	42,803
2014	223,507	120,486	44,928	-9,958	90,383	107,477	84%	17,882	66,014	42,448
2015	162,196	101,067	48,896	-21,500	56,235	71,652	78%	-10,942	53,667	40,757
2016	166,274	89,589	64,312	-20,468	45,188	62,241	73%	-13,156	44,928	39,373
2017	190,874	85,026	67,612	-18,293	65,390	63,757	103%	631	48,896	39,018
2018	212,406	88,120	49,947	-10,587	90,160	68,419	132%	21,740	64,312	38,230
2019	197,661	112,612	63,811	-23,298	77,301	71,955	107%	-3,279	67,612	21,883
2020	129,243	90,584	85,189		33,047	44,375	74%	*	49,947	24,016
2021	143,371	89,650	69,875	-19,775	75,228	70,931	106%	14,629	63,811	20,837

Table prepared by the researcher based on
Federal Budget Law for the period 2004-2021. {1}
Final accounts issued by the Ministry of Finance for the period 2004-2021{2}

Analysis of External debt and economic variables

Although the Iraqi debt has decreased a lot after reactivating the scheduling agreement with the Paris Club countries and outside the Paris Club and implementing the support and support agreement with the International Monetary Fund (Kadhim & Hussein, 2022; Mohsin et al., 2021), it resulted in reducing the debt to (44,452) million dollars in 2008 after it was estimated at (88,788) billion dollars in 2004, but the budget deficit amounted to (-5,927) million dollars, although the total expenditures were (21.589) million dollars and the total revenues were (22.595 million dollars) (1), but the crises, whether internal or international, had a direct impact On the Iraqi economy, despite the rise in gross domestic product from (32,848) billion dollars in 2004 to (119,085) million dollars, total revenues to (47,217) million dollars, total expenditures to (47,511) million dollars, and foreign currency reserves to (44,635) million dollars, but the external debt rose to (44,685) million dollars in 2009, then to (45,159) billion dollars in 2011, and then began to decline until it reached (21,883) million dollars in the year 2019 and then increased to (24,016) million dollars in 2020 after the significant decline in oil revenues as a result The collapse of world oil prices and the global economic recession as a result of the outbreak of the Corona pandemic (Covid 19), then it decreased to (20,837) million dollars in 2021 as shown in table (1).

We note that the Iraqi economy suffers from a lack of accurate financial sustainability for the following reasons: -

- The external public debt is high due to the policies adopted in planning the state's general budget and the non-direction of external debt to development and infrastructure projects.
- External debt services and the non-investment of external debt in infrastructure projects and investment projects constitutes a burden on the gross domestic product, which has led to the mortgaging of the Iraqi economy with necessary amounts and debt service for the coming years as a result of the lack of sustainability of external debt.
- The structure of public revenues depends on more than (90%) of uncontrolled revenues, which affects the revenue structure by oil prices and quantities, and the weakness of tax revenues as a result of the weakness of the technical tax apparatus.
- The structure of public expenditures is uncontrolled due to the government's expansionary spending policies and the direct spending to operational spending (salaries, wages...etc.), and weak investment and structural spending, which led to a state of sustainability.

- The value of Iraqi exports is linked primarily to two main factors, oil prices in international markets and the quantities of oil that result from OPEC's laws and regulations, which means the absence of financial sustainability.
- The failure to control the specified spending in the state's general budget, the transgression of the specific allocations and their payment (salaries and wages) to workers in the public sector, and the impact of local and global crises all of which made the Iraqi economy suffer from a lack of financial sustainability.

Indicators of External Debt and Financial Sustainability in Iraq (2004-2021)

We note from the table (2) that the external debt sustainability indicators in the Iraqi economy are high due to the high external debt and fluctuation of economic variables due to the rise and fall in oil prices and exported quantities. The ratio of external debt to G.D.P. reached (270%), and the ratio of external debt to total revenues (was 393). %), the ratio of external debt to total expenditures (411%), the ratio of external debt to exports (432%), the ratio of external debt to foreign currency reserves (1283%), and the ratio of external debt to the budget surplus or deficit (-1498%). In 2004, the ratio of external debt to G.D.P. was then reduced (33%), external debt to total revenue ratio (65%), external debt to total expenditures (77%), and external debt to exports (70%), And the ratio of external debt to foreign currency reserves (88%), and the ratio of external debt to the budget surplus or deficit (909%) in 2008, so that the ratio of external debt to G.D.P. recurred (38%), and the ratio of external debt to total revenues (95%), the ratio of external debt to total expenditures (94%), and n The ratio of external debt to exports (113%), the ratio of external debt to foreign currency reserves (100%), and the ratio of external debt to budget surplus or deficit (-308%) in 2009, to decrease once again the ratio of external debt to G.D.P. (19%), the ratio of external debt to total revenues (44%), the ratio of external debt to total expenditures (42%), the ratio of external debt to exports (47%), and the ratio of external debt to foreign currency reserves (55%), The ratio of external debt to the budget surplus or deficit (894%) in 2013, then the ratio of external debt to G.D.P. increased (25%), the ratio of external debt to total revenues (72%), and the ratio of external debt to total expenditures (57%). The ratio of external debt to exports (79%), the ratio of external debt to foreign currency reserves (76%), and the ratio of external debt to budget surplus or deficit (-372%) in 2015, then the ratio of external debt to output declined again. The gross domestic product (15%), the ratio of external debt to total revenues (28%), the ratio of external debt to total expenditures (29%), and the ratio of external debt to exports (29%), the ratio of external debt to foreign currency reserves (33%), and the ratio of external debt to the budget surplus or deficit (142%) in 2021.

Table 1. External Debt Indicators on Economic Variables for the Period 2004-2021

Years	ED GDP	ED T.R	ED T.E	ED T. export	ED F.E.R	ED B.S.D
2004	270%	393%	411%	432%	1283%	-1498%
2005	170%	260%	341%	301%	589%	1213%
2006	105%	166%	217%	192%	311%	1047%
2007	66%	130%	182%	149%	187%	677%
2008	33%	65%	77%	70%	88%	909%
2009	38%	95%	94%	113%	100%	-308%
2010	30%	74%	74%	86%	88%	1684%
2011	25%	49%	67%	57%	74%	214%
2012	21%	43%	49%	47%	63%	413%
2013	19%	44%	42%	47%	55%	894%
2014	19%	47%	39%	50%	64%	237%
2015	25%	72%	57%	79%	76%	-372%
2016	24%	87%	63%	95%	88%	-299%
2017	20%	60%	61%	68%	80%	6184%
2018	18%	42%	56%	44%	59%	176%
2019	11%	28%	30%	27%	32%	-667%
2020	19%	73%	54%	51%	48%	*
2021	15%	28%	29%	29%	33%	142%

Table from the preparation of the researcher based on the data of table (1)
* No surplus or deficit

We note that the indicators of external debt and financial sustainability in the Iraqi economy are related to the following: -

• The external debt to G.D.P. indicator is the most critical indicator for its ease of use and simplicity. The indicator expresses the degree of external debt to the country's economic activities, showing the government's ability and the extent of its ability to bear the burdens of external debt and the possibility of meeting it. The gross domestic product (G.D.P.) is one of the variables. The main thing that expresses the strength of the country's economy and the relationship between G.D.P. and external debt and its interest rate is an inverse relationship.

The higher the G.D.P., the lower the external debt ratio. The lower the G.D.P., the higher the external debt ratio to it, in addition to the fact that the rise in the interest rate leads to a cut Amounts more significant than the increase in the gross domestic product, which means a lack of financial resources that can be directed to new areas of production and a decline in the national economy (2).

• The indicator of external debt to revenues is related to an inverse relationship. The higher the revenues, the lower the ratio of external debt to revenues, the basis of which is oil revenues. It is noted that the coverage ratio of external debt to public revenues fluctuates due to the fluctuation of oil revenues as a result of instability in international oil prices, which constitute more than 90% of The total revenues, and the commitment of the Iraqi government to pay its financial obligations (interests and debt installments) towards external creditors in

their specified timing is what brought the total external debt to (20,837) million dollars in 2021 after it was (88,788) million dollars in 2004.

• The application of the external debt measurement indicator to total expenditures in Iraq, which expresses the level of debt consumption as a percentage of expenditures and indicates that the financing of external debt costs is through another debt, as the high ratio suggests the government's continued dependence on debt to finance its expenditures This indicator expresses the level of debt strength in the overall expenditure structure (3). The reason for the fluctuation in the ratio of the external debt measurement index for public expenditures in Iraq for the period 2004-2021 is due to more than one reason, the most important of which is Iraq's success in implementing the Paris Club Agreement, which enabled Iraq to write off more than 80% of its external debts and Iraq's commitment and continuity to pay the interests and installments of the external debt In its specific timings, except for the year 2015 because Iraq is preoccupied with fighting terrorism and liberating the occupied governorates with the support of international financial institutions, especially the International Monetary Fund, and that the increase in the ratio of external debt to public expenditures in some years is due to the decrease in the volume of public spending due to the impact of the Iraqi economy on global crises, and the adoption of austerity policies and orientation Towards internal borrowing from local sources.

• The external debt to exports index measures the state's ability to meet its financial obligations. This indicator is based on exports that significantly impact the economic development process. The larger the volume of national exports, the higher the country's balance of hard currencies and the increase in its foreign reserves. As a result, the state is in an advanced position in the global markets. The relationship between exports and external debt is an inverse relationship. The higher the exports, the higher the state's ability to cover its financial obligations owed by it from the external debt and vice versa. When exports are low, this indicates high indebtedness and low revenues from foreign currencies, which exposes The government to difficulty meeting its financial obligations to creditors (4).

• The external weakness index, one of the critical economic indicators, shows the possibility of paying the cost of the external debt. The decrease in the ratio of external debt to reserves of foreign currencies means a more remarkable ability to bear the premiums and interests of external debt. The ratio of external debt to foreign currency reserves is linked to an inverse relationship. The lower the reserves or, the higher the external debt, the higher the external debt index to the foreign currency reserve, and the foreign currency reserves with the

Central Bank of Iraq are affected by the sale of the currency window to banks and exchange offices.

• The indicator of the external debt to the surplus or deficit in the general budget is one of the critical indicators in the economy, as the surplus value represents what increases the external debt. In contrast, the deficit represents additional burdens for external debt.

The standard model used

Standard Model Variables

Table 2. Economic variables

Variable	Variable code	Variable Type
External debt	External Debt	**Independent**
External Debt to G.D.P.	External debt to G.D.P.	**adherent**
External debt to revenues	External debt to revenue	**adherent**
External Debt to Expenditure	External debt to Expenses	**adherent**
External Debt to Exports	External debt to Exports	**adherent**
External debt to foreign currency reserves	External debt to foreign currency reserves	**adherent**
Budget surplus or deficit	budget surplus or deficit	**adherent**

Stability of time series

Through tables (4) and (5), we find that all the model variables stabilized at the level and at a significant level that ranged between (0.05 - 0.01), whether with categorical or categorical and directional or without categorical and direction.

Table 3. Time series stability results (EXTERNAL_DEBT_TO_GDP, EXTERNAL_DEBT_TO_REVENUE) TAX_GAP_INDEX,)BUDGET_SURPLUS_OR_DEFICIT)

UNIT ROOT TEST RESULTS (A.D.F.)					
Null Hypothesis: the variable has a unit root					
	At Level				
		EXTERNAL_DEBT_TO_GDP	EXTERNAL_DEBT_TO_REVENUE	TAX_GAP_INDEX	BUDGET_SURPLUS_OR_DEFICIT
With Constant	t-Statistic	-20.3227	-7.2587	-3.9228	-5.2761
	Prob.	***0.0000***	***0.0000***	***0.0093***	***0.0007***
		***	***	***	***
With Constant & Trend	t-Statistic	-13.7349	-5.5807	-3.4861	-4.3001
	Prob.	***0.0001***	***0.0018***	***0.0777***	***0.0189***
		***	***	*	**
Without Constant & Trend	t-Statistic	-16.1508	-6.6142	-1.4233	-4.1436
	Prob.	***0.0001***	***0.0000***	***0.1389***	***0.0004***
		***	***	n0	***
	At First Difference				

		d(EXTERNAL_DEBT_TO_GDP)	d(EXTERNAL_DEBT_TO_REVENUE)	d(TAX_GAP_INDEX)	d(BUDGET_SURPLUS_OR_DEFICIT)
With Constant	t-Statistic	-5.2309	-3.6477	-2.7074	-5.5598
	Prob.	***0.0008***	***0.0169***	***0.0972***	***0.0005***
		***	**	*	***
With Constant & Trend	t-Statistic	-3.5517	-3.2542	-2.7267	-5.3523
	Prob.	***0.0677***	***0.1093***	***0.2421***	***0.0036***
		*	n0	n0	***
Without Constant & Trend	t-Statistic	-6.0397	-3.6203	-2.9701	-5.7901
	Prob.	***0.0000***	***0.0013***	***0.0061***	***0.0000***
		***	***	***	***
Notes:					
b: Lag Length based on SIC					
Source: EVIEWS 12 Programming Package Outputs					

Table 4. Time series stability results (EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES)

UNIT ROOT TEST RESULTS TABLE (A.D.F.)					
Null Hypothesis: the variable has a unit root					
	At Level				
		EXTERNAL_DEBT	EXTERNAL_DEBT_TO_EXPENSES	EXTERNAL_DEBT_TO_EXPORTS	EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES
With Constant	t-Statistic	-3.1165	-6.9483	-4.8601	-40.6924
	Prob.	***0.0444***	***0.0001***	***0.0019***	***0.0000***
		**	***	***	***
With Constant & Trend	t-Statistic	-1.7977	-6.7554	-4.3756	-34.4557
	Prob.	***0.6546***	***0.0005***	***0.0154***	***0.0001***
		n0	***	**	***
Without Constant & Trend	t-Statistic	-3.6157	-0.7963	-4.8839	-21.7890
	Prob.	***0.0012***	***0.3561***	***0.0001***	***0.0001***
		***	n0	***	***
	At First Difference				
		d(EXTERNAL_DEBT)	d(EXTERNAL_DEBT_TO_EXPENSES)	d(EXTERNAL_DEBT_TO_EXPORTS)	d(EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES)
With Constant	t-Statistic	-4.5211	-3.4750	-3.5551	-17.9191
	Prob.	***0.0032***	***0.0234***	***0.0212***	***0.0000***

		***	**	**	***
With Constant & Trend	t-Statistic	-4.3639	-3.6481	-3.2990	-13.6239
	Prob.	***0.0170***	***0.0577***	***0.1042***	***0.0001***
		**	*	n0	***
Without Constant & Trend	t-Statistic	-3.8635	-3.5896	-3.9421	-19.7236
	Prob.	***0.0007***	***0.0014***	***0.0006***	***0.0001***
		***	***	***	***
Notes:					
b: Lag Length based on SIC					
Source: EVIEWS 12 Programming Package Outputs					

Vector autoregression (V.A.R.)

V.A.R. Lag Order Selection

To estimate the autoregressive vector model, we must first choose the optimal time lag through the V.A.R. Lag Order Selection Criteria test, which depends on the Akaike information criterion, Schwarz information criterion, and Hannan-Quinn information criterion). All these criteria agreed on the period of the second slowdown, as shown in table (6).

Table 5. Results of Choosing the Optimal Time Deceleration for the Self-Regression Tracer Model (V.A.R.)

V.A.R. Lag Order Selection Criteria						
Endogenous variables: EXTERNAL_DEBT EXTERNAL_DEBT_TO_EXPENSES EXTERNAL_DEBT_TO_EXPORTS EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES EXTERNAL_DEBT_TO_GDP EXTERNAL_DEBT_TO_REVENUE TAX_GAP_INDEX BUDGET_SURPLUS_OR_DEFICIT						
Exogenous variables: C						
Date: 07/08/22 Time: 09:36						
Sample: 2004Q1 2021Q4						
Included observations: 66						
Was	LogL	LR	FPE	AIC	SC	HQ
0	-699.8987	On	0.286069	21.45147	21.71689	21.55635
1	159.5808	1484.555	9.85e-12	-2.653963	-0.265249	-1.710068
2	331.3279	255.018*	4.08e-1*	-5.91902*	-1.40701*	-4.13611*
3	371.5988	50.03357	1.05e-12	-5.199963	1.435354	-2.578034
* Indicates lag order selected by the criterion						
L.R.: sequential modified L.R. test statistic (each test at 5% level)						
F.P.E.: Final prediction error						
A.I.C.: Akaike information criterion						
SC: Schwarz information criterion						
H.Q.: Hannan-Quinn information criterion						
Source: EVIEWS 12 Programming Package Outputs						

Self-regression (V.A.R.)

After choosing the optimal time deceleration, we estimate the autoregressive vector model, which is an input to the error correction model. Table (7) shows the results of the autoregressive vector model.

Table 6. Autoregressive vector model (V.A.R.) results.

Vector Autoregression Estimates								
Date: 07/08/22 Time: 09:36								
Sample (adjusted): 2004Q3 2021Q1								
Included observations: 67 after adjustments								
Standard errors in ( ) & t-statistics in [ ]								
	EXTERNAL_DEBT	EXTERNAL_DEBT_TO_EXPENSES	EXTERNAL_DEBT_TO_EXPORTS	EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES	EXTERNAL_DEBT_TO_GDP	EXTERNAL_DEBT_TO_REVENUE	TAX_GAP_INDEX	BUDGET_SURPLUS_OR_DEFICIT
EXTERNAL_DEBT(-1)	1.482889	-7.41E-07	6.55E-06	-6.85E-06	-1.26E-06	-8.22E-06	3.09E-06	0.000859
	(0.14509)	(5.8E-06)	(1.0E-05)	(1.5E-05)	(2.2E-06)	(7.1E-06)	(1.5E-06)	(0.00060)
	[10.2207]	[-0.12744]	[0.64502]	[-0.46091]	[-0.5825]	[-1.16077]	[2.04640]	[1.43807]
EXTERNAL_DEBT(-2)	-0.581057	2.49E-06	-9.27E-06	5.12E-06	2.26E-08	4.37E-06	-2.48E-06	-0.000727
	(0.14775)	(5.9E-06)	(1.0E-05)	(1.5E-05)	(2.2E-0)	(7.2E-06)	(1.5E-06)	(0.00061)
	[-3.93279]	[0.42097]	[-0.89705]	[0.33817]	[0.0102]	[0.60657]	[-1.61346]	[-1.19494]
EXTERNAL_DEBT_TO_EXPENSES(-1)	1772.411	1.597672	0.268308	0.013246	0.04778	0.209569	-0.014514	1.557849
	(2413.95)	(0.09670)	(0.16888)	(0.24728)	(0.0359)	(0.11780)	(0.02509)	(9.93383)
	[0.73424]	[16.5222]	[1.58874]	[0.05357]	[1.3309]	[1.77907]	[-0.57836]	[0.15682]
EXTERNAL_DEBT_TO_EXPENSES(-2)	1554.878	-0.714571	-0.023971	0.122558	0.00557	-0.079423	-0.005264	-0.832873
	(2420.09)	(0.09694)	(0.16931)	(0.24790)	(0.0360)	(0.11810)	(0.02516)	(9.95909)
	[0.64249]	[-7.37096]	[-0.14158]	[0.49438]	[0.1548]	[-0.67252]	[-0.20923]	[-0.08363]
EXTERNAL_DEBT_TO_EXPO	382.0028	0.090765	1.669790	0.029360	0.03741	0.120235	-0.010587	3.436964

RTS(-1)								
	(2284.67)	(0.09152)	(0.15984)	(0.23403)	(0.0339)	(0.11149)	(0.02375)	(9.40179)
	[0.16720]	[0.99176]	[10.4468]	[0.12545]	[1.1009]	[1.07845]	[-0.44577]	[0.36556]
EXTERNAL_DEBT_TO_EXPORTS(-2)	-1549.032	-0.015168	-1.044871	-0.103272	-0.05210	-0.122750	0.014121	-17.34789
	(2402.40)	(0.09624)	(0.16807)	(0.24609)	(0.0357)	(0.11723)	(0.02497)	(9.88628)
	[-0.64479]	[-0.15761]	[-6.21675]	[-0.41965]	[-1.4581]	[-1.04706]	[0.56541]	[-1.75474]
EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES(-1)	3451.094	0.043996	0.203754	1.004987	0.01267	0.180075	-0.068371	0.446839
	(2164.37)	(0.08670)	(0.15142)	(0.22171)	(0.0321)	(0.10562)	(0.02250)	(8.90677)
	[1.59450]	[0.50745]	[1.34561]	[4.53290]	[0.3936]	[1.70496]	[-3.03869]	[0.05017]
EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES(-2)	-3681.461	-0.014464	-0.204574	-0.234044	-0.01505	-0.166053	0.058837	-1.425286
	(1774.25)	(0.07107)	(0.12413)	(0.18175)	(0.0263)	(0.08658)	(0.01844)	(7.30136)
	[-2.07493]	[-0.20351]	[-1.64809]	[-1.28775]	[-0.5705]	[-1.91789]	[3.18997]	[-0.19521]
EXTERNAL_DEBT_TO_GDP(-1)	-44892.83	-0.650392	-4.136291	-0.571619	0.65338	-2.245369	0.403009	-5.087173
	(26214.1)	(1.05009)	(1.83396)	(2.68526)	(0.38991)	(1.27921)	(0.27251)	(107.875)
	[-1.71255]	[-0.61937]	[-2.25539]	[-0.21287]	[1.67576]	[-1.75528]	[1.47887]	[-0.04716]
EXTERNAL_DEBT_T	49186.87	0.205319	4.646322	0.981952	0.31724	2.421321	-0.396952	17.82839

O_GDP(-2)								
	(23413.9)	(0.93791)	(1.63805)	(2.39842)	(0.3482)	(1.14256)	(0.24340)	(96.3521)
	[2.10076]	[0.21891]	[2.83650]	[0.40942]	[0.9109]	[2.11921]	[-1.63085]	[0.18503]
EXTERNAL_DEBT_TO_REVENUE(-1)	4553.139	0.052609	0.518922	0.228186	0.090260	1.546330	-0.013916	-6.525830
	(5552.92)	(0.22244)	(0.38849)	(0.56882)	(0.08259)	(0.27097)	(0.05773)	(22.8512)
	[0.81995]	[0.23651]	[1.33576]	[0.40116]	[1.0928]	[5.70656]	[-0.24107]	[-0.28558]
EXTERNAL_DEBT_TO_REVENUE(-2)	-6553.337	0.028318	-0.586307	-0.231015	-0.11975	-0.827430	0.030033	17.31379
	(4863.65)	(0.19483)	(0.34026)	(0.49821)	(0.0723)	(0.23734)	(0.05056)	(20.0148)
	[-1.34741]	[0.14535]	[-1.72309]	[-0.46369]	[-1.6554]	[-3.48628]	[0.59400]	[0.86505]
TAX_GAP_INDEX(-1)	-12246.18	-0.237758	0.573622	-1.380188	-0.24782	-1.778708	1.922989	24.25980
	(15383.3)	(0.61622)	(1.07622)	(1.57580)	(0.2288)	(0.75068)	(0.15992)	(63.3048)
	[-0.79607]	[-0.38583]	[0.53300]	[-0.87587]	[-1.0831]	[-2.36946]	[12.0248]	[0.38322]
TAX_GAP_INDEX(-2)	27098.66	0.156703	-0.138608	2.028481	0.44397	2.290659	-1.055347	-49.62540
	(15937.2)	(0.63841)	(1.11498)	(1.63254)	(0.2370)	(0.77771)	(0.16568)	(65.5843)
	[1.70034]	[0.24546]	[-0.12432]	[1.24253]	[1.8729]	[2.94538]	[-6.36989]	[-0.75667]
BUDGET_SURPLUS_OR_DEFICIT(-1)	22.21021	-0.000208	-0.004066	0.000305	-0.00027	-0.000365	-3.57E-05	1.254073
	(32.1628)	(0.00129)	(0.00225)	(0.00329)	(0.0004)	(0.00157)	(0.00033)	(0.13236)
	[0.69056]	[-0.16127]	[-1.80691]	[0.09250]	[-0.5714]	[-0.23237]	[-0.10665]	[9.47504]
BUDGET_SURPLUS_OR_DEFICIT(-2)	9.453909	-0.000500	0.004303	0.000677	0.00054	0.000515	-0.000193	-0.566239
	(31.4807)	(0.00126)	(0.00220)	(0.00322)	(0.0004)	(0.00154)	(0.00033)	(0.12955)
	[0.30031]	[-0.39663]	[1.95393]	[0.20984]	[1.1727]	[0.33509]	[-0.59027]	[-4.37087]
C	-3186.501	0.019327	-0.074372	-0.167141	-0.02828	-0.012538	0.035066	5.843380
	(1505.72)	(0.06032)	(0.10534)	(0.15424)	(0.0224)	(0.07348)	(0.01565)	(6.19632)

	[-2.11626]	[0.32043]	[-0.70601]	[-1.08365]	[-1.2629]	[-0.17063]	[2.24023]	[0.94304]
R-squared	0.996310	0.984610	0.994933	0.997789	0.99933	0.996265	0.983393	0.928489
Adj. R-squared	0.995129	0.979685	0.993312	0.997082	0.99912	0.995070	0.978079	0.905605
Sum sq. resides	39585138	0.063520	0.193749	0.415370	0.00875	0.094264	0.004278	670.3597
S.E. equation	889.7768	0.035643	0.062249	0.091145	0.01323	0.043420	0.009250	3.661584
F-statistic	843.7822	199.9235	613.6220	1410.406	4718.59	833.6287	185.0486	40.57440
Log-likelihood	-540.2595	138.1276	100.7682	75.22095	204.506	124.9039	228.5069	-172.2235
Akaike AIC	16.63461	-3.615750	-2.500544	-1.737939	-5.59719	-3.221012	-6.313639	5.648462
Black SC	17.19401	-3.056351	-1.941144	-1.178539	-5.03779	-2.661613	-5.754240	6.207861
Mean dependent	43296.77	0.472378	0.872993	1.329067	0.41335	0.837612	0.388060	7.936888
S.D. dependent	12749.32	0.250068	0.761161	1.687226	0.44775	0.618406	0.062474	11.91776
Determinant resid covariance (of adj.)		9.06E-14						
Determinant resid covariance		8.71E-15						
Log-likelihood		323.9803						
Akaike information criterion		-5.611353						
Schwarz criterion		-1.136156						
Number of coefficients		136						
Source: EVIEWS 12 Programming Package Outputs								

Joint Integration Test

The co-integration test depends on two sub-tests, the Trace test, and the Maximum Eigenvalue test. This is because, through Table (8), it is clear that their statistical values were more significant than their critical values, so we acknowledge the existence of co-integration.

Table 8. Results of the Joint Integration Test

Date: 07/08/22 Time: 10:42				
Sample (adjusted): 2004Q4 2021Q1				
Included observations: 66 after adjustments				
Trend assumption: Linear deterministic trend				
Series: EXTERNAL_DEBT EXTERNAL_DEBT_TO_EXPENSES EXTERNAL_DEBT_TO_EXPORTS EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES EXTERNAL_DEBT_TO_GDP EXTERNAL_DEBT_TO_REVENUE TAX_GAP_INDEX BUDGET_SURPLUS_OR_DEFICIT				
Lags interval (in first differences): 1 to 2				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of C.E. (s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.744319	334.9594	159.5297	0.0000
At most 1 *	0.704702	244.9470	125.6154	0.0000
At most 2 *	0.612364	164.4421	95.75366	0.0000
At most, 3 *	0.430158	101.8946	69.81889	0.0000
At most 4 *	0.410617	64.77641	47.85613	0.0006
At most 5 *	0.236666	29.88362	29.79707	0.0489
At most 6	0.155742	12.05967	15.49471	0.1541
At most 7	0.013336	0.886075	3.841465	0.3465
The trace test indicates 6 cointegrating eqn(s) at the 0.05 level				
* Denotes rejection of the Hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Own	0.05	
No. of C.E. (s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.744319	90.01233	52.36261	0.0000
At most 1 *	0.704702	80.50491	46.23142	0.0000
At most 2 *	0.612364	62.54753	40.07757	0.0000
At most, 3 *	0.430158	37.11819	33.87687	0.0198
At most 4 *	0.410617	34.89279	27.58434	0.0048
At most 5	0.236666	17.82395	21.13162	0.1366
At most 6	0.155742	11.17360	14.26460	0.1457
At most 7	0.013336	0.886075	3.841465	0.3465
Max-eigenvalue test indicates 5 cointegrating eqn(s) at the 0.05 level				
* Denotes rejection of the Hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Source: EVIEWS 12 Programming Package Outputs				

Diagnostic test

Autocorrelation test

To test that the model is free from the autocorrelation problem, the probability value (Prob.) must be greater than (0.05), and table (9) of the results of the autocorrelation test shows that the probability value was (0.6785), which is greater than (0.05), Therefore, the model does not suffer from the problem of autocorrelation.

Table 9. Self-correlation test results

V.A.R. Residual Serial Correlation L.M. Tests						
Date: 07/08/22 Time: 10:43						
Sample: 2004Q1 2021Q4						
Included observations: 67						
Null Hypothesis: No serial correlation at lag h						
Was	L.R.E.* stat	Df	Prob.	Rao F-stat	df	Prob.
1	58.59583	64	0.6673	0.903008	(64, 208.4)	0.6785
2	25.98216	64	1.0000	0.373287	(64, 208.4)	1.0000
Source: EVIEWS 12 Programming Package Outputs						

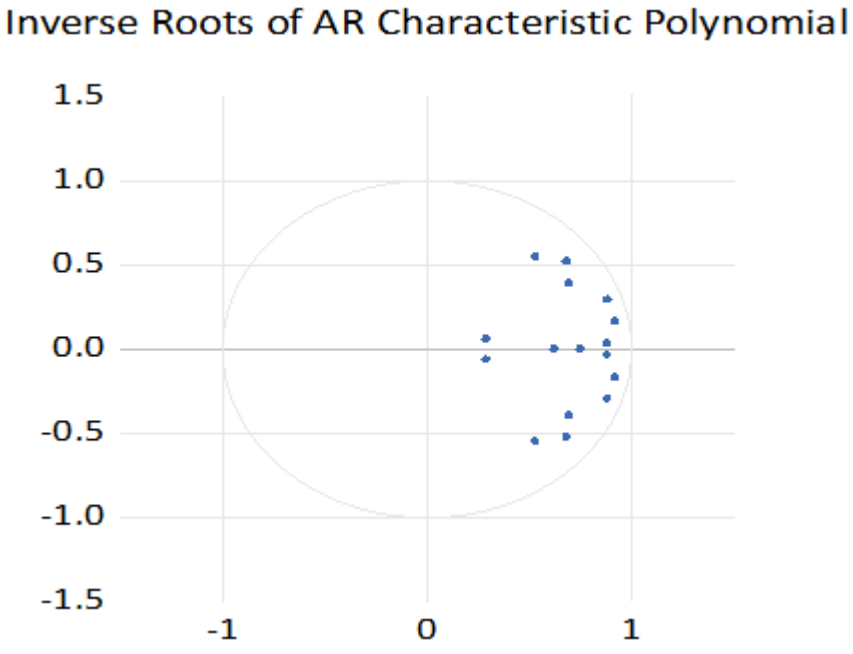
Contrast homogeneity stability test

To test that the model is free from the problem of heteroskedasticity, the probability value (Prob.) must be less than (0.05), and the table (10) for the results of the heterogeneity stability test shows that the probability value is (0.000) which is less than (0.05). So the model does not suffer from the inconsistency of homogeneity of variance, and its conflict is homogeneous (Homoskedasticity). Table (10) results of the variance homogeneity stability test.

The stability test of the model as a whole

From Figure (1), we notice that all points are located within the unit circle, and all roots contain a coefficient less than (1), which means that the model is stable.

Figure 1. Stability of the Model as a whole



Error Correction Model

After discovering a co-integration relationship through the V.A.R. model, the model must be estimated according to the E.C.M. error correction model. It is necessary to evaluate the error-correction model to analyze and diagnose the coefficient of speed modification of the relationship, as this coefficient confirms the existence of a co-integration relationship between the variables if there are two primary conditions. They are harmful and significant to this coefficient.

From Table (11), it is noted that the error correction parameter amounted to (-0.05956), which means that (0.06) of the short-term errors can be fixed with one unit of time to reach the state of equilibrium in the long-term, and by dividing (1) by (0.05) the result is (16.7). Therefore, since our observations are chapters, we need seventeen chapters (four years and a quarter of the year) to correct all the errors of economic policies related to debt and return the economy to equilibrium.

As for the sub-policies, we note the following:

7.1. External debt to G.D.P.: The adjustment speed parameter is (-0.02354), which is significant and negative according to the logic of economic measurement. It means that we need 42 chapters (eight years) to be able to reform the foreign debt policy to G.D.P. and return the economy to a state of equilibrium (Sharaf, 2021).

7.2. External Debt to Revenue: The adjustment speed parameter is (-0.02132), which is significant and negative according to the logic of economic measurement (Kasidi & Said, 2013). We need 47 chapters (about twelve years) to reform the foreign debt policy to revenue and return the economy to equilibrium.

7.3. External Debt to Expenditures: The adjustment speed parameter is (-0.075561), which is significant and negative according to the logic of economic measurement. It means that we need 13 chapters (three years) to be able to reform the external debt policy to expenditures and return the economy to a state of equilibrium.

7.4. External debt to exports: The parameter of the adjustment speed is (-0.01562), which is significant and negative according to the logic of economic measurement. It means that we need 64 chapters (sixteen years) to be able to reform the foreign debt policy to exports and return the economy to a state of equilibrium.

7.5. External debt to foreign currency reserves: The adjustment speed parameter is (-0.01426), which is significant and negative according to the logic of economic measurement. We need 70 chapters (seventeen years) to reform the foreign debt to foreign currency reserve policy and return the economy to equilibrium.

7.6. Tax Gap Index: The adjustment speed parameter is (-0.02081), which is significant and negative according to the logic of economic measurement. It means that we need 48 chapters (twelve years) to be able to fix the policy of the tax gap indicator and return the economy to a state of equilibrium.

7.7. Budget surplus or deficit: The adjustment speed parameter has reached (-0.06691), which is significant and negative according to the logic of economic measurement. We need 14 chapters (three years and three chapters) to fix the budget surplus or deficit policy and return the economy to equilibrium.

Table 7. Error Correction Model Results

Vector Error Correction Estimates								
Date: 07/08/22 Time: 10:44								
Sample (adjusted): 2004Q4 2021Q1								
Included observations: 66 after adjustments								
Standard errors in ( ) & t-statistics in [ ]								
Cointegrating Eq:	CointEq1							
EXTERNAL_DEBT(-1)	1.000000							
EXTERNAL_DEBT_TO_EXPENSES(-1)	-9049.121							
	(20507.4)							
	[-0.44126]							
EXTERNAL_DEBT_TO_EXPORTS(-1)	-17994.89							
	(27583.9)							
	[-0.65237]							
EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES(-1)	-122427.0							
	(14777.9)							
	[-8.28445]							
EXTERNAL_DEBT_TO_GDP(-1)	192039.4							
	(121051.)							
	[1.58643]							
EXTERNAL_DEBT_TO_REVENUE(-1)	79490.55							
	(45099.8)							
	[1.76255]							
TAX_GAP_INDEX(-1)	94969.09							
	(73591.8)							
	[1.29049]							
BUDGET_SURPLUS_OR_DEFICIT(-1)	630.5442							
	(399.255)							
	[1.57930]							
C	-48164.00							
Error Correction:	D(EXTERNAL_DEBT)	D(EXTERNAL_DEBT_TO_EXPENSES)	D(EXTERNAL_DEBT_TO_EXPORTS)	D(EXTERNAL_DEBT_TO_FOREIG	D(EXTERNAL_DEBT_TO_GDP)	D(EXTERNAL_DEBT_TO_R	D(TAX_GAP_INDEX)	D(BUDGET_SURPLUS_OR_DEFICIT)

				N_CURRENCY_RESERVES)		EVENUE)		
CointEq1	-0.05956	- 0. 075561	-0.01562	- 0.01426	- 0.02354	- 0.02132	- 0.020 81	-0.06691
	(0.00518)	(2.0E-07)	(3.9E-07)	(3.8E-07)	(7.8E-08)	(2.7E-07)	(5.1E-08)	(2.4E-05)
	[1.14966]	[0.12602]	[0.57321]	[9.71736]	[4.32507]	[1.24126]	[2.075 78]	[-1.24472]
D(EXTERNAL_DEBT(-1))	0.743753	-3.28E-06	-6.05E-07	-7.43E-06	-1.20E-06	-2.79E-06	7.07E-07	0.000251
	(0.22251)	(8.5E-06)	(1.7E-05)	(1.6E-05)	(3.4E-06)	(1.1E-05)	(2.2E-06)	(0.00103)
	[3.34255]	[-0.38798]	[-0.03577]	[- 0.45131]	[- 0.35687]	[- 0.24403]	[0.321 97]	[0.24307]
D(EXTERNAL_DEBT(-2))	-0.238157	-2.29E-06	-1.02E-05	-1.81E-05	-3.36E-06	-1.29E-05	7.86E-07	-0.000767
	(0.22536)	(8.6E-06)	(1.7E-05)	(1.7E-05)	(3.4E-06)	(1.2E-05)	(2.2E-06)	(0.00105)
	[-1.05677]	[-0.26724]	[-0.59506]	[- 1.08422]	[- 0.98797]	[- 1.11068]	[0.353 67]	[-0.73319]
D(EXTERNAL_DEBT_TO_EXPENSES(-1))	-908.1517	0.738530	0.005130	- 0.167816	- 0.005706	0.012206	- 0.007 048	1.699151
	(3999.81)	(0.15198)	(0.30400)	(0.29608)	(0.06037)	(0.20535)	(0.03 946)	(18.5658)
	[-0.22705]	[4.85930]	[0.01688]	[- 0.56679]	[- 0.09452]	[0.05944]	[- 0.178 60]	[0.09152]
D(EXTERNAL_DEBT_TO_EXPENSES(-2))	-122.8579	-0.127639	0.036227	- 0.077487	0.007820	- 0.004328	- 0.003 922	-6.510733
	(3740.12)	(0.14212)	(0.28427)	(0.27686)	(0.05645)	(0.19202)	(0.03 690)	(17.3604)
	[-0.03285]	[-0.89814]	[0.12744]	[- 0.27988]	[0.13853]	[- 0.02254]	[- 0.106 28]	[-0.37503]
D(EXTERNAL_DEBT_TO_EXPORTS(-1))	-269.2054	-0.014536	0.755341	- 0.063922	- 0.001717	0.009138	- 0.001 110	-0.189483
	(3289.02)	(0.12497)	(0.24998)	(0.24347)	(0.04964)	(0.16886)	(0.03 245)	(15.2665)
	[-0.08185]	[-0.11631]	[3.02160]	[- 0.26255]	[- 0.03459]	[0.05412]	[- 0.034 20]	[-0.01241]
D(EXTERNAL_DEBT_TO_EXPORTS(-2))	-1204.349	0.069357	-0.340595	- 0.068015	- 0.021083	0.023752	0.003 231	-14.71519
	(3252.13)	(0.12357)	(0.24718)	(0.24074)	(0.04908)	(0.16696)	(0.03 209)	(15.0953)
	[-0.37033]	[0.56126]	[-1.37794]	[- 0.28253]	[- 0.42954]	[0.14226]	[0.100 70]	[-0.97482]
D(EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES(-1))	-674.5299	-0.027809	-0.043176	- 0.098279	- 0.071528	- 0.045086	- 0.037 438	6.279916
	(2865.81)	(0.10889)	(0.21782)	(0.21214)	(0.04325)	(0.14713)	(0.02 827)	(13.3022)
	[-0.23537]	[-0.25537]	[-0.19822]	[- 0.46328]	[- 1.65373]	[- 0.30643]	[- 1.324 13]	[0.47210]

D(EXTERNAL_DEBT_TO_FOREIGN_CURRENCY_RESERVES(-2))	-274.6423	0.126764	0.015796	-0.234125	-0.019633	0.002171	-0.004997	3.391664
	(2602.19)	(0.09888)	(0.19778)	(0.19262)	(0.03927)	(0.13360)	(0.02567)	(12.0785)
	[-0.10554]	[1.28204]	[0.07987]	[-1.21545]	[-0.49990]	[0.01625]	[-0.19464]	[0.28080]
D(EXTERNAL_DEBT_TO_GDP(-1))	-5074.667	0.401373	-0.287279	1.798647	0.841117	-0.089911	0.115287	-17.60502
	(31412.2)	(1.19359)	(2.38748)	(2.32525)	(0.47409)	(1.61271)	(0.30991)	(145.805)
	[-0.16155]	[0.33627]	[-0.12033]	[0.77353]	[1.77416]	[-0.05575]	[0.37200]	[-0.12074]
D(EXTERNAL_DEBT_TO_GDP(-2))	10763.90	-1.291710	1.168448	2.018743	0.395790	0.514432	0.002372	-5.723660
	(29999.6)	(1.13991)	(2.28011)	(2.22068)	(0.45277)	(1.54018)	(0.29597)	(139.248)
	[0.35880]	[-1.13317]	[0.51245]	[0.90906]	[0.87415]	[0.33401]	[0.00802]	[-0.04110]
D(EXTERNAL_DEBT_TO_REVENUE(-1))	1239.076	-0.026945	0.112318	0.217229	0.029231	0.764816	0.013779	-2.133181
	(6754.60)	(0.25666)	(0.51338)	(0.50000)	(0.10194)	(0.34678)	(0.06664)	(31.3526)
	[0.18344]	[-0.10498]	[0.21878]	[0.43446]	[0.28674]	[2.20547]	[0.20676]	[-0.06804]
D(EXTERNAL_DEBT_TO_REVENUE(-2))	-175.7761	0.203405	-0.175457	-0.306995	-0.070134	-0.136772	-0.008369	23.55881
	(6494.34)	(0.24677)	(0.49360)	(0.48074)	(0.09802)	(0.33342)	(0.06407)	(30.1446)
	[-0.02707]	[0.82427]	[-0.35546]	[-0.63859]	[-0.71554]	[-0.41021]	[-0.13061]	[0.78153]
D(TAX_GAP_INDEX(-1))	-606.6069	-0.120694	0.371322	-0.447070	-0.032598	-0.291189	0.922467	8.356429
	(24060.3)	(0.91423)	(1.82870)	(1.78103)	(0.36313)	(1.23526)	(0.23738)	(111.680)
	[-0.02521]	[-0.13202]	[0.20305]	[-0.25102]	[-0.08977]	[-0.23573]	[3.88611]	[0.07482]
D(TAX_GAP_INDEX(-2))	4727.878	-0.179566	-0.454225	-0.519736	0.028460	0.274087	-0.163822	-46.40749
	(24442.0)	(0.92874)	(1.85771)	(1.80929)	(0.36889)	(1.25486)	(0.24114)	(113.452)
	[0.19343]	[-0.19334]	[-0.24451]	[-0.28726]	[0.07715]	[0.21842]	[-0.67936]	[-0.40905]
D(BUDGET_SURPLUS_OR_DEFICIT(-1))	5.610742	0.000152	-0.000640	0.000942	4.51E-05	-5.16E-05	-2.46E-06	0.684293
	(41.6932)	(0.00158)	(0.00317)	(0.00309)	(0.00063)	(0.00214)	(0.00041)	(0.19353)
	[0.13457]	[0.09571]	[-0.20181]	[0.30527]	[0.07167]	[-0.02410]	[-0.00599]	[3.53592]
D(BUDGET_SURPLUS_OR_DEFICIT(-2))	38.44118	-0.000237	0.002103	-0.000723	0.000208	-0.000466	-0.000168	-0.061294

	(41.0935)	(0.00156)	(0.00312)	(0.00304)	(0.00062)	(0.00211)	(0.00041)	(0.19074)
	[0.93546]	[-0.15197]	[0.67346]	[-0.23754]	[0.33486]	[-0.22111]	[-0.41381]	[-0.32135]
C	-381.0074	-0.009119	-0.014898	-0.097428	-0.010187	-0.018740	-0.000889	0.320030
	(215.442)	(0.00819)	(0.01637)	(0.01595)	(0.00325)	(0.01106)	(0.00213)	(1.00001)
	[-1.76849]	[-1.11392]	[-0.90984]	[-6.10918]	[-3.13285]	[-1.69428]	[-0.41827]	[0.32003]
R-squared	0.636076	0.647301	0.670983	0.959372	0.947973	0.783224	0.666312	0.519835
Adj. R-squared	0.507187	0.522387	0.554456	0.944984	0.929547	0.706449	0.548131	0.349776
Sum sq. resids	54861989	0.079211	0.316923	0.300618	0.012497	0.144606	0.005340	1182.007
S.E. equation	1069.092	0.040623	0.081256	0.079138	0.016135	0.054887	0.010548	4.962373
F-statistic	4.935048	5.181964	5.758178	66.67438	51.44735	10.20156	5.638065	3.056801
Log-likelihood	-543.4623	128.2850	82.52890	84.27187	189.2239	108.4222	217.2821	-188.8653
Akaike AIC	17.01401	-3.341969	-1.955421	-2.008238	-5.188604	-2.740068	-6.038850	6.268646
Black SC	17.61119	-2.744791	-1.358243	-1.411060	-4.591425	-2.142889	-5.441672	6.865825
Mean dependent	-896.9242	0.003885	-0.051136	-0.136742	-0.031061	-0.045152	-0.002121	0.043138
S.D. dependent	1522.909	0.058780	0.121734	0.337396	0.060790	0.101305	0.015691	6.154009
Determinant resid covariance (of adj.)		9.29E-13						
Determinant resid covariance		7.27E-14						
Log-likelihood		249.1253						
Akaike information criterion		-2.943190						
Schwarz criterion		2.099651						
Number of coefficients		152						
Source: EVIEWS 12 Programming Package Outputs								

CONCLUSIONS

The burden of external debt constitutes a large proportion of public expenditures through what is deducted from revenues to meet external obligations, which has led to weak economic development instead of working on its development. The lack of optimal exploitation of external debt and its orientation towards consumer spending and imported goods, and a few of them towards projects with low income, led to the lack of real financial sustainability in the Iraqi economy. The increase in reliance on public borrowing to finance the budget deficit led to a rise in the internal debt, especially in 2020, which means an increase in financial obligations on the state not only abroad but also internally, which made the revenue structure burdened with financial commitments internally and externally, as well as not directing domestic savings

to contribute In building the economy and working on its consumption, which prevented the achievement of financial sustainability. Weak growth in G.D.P. during the study period as a result of the rentier Iraqi economy, which made it vulnerable to external shocks and is greatly affected by changes in international oil prices, as well as weak non-oil revenues due to the lack of diversification of funding sources, which indicates the lack of real financial sustainability in the Iraqi economy. Therefore, it is necessary to adhere to the Financial Management Law No. 6 of 2019 and the regulations on public debt and not to resort to external debt except for extreme necessities since its burdens will be borne by future generations, as well as the economic, political and social repercussions and risks of hegemony and control in the national economy and limiting external debt to investment to achieve sustainability of external debt. It should also seek to organize agreements with creditor countries to transfer the service and benefits of the foreign debt to foreign investments that are invested within the Iraqi economy to achieve an additional benefits and the work of structural projects, as is the case in the Arab Republic of Egypt, which contributed to the transformation from foreign debt to foreign investment in increasing the rates of output gross domestic. The government must control its public expenditures and achieve a balance between revenues and spending without the need for public debt, whether internal or external, and direct expenses towards investment projects, infrastructure projects, and projects. They would generate huge revenues, such as ports, an additional tributary that flows into the state's general budget and workforce employment To achieve full employment and address unemployment. The government must adopt an effective fiscal policy that works on financial stability, earns the desired goals of economic policies, avoids abuses on the financial allocations approved in the federal budget, works to achieve net wealth for it, and pays what exceeds (the surplus) towards the payment of the external debt, as it has political and economic consequences. And more social than internal debt or directed towards investment projects.

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