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Financial sustainability indicators and their impact on reducing the debt crisis in Iraq an analytical study for the period 2004-2022

Abduladheem. Abdul Wahid Al Shukri Hassanein Ali Ismail Al-Alaywi
abduladheem.alshukri@qu.edu.iq hasanien.ali 90@gmail.com
University of Qadisiyah

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Corresponding Author : Hassanein Ali Ismail Al-Alaywi

Abstract : In light of the economic shocks to which the Iraqi economy is exposed as a result of the decline in oil revenues, the federal government took the approach of resorting to external borrowing first and then internal loans to fill the deficit in its federal budget. Many people interested in economic affairs consider the risks of these loans to the performance of the Iraqi economy when indicators arrive. Debt burdens and serious consequences regarding indicators of ability to pay or liquidity. The research aims to address the problem represented by (financial sustainability indicators and their impact on reducing the debt crisis in Iraq for the period (2004-2022). Therefore, the research focused on the hypothesis that says (the research is based on the hypothesis that: The Iraqi economy has the ability to achieve financial sustainability and reduce the debt crisis during the study period. The research was divided into three sections: the first Research: Indicators of financial sustainability the second Research: The debt crisis in Iraq the third Analysis of the relationship between financial sustainability indicators and the debt crisis in Iraq for the period (2004-2022), after which conclusions and recommendations were reached, and this indicates Iraq's inability to repay debts and contain their burdens, and then the research recommends increasing the importance of other revenues by raising efficiency. Border crossings and collecting customs revenues correctly, in addition to building a database of those subject to taxes and holding them accountable if they evade paying them..

INTRODUCTION: There is no doubt that economies that rely on crude oil prices to finance their budgets are always vulnerable to shocks that occur in the prices of this commodity, as the collapse of the price of this commodity increases the financial gap and government debt, especially after the decline of the oil supply from the public spending rates on which the quarterly economies relied. This has led to a great interest in the concept of financial sustainability, which focuses on the state's ability to address government debts and provide revenues without resorting to major adjustments in future financial policy procedures in order to achieve a balance between public revenues. And public expenditures, and all countries seek to achieve the concept of financial sustainability through the ability to continue implementing financial policies in the long term without being exposed to the risk of bankruptcy or failure to fulfill future financial obligations, as the state's loss of the concept of financial sustainability leads to its inability to fulfill its obligations towards its neighbors, which This means that creditors stop lending to it, or increase interest rates on the loans granted to it to very high levels, and set strict controls and conditions.Therefore, many countries in the developing world have resorted to implementing economic reform programs in agreement with international organizations in order to eliminate structural imbalances and reduce the burden of debt that they are facing, especially in the last decades of the twentieth century. Economic reform refers to the systematic changes taken by countries in economic policy with the aim of eliminating imbalances in their economic structure and returning the economic path to the path of sound growth. The external debt of some Arab countries has also increased since the beginning of the eighties until today, as a result of the wrong financing policies that those countries followed in financing development in addition to their continued consumption, investment and import to a greater degree than production, saving and export, in addition to the worsening of borrowing conditionsand the deterioration of the prices of the main export commodities of those countries. Countries, which ultimately led to the exacerbation of the current balance of payments deficit, the exacerbation of the external debt crisis, and the failure to pay their debts on time.

The importance of research:

The importance of the research stems from the fact that Iraq suffers from indebtedness. Are financial sustainability indicators sufficient to show the extent of the Iraqi economy in eliminating the debt crisis? Do financial sustainability

indicators show the extent to which the Iraqi economy can emerge from this crisis? Do Iraq have sufficient funds to pay off external and internal debts?

Search problem:

How to find solutions Financial and monetary crises as a result of military conflicts, political instability, and crises of low oil prices, which led to the accumulation of public debt and an increase in the financial deficit in Iraq for the period (2004-2022)?

Research hypothesis:

The research is based on the hypothesis that: The Iraqi economy has the ability to achieve financial sustainability and reduce the debt crisis during the study period.

Research objectives:

The research aims to achieve a number of objectives, including the following:

1- Determine the reality of financial sustainability indicators and the debt crisis in Iraq for the period from 2004 - 2022

2- Quantitative estimation of the impact of the relationship between financial sustainability indicators and the debt crisis in Iraq for the period from 2004 – 2022

Search structure:

- The first section: Indicators of financial sustainability and the debt crisis (a theoretical and conceptual framework)
- The second section: The reality of financial sustainability indicators and the debt crisis in Iraq for the period (2004-2022).
- The third section: Quantitative estimation of the impact of the relationship between financial sustainability indicators and the debt crisis in Iraq for the period (2004-2022).
- Conclusions.
- Recommendations.

The first section: Indicators of financial sustainability and the debt crisis

(a theoretical and conceptual framework)

First: The concept of financial sustainability :

Sustainability is one of the concepts commonly used at the present time, which has developed and been widely discussed since 1978. The concept of sustainability has become associated with economic development more than others due to the many opinions and contributions that have been put forward in this field and which have been widely adopted by the United Nations and its institutions. Development: According to the United Nations perspective, sustainable development means (development that meets the needs of the present generation without compromising the resources of future generations to meet their own needs), and in order to achieve this, social demands must be reconciled Environmental and economic, which are among the pillars of sustainability**.** (Patricia León,1993: p12) In the field of public finance, the use of the concept of sustainability began in the mid-eighties of the last century in many experimental researches, which tended to measure and determine sustainability indicators in the financial policy of many developed countries, as the sustainability of public finances became one of the most controversial topics because it reflects the challenges. The future that the public finances of countries may face, as a result of the escalating levels of deficits and debt resulting from excessive public spending, which means an exacerbation of the financial burden that future generations can bear in a way that limits their levels of well-being as a result of bearing the burdens of decisions that they did not participate in making.(Kawa Abdul Aziz Al-Dosky,2023:P126) This is consistent with what the International Monetary Fund adopted, as it explained that the concept of financial sustainability is (the situation in which the borrower can continue to service its debts without the need to make a fundamental change in public expenditures and revenues in the future). It is clear here that financial sustainability does not work in isolation from the work of other financial institutions, as it is interconnected and integrated with them in their methods and factors with the economic and administrative systems and their goals, that is, it is a means to achieve goals, formulate policies, and maintain them. ‹Sustainability is defined as an interconnected series of work methods that are affected by social, political, and economic factors and the institution's connection to its surrounding environment. It is considered an advanced structure economically, socially, technologically, and politically, which may make work methods ineffective over time. Therefore, senior management must take the initiative to make changes, including changing the structure. Organizational, which is part of financial sustainability (Charles Wyplosz,2005: P5) In general, sustainability refers to the organization's ability to maintain its financial level in the long term. It is defined by non-profit organizations as those that use surplus revenues to achieve their goals instead of distributing them as profits, depending on the business structure, the structure of revenues and expenses, and the organization's goal. That is, it

reflects the degree of flexibility in Reallocate assets in response to emerging opportunities and challenges in order to achieve appropriate financial returns that qualify it to fulfill its obligations (Salwa Abdel Aziz,2020: P8)

Second: Sustainability rules:

The golden rule: This rule explains that borrowing cannot be resorted to except in the case of financing investment expenditures, while current expenditures are financed through tax revenues and current revenues, and there is a reason that justifies the positive level of public debt related to justice between generations. (Ahmed Saleh Hassan Kazem,2016: P431) Government spending includes a form of public investment, which can benefit future generations. If today's spending is financed from current revenues only, the present generation will have to bear all the costs but will not be able to reap the full benefits of public spending. But when that investment spending is financed by debt issuance, future generations will pay part of the cost. Therefore, there is increasing recognition of the legitimacy of financing investment through public debt, which is called the golden rule (Kazem Saad Abdul Redha Al-Araji, 2021: p 37).

2- Budget balance rule: This rule requires that the budget deficit be the result of exceptional circumstances that disappear when they disappear. Therefore, achieving the general budget is not considered a condition in times of recession, provided that the budget is in balance during the economic cycles, and then the financial surpluses that are achieved in times of economic boom are directed to financing. Deficits achieved in years of economic recession (Ahmed Abdul Karim Jassim,2023:474)

3- Spending control rule: This rule is not directly related to the goal of debt sustainability because it does not limit revenues, and it can help adjust public financial conditions in line with achieving financial sustainability when combined with debt or budget balance rules, in addition to its ability to limit spending in the country. Boom periods. It also does not restrict the economic stabilization function of fiscal policy when negative shocks occur, and spending limits are determined by absolute value, growth rates, or as a percentage of GDP (Mahmoud Muhammad Dagher, 2017: p8).

4- Flexible budget rule: The traditional theory relied on the principle of relative balance between expenditures and public revenues, and that the proper behavior of the state requires it to achieve a balance between these two sides of the budget on the one hand, and on the other hand to avoid the risks of the deficit, how to cover and finance it, and the resulting inflationary effect or surplus, which the state cannot Disposing of it on the other hand, and therefore, according to this rule, it is necessary to restore balance in the general budget after allowing the state to determine the percentage of the deficit in the general budget, its causes, and the time period for it to restore balance in the budget . (Saeed Hussein Al-Husseini Clinic, 2020: p22)

5- Investment sustainability base: This rule stipulates that a limit must be set on the total public debt, which will ensure that it does not cause harm to economic growth and stability so that the state can bear it. According to the view of economic experts in international institutions (the International Monetary Fund, the ratio of public debt to gross domestic product must not exceed (60). %) The deficit percentage does not exceed (%3) according to the Maastricht Treaty, and these percentages naturally vary from one country to another due to the differences in economic determinants and variables in them .(Mohamed Nayef Mahmoud, 2017: p. 512)

6- Government deficit rule: The continuation of the deficit in the state's general budget over a long period result in an increase in the debt burden on the government because the state resorts to increasing taxes in order to pay off the deficit. Naturally, this affects consumption and savings that are transmitted from one generation to another if it is not addressed. As for In the short term, the deficit affects macroeconomic variables such as investment and inflation, and thus the financial and economic stability in the country (Mustafa Saad Mahdi Al-Sarhan, 2020: p. 41)

7- Budget unit base Under this rule, the true financial position of the state is identified and the size of the deficit or surplus in the state budget is determined, as it organizes all the state's revenues and expenditures in one document. This rule provides a sound and easy basis for the legislative authority's oversight of the implementation of the general budget, while the multiplicity of budgets creates obstacles. The legislative authority has many opportunities to impose its oversight on the implementation of the budget .(Abdul Muttalib Abd al-Hamid, 2005: p. 79)

Third: Financial sustainability indicators:

It is noted that during the past three decades, the sustainability of the public sector for the medium and long term has become increasing with considerations for expansion, and this is due to the pressures on public sector services, which have increased during the twenty-first century and that among the issues that have become more controversial is the issue of the sustainability of public finances of countries, and the challenges The future that the public finances of debtor countries may face as a result of the increasing levels of outstanding debt. In order for the state's public debt to be sustainable, no The state must meet some criteria based on calculating a set of indicators that may differ from one state to another depending on the strength of the state's financial structure, the

dynamism of its public revenues, and the structure of public debt in terms of it being concentrated in short-term, medium-term, or long-term debt .Financial sustainability is analyzed in accordance with the standards approved by international institutions through several synthetic indicators, these indicators take into account the historical development of financial political variables, especially local public debt, the budget deficit, and taxes. These indicators are. As follows: (Dua Hikmat Abbas, 2023: p. 316)

The first indicator: Index of the ratio of domestic public debt to GDP **:**Despite the simplicity of this indicator, it is of great importance in giving an overall picture of the burden of local public debt. It was relied upon as a basis for joining the European Union in accordance with the Maastricht Treaty in 1992, as the treaty stipulates that the percentage of public debt should not increase. Domestic and external (%60) of the gross domestic product, exceeding the percentage is an indication that the government is entering into a debt crisis, meaning that the development of the ratio of public debt to the domestic product is a guiding indicator through which it can be evaluated. The government's financial position, and verifying compliance with the initial controls to achieve sustainability, which is based on the importance of the government not continuing to borrow to finance previous debt burdens. (Ammar Hassan Hussein, 2016: p. 31).

The second indicator: the tax gap index **:**This indicator is based on the idea of maintaining the required ratio of public debt to GDP. It follows that tax policy should aim to reduce the difference between realized taxes for fiscal sustainability and actual taxes. It is often noted that the percentage of actual taxes collected annually, that is, the proceeds of tax revenues available annually, is not sufficient to finance the burden of spending in a way that prompts the search for other funding sources **.** (Shaima Fadel Muhammad, 2019: p. 104) This indicator helps monitor and analyze the development of tax revenues as it is one of the main variables in implementing public financial policies and financing the burdens of government activities. However, it does not represent a sufficient condition for judging the sustainability of the government's financial policies. However, this percentage cannot be applied to rentier countries, especially oil-producing countries, because the size of the gross domestic product is large due to oil revenues, which means that until you obtain a tax commensurate with (GDP), this would be unfair to the taxpayers . (Marwa Fathi Al-Sayed, 2010: 417).

The third indicator: Primary disability index: This indicator depends on estimating the value of the primary deficit or surplus of the general budget by calculating the difference between public expenditures without interest payments and public revenues without interest collection, as this ratio indicates the strength of the restrictions imposed on decision-making regarding the annual general budget due to the increase in the burden of public debt. It results in crowding out other aspects of public spending in the general budget, which results in converting most public expenditures into inevitable expenditures. This indicator of the general budget is a necessary condition to ensure the stability of the ratio of public debt to output and financial sustainability, but it is not a sufficient condition to achieve this. Two types of public debt indicators can be explained as follows . (Ankie Scott-Joseph,2006: p3-4)

1- Internal public debt index :Internal or (local) public debt is the main source of financing the state's general budget deficit and one of the financial policy tools for managing the national economy. It is therefore considered an economic phenomenon that exists in all countries. Therefore, it is clear that managing internal debt is one of the priorities of financial policy tasks, and it has become necessary Controlling public debt, especially local government debt, which represents the largest portion of it, through a plan that balances the necessary financing from real savings to finance investments, development needs, and the requirements of the state budget on the one hand, and the requirements of reducing this debt and then reducing its burdens. In light of this, the most important internal indicators of who will be reviewed are as follows:

a- Debt service to GDP index: It is the most important cash flow indicator that is used to evaluate (financial solvency) in the economy and expresses the extent of the economy's ability to fulfill its obligations within the minimum limits. In fact, a high indicator means that the country needs to exhaust many of its resources. To confront or serve his religion . (Mayada Hassan Rahim,2022: p139-140.)

b- Debt balance to local budget revenues index: This index measures the level of debt in relation to the government's ability to repay. It shows the number of years required to pay off the total balance for those who are entitled to it. A fixed ratio between debt and GDP may lead to different results, as this ratio reflects the magnitude of the risk when determining the country's ability to collect income.

c- Debt service to revenue index for the local budget: This index measures the state's ability to pay debt service through local sources. Debt service is the sum of the interest and debt installments, which are the state's own resources represented by the local revenues of the state budget, that is, it excludes the extraordinary (exceptional) revenues derived from (foreign loans).

d- Interest-to-GDP Index: This index measures the current cost of debt service relative to the government's ability to repay. It also expresses the state's capacity to confront unproductive expenditures in the economy (interests on public debt)' (Hana Abdel Hussein Al-Taie, 2015: p. 5).

e- Interest to local budget income index: This index expresses the cost of interest within the framework of income collection for the government, and this ratio is generally used as an allowance ratio for public income with increased public expenditures. That is, it is a relationship between local budget income and unproductive expenditures in the economy.

2- External public debt index: Most economists have agreed that external debt can lead to an increase in the rate of economic growth in a country by increasing the resources available to that country. Debt is also used to finance successful investments. This is from a theoretical perspective. As for the scientific aspect, many studies have reached the conclusion that A high level of debt will negatively affect economic growth. It is necessary to refer to indicators of external public debt and their development by finding the relationship between the cost of debt and some macroeconomic variables over a specific period of time, which can be presented as follows:

1. External debt to exports index: The index of the ratio of external public debt to exports is considered the best indicator, because exports are one of the main sources of foreign exchange, and therefore one of the most important sources of revenues to pay the burden of this debt, and therefore a rise in this ratio indicates that debts have become more than resources. Base country of foreign currencies (Vito Polito and Michael R Wickens,2005: p15) That is, it measures the ability to save foreign currencies and pay, and this is usually used in conjunction with the debt service index as a percentage of exports. Thus, non-productive expenditures are compared with the level of foreign currency collection. Many studies have reached the conclusion that a high level of debt will negatively affect the level of foreign currency collection. Economic growth. It is necessary to refer to external public debt indicators and their development by finding the relationship between the cost of debt and some of the problems of debt accumulation and reaching a degree of financial sustainability .(Amr Hisham Muhammad, 2020: p. 151)
2. Net International Reserves/External Debt Index: This index indicates the number of times external liabilities exceed the foreign currency balance. This indicator is used with external debt as a percentage of the speed of accumulation of reserves. In such a case, this means the years required to pay off the current external debt at a speed equal to the speed of accumulation.
3. Debt amortization/external debt payments index: This index measures the level of debt amortization as a proportion of external debt payments. This index is a revolving ratio and indicates the refinancing of debt through new issues. If this indicator exceeds (%100), the debt will not be financed with new debt, and there is no unified global system for determining the lower and upper limits of these indicators, as viewpoints differ in this area (Yassin Nadeb Ali Khalil Al-Sultani, 2021: p. 58)

Fourth: Definition of external debt:

Debt or borrowing is a process that the state resorts to when it is unable to meet the requirements of the agreement depending on its own financial resources. This process may occur urgently, temporarily, or continue.

External debt was defined by the Organization for Economic Co-operation and Development. The total external debt on a certain date is equivalent to the amounts of current contractual obligations, which are intended to obligate some payments and are linked to a pre-determined date and not to the results achieved from the use of funds. The concept of external debt in its broad sense is the debt that countries obtain. Or banks or international institutions such as the International Monetary Fund.

External debt is also defined by a unified definition, despite the problems raised by its definition. It is the result of the interaction of three international bodies, namely the International Monetary Fund, the World Bank, and the Organizations for Economic Cooperation and Development. These bodies formed a working group that proposed defining debt as" equal on a specific date to the sum of current contractual obligations ".Which allows the extradition of residents of a country to non-residents, which requires the necessity of paying the principal along with paying interest. (Faten Saeed Hamid, 2015**:** p. 3). In order to define the concept of external debts and loans, they can be divided as follows:

- **Depending on the time period, it can be divided int**
- Long-term loan: It represents a loan or debt that has a duration of more than five years and has three components, which are public loans guaranteed by a public authority and unsecured private loans.
- Medium-term loan: which has a duration of more than one year and less than five years.
- Short-term loan: It is an external debt with a maturity of one year or less
- **According to the lender:**
- Official loans: Loans provided by governments, surplus countries, official bodies and agencies, which are usually on concessional terms, either in cash or through agreements, and they are of two types .(Tigersi El Hawari, 2017: p. 10)

- Bilateral loans: which are officially contracted between the country wishing to borrow and the government of the donor country. The process of providing these loans is often dominated by political considerations that may prevail over economic considerations .
- Multilateral loans: These are loans and credits provided by international and regional organizations and bodies to borrowing countries. These loans vary according to their donor bodies.
- Private loans: These are loans provided by private (informal) sources and are usually short-term and have a high interest rate. Despite their burden on debtor countries, these sources are important financing sources for many countries, especially those burdened with debt.
- **External debts according to their ability to be scheduled:**

a- Non-schedulable debts: These are debts owed to international or regional organizations such as the World Bank or the International Monetary Fund. With regard to this type of debt, the country in question must fulfill them on their due dates, regardless of their economic and financial circumstances.

b- Commercial debts: These are debts owed to foreign commercial banks and then rescheduled through negotiation between the creditor banks and the countries concerned.

c- Official government debts: They represent debts owed or guaranteed by governments, and this type of debt is rescheduled through the Paris Club .(Hafiz Abdul Amir Amin, 2020: pp. 112-113)

Fifth: The economic effects of foreign debt :

The astonishing and terrible development in the size of the external debt of developing countries and its burdens has led to the relevant economies suffering from severe economic exhaustion. Developing countries have followed what are called policies of adjustment and structural economic reform, which are based on a major orientation towards the market as a criterion for economic efficiency and resource allocation and on an attempt to attract foreign capital. To contribute to the process of economic development and improve the competitive position of these countries, some developing countries have resorted to foreign parties and international institutions such as the International Monetary Fund**.** (Salah Hamed, 2016: pp. 308-309)

For the purpose of obtaining aid, the indebted developing countries were forced to deplete their reserves of gold and foreign currencies in order to work to fill their obligations with abroad. Some developing countries and foreign currencies also worked to fill their obligations with abroad, and some developing countries used deflationary policies to put pressure on necessary imports, and this in turn It affected the process of economic development. Other countries have worked to use short-term loans for the purpose of paying off their external debt, which has led to them falling into a frightening economic dilemma, and thus some developing countries have been forced to follow an export strategy program for the purpose of... Developing foreign exchange sources at the expense of the strategy of the basic sectors of the economic structure, which led to distorting the economic development paths of developing countries and increasing the dependency of these countries on global industrialized countries (Manal Jaber Morsi, 2020: pp. 85-86). Such problems may put the political stability in this country as a whole at risk due to the importance of economic factors in achieving this stability. We note that capitalist countries use external debt as one of the most important and modern means of financial drain and the adverse transfer of financial resources from developing countries and emptying them of their capital. In this regard It can be said that) The debt crisis that the group of underdeveloped countries is suffering from must be viewed as the special form in which global capitalism is trying to drag the group of these countries into the sphere of its direct domination and intensify its global exploitation. This is the essence of new imperialism .(.What draws most attention here are the" guarantees "of capitalist countries, meaning that the imperialist countries and capitalist banks have sufficient political and institutional guarantees that return their money to them and guarantee the flow of profits to them. Among these guarantees is the presence of the International Monetary Fund, which has turned into a tyrannical global force that exercises... Its pressures and influence on indebted developing countries make them dependent on the capitalist world. In summary, the external indebtedness of developing countries has become a new bond of dependency, and then over time it has turned into a means of pressure aimed at the continued dependency of indebted developing countries on industrially advanced countries in political and economic terms**.** (Sami Hamid Al-Jumaili, 2005: pp. 311-312)

VI: Factors causing the debt crisis

The main reasons for the aggravation of the debt crisis are due to the increasing public budget deficit that most developing countries suffered between the years (1978) and (1982) and the expansionary monetary credit policies that were used to finance it. Although there are other factors that contributed to the lack of consistency in economic policies, public expenditures The property that exceeded the available resources is the reason for the debt, so the debts would not have worsened in the first place if saving development from its gaps was its goal, meaning that development is progressing, but stumbled? There are internal factors represented in light of weak national capabilities, and others are external as variables of the international economy, and others classify internal factors into: (Hanan Muhammad Ahmed, 2018: p. 61)

The tendency to invest for development requires capital intensity and advanced technology, which developing countries lack.

1. Misuse of loans: Poor planning and the change in economic policies and their transformation from socialist to liberal philosophy led to the failure of many projects .
2. Capital smuggling abroad. This phenomenon led to the accumulation of debt and the failure of development. At a time when the lending policy was working to fill the financing gap for development projects, administrative, financial and political corruption was present.
3. Attention to industry at the expense of agriculture: The increasing need for food imports and the neglect of agriculture as an important pillar of the economies of these countries led to external borrowing to finance these industries. As for the external factors, they are determined according to the standards and conditions of the economies of developed countries, as any disturbance or structural imbalance in the markets of these countries is sometimes reflected in the proceeds of their exports and the performance of their economies, which are a market for the exports of developing countries . (Amna Abdel-Ala Al-Hassoun, 2010: pp. 141-142).

The second section: The reality of financial sustainability indicators and the debt crisis in Iraq for the period (2004-2022).

First: Internal debt to GDP index for the period(2022-2004)

Iraq stands at a crossroads with the presence of a local economic framework, which would disrupt the volume of necessary investments and thus create a kind of economic imbalance. Although Iraq possesses many natural and economic resources, these resources provide nothing but little at the present time as they are resources. It generates financial revenue for the state. It is natural to use the revenues gained from the sale of oil, with economic policies that chart the path of sustainable growth through general budget allocations, as Iraq has great potential that gives it the ability to grow and progress, but to achieve this, it must be employed. These capabilities are achieved by following sound and efficient economic policies (Dia Hussein Saud, 2018: pp. 41-42). This indicator shows us the amount of the internal debt burden on the Iraqi economy for the period from (2022-2004), and as in Table (1), so the table shows that the internal debt index recorded (6,061,688) million dinars in 2004, and in return, the gross domestic product recorded (53,235,359) million dinars, and the ratio of the internal public debt to the GDP was (%4). There was also a slight increase in the internal debt in 2005, when it recorded (6,593,960) million dinars, with a growth rate of (%0.03). In the same year, the GDP recorded a noticeable increase, reaching (73,533,599) million dinars. dinars, and the ratio between the two indicators was (%11.38). After that, we notice a decrease in the internal debt during the years (2008-2007-2006), respectively (5,645,390- 5,194,705- 4,455,569) million dinars, as a result of the increase in oil revenues, which was reflected in achieving a surplus in the general budget. For Iraq, then there was an increase in debts after 2008due to the global crisis, the impact of which was reflected in the years (2010-2009), as debts were recorded during these two years (8,434,049 - 9,180,806) million dinars respectively, with a growth rate of (89.81- %1.35) after that. We note that there is a clear decrease in internal debts during the following years (2013-2012-2011), and this is due to the increase in oil revenues, which led to covering these debts. (Central Bank of Iraq, 2005: p2). The largest increase during the study period occurred during the year 2014, when internal debts recorded (9,520,019) million dinars due to the entry of terrorist groups (the terrorist ISIS) into Iraq, so a large portion of government spending was directed towards the military forces to eliminate those terrorist groups, and in return We note that the GDP recorded a state of gradual increase from 2004to 2013, and then the GDP was exposed to many fluctuations during the period that followed the year 2013

Table (1) Ratio of internal public debt to GDP in Iraq for the period(2022-2004)

years	Internal debt	Internal debt growth rate	GDP at current prices	Ratio of public debt to gross domestic product
	1	2	3	4
2004	6061688	-	53235359	11.38
2005	6593960	0.03	73533599	8.97

2006	5645390	-14.48	95587955	5.91
2007	5194705	7.55	111455813	4.66
2008	4455569	-9.69	157026062	2.84
2009	8434049	89.81	130642187	6.45
2010	9180806	1.35	167093204	5.49
2011	7446859	14.3	217327107	3.43
2012	6547519	-6.15	254225491	2.57
2013	4255549	-13.32	273587529	1.55
2014	9520019	52.71	266420385	3.57
2015	32143805	60.19	199715699	16.09
2016	47362251	47.18	203869832	23.2
2017	47678796	3.6	225995179	21.09
2018	41822918	9.85	251064479	16.65
2019	43227122	-11.47	266190571	16.24
2020	64246559	70.3	219768798	29.23
2021	68214816	14.2	302691912	22.53
2022	69485548	7.05	384555222	18.06

The table of our work is based on:

- Data from the Central Bank of Iraq, General Directorate of Statistics and Research, Annual Economic Report for the Years.(2022-2004) .

Therefore, we notice in the two years (2015-2014) there was a clear decline in the gross domestic product due to the decline in global oil prices (Central Bank of Iraq, 2008: p8). All of this affected external debts during the aforementioned two years. On the other hand, internal debts increased, and then internal debts decreased during the two years (2019-2018), during which they recorded (43,227,122-41,822,918) million dinars respectively. On the other hand, we notice an increase in the gross domestic product recorded during the two years. 2019-2018 reached (266190571-251064479) million dinars, and after that an increase in debts was observed. During the

years (2022-2021-2020), it reached (69485548-68214816-64246559) million dinars, due to the Corona pandemic, during which the gross domestic product in the same years reached (384555222-302691912-219768798) million dinars, respectively .All of this is due to the rise in global oil prices, and the revitalization of the rest of the other sectors in Iraq, dinar. We conclude from the above that Iraq achieved financial sustainability until the year (2013), and then the size of the internal public debt became interesting because it rose to high and unprecedented levels, due to the lack of... The government's ability to achieve financial surpluses to reduce or stabilize its percentage of the gross domestic product, which has a negative impact on achieving financial sustainability. (Central Bank of Iraq, 2022: P2)

Second: External debt to GDP index for the period(2022-2004)

There are great efforts by Iraq and the International Monetary Fund, and continued pressure by the United States of America on creditor countries, in order to exempt Iraq or reduce or extinguish debts. Therefore, these conditions were applied to it in order to reduce the burden of these debts. Under these conditions, countries that want to reduce the burden of their debts are subject to a debt sustainability analysis at the International Monetary Fund to study and analyze the extent of the country's ability to fulfill its obligations to others and whether the country suffers from a liquidity problem, i.e. (The country's ability to bear the debt) while ensuring economic growth. On this basis, the International Monetary Fund decided that Iraq suffers from the problem of the unsustainability of its debts, as public finance cannot fulfill its financial obligations related to the public debt. Therefore, some steps were applied to the Iraqi economy and to... As a result, Iraq's debts were reduced and rescheduled. This indicator shows us the amount of the external debt burden on the Iraqi economy (Abbas Jawad Ahmed, 2022: pp. 70-73)

For the period (2022-2004), as shown in Table (2), the value of external debt and its ratio to GDP. This percentage reached (%327.53) in the year (2004), and the value of the external debt was (174,360,000) million dinars, which is the highest percentage during the study period. It is a very high percentage and exceeded the safety limits of (%40) of the output. This is due to the debts and compensation incurred by Iraq before (2003), after which the index percentage decreased gradually until it reached (%25.03) in the year (2013), which is an average percentage during Duration of study .The value of the external debt during 2013reached (68,466,354) million dinars. This is the result of several reasons, the most important of which is the cancellation of some of these debts from creditor countries, and the increase in oil revenues, as the domestic product rose to (273,587,529) million dinars. The years (2019-2014) witnessed an increase in the value of external debts again, as their value reached (101,357,878) million dinars, in the year (2019), and the index percentage reached (%38.08) in the same year. It is noted that the index percentage in the year (2019) decreased slightly from the year (2019). (2018) despite the rise in the value of external debt (Central Bank of Iraq, 2009-2022: P2) In the year (2019), although Iraq was affected by the global financial health crisis resulting from the outbreak of the Corona pandemic, the decline in oil prices, and the sharp decline in oil revenues in the year (2020), the government's tendencies were towards internal borrowing to finance current expenditures. Although the Iraqi Parliament approved in 2020a law granting the government the right to borrow up to (5) billion dollars to finance the general agreement, the short implementation period prompted the government to dispense with these loans, so that the external debt decreased to approximately (28) trillion dinars, and this is clear as the domestic product decreased. The total in 2020reached (219,768,798) million dinars after it was high in 2019to (266,190,571) million. The highest value of the GDP during the study period was in the year 2022, where it recorded (384,555,222) million dinars. In contrast, the index percentage reached (12.64), which is also the lowest percentage reached during the study period from 2022-2004, and this is due to the high value of the GDP. We conclude from the above, the external debt constitutes a large burden on the Iraqi economy, as there was a large exaggeration in the demand for external loans beyond the economy's ability to bear and service them, which requires working to achieve large financial surpluses to service these debts . (Ahmed Younis Jabbar Al-Khazraji, 2023: pp. 616-617)

Table (2) Ratio of external public debt to GDP in Iraq for the period(2022-2004)

Years	External debt	Annual growth rate	GDP at current prices	Ratio of public debt to domestic product
	1	2	3	4

2004	174360000	-	53235359	327.53
2005	113240803	20.39	73533599	154
2006	109574631	-38.24	95587955	114.63
2007	92870000	12.78	111455813	83.32
2008	79307859	7.64	157026062	48.6
2009	75346708	-36.33	130642187	57.67
2010	66720420	-1.06	167093204	39.93
2011	71682390	3.91	217327107	32.98
2012	67285196	-7.82	254225491	26.47
2013	68466354	-11.08	273587529	25.03
2014	66866602	9.05	266420385	26
2015	68129298	6.7	199715699	34.11
2016	70924728	6.7	203869832	34.78
2017	77742624	-23.33	225995179	34.4
2018	101163834	98.13	251064479	40.29
2019	101357878	3.11	266190571	38.08
2020	5170889	-2.67	219768798	34.19
2021	2526267	-7.41	302691912	14.29
2022	48624548	9.02	384555222	12.64

The table of our work is based on:

Central Bank of Iraq, General Directorate of Statistics and Research, Statistical Bulletin, for different years-2004) .(2022

Iraqi Ministry of Planning, Central Bureau of Statistics, Directorate of National Accounts, published reports for various years .2022-2004.

Third: Public debt to GDP index for the period(2022-2004)

This indicator shows the burden of the total public debt on the Iraqi economy, the state of financial sustainability in the country, and the extent of the state's ability to bear and service debts by comparing the growth rate of output with the growth rate of public debt. Table (3) shows the size of public debt, its growth rate, and its percentage to the gross domestic product for the period (2004). -2022), where the value of the public debt reached (180,421,688) million dinars, in the year (2004) and its percentage to the gross domestic product (%338.91), It is the highest level reached by the value of public debt and its ratio to the gross domestic product during the period of the study, and it is, as is known, the result of the debts Iraq inherited and the compensation incurred from the Second Gulf War prior to the year (2003). After that, the percentage of this indicator gradually decreased until the year (2013), when it reached (%26.60), and the value of the public debt reached (72,721,903) million dinars in the same year, and the public debt recorded negative growth rates during this period, in contrast to the gross domestic product, which recorded growth rates. Positive, as a result of Iraq's increased revenues from the sale of oil and the openness it witnessed to the outside world, which led to a higher rate of growth in gross domestic product at a rate greater than the growth rate of public debt, and this means achieving financial sustainability in this period. Duration. In recent years (2019-2014), the percentage of this index gradually increased again, especially after the year (2015). It rose significantly and exceeded the safety stage, as the percentage of the index reached (%54.32) in the year (2019), and the public debt recorded growth rates greater than the rates. The growth in output indicates that financial sustainability has not been achieved during this period (Fakri Ahmed Lahmoud, 2023: p. 514). This is a large percentage, and the reason for the high accumulation of these debts is the decrease in state revenues as a result of the decrease in oil revenues, and in return, its expenditures increased significantly to finance the war with ISIS, which caused a large deficit in the general budget, and because the government was unable to find other sources of financing or develop its non-point resources, especially taxes, which are The most important of which is customs taxes. They resorted to borrowing in a large and unconsidered manner that exceeds the capacity of the economy. Moreover, the proceeds of these debts were not used in areas of the region through which they generated income that would help in their service. Rather, they were used in areas of consumption, which caused their accumulation to form a large burden on the Iraqi economy. (Nizar Kadhim Al-Khikani, 2017: p. 271). Public debt also recorded a clear decline from 2022-2020, as the lowest value was in 2022during the study period, and the average percentage of the index for the same year was (%17.467). We note from the results of this index that financial sustainability in Iraq is linked to a direct relationship to revenues from the sale of oil, which It is vulnerable to external shocks, so any decrease in its selling prices or export volume reflects negatively on the financial sustainability situation in Iraq .

(Dia Abdel Razzaq Hassan, 2023: pp. 62-63).

Table (3) shows the ratio of public debt to gross domestic product in Iraq for the period(2022-2004)

years	Public debt	Growth rate of public debt	Gross domestic product at current prices	Growth rate	Public debt to GDP ratio
	1	**2**	**3**	**4**	**5**
2004	180421688	-	53235359	-	338.91
2005	119834763	-33.58	73533599	38.12	162.96
2006	115220021	-3.85	95587955	29.99	120.5

2007	98064705	-14.88	111455813	16.6	88
2008	80763428	-17.64	157026062	40.88	51.4
2009	83780757	3.73	130642187	-16.80	64.12
2010	75901226	-9.40	167093204	27.9	45.42
2011	79129249	4.25	217327107	30.06	36.4
2012	73832715	-6.96	254225491	16.97	29.05
2013	72721903	-1.50	273587529	7.61	26.6
2014	76386621	5.03	266420385	-2.61	28.7
2015	100272103	31.26	199715699	-25.03	50.22
2016	118286979	17.96	203869832	2.08	58.03
2017	125421420	6.03	225995179	10.85	55.51
2018	142986752	14	251064479	11.09	57
2019	144585000	1.12	266190571	6.02	54.32
2020	94577255	8	219768798	-20	43.03
2021	71479143	5.2	302691912	14.2	23.61
2022	67175498	4.1	384555222	10.1	17.46

The schedule of our work is based on : Ministry of Planning, Central Statistical Organization, Directorate of National Accounts, actual estimates of GDP and national income for different years.(2022-2004)

Fourth: The tax gap index to GDP in Iraq for the period(2022-2004)

Taxes are part of the national income that is deducted from the private sector as part of public revenues to the government in order to achieve the objectives of the state's economic policies. It is also a part of the output that is forcibly transferred to the government in the form of taxes for the purpose of achieving the objectives of the

state's financial policy. That is, it is a percentage The contribution of tax revenues to the GDP, as this indicator is calculated through the difference between the ratio of public expenditures to the GDP and the tax revenues to the GDP. In general, Iraq suffers from a large tax gap like some oil-producing countries, as it is often noted that the actual tax revenues collected annually are not sufficient to finance public expenditures, and this is what prompts the search for other sources of financing, and the alternatives are usually to increase Oil revenues alone, without searching for real alternatives for financing and without planning to reduce the tax gap, tax revenues in Iraq are characterized by their decline and poor management . (Ahmed Saleh Hassan Kazem, 2016: pp. 434-435). As shown in Table (4), it is noted that there is a significant fluctuation and decrease in the size of tax revenues, and then the size of the tax gap in Iraq continues to widen. Tax revenues are also very low compared to the state's public expenditures. The volume of tax revenues at constant prices reached (159,644) million. dinars in 2004and their percentage to the GDP (%1.05), while public expenditures at constant prices amounted to (31,521,427) million dinars and their percentage to the GDP (%59.21) for the same year, and as a result of the decrease in tax revenues compared to public expenditures, the size of the tax gap is large. However, the size of the tax gap increased, as the ratio of tax revenues to GDP reached (%0.34) in 2006, and the ratio of public expenditures to GDP increased to reach (%40.60) when tax revenues for this year amounted to (591,229) million. dinars, and in 2007the index of the ratio of taxes to GDP increased, reaching (0.79), then tax revenues for the same year reached (1,228,336) million dinars, then they began to increase during the years (2008- 2009), reaching (3,334,809-985,937) respectively. (Fatima Abd Jawad, 2006: p. 17). Tax revenues also fluctuated between rise and fall until 2015, then they increased significantly in the year (2017-2016), then after that tax revenues recorded low rates due to the Corona pandemic until 2020, when the ratio of taxes to GDP was (2.52), and then after that We notice The average size of tax revenues in 2021is the highest rate that the size of tax revenues has reached during the research period, and the reason for this is attributed to the significant increase in public expenditures, as their percentage to the GDP reached (%25.13), and tax revenues compared to public expenditures, as their percentage reached the GDP. (%6.66). In 2022, there was a noticeable decrease compared to the previous year, as tax revenues reached (10,137,301) million dinars. The reason is also attributed to the defect and weakness in the tax system and the weakness of the laws and procedures followed in collecting taxes and adding customs taxes as a result of financial corruption at the border crossings .(Muhammad Kazem Muhammad, 2021: p. 500) In addition, the Iraqi economy is a rentier economy that depends on oil revenues, which witnessed a significant increase during this year in financing public expenditures. As for the lowest rate recorded in tax revenues, it was in 2005, which is the lowest rate that the volume of tax revenues reached during the research period as a result of the decrease in the volume of public expenditures. Its percentage to the GDP reached (%35.87) as a result of the increase in the ratio of public expenditures to the GDP, and with regard to revenues. It will be noted that its importance to the Iraqi economy will decrease in its importance to the Iraqi economy and will not be relied upon to achieve any form of development or to achieve financial sustainability .(Sadiq Jaafar Kazem, 2018: pp. 98-99)

Table (4) Tax rate to GDP in Iraq for the period(2022-2004)

years	gross domestic product	Public spending	Tax revenue	Ratio of expenditure to gross domestic product	Tax ratio to GDP
	1	**2**	**3**	**4**	**5**
2004	53235359	31521427	159644	59.21	1.05
2005	73533599	49207416	495282	35.87	0.36
2006	95587955	71204916	591229	40.6	0.34
2007	111455813	54665591	1228336	35.02	0.79
2008	157026062	73884795	985837	37.83	0.5

2009	130642187	60283286	3334809	40.24	2.23
2010	167093204	78537738	1503516	43.28	0.84
2011	217327107	83518205	1783593	36.24	0.77
2012	254225491	105139575	2633357	41.36	1.04
2013	273587529	116335504	2876856	43.54	1.08
2014	266420385	110425321	1885127	42.12	0.72
2015	199715699	67709149	2015010	36.17	1.08
2016	203869832	64425972	3861890	34.06	2.04
2017	225995179	72377872	6298272	34.06	2.96
2018	251064479	77242778	5686211	30.07	2.21
2019	266190571	106912462	4014531	40.2	1.51
2020	219768798	71640718	47181819	32.59	2.52
2021	302691912	76082000	20182324	25.13	6.66
2022	384555222	11695959	10137301	24.03	2.6

Source: From our work based on- :

- Iraqi Ministry of Planning, Central Bureau of Statistics, Directorate of National Accounts, published reports for the years.(2022-2004)
- Ministry of Finance, General Authority for Taxes, annual reports, for different years (2022-2004)

The third section: Quantitative estimation of the impact of the relationship between financial sustainability indicators and the debt crisis in Iraq for the period (2004-2022)

The process of determining the standard model is an important matter in econometric studies, which is done by determining the degree of stationarity of the time series for the variables used in the study. The stationarity test is the first test that is used to determine all models, and then work to determine the appropriate standard model, and in light of this, the results are analyzed. According to economic theory.

The first: Stationary test concept

The stationary test (unit root) represents the first and basic step that uses time series data. Before starting to estimate economic models, the integration order of the time series must be determined whether it is of order I(0)

or I(1), and this is done through a procedure Stationary test: The results of this test help us choose the appropriate model that gives accurate realistic results, since if the time series is not stationary, the estimation results that will be obtained will be unrealistic. (pseudo), and the time series for the variable (Y_t) Stable if the following conditions are met (Wissam Hussein Ali Al-Anazi, 2015: p. 37)

- The stability of average values over time. (mean): $E(y_t)= \mu$
- Constancy of variance over time (variance): var $(Yt)= E(Yt- \mu)^2=\sigma^2$

The value of the variance between two time periods depends only on the distance, difference, or gap between these two periods and not on the actual period over which the variance was calculated.

(covariance) $Yk= E[Yt- \mu)(Yt+k- \mu)$

The phrase "spurious regression" is used to describe a situation in which two variables are related through their association with a third variable. In particular, if (x) is regressed on (y), a significant relationship can be found, but when controlling for another variable, for example (z), it becomes the partial effect of (x) on (y) is zero. Of course, this can also happen in time series contexts with variables stationary at the level I(0), and it is possible to find a spurious relationship between time series that have increasing or decreasing trends, provided that the series is weakly dependent on its time trends, and the problem is effectively solved by including the time trend in the regression model. The first person to discover spurious regression was Yule, who showed that this regression is possible in very large samples of non-stationary time series. According to Granger & Newbold, when the Durbin-Watson (R_2> D.w, this may give an indication of suspicion of a false regression (Scary Jassim Hamad, and others, 2020: p. 318).

1- Graphical analysis of time series

There is no doubt that the time series charts for any variable over time give a preliminary idea of the extent of the stability of this series, and while this data series contains a constant trend and a general trend, if there is a clear general upward trend, this indicates a difference in the averages of the sub-samples of this series, which This means that the general average of this series and its variance are not stable, which means that the time series is not stationary. This method is one of the methods through which it is possible to verify the presence of a unit root or not in the time series of a variable, through the graphical form of the time series. From an applied standpoint, the graphical form of the time series for any variable over time can describe an initial idea about the stationarity of this series. If there is a clear general trend, upward or downward, this indicates a difference in the averages of the sub-samples of this series, which means that the variance of its general average is not stable, and this indicates that the particular time series is not stationary (**Saad Abdel Najm Al-Abdali2018: p. 290**).

- **Autocorrelation function**

a- **Extended Dickey–Fuller test (ADF)**

The autocorrelation function is one of the tests used to detect the stability of a time series for a variable. This method is used based on the autocorrelation function, which takes the following formula:

$$P_k = \frac{Y_k}{Y_O}$$

Since:

AND_kIt represents the covariance at the lag k of a given time series and is calculated according to the following formula:

$$\hat{Y}_k = \frac{\sum(Y_t - \bar{Y})(Y_{t-k} - \bar{Y})}{n - k}$$

Y_0: It represents the variance of the time series itself and is calculated using the following formula:

$$\hat{Y}_o = \frac{\sum(Y_t - \bar{Y})^2}{n - 1}$$

n represents the sample size and K represents the number of time lag periods

Note that the value of the calculated autocorrelation coefficient ($\hat{p}_k$) ranges between (1.1) like any simple linear correlation coefficient and that the time series is stable when the calculated value of the correlation coefficient is equal to zero or does not differ significantly from it for any period of time lag, as K is greater than zero. If the time series data is stationary, the calculated value of the autocorrelation coefficient for the sample often has a normal distribution with a mean of zero and a variance of (1-k), and therefore the limits of the confidence interval at a 5% significance level for a large sample are ($\sqrt{1/k}$.). If the calculated value ($\hat{p}_k$) falls within these limits, the null hypothesis is

accepted, which states that the coefficient is equal to zero. If it falls outside these limits, the null hypothesis is rejected and the alternative hypothesis is accepted. **(Saad Abdel Najm Al-Abdali, 2018: p. 290)**

A- Extended Dickey-Fuller test (ADF)

This test was presented by the two scientists The expanded Dickey-Fuller study was published in 1979 and was developed in 1981 in order to get rid of the problem of autocorrelation in the error term, which the test suffered from before its development. The content of this development was the use of a variable with a lag for the explanatory variables, and this test may be suitable for large samples. The most widely used in most economic studies and research (Muhammad Sheikhi, 2011: p. 16)

This test is done using the following equations (Imam & others, 2016: 148):

- No Trend or Intercept $Y_t = \beta Y_{t-1} + \varepsilon_t$
- With only a fixed term (Intercept) using the difference method by subtracting the value of the variable (Y_t) lagging one period of time (i.e. Y_{t-1}) from both sides, so we have the following formula: $Y_t - Y_{t-1} = \beta Y_{t-1} - Y_{t-1} + \varepsilon$
- Trend and Intercept: $\Delta Y_t = \delta Y_{t-1} + \varepsilon_t$

Whereas: It represents the first difference: $\Delta Y_t = Y_t - Y_{t-1}$

δ **Represent** $(\beta - 1)$

The unit root test statistic for the variable (Yt) is also calculated using the expanded Dickey-Fuller method through the following equation: (Arltova Marketa,2018: p19)

$$\Delta Y_t = \beta_0 + \beta_1 T + \delta Y_{t-1} + \sum_{i=1}^{m} \beta_2 \Delta Y_{t-i} + \varepsilon_t$$

b-Philips – beron test:

This test was presented to us by the researchers Phelps and Perron in 1997 1988 It is a more accurate test than the Dickey-Fuller test, except that it has a very slight difference in terms of the procedure method, and the Felice-Perron test relies on a non-parametric statistical method to correct the problem of autocorrelation in the remainder of the unit root test equation. This test is suitable for small samples (Ammar Hamad Khalaf, 2015: p.55)

The Phillips-Perron test (pp) is more accurate than the expanded Dickey-Fuller test (ADF), especially if the sample size is small. However, in the event of inconsistency between the results of the two tests, it is better to rely on the results of the (pp) test, and the two tests (ADF) and (PP) in the distribution method as well as the assumptions, as their implementation requires three equations, which are: -

- Having a fixed limit and no time trend: $\Delta Y_t = \mu + \sigma Y_t + \varepsilon_t$
- Having a fixed limit and time trend: $\Delta Y_t = \mu + \alpha T + \sigma Y_{t-1} + \varepsilon_t$
- There is no fixed limit and time trend: $\Delta Y_t = \sigma Y_{t-1} + \varepsilon_t$

As for the hypotheses assumed by the two tests in detecting the unit root (the null hypothesis and the alternative hypothesis), they depend on the approximate value of the correlation coefficient, as follows: **(Alwan, Nada Abbas(2021: p. 19)**: -

- Null hypothesis (H_0: $\beta = 1$), which states that the time series contains a unit root, meaning that it is unstable or not stationary.
- Alternative hypothesis (H_1: $\beta<1$), which indicates that the time series does not contain a unit root, i.e., it is stable or is stationary.

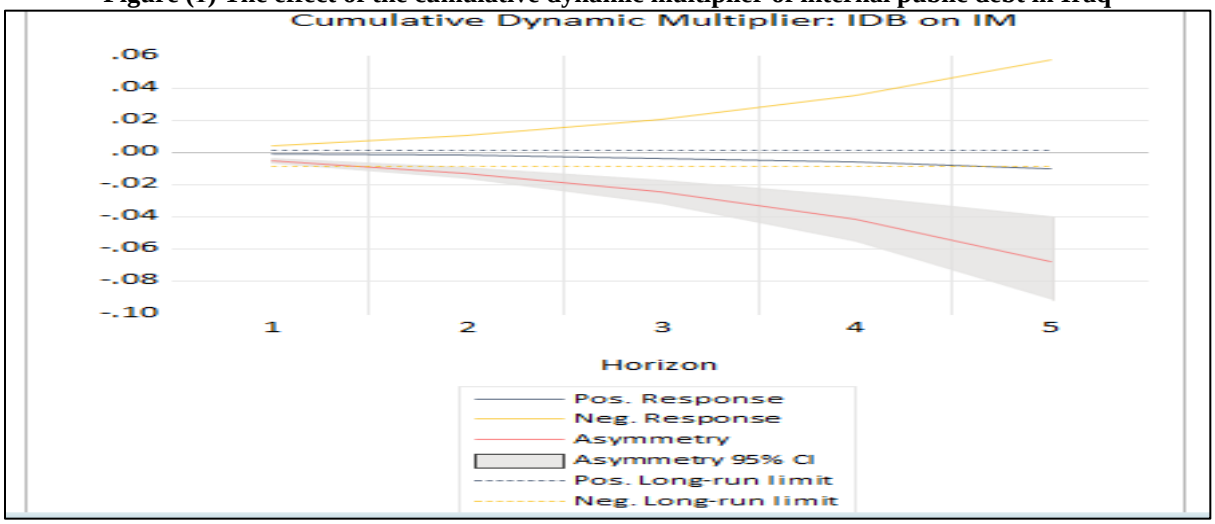
This is verified through the value of (P-value). If the value of (P-value) is greater than (5%), the null hypothesis is accepted, which states that there is a unit root, meaning that the time series is not stationary. However, if the value of (P -value) is less than (5%), then the alternative hypothesis is accepted, which states that there is no unit root, meaning that the time series is stationary. **(Varghese, George & Viswanathan,2018: p98)).**

Second: The dynamic asymmetric cumulative effect multiplier

1- The cumulative dynamic multiplier of domestic public debt

Figure (1) shows the dynamic cumulative effect on the independent variable, internal public debt (IDB), resulting from a one-unit shock in the dependent variable, imports (EX), whether positive or negative.

Figure (1) The effect of the cumulative dynamic multiplier of internal public debt in Iraq



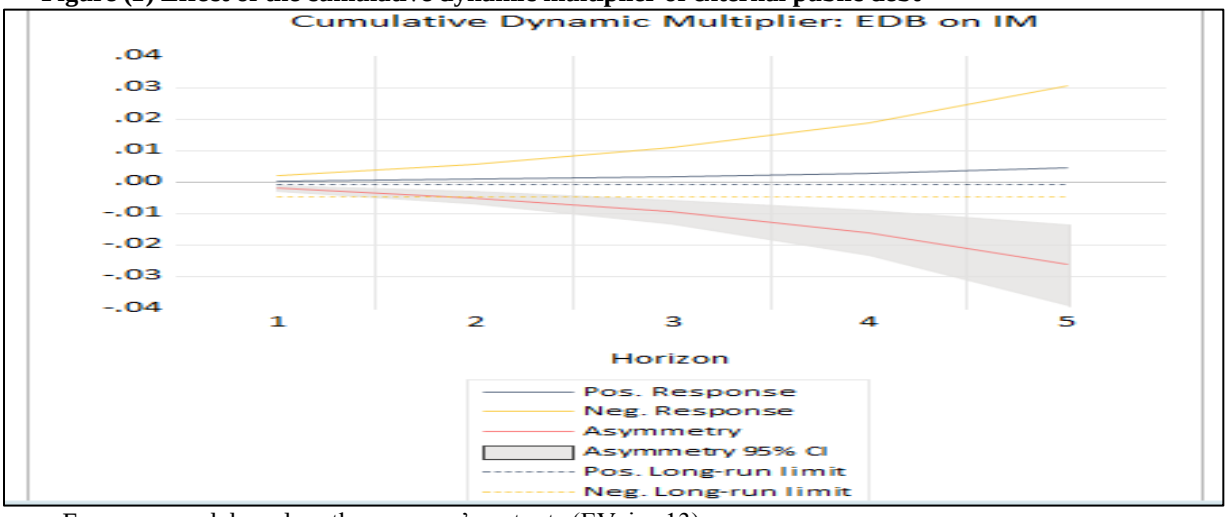
Source: From our work based on the outputs of the program EVeiws13.

Figure (30) shows the effect of the cumulative dynamic multiplier on the relationship of imports to internal public debt in Iraq, as the blue curve shows the degree of positive response of the dependent variable (IM) to positive changes in the independent variable (IDB), as the rise in internal public debt by (1%), it leads to a decrease in imports by about (0.01%) annually. As for the yellow curve, it shows the degree of response of the dependent variable (IM) to a negative shock in the independent variable (IDB), and because the curve had a positive slope (i.e., greater than zero), therefore imports affect the growth of internal debt. This means that the increase in internal debt by (1%) led to an increase in imports in Iraq by (0.6%) during the period (2004-2022).

2- Cumulative dynamic multiplier of external public debt

Figure (2) shows the effect of the cumulative dynamic multiplier on the relationship of exports to external public debt in Iraq: -

Figure (2) Effect of the cumulative dynamic multiplier of external public debt



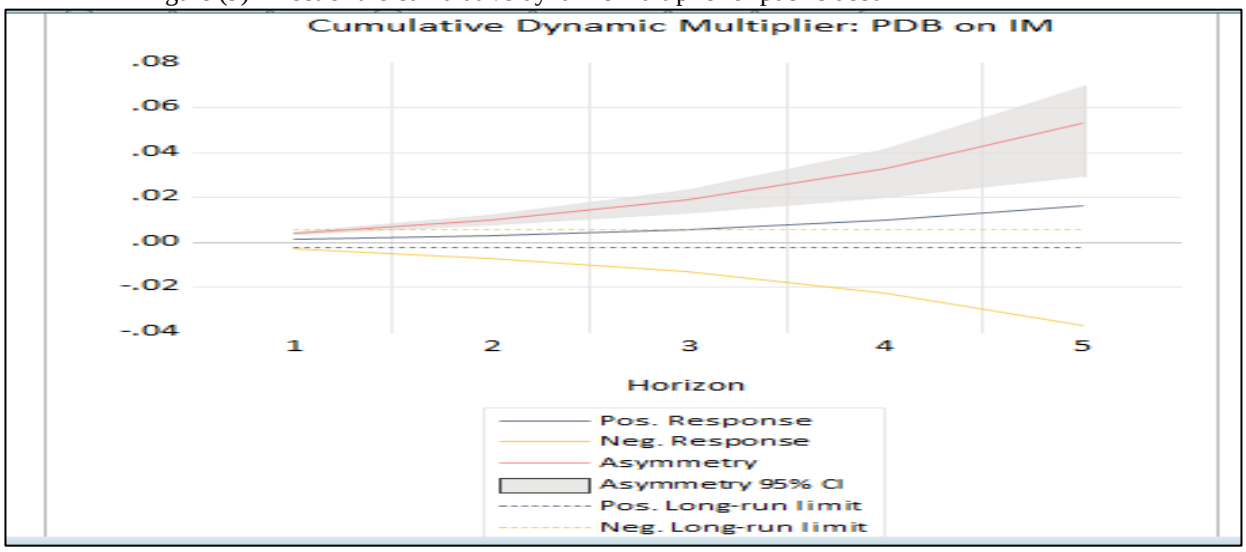
Source: From our work based on the program's outputs (EVeiws13).

The blue curve shows the degree of positive response of the dependent variable (IM) to a positive shock in the independent variable (EDB), and because the response curve was greater than zero, this means that increasing external debt by (1%) leads to an increase in imports by (0.01%) annually. As for the yellow curve, it shows the degree of response of the dependent variable (IM) to negative changes in the independent variable (EDB). Because the curve was positive (i.e. greater than zero), a decrease in external debt by (1%) leads to an increase in imports by (0.3%) annually. . From the above, the process of increasing external debt, which finances the productive sectors, will reduce the value of total imports, but this contradicts economic reality, as we find that increasing debt works to increase the spending space of the Iraqi government, which works to increase its imports of goods and services, which has caused a defect in the financial sustainability of the economy. The Iraqi.

3- The cumulative dynamic multiplier of the total public debt

Figure (3) shows the effect of the cumulative dynamic multiplier on the relationship of exports to total public debt in Iraq:

Figure (3) Effect of the cumulative dynamic multiplier of public debt



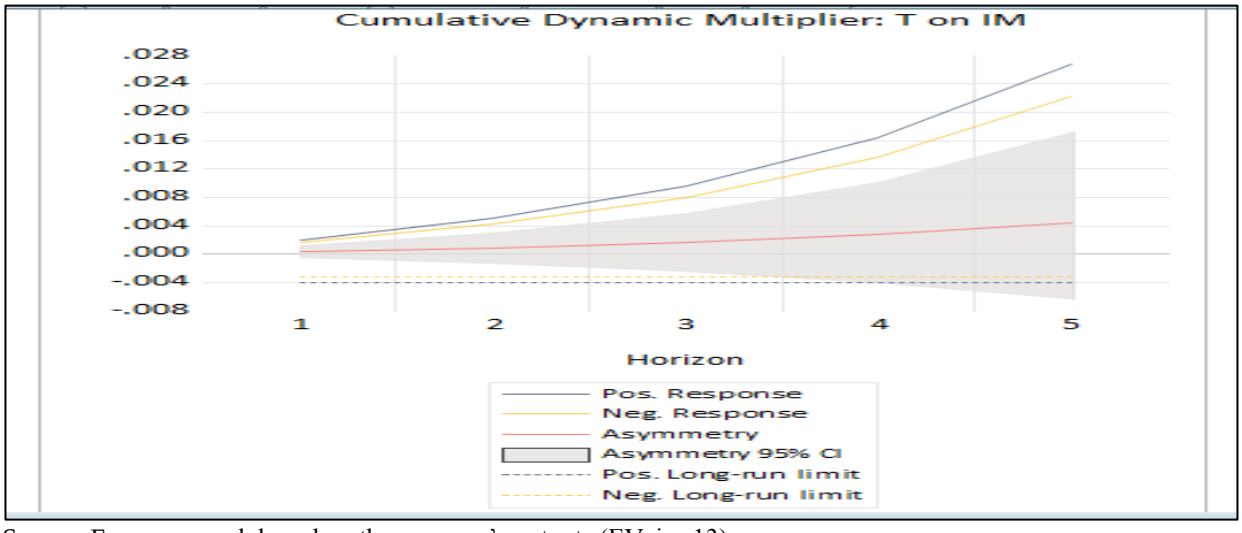
Source: Researcher, based on the outputs of the program EVeiws13.

The blue curve shows the degree of positive response of the dependent variable (IM) to a positive shock in the independent variable (PDB). The fact that the response curve was greater than zero means that an increase in total debt by (1%) leads to an increase in imports by (0.01%) annually. As for the yellow curve, it shows the degree of response of the dependent variable (IM) to negative changes in the independent variable (PDB), and because the curve was negative (i.e. smaller than zero), a decrease in total public debt by (1%) leads to a decrease in imports by (0.4%) Annually. From the above, we find that public debt is linked to the value of imports in Iraq, and that an increase in borrowing (internal and external) is supposed to be matched by an increase in real investments (domestic production), and this is consistent with the economic theory of the golden rule according to the Maastricht Rule of the European Union 1991, but we notice the opposite in the case of The Iraqi economy increases borrowing when oil prices fall to finance government imports, and thus financial sustainability is not achieved, especially in the public debt in Iraq.

4- The cumulative dynamic multiplier of tax revenues

Figure (4) shows the effect of the cumulative dynamic multiplier on the relationship of exports to tax revenues in Iraq:

Figure 4: The cumulative dynamic multiplier effect of tax revenues



Source: From our work based on the program's outputs (EVeiws13).

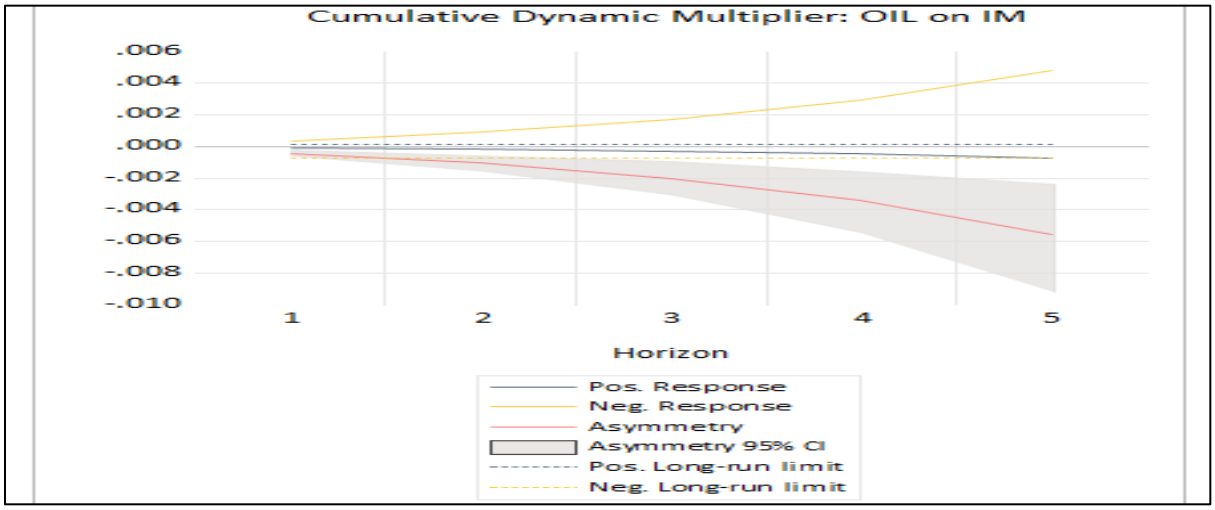
The blue curve shows the degree of positive response of the dependent variable (IM) to a positive shock in the independent variable (T). The fact that the response curve was greater than zero means that increasing tax revenues by (1%) leads to an increase in imports by (0.26%) annually. This is consistent with the economic reality, as the increase in customs tax comes through an increase in merchandise imports.

As for the yellow curve, it shows the degree of response of the dependent variable (IM) to negative changes in the independent variable (T). Because the curve was positive (i.e. greater than zero), a decrease in tax revenues by (1%) leads to a decrease in imports by (0.23%) annually. .

5- The cumulative dynamic multiplier for oil revenues

Figure (5) shows the cumulative dynamic multiplier effect of the relationship of exports to oil revenues in Iraq

Figure (5) Effect of the cumulative dynamic multiplier for oil revenues



Source: From our work based on the outputs of the program EVeiws13.

The blue curve shows the degree of positive response of the dependent variable (IM) to a positive shock in the independent variable (OIL). The fact that the response curve was smaller than zero means that a decrease in oil revenues by (1%) leads to a decrease in imports by (0.01%) annually. As for the yellow curve, it shows the degree of response of the dependent variable (IM) to negative changes in the independent variable (OIL), and because the curve was positive (i.e. greater than zero), an increase in oil revenues by (1%) leads to an increase in imports by (0.05%) annually. . From the above, we find that there is a close connection between imports and oil revenues in Iraq, but it is indirect, as Iraq depends on the oil sector to achieve financial returns that are transformed into oil revenues that finance imports (capitalist and consumer) in Iraq.

Conclusions:

1- The issue of financial sustainability and the debt crisis is one of the important topics in recent times, especially in developing economies, especially rentier ones, as financial sustainability and the debt crisis gain their practical importance from being a tool that helps in understanding and analyzing the state's financial ability to continue with public spending policies and public revenues in the long term. Long term without exposure to financial risks.

2- The absolute dependence on oil revenues, which are dependent on external factors, made the Iraqi economy suffer from a chronic deficit in the federal budget, which resulted in the accumulation of debts that it suffered during the study period, as external debt became beyond the safe limit.

3- The standard model used time series for independent variables and dependent variables, and it became clear that (the time series charts for any variable over time give a preliminary idea of the extent of the static of this series, and while this data series contains a constant trend and a general trend, if there is a clear general upward trend, then this The difference in the means of the sub-samples of this series indicates that the general mean of this series is not stable and its variance is different, which means that the time series is not stationary.

4- Financial sustainability indicators in Iraq, represented by the ratio of internal and external debt and non-oil exports to gross domestic product, indicate the unsustainability of the financial situation in Iraq. The financial

sustainability of the Iraqi economy is weak and vulnerable to external shocks, as a result of the economy's connection to oil revenues.

5- The government has greatly exaggerated and exaggerated its request for debts, whether internal or external, to cover the deficit in the general budget resulting from the decline in revenues from the sale of coins, without searching for other sources of revenues, and most of the proceeds of these debts have been directed to cover current spending, especially wages and salaries.

6- The results related to the normal distribution of the residuals were shown by the Jarque-Bera test, which tests the null hypothesis that the residuals are normally distributed, and the alternative hypothesis states that the residuals are not normally distributed. Therefore, the probability value of the Jarque-Bera test was (0.884562) which is greater than the level of significance (0.05%), and this means accepting the null hypothesis and rejecting the alternative hypothesis, meaning that the residuals are normally distributed.

7- There is no doubt that the practice of uncontrolled spending policy in Iraq has led to the development of the local debt burden, which means that rationalizing public spending and budget surpluses is one of the indicators of the sustainability of public spending, even though public spending is governed by political, social, and security factors.

Recommendations:

- It is necessary to expand studies and research on the subject of financial sustainability indicators and the debt crisis because of its importance in correcting economic policy measures and determining its results and future path.
- When presenting the topic of financial sustainability indicators and the debt crisis, we must take into account the specificity of each country through the nature of the prevailing economic and political system, the problems and crises it suffers from, and the resources and capabilities it possesses. Dealing with this topic in a country that leaves a great deal of freedom of movement for economic variables is not As is the case in a country that restricts this movement through laws and legislation.
- It is necessary for the government to set, within its policies, within the framework of its strategic program, priorities to be achieved within the general budget, perhaps the most prominent of which are improving financial sustainability and increasing the productive and competitive capacity of public and private institutions.
- Countries that have not achieved financial sustainability should reconsider their fiscal and monetary policies and try to reach the maximum level of coordination between them in a way that achieves sustainable growth that is not based on excessive expansion of the general agreement or continuous increases in the ratio of deficit and debt to (GDP), that is, growth In output, when it is linked to growth in the ratio of deficit and debt to (GDP), it will not be sustainable growth, but rather sustainable growth is what ultimately leads to a reduction in this ratio, especially in the long term.
- It is necessary for economic policy not to go too far in directing private savings towards financing government expenditures without taking into account the opportunity cost of these savings, which in the end represent part of the total savings in the country that can be relied upon to support investment and economic growth.
- It is necessary for the government to set, within its policies, within the framework of its strategic program, priorities to be achieved within the general budget, perhaps the most prominent of which are improving financial sustainability and increasing the productive and competitive capacity of public and private institutions.
- Coordination and harmony between fiscal policy and public debt management. The purpose is to exchange information and coordinate activities between decision makers related to the government’s current and future liquidity needs .

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