

Analyzing and measuring the correlation between the budget deficit and internal public debt: Iraq, a case study (2005-2021)

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Abstract : The public budget deficit is one of the problems that various countries in the world suffer from, especially Iraq, which prompts the government to cover this deficit through internal and external borrowing, which leads to an increase in its public debt. The existence of a planned financial deficit in the Iraqi public budgets was negatively reflected in the trend towards the internal public debt, and for this reason the importance of the research came to clarify the reciprocal relationship between the public budget deficit and the internal public debt, and for this reason the goal of the research was to shed light on the causes of the public budget deficit and ways of financing it and to identify the causes and sources of financing that debt. Down to the analysis of the relationship between the public budget deficit and the internal public debt in Iraq for the period (2004-2021), In order to reach this, the relevant data was analyzed to reach the results on the one hand, and the standard quantitative analysis was used to indicate that relationship based on the statistical program (EViews: 12), and it was concluded that there is one causal relationship that goes from the budget deficit to the internal public debt, i.e. the presence of a long-term relationship between the two variables, and thus a long-term co-integration relationship between the budget deficit and internal public debt.

INTRODUCTION: With the change of events after 2003, Iraq strived to develop the various economic sectors by revitalizing the movement of the stock market, but these efforts did not achieve financial and monetary stability, reduce the state of internal and external indebtedness, and maintain deficits in the general budget throughout those years, with some exceptions due to excess. Government spending with a decline in the stream of government revenues as a result of the drop in global oil prices and thus the decline in Iraq's exports of crude oil, which is the main source of government revenues with a shy contribution of other economic sectors in the formation of output and national income, and from this point the study came to shed light on the nature of the relationship between the general budget deficit and the internal public debt in Iraq for the period (2005-2021).

research importance:

The importance of this research is to clarify the causal relationship between the public budget deficit and the internal public debt.

Research problem:

The problem of the research is that Iraq suffers from a deficit in the general budget resulting from the insufficiency of public revenues to cover public expenditures, and the occurrence of any economic crisis that affects the budget, and to cover the deficit, the government resorts to internal borrowing, which led to the emergence of the problem of increasing internal indebtedness in the country.

Search goal:

The research aims to explain the causes of the public budget deficit and methods of financing it and to identify the causes and sources of financing the internal public debt, as well as to analyze the relationship between the public budget deficit and the internal public debt in Iraq for the period (2005-2021).

Research hypothesis

The research stems from the hypothesis that there is a direct relationship between the public budget deficit and the internal public debt in Iraq during the period (2005-2021).

The first topic: a conceptual framework for the budget deficit and internal public debt

First: the conceptual framework of the budget deficit

1- The concept of budget deficit

The public budget deficit is considered one of the economic problems that requires great efforts to address. It has become one of the important concepts in the science of finance, and it is not possible in the economics literature to attribute the reason for its occurrence to a specific reason, because it is a complex phenomenon due to many factors (Egwalkhlde: 1997,1).

The budget deficit is generally defined as a significant increase in public spending in return for a weakness in public revenues, and this leads to a deficit in the general budget (David N: 1997,713.)

Others define it as (the shortfall in public revenues when public expenditures are covered in various investments or current forms, which causes the inability to pay public expenditures and the increase in public expenditures over the government's general revenues. This expresses the deficit in the budget) (Nasrallah: 2013, 44).

2-Reasons for the general budget deficit:

The increase in public expenditures and the decrease in public revenues are among the most important causes of the state budget deficit.

A- The real reasons for the increase in public expenditures: They are the reasons that lead to an increase in public spending, which results from an increase in public services provided by the state and an increase in the number of beneficiaries from them. They are explained as follows: (Al-Khatib, Shamia: 2003, 81).

- Economic reasons: the establishment of projects and the increase of public investments (Al-Janabi: 2018, 45).

- Administrative reasons: The intervention of the state in various social fields and its derivatives in its external relations has led to an increase in the number of appearances and public facilities, and an increase in the number of employees and the emergence of the costs of these institutions (Al-Amiri: 2020, 40).

- War reasons: the military increase in times of war and peace, and that spending does not continue only in times of war until the end of the war, including the reconstruction of what was destroyed by the war and the compensation paid to those affected, the payment of the value of loans and their interest, which were held by entering the war (Naji: 2017, 37).

- Social reasons: the increase of these reasons and their spaces from the results produced by the migration of the rural population and concentration in the cities, is what led to the expansion of cities, which makes the increase in health and educational services, water, airports and transportation (Al-Janabi: 2018, 45).

Reasons for politics: The spread of democratic regimes and their development begin in public relations, which leads to increased income and public satisfaction. (Al-Amiri: 2020, 39).

B. This beautiful image, which is displayed in a shared space between them, is lonely and instinctive. You have to have had women and good food and to get out there.

- Decline in the value of money: What is meant is a decline in the value and fall in the prices of the basic commodities themselves, and the meaning of the foregoing is a flow in public spending. The increase in services and commodities purchased by the public does not return, but rather the rise in prices (Hashish: 1992, 103).

Changing the financial rules: Changing the general financial rules sometimes leads to a change in the financial rules in some of the United States that are placed in the general state budget and are called (the net revenue rule). In public spending (Al-Batriq: 1984, 215).

- Population growth: growth is nothing but an apparent increase (Qenawy: 2006, 60).

3-Sources of financing the general budget deficit:

A- Taxes: When public spending is financed through taxes, it leads to a decrease in the budget deficit in the general budget and an impact on various economic activities. There is a decrease in the supply, and when this income is spent by the government, the money supply returns to the previous one and increases, and the net money supply will not change, and taxes have a potential impact on the economy when they are used in financing (Jawdah: 2021, 17).

B- Borrowing from the Central Bank: The Central Bank finances the deficit in the general budget directly and indirectly. The direct method is when the government requests advances and loans from the Central Bank, the most prominent of which is the so-called overdraft, and the indirect method is represented by issuing and selling government bonds to The Central Bank, and the Central Bank plays the role of the corrector through its work to continue implementing the budget and organizing the movement of money arising from collection and exchange when public revenues are deposited with it (. Ahuja: 2011, 662).

C - Borrowing from the public: it means the government borrowing from natural and legal persons who have no ability to create money, such as commercial companies, individuals, and financial intermediation institutions such as investment and insurance companies and development banks, and according to this type of borrowing the government proceeds to issue government bonds to sell them in the financial markets during subscription to it, and this is considered one of the means of financing the deficit in the budget because it does not lead to a direct increase in the money supply (Awad: 337-338).

d- Cash issuance: when the state is unable to finance the general budget deficit through loans, taxes, or fees in order to cover expenses and carry out some public works, it resorts to financing the deficit by printing currency, i.e. issuing new quantities of money to be added to the monetary mass within the country. And when resorting to this method, the productive apparatus must be flexible, and in the event that this apparatus is inflexible, then it is dangerous to resort to this method because it leads to inflation (Atoui: 2003, 139-140).

C- Borrowing from commercial banks: These banks are different from financial institutions and individuals with the ability to create new money in the form of current accounts, and the final effects of this method of financing depend mainly on the number of cash reserves with these banks, if their cash reserves are sufficient To buy (government loan

bonds) without reducing the loans it provides to the private sector, so the effects will be expansionary resulting from the money supply, and the opposite occurs in the event that their reserves are not sufficient and that these banks did not resort to the central bank to request credits, then when subscribing to government loan bonds this leads To reduce loans to the private sector, and therefore this method does not have expansionary effects on the money supply inside the country (Ghabd Al-Azim: 1998, 282).

H- External borrowing: In the event that local borrowing means are insufficient to finance the budget deficit, the state resorts to external borrowing, and this type of borrowing does not lead to effects on the money supply unless it results in an increase in private sector funds that it retains, and according to a system of Fixed exchange, Financing the budget deficit from abroad leads to an increase in official reserves of foreign currencies, and here the monetary authority must intervene by issuing a local currency in exchange for the proceeds of the external loan.

Second: The conceptual framework of internal public debt

1-The concept of internal public debt

Internal public debt is defined (it is the government's borrowing from the local economic units that operate in the internal market and is done in the country's local currency in accordance with local legislation) (Al-Taher: 1992, 374).

And what is meant by the internal public debt is the sums that the state obtains from within the country by resorting to banks, persons and other financial institutions, with the state's pledge to return the borrowed amount and pay the interest throughout the loan period according to the agreed terms (, 211 2012: Karl).

Internal public debt is also defined as (what the government borrows to meet a certain deficit in state revenues or to face a specific situation that requires exceptional spending, or a permanent deficit that often affects the establishment of a project).

2-The importance of internal public debt

There are several points that highlight the importance of internal public debt (Rashid: 2021, 371):

A- It is one of the tools used by the government to eliminate unemployment and recession through increasing public spending financed by internal borrowing to establish productive and development projects.

B- The internal public debt leads to a redistribution of purchasing power among individuals, and it also does not need an increase in exports to pay it because it is in the national currency, and this is what distinguishes it from the external public debt.

C - It is an important and effective means for accumulating savings, as well as helping to absorb the financial surplus from individuals in order to use it to achieve economic stability and finance the budget deficit.

D - Also, the internal public debt is used to finance social capital and to finance development and the realization of its plans in all fields because most countries suffer from a shortage of capital.

C - The internal public debt does not affect the national product, unlike taxes that are deducted from the income of individuals, which leads to negative effects. As for the internal public debt, it does not cause deflationary effects, as in taxes through reducing consumption.

H - The internal public debt does not represent a direct monetary burden on the whole of society, because the interest is paid from what is collected from the taxes that are imposed, and this means that the purchasing power is transferred to the owners of the debt among the taxpayers, that is, what the state takes with the right hand is paid again with the left hand. For this reason, it is considered one of the essential reasons for resorting to it to obtain revenues to cover public expenditures (Aba Dir, Al-Jazzar: 2006, 157).

G - In the event that the local economy is dominated by stagnation, with some idle resources in it, internal borrowing can lead to moving the economy and increasing the benefit from the productive capacities present in it. It can also lead to an economy in which full employment is achieved. To withdraw the excess from the purchasing power in the markets, and then work to freeze the proceeds of the loan, that is, do not spend it, in order to resist inflation and the resulting effects (Al-Qadi: 126).

D- The internal public debt from the point of view of modern finance is not considered a burden on future generations, because directing this debt towards building and establishing investment projects in the local economy leads to lower tax rates and the expansion of tax channels for current generations, in addition to benefiting from the investment base by generations current and future (Obaid: 2017, 161).

The second topic: analysis of the budget deficit and internal public debt for the period (2005-2021)

First: Analyze the budget deficit

Nor: Analysis of the development of the general budget in Iraq for the period (2004-2021)

1-Analysis of the structure of public expenditures in Iraq for the period (2004-2021)

Public expenditures, in both its consumption and investment parts, reflect the role of the state in social and economic life, through which it is possible to know the extent of the state's success in achieving its goals. In order to understand the role of government spending, and in particular consumer spending, we will analyze government spending and clarify the relative importance of consumer spending in exchange for investment spending during the period studied

after the important economic transformations that accompanied the occupation of Iraq in 2003 represented by the abandonment of the central system and the adoption of the free system and openness to the global economy, and the pace of government spending escalated.

Table(1)The structure of public spending in Iraq for the period (2005-2021)

the year	investment spending	current spending	total public spending	GDP at current prices	investment spending/GDP	current spending/GDP	Public spending/GDP
2005	3904	22472	26375	73534	5.31	30.56	35.87
2006	6209	32598	38807	95588	6.5	34.1	40.6
2007	9211	29820	39031	111456	8.26	26.75	35.02
2008	20316	39087	59403	157026	12.94	24.89	37.83
2009	9649	45941	55590	130643	7.39	35.17	42.55
2010	15553	54581	70134	162065	9.6	33.68	43.28
2011	17832	60926	78758	217327	8.21	28.03	36.24
2012	29351	75789	105140	254226	11.55	29.81	41.36
2013	40381	78747	119128	273588	14.76	28.78	43.54
2014	35450	76742	112192	266333	13.31	28.81	42.12
2015	18565	51833	70398	194681	9.54	26.62	36.16
2016	15894	51173	67067	186543	8.52	27.43	35.95
2017	16465	59026	75490	207621	7.93	28.43	36.36
2018	13820	67053	80873	249574	5.54	26.87	32.4
2019	24423	87301	111724	254444	9.6	34.31	43.91
2020	3209	72874	76083	215662	1.49	33.79	35.28
2021	13323	89527	102850	301439	4.42	29.7	34.12
average					8.52	29.87	38.39

Source: Prepared by the researcher based on:

-Central Bank of Iraq, General Directorate of Statistics and Research, Annual Bulletins (2005-2021)

-The relative contribution prepared by the researcher based on the formula (subsequent year - previous year / previous year x 100)

The period (2005-2021) witnessed exceptional changes in the various economic activities as a result of the political change that Iraq witnessed after the 2003 crisis, as it is noted from the data of Table (1) that the total public spending and GDP at current prices took an upward path, with the exception of some years because they witnessed special circumstances. It is noted from the table that the total public expenditure increased significantly and witnessed high growth rates, as the total public expenditure reached (26375) billion dinars in 2005, and rose to reach (59403) billion dinars in 2008, and the ratio of public expenditure to GDP reached (37.83%) in 2008, as a result of the openness of the Iraqi economy to the world as a result of lifting economic sanctions and increasing exports of crude oil, as well as the rise in oil prices, while investment spending reached its highest value in 2008 as it amounted to (20316) billion dinars, with a contribution rate of (12.94%) of the gross domestic product, with an arithmetic average of (8.52%) during the period, while current spending amounted to (39087) billion dinars in 2008, with a contribution rate of (24.89%) of the gross domestic product, and an arithmetic average during the period amounted to (29.7%) to The total public expenditures decreased in 2009 to reach (55590) billion dinars, at a rate of (42.55%) of the gross domestic product. (9649) billion dinars, or (7.39%) of the gross domestic product, while it was offset by an increase in current spending to reach (45941) billion dinars, or (35.17%) of the gross domestic product. It is noted that the total public spending for the years (2010-2013) It took an upward trend, reaching (119128, 105140, 78758, 70134) billion dinars, respectively, and the percentage of contribution to the GDP was (43.54%, 41.36%, 36.24%, 43.28%), respectively, in addition to the increase in both investment and current spending for the period (2010). -2013), as investment spending amounted to (40381) billion dinars in 2013, with a contribution rate of (14.76%) of the gross domestic product, and current spending amounted to (78747 billion dinars in 2013, with a contribution rate of (28.78%) of the gross domestic product. This is as a result of the improvement in the state's public revenues, while the total public expenditure decreased again for the years (2014-2017) to reach (75490, 67067, 70398, 112192) billion dinars, respectively, with a contribution rate of (36.36, 35.95%, 36.16%, 42.12%), respectively. of the gross domestic product, and it can be attributed to the decline in crude oil prices in the global markets, which was reflected in the significant decline in the volume of revenues from crude oil and then in the total public revenues, which are the main financiers of public expenditures, and the total public expenditure returned to rise for the years (2018 and 2019) To reach (111724, 80873) billion dinars, with a percentage of contribution to the gross domestic product amounting to (43.91%, 32.4%), respectively, to record a decrease in total public spending in 2020, to reach (76083) billion dinars, with a contribution rate of (35.28%) as a result of the repercussions of the COVID crisis It rose again to reach (102,850) billion in 2021, with a contribution rate of (34.12%), and an arithmetic average of (38.39%) during the period (2005-2021).

2-Analysis of the structure of public revenues in Iraq for the period (2004-2021)

The financing of economic activities depends on what the state receives in terms of financial revenues that enter its treasury. When the state undertakes public spending, the necessary resources must be available for that, that is, the financing means represent entry into the state, called public revenues, and by addressing the components of public revenues in Iraq, it becomes clear that The rentier of these revenues because they depend very much on revenues from the oil sector, to the exclusion of other sectors.

Schedule(2)The structure of public revenues in Iraq for the period (2005-2021)

the year	Oil revenues	contribution %	tax revenue	contribution %	The other two revenues	contribution %	total public revenues	annual growth
2005	39480	97.47	495	1.22	528	1.3	40503	22.8
2006	46908	95.62	594	1.21	1554	3.17	49056	21.12
2007	53163	97.37	1398	2.56	39	0.07	54599	11.3
2008	79132	98.6	986	1.23	135	0.17	80252	46.98
2009	51719	93.68	3335	6.04	155	0.28	55209	-31.21
2010	66820	96.11	1532	2.2	1169	1.68	69521	25.92
2011	98090	98.09	1784	1.78	125	0.12	99999	43.84
2012	117000	97.61	2633	2.2	236	0.2	119869	19.87
2013	111000	97.29	2877	2.52	213	0.19	114090	-4.82
2014	97072	92.11	1885	1.79	6429	6.1	105387	-7.63
2015	51313	77.2	2015	3.03	13143	19.77	66470	-36.93
2016	44267	81.36	3862	7.1	6280	11.54	54409	-18.14
2017	65072	84.14	6298	8.14	5966	7.71	77336	42.14
2018	95620	89.73	5686	5.34	5264	4.94	106570	37.8
2019	99216	92.24	4015	3.73	4336	4.03	107567	0.94
2020	54449	86.15	4718	7.47	4033	6.38	63200	-41.25
2021	95270	87.34	4536	4.16	9275	8.5	109081	72.6
average		91.89		3.63		4.48		12.08

Source: Prepared by the researcher based on:

-Central Bank of Iraq, General Directorate of Statistics and Research, Annual Bulletins (2005-2021)

- Growth rate prepared by the researcher based on the formula (subsequent year - previous year / previous year x 100)

A- Analysis of the contribution of oil revenues to public revenues for the period (2005-2021)

It is noted from table (2) that the total oil revenues amounted to (49480) billion dinars in 2005, with a contribution rate of (97.47%) of the total public revenues amounting to (40503) billion dinars, with an arithmetic average for the period amounting to (91.89%), and oil revenues began to increase for the years (2006-2008) to reach (79132, 53163, 79132) billion dinars, respectively, with a contribution rate of (95.56%, 97.37%, 98.6%) of the total public revenues, and this increase in the volume of oil revenues is a result of the rise in crude oil prices in Global markets, which was reflected in the increase in the volume of revenues from oil, while oil revenues decreased in 2009 to reach (51719) billion dinars, a difference of (27413) billion dinars from 2008, as a result of the repercussions of the global financial crisis in 2008, which was reflected in the decline in global oil prices In addition to the decrease in the exported quantities of oil, with a contribution rate of (93.68%), and then it rose again for the years (2010-2013) to reach (66820, 98090, 117000, 111000) billion dinars, respectively, as a result of the improvement in global demand for oil. Crude oil, and the end of the global financial crisis, which was reflected in the rise in global oil prices, and it is noted that the years (2014-2016) witnessed a decrease in the volume of oil revenues, and the maximum decline was in 2016, when the volume of oil revenues amounted to (44267) billion dinars, with a difference of (66732) billion Dinars for the year 2013, with a relative contribution of (81.36%), as a result of the double crisis that the Iraqi economy was exposed to, represented by the drop in global oil prices, and Iraq's exposure to terrorist organizations and their control of some Iraqi provinces and their control of oil wells, which negatively affected the volume of quantities Oil revenues are exported from oil and thus the volume of oil revenues decreased, and oil revenues improved again for the years (2017-2019) to reach their highest value (99216) billion dinars in 2019, due to the improvement of global economic conditions and the increase in global demand for crude oil, as well as the improvement in oil prices While the volume of oil revenues decreased significantly in 2020 to reach (54449) billion dinars, a difference of (44767) billion from 2019, as a result of the health and closure procedures that the world followed due to the spread of an epidemic, to rise again in 2021 to reach (95270) billion dinars, with a relative contribution It amounted to (36.19%) of the gross domestic product.

B_ Analysis of the contribution of tax revenues to public revenues for the period (2005-2021)

It is noted from Table (2) that tax revenues recorded an arithmetic average of (3.36%) during the study period due to their contribution to the total revenues, as they amounted to (495) billion dinars in 2005, while their contribution

amounted to (1.22%) of the total revenues, which is a low percentage. It came as a result of Law No. 37 of 2003 and Law No. 49 of 2004, under which income tax exemptions were granted, while tax revenues recorded a slight increase in 2006 amounting to (594) with a contribution rate of (1.21%) of the total revenues, while in 2007 tax revenues recorded (1398) billion dinars, and this is a result of applying the direct deduction system on income tax starting in 2007, with a contribution of (2.56%) of the total revenues, and it decreased in 2009 to reach (985) billion dinars, as a result of the global crisis and its impact on the Iraqi economy, which led to Many investments were suspended, after which it rose again to reach (3335) billion dinars in 2009, with a relative contribution of (6.04%) of the total revenues. (6298) billion dinars, which is the highest value recorded during the research period and with a relative contribution of (8.14%). It fluctuated between rise and fall for the years (2018-2021), to reach (4536) billion dinars in 2021, with a relative contribution to total revenues amounting to (4.16%).

3-Analysis of the structure of the budget balance in Iraq for the period (2005-2021)

The budget deficit is one of the most important economic indicators through which it is possible to know the financial situation of the state and the extent of its ability to achieve financial and monetary stability. This is greater than the volume of Iraqi exports, which confirms the weakness of the fiscal policy in diversifying the revenue structure, which creates a state of uncertainty as a result of instability in global oil prices, as well as an imbalance in the public spending aspect, in which operational expenditures take the largest part of the total public expenditure, and this is exacerbated by The problem from year to year is due to political reasons, in addition to the increasing percentage of spending on employment in the public sector and various state agencies, and the weakness of spending on the investment side.

Table (3)Structure of the general budget for Iraq for the period (2004-2021)

the years	general revenue	%growth rate	Public spending	%growth rate	budget status
2005	39480	-	26375	-	13105
2006	46908	18.81	38807	47.13	8101
2007	53163	13.33	39031	0.57	14132
2008	79132	48.84	59403	-84.87	19729
2009	55590	-29.75	51719	-12.93	-3871
2010	66820	20.20	70134	35.60	-3314
2011	98090	46.79	78758	12.29	19332
2012	117000	19.27	105140	33.49	11860
2013	111000	-5.12	119128	13.30	-8128
2014	97072	-12.54	112192	-5.82	-15120
2015	51313	-47.13	70398	-37.25	-19085
2016	44267	-13.73	67067	-4.71	-22800
2017	65072	46.99	75490	12.55	-10418
2018	95620	46.94	80873	7.13	14747
2019	99216	3.76	111724	38.14	-12508
2020	54449	-45.12	76083	-31.90	-21634
2021	95270	74.97	102850	35.18	-7580

Source: Prepared by the researcher based on:

- Republic of Iraq, Ministry of Finance, budget implementation, final accounts, for different years.
- Growth rates prepared by the researcher.

It is noted from Table (3) that public revenues witnessed a gradual increase for the years (2005-2008) and that the growth rate of this increase amounted to (48.84%) in 2008 compared to the growth rate of public revenues in 2006. This is attributed to the large increase in the volume of revenues resulting from the increase in prices of International crude oil, which led to a surplus in the state's general budgets during the years (2005-2008), while the general budget recorded a deficit of (-3871) in 2009, due to the decrease in the volume of public revenues and a negative annual growth rate of (-29.75%). for the year 2008, in addition to an increase in the volume of public spending amounting to (51719) billion dinars, as a result of the repercussions of the global financial crisis in 2008, and revenues returned to remarkable increase for the years (2010 and 2011), as their volume amounted to (66820,98090) billion dinars, respectively, due to the recovery Global economic activity after the end of the repercussions of the global financial crisis of 2008, which positively and directly affected the rise in global demand for crude oil, as well as the rise in prices in global markets. Growth (19.27%), to decline again, and because of the double crisis that the Iraqi economy was exposed to, represented by a new global financial crisis and a security crisis represented by the terrorist organizations' control over a number of Iraqi governorates, their tightening of control over a number of oil wells, and the disruption of most economic activities, which led to a decrease in public revenues For the years (2015 and 2016), with a growth rate of (-13.73%, -47.13%), respectively, public revenues recorded a remarkable increase in 2018, with a growth rate of (46.94%) over 2017, to record a surplus in the general budget amounting to (14747) billion dinars. He is attributed to the improvement of the security situation in Iraq, as well as the increase in global oil prices. In 2019,

public revenues recorded a growth rate of (3.76%), while the general budget recorded a deficit amounting to (-12508) billion dinars, in order to increase the volume of public spending to reach (111724). One billion dinars, with a negative growth rate of (-12508%) over the year 2018 as a result of the increase in the volume of employment. In 2020, the public budget recorded a deficit amounting to (-21634) billion dinars as a result of the decrease in public revenues with a negative growth rate of (-21634%), as a result of the crisis The spread of the Covid 19 epidemic, which negatively affected the cessation of economic activities and the decrease in global demand for oil, and the budget deficit continued to reach (-7580) billion dinars in 2021.

Second: Analysis of the internal public debt in Iraq for the period (2005-2021)

-1The internal public debt structure in Iraq for the period (2005-2021)

The internal public debt is one of the tools used by the government in managing the deficit in the public budget with the aim of managing the local economy, and it is a source of public revenue on which the Iraqi government relies. Internal loans are obtained through borrowing from the Central Bank after its approval to allow the government to draw on Its current account is an amount, provided that it does not exceed its balance with the central bank, or through the issuance of government securities (long-term government bonds, short-term central treasury transfers), which is one of the indirect lending methods to fill the budget deficit during the year.

Table (4)The internal public debt structure in Iraq for the period (2005-2021) in billions of dinars

the year	Debt on Finance	contribution	Treasury drafts	contribution	bonds	contribution	loans	contribution	total domestic debt	annual growth
2005	5394	81.80	1200	18.20	0	0.00	0	0.00	6594	
2006	5394	95.54	252	4.46	0	0.00	0	0.00	5646	-14.38
2007	4675	90.01	519	9.99	0	0.00	0	0.00	5194	-8.01
2008	3956	88.78	500	11.22	0	0.00	0	0.00	4456	-14.21
2009	3956	46.90	4479	53.10	0	0.00	0	0.00	8435	89.30
2010	3956	43.09	5225	56.91	0	0.00	0	0.00	9181	8.84
2011	3556	47.75	3891	52.25	0	0.00	0	0.00	7447	-18.89
2012	3156	48.20	3392	51.80	0	0.00	0	0.00	6548	-12.07
2013	2756	64.76	1500	35.24	0	0.00	0	0.00	4256	-35.00
2014	2456	25.80	7065	74.20	0	0.00	0	0.00	9521	123.71
2015	2356	7.33	19312	60.08	15	0.05	10461	32.54	32144	237.61
2016	2356	4.97	32764	69.18	1697	3.58	10546	22.27	47363	47.35
2017	2156	4.52	32295	67.73	2682	5.63	10546	22.12	47679	0.67
2018	1956	4.68	28413	67.94	1953	4.67	9501	22.72	41823	-12.28
2019	1756	4.58	26003	67.84	1921	5.01	8652	22.57	38332	-8.35
2020	1556	2.42	46106	71.76	1917	2.98	14669	22.83	64248	67.61
2021	1556	2.23	50296	71.94	2098	3.00	15963	22.83	69913	8.82
average		39.02		49.64		1.47		9.88		28.79

Source: Prepared by the researcher based on:

-Central Bank of Iraq, Directorate General of Statistics and Research, Annual Bulletins (2005-2021(

- Relative contribution from the preparation of the researcher based on the equation (subsequent year - previous year / previous year×100)

It is noted from Table (4) that the debt of the Ministry of Finance amounted to (5394) billion dinars in 2005, with a relative contribution of (81.80%) of the total domestic debt, while treasury transfers amounted to (1200) billion dinars, with a relative contribution of (18.20%) of the total. Domestic debt, and it is noted that there was no change in the debt to the Ministry of Finance in 2006, while treasury transfers decreased to reach (252) billion, which led to an increase in the relative contribution of the debt incurred by the Ministry of Finance to reach (95.54%), and a decrease in the relative contribution of treasury transfers to (4.46%) for the same year, while bonds and loans did not record any amount during the period (2005-2014), and the debts owed by the Ministry of Finance decreased for the years (2007-2008) to reach (4675-3956) billion dinars, respectively, and this is attributed to a scheduling agreement The debts between the Ministry of Finance and the Central Bank of Iraq, signed on 12/2/2006, which stipulates that the debts be scheduled and paid in eight instalments according to their due dates. As for the treasury transfers, they decreased to reach (500) billion dinars in 2008, which was reflected in the decrease in the total public debt. The domestic income amounted to (4456) billion dinars, while the years (2009-2010) did not witness any change in the debt owed by the Ministry of Finance to settle at (3956) billion dinars in 2010, due to the postponement of the payment of the installments owed by the Ministry of Finance according to the debt scheduling agreement signed with The Central Bank of Iraq amounting to (3955) billion dinars, while treasury transfers recorded a relative contribution amounting to (56.91%) of the total internal debt, rising to (5225) billion dinars in 2010, which contributed to the increase in the internal debt to reach (9181) billion dinars. The debt of the Ministry of Finance decreased for the period (2011-2013), accompanied by a decrease in treasury transfers to reach (1500) billion dinars in 2013, which was reflected in the total

internal debt, which decreased to (2756) billion dinars in 2013, with a difference of (3191) billion dinars from 2011, due to Amortization of the value of the bonds owed by the Central Bank of Iraq, and the debt owed by the Ministry for the year 2014 decreased to reach (2456) billion dinars, with a contribution rate of (25.80%) of the total internal debt, due to the Ministry of Finance paying three installments in the amount of (300) billion dinars of the total debt incurred in favor of the Central Bank of Iraq, and treasury remittances increased to reach (7065) billion dinars, with a contribution rate of (74.20%) of the total public debt, while the years (2015-2017) witnessed only a slight change, as they settled at (2156) billion dinars in the year 2017, with a contribution rate of (4.52%) of the total internal public debt, due to the payment of the first installment only, amounting to (200) million dinars according to the debt rescheduling agreement signed on 7/18/2016, while the treasury transfers witnessed a fluctuation between rise and fall to settle at (32295).) billion dinars in 2017, with a relative contribution of (67.73%) of the total internal public debt, and the debt incurred by the Ministry of Finance continued to decline to reach (1556) billion dinars, with a contribution rate of (2.23%) of the total internal debt in 2021.

Third Theme: Measuring the Reciprocal Relationship between the Budget Deficit and the Internal Public Debt

First: Estimation and analysis of the causal model of the budget deficit on the internal public debt in Iraq for the period (2005-2021)

1-Unit root tests

Time series stability tests were conducted for the research variables represented by (budget deficit and internal public debt) each variable separately, through the use of unit root tests (Dickie Fuller Extended Test) and (Phillips Perron test).

A - Root Unit Test (ADF) for the time series of (budget deficit and internal public debt)

For the purpose of conducting the ADF test for variables, the time series of variables (budget deficit and internal public debt) was tested at the level and the first difference with a fixed limit, a fixed limit and a general trend at a significant level of 5%, so it was assumed that the time series of the variable (budget deficit) is stable at the original level, i.e. integrated from the zero degree, and the time series (internal public debt) was not stable at the level, and after taking the first difference to it, it became stable and integrated from the first degree, meaning that it does not suffer from the root of the unit, and here The null hypothesis is rejected and the alternative hypothesis which states the time series is still accepted.

Table (5)Root test using the ADF test

UNIT ROOT TEST TABLE (ADF)			
At Level			
		BD	INT
With Constan	t-Statistic	-2.924614	0.879832-
	Prob	0.0479	0.7887
With Constant & Trend	t-Statistic	4.041867-	2.704469-
	Prob	0.0119	0.2384
At First Difference			
With Constan	t-Statistic	-3.208173	3.365216-
	Prob	0.0245	0.0158
With Constant & Trend	t-Statistic	5.652943-	3.354200-
	Prob	0.0001	0.0667

Source: Researcher's work based on program results (Eviews: 12)

B - Unit root test (P.P) for the time series of (budget deficit and internal public debt)

After conducting a test (P.P) on the time series of the two variables (budget deficit and internal public debt) at the original level and the first difference at (fixed limit or fixed limit and general trend) at the moral level 5%, it became clear that the time series of both variables are static at the original level and after taking the first difference for them, they became static and integrated from the first degree, and the two series do not suffer from the root of the unit, which means rejecting the null hypothesis, which states the existence of the root of the unit and the foul with the alternative hypothesis.

Table (6)Unit root test using P.P test

UNIT ROOT TEST TABLE (P.P)			
At Level			
		BD	INT

With Constan	t-Statistic	2.352013-	0.026951 -
	Prob	0.1592	0.9573
With Constant & Trend	t-Statistic	2.515349- -	1.935448- -
	Prob	0.3201	0.6250
At First Difference			
With Constan	t-Statistic	3.900035-	3.487507- -
	Prob	0.0034	0.0114
With Constant & Trend	t-Statistic	3.919847- -	3.502812- -
	Prob	0.0165	0.0473

Source: Researcher's work based on program results (Eviews: 12)

2. Toda Causal Test – Yamamoto

The causality test is an experimental approach to study and knowing the relationship between economic variables and determining the survival of this causal relationship and thus determining the independent variable and the dependent variable, and the study of Toda and Yamamoto is a developed method of testing (wald test), and for this purpose the (wald) criterion uses the basis of f in order to judge the hypothesis of nothingness .

Determine optimal slowdown periods

By relying on the criteria (Hannan Quinn, Schwarz, Akaike) and through which the optimal slowdown periods are determined based on the statistical program (Eviews: 12) and the results came as shown in the table (7) as we note through the table that the optimal time slowdown periods are (p2) as most of the criteria agreed to take two time gaps.

Table (7)Optimal slowdown periods

VAR Lag Order Selection Criteria						
Endogenous variables: BD INT						
Exogenous variables: C						
Date: 06/18/23 Time: 02:38						
Sample: 2005Q1 2021Q4						
Included observations: 64						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1426.462	NA	8.35e+16	44.63944	44.70690	44.66602
1	-1219.963	393.6379	1.49e+14	38.31136	38.51375	38.39109
2	-1191.876	51.78561*	7.03e+13*	37.55864*	37.89596*	37.69153*
3	-1189.599	4.057262	7.42e+13	37.61246	38.08471	37.79850
4	-1189.055	0.933554	8.29e+13	37.72048	38.32767	37.95968

-1

Source: Researcher's work based on program results (Eviews: 12)

B - Analysis of the autoregressive model of var

Table (8) shows the causality test for Kranger and the degree of optimal slowing down was determined through Table (7) as two time gaps were chosen when estimating the model (Var) according to what was indicated by the mechanism of the criteria (AIC, SC, HQ) and it is noted from the results of Table (8) estimation (VAR) that each INT(-1), INT(-2), BD(-1) in the INT regression have statistical significance and this indicates that the change in INT in the previous year and the change in INT at the late time period, as well as About the change in BD at the previous period leads to the change in INT in the subsequent year and this regression is indicated through the value of F of (207.15) The results also showed that the regression of (99%) of the change in the independent variable, and that both BD(-1) and BD(-2) in the regression BD are significant, as it indicates the change in BD at the previous period leads to a change in BD at the subsequent period because the significant regression through the value of F, which amounted to 235.16 He also explained that the variables involved in the regression are determined by 93% of the change in the independent variability.

Table (8)Self-regression test (VAR) results

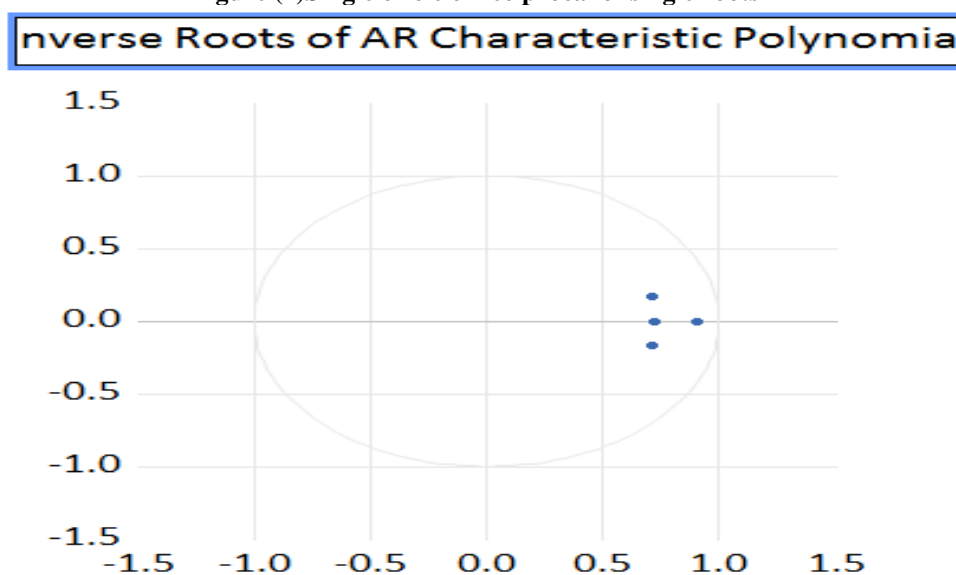
Vector Autoregression Estimates		
Date: 06/19/23 Time: 16:40		
Sample (adjusted): 2005Q3 2021Q4		
Included observations: 66 after adjustments		
Standard errors in () & t-statistics in []		
	INT	BD
INT(-1)	1.534912 (0.11036) [13.9079]	-0.367673 (0.20981) [-1.75242]
INT(-2)	-0.559616 (0.10872) [-5.14730]	0.355793 (0.20669) [1.72141]
BD(-1)	-0.111586 (0.05338) [-2.09039]	1.516206 (0.10148) [14.9408]
BD(-2)	0.054118 (0.05438) [0.99521]	-0.660260 (0.10338) [-6.38689]
C	855.2394 (428.719) [1.99487]	424.9987 (815.031) [0.52145]
R-squared	0.992701	0.937942
Adj. R-squared	0.992223	0.933873
Sum sq. resids	2.44E+08	8.83E+08
S.E. equation	2001.759	3805.515
F-statistic	2074.153	230.4898
Log likelihood	-592.7678	-635.1678
Akaike AIC	18.11417	19.39902
Schwarz SC	18.28006	19.56491
Mean dependent	24565.67	-1898.163
S.D. dependent	22698.45	14798.73
Determinant resid covariance (dof adj.)		5.67E+13
Determinant resid covariance		4.85E+13
Log likelihood		-1227.190
Akaike information criterion		37.49059
Schwarz criterion		37.82236
Number of coefficients		10

Source: Researcher's work based on program results (Eviews: 12)

C_ Estimation of the stability of a model (VAR)

After estimating the model, it is diagnosed to ensure its stability, i.e. free of standard problems, through Figure (2), which is the reciprocal of the single roots, as it is noted that all points are located within the unitary circle, and therefore in this case it can be said that the model is stable.

Figure (1) Single circle of reciprocal of single roots



Source: Researcher's work based on program results (Eviews: 12)

E_ Toda causality test – Yamamoto

After proving the existence of a common integration relationship between the two research variables (budget and internal public debt), we move to the use of the causal test in order to determine the direction of the causal relationship between the two variables if it was one-way or two reciprocal directions or both independent of each other and through Table (9) it is clear that according to Granger's test of causality, there is no two-way reciprocal relationship between the two research variables, and the one-way causal relationship tends from the budget deficit to the internal public debt at a significant level (5%) As the value of prob amounted to (0.0227) is less than (5) in this case the null hypothesis is rejected, which states that the budget deficit does not cause internal public debt, and we accept the alternative hypothesis, which states that the budget deficit causes internal public debt and not vice versa, and this is attributed to the rentier nature of the Iraqi economy, which depends on oil exports to finance the general budget .

Table (9) Causality test results

VAR Granger Causality/Block Exogeneity Wald Tests			
Date: 06/20/23 Time: 22:52			
Sample: 2005Q1 2021Q4			
Included observations: 65			
Dependent variable: INT			
Excluded	Chi-sq	df	Prob.
BD	6.122032	2	0.0468
All	6.122032	2	0.0468
Dependent variable: BD			
Excluded	Chi-sq	df	Prob.
INT	3.867392	2	0.1446
All	3.867392	2	0.1446

Source: Researcher's work based on program results (Eviews: 12)

Conclusions and recommendations

First: Conclusions

1-The research reached results indicating the proof of the research hypothesis, which indicates a positive relationship between the public budget deficit and the internal public debt in Iraq during the period (2005-2021).

2-The standard results showed that the budget deficit has an impact on the internal public debt, as the greater the percentage of the deficit in the general budget, the greater the volume of internal public debt and vice versa.

3-The results came with the absence of the root of unity and the existence of a long-term mutual integration relationship that enacts the budget deficit and the internal public debt.

4- The results of the standard analysis indicate that the results of causality according to the test (Toda– Yamamoto) there is an effect of the budget deficit towards the internal public debt in Iraq for the period (2005-2021) and there is no effect of the internal public debt towards the budget deficit, i.e. the one-way causal relationship.

Second: Recommendations

1-The need to work seriously to develop various productive sectors such as the agricultural sector, the industrial sector and the rest of the other productive sectors, in order to diversify and increase revenues and avoid any economic crises that affect oil revenues as a result of any change in global oil prices.

2-The need to work on exploiting government debt through the issuance of securities (long-term bonds and short-term Treasury transfers) because they represent non-inflationary tools that contribute to financing the government, as well as encouraging investment in financial markets.

3-To address the important budget deficit and control the volume of internal public debt requires political will to determine the volume of spending optimally, and to reduce the resort to financing the budget deficit by moving towards internal borrowing.

4- Changing the federal budget system and converting it from the traditional budget to the budget for programs and performance, as well as activating the role of financial control in order to reduce financial and administrative corruption.

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