

Examining the effects of corruption on public debt in Iraq from 2004 to 2020

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ABSTRACT

تقوم هذه الورقة بتقييم آثار الفساد على الدين العام باستخدام نسبة الناتج المحلي الإجمالي إلى الدين العام. وتم استخدام أسلوب التحليل الاقتصادي، إلى جانب مؤشر مدركات الفساد في العراق وترتيبه بين الدول. إلى أن تأثير مدركات OLS وتوصلت الدراسة من خلال نموذج الانحدار الخطي البسيط باستخدام مقدرات الفساد على الدين العام سلبي، حيث أن زيادة مؤشر مدركات الفساد بمقدار وحدة واحدة يؤدي إلى زيادة الدين العام بمقدار 2.335. كما أظهرت الدراسة أن الإنفاق الحكومي يرتبط بشكل إيجابي بالدين المحلي، وأن الإنفاق الحكومي غير المنتج له تأثير غير مباشر على الدين العام. ومع زيادة الإنفاق الحكومي، وخاصة الإنفاق الجاري، فإنه يؤدي إلى ارتفاع عجز الموازنة والدين العام.

الملخص

الكلمات المفتاحية: تصورات الفساد، الإنفاق الحكومي، الدين الحكومي.

Abstract:

This paper assesses corruption effects on public debt Using GDP to Public Debt Ratio. The economic analysis method was used, along with Iraq's corruption perceptions index and its ranking among countries. The study found, through a simple linear regression model using OLS estimators that the effect of corruption perceptions on public debt is negative, as an increase in the corruption perceptions index by one unit leads to an increase in public debt by 2.335. The study also demonstrated that government spending is positively correlated with domestic debt, and that unproductive government spending has an indirect effect on public debt. As government spending, particularly current spending, increases, it leads to a higher budget deficit and public debt.

Keywords: perceptions of corruption, government spending, government debt.

1- Introduction

Although oil resources contributed to financing public spending, they exacerbated the problem of administrative and financial corruption in the country. This paper focuses on the impact of corruption on increasing government debt. The corruption perceptions index remained high throughout the study period with a score of (17) and a ranking of (160) among countries, which confirmed the relationship between debt and corruption. This is confirmed by the imposition of conditions by financial institutions to accept financial reforms, reduce administrative and financial corruption, and benefit from credit readiness models that ensure financial sustainability and sustainability of government debt. Although the Iraqi economy may come close to achieving the sustainability condition, as the average debt sustainability rate reached (46%), this rate is not sufficient to achieve debt sustainability, as the latter depends on long-term analyses, and this rate rises and falls with changes in international oil prices. There are a number of studies that used the development of government spending and its relationship with debt as one of the indicators used in the political budget cycle hypothesis, such as (Nordhaus 1975) and (Leo and Michael 2014), and some others linked debt to corruption using many standard models, most notably (ARDL) models, such as the

study (Ibrahim, Carole, 2020), and (OLS) models, as in the study (Eunji, Kim, Yoonhee Ha, and Sangheon Kim 2017).

Our methodology in this paper includes the economic analysis aspect to track the effect of public expenditure and internal debt, as well as using quantitative approach to confirm the effects of corruption on debt, in addition to using budget deficit that increases the government debt in Iraq. We relied on various sources in analyzing these effects, including what is issued by the WB, the IMF, the World Atlas data, the US Energy Agency, in addition to the Central Bank of Iraq and special issues on external debt that were not published and obtained from the Iraqi Ministry of Finance - Public Debt Department.

2- A review of the theory

2.1 The political impact on public budget

The fiscal illusion model can be derived from the political budget cycle when voters are rational but not fully informed about the effects that these policies can have due to the delay in obtaining information regarding the perception of certain political variables and different degrees of policy makers, and more efficient governments can impose lower taxes in order to provide public goods, for example, let us assume that before the elections voters notice a tax cut but they do not distinguish whether this cut is the result of the perception of efficiency in public goods or not, which they cannot know quickly.⁽¹⁾ The political economy provides insight into why countries in similar economic circumstances pursue different debt policies. This literature emphasizes the risks of short-term behavior or opportunistic decision-making by politicians that can lead to unsustainable debt dynamics⁽²⁾.

Many studies, such as Marco Pani (1996), focus on the causes of fiscal changes focus on cross-country differences in political institutions. Some political considerations may increase the occurrence of significant changes in the direction of fiscal policy and thus the persistence of high budget deficits. Specifically, political elements affecting budget deficits and government debt:⁽³⁾.

1-Election years: Upcoming elections are supposed to lead politicians to tax less and spend more, to increase the likelihood of their re-election.

2-Political parties of government: Left-wing political parties are more inclined to spend and thus accumulate budget deficits, and they also implement programs to combat cyclical fluctuations in times of recession, more than right-wing parties.

3 -Government type: There is a belief that single-party governments are more decisive than multi-party governments, which reduces the need for greater spending and deficits to finance these coalitions.

4 -Governance Fiscal Policy, this indicator refers to the delegation of public budget authorities to the Minister of Finance, and whether the Minister of Finance only have an executive role for the budget items through advance preparation among the Council of Ministers, as the greater the legal power of the Minister of Finance, the greater the increase in government debt.

¹(Alberto Alesina, Andrea Passalacqua, The political economy of government debt, Harvard university and Iger Bocconi, first draft: march 2015, p.4.

²(Douglas W. Elmendorf N. Gregory Mankiw, Government Debt Federal Reserve Board, Harvard University and NBER, 1998 p7.

³(Mika Tujula, and Guido Wolswijk, what determines, fiscal balances? an empirical investigation in determinants of changes in OECD, budget balances, European Central Bank, 2004, p20.



5 - Number of parties: Forming coalition governments of many parties may increase the budget deficit.

3- The theory of public choice

The theory of public choice and distributive government conflict emphasizes the distorting role of political actors who act opportunistically to win elections through new funding, which leads to phenomena such as the fiscal illusion in the model (Buchanan and Wagner's 1977), and thus, voters underestimate the future burden of taxes and overestimate the benefits of current expenditures. (Niskanen 1971) highlights the role of bureaucracy that uses monopoly control over information to hide the true costs of programs and services provided by the state by overestimating costs. (Nordhaus 1975) proposes a model in which higher expenditures by political actors are financed through public debt rather than higher taxes in order to secure votes during election period.⁽⁴⁾

Many studies link the government debt/GDP ratio to changes in the corruption rate in countries. Increased corruption increases this ratio. The results reached by (orensztinB 2004) and (iglaiserB 2012) indicate that the rule of law has a significant relationship with debt/GDP. (Leo and Michael 2014) showed that corruption is a determining factor in excessive public spending. They found that a country with high corruption indicators tends to increase spending. However, in the absence of corruption, this may lead to creating a suitable climate for investments, and the increase in the latter leads to an increase in tax revenues, which reduces the need for financing through government debt.

The idea of government debt governance can be summarized as follows:⁵ :

1- Suppose that the rule of law, control of corruption, quality of regulation, government effectiveness, and political stability are linked to the efficiency of public spending, which leads to less reliance on financing through public debt.

2 -Governance can stimulate domestic and foreign investment by providing guarantees and property rights, thus enhancing economic growth and increasing tax revenues, and thus reducing government debt.

4- Review of previous studies

Marco Pani, 1996) evaluated the impact of public spending, which he confirmed could be a source of illegal gains or corrupt management, and in his paper analyzed some aspects of these relationships, proposing a model in which a corrupt government maximizes a temporary objective function (term of office or the expected net present value of gains from corruption). That is, officials collect bribes from the Public Expenditure Department and use part of these bribes to corrupt some members of parliament and achieve the desired majority. In the long run, this may lead to the accumulation of government debt, which may lead the country to a financial crisis.⁶

As for (Thanh Ha Nguyen, 2006), the paper concluded that severe tax corruption increases the stock of public debt and reduces government spending in a stable state, and that corruption reduces the speed of adjustment to stabilize public debt.

⁴(andreas eisl, explaining variation in public debt, a quantitative analysis of the effects of governance, max planck sciences po center on coping with instability in market societies, 2017, p8.

⁵ Andreas Eisl, Explaining Variation in Public Debt, A Quantitative Analysis of the Effects of Governance, Max Planck Sciences Po Center on Coping with Instability in Market Societies, 2017, p10.

⁶ Pani, Marco. "Corruption and Public Debt: Can a Financial Crisis Result from Dishonest Political Control?." *Giornale degli economisti e annali di economia* (1996): 117-132.



(Daryna Grechyna, 2010) adopts a model that links the level of public debt to the corruption of public employees, and corruption leads to high levels of public debt⁷

(2015) Luigi Benfratello, and others) empirically investigated the relationship between corruption and government debt, in 166 countries. The study found that corruption in public sector increases government debt, and this relationship is stronger in developed countries than in developing countries.. In addition, the direct and indirect effects of corruption were separated, the former acting through increased public expenditures, the latter through a negative impact on GDP. Most of the effect was direct, but for high-income OECD countries the indirect effect accounts for about a quarter of the direct effect .⁸ .

Arusha Cooray and others (2017) indicates that corruption leads to an increase in government debt, and that the impact of corruption on public debt is exacerbated by increased public spending and the size of shadow economy.⁹ .

Eunji, Kim, Yoonhee Ha, and Sangheon Kim (2017) showed that there is an interaction between public debt and corruption, which confirms that the impact of public debt on economic growth is a function of corruption..¹⁰ .

(Ibrahim, Carole, 2020) concluded that corruption increases debt to GDP, and that the relationship between corruption and government revenues and between corruption and government spending in the long run has a positive impact on public debt. The results also show that corruption in the long run hinders economic growth, and that there is a negative impact of government debt on economic growth in developing countries¹¹

Owusu-Nantwi, Victor, and Gloria Owusu-Nantwi (2021) found a direct relationship between corruption and government debt, and that there is a direct effect in the short term of shadow economy on government debt, and that there is a negative effect of corruption and shadow economy on government debt¹²

5- Analysis and measurement of corruption indicators in Iraq

5.1 The increase in the volume of corruption and government debt:

There is a direct effect of the increase of management size and corruption in the government debt. The increase in corruption in ministries and institutions means an increase in spending directed towards this corruption. The public budget did not achieve an actual deficit for the period 2003-2020 except for (34) trillion dinars, and this does not reflect what was borrowed, as the internal debt for the period 2014-2021 increased from (9) trillion dinars in (2009) to (68) trillion in 2021, with a growth rate of (650%). This increase is greater than the increase in the budget deficit, as the actual cumulative deficit for the period (2021-2003) amounted to about (32) trillion only until 2020, while the public budget for the period (2003-2011)

⁷ Grechyna, Daryna. "Public debt levels and corruption in high-income economies." Association of Southern European Economic Theorists (2010).

⁸ Benfratello, Luigi, Alfredo Del Monte, and Luca Pennacchio. "Corruption and public debt: an empirical analysis." University of Naples "Federico II" and CSEF, WP (2015).

⁹ Cooray, Arusha, Ratbek Dzhumashev, and Friedrich Schneider. "How does corruption affect public debt? An empirical analysis." World development 90 (2017): 115-127.

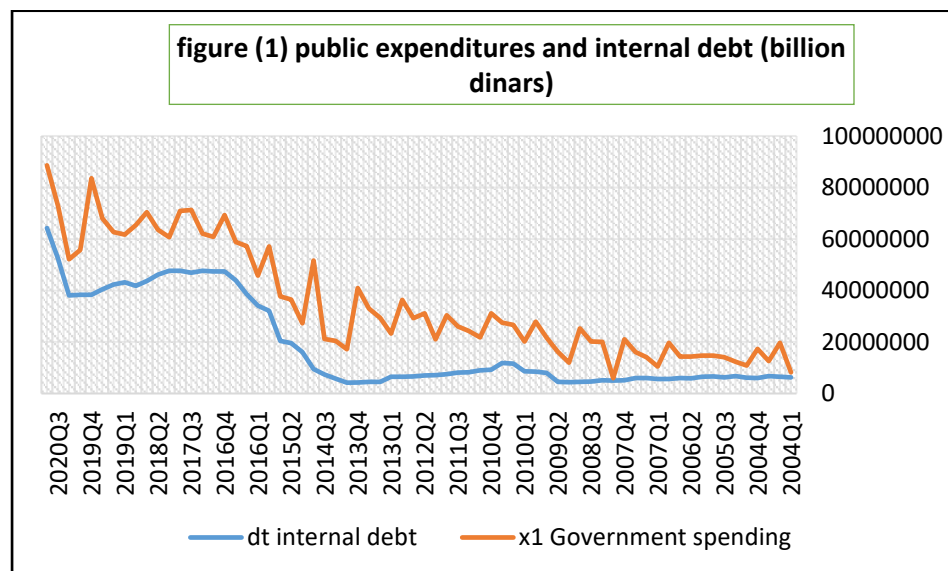
¹⁰ Kim, Eunji, Yoonhee Ha, and Sangheon Kim. "Public debt, corruption and sustainable economic growth." Sustainability 9.3 (2017): 433.

¹¹ Ibrahim, Carole. "Corruption, public debt and economic growth—evidence from developing countries." International Journal of Development Issues (2020).

¹² Owusu-Nantwi, Victor, and Gloria Owusu-Nantwi. "Public debt, corruption and shadow economy in Africa: an empirical analysis." Journal of Economic and Administrative Sciences (2021).



achieved a surplus of about (80) trillion dinars, and (8) Trillion in 2021. Figure (1) shows the trend of the relationship between government spending and domestic debt, which is directly related to public expenditures. The data confirms that one of the reasons of the increase in domestic debt is the increase the public expenditures, especially current expenditures. The public expenditures increased as an average for the period of this study by (11%), and the average current expenditure/total expenditure as an average for the period (2004-2020) reached (78%), while employee compensation/public expenditure reached (44%) for the same period, and investment expenditure reached only (21%), and this is directly related to corruption through government contracts controlled by influential parties.



Source: Figure from the researcher's work based on the Central Bank of Iraq database, quarterly data for the period 2004-2020. Statistical supplement.

5.2 Analysis of the Corruption Index on Government Debt

The impact of corruption on government debt is measured through the impact of the Corruption Perceptions Index expressed by Iraq's score on this index, which shows that the score (zero) means that the country is very corrupt, and the score (100) means that it is free of corruption. The unjustified spending that drained the resources of the Iraqi economy is clearly evident in international reports that show indicators such as corruption perceptions and the position of countries in them. These indicators consist of the ranking of countries and scores that show the extent of corruption in these countries. Thus, we see that the Corruption Perceptions Index in Iraq remained high throughout the study period.

It reached its lowest rank in the year (2004) and reached (129) with a score of (21). This is due to the small number of participating countries, which reached (146), in addition to the fact that they were the first years of political transformation in Iraq. Iraq's ranking continued to rise negatively and reached (178-178-176) in the years (2006-2007-2008) respectively, and with a score of (15-13-15) respectively.

This indicator has been stable, rising and falling throughout the study period, and reflects the negative effects of rampant corruption in the country. Iraq's rank in the year (2020) reached (160) with a corruption score of (18), which means that corruption is high in the country, as it did not reach, at best, a score of more than (20). These scores show that the highest of them, which is (100), is free of corruption.

Table (1) Corruption Perceptions and Iraq's Ranking

pointer	degree of corruption	Corruption Perceptions	Number of participating countries		pointer	degree of corruption	Number of participating countries	Corruption Perceptions
Standard	0-100 Highest Best	least = better			Standard	0-100 Highest Best		least = better
the year					the year			
2005	22	137	194		2013	16	171	175
2006	19	160	163		2014	16	170	167
2007	15	178	180		2015	16	161	176
2008	13	178	180		2016	17	166	180
2009	15	176	180		2017	18	169	180
2010	15	175	178		2018	18	168	180
2011	18	175	183		2019	18	162	179
2012	18	169	176		2020	18	160	180

Source: Transparency International, www.transparency.org.

The rise in the levels of financial and administrative corruption in the Iraqi state, whether through the rise in the volume of corruption files announced in government oversight bodies or not announced, undoubtedly expresses its direct relationship with the government debt. The depletion of the state's resources through the political influence of parties in Iraq means that the general budget will always approve a financial deficit that is covered by public loans, especially domestic loans. The rise in the corruption index above affected the government debt and its growth after the year (2004), as the government debt continued to rise, especially domestic debt, with the rise in corruption levels that remained confined between (13-22) and the ranking between (178-129) out of (180-146) countries, as this was reflected in the form of an increase in the government debt as a result of the rise in the volume of corruption after the depletion of the surpluses that the budget used to achieve, and the relationship appears clearly in times of financial shocks. Figure (2) shows that the sustainability ratio of government debt is linked to the corruption perceptions index and the relationship between them is direct. The corruption perceptions index rose to (22) in the year (2005), and the debt-to-GDP ratio reached (97%) after it was (193%), while this index decreased to (15) and with it the government debt index decreased to (42%), and the relationship for the period (2003-2010) is disturbed, because the relationship according to the theory is direct, and the lower the degree of the corruption perceptions index (the higher the level of corruption), this leads to an increase in the ratio of debt to GDP.

The reason for the disturbed relationship between debt and corruption:

First: The external government debt at the beginning of the study period was subject to a settlement agreement with the Paris Club countries and was reduced by (80%) and the last payment of it ends in the year (2028).



Second: Exchange rate changes, as the exchange rate of the dinar against the dollar reached more than (1450) at the beginning of the study period. Now, the monetary policy aimed to stabilize the exchange rate, as it decreased from (1200) in the year (2008) to (1770) in the year (2010), and this rate affects the ratio of debt to GDP, because the external debt is denominated in dollars and when evaluating sustainability, it is converted into the local currency. As for the period (2011-2020), it is possible to observe the relationship between these two variables, as the degree of corruption in the year (2011) reached (18), and in contrast, the ratio of debt to GDP decreased to (26%), while the relationship was clear for the rest of the years, especially with the internal debt, as the ratio of internal debt to GDP increased from (5%) in the year (2014) to (17%) in the year (2015), and part of that is due to the effects of the double shock. The government debt sustainability index reached about (51%) in the year (2020) after it was (30%) in the year (2019), and the reason for this is the rise in the domestic debt sustainability index to (32%) in the year (2020) after it was (15%) of GDP in the year (2019), the corruption index reflects the extent of its rise in view of the growth of government spending, and the latter is an important factor in the rise in the general budget deficit, as the corruption perceptions index remained low (high volume of corruption) throughout the study period.

Table (2) The relationship between corruption and the sustainability of government debt (2004-2020) %

Variable the year	Corruption Index	internal debt \ GDP	budget deficit / GDP	government debt\GDP
2004	21	11.00	2.00	193
2005	22	9.00	19.00	97
2006	19	6.00	11.00	52
2007	15	5.00	14.00	42
2008	13	4.00	19.00	41
2009	15	7.00	2.00	30
2010	15	5.00	4.00	29
2011	18	5.00	21.00	26
2012	18	4.00	18.00	21
2013	16	2.00	4.00	18
2014	16	5.00	12.00	21
2015	16	17.00	-2.00	33
2016	17	23.00	-6.00	34
2017	18	24.00	1.00	43
2018	18	16.00	10.00	31
2019	18	15.00	-2.00	30
2020	18	32.00	-6.00	51
average	17	11	7.12	46
the above the best (the above Empty from corruption) from0-100				

Source: The researcher's, based on Appendix (3).

5.3 Measuring the effect of corruption on the sustainability of government debt

This ratio was measured with government debt expressed as the ratio of government debt to GDP, and the results showed that (x1) the corruption perceptions index is stable at the level, and the following equation was estimated:

$$DT = x_0 + x_2 + u$$

Table (3): The effect of corruption on sustainability of government debt

Variable	Coefficient	Std.Error	T.Statistic	Prob
X1	-2.355730	0.358858	-6.564515	0.0000
C	37.87942	6.222846	6.087154	0.0000
R-squared	0.398665	Durbin. Watson	0.155839	
F-statistic	43.09286	Prop (F. statistic)	0.000000	

Source: Eviews 12 Software.

Where (Dt) represents the debt/GDP ratio, and (x1) represents the degree or index of corruption in Iraq. It is noted from the standard results that the model is significant, as the value of prob is less than (5%), which indicates the significance of the variable (x1) in the effect. Also, (R2) reached approximately (40%), meaning that corruption explains this percentage of the change in government debt. The results showed that a decrease in the corruption perception index by one unit leads to an increase in the government debt by (2.335), and this is consistent with economic theory. Iraq remained in its ranking (155-160) out of (180) participating countries, and its score was between (18-15) throughout the study period. The Corruption Perceptions Index report in the year (2019) shows that the countries with the lowest perceived levels of corruption (low corruption) are Denmark, New Zealand, and Finland, with a performance score of (87) respectively, and the lowest perceived degree of corruption (high corruption) is Somalia, which reached (9), South Sudan, which reached (12), and Syria, which reached (12).

Conclusions:

The study clarified the impact of corruption on government debt, and there is an impact on government debt due to the increase in corruption indicators. A decrease in the corruption perceptions index by one unit leads to an increase in the government debt by (2,335).

Unproductive government spending has an indirect effect on debt, and the higher this spending, especially current spending, the higher the budget deficit and government debt, because this spending is used as a tool to finance parties, the size of public spending increased as an average for the period of this study by (11%) and the average current spending\total as an average for the period (2004-2020) reached (78%), while employee compensation\public spending reached (44%) for the same period, and investment spending reached only (21%), which is directly linked to corruption through government contracts controlled by influential parties. The sustainability of government debt in Iraq is stable in the short run, but it is unstable in the long run due to the increasing reliance on internal government debt with the stability of external debt, as the debt rate increased by (655%) during the period (2009-2015) and continued to rise until the year (2020) due to oil financial shocks, and this poses a threat to the Iraqi economy in light of the fluctuations in international oil prices.

Appendixes

Appendix (1): the general budget, internal debt and the exchange rate (Iraqi dinar)

the year	exchange rate	deficit/surplus	Actual revenue	Actual expenses	internal debt
2004Q1	1416	1321,745	3242379	1920634	6296814



2004Q2	1453	-3201378	9975963	13177341	6499598
2004Q3	1460	8887079	14658193	5771114	6779261
2004Q4	1460	-6142198	5106204	11248402	6061688
2005Q1	1460	2740648	7498260	4757612	6118520
2005Q2	1466	5499732	11094429	5594697	6744080
2005Q3	1475	3814975	11692417	.7877442	6219640
2005Q4	1473	2072360	10217784	8145424	6593960
2006Q1	1477	730230	8841160	8110930	6543950
2006Q2	1477	4262810	12611866	8349056	5943900
2006Q3	1476	7244935	15527583	8282648	5993930
2006Q4	1438	-1989109	12074936	14064045	5645390
2007Q1	1289	3984299	8930537	4946238	5594390
2007Q2	1263	3239952	11394754	8154802	5964234
2007Q3	1241	3801439	13848385	10046946	6054621
2007Q4	1225	4542529	20425775	15883246	5193705
2008Q1	1210	18880104	19855874	975770	4979705
2008Q2	1200	10929959	25906208	14976249	5140448
2008Q3	1186	5863242	21468196	15604954	4584846
2008Q4	1175	-7824498	13021904	20846402	4455569
2009Q1	1170	711914	8285472	7573558	4416059
2009Q2	1170	242487	11977927	11735440	4455549
2009Q3	1170	5223361	18987942	13764581	7965519
2009Q4	1170	-3535434	15958012	19493446	8434049
2010Q1	1170	4959117	16583140	11624023	8584049
2010Q2	1170	2688844	17756423	15067579	11556529
2010Q3	1170	1024410	16743368	15718958	11830029
2010Q4	1170	-3503238	18438186	21941424	9180806
2011Q1	1170	11311817	24046963	12735146	9028316
2011Q2	1170	10642550	26768563	16126013	8184529
2011Q3	1170	7493558	25386067	17892509	8082139
2011Q4	1170	911328	23797183	22885855	7446859
2012Q1	1166	9306212	23185972	13879760	7157759
2012Q2	1166	13229619	37329637	24100018	7030569
2012Q3	1166	-17068492	5492391	22560883	6680539
2012Q4	1166	23974878	53809,000	29834122	6547519
2013Q1	1166	11928087	28716265	16788178	6527519
2013Q2	1166	1476802	26375666	24898864	4495529
2013Q3	1166	2136739	30674826	28538087	4455539
2013Q4	1166	-8647260	28000638	36647898	4255549
2014Q1	1166	13254903	26290853	13035950	4205549
2014Q2	1166	13780045	28346808	14566763	5811869
2014Q3	1166	11573110	25444804	13871694	7363869
2014Q4	1166	-16777661	25304158	42081819	9520019
2015Q1	1166	3460424	14697552	11237128	16030411
2015Q2	1166	-642614	16306727	16949341	19575303
2015Q3	1166	-737602	16511773	17249375	20453718
2015Q4	1166	-6007471	18954200	24961671	32142805



2016Q1	1182	-4707486	6980143	11687629	34142805
2016Q2	1182	-3204968	15435991	18640959	38534287
2016Q3	1182	-1519991	13350322	14870313	43910951
2016Q4	1184	-3225722	18642814	21868536	47362251
2017Q1	1184	1828321	15324487	13496166	47348351
2017Q2	1184	1969864	16398606	14428742	47703806
2017Q3	1184	248302	24549812	24301510	46936236
2017Q4	1184	-2200647	21063050	23263697	47678796
2018Q1	1182	8388422	21431309	13042887	47678796
2018Q2	1182	6491370	23936898	17445528	46149565
2018Q3	1182	4384894	31115046	26730152	43617784
2018Q4	1182	6431959	30086581	23654622	41822918
2019Q1	1182	2028613	20458173	18429560	43227122
2019Q2	1182	5216008	25611431	20395423	42354396
2019Q3	1182	-457179	27166525	27623704	40396892
2019Q4	1182	-10943970	34330866	45274836	38331548
2020Q1	1182	790508	18168104	17377596	38313536
2020Q2	1182	-4062199	9914513	13976712	38134166
2020Q3	1182	-10021255	10358615	20379870	52239526
2020Q4	1304	410192	24758457	24348265	64246559

Source : central bank of Iraq ,and planning Ministry the device central for stats ,And the agency American for energy International ,for the duration(2004-2020).

Appendix (2): The evolution of internal and external debt in Iraq (2004-2020) billion dinars

Variable the year	government debt growth rate%	The total government debt with the suspended after deducting 80% of it*	growth rate%	internal debt	External debt dinars (except for the suspension)
2004	102,670,970.00	...	6061000	84,869,730
2005	-20.8	71,066,600.00	8.24	6593000	52,479,840
2006	-17.8	50,101,500.00	-14.37	5645000	32,538,500
2007	-10.3	46,953,320.00	-7.07	5193000	31,522,960
2008	-4.6	45,310,920.00	-14.21	4455000	31,386,160
2009	-9.64	37,861,230.00	89.73	8434,000	19,965,550
2010	1.33	38,371,500.00	12.5	9180000	19,737,900
2011	-1.31	37,409,700.00	22.22	7446000	20,510,100
2012	-4.32	34,810,840.00	-14.28	6547000	18,842,560
2013	-1.83	31,913,400.00	-33.34	4255000	17,803,840
2014	8.45	38,352,500.00	125.2	9520000	19,023,380
2015	30	61,654,000.00	255.57	32142000	19,896,800
2016	10.23	72,233,000.00	46.87	47362000	15,255,800

*The terms of the Paris Club Agreement apply to debts that have not been settled, and one of the conditions is a deduction (80%) of the value of the outstanding debts, because these debts are problematic by Iraq because they are considered reprehensible debts, (clarification from Dr. Madhar Muhammed Salih, financial advisor for the Iraqi Prime Minister, 2022).



2017	13.64	87,519,200.00	2.43	47678000	30,226,000
2018	-3.2	82,603,699.00	0.06	41822399	31,166,100
2019	-4.14	78,279,848.00	-7.31	38331548	30,333,100
2020	22.41	101,945,750.00	68.42	64246550	28,048,000
Average	5		33.79		

Source :schedule from a job researcher by credit On the Iraqi Ministry of Finance, Department of Public Debt / Department of Internal and External Debt and Debt Management(2004-2020).

Appendix 3: Regression of the Corruption Perceptions Index on Government Debt

Dependent Variable: D(DT)

Method: Least Squares

Date: 01/24/22 Time: 20:41

Sample (adjusted): 2004Q2 2020Q4

Included observations: 67 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	-2.355730	0.358858	-6.564515	0.0000
C	37.87942	6.222846	6.087154	0.0000
R-squared	0.398665	Mean dependent var	-2.633862	
Adjusted R-squared	0.389414	S.D. dependent var	8.351884	
S.E. of regression	6.526163	Akaike info criterion	6.618912	
Sum squared resid	2768.402	Schwarz criterion	6.684723	
Log likelihood	-219.7335	Hannan-Quinn criter.	6.644953	
F-statistic	43.09286	Durbin-Watson stat	0.155839	
Prob(F-statistic)	0.000000			

Appendix 4: The Dormancy Test for the Government Debt Sustainability Index.

Null Hypothesis: D(DT) has a unit root
 Exogenous: None
 Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.809192	0.0674
Test critical values: 1% level	-2.639210	
5% level	-1.951687	
10% level	-1.610579	

*MacKinnon (1996) one-sided p-values.

Appendix 5: Corruption Perceptions Index Silence Test.

Null Hypothesis: X1 has a unit root
 Exogenous: Constant
 Lag Length: 5 (Automatic - based on SIC, maxlag=10)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.044335	0.0023
Test critical values: 1% level	-3.540198	
5% level	-2.909206	
10% level	-2.592215	

*MacKinnon (1996) one-sided p-values.

Source: Views 12 Software.

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