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Analysis of the impact of oil prices on public revenues in Iraq

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Abstract:

The research includes what are global oil prices and the factors affecting it, in addition to that public revenues, what are public revenues, factors affecting the budget, and what is the relationship between global oil prices and public revenues in Iraq, in the short and long term, as it has been proven that there is a relationship in the short and long term by using the integration program The joint, and the researcher recommends the necessity of diversifying sources of income as a result of the dependence of the Iraqi economy on one resource, which is oil, and the fact that the latter is not stable as a result of fluctuations in international oil prices..

Keywords: Public revenues; Oil prices, Iraqi economy, EGC.

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1. INTRODUCTION

Iraq depends mainly on oil imports, and therefore the Iraqi economy is directly affected by the fluctuation of oil prices, as it depends mainly on oil, especially after the 2003 crisis as a result of the US occupation of Iraq.

The global oil market is characterized by the instability of its prices, as oil is an international commodity in scope and strategic in importance to the exporting and producing countries, and therefore the rise in oil prices becomes in favor of the producing countries and the opposite of the importing countries, while the opposite is in the case of low oil prices, which is in favor of the importing countries, Contrary to exporting countries in the event of low oil prices, especially rentier countries such as the Iraqi economy, which is reflected negatively on Iraqi imports.

1.1.Research problem

Iraq's dependence mainly on oil revenues, and the intentional diversification of income sources, where in the event of a decrease in global oil prices, it negatively contributes to the decline in oil revenues in particular and public revenues in general, which thus contributes to the impact of economic activity in Iraq.

1.2.Objectives of the study

-The role of oil prices in public revenues in Iraq for the period 2004-2022

-Analysis of the factors affecting each of public revenues in Iraq and international oil prices for the period 2004-2022

- Using a standard model to show the role of oil prices on public revenues in Iraq.

1.3. the importance of studying

The importance of the study came from the fact that international oil prices have an influential and essential role in influencing the volume of public revenues, since Iraq suffers from the lack of diversification of its exports and its dependence only on one commodity, which is oil only.

1.4.Study hypothesis

-There is a relationship between oil prices and public revenues during the short term

- There is a relationship between oil prices and public revenues over the long term.

2. Previous studies

- Yobi Abimanyu, (2021) Oil price, government revenues, export value, and economic growth: the case of Indonesia, and a summary of what was stated in this study, that oil is linked to government revenues and the value of exports, but the growth of the Indonesian economy is not linked to changes in oil prices, since the Indonesian economy Multiple sources of income, unlike countries that depend on oil only.

-Nawal Boulawad. Masoud Zemmouri, (2014), The impact of oil revenues on the money supply in Algeria during the period 1990-2014, the study found through it,

the relationship between the two variables was measured and determined using the correlation coefficient, and it was found that there was a direct and strong relationship between them.

- Sima Mohsen Allawi, 2019, The decline in global oil prices and its impact on the preparation of the general budget for Iraq, in which it was clarified that the budget is linked to the prices and volume of crude oil production, and that any imbalance affecting this resource will have its effects on the budget. Many factors have emerged in causing changes in oil prices, including factors Speculation and political and economic factors, and this was reflected negatively on the performance of the Iraqi budget.

3 .Search method:

In this study, the quantitative side was used in addition to the theoretical side to find out the impact of oil price changes on public revenues in Iraq, in the short term, using the error correction test in the short term and the Johansen model in the long term, and the use of graphs.

4. The theoretical framework for oil prices and public revenues

4.1. The concept of oil price and the factors affecting it

4.1.1 The concept of oil price and its types

4.1.1.1.Oil price concept

The price is the value of a thing expressed in money, and the price may be equal to the value of the thing or may not be equal to or equal to it, i.e. the price may be less or more than the value of that thing produced,(Rogoff K. 2005).

As for oil, it is defined as a flammable liquid found in the upper layer of the earth's crust. It consists mainly of a complex mixture consisting of 200 or more organic compounds and raw hydrocarbon materials, with different partial compositions and physical and chemical properties. It also contains some impurities such as sulfur, oxygen, nitrogen and water. And salts, as well as some minerals such as magnesium, iron and sodium,(Barsky, RB.. & Kilian, L. 2001).

It is also known as: the monetary value of a barrel of crude oil measured in US dollars, consisting of (42) gallons, as this price is subject to constant fluctuations due to the nature of the international oil market, which is characterized by dynamism and instability,(Boheman, H. & Maxen, J. 2015).

4.1.1.2.Types of oil:

There are types of oil that differ according to the degree of their density, which is confined between (0-60) and these types,(Bruno, M. & Sachs, J. 1982)..

Light oil with a specific gravity of more than 35 degrees; Medium oil has a specific density of 28 to 35 degrees; Heavy oil with a specific gravity of less than 28 degrees,(Du, L., He.Y., & Wei, C. 2010).

It is each of these types whose price differs from the other, as oil with a higher degree of density is higher in price. Accordingly, the price of oil can be defined as the value of the petroleum product or commodity expressed in money during a specific period of time, which is affected by a group of economic, social, political factors...etc,(Ebrahimzadeh, C. 2012).

4.1.2. Factors affecting world oil prices

What are the factors affecting oil prices

The reason for the rise or fall in oil prices is a group of factors headed by the decisions of the countries' policy in the production processes that the oil-producing countries announce, such as OPEC. Although this factor is the main factor, there is a group of other influencing factors, which are as follows:(Ehrhart, H., & Guerineau, S. 2009).

- The law of supply and demand:

The law of supply and demand is considered one of the most important factors that greatly affect the changes that occur in oil prices, but knowing that oil futures contracts largely control oil, due to the contract concluded between the seller and the buyer, as its high price causes an increase in the price of many Other commodities at the global level, that is, a decrease in demand for a commodity with an increase in supply leads to a decrease in its price, and vice versa.(Enders, W. 2015).

The change that occurred in oil during the year 2014 is due to the decrease in demand for it in various European countries as well as the State of China, which resulted in an increase in the supply percentage over the required percentage. The result was a large surplus of oil that made the price drop.(Foo, N. (2015).

- political stability:

Political turmoil or the stability of the country's political situation is one of the important and very significant factors affecting the movement of oil and energy prices directly, specifically what is happening in the Middle East region in particular, where it witnesses many conflicts, unlike European countries, and perhaps the reason behind this is the inclusion of the Middle East region The Middle East includes a very large number of countries that produce oil, and the year 2008 AD is considered the largest example of this, so you find in the war in Iraq and the war in Afghanistan at that time the price of a barrel of oil changed and became 128 US dollars, and the main reason was the fear of consumers for this commodity.(Rahma, E, Perera, N., & Tan, K. 2016).

-interest rate effect:

The effect of the interest rate comes in second place among the factors affecting oil prices in the global market, knowing that there are many conflicting opinions stating that there is a correlation between changes that occur in the price of oil as well as the interest rate, but although this effect is sometimes not Strong, but with the accuracy of the analysis it becomes clear that there is an inverse correlation,

every time the interest rates of the oil commodity decrease in the global market, as this contributes to motivating consumers to carry out the borrowing process until it results in an increase in demand for oil and thus its price rises and increases.(Medina, L. 2010).

-The influence of OPEC:

OPEC is one of the global organizations as it is considered a federation that includes the number of 13 countries in the entire world, but not any country can join it as it depends only on the countries that export oil and these countries are: "Algeria, Angola, Congo, Kuwait, Libya, Nigeria, Saudi Arabia, Equatorial Guinea, Gabon, Iran, Iraq, the United Arab Emirates, and Venezuela." Perhaps this is what made it control the price of oil mainly and fundamentally, as you find it controlling more than 80% of the oil market in the world.(Jimenez-Rodriguez, R., & Sanchez, M. 2004).

-The impact of natural disasters:

The United States of America is considered one of the most oil consuming countries in the world, as it uses approximately 20% of oil production in general, and this matter is considered among the factors that affect the price change due to the occurrence of any natural or humanitarian disaster in it, for example we find in the year 2014 AD The famous hurricane that hit America, Katrina, had a significant impact on the change in oil prices, as it rose at that time by $13 per barrel.(Ismail, K. 2010)

Thus, we have finished listing the lines and paragraphs of this article, in which we discussed all matters related to oil and energy affairs, where we got to know the most prominent and important factors controlling the change in oil prices in the world, according to what was reported by the largest analysts of oil and petroleum affairs.(Greene, W. H. 2011).

4.2. The concept of public revenues and the factors affecting them

4.2.1. Definition of public revenue

Revenues obtained by the state as a result of its ownership of a group of public and private assets. Sections of state property: Public property: Public property includes property owned by the state or public institutions. (Foo, N. 2015).

4.2.2. The factors affecting public revenues are as follows:

Social factors: that is, the demographic composition of the population, the ages of the population, the proportion of those able to work, the proportion of producers among them, the tendency of the population to consume or save, the reaction of citizens, the imposition of new taxes...

-The tendency of the population: since every person has a tendency to consume leads to moving the production wheel of the state and has taxes on consumption, opposite to the tendency to save. It has disadvantages for not using the private surplus of the individual and trading has advantages in the event that the state

resorted to internal borrowing from individuals, a reaction Tax conscious citizens, a contribution to the public burden is taxable. negative reaction.

Economic factors: These factors appear through the state's gentrification, where the industrialized country can bear a higher proportion of the burdens and public expenditures compared to the agricultural country. As for agricultural investment, it does not employ 100 workers, and there is a small share of it compared to the contribution of the worker, the producer, and the consumer of the produced material. In addition, the nature of the state's wealth, the recipient of the income, purchasing power, inflation, and its relationship to taxes. (Greene, W. H. 2011)

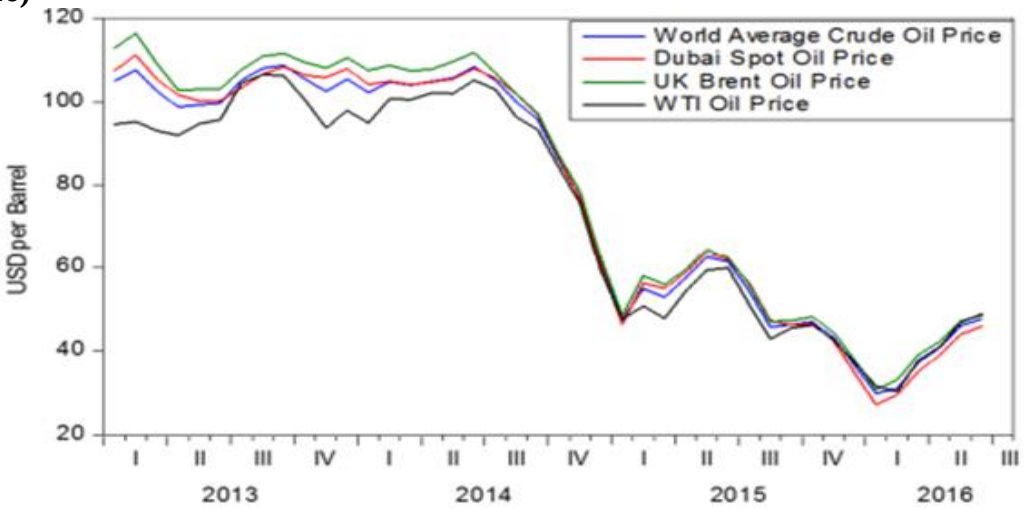
-Taxes are considered a tool to move the economic wheel. Recession can spend, unlike the case of inflation, in which the legislator intervenes with taxes to absorb the surplus.

- Political factors: the political system of the state affects the structural composition of public revenues. In the socialist system, a small percentage of the revenues come from taxes, unlike the capitalist system, as it abandons the social aspect, which is specific to the state in imposing taxes. The socialist system does not give importance to taxes as a primary source of taxes, but fuels and Resources and were covering the deficit and then the political factors that affect the state system (Medina, L. 2010)..

4.3. Oil price changes and their impact on public revenues

Iraq was accepted and joined the organization during the seventh ministerial meeting of the "OAPEC" organization, which was held in Kuwait between 4-5 March 1972, and the number of member states at that time became eleven. Oil prices began to rise, starting with the nationalization of oil, and in 1979 the Iran-Iraq war rose. Oil prices sharply again, and in 1986, after reaching a record level, the price of oil began to decline, as a result of the large increase in supply, OPEC members met to reduce production, which contributed to reducing production, contributed to the rise in the price of barrels, but the price was Lower than previous prices during the early eighties, then global oil prices fell specifically in 2008, due to the mortgage crisis, the period between 2011 and the beginning of 2014, prices stabilized, and by the end of 2014 price fluctuations began as a result of the shift of the Chinese economy abroad, in addition to that There is higher oil production that came from non-OPEC sources such as oil shale of the United States, and as a result of the increase in oil supply and lack of demand, it contributed to the decline in global oil prices, and in the year 2020 the Corona crisis that contributed to the decline in oil prices due to weak demand for it.(Barsky R. & Kilian, L. 2004).

Chart-1: Monthly movement of North Brent and WTI (January 2013 to June 2016)



Through the above drawing, it shows the price movement from 2012-2016, where there was a sharp decline in the years 2014 until 2015, after that the global oil price rose and stabilized in the year 2016

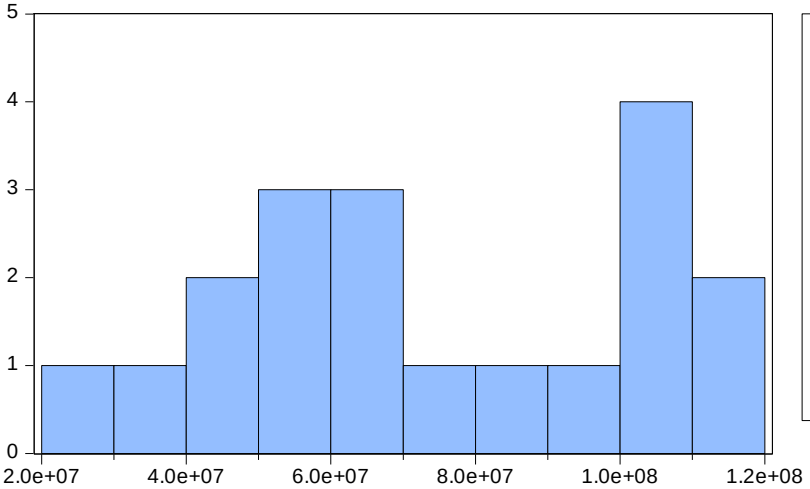
Which affects negatively in the case of low oil prices and positively in the case of high global oil prices on public revenues related to oil revenues, Guireniau, (2009).

5. Analysis of the results of oil prices and public revenues.

5.1. Examination of variables: Jarque – Bera test model .

Jarque_ Bera test : P> 0.05; Normal distribution , P < 0.05 ;No Normal distribution

Figure with table 5.1.1 . Examination of public revenues as a dependent variable.

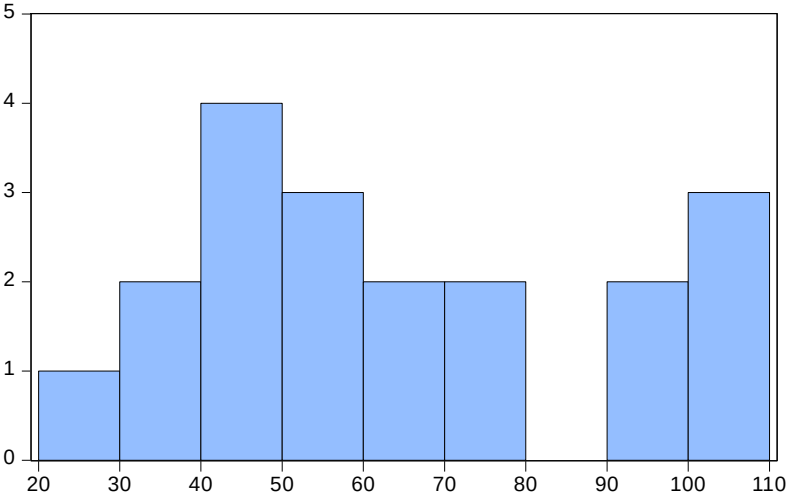


Series: GR	
Sample 2004 2022	
Observations 19	
Mean	75534609
Median	69521117
Maximum	1.19e+08
Minimum	29781630
Std. Dev.	29270812
Skewness	0.041705
Kurtosis	1.638685
Jarque-Bera	1.472606
Probability	0.478881

Source: search results.

Through the table above, the value of parameter (0.478881) is greater than 5%, which means that it does not follow the normal distribution**.**

5.2. Figure with table 5.1.2. Examination of oil prices as an independent variable



Series: SER01	
Sample 2004 2022	
Observations 19	
Mean	63.63684
Median	53.40000
Maximum	105.1000
Minimum	28.90000
Std. Dev.	26.35917
Skewness	0.453954
Kurtosis	1.777605
Jarque-Bera	1.835516
Probability	0.399413

Source: search results

Through the table above, the value of parameter (0.399413) is greater than 5%, which means that it does not follow the normal distribution

5.3. Unit root test

5.3.1. Unit root test The unit root test, aims to examine the properties of the time series for each of the oil price and public revenues using data on the Iraqi economy for the period (2004-2022), in order to identify the extent of its stillness, and to determine the degree of integration of each variable separately, and despite the multiplicity of unit root tests, only The current study uses the Dickie-Fuller test and the Philip-Berne test, as follows:

5.3.2. the Philip-Berne test

Group unit root test: Summary
Series: GR, SER01
Date: 08/20/23 Time: 19:43
Sample: 2004 2022
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.10943	0.0000	2	30
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	39.5007	0.0000	2	30
PP - Fisher Chi-square	43.8701	0.0000	2	32

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Group unit root test: Summary
Series: GR, SER01
Date: 11/09/23 Time: 03:44
Sample: 2004 2022
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 2
Newey-West automatic bandwidth selection and Bartlett kernel

Obs	Cross-Sections	Prob.**	Statistic	Method
Null: Unit root (assumes common unit root process)				
30	2	0.0000	-7.10943	Levin, Lin & Chu t*
Null: Unit root (assumes individual unit root process)				
30	2	0.0000	39.5007	ADF - Fisher Chi-square
32	2	0.0000	43.8701	PP - Fisher Chi-square

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Through the smooth search results are stable at ,2nd diference and intercept, where Prob.**(0.0000).

5.3.2. the Dickie-Fuller GLS(ERS) test.

Null Hypothesis: D(GR,2) has a unit root
Exogenous: None
Lag Length: 2 (Automatic - based on SIC, maxlag=3)

Prob.*	t-Statistic		
0.0006	-4.044252	Augmented Dickey-Fuller test statistic	
	-2.740613	1% level	Test critical values:
	-1.968430	5% level	
	-1.604392	10% level	

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

Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 14

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GR,3)
Method: Least Squares
Date: 11/09/23 Time: 03:51
Sample (adjusted): 2009 2022
Included observations: 14 after adjustments

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0019	-4.044252	0.719112	-2.908268	D(GR(-1),2)
0.0427	2.291371	0.574391	1.316143	D(GR(-1),3)
0.1234	1.668470	0.374927	0.625555	D(GR(-2),3)

6661274.	Mean dependent var	0.706208	R-squared
55368461	S.D. dependent var	0.652791	Adjusted R-squared
37.62650	Akaike info criterion	32625545	S.E. of regression
37.76344	Schwarz criterion	1.17E+16	Sum squared resid
37.61382	Hannan-Quinn criter.	-260.3855	Log likelihood
		2.034462	Durbin-Watson stat

5.4.Cointegration and the use of Engle-Granger cointegration Test

Table5.4.1 . Engle-Granger cointegration Test

Date: 08/28/23 Time: 15:50
Series: SER01 GR
Sample: 2004 2022
Included observations: 19
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C
Automatic lags specification based on Schwarz criterion (maxlag=3)

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
SER01	-0.806199	0.9333	-1.902548	0.9377
GR	-1.206610	0.8581	-3.678750	0.8190

*MacKinnon (1996) p-values.
Warning: p-values may not be accurate for fewer than 20 observations.

It is clear from the above table that there is no correlation between the two variables, whether in tau-statistic(-0.806199), Prob.*(0.9333) or in z-statistic (-

1.902548), Prob.*(0.9377) , and therefore we accept the null hypothesis and reject the alternative hypothesis

6. Conclusion and Recommendation

6.1. Conclusion

-There is a direct correlation between the price of a barrel of oil and the total public revenues, and this means that whenever the price of a barrel of oil increases by one unit, the public revenues increase.

- The existence of a direct correlation between the price of a barrel of oil and the surplus in the budget, and this means that whenever the price of a barrel of oil increases by one unit, the surplus in the budget increases.

6.2. Recommendation

Work to diversify the economy and increase interest in the agricultural and industrial sectors, in order to mitigate the shocks to which the Iraqi economy is exposed, reduce unemployment, encourage growth, and increase the contribution of these two sectors to the gross domestic product.

Taking into account the reality of the oil industry and the needs of the Iraqi economy.

Develop thoughtful plans to address the problems of the oil industry according to long-term strategic goals

With regard to the gas industry, associated gas manufacturing facilities should be reconstructed to fully absorb the gas, and facilities for compressing, manufacturing, storing and exporting gas should be repaired, to reduce losses resulting from the consumption of other oil derivatives..

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