ANALYZING AND MEASURING THE IMPACT OF FLUCTUATIONS IN OIL REVENUES IN DIVERSIFYING THE DISTRIBUTIONAL SECTORS IN IRAQ FOR THE PERIOD (2004-2020)

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Abstract:

Oil is an international strategic commodity whose prices are difficult to control by the producing and consuming countries, as it is governed by many factors, including political, economic, technological and environmental. The fluctuations of oil prices, especially the state of decline, are an obstacle to the rentier producing countries to finance and implement their economic and social strategic plans, for example, the drop in crude oil prices. It reflected negatively on oil revenues, and then on the Iraqi economy, as it is one of the rentier countries that depends on crude oil exports for all of its revenues, and this appears through the link between the general budget and the volume of oil revenues. One of the most important objectives of the research is to clarify the impact of fluctuations in oil revenues on the diversification of commodity sectors in the Iraqi economy for the period (2004-2020), and it included several recommendations that would enable the Iraqi economy to overcome crises by adopting a strong production base and diversifying sources of income as well as establishing sovereign wealth funds. Research on the method of blending the descriptive analytical method with the inductive method for the use of modern models based on the Autoregressive Distributed Deceleration Model (ARDL) methodology. The results of the research: there is a relationship in the long term and the existence of a positive and moral relationship between oil revenues and distributive sectors.

Keywords: oil prices, economic diversification, oil revenues, distributive sectors, auto regression (ARDL).

Introduction:

Crude oil acquires its importance in several respects, especially in economic terms, through its nature and properties, as it is a vital commodity that affects the global economy. Therefore, the rise or fall of crude oil prices has important effects on the balance sheets of those countries due to the fluctuation of crude oil prices and consequently the rise or fall of oil revenues for producing and consuming countries, especially since most of the crude oil-producing countries depend entirely on oil revenues in financing Its general budget, and it is almost the only source of national income for some countries such as Iraq, as it is the largest contributor to the formation of the gross domestic product during the study period.

The trend towards diversifying the production structure of the national economy, building a strong economic base, diversifying income resources and increasing the contribution of other non-oil economic sectors to the gross domestic product, such as the distributive sectors, requires confronting the causes of imbalance in the Iraqi economy, by moving towards economic diversification that ensures improving the performance of the economy It enhances

its stability and balance, and ensures its sustainability, as well as achieving the transition from an economy completely exposed to oil prices to an economy oriented towards growth and diversification.

Research Importance:

The research derives its importance from the importance of the oil commodity to the Iraqi economy, which depends heavily on this resource in financing the state's general budget in light of the fluctuations in crude oil prices globally, as the Iraqi economy is rentier par excellence, which is directly reflected on public revenues to be affected by many economic and social variables, as It has become necessary to address the importance of economic diversification and search for various other non-oil sources in the composition of the GDP.

Research Problem:

The research problem centers on the fact that the Iraqi economy depends on the oil sector as the only source of income, which made it more vulnerable to fluctuations and external shocks, especially those that result from crude oil prices, as well as the low percentage of contribution of other economic sectors to the gross domestic product, which deepens the phenomenon of structural imbalance and fragility of the Iraqi economy. As a result of its poor diversification and its almost total dependence on oil revenues, and the failure to direct these revenues to achieve diversification, as some developed countries worked on.

Research Hypothesis:

The research stems from the hypothesis that there is a long-term equilibrium relationship and the existence of a positive and moral relationship between the independent variable (oil revenues) and the dependent variable (distributive sectors) in Iraq for the period (2004-2020).

Research Objectives:

1- Measuring and analyzing the impact of fluctuations in oil revenues on the diversity of distribution sectors in Iraq for the period 2004-2020

2- Analyzing the evolution of the oil sector's contribution to financing the general budget and its effectiveness in periods of low oil revenues resulting from fluctuations in world oil prices.

Research Method:

In order to achieve the objectives of the research and prove the hypothesis, the researcher relied on the inductive approach based on economic measurement using the Autoregressive Distributed Deceleration Model (ARDL) to measure the impact of fluctuations in oil revenues on the distributional sectors in Iraq for the period (2004-2020), based on the statistical program (Eviews.9) In estimating and extracting results.

Research Structure:

In order to achieve the objectives of the research and to address the problem, the research was divided into three sections:

The first topic dealt with the theoretical framework of the phenomenon of fluctuations in crude oil prices and economic diversification in the distributive sectors in Iraq for the period (2004-2020), while the second topic dealt with analyzing the structure of the gross domestic product in Iraq in light of the developments of oil revenues for the period (2004-2020), while dealing with The third topic: the results of measuring and analyzing a model of the impact of fluctuations in oil revenues on diversification in the distributive sectors in Iraq for the period (2004-2020), and the research concluded with a set of conclusions and recommendations.

The first topic: the theoretical framework for the phenomenon of fluctuations in crude oil prices and economic diversification

1-1: The concept of crude oil prices and economic diversification

The price of oil is defined as the value of the price of the oil commodity expressed in a monetary unit in a known time and place, and the relationship between its price and its value is not fixed, and it is mostly unequal. Political or because of its nature, how it is produced, and the circumstances surrounding its exploitation **(Al-Douri, 1988: 262)**.

Also, he defined the real price of oil, or the so-called oil price in dollars, which is fixed in value, which expresses the evolution of the price over a certain period of time after excluding what occurred during the period from the factors of monetary inflation or the change in the rate of exchange of the dollar, which is taken as a basis for pricing oil with other major currencies Hence, the real price must be related to the base year **(Abdullah, 2006: 240)**.

As for the concept of economic diversification: There are many concepts of economic diversification, and a large number of academic researchers have differed in defining a clear and specific concept of diversification. Diversification of income sources by adopting a balanced approach to economic development and diversification of the production base, as well as the deliberate integration between various sectors and economic activities **(Al-Mimar, 2021: 564)**.

Some have defined economic diversification as the European Union has defined it as the means through which the sources of state revenue are increased on the one hand and the diversification of exports on the other hand. In order to achieve sustainable development that has the elements of survival and continuous development, because there are common links between economic diversification and sustainability in terms of being two important elements in achieving a sustainable economy, so economic diversification can limit the fluctuation of the state's economy and increase the performance of its actual activity **(Assaf and Awad, 2011: 467)**.

1-2- Types of crude oil prices

After the price of crude oil has been defined, which expresses the monetary value of a barrel of oil in the American scale, expressed in the American monetary unit (the dollar), we must know the types of crude oil prices that are most commonly used and common due to the movement of prices in the international market, which appear through two groups represented in the following :

_ **The first group:**

These are concession contracts, equity contracts, ownership and participation contracts.

_ **the second group:**

It is a set of prices that appeared in the subsequent period due to the emergence of new markets. These types are as follows:

1- Nominal price:

They are the current prices that are practically dealt with in the market on a specific date, and they express the monetary value of one barrel of crude oil and the cubic meter of gas expressed in US dollars. Prices may be attributed to different markets such as the Brent price or the price of Arab oil and others, and may include specific types From heavy oil or light oil, or it is according to the percentage of sulfur contents and others **(Aisha, 2019: 21).**

2- Actual price:

It is the current nominal price relative to the base year and it is calculated according to the current nominal price after excluding the influence of the inflation factors present between the approved base year and the current year, according to which a comparison is made between the purchasing power achieved by selling one barrel of oil in the current year compared to the base year **(Al-Muzaini, 2013). : 331).**

3- Forward prices or long-term deals:

It means the oil prices, according to which the contract is made now, that the crude oil will be delivered in a specified future period **(Abdul-Ridha, 2011: 88).**

4- Return price:

This means that the price of a barrel of crude oil is determined in light of the prices of refined petroleum products from a compound barrel **(Aisha, 2019: 21).**

5- The price of a paper barrel:

It is the name given to the price of a barrel of crude oil in the spot deals market, and it is very close to the concept of the price of crude oil in international oil exchanges **(Abadi and Lafta, 2020: 135).**

1-3- Indicators for measuring the degree of economic diversification

We can infer a set of statistical indicators that measure the degree of economic diversification, and these indicators are numerous and differ in their suitability and efficiency in measurement, and in general, the indicators can be classified into two groups. The Gini index) and the second group that measures the economic structure of a country based on a group of industries (such as the Thiel index, the relative Gini index, and inequality in the productive sector). The first group that measures absolute specialization indicates the degree of specialization in the country. For example, most oil-producing countries specialize in petroleum products, as well as the specialization of East Asian countries in the production of rice, and thus the

specialization is in the rest of the countries, and in general, these indicators are only methods of measurement and are classified according to the concept. Theoretical as the technical methods adopted in measuring economic diversification **(Al-Ta'i, 2021, 54).**

The following table presents the most important characteristics of the statistical indicators used in measuring economic diversification.

Table (1-2) characteristics of indicators of economic diversification

The relationship between index and diversification	The basis for calculating the judgment in diversification	method or pointer
Lower value means more diversified economy	Equality in the distribution of job opportunities in various sectors is the highest criteria for diversification	**Herfindahl-Hirschmann Index Arc Indicators**
The lower the value, the more diversified the economy	Equality in the distribution of job opportunities in various sectors is the highest criteria for diversification	**Universe Index)Shannon (and Universe Index**
A higher value means a more stable economy or sector with a higher value in the export sector	The similarity in the distribution of job opportunities in a country or sector measures economic stability	**Hashmann index and position quotient**
The index approaches zero if the sector's share in economic activity approaches that of other sectors	Economic diversification is measured on the basis of the sector's share of stable and unstable sectors	**National Average Index**
The lower the variance, the more diversified the economy	It captures the characteristics of individual industries and the relationships between industry inputs with growth and instability	**Diversity portfolio index**
The accelerator for diversification may be unbalanced growth with faster growth of sectors with high demand elasticity	Economic diversification is seen as driven by simultaneous changes between consumption and production	**Input and Output Model**
It defines the growth and stability effects of different diversification strategies, resulting from changes in the relationships in the input-output matrix	Compare the effects of growth and stability to diversification strategies that involve changes in the level and composition of external final demand	**Input-output model: unified framework**

Source: United Nations, The concept of economic diversification in the context of response measures Technical paper by the secretariat, 6 May 2016, p25 .

1-4- Obstacles to economic diversification

The presence of obstacles and obstacles that limit the speed of achievement and success of economic diversification in countries with unilateral economies, such as oil countries, are directly obstacles that stand in the way of achieving sustainable development in these countries, and it is their responsibility to make more efforts to overcome them, and perhaps the most important of these obstacles are represented in the following : **(Ayman and Al-Saeed, 2017: 15)**

• The lack of a protected technological base on the one hand, and the difficulty of transferring and localizing technology on the other.

• The scarcity of agricultural and natural water resources in some oil-producing countries is what has limited the success of opportunities to enhance the role of the agricultural sector in building economic diversification.

• Some oil-producing countries suffer from a general poverty in local human resources on the one hand, such as the Arab Gulf states, for example, and over-reliance on foreign labor on the other hand, especially in light of the significant rise in their costs.

• Restrictions imposed on foreign investment, and the lack of an appropriate climate and legal guarantees for this investment.

• The absence of political stability in some oil countries, which made the issue of maintaining security in some and securing borders in others, draining huge financial resources at times, which could have been used to finance economic diversification projects and the development process.

• Many mono-economy countries suffer from a great mismatch between the quality of education and training outputs, and the labor needs of the national economy.

The diversity of reasons for the lack of diversification operations in many economies that depend on a single sector in the events of comprehensive national development, inevitably calls for work to overcome these obstacles, through a comprehensive strategy, to achieve real diversification that ensures the expansion of the fields of employment of the savings obtained by these countries, which are derived From the process of exporting natural resources in their primary form, to establish a real economy, not only consumer industries, trade and import, and the primary responsibility lies with the developmental administration in these countries.

The second topic: analysis of the structure of the gross domestic product in Iraq in light of the developments of oil revenues for the period (2004-2020)

2-1- Reflection of the evolution of crude oil prices in public revenues and expenditures in the general budget

The plans for economic development in Iraq and for decades have always been linked to oil revenues, which have taken control and dominate their share and largely in the structure of public revenues from the revenues of the general budget, as the general budget reflects the economic program of the government in achieving economic and social goals, which are of great importance in the economies of Countries, whether developing or developed, are considered a development tool for economic and social projects and infrastructure, as the general budget is a well-studied plan in light of the country's needs and capabilities for a future year. This is what made Iraq's economic performance and the effectiveness of all economic indicators closely related to the performance of the oil sector, which in turn is subject to a number of factors and influences that cause unexpected or sudden fluctuations and fluctuations **(Aresti, 2016: 7),** in addition to that, this exposes the economy to shocks in the event of a drop in global oil prices Also, not to exploit the financial surpluses resulting from oil revenues to achieve economic diversification.

Table (2-3) Actual revenues and expenditures of the general budget in Iraq for the period (2004-2020) (billion dinars)

(7) deficit or surplus (5-2)	(6) Annual rate of change %	(5) overhead	(4) Contribution percentage %(2/ 1)%	(3) Annual rate of change %	(2) general revenue	(1) oil revenue	the year
865		32117	98.9		32982	32627	2004
14127	(17.88)	26375	97.4	22.80	40502	39480	2005
10249	47.13	38806	95.6	21.12	49055	46908	2006
15568	0.58	39031	97.3	11.30	54599	53162	2007
20849	52.19	59403	98.6	46.98	80252	79131	2008
2642	(11.51)	52567	93.6	(31.21)	55209	51719	2009
5170	22.42	64351	96.1	25.92	69521	66819	2010
30359	8.22	69639	98.1	43.84	99998	98090	2011
29092	29.77	90374	97.6	19.47	119466	116597	2012
6894	18.26	106873	97.3	(4.77)	113767	110677	2013
21830	(21.82)	83556	92.1	(7.37)	105386	97072	2014
(3927)	(15.75)	70397	77.2	(36.93)	66470	51312	2015
(12658)	(4.73)	67067	81.3	(18.15)	54409	44267	2016
1845	12.56	75490	84.1	42.14	77335	65071	2017
25696	7.13	80873	89.7	37.80	106569	95619	2018
(4157)	38.15	111723	92.2	0.94	107566	99216	2019
(12883)	(31.90)	76082	86.1	(41.25)	63199	54448	2020

Source: Prepared by the researcher based on: Central Bank of Iraq, Statistical website,

https://cbiraq.org/Default.asp .

_ Contribution ratio = (oil revenues / public revenues) x 100.

Net budget = (public revenues - public expenditures) .

(brackets mean negative sign)

Table (2-3) shows the deficit or surplus in the general budget of Iraq during the period (2004-2020), as column (1) represents oil revenues and column (2) shows the public revenues, which are the total revenues obtained by the state from its various sources, as It is noted that oil revenues amounted to (32627) billion dinars in (2004), as well as public revenues amounted to (32982) billion dinars.) billion dinars with an annual change rate of (46.98%) in 2008, and this increase occurred as a result of the improvement in crude oil prices as well as the rise in oil revenues to (79131) billion dinars with a contribution rate of (98.6%), and then public revenues decreased to (55209) billion dinars with a negative annual change rate of (-31.2%) as a result of the decline in oil prices and the decline in its oil revenues to (51719) billion dinars, with a contribution rate of (93.6%) in (2009), and that the justification for this decline was as a result of being affected by the global crisis in That year, and this shows the extent to which the Iraqi economy depends on oil revenues Public revenues increased to reach (119,466) billion dinars for the year (2012), with an annual change rate of (19.47%), which is the highest value reached during the research period. 97.6%) as a result of the large increase in international oil prices, then public revenues began to decline until they reached (54409) billion dinars, with a negative annual change rate of (18.14-) in (2016), and this happened as a result of the decrease in oil

revenues to (44267) billion Dinar with a contribution rate of (81.3%) due to the decline in international oil prices, which generated a deficit in the general budget. Then, public revenues began to rise as a result of the increase in oil prices until they reached (107566) billion dinars, with an annual change rate of (0.94%) in (2019). Oil revenues also increased to (99216) billion dinars, with a contribution rate of (92.2%), and in (2020) public revenues decreased to (63199) billion dinars, at an annual rate of change of (41.25%), and also oil revenues decreased to (54448) billion dinars, with a contribution rate of (86.1%), due to the Corona pandemic, which led to a decline Oil prices have restricted economic activities in the world.

As for the data shown in column (5), they represent public expenditures, which represent the amounts spent by the state in order to achieve a general benefit to society. Public expenditures reached the highest value of (111723) billion dinars in (2019), and the lowest value of public expenditures was recorded in (2005).) as it amounted to (26,375) billion dinars.

As for column (7), which represents the net general budget, the budget was in a state of surplus during the period (2004-2014) due to the public revenues covering all expenditures. The Iraqi government suffered a double shock as a result of the drop in oil prices in global markets, and other challenges as a result of the war on terrorism, its high costs, the expenses of housing the displaced and the reconstruction of the liberated areas that were damaged as a result of military operations, and the lack of other non-oil revenues as a result of Iraq's lack of sources of income diversification, then the budget achieved a surplus within two years. 2017-2018) as a result of the improvement in oil prices in global markets, after which the budget recorded a deficit in (2019) as a result of the increase in current spending, especially capital, service and commodity expenditures, as well as in (2020) it recorded a deficit as a result of being affected by the negative trade shock.

2-2- Evolution of the distributive sectors for the period (2004-2020)

The distributive sectors include the economic activities of wholesale and retail trade, transportation, communications, storage, banking and insurance. The extent of development in these sectors can be known through their relative importance in the formation of the gross domestic product at current prices for the period (2004-2020).

Table (2-8) Distribution of Gross Domestic Product on Distributive Economic Activities at Current Prices For the period (2004-2020) (billion dinars)

Contribution percentage %	GDP at current prices	The sum of the distribution activities	Banking and insurance	Wholesale and retail trade, hotels and the like	Transportation, communication and storage	the year
18.1	53235	9630	456	3646	5528	2004
16.5	73533	12105	620	5598	5887	2005
22.0	95588	21037	7945	6350	6742	2006
22.8	107828	24662	10152	7038	7472	2007
22.5	155982	35078	12970	10078	12030	2008
28.8	139330	40218	14547	11486	14185	2009
23.4	158521	37065	15517	12172	9376	2010
20.0	211310	42339	18075	13941	10323	2011
18.0	251907	45367	19160	14325	11882	2012
20.5	267395	54894	22143	17688	15063	2013
23.3	258900	60431	20611	20387	19433	2014
30.1	191715	57844	21510	20575	15759	2015
30.3	196536	59559	21655	21857	16047	2016
27.2	225722	61511	19190	18397	23924	2017
26.1	251064	65490	19284	19519	26687	2018
25.2	277884	70256	22329	23890	24037	2019
28.9	198774	57505	18692	19152	19661	2020

Source: Prepared by the researcher based on: the Central Bank of Iraq, the General Directorate of Statistics and Research, various numbers, the annual economic report.

We note from Table (2-8) that these sectors recorded a contribution rate of (18.1%) in (2004), while the percentage of contribution of these sectors in generating GDP in (2006) increased to (22%), and that these sectors recorded As a fixed percentage until (2008) it amounted to (22.8%), while the percentage of the contribution of these sectors increased in (2009) to (28.8%), then after that the percentage of contribution decreased during the period from (2010-2014) to reach (23.3%) in the year (2014), then it rose again to reach the highest percentage in (2015) and (2016), as the percentage of contribution reached (30.1%) in (2015) and (30.3%) in (2016), but it recorded a decrease, respectively. To reach (28.9%) in the year (2020), while the absolute value of the distributive sectors increased at a continuous rate during the study period (2004-2020) from (9630) billion dinars in (2004) to (54894) billion dinars in (2013), then took These sectors continue to rise from (60431) billion dinars in (2014) to (70256) billion dinars in (2019), then decreased slightly (57505) billion dinars in (2020).

The third topic: the results of measuring and analyzing the impact of fluctuations in oil revenues on diversification in the distributive sectors in Iraq for the period (2004-2020).

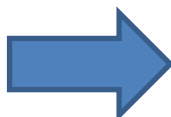**3-1- Description of the standard model:**

The use of the standard model requires the use of the values of oil revenues, because their values correspond to the values of the gross domestic product.

The model description stage is one of the most important stages of preparing the standard model, which is defined as a set of economic relationships that are placed in the form of mathematical equations, which explain the behavioral or mechanical relationships that show the work of a particular economy, and they are called structural equations in which the relationship between the independent variables and the dependent variable is determined. According to the logic of economic theory

With regard to the variables that will be addressed and discussed, namely: -

= f (OIR) …………………..……3 DA

=$\beta 0 + \beta 1$(OIR)+ut. ……….…..…4   DA

> The impact of fluctuations in oil revenues on the total distribution sectors

Table (3-1) : Standard Model Variables

variable symbol	The variable name is in Arabic	variable name in english	Variable type
Oir	**oil revenue**	Oil Revenue	**independent**
Da	**Distributive activities**	Distributive Activities	**Follow**

Source: Prepared by the researcher based on the model description

3-2- Descriptive statistics for the study variables

In the beginning, we characterize the time series data statistically and know the nature and characteristics of this data. These tests show the arithmetic mean (Mean), median (Median), maximum (Maximum), minimum (Minimum) and standard deviation (Std. Dev.).

We note from Table (3-2) the descriptive statistics of the dependent and independent variables used in this study for the period (2004 -2020) and the data has been transferred to a quarterly, bringing the number of observations to 68 for each of the mentioned variables. It is clear through the statistic of the normal distribution (Jarque-Bera) that the values of the probability (Probability) for the variables used in the research have exceeded (0.05), which means that the data follow the normal distribution, that is, the acceptance of the null hypothesis (H0) and the rejection of the alternative hypothesis (H1), which states that The data does not follow a normal distribution.

Table (3-2) Characteristics of descriptive statistics for the study variables for the period (2004-2020)

	DA	OIR
Mean	44411.24	70718.53
Median	45163.91	63996.84
Maximum	71302.47	118193.7
Minimum	9334.031	27080.16
Std. Dev.	18561.01	27268.5
Skewness	-0.48507	0.252718
Kurtosis	2.055667	1.690078
Jarque-Bera	5.193326	5.58552
Probability	0.074522	0.061252
Sum	3019964	4808860
Sum Sq. Dev.	2.31E+10	4.98E+10
Observations	68	68

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

3-3- Interpretation of the results of time-series inactivity tests for the research variables

3-3-1- Augmented Dickey-full test (ADF.

Through the (ADF) test, we can infer whether the listed variables do not have a unit root and suffer from a unit root, and then here we accept the null hypothesis and reject the alternative hypothesis, but if the variables do not suffer from a unit root and have a unit root, and here we will accept The alternative hypothesis We reject the null hypothesis.

We note through Table (3-3) the results of the expanded Dickey-Fuller test (ADF), which indicates that all the variables included in the model settled at the first difference for all the variables as shown in the following table:

Table (3-3) results of the expanded Dickey-Fuller test at the first level and difference.

ADF		At First Difference			
With Constant	**Variables**	**d(CA)**	**d(DA)**	**d(SA)**	**d(OIR)**
	t-Statistic	-3.2953	-1.8718	-2.1839	-2.4409
	Prob.	0.019	0.3434	0.2142	0.1348
	Result	**	n0	n0	n0
With Constant & Trend	t-Statistic	-3.5023	-2.5679	-2.9018	-2.7252
	Prob.	0.0474	0.296	0.1696	0.2303
	Result	**	n0	n0	n0
Without Constant & Trend	t-Statistic	-3.3573	-1.9552	-1.5544	-2.4734
	Prob.	0.0011	0.049	0.0112	0.014
	Result	***	**	**	**
Rank		I(1)	I(1)	I(1)	I(1)

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

- (*), (**), (***) indicate that it is significant at the level (10%, 5%, 1%).

- (NO) indicates that it is not significant

3-3-2- Philips-Perron (P-P) test.

The (P-P) test is more accurate in small-sized samples than the (ADF) test. As a result, we will present the results of (P-P) and compare them with the results of (ADF), and the results of both tests were similar, so it settled at the first difference (1) for all variables, and from here We must reject the null hypothesis (H0 = 0) and accept the alternative hypothesis (H1 = 1), as in the following table.

Table (3-4) results of the Philips-Beron test at the first level and difference.

PP		Variables	d(CA)	d(DA)	d(SA)	d(OIR)
With Constant		t–Statistic	-3.4152	-1.9824	-3.9087	-2.5358
		Prob.	0.0138	0.2938	0.0034	0.1118
		Result	**	n0	***	n0
With Constant & Trend		t–Statistic	-3.6135	-2.6189	-4.0207	-2.8177
		Prob.	0.0362	0.2736	0.0126	0.1964
		Result	**	n0	**	n0
Without Constant & Trend		t–Statistic	-3.4723	-2.0347	-3.7234	-2.58
		Prob.	0.0008	0.0409	0.0003	0.0106
		Result	***	**	***	**
Rank			I(1)	I(1)	I(1)	I(1)

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

3-4- Estimating and analyzing the impact of fluctuations in oil revenues on distributional activities.

After the static time series of economic variables (oil revenues) were tested as an independent variable, (distributive activities) as a dependent variable, and it was found that all of them were stable at the first difference I (1) and with the availability of this condition, we were able to apply the ARDL model test and the table below shows us the test results for this model.

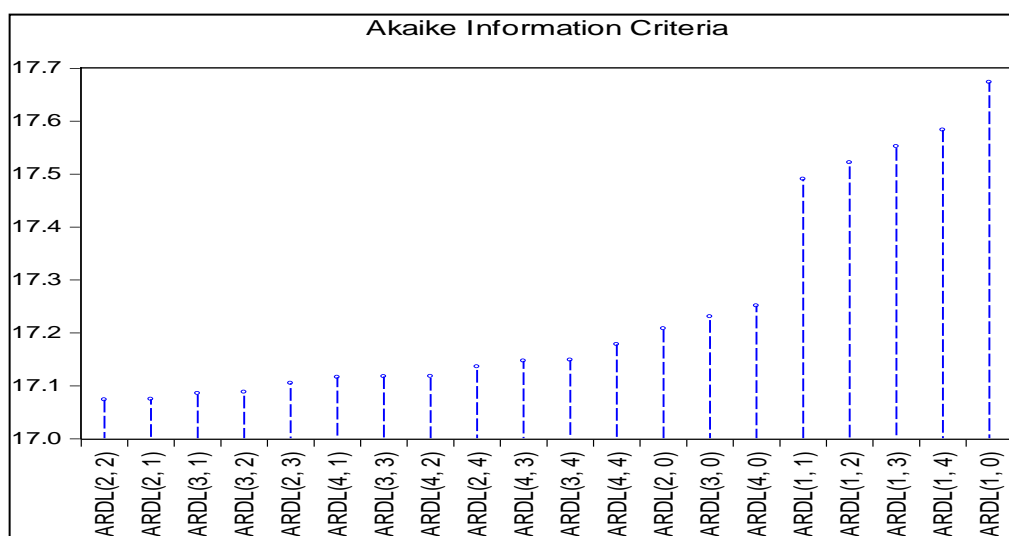**Table (3-12) results of the ARDL model test for distributional activities.**

Dependent Variable: DA				
Method: ARDL				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
DA(-1)	1.609657	0.104821	0.104821	0.0000
DA(-2)	-0.630927	0.101438	0.101438	0.0000
OIR	0.113028	0.028628	0.028628	0.0002
OIR(-1)	-0.142925	0.054716	0.054716	0.0113
C	-1673.371	25358.11	-0.065990	0.9476
R-squared	0.995954	Mean dependent var		45459.5
Adjusted R-squared	0.995689	S.D. dependent var		17809.34
S.E. of regression	1169.367	Akaike info criterion		17.03905
Sum squared resid	83412573	Schwarz criterion		17.20493
Log likelihood	-557.2886	Hannan-Quinn criter.		17.1046
Prob(F-statistic)	0.00000	Durbin-Watson stat		2.155809

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

Table (3-12) shows the results of the (Adjusted R-squared) test that oil revenues (OIR) as an independent variable have explained (99%) of the changes that occurred in the dependent variable distributive activities (DA), and that (1%) is due to factors External, and D-W) which reached its peak (2.155809) indicates that the model is free from the autocorrelation problem. As for the (F-statistic) test at a probability level (0.000000) less than (5%), it indicates the overall significance of the model from a statistical point of view.

1- Results of Akakiy test

Figure 3-5 Akaki for distributive activities.

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

Table (3-13) Degrees of temporal slowdown of distributive activities.

Model Selection Criteria Table					
Model	LogL	AIC*	BIC	HQ	Adj. R-sq.	Specification
13	-541.363246	17.073851	17.242514	17.1403	0.995039	ARDL(2, 2)

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

The results of Table (3-13) and Figure (3-5) refer to each of the following:

- The ideal model for studying the long-term relationship between oil revenues and distributional activities is the model:

Selected Model: ARDL (2, 2)

This is based on the results of the Akaike Information Criteria, as the optimum model had the lowest value for this criterion, which amounted to (17.073851), which is the model that takes delays of (2) for the approved variable and slows by (2) for the interpreted variable (OIR).

- Through the value of the corrected determination coefficient, it becomes clear to us that (0.995039%) of the changes occurring in the dependent variable are caused by oil revenues with their slowdown.

3-2-5-2- Results of the Bound Test:

The Bound Test is used to find out the extent of the existence of a long-term equilibrium relationship (the existence of co-integration) between (oil revenues) as an independent variable and (distributive activities) as a dependent variable, by comparing the F-statistic with the limits of the upper and lower critical values, as in the following table: -

Table (3-14) results of the Bound Test for distributive activities.

ARDL Bounds Test		
Test Statistic	**Value**	**K**
F-statistic	**2.851735**	**1**
Critical Value Bounds		
Significance	**(I0)Lower Bound**	**(I1) Upper Bound**
10%	2.44	3.28
5%	3.15	4.11
2.5%	3.88	4.92
1%	4.81	6.02

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

Table (3-14) shows that the calculated (F-statistic) value amounted to 2.851735)) which is greater than the critical (F) value at its minimum level at the (10%) level and it is equal to (2.44), but it is less than the critical (F) value At its upper limit at the level of (10%) and it is equal to (3.28), which means that it falls in the area of doubt, and this requires testing the estimation of the parameters in the long and short term, and the error correction parameter to ensure the existence of the co-integration relationship or not.

3-2-5-3- Test the estimated parameters (short-term) and the unconstrained error correction factor.

This test shows the estimation of the short-term parameters in order to reveal the degree of influence of the independent variable on the dependent variable, as well as to determine the type of short-term relationship. The error correction coefficient also shows the speed of return in the long term to equilibrium, and the table below shows this.

Table (3-15) results of estimating the error correction parameter model and the parameters in the two terms for the second model.

ARDL Cointegrating And Long Run Form Dependent Variable: DA				
Cointegrating Form				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(DA(-1))	0.630927	0.101438	6.219821	0.0000
D(OIR)	0.113028	0.028628	3.948111	0.0002
D(OIR(-1))	–0.045344	0.032003	–1.416866	0.1616
CointEq(-1)	–0.02127	0.009685	–2.196113	0.0319
Cointeq = DA - (0.7262*OIR)				
Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
OIR	0.726187	0.108791	6.675061	0.0000
C	-1673.371	25358.11	-0.065990	0.9476

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

It is clear from Table (3-15) the results of estimating the long-term parameters that there is a direct, equilibrium and statistically significant relationship between oil revenues (OIR) and distributive activities (DA), that is, when a change (OIR) of one unit leads to a change (DA) of (0.726187) %) unit, with other factors remaining constant, and at a significant level (Prob = 0.0000), and this is very logical from an economic point of view. The higher the oil revenues, the higher the level of distribution activities. This is consistent with the reality of the rentier Iraqi economy, which depends on oil revenues to finance most of its sectors.

The results of the table (3-15) show that the value of the error correction coefficient has a negative sign, which amounted to (-0.02127), and this value is significant based on the probabilistic value, which amounted to (0.0319) which is less than (0.05), meaning that the first condition has been fulfilled. Note that this value indicates that (0.0212%) of the short-term errors can be corrected in the unit time represented here by the year, in order to return to the equilibrium position in the long term.

3-2-5-4- Conducting diagnostic tests for the estimated residuals.

For the purpose of verifying the validity and accuracy of the results obtained in the previous tests, we will conduct some important diagnostic tests to prove this, as follows: -

1- Serial Correlation LM Test: This test is used to verify the extent to which the estimated model is free of the residual autocorrelation problem, as follows:

Table (3-16) results of the LM autocorrelation problem test results.

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.625679	**Prob. F(2,59)**	0.5384
Obs*R-squared	1.336143	**Prob. Chi-Square(2)**	0.5127

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

Table (3-16) shows us the results of the autocorrelation problem test, as we note that the value of (F-statistic) at a probability level of (Prob = 0.5384) which is greater (5%), and this means that there is no autocorrelation problem, and then here must We accept the null hypothesis which states that there is no correlation problem between the random residuals, and we reject the alternative hypothesis which states that there is a correlation problem between the random residuals, and then this test enhances the accuracy of the results of the ARDL model.

2- Heteroskedasticity Test (ARCH) Heteroskedasticity Test This test is used to ascertain the extent to which the estimated model is free of the residual variance problem, as shown in the following:

Table (3-17) Results of the ARCH . Variance Variance Problem Test

Heteroskedasticity Test: ARCH			
F-statistic	0.173848	Prob. F(1, 63)	0.6781
Obs*R-squared	0.178874	Prob. Chi-Square(1)	0.6723

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

It is clear from Table (3-17) the results of the test of the variance variance problem for ARCH, as we note that the value of (F-statistic) at the level of probability amounted to (Prob = 0.6781) which is greater (5%), and this means that the model is free from the problem of variance difference , and then here we must accept the null hypothesis which states that there is no variance problem between the random residuals, and reject the alternative hypothesis which states that there is a variance difference problem between the random residuals, and then this test enhances the accuracy of the results of the ARDL model.

3- Ramsey RESET Test: This test is used in order to identify the functional form of the model and its suitability, as it appears from Table (3-18) that the value of (F-statistic) which is (0.136068) and its value is (Prob: 0.7135)), as well as The value of (t-statistic) was (0.368873) at the probability level (0.7135), which was greater than (5%), which means that the null hypothesis (H0) is accepted, which states that the (linear) functional form used in the estimated model is correct.

Table (3-18) RESET Test for the functional form of the second model.

Ramsey RESET Test Equation: UNTITLED Specification: DA DA(-1) DA(-2) OIR OIR(-1) OIR(-2) Omitted Variables: Squares of fitted values			
Ramsey RESET Test			
Test	Value	Df	Probability
t-statistic	0.368873	60	0.7135
F-statistic	0.136068	(1, 60)	0.7135

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

3-2-5-6- Structural stability.

The structural stability test is one of the important tests in order to ensure that the data used in the study is free of any structural changes in it, using the cumulative sum of residuals test (CUSUM), if the graph (CUSUM) is within the framework of the critical limits at the level (5%) It means that all the estimated parameters are stable and there are no structural changes, and vice versa as follows: -
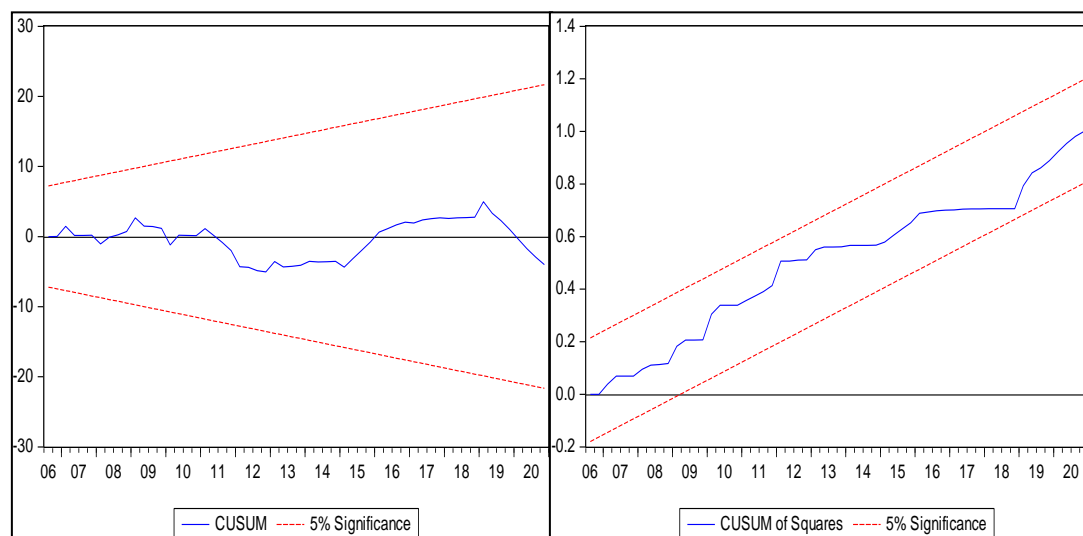

Figure (3-6) results of the model stability test for distributive activities.

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

We note from Figure (3-6) and from the CUSUM part) that the cumulative sum of the residuals within the critical values at a significant level (5%) and this indicates the stability of the estimated parameters in the short term. It is clear from the test that there is stability and consistency in the model between the long-term results and short term results.

First: Conclusions:

1- The contribution of oil revenues from public revenues represented the highest value in 2004, at a rate of (98%), while oil revenues from public revenues recorded the lowest value in 2016 at a rate of (77%).

2- The contribution of the distributive sectors to the gross domestic product represented the highest value (30.3%) in (2016), while the lowest contribution rate was recorded (16.5%) in (2005).

3- It was found from the results of the standard analysis that the stability characteristic (stillness) of the variables represented by (oil revenues, distributive sectors) was achieved when taking the first differences for them (first level), as this was shown by the unit root tests (ADF,

PP), and there are no integrated variables. Second order {I~2}, so the ARDL model was used to estimate the short- and long-term relationship of the research variables.

4- The results of the standard model (ARDL) used to determine the impact of fluctuations in oil revenues on economic diversification in Iraq for the period (2004-2020), that there is a long-term equilibrium relationship (the presence of joint integration) and this was demonstrated through the Bounds Test.

5- The results of the research proved that there is a significant effect of oil revenues (OIR) on distributive activities (DA) in the long term, that is, when a change in oil revenues (OIR) in the long term by one unit leads to a change in distribution activities in Iraq by (0.726187%) units. , , assuming other factors are constant. And at a significant level (Prob = 0.0000), and this is consistent with the economic theory which says that there is a direct equilibrium relationship in the long term between oil revenues (OIR) and distributive activities (DA), and this is logical from an economic point of view whenever oil revenues rise, this leads to a higher level of activities Distributive.

Second: Recommendations:

1. Striving towards achieving a kind of stability for global crude oil prices, and this maintains the stability of oil revenues for all oil-exporting countries, which contributes to setting appropriate plans for the economic development process.

2. Supporting the policy of diversifying the Iraqi economy, which depends mainly on oil revenues at the present time, and creating an economy characterized by a gradual increase in the contribution of other economic sectors to the formation of the gross domestic product, especially the productive sectors, which constitute various financing sources for the general budget to make it more secure and stable.

3. The necessity of adopting radical economic reforms to avoid anxiety and confusion in the implementation of economic policies in the event of a decline in crude oil prices, as the structural imbalances of the Iraqi economy must be addressed by changing the contribution of economic sectors to the gross domestic product, which ensures diversification of the economy and reduce the dominance of the oil sector in favor of the sectors Productivity.

4. The fluctuations of crude oil prices necessitate the government to establish sovereign funds in which to save during times of high oil prices, to be resorted to in times of crisis, and this experiment is used in many oil-producing countries, such as the Public Revenue Control Fund in Algeria and the Kuwait Fund for Future Generations.

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