


**USING THE INDUCED RESPONSE FUNCTION TO MEASURE AND ANALYZE THE  
IMPACT OF FISCAL POLICY SHOCKS ON SOME MACROECONOMIC VARIABLES**

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p><b>Received</b> 31 January 2023</p> <p><b>Accepted</b> 28 April 2023</p>	<p><b>Purpose:</b> The purpose of this research is to use the induced response function to measure and analyze the reality of the general budget and the trade balance and the impact of the flexible fiscal policy on some macroeconomic variables.</p>
<p><b>Keywords:</b></p> <p>Induced Response Function; Financial Shocks.</p> <div data-bbox="172 884 480 1131" style="text-align: center;">  </div>	<p><b>Theoretical framework:</b> The public finances after 2003 in Iraq were oriented towards consumerism, far from the orientations and objectives of economic policy, through the increase in commercial expenditures at the expense of investment expenditures, in contrast to the increase in the volume of imports of goods and services with the dominance of oil exports over the volume of total exports, and these factors Together, they made the flexible fiscal policy unable to achieve its goals, foremost of which is economic stability.</p> <p><b>Design/methodology/approach:</b> The study starts from the hypothesis. The fiscal policy shocks were deliberately created by the government as part of strategic plans that serve its policy, philosophy, and goals it seeks, or as preventive plans against undesirable events, or may occur within treatment plans in response to certain pressures. To achieve the objectives of the study and to prove or refute the mentioned hypothesis, the research relied on the descriptive analysis method To reach the required results. Depending on the period from 2003 to 2018 (Iraq is a case study).</p> <p><b>Findings:</b> The shock that was occurring in the financial policy tools were fabricated by the decision-makers to meet the needs of the security side, which was reflected in its shadows on the increase in current spending resulting from the wages and salaries system and allocations directed to the security system to achieve stability and control the security situation, in addition to the political repercussions that increased the level of employment or Operation to achieve other goals.</p> <p><b>Research, Practical &amp; Social implications:</b> Future studies can look at measuring and analyzing the impact of fiscal policy shocks on macroeconomic variables or their repercussions on economic, social, and political policies.</p> <p><b>Originality/value:</b> This study contributes to the literature related to fiscal policy by analyzing the results of the impact of financial shocks on some macroeconomic variables, and provides a practical and applied perception of the role played by the fiscal policy methodology in Iraq.</p> <p>Doi: <a href="https://doi.org/10.26668/businessreview/2023.v8i5.1128">https://doi.org/10.26668/businessreview/2023.v8i5.1128</a></p>

**USANDO A FUNÇÃO DE RESPOSTA INDUZIDA PARA MEDIR E ANALISAR O IMPACTO DE  
CHOQUES DE POLÍTICA FISCAL EM ALGUMAS VARIÁVEIS MACROECONÔMICAS**

**RESUMO**

**Objetivo:** O objetivo desta pesquisa é usar a função de resposta induzida para medir e analisar a realidade do orçamento geral e da balança comercial e o impacto da política fiscal flexível em algumas variáveis macroeconômicas.

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**Enquadramento teórico:** As finanças públicas pós 2003 no Iraque orientaram-se para o consumismo, afastando-se das orientações e objectivos de política económica, através do aumento das despesas comerciais em detrimento das despesas de investimento, em contraste com o aumento do volume das importações de bens e serviços com predominância das exportações de petróleo sobre o volume das exportações totais, fatores que, em conjunto, tornaram a política fiscal flexível incapaz de atingir seus objetivos, sendo o principal deles a estabilidade econômica.

**Desenho/metodologia/abordagem:** O estudo parte da hipótese. Os choques de política fiscal foram criados deliberadamente pelo governo como parte de planos estratégicos que atendem à sua política, filosofia e objetivos que busca, ou como planos preventivos contra eventos indesejáveis, ou podem ocorrer em planos de tratamento em resposta a determinadas pressões. Para atingir os objetivos do estudo e provar ou refutar a hipótese mencionada, a pesquisa contou com o método de análise descritiva para alcançar os resultados pretendidos. Dependendo do período de 2003 a 2018 (o Iraque é um estudo de caso).

**Conclusões:** O choque que estava a ocorrer nos instrumentos de política financeira foram fabricados pelos decisores para responder às necessidades do lado da segurança, o que se refletiu nas suas sombras sobre o aumento da despesa corrente decorrente do sistema de vencimentos e remunerações e dotações direcionadas ao sistema de segurança para alcançar a estabilidade e controlar a situação de segurança, além das repercussões políticas que aumentaram o nível de emprego ou operação para atingir outros objetivos.

**Pesquisa, implicações práticas e sociais:** Estudos futuros podem analisar a medição e análise do impacto de choques de política fiscal em variáveis macroeconômicas ou suas repercussões em políticas econômicas, sociais e políticas.

**Originalidade/valor:** Este estudo contribui para a literatura relacionada à política fiscal ao analisar os resultados do impacto de choques financeiros sobre algumas variáveis macroeconômicas e fornece uma percepção prática e aplicada do papel desempenhado pela metodologia de política fiscal no Iraque.

**Palavras-chave:** Função de Resposta Induzida, Choques Financeiros.

## USO DE LA FUNCIÓN DE RESPUESTA INDUCIDA PARA MEDIR Y ANALIZAR EL IMPACTO DE LOS CHOQUES DE POLÍTICA FISCAL EN ALGUNAS VARIABLES MACROECONÓMICAS

### RESUMEN

**Propósito:** El propósito de esta investigación es utilizar la función de respuesta inducida para medir y analizar la realidad del presupuesto general y la balanza comercial y el impacto de la política fiscal flexible sobre algunas variables macroeconómicas.

**Marco teórico:** Las finanzas públicas posteriores a 2003 en Irak se orientaron hacia el consumismo, alejadas de las orientaciones y objetivos de la política económica, a través del aumento de los gastos comerciales a costa de los gastos de inversión, en contraste con el aumento del volumen de importaciones de bienes y servicios con el predominio de las exportaciones de petróleo sobre el volumen de las exportaciones totales, y estos factores juntos hicieron que la política fiscal flexible fuera incapaz de lograr sus objetivos, el principal de los cuales es la estabilidad económica.

**Diseño/metodología/enfoque:** El estudio parte de la hipótesis. Los choques de política fiscal fueron creados deliberadamente por el gobierno como parte de planes estratégicos que sirven a su política, filosofía y objetivos que persigue, o como planes preventivos contra eventos indeseables, o pueden ocurrir dentro de planes de tratamiento en respuesta a ciertas presiones. Para lograr los objetivos del estudio y probar o refutar la hipótesis mencionada, la investigación se apoyó en el método de análisis descriptivo para llegar a los resultados requeridos. Dependiendo del período de 2003 a 2018 (Irak es un caso de estudio).

**Hallazgos:** El choque que estaba ocurriendo en los instrumentos de política financiera fueron fabricados por los tomadores de decisiones para atender las necesidades del lado de la seguridad, lo que se reflejó en sus sombras sobre el aumento del gasto corriente producto del sistema de sueldos y salarios y las asignaciones dirigidas al sistema de seguridad para lograr la estabilidad y controlar la situación de seguridad, además de las repercusiones políticas que aumentaron el nivel de empleo o la operación para lograr otros objetivos.

**Implicaciones de investigación, prácticas y sociales:** los estudios futuros pueden analizar la medición y el análisis del impacto de los shocks de la política fiscal en las variables macroeconómicas o sus repercusiones en las políticas económicas, sociales y políticas.

**Originalidad/valor:** Este estudio contribuye a la literatura relacionada con la política fiscal al analizar los resultados del impacto de los choques financieros en algunas variables macroeconómicas y proporciona una percepción práctica y aplicada del papel que juega la metodología de la política fiscal en Irak.

**Palabras clave:** Función de Respuesta Inducida, Shocks Financieros.

## INTRODUCTION

The public finances after 2003 in Iraq were oriented towards consumerism, far from the orientations and objectives of economic policy, through the increase in commercial expenditures at the expense of investment expenditures, in contrast to the increase in the volume of imports of goods and services with the dominance of oil exports over the volume of total exports, and these factors Together, they made the flexible fiscal policy unable to achieve its goals, foremost of which is economic stability. Hence the research problem stems from The trends of public finances after 2003 were non-economic, which led to higher current spending, lower investment spending, higher imports, and lower non-oil exports. All these policies were reflected in instability and high unemployment, which made the structure of the Iraqi economy It is one-sided par excellence, and it failed to direct towards financial resources other than the depleted ones. On this basis, the research is based on a hypothesis. The fiscal policy shocks were deliberately created by the government as part of strategic plans that serve its policy, philosophy, and goals it seeks, or as preventive plans against undesirable events, or may occur within treatment plans in response to certain pressures.

### **The Conceptual Framework For The Shocks Of Fiscal Policy Instruments**

An economic shock was defined in one of the specialized dictionaries (Farlex Financial Dictionary, 2012:24) as “an event that can cause a sudden and profound change in the economy.” By moving to the shock of fiscal policy, we find that it did not deviate much from what came with the concept of economic shock. As "the sudden change in fiscal policy." This does not mean that the shock is always for the entire fiscal policy in and of itself, but rather it may occur in one of its tools (or more), given that fiscal policy includes a variety of policies and tools. Government spending and taxes come as the most important. Changes in the rules can occur. tax or the changes may be within categories of government spending, or a change in the mix between them, so it can be fiscal policy shocks (revenue shock), where revenues change, but expenditures are left unchanged, or it can be (deficit spending shock), where the increase is financed In government spending entirely by deficit, or (balanced budget spending shock), where the spending is funded by taxes.

Based on this, fiscal policy shocks are unexpected changes in their components, which cannot be fully predicted in advance, and are reflected in significant changes in the local variables of the economy as a whole (Mountford and Uhlig, 2009,14).

Domestic product, achieving economic stability, and increasing social welfare), or as preventive plans against undesirable events, or may occur within treatment plans in response to stress. certain (such as shocks in the variables of the gross domestic product, wars, disasters...) i.e. these shocks or fluctuations in the variables of the fiscal policy is by the makers of the fiscal policy in the country to change this policy in a way that contributes to targeting a specific economic tool (or more) and achieves the goals General economic and social importance to the country (Sayed and Hussein, 2015, 44).

The fiscal policy applied in Iraq after 2003 witnessed the absence of a future vision and the arrangement of its priorities on the basis of current conditions. The period 2003-2018 witnessed a trend towards consumer spending through an increase in current spending at the expense of investment spending, passing through an increase in imports at the expense of exports and dependence on the right resource without concern for human rights. future generations, as well as the challenges of the absence of security stability and military operations that cast a shadow over the increase in the burden of the public budget towards unproductive spending, and the orientation towards various sources, whether external or internal, to cover this spending, in addition to all this, the decision makers policy was far from achieving Financial sustainability, as they prioritized electoral campaigning or personal benefits, which resulted in an increase in the level of employment or employment, in addition to administrative and financial corruption. Hence, we considered that the shock that occurs in the tools of fiscal policy is fabricated by the decision makers through the rise in oil prices and thus the increase in current spending at the expense of investment spending as a result of the policies in place and the unstable security conditions that required the provision of financial resources, or by the drop in oil prices, which is reflected in the decline in revenues. And thus the trend towards external or internal borrowing, and burdens the general budget and is borne by future generations.

## **THE ANALYTICAL FRAMEWORK OF THE GENERAL BUDGET AND THE TRADE BALANCE AND THE IMPACT OF THE FLEXIBLE FISCAL POLICY ON SOME MACROECONOMIC VARIABLES IN IRAQ FOR THE PERIOD (2003-2018)**

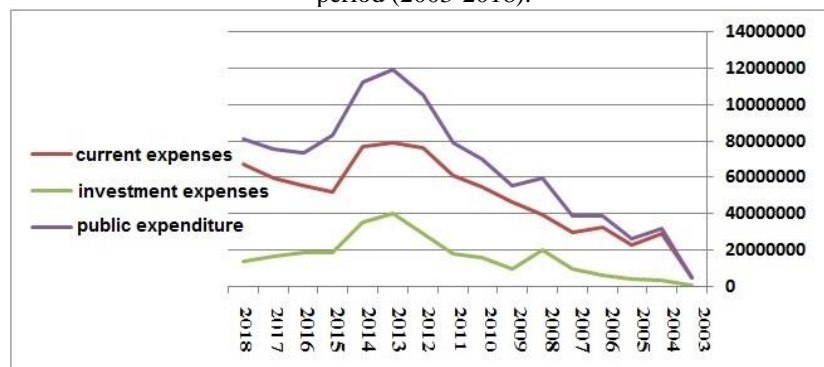
### **Analysis of the Reality of Public Spending in Iraq for the Period (2003-2018)**

By following up on Figure (1), which shows the path of the development of public spending in both parts (current and investment) in Iraq. Total public spending recorded an increase during the period (2003-2018) to reach (80873188.8) million dinars in 2018 compared

to (4901960) million dinars in 2003, at a compound annual growth rate of (20.5%). While current spending recorded an increase at a compound annual growth rate of (19.52%), reaching (67052856.1) million dollars in 2018 compared to (4617646.3) million dinars in 2003. The period (2003-2018) also recorded an increase in investment spending at a rate of change amounting to (29.55). %) to reach (13820332.7) million dollars in 2018, compared to (284313.7) million dollars in 2003. The percentage of current spending from public spending ranged between (62.6%) and (94.2%), while the percentage of investment spending from the public spending year, ranged between (5.8%) and (34.2%) during the period (2003-2018).

This indicates the dominance of current spending at the expense of investment spending as a result of the policies adopted by the government during the study period, in contrast to the unstable security conditions that Iraq witnessed, which required the provision of financial resources to meet the needs of the security side, which was reflected in its shadows on the increase in current spending resulting from the system of wages, salaries, and allocations directed to the system. security to achieve stability and control the security situation, in addition to the political repercussions that increased the level of employment or employment to achieve other goals (almajmeai, 295). Therefore, explicit financial reforms must be adopted to contain the pace of growth in current expenditures while enhancing investment expenditures to improve the implementation of infrastructure projects that would lead to the upgrading of the private sector and increase its contribution to the generation of added value.

Figure (1) The course of development of public spending in both parts (current and investment) in Iraq for the period (2003-2018).



Source: The researcher's work based on the data of the Ministry of Planning, the Central Statistical Organization, and the Directorate of National Accounts.

### Analysis of the Reality of Public Revenues in Iraq for the Period (2003-2018).

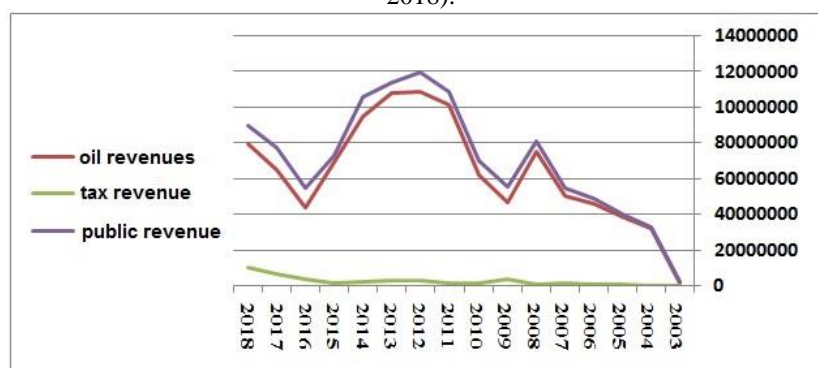
By following up on Figure (2), which shows the path of development of public revenues in both parts (oil and tax) in Iraq, the total public revenues witnessed an increase at a compound

annual growth rate of (28.03%) to reach (89,649,860) million dinars in 2018, compared to about (2201,740). million dinars in 2003. As a result of the increase in the volume of oil revenues by (28.53%) to reach (79,535,393) million dinars in 2018, with a contribution rate to total public revenues amounting to (88.7%), compared to (1841458) million dinars in 2003. In total public revenues, it amounted to (83.6%).

On the other hand, tax revenues increased at an annual growth rate of (41.43%) to reach (10,105,467) million dinars in 2018, with a contribution rate to total public revenues amounting to (11.3%) compared to (55,743) million dinars in 2003 and a contribution rate to total public revenues. It reached (2.5%).

Despite the rise in public revenues, in both parts (oil and tax), it was fluctuating during the period 2003-2018. Sometimes we find it rising with the rise in oil revenues as a result of the rise in crude oil prices in international markets, and at other times we find it declining as a result of the drop in oil prices in international markets that were It could lead to a decrease in the value of exports, and as a result, oil revenues decreased. While we find an increase in the contribution of tax revenues to public revenues, it came as a result of raising the sales tax by (20%) on mobile phone cards and Internet networks, imposing an airport tax at a lump sum amounting to (25) thousand dinars per ticket and increasing the real estate tax rate from (10%) to 15%), imposing a sales tax on a number of imported goods, including cars of all kinds at a tax rate of (5%) and tobacco at a rate of (100%), and increasing the percentage of fees for electricity, telephone, water, and sewage services, and despite that, it did not exceed actual tax revenues at best. Conditions (12%) of public revenues (Al-Arabi, 2018, 114). Although this percentage is modest, it also depends on oil revenues by a large percentage. Most of the taxes resulting from income taxes are achieved for their owners as a result of contracts and business with government departments, which in turn depend on oil. In the sense that estimates of public revenues are linked to estimates of the expected quantities of crude oil to be exported, in addition to estimates of expected international oil prices, which are factors characterized by fluctuations and sometimes severe, and thus reflect the dominance of oil revenues over public revenues and the low contribution of non-oil activities, the nature of the large and sustainable imbalance that the Iraqi economy suffers from and its dependency growing oil commodity.

Figure (2) The path of development of public revenues in both parts (oil and tax) in Iraq for the period (2003-2018).



Source: The researcher's work based on the data of the Ministry of Planning, the Central Statistical Organization, and the Directorate of National Account

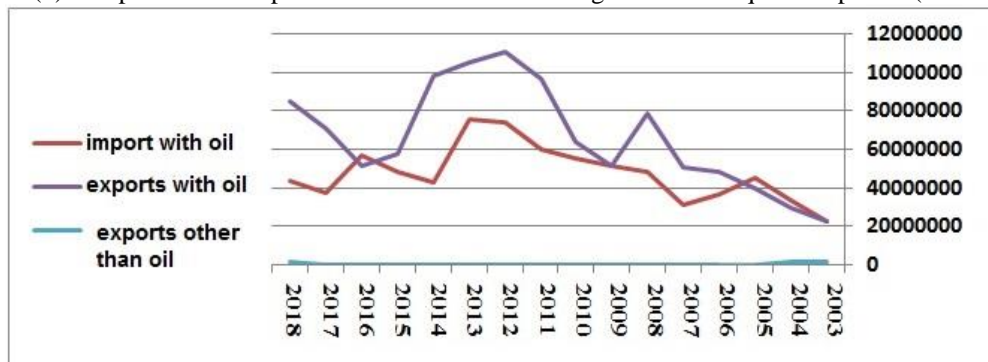
### Analysis of the Reality of the Trade Balance in Iraq for the Period (2003-2018).

By following up on the data on the development of the structure of foreign trade in Iraq for the period (2003-2018), shown in Figure (3), the following can be seen:

1. Iraq depends mainly on crude oil exports, meaning that crude oil dominates Iraq's exports. Commodity exports other than oil do not constitute any weight in the trade balance. As a result of the absence of a production base for goods and services, made the Iraqi economy highly flexible towards changes in oil prices in international markets.
2. Total exports of crude oil increased during the period (2003-2018) to reach (85,181,800.7) million dinars in 2018, compared to (22,897,246.2) million dinars in 2003, at a compound annual growth rate of (9.153%). Despite this rise, we find a clear fluctuation in the volume of exports with crude oil during the study period. Attributable to changes in crude oil prices, which are reflected in the global demand for crude oil and thus on economic activity.
3. Total exports, excluding crude oil, decreased during the period (2003-2018) to reach (1,212,089) million dinars in 2018, compared to (1,373,834.7) million dinars in 2003, at a compound annual growth rate of (-0.831%). As a result of the conditions witnessed by the Iraqi economy, including wars and the absence of security stability, which cast a shadow over the collapse of the infrastructure, the halting of the work of productive institutions and investment projects, and thus the decline in productive capacities.
4. Total imports increased at a compound annual growth rate of (4.46%), reaching (43,804,511.1) million dinars in 2018, compared to (22,734,254.4) million dinars in

2003, as a result of the abolition of the restrictions imposed on Iraq before 2003, which were reflected in an increase in imports. import volume. With the growing domestic demand for basic commodities and services, coupled with the weakness or absence of the productive apparatus from covering them, Iraq relies almost entirely on imports in order to meet the needs of local demand for various commodities, as the total imports for the year 2018 of commodity materials and petroleum products amounted to (37%) ) Billion US dollars (Imports Report, 2018, 3), and as a result of this weakness in the production base of Iraq, it will be forced to import approximately (95%) of industrial goods and (85%) of foodstuffs to meet the need for local demand (Thamer, 2017, 132).

Figure (3) The path of development of the structure of foreign trade in Iraq for the period (2003-2018).



Source: The researcher's work based on the data of the Ministry of Planning, the Central Statistical Organization, and the Directorate of National Accounts

### The Evolution of Some Macroeconomic Variables in Iraq for the Period (2003-2018).

By following up on the data on the development of some macroeconomic variables in Iraq for the period (2003-2018), the following can be seen:

1. The gross domestic product at current prices in Iraq reached (130.64) trillion dinars in 2009 compared to (157.03) trillion dinars in 2008, recording a contraction rate of (16.8%) compared to a growth rate of (41%) in 2008, and this is attributed to the decrease in the value of oil exports resulting from the sharp decline in oil prices during the middle of 2008 and the beginning of 2009 (Al-Arabi, 20, 2010). While the year 2011 recorded a growth rate of (34%) to reach (217.33) trillion dinars, compared to (162) trillion dinars in 2010, which is a higher growth rate than the growth rate recorded 2010 of (24%), which is mainly attributed to This is mainly due to the rise in oil prices in the international markets, as its prices in the international markets increased by about (39%) compared to 2010, which was reflected in the increase in production and the increase in the value of exports (Al-Arabi, 2012, 20). On the other hand, the years 2014 and 2015



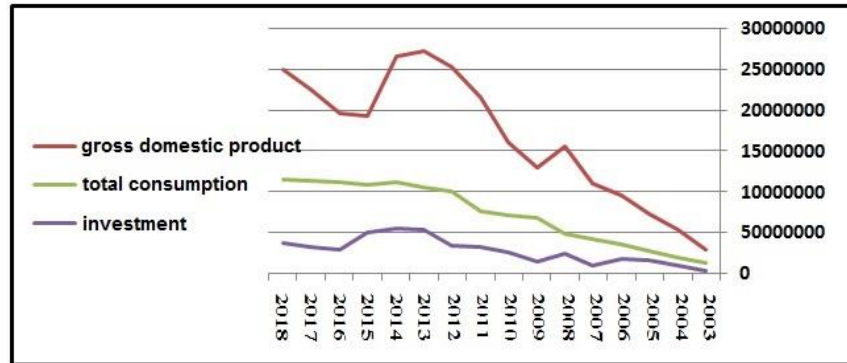
witnessed a decline in the gross domestic product, recording a contraction of (2.7%) and (27%), respectively, as a result of the continued decline in oil prices in global markets, as the annual average of the spot price of the OPEC basket of crudes decreased from (96.3) dollars per barrel. in 2014 to (49.5) dollars per barrel in 2015, in addition to many political and economic challenges at the local, regional and global levels represented in the unstable political situation and the continued deterioration of the security situation and military operations against terrorist groups that were present in the Iraqi governorates (Al-Arabi, 2017, 12) . While the years 2017 and 2018 witnessed significant improvement and the pace of growth increased as a result of the improvement in the economic situation.

2. Total consumption in 2018 amounted to (115.03) trillion dinars compared to 2003, when it amounted to (13.61) trillion dinars, recording an increase at a compound annual growth rate of (15.2%). Gross domestic product, in the sense, that an increase in the gross domestic product leads to an increase in total consumption, and this relationship came as a result of the policy of openness, lifting sanctions, and allowing the export of oil that Iraq witnessed after 2003. And that cast a shadow on the increase in output as a result of the increase in oil revenues in Iraq, and the increase in consumption as a result of the high financing of demand on foreign goods and services, as is evident in the percentage of the total consumption of GDP, which ranged between (31%-56%).

3. Total investment in 2018 amounted to (37.40) trillion dinars compared to (3.15) trillion dinars in 2003, recording an increase at a compound annual growth rate of (17.9%). Despite the rates of increase in total investment, it is below the level of ambition as it is. This is evident from the percentage of total investment in GDP, which ranged between (9%-26%). Which constitutes a negative indicator of the Iraqi economy, which needs a high ratio of investments to output for its reconstruction in all fields, starting from the infrastructure, including education, health, housing, and roads, to the oil, industry, and agricultural sectors.

The economic transformations that came after 2003 contributed to an increase in the gross domestic product at progressive rates as a result of the increase in the volume of oil exports, which was reflected in the increase in total consumption at the expense of total investment, which negatively affected investments and various economic activities, and thus increased dependence on the outside world to bridge the demand gap.

Figure (4) The course of development of some macroeconomic variables in Iraq for the period (2003-2018)



Source: From the researcher's work based on the data contained in Appendix (3).

## MEASURING THE IMPACT OF FISCAL POLICY SHOCKS ON SOME MACROECONOMIC VARIABLES.

### Characterization of the model

The estimation of the parameters of the model was based on the data of the variables by 64 observations ranging from (2003Q1-2018Q4), and using the statistical program (Eviews9)), to analyze the time series using the tests of static time series and cointegration and the impact of fiscal policy shocks on the variables of the study, which includes the dependent variables (C01, EX, GDP, I, IM) either the independent variables are (G, R).

whereas :

- (C01) Total consumption variable
- (EX) Exports variable with Crude Oil
- (GDP) Gross Domestic Product variable
- (I) The aggregate investment variable
- (IM) variable imports
- (G) Public spending variable
- (R) General revenue variable

### Time series static test

Table (1) shows the statistical results extracted through the application of the Phillips-Pyron test (PP), at the level (At Level) and at the first difference (At First Difference) and under hypotheses without categorical, categorical, and time direction, without categorical and time direction, and at a significant level (1%), (5%), (10%). The results obtained from the (PP) test showed that the time series of the variables of the study as a whole are not static at the level, as all the estimated values for them were smaller (or the absolute value is greater) than the tabular

values and with a probability greater than (0.05), which means accepting the null hypothesis  $H_0$  that says there is no Variables are stationary in their levels, i.e. they contain the unit root. When moving to the first difference and using all the first hypotheses, it becomes clear to us that the time series of the study variables (C01, I, IM) are static at the first difference in the presence of (categorical, categorical and time direction, and without categorical and time direction) at a significant level (1%, 5%, and 10 %). The other variables are (EX, G, GDP, R). Stagnant at the first difference in the presence of (separator, without categorical and time direction) at a significant level (10% and 5%). This means that the characteristic of static is achieved at the first difference for all variables, which enables us to reject the null hypothesis  $= 1: p H_0$  and accept the alternative hypothesis  $1>: p H_1$ , that is, the time series of the variables are static at their first difference.

Table (1) Phillips-Perron test for time series rest

Null Hypothesis: the variable has a unit root								
At Level								
		C01	EX	G	GDP	I	IM	R
With Constant	t-Statistic	-1.6362	-1.8345	-2.1013	-1.5791	-1.6489	-2.1920	-2.3496
	Prob.	0.4581	0.3606	0.2450	0.4869	0.4517	0.2113	0.1603
With Constant & Trend	t-Statistic	-0.2855	-1.7558	-1.2076	-1.5376	-1.5209	-1.7134	-1.9349
	Prob.	0.9894	0.7136	0.8998	0.8053	0.8114	0.7331	0.6240
Without Constant & Trend	t-Statistic	2.4478	0.2101	0.3939	1.0433	0.1298	-0.0722	0.1932
	Prob.	0.9962	0.7438	0.7944	0.9205	0.7198	0.6546	0.7389
At First Difference								
		d(C01)	d(EX)	d(G)	d(GDP)	d(I)	d(IM)	d(R)
With Constant	t-Statistic	-3.0857	-2.8737	-2.8561	-2.6704	-3.2568	-3.2984	-2.8265
	Prob.	0.0331	0.0545	0.0568	0.0853	0.0216	0.0194	0.0607
		**	*	*	*	**	**	*
With Constant & Trend	t-Statistic	-3.3584	-2.8646	-2.8786	-2.6873	-3.2737	-3.3456	-2.7875
	Prob.	0.0671	0.1813	0.1768	0.2456	0.0807	0.0690	0.2076
		*	n0	n0	n0	*	*	n0
Without Constant & Trend	t-Statistic	-2.1575	-2.8052	-2.8049	-2.3787	-3.1904	-3.3089	-2.7753
	Prob.	0.0309	0.0058	0.0058	0.0180	0.0019	0.0013	0.0063
		**	***	***	**	***	***	***

Notes: (\*)Significant at the 10%; (\*\*)Significant at the 5%; (\*\*\*) Significant at the 1%. and (no) Not Significant  
\*MacKinnon (1996) one-sided p-values.

Source: The researcher's work, based on the outputs of the eviews9 program.

### Co integration test

After analyzing the static of the time series, we found that all the time series of the study variables are static at the first difference, that is, they are integrated of the first order (1)~1,

which indicates the possibility of a co-integration relationship between the variables, so we will test the co-integration between the independent variables And the dependent variables separately, to ensure the possibility of a long-term equilibrium relationship between the variables, and on this basis, the Johansen-juselius method will be used, which is one of the best methods used to estimate the cointegration vector and to ensure that it is monolithic based on the Trace test. test, symbolized by ( $\lambda_{\text{trace}}$ ), and the Maximum Eigenvalue Function test, symbolized by ( $\lambda_{\text{max}}$ ), 220 (4) (Gonzalo, 1999), which illustrate the existence of a long-term equilibrium relationship between the economic variables of the study sample, and the results were as follows:

### The relationship of public spending and public revenues with total consumption

The clear estimation results in Table (2) indicate that the Trace Statistic of (26.34751) is smaller than the critical value of (29.79707) and the probability value (prob = 0.1186) is greater than 5%, which means accepting the null hypothesis and rejecting the alternative hypothesis That there is no long-term equilibrium relationship between the variables of the study. As for the Maximum Eigenvalue Function statistic, it indicates that the statistical value of (17.02433) is smaller than the critical value of (21.13162) and the probability value (prob = 0.1709) is greater than 5%, which means that there is no long-term equilibrium relationship between public expenditure, public revenue, and total consumption.

Table (2) Johansen-Juselius cointegration test

Null Hypothesis: No long-run relationships exist			
Test (Trace)			
Trace Statistic	0.05 Critical Value	prob	The decision
26.34751	29.79707	0.1186	Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
9.323179	15.49471	0.3363	
2.211014	3.841466	0.1370	
Test (Maximum Eigenvalue)			
Max-Eigen Statistic	0.05 Critical Value	prob	The decision
17.02433	21.13162	0.1709	Max-eigenvalue test indicates no cointegration at the 0.05 level
7.112165	14.26460	0.4760	
2.211014	3.841466	0.1370	

Source: The researcher's work, based on the outputs of the eviews9 program.

### The relationship of public spending and public revenues with exports with crude oil

The clear estimation results in Table (3) indicate that the Trace Statistic of (49.30396) is greater than the critical value of (29.79707) and the probability value (prob=0.0001) is less

than 5%, which means rejecting the null hypothesis and accepting the alternative hypothesis. This indicates that there is a co-integration between the variables of the study at the level of 5%. The Maximum Eigenvalue Function statistic indicates that the statistical value of (28.44031) is greater than the critical value of (21.13162) and the probability value (prob = 0.0039) is less than 5%, which means that there is a long-term equilibrium relationship between Public spending, public revenues and the volume of exports with crude oil. This is consistent with the economic reality after the lifting of restrictions and sanctions imposed on Iraq after the year (2003), which led to an increase in oil revenues, which constitute the majority of public revenues that finance public spending. This reflects the rentier income of the Iraqi economy in terms of the heavy reliance on the oil sector as an almost sole source of revenue, and thus the survival of its revenues is dependent on fluctuations in international oil prices.

Table (3) Johansen-Juselius cointegration test

Null Hypothesis: No long-run relationships exist			
Test(Trace)			
Trace Statistic	0.05 Critical Value	prob	The decision
49.30396	29.79707	0.0001	Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
20.86365	15.49471	0.0070	
3.386076	3.841466	0.0657	
Test(Maximum Eigenvalue)			
Max-Eigen Statistic	0.05 Critical Value	prob	The decision
28.44031	21.13162	0.0039	Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
17.47758	14.26460	0.0150	
3.386076	3.841466	0.0657	

Source: The researcher's work, based on the outputs of the eviews9 program.

### The relationship of public spending and public revenues with the gross domestic product

The clear estimation results in Table (4) indicate that the Trace Statistic of (25.36049) is smaller than the critical value of (29.79707) and the probability value (prob = 0.1490) is greater than 5%, which means accepting the null hypothesis that there is no Cointegration relationship between the variables of the study. As for the Maximum Eigenvalue Function statistic, it indicates that the statistical value of (19.35494) is smaller than the critical value of (21.13162) and the probability value (prob = 0.0870) is greater than 5%, which means that there is no long-term equilibrium relationship between public spending, public revenues, and gross domestic product. This is consistent with the economic reality, which confirms that public spending and public revenues did not contribute to stimulating economic activity, especially in

the productive sectors (agriculture and industry). This reflects the dominance of the oil sector over the gross domestic product, and it is almost the only sector that feeds the general budget with revenues. Therefore, the growth rates of output are associated with the growth of oil revenues, in contrast to the great collapse in the productive sectors, the deterioration of the agricultural and industrial sectors, and the cessation and obsolescence of most projects, in addition to the adoption of the dumping policy followed by Neighboring countries and the almost complete absence of the private sector (Ministry of Planning, 2019, 3).

Table (4) Johansen-Juselius co integration test

Null Hypothesis: No long-run relationships exist			
Test(Trace)			
Trace Statistic	0.05 Critical Value	prob	The decision
25.36049	29.79707	0.1490	Trace test indicates no cointegration at the 0.05 level
6.005547	15.49471	0.6949	
0.245334	3.841466	0.6204	
Test(Maximum Eigenvalue)			
Max-Eigen Statistic	0.05 Critical Value	prob	The decision
19.35494	21.13162	0.0870	Max-eigenvalue test indicates no cointegration at the 0.05 level 1
5.760213	14.26460	0.6442	
0.245334	3.841466	0.6204	

Source: The researcher's work, based on the outputs of the evIEWS9 program.

### The relationship of public spending and public revenues with total investment

The clear estimation results in Table (5) indicate that the Trace Statistic of (42.17840) is greater than the critical value of (29.79707) and the probability value (prob = 0.0012) is less than 5%, which means rejecting the null hypothesis and accepting the alternative hypothesis. This indicates that there is a co-integration between the study variables at the 5% level. As for the Maximum Eigenvalue Function statistic, it indicates that the statistical value of (22.69546) is greater than the critical value of (21.13162), and the probability value (prob = 0.0299) is less than 5%, which means that there is a long-term equilibrium relationship between Public spending, public revenues, and total investment, as a result of the expansionary spending policy that was pursued after the lifting of economic sanctions and the increase in oil production and export, which resulted in an increase in salaries and wages that accompanied the expansion of public employment, in addition to the extensive spending on the security side.

Table (5) Johansen-Juselius cointegration test  
Null Hypothesis: No long-run relationships exist

Test(Trace)			
Trace Statistic	0.05 Critical Value	prob	The decision
42.17840	29.79707	0.0012	Trace test indicates 2 cointegrating eqn(s) at the 0.05 level 1
19.48294	15.49471	0.0119	
3.260419	3.841466	0.0710	
Test(Maximum Eigenvalue)			
Max-Eigen Statistic	0.05 Critical Value	prob	The decision
22.69546	21.13162	0.0299	Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
16.22252	14.26460	0.0242	
3.260419	3.841466	0.0710	

Source: The researcher's work, based on the outputs of the eviews9 program.

### The Relationship Of Public Spending And Public Revenues With Imports

The clear estimation results in Table (6) indicate that the Trace Statistic of (38.14487) is greater than the critical value of (29.79707) and the probability value (prob = 0.0044) is less than 5%, which means rejecting the null hypothesis and accepting the alternative hypothesis. This indicates that there is a co-integration between the study variables at the 5% level. As for the Maximum Eigenvalue Function statistic, it indicates that the statistical value of (19.18209) is less than the critical value of (21.13162) and the probability value (prob = 0.0917) is greater than 5%, which means that there is no long-term equilibrium relationship between public spending, public revenues, and imports, and accordingly, it can be concluded that there is a conflict between the impact and maximum value tests regarding the existence of a long-term equilibrium relationship between the variables of the study, so we will depend on the results of the greatest value test for their preference.

Table (6) Johansen-Juselius cointegration test

Null Hypothesis: No long-run relationships exist			
Test(Trace)			
Trace Statistic	0.05 Critical Value	prob	The decision
38.14487	29.79707	0.0044	Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
18.96278	15.49471	0.0144	
3.088169	3.841466	0.0789	
Test(Maximum Eigenvalue)			
Max-Eigen Statistic	0.05 Critical Value	prob	The decision
19.18209	21.13162	0.0917	Max-eigenvalue test indicates no cointegration at the 0.05 level
15.87461	14.26460	0.0276	
3.088169	3.841466	0.0789	

Source: The researcher's work, based on the outputs of the eviews9 program.

### IMPULSE RESPONSE FUNCTION (IRF)

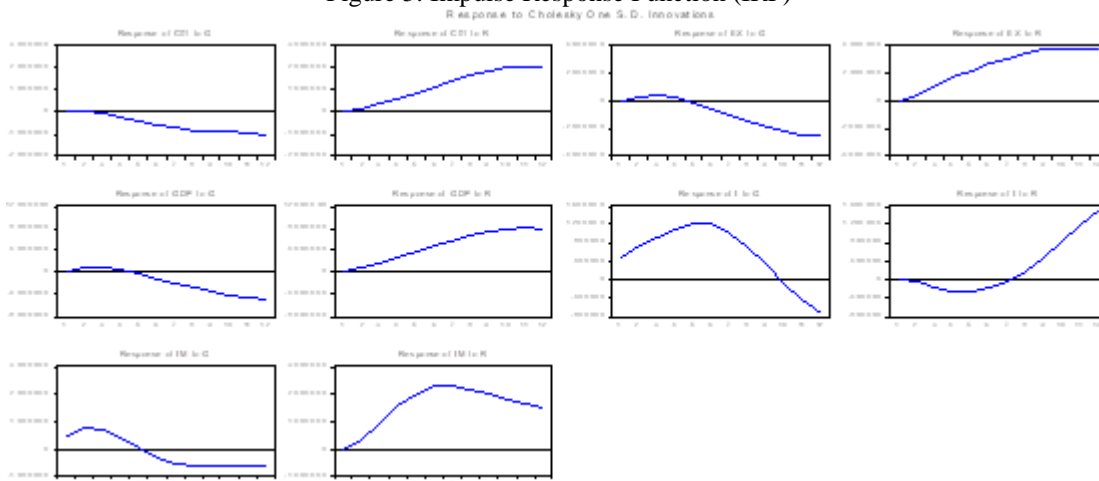
The induced response function (IRF) measures the impact of the shock to which an internal variable is exposed in the (VAR) and (VECM) model on the current and future values of other internal variables in the model, and this function tracks the time course of the various shocks that the various variables are exposed to included in the (VAR) model and reflects how each of these variables responds to any sudden shock that occurs in one of the residuals (error limit) on the current and future values of the dependent variables. by one unit (Hill & others, 2008, 350-354). According to the estimates of the clear response function in Figure (5), the following can be seen:

- Inducing a positive structural shock in public spending by one standard deviation, which will have an almost stable effect in the first and second periods and decreasing in the third period until the end of the period in the volume of total consumption. As for the impact of this shock on public revenues, it is a positive and increasing effect from one period to another, To continue until the end of the period in the volume of total consumption.
- Inducing a positive structural shock in public spending by one standard deviation, which has a positive and significant impact in the first period and decreases in the fifth period, and continues to decline until the end of the period in the volume of exports with crude oil. As for the impact of this shock on public revenues, it is a positive and increasing effect of Period to period to continue until the end of the period in the volume of exports with crude oil.
- Inducing a positive structural shock in public spending by one standard deviation, which has a positive and significant impact in the first period and decreases in the fifth period, and continues to decline until the end of the period in the gross domestic product, as the increased spending activity without an appropriate response to the local productive apparatus is the cause of low growth The productivity of the commodity and service sectors. As for the impact of this shock on public revenues, it is a positive and increasing impact from one period to another, to continue until the end of the period on the gross domestic product. This reflects the dominance of the oil sector over the gross domestic product, and it is almost the only sector that feeds the general budget with revenues. Therefore, the growth rates of output are associated with the growth of oil revenues.



- Inducing a positive structural shock in public spending by one standard deviation, which has a positive and significant impact in the first period and decreases in the fifth period, and continues to decline until the end of the period in the volume of total investment, and this reflects the fragile fiscal policy trends that failed to create new resources for the public budget and use Optimal financial surpluses from oil exports. As for the impact of this shock on public revenues, it is a negative impact from the first period to the fifth period, then it moves to a positive and increasing effect from the seventh period, and it continues to rise until the end of the period in the total investment volume.
- Inducing a positive structural shock in public spending by one standard deviation, which will have a positive and significant impact in the first period, stabilize in the second period, decrease from the fifth period, and continue to decline to the eighth period, to stabilize until the end of the period in the volume of total imports. As for the effect of this shock on public revenues, it is a positive and increasing effect from the first period to the sixth period, then it moves to a decreasing positive effect until the end of the period on the volume of total imports.

Figure 5: Impulse Response Function (IRF)



Source: Eviews9 output.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

The fiscal policy applied in Iraq after 2003 witnessed the absence of a future vision through an increase in current spending at the expense of investment spending, through an increase in imports at the expense of exports, and reliance on the rightful resource without concern for the rights of future generations. The political aspect of the general budget, in addition to the failure to follow the standards of efficiency in spending, as well as the shock that was occurring in the tools of financial policy fabricated by the decision-makers to meet the needs of the security aspect, which was reflected in its shadows on the increase in current spending resulting from the system of wages and salaries and allocations directed to the security system. To achieve stability and control of the security situation, in addition to the political repercussions that resulted in increasing the level of employment or employment to achieve other goals.

Future studies can look at measuring and analyzing the impact of financial policy shocks on macroeconomic variables or their repercussions on economic, social and political policies.

### RECOMMENDATIONS

- Adopting an economic policy for the Iraqi state based on the basics of capitalist work to contain the pace of growth of current expenditures while enhancing investment expenditures in order to improve the implementation of infrastructure projects that would lead to the upgrading of the private sector and increase its contribution to the generation of added value
- Enhancing fiscal policy directions by creating new resources for the general budget and optimal use of financial surpluses from oil exports.
  - Adopting effective financial strategies in the short and long term that determine spending and revenue plans and policies for central, regional, and local governments. To implement its financial policies, operate its various departments, and provide the services it is assigned to accomplish.

**REFERENCES**

Al-Arabi, Monetary Fund (2010), Unified Arab Economic Report.

Al-Arabi, Monetary Fund (2012), Unified Arab Economic Report.

Al-Arabi, Monetary Fund (2017), Unified Arab Economic Report.

Al-Arabi, Monetary Fund (2018), Unified Arab Economic Report.

Almajmeai , Hassan Zidan . Hamad, mukhayaf Jassim .(2018), Financing the Iraqi public Budget Deficit for the Period (2003-2015) Analytical Study, Tikrit Journal of Administration & Economic Sciences/Vol/No.41 part 2.

Arshed fouad altameemi, Zaher abdel fattah al-Slehat.( 2022) "Islamic investement financeing and commercial banks facilities: mediation effect of the islamic bank size", international journal of professiona business review, v.7, n.4, p.01-21, e0458,.

Data of the Ministry of Planning, Central Statistical Organization, Directorate of National Accounts.

Dictionary , Farlex Financial, 2012.

El-Sayed, Jehan Mohamed, Hussein, Enas Fahmy (2015) “The Impact of Macroeconomic Shocks on the Labor Market in the Egyptian Economy,” Arab Economic Research Journal, Issue 71, Beirut, Lebanon.

Gonzalo, Jesus (1994) , Five Alternative Methods of Estimating long – Run Equilibrium Relationships , Journal of Econometrics , Vol. : (60)

Hill,R.Cariter and others(2008) ,Principles of Econometrics , Third Edition, VP and Executive Publisher Don Fowey, USA.

Ministry of Planning (2019). Imports report for the year 2018, Central Statistical Organization, Directorate of Trade Statistics, Baghdad.

Mountford,Andrew & Uhlig ,Harald,(2009) What are the Effects of Fiscal Policy Shocks, JOURNAL OF APPLIED ECONOMETRICS J. Appl. Econ. 24: 960–992 Published online 22 April 2009 in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/jae.1079

Muna younus hussein.( 2022) "Analyzing and measuring the long-term balance relationship between changes in government spending and real growth in iraq for the period 1990-2018", international journal of professiona business review, v.7, n.2, p.01-24, e0470,.

Thamer, Musab Musab, Rasan, Salem Abdul Hassan. (2017) The Iraqi economy in light of rentier dominance and the requirements of economic diversification for the period (2003-2015) The Gulf Economic Journal, No. 34.