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Oil Dependency and Fiscal Policy in Iraq: Insights from a Time-Varying Parameter Model

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Abstract:
This research examines the relationship between oil revenue growth and government expenditure growth in Iraq from January 2010 to December 2023 using the Bayesian Time-Varying Parameter Vector Autoregression (TVP-VAR) method. The findings reveal a significant positive correlation between oil revenues and government spending, with government expenditures responding to increases in oil revenues with a time lag. However, the influence of oil revenues on government spending diminishes over successive periods, suggesting a potential stabilization or shift in fiscal priorities. Given the volatile nature of oil markets and the associated economic risks, the study underscores the necessity for Iraq to diversify its revenue sources. Key policy recommendations include reforming fiscal policies, investing in human capital, enhancing governance, and promoting sustainable practices to build a more resilient economic structure less reliant on oil revenues.

Keywords: Oil Revenue, Government Expenditure, Bayesian TVP-VAR, Economic Diversification

Introduction

Iraq's economy is profoundly influenced by its dependence on oil revenues, which contribute over 90% of government income, making it highly susceptible to global oil price fluctuations (Siddiqui, 2020; IMF, 2023). For oil-exporting nations, oil price volatility presents a significant challenge, directly affecting fiscal stability and broader macroeconomic policies (Baffes et al., 2015). In Iraq, this reliance on oil revenues heightens the difficulty of maintaining a stable fiscal policy, as fluctuating oil prices cause substantial shifts in government income. These shifts, in turn, influence public spending, investment, and economic growth (Al-Ameedi & Al-Saadi, 2022). Therefore, understanding the relationship between oil price fluctuations and fiscal policy stability in Iraq is crucial to develop strategies that can minimize the impact of external shocks on the domestic economy.

Over the last two decades, the global oil market has experienced significant price shifts due to geopolitical, economic, and environmental influences (Baumeister & Kilian, 2016). Iraq's dependence on oil exposes it to these global market dynamics. Economic crises and oil price collapses, such as those in 2008, 2014, and during the COVID-19 pandemic, have repeatedly affected Iraq's economy by destabilizing government budgets and hindering long-term planning (IMF, 2021). Each downturn in oil prices has led to budget deficits, forcing the government to borrow and reduce capital expenditures, both of which are vital for infrastructure development and public services (Baffes et al., 2015).

Research examining the impact of oil price volatility on fiscal policy emphasizes the difficulties faced by oil-dependent economies. Studies such as those by Aysan, Nabli, and Varoudakis (2016) and Rafiq, Salim, and Bloch (2009) indicate that oil price shocks can have both immediate and delayed effects on government revenue and spending, complicating efforts to implement counter-cyclical fiscal policies.

In Iraq, the volatility of fiscal policy is exacerbated by domestic factors, including political instability, security challenges, and inefficiencies in the public finance system (World Bank, 2020). Together, these factors increase the country's fiscal vulnerabilities, highlighting the need for robust analytical frameworks to assess and manage the influence of oil price fluctuations on fiscal policy.

The Time-Varying Parameter Vector Autoregression (TVP-VAR) model offers an effective tool for investigating the dynamic relationship between oil prices and fiscal policy instability in Iraq. Unlike conventional econometric models with fixed parameters, the TVP-VAR approach allows parameters to vary over time, providing a more refined analysis of the evolving relationship between oil prices and fiscal policy stability (Nakajima, 2011). This method is particularly suitable for Iraq, where economic conditions and government policies are frequently impacted by both domestic and international events. By capturing time-varying dynamics, the TVP-VAR model can reveal short-term and long-term effects of oil price shocks on Iraq's fiscal policy, assisting policymakers in designing more effective responses to periods of economic instability.

The TVP-VAR model has increasingly been used to examine the effects of oil price fluctuations on macroeconomic variables in oil-exporting countries. For example, studies by Mohaddes and Pesaran (2016) and Baumeister, Korobilis, and Lee (2021) employ time-varying parameter models to analyze how oil price shocks impact GDP, inflation, and fiscal policy in oil-exporting nations. Their findings emphasize the value of flexible, adaptive models in studying complex economic relationships prone to structural shifts and market fluctuations. In this context, the TVP-VAR approach is particularly relevant for Iraq, where both oil prices and fiscal policy measures frequently shift. This model, therefore, enables a realistic evaluation of the interdependence between oil prices and fiscal policy in the Iraqi economy (Baumeister et al., 2021).

This study seeks to analyze the impact of oil revenue growth (Goil) on Iraq's fiscal policy (government expenditure -GGovexp) using the TVP-VAR model and Monthly data over the period from 2004 to 2023. By doing so, it aims to generate insights into how Iraqi policymakers can better manage oil price shocks and lessen the economy's vulnerability to fiscal instability. The outcomes of this analysis are expected to enrich the existing literature on oil price volatility and fiscal policy, contributing valuable policy recommendations for achieving greater fiscal resilience in oil-dependent economies.

Theoretical Basis of Oil Dependency and Fiscal Policy Instability in Iraq

The theory behind oil dependency and fiscal policy instability in Iraq centers on the structural challenges that oil-dependent economies face due to their reliance on a single, volatile source of revenue. Economic theory suggests that a high dependency on natural resource exports, particularly oil, can create significant fiscal vulnerabilities, as government revenues in such economies become closely tied to international commodity prices (Auty, 1993; Gelb, 1988). This relationship is particularly pronounced in Iraq, where over 90% of government revenues are derived from oil exports, making fiscal policy heavily influenced by global oil price fluctuations (Siddiqui, 2020; IMF, 2023).

The Resource Curse and Volatility in Oil-Dependent Economies

The "resource curse" theory posits that countries rich in natural resources often face slower economic growth and more unstable fiscal policies than resource-poor countries. This is due to a range of factors, including price volatility, revenue unpredictability, and often, institutional weaknesses (Sachs & Warner, 1995; Ross, 2001). Oil price volatility has direct implications for fiscal policy in oil-exporting countries. When prices are high, governments may increase public spending, but during price declines, revenues drop sharply, leading to budget deficits, reduced capital investments, and cuts in essential services (Baffes et al., 2015).

In Iraq's case, the issue is further compounded by the lack of diversified revenue streams outside the oil sector, resulting in high fiscal dependence on oil revenues and exposure to oil price cycles (Al-Ameedi & Al-Saadi, 2022). The volatile nature of oil prices leads to irregular revenue streams, making it difficult to implement consistent fiscal policies. Consequently, Iraqi fiscal policy is prone to cycles of expansion and contraction that mirror fluctuations in global oil prices, creating significant economic instability (IMF, 2021).

The Resource Curse and Volatility in Oil-Dependent Economies

The "resource curse" refers to the paradox that countries rich in natural resources, such as oil, often experience slower economic growth and greater instability than countries without these resources. Key components of the resource curse include over-reliance on resource exports, exposure to volatile global prices, and potential institutional weaknesses that impede the sustainable management of resource wealth (Auty, 1993; Sachs & Warner, 1995). In oil-dependent economies like Iraq, revenue instability from fluctuating oil prices can lead to economic volatility, fiscal imbalances, and a lack of long-term growth, as government income is closely tied to global oil markets (Ross, 2001).

Theoretical frameworks suggest that oil price volatility disrupts the stability of government revenues, causing frequent shifts in public spending, savings, and borrowing. When oil prices rise, governments in oil-rich countries tend to increase spending on public projects, infrastructure, and social services. However, when prices fall, these expenditures become unsustainable, forcing abrupt budget cuts or increased debt accumulation (Baffes et al., 2015). This cyclical spending behavior, driven by oil revenue fluctuations, can lead to a pro-cyclical fiscal policy, where government spending rises and falls in response to the oil market rather than the needs of the economy (Rafiq et al., 2009). Consequently, economies such as Iraq face challenges in achieving fiscal policy stability, with economic growth highly susceptible to external price shocks.

Dutch Disease and Its Effects on Government Spending

Dutch disease is a concept closely related to the resource curse, named after the economic challenges faced by the Netherlands in the 1960s following a natural gas boom. Dutch disease occurs when a country's booming resource sector, such as oil, causes its currency to appreciate, making other export sectors, such as agriculture and manufacturing, less competitive. As a result, the economy becomes over-reliant on the resource sector, neglecting the development of other productive sectors (Corden & Neary, 1982).

In oil-rich economies like Iraq, Dutch disease manifests through both currency appreciation and sectoral imbalances. When oil prices rise, the national currency strengthens, reducing the competitiveness of other export goods and increasing reliance on imported goods. This often leads to the contraction of non-oil industries, such as manufacturing and agriculture, as they become unable to compete internationally (Ismail, 2010). The economy becomes increasingly dependent on oil revenue, further exposing it to price volatility and external shocks.

Dutch disease also affects government spending patterns. As resource revenues flow into government coffers, there is often an increase in public sector spending, with governments choosing to invest in infrastructure, public services, and social programs. However, these expenditures may not contribute to long-term economic growth if they are not managed prudently. In many cases, governments prioritize visible public works projects or expanded public-sector employment, which can result in inefficiency and corruption, as well as a lack of diversification in the economy (Sachs & Warner, 1999). In Iraq, for example, public sector employment has grown significantly in response to oil revenues, creating a fiscal burden that becomes unsustainable when oil prices fall (Al-Ameedi & Al-Saadi, 2022).

Implications of Dutch Disease for Iraq's Fiscal Policy

The reliance on oil revenues and the effects of Dutch disease can lead to both short-term and long-term fiscal imbalances. In the short term, when oil prices are high, government budgets may see surpluses, and spending typically rises. However, the high dependence on a single volatile revenue source creates fiscal vulnerabilities, as unexpected oil price declines force the government to cut spending or increase borrowing to cover budget deficits (IMF, 2021). Over time, this pro-cyclical pattern creates economic instability, as governments are unable to stabilize spending and investment levels, undermining economic planning and growth.

In the long term, the lack of investment in productive non-oil sectors due to Dutch disease limits economic diversification, making Iraq even more dependent on oil. This dependence perpetuates the cycle of volatility, as there is minimal development of alternative industries that could provide a buffer against oil price shocks. Additionally, the tendency to increase public sector employment and wages during oil booms can lead to a rigid budget structure that is difficult to adjust during oil price downturns, resulting in unsustainable fiscal commitments and a reliance on debt financing (Auty, 2001).

Overall, the combined effects of the resource curse and Dutch disease create a challenging environment for fiscal policy in Iraq, as the government must manage oil revenue volatility while also addressing structural economic weaknesses. Developing policies to mitigate Dutch disease, such as stabilizing funds, currency controls, and diversification initiatives, is critical for establishing fiscal stability and sustainable growth in oil-dependent economies.

Impact of Oil Price Shocks on Fiscal Policy Stability

According to economic theory, fiscal policy should ideally play a counter-cyclical role, where government spending increases during economic downturns and decreases during periods of economic boom (Keynes, 1936). However, for oil-dependent economies like Iraq, counter-cyclical fiscal policies are challenging to implement due to the unpredictability of oil revenues. This is supported by studies such as Rafiq, Salim, and Bloch (2009), which found that oil price volatility can have both immediate and lagged effects on government revenue, influencing fiscal spending and leading to pro-cyclical policy responses in the absence of fiscal buffers.

For Iraq, large oil price shocks, such as those observed in the financial crisis of 2008, the oil price collapse of 2014, and the COVID-19 pandemic, have led to severe fiscal imbalances, forcing the government to adjust its budget in response to the sharp revenue changes (Baumeister & Kilian, 2016). In each of these cases, Iraq was forced to take austerity measures or increase borrowing to meet short-term budgetary needs, which increased fiscal vulnerability in the long term (IMF, 2021).

Time-Varying Parameter Vector Autoregression (TVP-VAR) as a Framework

The Time-Varying Parameter Vector Autoregression (TVP-VAR) model provides a robust framework to capture the dynamic relationship between oil price shocks and fiscal policy responses in economies like Iraq's. Traditional econometric models often assume static parameters, but in rapidly changing economic environments, these assumptions may overlook important variations over time (Nakajima, 2011). The TVP-VAR model, however, allows for changes in parameters over time, which makes it well-suited for analyzing the impact of oil price volatility on fiscal policy in oil-dependent economies (Primiceri, 2005).

Using a TVP-VAR framework enables researchers to analyze how fiscal policy responses in Iraq evolve with changing oil prices, capturing both the short-term and long-term impacts. Studies such as those by Baumeister, Korobilis, and Lee (2021) and Mohaddes and Pesaran (2016) illustrate the effectiveness of TVP models in capturing the dynamic nature of oil price shocks on macroeconomic indicators across different periods. For Iraq, the TVP-VAR model can reveal how oil price shocks influence government expenditure, budget deficits, and borrowing requirements over time, providing insights into the policy adjustments needed to mitigate fiscal instability.

The TVP-VAR model is an advanced econometric tool used to analyze dynamic relationships between variables over time while accounting for potential changes in these relationships. Unlike traditional VAR models, which assume constant parameters over the entire sample period, the TVP-VAR model allows parameters to evolve over time. This flexibility makes TVP-VAR particularly valuable in studying economies or markets with structural breaks, regime shifts, or time-varying relationships, such as oil-dependent economies experiencing volatile price shocks.

Structure of the TVP-VAR Model

A standard VAR model in matrix notation can be written as:

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + \cdots + A_p y_{t-p} + \varepsilon_t$$

where:

- $y_{t\_}$ is a vector of endogenous variables at time ttt,
- A_i are matrices of coefficients for each lag iii,
- p is the number of lags,
- ε_t is a vector of error terms, assumed to be normally distributed with mean zero and constant variance.

In the TVP-VAR model, the parameters A_i are allowed to change over time, making it:

$$y_t = A_{1,t} y_{t-1} + A_{2,t} y_{t-2} + \cdots + A_{p,t} y_{t-p} + \varepsilon_t$$

Here, each coefficient matrix A_{it} depends on t, allowing the model to capture the evolving relationships between the variables.

Modeling Time Variation in Parameters

The time-varying parameters are typically modeled as following a stochastic process, such as a random walk. This means that each parameter at time t depends on its value at $t-1$ plus some error term:

$$A_{i,t} = A_{i,t-1} + \eta_{i,t}$$

where $\eta_{i,t}$ is a vector of innovations, capturing the changes in the parameters over time. These innovations are usually assumed to be normally distributed with mean zero and variance Q_i

Stochastic Volatility in TVP-VAR

In many implementations of TVP-VAR, the variance-covariance matrix of the errors ε_t is also allowed to vary over time to account for changing levels of volatility. This is often modeled using a stochastic volatility approach, where the variance at each time point t follows a separate stochastic process. Letting Σ_t denote the time-varying variance-covariance matrix, we write:

$$\varepsilon_t \sim N(0, \Sigma_t)$$

This structure allows the model to capture periods of high or low volatility, which is particularly useful in financial and macroeconomic contexts, where volatility can change due to external shocks, policy interventions, or market sentiment.

Estimation of TVP-VAR Models

Estimating a TVP-VAR model is more complex than a traditional VAR due to the large number of parameters that evolve over time. Estimation is commonly performed using Bayesian methods, which are well-suited to handling high-dimensional parameter spaces and can incorporate prior information about parameter dynamics.

The estimation process typically involves:

- **Priors:** Setting prior distributions for the time-varying parameters, variances, and covariances. These priors guide the estimation, especially for small samples or periods with few observations.
- **Markov Chain Monte Carlo (MCMC):** Since the model is complex and likelihood maximization is challenging, Bayesian inference relies on MCMC methods like the Gibbs sampler or Metropolis-Hastings algorithms to generate samples from the posterior distributions of the parameters.
- **Kalman Filter:** The Kalman filter is often used for obtaining time-varying parameter estimates and forecasting. The Kalman filter recursively computes the likelihood of observing the data given the evolving parameters, making it ideal for state-space models like TVP-VAR.

Data and Results of Model Estimation

The data for this research consists of monthly oil revenue growth (GOIL) and Iraqi government expenditure growth (GGOVEXP) from January 2010 to December 2023.

Before estimating the research model, it is essential to assess the stationarity of the variables. Given the monthly frequency of the data, the HEGY unit root test was applied. The results of this test are presented in Table 1.

Table 1: The results of HEGY unit root test

Seasonal Unit Root Test for GOIL		**Significance Level**			**Seasonal Unit Root Test for GGOVEXP**		**Significance Level**		
	Test Stat.	1%	5%	10%		Test Stat.	1%	5%	10%
Frequency 0	-4.093968				Frequency 0	-4.982793			
n=220		-2.55	-1.94	-1.62	n=220		-2.55	-1.94	-1.62
n=240		-2.61	-1.95	-1.62	n=240		-2.61	-1.95	-1.62
n=223		29.56	8.43	3.95	n=234		-2.59	-1.94	-1.62
Frequency 2PI/12 and 22PI/12	11.76199				Frequency 2PI/12 and 22PI/12	16.99895			
n=220		29.36	8.49	4.00	n=220		29.36	8.49	4.00
n=240		30.68	8.08	3.67	n=240		30.68	8.08	3.67
n=223		29.56	8.43	3.95	n=234		30.28	8.20	3.77
Frequency 4PI/12 and 20PI/12	4.907256				Frequency 4PI/12 and 20PI/12	18.30299			

n=220		29.36	8.49	4.00	n=220		29.36	8.49	4.00
n=240		30.68	8.08	3.67	n=240		30.68	8.08	3.67
n=223		29.56	8.43	3.95	n=234		30.28	8.20	3.77
Frequency 6PI/12 and 18PI/12	4.209816				Frequency 6PI/12 and 18PI/12	21.58078			
n=220		29.36	8.49	4.00	n=220		29.36	8.49	4.00
n=240		30.68	8.08	3.67	n=240		30.68	8.08	3.67
n=223		29.56	8.43	3.95	n=234		30.28	8.20	3.77
Frequency 8PI/12 and 16PI/12	10.49641				Frequency 8PI/12 and 16PI/12	28.15651			
n=220		29.36	8.49	4.00	n=220		29.36	8.49	4.00
n=240		30.68	8.08	3.67	n=240		30.68	8.08	3.67
n=223		29.56	8.43	3.95	n=234		30.28	8.20	3.77
Frequency 10PI/12 and 14PI/12	17.10105				Frequency 10PI/12 and 14PI/12	27.91879			
n=220		29.36	8.49	4.00	n=220		29.36	8.49	4.00
n=240		30.68	8.08	3.67	n=240		30.68	8.08	3.67
n=223		29.56	8.43	3.95	n=234		30.28	8.20	3.77
Frequency PI	-4.280102				Frequency PI	-5.226552			
n=220		-2.55	-1.94	-1.62	n=220		-2.55	-1.94	-1.62
n=240		-2.61	-1.95	-1.62	n=240		-2.61	-1.95	-1.62
n=223		-2.56	-1.94	-1.62	n=234		-2.59	-1.94	-1.62
All seasonal frequencies	16.94671				All seasonal frequencies	23.47105			
n=220		26.99	7.82	3.71	n=220		26.99	7.82	3.71
n=240		28.04	7.45	3.43	n=240		28.04	7.45	3.43
n=223		27.14	7.76	3.66	n=234		27.72	7.56	3.51
All frequencies	19.83371				All frequencies	23.75159			
n=220		24.95	7.32	3.49	n=220		24.95	7.32	3.49
n=240		25.97	6.98	3.24	n=240		25.97	6.98	3.24
n=223		25.11	7.27	3.45	n=234		25.67	7.08	3.31

Note: Obtained using linear interpolation.

The results of the HEGY unit root test indicate that both oil price growth and Iraqi government expenditure growth are stationary at the conventional significance level. This finding suggests that the variables do not contain unit roots and are stable over time, making them suitable for further analysis in the model. Consequently, the stationarity of these variables allows for reliable interpretation of their dynamic relationships without concerns about spurious results due to non-stationarity.

The model selected in this research is as follows:

$$\begin{bmatrix} GOIL_t \\ GGOVEXP_t \end{bmatrix} = C_t + \beta_{t,1} \begin{bmatrix} GOIL_{t-1} \\ GGOVEXP_{t-1} \end{bmatrix} + \cdots + \beta_{t,p} \begin{bmatrix} GOIL_{t-p} \\ GGOVEXP_{t-p} \end{bmatrix}$$

Figure 1 plots the seasonally adjusted time series of oil revenue and government expenditure.

Figure 1: The seasonally adjusted time series of oil revenue and government expenditure.

Figure 1 comprises monthly figures for government expenditure (GOVEXPSA) and oil revenue (OILREVSA), both represented in millions of Iraqi dinars.

There is a general upward trend in oil revenue over the recorded period, with peaks observed above 68 billion dinars. This reflects fluctuations in global oil prices, production levels, and potential geopolitical factors affecting oil exports. Government expenditure shows a more volatile pattern, with peaks around 50 billion dinars. This volatility may be indicative of varying government priorities, crisis spending, or responses to socio-economic challenges.

There appears to be a positive correlation (0.663) between oil revenue and government expenditure. During periods of high oil revenue, the government tends to increase spending, reflecting reliance on oil revenues to finance public services and infrastructure. The data shows certain lag periods where expenditure increases follow revenue peaks, suggesting that while oil revenue directly influences expenditure, there may be delays in budget allocation processes.

At times when oil revenue spikes, government spending does not always proportionately increase, indicating possible fiscal policies or limitations in quick expenditure responses. For instance, despite significant revenues observed in the later months, government spending remains less than or equal to the previous months during revenue peaks, which could suggest prioritization in fiscal allocation or previously planned expenditures.

In this study, the Hodrick-Prescott filter is used to analyze the time series of government spending and extract the cyclical component of this time series. In the following, the growth of the cyclical component of the time series of government spending (GGOVEXP)is used as an indicator of the instability of government spending.

The Hodrick-Prescott (HP) filter is a widely used tool in economic time series analysis for separating a time series into its trend and cyclical components. This method is particularly useful for analyzing government expenditures, as it helps to identify underlying trends that might be obscured by short-term fluctuations, which can be critical for policy-making and economic forecasting (Hodrick and Prescott, 1997).

Figure 2 shows the results of estimating the coefficients of the Bayesian TVP-VAR model for the government expenditure equation[1].

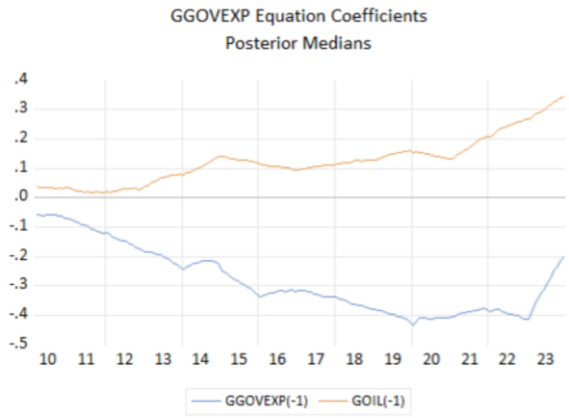

Figure 2: The results of estimating the coefficients of the Bayesian TVP-VAR model for the government expenditure equation.

As can be seen in Figure 2, the trend of the oil variable coefficient in the government expenditure equation is increasing over time, meaning that the Iraqi government budget has been increasingly influenced by oil revenues over time. This could be a warning sign for Iraqi officials to try to reduce the country's budget dependence on oil revenues. Reliance on oil revenues for budgeting can pose several significant disadvantages. Oil prices are notoriously volatile, influenced by global demand, geopolitical tensions, and market speculation. This can lead to unpredictable revenue streams, making it difficult for governments to plan and maintain consistent public services. Also, Economies dependent on oil revenues are often less diversified. When oil prices fall, these countries face sharp economic downturns, which can lead to austerity measures, reduced public spending, and increased unemployment.

Countries rich in oil may experience the "resource curse," where the abundance of natural resources leads to corruption, mismanagement, and conflict over resource control. This can undermine democratic institutions and social cohesion. Heavy reliance on oil can lead to the neglect of other vital sectors, such as agriculture, manufacturing, and technology. This lack of diversification can make recovery from a downturn in oil revenues more difficult. Budget dependence on oil can lead governments to prioritize short-term revenue generation over long-term investments in health, education, and infrastructure. When revenues fluctuate, this can result in significant cuts to essential services. Over-reliance on fossil fuels can lead to environmental degradation, including pollution and climate change impacts. This can result in increased costs and social tensions as communities face the consequences of environmental neglect.

These disadvantages highlight the importance of diversifying revenue sources and investing in sustainable economic practices to reduce dependency on oil revenues.

The following are the results of estimating the impulse response functions related to the government expenditure equation.

[1] Because Iraq's oil revenues are affected by the global price of oil and are not dependent on Iraqi government expenditure, only the results related to the Iraqi government expenditure equation are reported below.

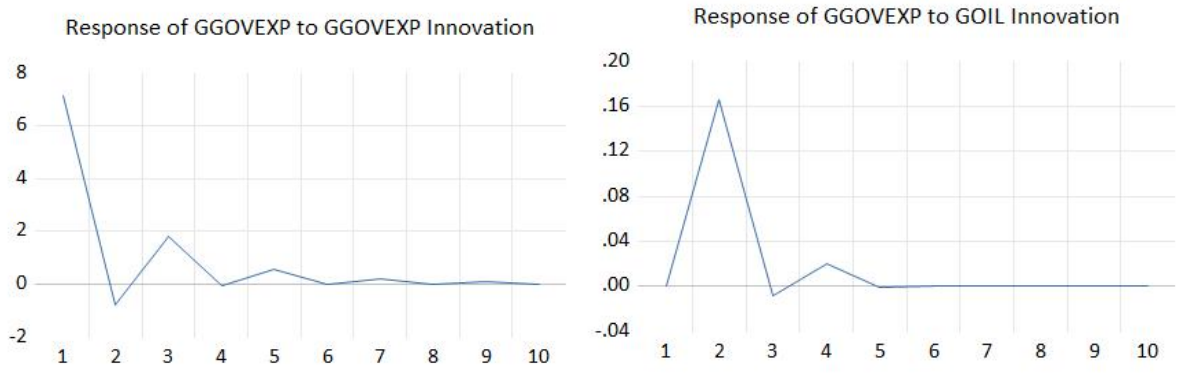

Figure 3: The results of impulse response functions estimation related to the government expenditure equation.

Impulse response functions estimation refers to a significant fluctuation in oil revenues, specifically one standard deviation above the average revenue level. In statistical terms, this represents a notable increase that can be expected to have an impact on government finances.

When oil revenues experienced this positive shock, there was a subsequent increase in government spending. The term "after a lag" implies that the response wasn't immediate; rather, it took some time for the government to react to the increased revenues, possibly due to bureaucratic processes or budget planning cycles.

The Figure 2 indicates that while the initial increase in spending was significant, the impact of the increased oil revenues on government spending began to diminish after the second time period analyzed. This suggests that the government did not maintain the same level of spending in response to sustained high oil revenues over time.

Eventually, the effect of the oil revenue shock on government spending became negligible after three periods of evaluation. This means that any additional influence from the increased oil revenues on spending was effectively canceled out, indicating that the government may have stabilized its budget or adjusted its spending priorities.

In summary, the findings suggest that while an initial increase in oil revenues led to greater government spending, the impact of that increase diminished over time, eventually disappearing altogether. This could reflect a move toward budget stabilization or a shift in policy priorities following the initial response to increased revenues.

Conclusion

The analysis of Iraq's oil revenue and government expenditure from January 2010 to December 2023 reveals a significant relationship between these two variables, characterized by a positive correlation and a tendency for government spending to respond to fluctuations in oil revenues. However, the diminishing impact of oil revenues on government expenditure over time raises important concerns about the sustainability and effectiveness of Iraq’s fiscal policies.

Given the volatility of oil prices and the potential economic risks associated with over-reliance on oil revenues, it is crucial for Iraqi policymakers to take proactive steps to diversify the economy and reduce dependence on oil. The following policy recommendations are proposed:

Diversification of Revenue Sources: The government should actively seek to diversify its revenue streams by investing in other sectors such as agriculture, manufacturing, and tourism. This could

involve creating incentives for private sector investment and developing local industries to reduce vulnerability to oil price fluctuations.

Fiscal Policy Reform: Implementing a more robust fiscal policy framework is essential. This includes establishing a stabilization fund that can buffer against revenue shocks, allowing for more consistent public spending even when oil prices decline. Such funds can help manage surplus revenues during high oil price periods and provide financial stability during downturns.

Investment in Human Capital: Prioritizing investments in education, healthcare, and infrastructure will build a more resilient economy. By enhancing human capital and infrastructure, the government can stimulate economic growth and reduce reliance on oil revenues for funding essential services.

Strengthening Governance and Transparency: Addressing issues of corruption and mismanagement is critical for ensuring that oil revenues are used effectively. The government should enhance transparency in budget allocation and spending, promoting accountability and public trust in fiscal policies.

Encouraging Sustainable Practices: As the global economy shifts towards sustainability, Iraq should seek to invest in renewable energy and environmentally friendly practices. This not only aligns with global trends but also helps mitigate the environmental impact of oil extraction and consumption.

Long-term Planning and Policy Consistency: Establishing a long-term economic strategy that extends beyond electoral cycles can help ensure that policies are consistent and focused on sustainable development. This strategy should include measurable goals and regular assessments to adapt to changing economic conditions.

By implementing these recommendations, Iraq can work towards a more stable and diversified economy that is less vulnerable to the inherent risks associated with oil revenue dependence. This approach will not only enhance fiscal stability but also promote sustainable development and improve the overall quality of life for its citizens.

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