



The Impact of oil swings on the Algerian economy and their transmission channels

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Abstract :

Oil prices continue to demonstrate unpredictable and volatile behaviors. Hence, Authorities of oil exporting countries are still trying to figure out the Oil –Macroeconomic relationship and the channels by which oil prices may affect their economies. Studies on the subject matter devoted to Algerian specific economy remain highly insufficient.

This study intends to clarify the dynamics of the main macroeconomic variables to both oil shocks and fiscal policy changes , making use of a vector autoregressive (VAR) model of a three-variable (oil prices, fiscal stance, and output) and its associated responses functions analysis.

The findings of the empirical analyses suggest that oil shocks have a significant impact on macroeconomic variables in Algeria. Despite the fact that the Granger test reveals no signs of a long-term relationship.

Impulse response analysis indicates that the fiscal stance is the mechanism by which changes in the price of oil transmit to the Algerian economy.

Keywords:

Oil shocks; Fiscal Stance; VAR model.

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1. INTRODUCTION:

1.1. Statement of the Problem:

Oil prices continue to a near present to demonstrate unpredictable and very volatile behavior. Hence, Authorities of both oil exporting and importing countries are trying to implement policies that reduce their economies' exposure to the world oil prices swings.

In addition, oil price shocks appear to be constant, and the oil price cycles are extremely volatile in oil based economies like Algeria that is heavily dependent on this natural resource and oil rent accounts for a large share of its revenues. These characteristics make fiscal policy more difficult in those countries with very significant consequences for their growth efficiency.

Another critical concern for these authorities is the channels by which oil prices may affect their economies. Several studies on oil exporting countries (Ismail, & Arezki, 2010) (El Anshasy & Bradley, 2012) (Omojolaibi & Egwaikhide, 2014) have argued that the variations in fiscal policies are transmitting the oil swings to the rest of their economies.

While researches on the effectiveness of oil price in stimulating macroeconomic performance and growth in oil exporting countries as well as the transmission channels of oil swings are gaining more attention, studies on the subject matter devoted to Algerian specific economic features remain highly insufficient.

1.2. Research Questions:

Henceforth, the study aims to answer the following problematic questions:
How do oil price shocks impact the Algerian economy, and what role does fiscal policy play in transmitting these shocks?

1.4. Hypothesis/hypotheses:

Our hypothesis is that while oil price shocks have detrimental effects on macroeconomic performance of Algeria's economy. This effect can be caused by the procyclical nature of fiscal policy in the country and the way in which state-owned investments are managed.

1.3. Significance of the Study:

The study on the impact of oil swings on the Algerian economy and their transmission channels is a timely and significant topic for research. Algeria is one of the largest oil-producing countries in Africa, and oil exports contribute significantly to the country's GDP. However, oil prices are highly volatile and subject to fluctuations, which can have a significant impact on the country's economic growth, trade, and employment.

Therefore this study intends to fill the gap of the limited research on the country's level and attempts to prudently characterize and explain the Algerian economic fluctuations. Also, it aims to clarify the dynamics of the country's economy to both oil shocks and the fiscal stance.

1.4. Objective of the study:

The primary objective of this study is to investigate the impact of oil swings on the Algerian economy and identify their transmission channels. Specifically, the study aims to provide a comprehensive analysis of the effect of oil price shocks on the Algerian economy's macroeconomic variables, such as GDP. Moreover, the study seeks to identify the channels through which these effects are transmitted, such as through changes in fiscal policy. By achieving these objectives, the study will contribute to the literature on the impact of oil price shocks on the Algerian economy and provide valuable insights for policymakers.

1.5. Methodology of the Study:

A vector autoregressive (VAR) model of a three-variable (oil prices, fiscal stance, and output) and its associated responses functions analysis were chosen based on the nature of the data and the existent literature, which judges it the best to capture the causality relationship among the variables and to test the magnitude of the effects of oil price on the Algerian economy.

The VAR approach offers an adaptable structure that can take into account complex relationships and use both impulse response functions and variance decomposition to define dynamic responses of variables following exogenous shocks. In this way, it offers a systematic way to capture , over time, the rich complex structures and co-movements between various variables. This allows a detailed analysis of the economy's reaction to oil price shocks. It also allows endogenous interactions between the model's variables.

1.6. Previous researches:

The attention devoted to the study of the relationship between economic growth and oil prices can be traced back to the two first oil price shocks in 1973 and 1979 which lead to an overall economic recession. Early researches of (Hamilton, 1983), (Gisser & Goodwin, 1986), and (Mork, 1989) came to confirm the impact of oil price dynamics on macroeconomic variables. However, later empirical studies (Hamilton, 1996) ,(Hooker ,1996) seemed to question this direct relationship, and they claimed that oil swings have less importance in affecting the macroeconomic fluctuations .

Subsequently, more theoretical and empirical attraction were given to this debate, especially in advanced oil-importing countries. Meanwhile, the quantitative features of this link have not been yet carefully explored in developing oil- exporting countries

1.7. Organization of the Study:

This paper is organized as follow: section two presents the related literature review on the subject matter. Section three is dedicated to review the Algerian economy. In section four, the approach, estimation methods, and data sources are discussed. Section five summarizes the main findings and policy implications, while section six concludes.

2. Theoretical Literature Review:

Most studies which explored the link between oil prices and the Algerian economic growth are introduced in a panel of oil exporting countries; hence, the country's economic features were not carefully presented. In their research (Hakan Berument et al., 2010) investigated how oil price shocks influence the GDP growth of 16 selected MENA countries that are too small to impact the commodity's prices such as Algeria. The authors used an (SVAR) model on number of macroeconomic variables (oil prices real exchange rate, inflation, and output growth). The results for this study suggest that both oil supply and oil demand shocks have a positive and statistically significant effect on the output of Algeria for the period 1969-2003.

Other studies on oil exporting countries with Algeria included (Omojolaibi & Egwaikhide, 2014) (Lescaroux & Mignon, 2008) and (Huseynov & Ahmadov, 2014) offered no concrete evidence of a short-run or a long-run effect of oil price shocks on macroeconomic variables. This result is similar with numerous studies conducted on oil importing countries .

The difference in the outcome of these studies could be explained by the asymmetric affect of oil revenues on output.

(Mehrra, 2008) indicates that oil revenue shocks appear to have an asymmetrical and non-linear effect on growth. Moreover output growth is adversely affected by negative oil shocks whereas oil booms or positive oil shocks have a limited role to play in stimulating economic growth.

(Moshiri & Banihashem, 2012) using a VAR model with GARCH-type oil price shocks, gave particular attention to the 'asymmetrical' effect of oil shocks on the economic performance of the major oil-exporting OPEC countries. The Granger Causality Test (with asymmetry) reveals that positive shocks have no noticeable effect on production growth in contrast to negative shocks.

Another way to approach the uncertain relation between oil swings and economic volatility is the indirect channels through which oil prices can spread to the economy.

(Tazhibayeva et al., 2008) Investigated, using a VAR model and its associated impulse response, the impact of oil price shocks on non-oil economic cycle in oil-exporting countries (including Algeria for the period 1990-2007), and they attempted to unravel the effects of fiscal policy on the economic cycle in these countries to assess the procyclical nature of the public spending. The results of the impulse responses show that in the absence of the fiscal stance, oil price shocks have no impact on the economic cycle and that oil prices do not tend to have an impact on the economic cycle in countries where the oil sector accounts for a significant share of the economy. The results also demonstrate that public spending is high in comparison to overall spending. This study among others (Omojolaibi & Egwaikhide, 2014) and (El Anshasy & Bradley, 2012)

claim that fiscal deficit is the channel through which oil price volatility transmits to the economies of oil exporting countries.

This urges a growing appeal for a country's specific analysis about Algeria in order to enrich and update the above mentioned studies to a recent span. The present study is significant in the way it gives the Algerian economy a special consideration and focus since it has not been carefully examined in the previous studies. The study is also significant as it attempts to fill this gap by carefully presenting the characteristics of the Algerian economy.

3. An overview of the Algerian economy:

3.1. Overview of the oil sector in Algeria:

As a member of the OPEC, Algeria possesses abundant natural resources. It holds the sixteenth position globally in terms of proven oil reserves. With the significant revenues generated from hydrocarbon resources, Algeria has built up substantial foreign currency reserves, estimated at around \$75 billion. Notably, the oil fields in Algeria are characterized by high-quality, light crude oil with remarkably low sulfur content. This consistency in oil quality makes it attractive in the market as it can be extracted without the need for specialized refineries. (Algeria - Oil and Gas – Hydrocarbons ;<https://www.privacyshield.gov/>;2023)

Algeria has introduced major economic ventures after its independence in 1962 and aimed at developing a dense industrial base. However, the Algerian economy has passed through various periods of instability. The 1986 oil counter-shock caused a serious challenge to the country, and it was until the early 1990s that Algeria started on economic reforms, making the transition to a market economy.

In the last two decades, the hydrocarbon boom has helped Algeria to make a progress in economic and human growth. The nation has cleared its public debt, engaged in infrastructure programs, and introduced wealth redistribution social policies that have led to a substantial decrease in poverty, as well as considerable changes in human development indices.

The balance has decreased dramatically since 2014 due to lower oil prices. Decreased receipts from hydrocarbons meant that the level of public funding would no longer be maintained as the hydrocarbon sector continues to present more than two thirds of product exports.

Present Algerian regulations on hydrocarbons and its budgetary terms have been an obstacle to cooperation with foreign oil firms. State-owned national oil firm Sonatrach, the biggest company in Africa, controls nearly 80 per cent of the overall production of hydrocarbons in Algeria while Foreign Oil Companies accounts for approximately 20 per cent. The country is expected to expand exploration activities with foreign partners following the introduction of new hydrocarbon legislation in January 2020, which would

include a more attractive tax regime for prospective investors.

Algeria, like many oil-exporting economies around the MENA region, would need to switch towards a more diversified economic structure if it wants to achieve faster economic growth and employment generation.

3.2. The Algerian fiscal policy:

Algeria's fiscal policy has been heavily influenced by the country's dependence on oil exports. The government has traditionally relied on oil revenues to finance its spending, which has led to a high degree of volatility in the economy. In recent years, Algeria has faced significant fiscal challenges due to the decline in oil prices and production, which have put pressure on the government's ability to fund its budget.

To address these challenges, the Algerian government has implemented a range of fiscal policy measures. These include reducing public spending, increasing taxes on some goods and services, and introducing structural reforms to improve the efficiency of public spending. The government has also sought to diversify the economy away from oil by promoting other sectors such as agriculture, tourism, and manufacturing.

Despite these efforts, Algeria's fiscal position remains fragile, and the country continues to face significant economic challenges. The government will need to continue implementing structural reforms to reduce its reliance on oil revenues and support sustainable economic growth.

Fiscal policy in Algeria is based on three rules of behavior, which are: the rule of saving correlated with the amount of world crude prices; the rule of allocation of oil rent by broad subsidies for a number of consumer products; and the rule of public investment as a lever to stimulate and promote economic development (Abderahmi,2019)

The oil windfall caused the public authorities to draw up stimulus programs. The purpose of their plans was to encourage spending and enhance the quality of life these programs were presented as follow (CHOUAL,2015)

a.The PSRE economic recovery support plan (2001-2004):

Taking advantage of a favorable oil situation, the Algerian state wanted to revive the economic machine by injecting 7 billion US \$ for the development of local investment and the promotion of small and medium enterprises.

b.The complementary plan to support economic growth PCSCE (2005-2009):

This plan complements the PSRE, with a global envelope of 4200 billion dinars, it was mainly intended to improve the quality of life, and the development of basic infrastructure (Housing, highway);

c.The PCSC complementary growth support plan (2010-2014):

This plan is endowed with 286 billion dollars Overall, the strategy consists in developing and modernizing socioeconomic infrastructure, the productive sector is

supported in this plan by the allocation of 2000 billion dinar of subsidized credit for the industrial revival and the provision of 150 billion dinar for upgrading SMEs

These three programs were continuously successful however the 2014 oil shock highlighted a number of vulnerabilities; it clearly weakened Algeria's fiscal and external balances. The fiscal position deteriorated further following the collapse in oil revenues. Budget savings have been all but depleted to finance large budget deficits.

Algeria's trade deficit amounted to 5.03 billion US \$ in 2018, compared to 10.87 billion US \$ in 2017, a decline of 53.7% (the equivalent 5.84 billion of US \$ in nominal value). This decline is mainly due to the increase in oil prices + 15.3% of the 15.3% increase in exports.

Non-hydrocarbon exports in 2018 recorded an increase of 46.6%, reaching 2.8 billion US \$ against 1.9 billion US \$ in 2017. The value of non-hydrocarbon exports only represents 6.9% of the overall value of merchandise exports. Policies to diversify the economy and boost budget receipts need to be complemented by policies to enhance the quality and transparency of public spending in order to preserve the most disadvantaged sectors of the population.

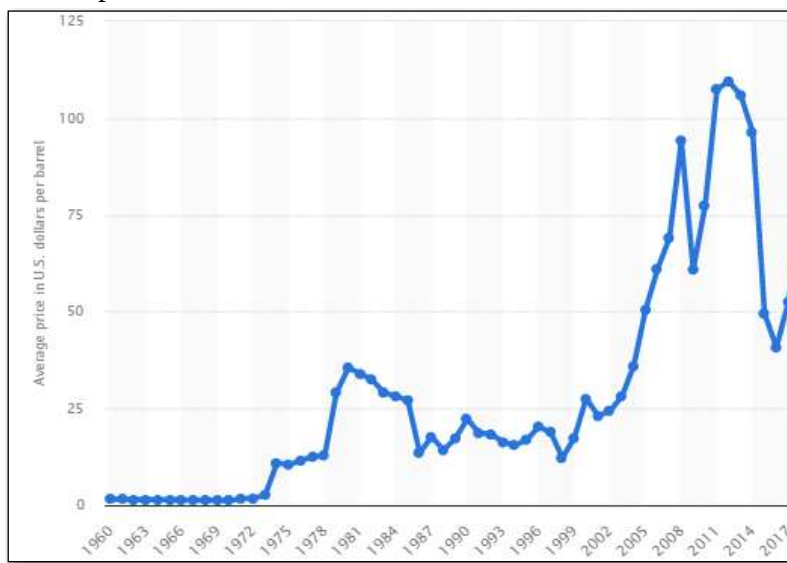
4. Data and methodology:

The study conducted from 1972 to 2018 aimed to explore the relationship between oil prices, GDP, and government expenditure. The data used in the study was collected annually, and the selected time frame takes into account the availability of data and the significant event of hydrocarbon nationalization in Algeria on February 24, 1971. The variables examined in the study were as follows:

- Oil price: Nominal OPEC Reference Basket in Barrel\$/ . Obtained from the OPEC statistical bulletin 2018. And <https://www.statista.com/>
- GDP: Nominal GDP at purchaser's prices. Data are in current U.S. dollars. Obtained from the World Bank (world development indicators WDI)
- Government expenditure: data are in current U.S. dollars, obtained from the World Bank; it covers all current government spending on the acquisition of goods and services (including compensation of employees). It also includes the majority of national defence and security spending, but leaves government military expenditure as part of the creation of government capital formation

The graph below depicts the evolution of oil prices per barrel around the study period

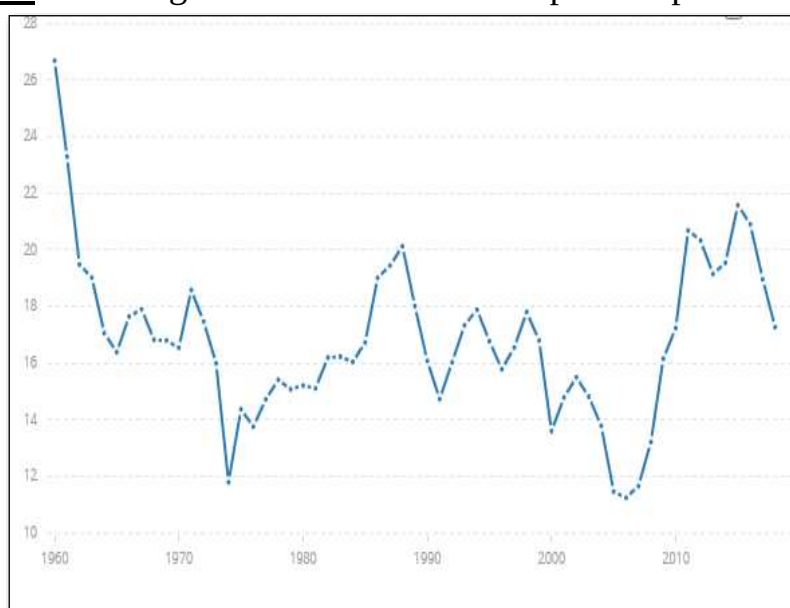
Figure N°1: Average annual OPEC crude oil price from 1960 to 2018 (in U.S. dollars per barrel)



Source : <https://www.statista.com/>

From 1960 to 2018, oil prices exhibited significant fluctuations per barrel. The market experienced relative stability in the 1960s and 1970s, with prices averaging around \$2 to \$3. However, a sharp increase occurred in 1973 due to the oil embargo, pushing prices to approximately \$12 per barrel. The 1980s saw volatility, with prices reaching a peak of around \$35 in 1980, followed by a sharp decline to about \$10 per barrel in 1986. Throughout the 1990s and early 2000s, prices ranged between \$15 and \$30, with occasional fluctuations driven by geopolitical events. The mid-2000s witnessed a significant rise, reaching an all-time high of over \$140 in 2008, followed by a decline to around \$40 in early 2009. Prices remained relatively stable between \$70 and \$110 until mid-2014 when they began declining due to oversupply and decreased demand, dropping to approximately \$30 by early 2016. Since then, prices have shown volatility influenced by factors like OPEC decisions, global economic conditions.

As for the second graph provided, it depicts the trend of General Government Final Consumption. This refers to the expenditure made by the government on the consumption of goods and services for final use. The graph showcases the changes and patterns observed in government spending over the specified period. By analyzing the graph, it is possible to gain insights into the trends and fluctuations in the allocation of resources towards government consumption.

Figure N°2: General government final consumption expenditure (% of GDP)

Source : <https://data.worldbank.org/>

During the oil boom in the 1980s, government consumption as a percentage of GDP increased significantly due to higher revenues. However, economic challenges in the 1990s, including political instability, led to fluctuations in government consumption. In the 2000s, Algeria experienced relatively stable economic growth, driven by oil revenues. The General Government Final Consumption Expenditure (% of GDP) exhibited a mixed pattern during this period, influenced by factors such as government policies, global economic conditions, and fluctuations in oil prices..

Having followed other research (Iwayemi & Fowowe, 2011), (Moshiri & Banihashem, 2012) (Sadeghi, 2017) (Tazhibayeva et al., 2008) and (Omojolaibi & Egwaikhide, 2014). This analysis uses a three-variable vector autoregression (VAR) to analyze the impact of oil price shocks on the Algerian economy and the role of fiscal stance as a transmission mechanism.

*All variables are in nominal term and in logarithm form.

The VAR model and its associated responses functions analysis were chosen based on the nature of the data and the existent literature, which judges it the best to capture the causality relationship among the variables.

We first examine the relationship between oil and macroeconomic variables in the short run using Granger's causality tests. After that, In order to analyze the dynamic response of macroeconomic variables to oil shocks and the relative importance of oil price shocks in contributing to variations in macroeconomic variables, we used both impulse response functions and variance decomposition analysis.

5. Results and discussion:

5.1 Unit root tests:

Unit root tests are a set of statistical techniques used to analyze the properties of time series data. The primary objective of these tests is to establish whether a time series dataset is stationary or non-stationary. A stationary time series dataset maintains a stable mean and variance over time, indicating that its statistical properties remain unchanged over time. In contrast, non-stationary time series data exhibit statistical properties that fluctuate over time. In this study and to avoid the risk of drawing conclusions based on statistically spurious relationships, all the data series have been checked for stationarity. Results from the unit root test are described in tables 1 and 2. The first stage of the empirical study included the review of all the variables under consideration, i.e. oil price, GDP, government spending, statistical properties.

The findings of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests accept the null hypothesis of the existence of unit root in the variables at levels, suggesting that all variables at levels are non-stationary. However, the null hypothesis of the unit root of each series was rejected at 5 percent after first differentiating of the variables. Therefore both tests indicate that all three series are integrated of order one I(1).

Table N°01: Unit root tests for series in level

series in level	GDP		GOVEXP		OILPRICE	
	t/Adj, t-Stat	Prob	t/Adj, t-Stat	Prob	t/Adj, t-Stat	Prob
(ADF) Test	-2,795	0,206	-1,980	0,596	-3,137	0,110
(PP) Test	-2,771	0,215	-2,183	0,487	-3,187	0,100

Source: Authors' computations-Data from OPEC statistical bulletin 2018 and WDI.

Table N° 02: Unit root tests for series in first difference

series in first difference	Δ GDP		Δ GOVEXP		Δ OILPRICE	
	t/Adj, t-Stat	Prob	t/Adj, t-Stat	Prob	t/Adj, t-Stat	Prob
(ADF) Test	-5,061	0,001	-4,822	0,002	-6,041	0,000
(PP) Test	-5,171	0,001	-4,997	0,001	-6,012	0,000

Source : Authors' computations-Data from OPEC statistical bulletin 2018 and WDI.

5.2.Cointegration test:

Cointegration tests are statistical tools employed to evaluate the extended association between non-stationary time series variables. Cointegration analysis investigates whether two or more non-stationary variables co-vary in the long-term and can be employed to detect causal relationships between variables that might be overlooked by traditional correlation analysis

Results in tables 3 and 4 indicate the absence of cointegration (Trend assumption: Linear deterministic trend restricted) in the long run between variables which makes it suitable to processed with the VAR analysis.

Table N°03: Unrestricted Cointegration Rank Test (Trace)

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob
None *	0.367698	37.37049	42.91525	0.1606
At most 1	0.224577	17.20138	25.87211	0.4001
At most 2 *	0.127675	6.010119	12.51798	0.4590
Trace test indicates no cointegration at the 0.05 level				

Source: Authors' computations-Data from OPEC statistical bulletin 2018and WDI

Table N° 04 :Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob
None	0.367698	20.16911	25.82321	0.2336
At most 1	0.224577	11.19126	19.38704	0.4938
At most 2 *	0.127675	6.010119	12.51798	0.4590
Max-eigenvalue test indicates no cointegration at the 0.05 level				

Source : Authors' computations-Data from OPEC statistical bulletin 2018and WDI.

5.3. Granger causality test:

The Granger causality test is a statistical method used to determine if one time series is useful in forecasting another. It examines whether the past values of one time series can predict the future values of another, beyond what can be predicted by the time series itself. This test is commonly used in fields such as economics and finance to identify causal relationships between variables. By analyzing the direction and strength of causality between two variables, researchers can gain insights into the underlying mechanisms driving their behavior.

The results in table 5 indicate that oil prices do not have an influence on the Algerian GDP, while it granger cause the government expenditure, which may lead to an explanation of the indirect relationship.

Table N° 05 : Granger Causality Test

sample :1972-2018		
lags:1		
Null hypothesis	F-Statistic	Prob
LOILPRICE does not Granger Cause LGDP	1,32332	0,2564
LOILPRICE does not Granger Cause LGOVEXP	13,9266	0,0006

Source : Authors' computations-Data from OPEC statistical bulletin 2018 and WDI.

5.4. Impulse responses analysis:

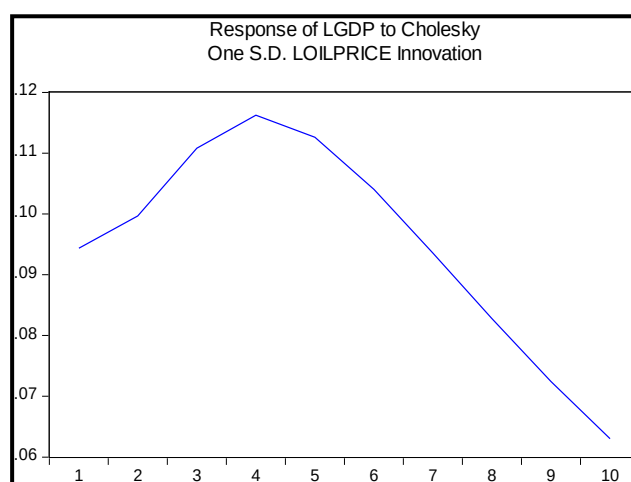
Impulse response analysis is a powerful technique used in econometrics to study the dynamic relationships between economic variables. The impulse response function (IRF) measures the response of a variable to a one-time shock to another variable. The IRF shows how the shock affects the variable of interest over time. By analyzing the IRF, we can gain insights into the nature and strength of the causal relationships between variables.

In order to analyze the dynamic responses of the variables to different shocks (one standard deviation) within the VAR model, the Impulse response functions (IRFs) are used.

The shock sizes are determined by the standard deviations of the corresponding orthogonal errors obtained from the model VAR.

The responses of GDP for oil prices shocks are illustrated on the following figure

Figure N°3: Response of GDP to Oil prices



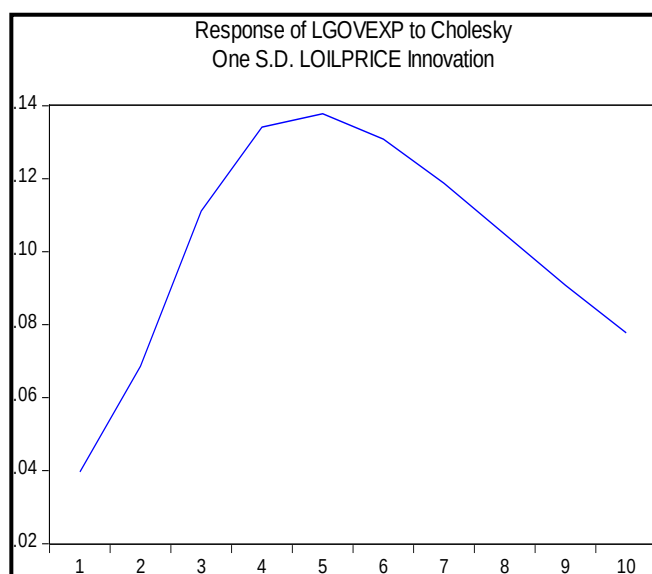
Source : Authors' computations using Eviews 9

The graph shows that the responses of GDP to oil price shocks are significant, which means that changes in oil prices can have a noticeable effect on the overall GDP of an economy. This could be due to the fact that oil is a key input in many sectors of the economy, and changes in its price can affect the cost of production, consumption patterns, and investment decisions.

The short-run equilibrium adjustment is very fast, which means that the economy can quickly adjust to changes in oil prices. In this case, the adjustment period is around 5 years.

Overall, while oil prices can have a significant impact on GDP, the economy can adjust to these shocks relatively quickly. However, it's worth noting that the exact nature and magnitude of these effects may vary depending on a variety of factors, such as the specific characteristics of the economy, the magnitude and persistence of the oil price shock, and the policy responses adopted by the government.

The relationship between the Algerian government expenditure and oil prices is illustrated in Figure N° 2 below,

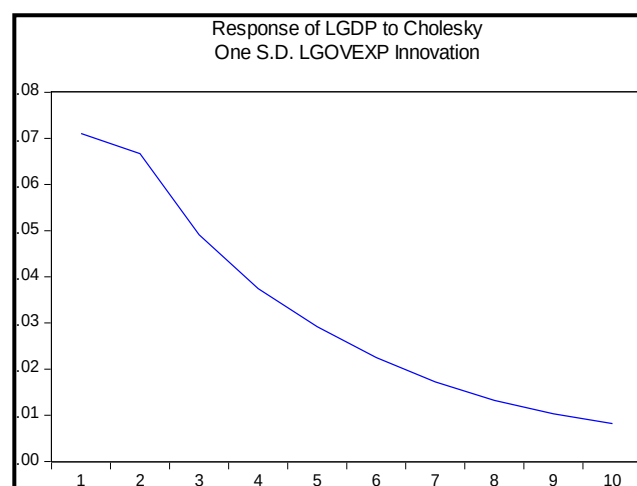
Figure N° 4: Response of Government expenditure to Oil prices

Source : Authors' computations using Eviews 9

The government expenditure responds positively to oil price shocks. This means that when oil prices increase, the government tends to increase its expenditure, possibly to offset the negative effects of higher oil prices on the economy. Conversely, when oil prices decrease, the government may decrease its expenditure.

The influence of oil price shocks on government expenditure rises over a period of five years. This suggests that the effect of oil price shocks on government expenditure is not immediate but rather accumulates over time. This could be due to factors such as delays in policy implementation or the time it takes for the full effects of oil price shocks to be felt in the economy.

The following Figure presents the relationship between government expenditure and gross domestic product (GDP), demonstrating the response of GDP to variations in government spending.

Figure N°5: Response of GDP to Government expenditure

Source: Authors' computations using Eviews 9

The graph indicates that there is a positive relationship between government expenditure and GDP. However, the strength of this relationship decreases over the period covered by the study suggesting that the impact of government expenditure on GDP has become less significant over time.

The graph also suggests that these results are consistent with the findings from two statistical tests, the Granger causality and cointegration tests. This implies that the observed relationship between government expenditure and GDP is likely to be causal, rather than simply a spurious correlation, and that it is stable over time.

5.5. Variance Decomposition:

Variance decomposition is a statistical method that breaks down the sources of variability in a variable. In economics, this technique is commonly used to analyze the factors that contribute to the behavior of a variable. By analyzing variance decomposition, we can better understand the importance of different variables in explaining the behavior of the variable of interest. This method breaks down the variance of a variable into two components: the variance explained by its own past values (autoregressive component) and the variance explained by the past values of other variables (cross-sectional component). This method helps identify the main drivers of economic phenomena, making it a useful tool for forecasting future trends. Overall, variance decomposition is a powerful statistical tool for understanding and predicting economic trends.

The decomposition of the variance shows the amount of information each variable in the auto regression adds to the other variables. It defines how much of each of the

variables' predicted error variance can be explained to the other variables by exogenous shocks.

Results for VDC are presented in table 6 as following:

Table N° 06 :Variance Decomposition

Variance Decomposition of LGDP		
Period	LGOVEXP	LOILPRICE
1	30.49211	53.77694
2	26.24052	52.05878
3	20.94254	54.72075
4	17.03800	57.11648
5	14.42712	58.37350

Source : Authors' computations-Data from OPEC statistical bulletin 2018and WDI.

The results of the variance decomposition table show that the fiscal policy has a significant effect on the GDP. Moreover, it states that the effect of the fiscal policy on GDP declines over time. This could mean that the initial impact of fiscal policy on GDP is larger than its long-term impact which is consistent with the results of the impulse response analysis.

Additionally, the variance decomposition table shows that oil shocks have a heavy magnitude on the Algerian economy, with a direct effect of more than 50%. This implies that fluctuations in the price of oil have a significant impact on the country's economic performance. However and in correlation with the pervious tests results, this effect is more important on short term basis.

6. Conclusion.

This study is an attempt to empirically investigate the relationship between oil prices, fiscal policy and Algerian macroeconomic performance. We started from existing research which focus solely on developed net oil-importing countries, and conducted our analysis using a VAR model in our estimations, followed by Granger causality tests, impulse response functions and variance decomposition.

The findings of Impulse response functions show that the responses of GDP for oil prices shocks is only significant on short run term .The quick adjustment of the variable to the oil swing doesn't necessarily show the resilience of the country's economy but suggests that the relationship between oil prices and Algerian GDP is rather indirect. This means that the impact of oil price shocks may be transmitted through other channels or factors that have a longer-term effect on the economy.

The statistical tests also indicate a positive relationship between oils shocks and the fiscal stance which is later translated in an economic instability, in other words oil prices could affect the fiscal stance of the Algerian government, which in turn could have a longer-term effect on the economy. The government's fiscal policy, such as its spending and taxation decisions, can impact economic growth, employment, and inflation, which are all factors that affect GDP.

In further analysis considering more macroeconomic variables in the VAR model or taking into account the asymmetric effects of oil shocks on the economy may better capture the magnitude of this indirect effect of oil shocks.

Finally, it is important to analyze not only the direct impact of oil price shocks on Algerian GDP but also the indirect impact through other channels, such as fiscal or monetary policies. Understanding these indirect effects can provide policymakers with valuable insights into how to manage the economy and minimize the negative impact of external shocks.

Decisions such as implementing policies to diversify the economy and support the privet sector should be taken in order to restore macroeconomic stability and alleviate fiscal constraints.

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