The Effect of Oil Prices Volatility on the Expansion of Oil Exporting countries' economies

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Abstract:

This study aims to shed light on The impact of oil price fluctuations on the growth of the economies of oil-exporting countries, since Changes in the price of oil have a significant impact on world economic growth. This study has found that these fluctuations have an impact on oil exporting nations in two different ways: the first is positive because of rising financial returns, which leads to higher economic growth across all sectors; the second is considered adverse because of falling financial returns and an accompanying decline in economic growth rates.

Key words: *Oil prices, economic growth, the oil-exporting countries, Price fluctuations*

JEL Classification: *E30, O50, G1, O10.*

1. INTRODUCTION

One of the most significant concepts in human history is economic growth, accompanied by the emergence of capitalism, the expansion of its industrial production, the accompanying technological advancements, and the accumulation of capital, all of which brought about profound social changes. Beginning with the classical school and progressing through the neoclassical and contemporary schools, the concept of growth has held a significant role in economic studies. The economic theory attempts to explain the origins and factors of economic growth at the ideal rate that governments aim for by utilizing various economic policies. Energy comes in two types: renewable and non-renewable.

Energy is one of the key factors influencing economic growth. Due to its dominant position in the global energy balance, oil is the most significant source of fossil fuel. Due to the significant disparity between its production costs and the amount of energy it produces, it is more significant than other sources and is now a strategic commodity on a global scale. Considering that it is a non-renewable natural resource, countries can be categorized into producing countries and importing countries based on their presence and use. The effect of oil on economic growth varies depending on how it is used.

Nations that produce and export oil rely on their financial income as their primary source of funding for development projects, which makes the economies of these nations susceptible to changes in the price of oil. Because of this, maintaining its price stability is crucial for wise economic planning and an efficient economic strategy. Given the erratic nature of the oil market and its effects on economic growth, the issue with the study is brought up by the following query:

-How do fluctuations in oil prices affect the growth of the economies of oil-exporting countries?

Research Goals:

- Establishing the significance of oil as a key component of production;
- Outlining the significance of the oil sector for oil-exporting nations;
- understanding the impact of oil price variations on the economic performance of oil-exporting nations.

Study Significance:

The role of oil earnings in the economic expansion of oil-producing and -exporting nations is what gives the study its significance. The economies of these nations are stable while oil prices are stable, but they suffer losses when they fluctuate. The study, therefore, highlights the significance of outlining and studying the most significant impacts of changes in oil prices on the expansion of exporting nations' economies.

- **Methodology of the study:**

The study method will combine descriptive and analytical methods for the different data obtained through books, specialist research, and magazines. The research is divided into two sections: the link of oil to economic growth and the influence of oil price changes on the economic growth of oil-exporting countries.

I. 2. The Theoretical and Conceptual Framework

2.1 The Relationship of Oil to Economic Growth:

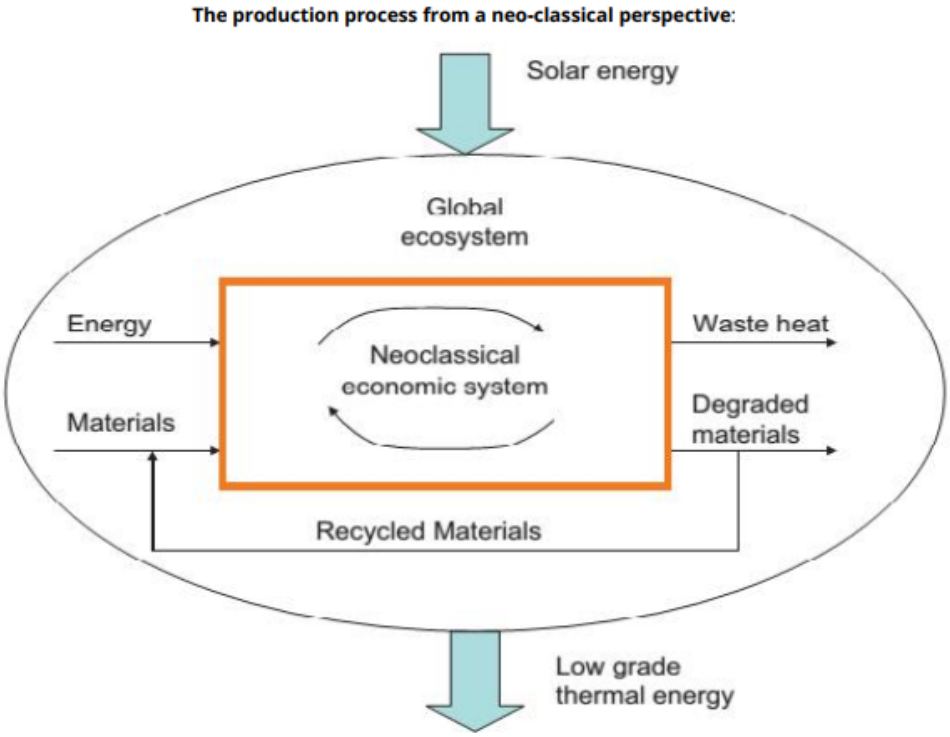
A closed economy produces goods and services using labor and capital inputs for exchange between producers and customers. The amount and quality of these inputs must increase for economic growth to occur, and the technology utilized in the manufacturing process must likewise be of higher quality (Alexeev, M. and R. Conrad ,2009 p.500). Neoclassicists have addressed the importance of natural capital in economic growth since natural capital includes both renewable and non-renewable resources like water and fossil fuels.

Oil is one of the essential production variables and one of the intermediate inputs in the manufacturing process, along with basic resources and others. While capital and labor were the primary components of classical philosophy, neoclassical thought expanded on additional aspects of production by including technology and energy. The economist Robert M. Solow was the first to include oil as a component of production in his 1974 work, Exhaustible Resources Intergenerational Equity, which concentrated on nonrenewable natural resources. **R) L,(K,F = Q (**Stern, 2004. p. 38)

Where R represents the flow rate of extracted and pre-existing natural resources in the ground, such as an oil well, as it is recognized that these resources should be included in the production process while excluding the possibility of their being feasible. It was also considered that the productive process is finite as it is limited by the amount of resources in nature. If all the natural resources are consumed R=0 then this will reflect on the output of the production process and make it Q=0 (Ruhul A. Salim, et al, 2014, p. 352)

Figure 1 illustrates how later research expanded their models to incorporate waste and renewable natural resources in the context of the discussion surrounding attaining environmental sustainability.

Figure (1): The production process from a neo-classical prespecive



Source; David G. Ockwell, «Energy and economic growth: Grounding our 36 (2008), p. 4601 .,Energy Policy,»understanding in physical reality

Figure 1 depicts the production process from a neoclassical viewpoint. They ignored energy's primary role as a driver of work that transforms raw materials into usable products by providing energy to transform raw materials into usable products, instead considering it as a raw material or an intermediate good analytically equivalent to glass, wood, or raw cotton.

Neoclassical thought also focuses on what makes economic growth sustainable, and whether this continuity is achievable or not depends on the technological and institutional framework of the economy. Technical conditions relate to the ease of capital input and resource substitution as well as the potential for combining renewable and non-renewable natural resources. The market structure (competition vs central planning), the property rights system (private versus common ownership), and the value-value system are only a few examples of the various components that make up the institutional framework.

According to the neoclassicists, the production function includes the following elements:

$$E_t^{\gamma} L_t^{\beta} A K_t^{\alpha} = Y_t$$

Yt	Kt	Lt	Et	A	α, β, γ
GDP	capital	work	total energy used in the production process during period	measures the impact of technological progress	They are factors that measure the elasticity of the GDP of capital, labor, and energy.

The following equation results from the division of energy into clean energy and non-clean energy (non-renewable).

$$N_t^{\gamma 2} R_t^{\gamma 1} L_t^{\beta} A K_t^{\alpha} = Y_t$$

Rt	Nt	γ2, γ1
Renewable energy sources	Represents non-renewable energy sources	Represents the flexibility of production for both renewable and non-renewable energy sources

Non-renewable energy sources are viewed as a barrier to economic expansion that might reverse the beneficial effects of technological advancement on people's earnings. Regarding renewable energy sources, despite any challenges that the ocean may present, they positively promote the process of economic expansion. The use of energy affects economic growth based on the composition of the economy, the intensity of its use of energy, and the stage of growth it is going through (van der Ploeg, et al, 2010, pp. 44-55).

3. The effect of oil price fluctuations on the development of Oil exporting economies:

Due to their heavy reliance on the proceeds from their exports to fund their development initiatives, the majority of producing and exporting countries depend heavily on oil, which is thought to have both a reactive and a reactive effect. It is important to distinguish between the short-term and long-term implications of oil price shocks (Chudik, A, et al, 2013) The short-term benefits of higher oil prices on output are favorable, but the long-term consequences are unfavorable, and this is what economists refer to as a "resource curse" since it results in a "disease."

1.1. The resource curse hypothesis:

a- Dutch Disease

The term Dutch Disease is used to describe the negative impact of the boom in resource sector on the non-resource tradable sectors. This term was first coined in an article in the magazine « The economist » in 1977 after the discovery of natural gas in the North Sea by the Netherlands in 1960s, such discovery raised the Dutch exports of the natural gas while the manufacturing sector has known a slop in its production and employment. The article stated: « *The Netherlands experienced external health and internal ailment* ».

Figure (2) :Manufacturing production and employment in the Netherlands

Manufacturing in the Netherlands: Average Annual Percentage Change

1963/73	1974/78	1979/83
6.5	0.9	0.3

Manufacturing Employment in the Netherlands: Average Annual Percentage Change

1963/73	1974/78	1979/83
-0.5	-2.7	-2.8

Source :Rudd David « An empirical analysis of the Dutch Disease : developing and developed countries », 1966, P2.

The Dutch Disease has been generalized to all resource rich countries facing the same process of the Netherlands in 1960s. Thus, this phenomenon can be explained by three key models:

a) Gregory model 1976

b) The core model (Cordon,1984)

-Spending effect

-Resource movement effect

c) The monetary effect (Edwards 1985).

d) Procyclicality of fiscal policy

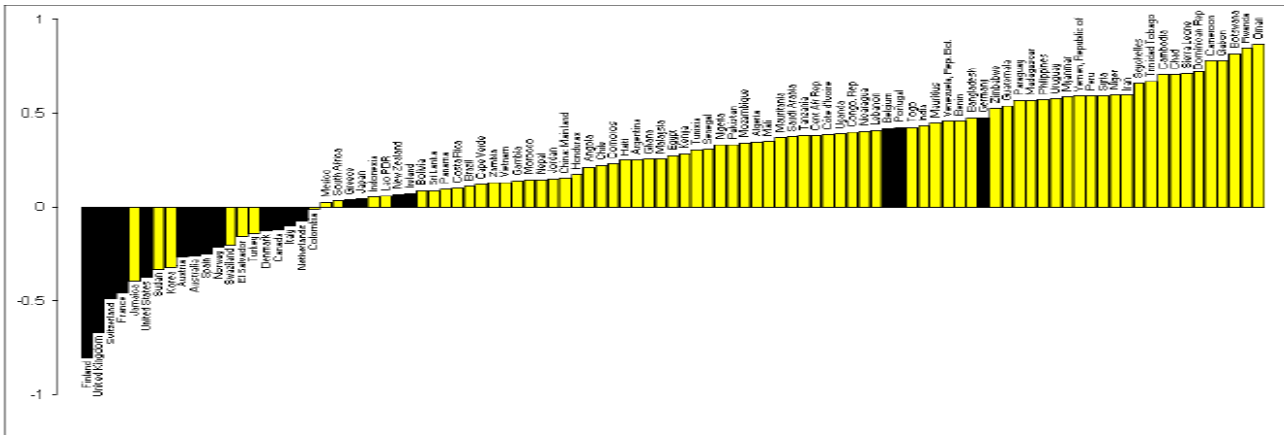
Most of commodities are characterized with high volatility where the world markets prices for oil and natural gas are the most volatile. This volatility issue affects developing countries rather than industrialized ones, typically economies rich in such resources; that is, the cyclical variability pronounced in resource rich countries is due to the magnitude of swings in commodity prices particularly oil.

(Kaminsky, Reinhart and Végh, 2005, p17) defined the procyclical fiscal policy in terms of policy instruments (government spending and tax rates) and they argued that this situation involves higher (lower) government spending and lower (higher) tax rates in good (bad) times; that is, fiscal policy is expansionary in good times and contractionary in bad times. According to them, the policy is procyclical because it tends to reinforce the business cycle.

In their studies, Kaminsky and associates (2005) measured the amplitude of the fiscal cycle by showing the difference between the change in real government spending when GDP growth is above the median and when it is below the median(Kaminsky, Reinhart and Végh, 2005, p35). They found that the fiscal spending cycle for non-OECD countries is considerably large which suggests that fiscal policy is procyclical in those countries and markedly so in middle-high and middle-low income countries. Furthermore, the authors estimated the correlation between government spending and GDP, negative correlation indicates a countercyclical fiscal policy and vise versa for a positive correlation.

As the figure below displays, majority of advanced economies (black bars) show countercyclical spending while most developing countries show procyclical spending.

Figure (3): cyclical correlation of government spending and GDP



***Source**: Kaminsky Reinhart and Végh (2005).*

Three important characteristics of commodity exporting countries are likely to make government spending more pro-cyclical (Arezki R,2010, p2):

1-government revenues derived from the exploitation of natural resources are more volatile than other sources of government revenues;

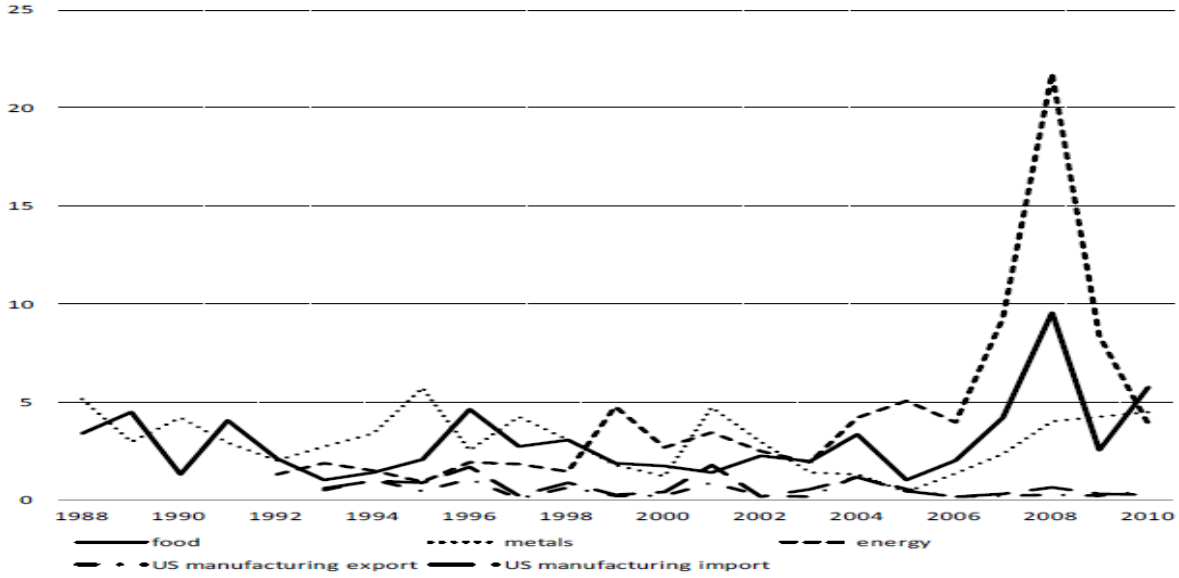
2- the size of the resource revenues is disproportionally large in commodity exporting countries;

3- those revenues are prone to rent seeking behavior. Moreover, Gelb and associates (1988) argued that governments in these countries often embark on large investment projects which take form of "white elephants"* projects, following commodity price booms.

e) Volatility of commodity prices

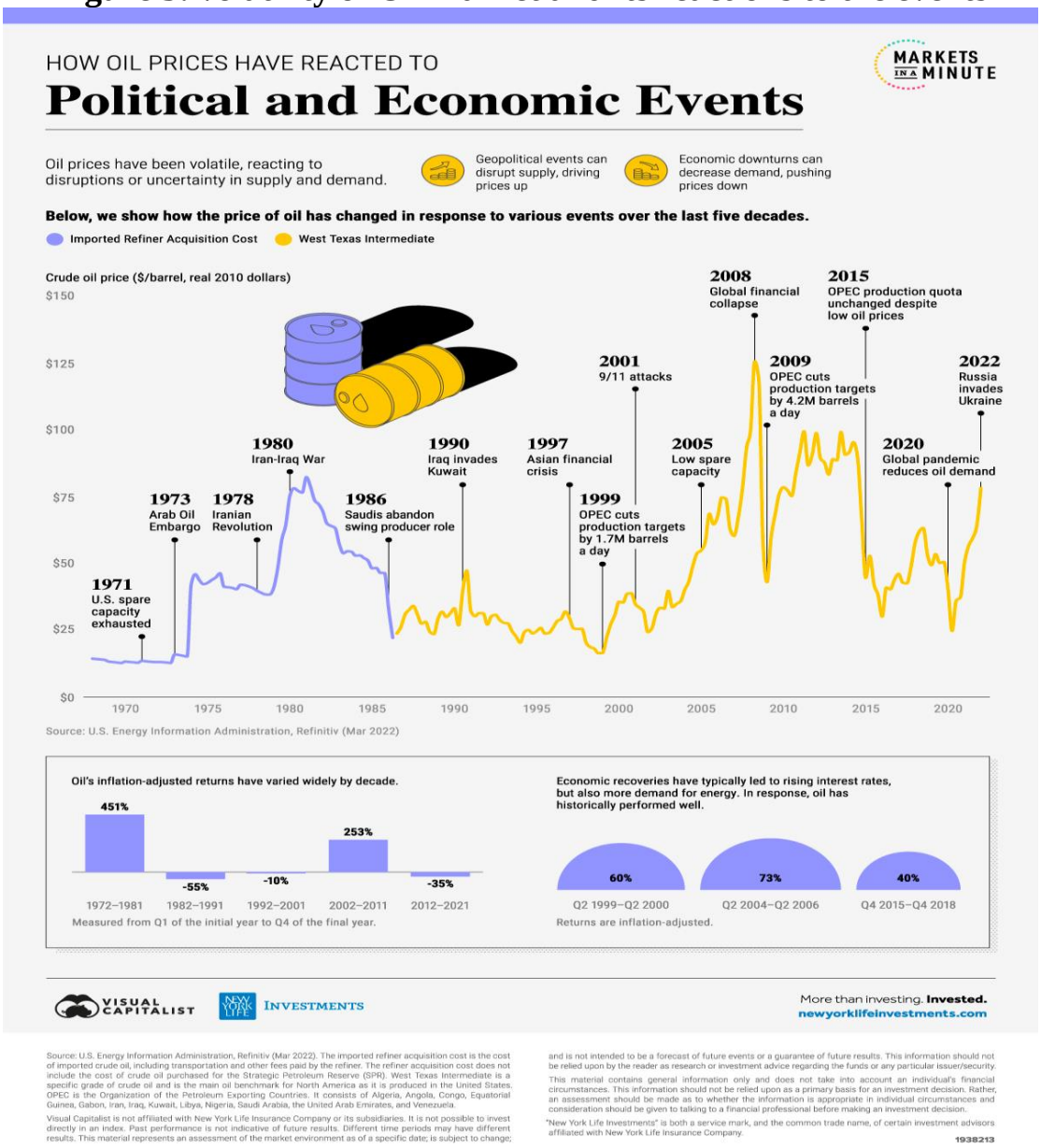
We have shown in the previous sub-section that commodity price volatility is the main cause of pro-cyclical fiscal policy in resource rich countries. Moreover, many authors treated this volatility as a new channel to explain the weak economic performance and growth volatility in those countries. This includes not only oil but even other commodities and the following figure displays volatility price indices of different commodities:

Figure (4): Volatility of commodity and manufactured products indices



***Source**: Arezki R. and Gylfason T. (2011).*

Figure 5: volatility of Oil market and its reactions to the events



Source: world energy Information

This variability in the prices will lead to short-run and long-run challenges. In the short term, the concerned countries find difficulties to conduct their macroeconomic policies. Thus, they will experience lower rates of economic growth in the long run.

It has been recognized by many economists that the chocks and uncertainty existed in commodity prices really matter and they can create large swings in resource dependent economies namely macroeconomic volatility (fiscal policy and real exchange rates variability and inflationary pressures) through terms of trade volatility.

In their examination of the growth performance of 35 countries over the period 1870-1939, Blatman Hwang and Williamson (2007) concluded that countries specialized in commodities with substantial price volatility have more volatility in their terms of trade, less foreign direct investment and experience lower growth rates than countries specialized in more stable prices and industrial leaders (Van der ploag F., Poelhekke S, 2008, p2).

The economies of the oil-producing nations are benefiting from the rise in oil prices, but a portion of these gains will be used to offset losses from a lack of demand from trading partners as a result of the economic stagnation that the oil-importing nations will experience as a result of the rise in oil prices, as this forces them to import large amounts of oil. The biggest threat to these nations from high oil prices and their continued ascent is the slowing growth of the IIP within the consuming countries, which will result in a drop in demand for oil and subsequently its prices, as high oil prices force the importing nations to set aside sizable budgets for new oil exploration, which lowers its prices, and high oil prices force the developed nations to use oil shocks (Rodriguez, F, et al, 1999, p. 277).

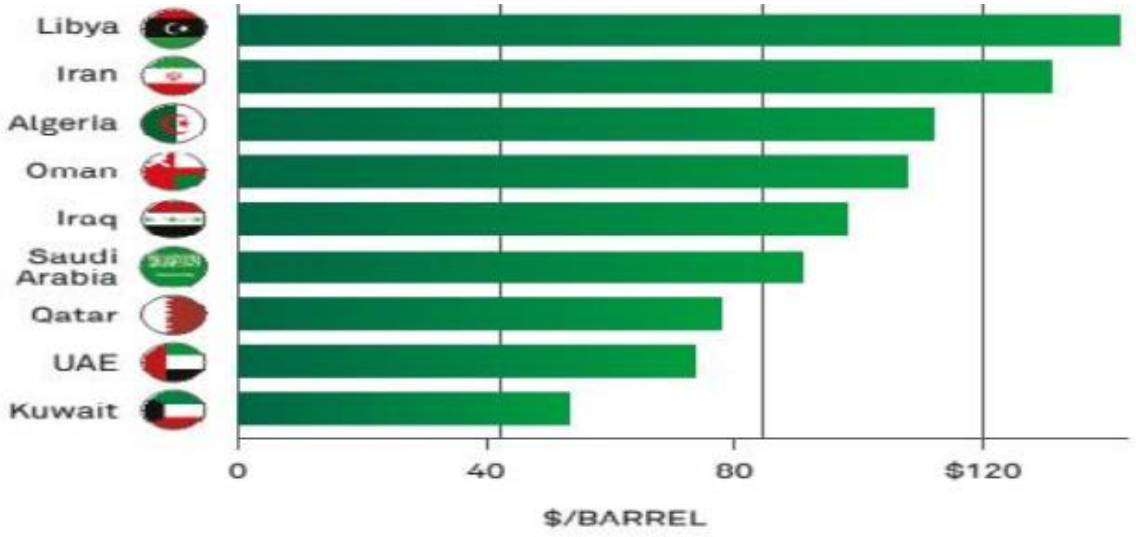
The rise in oil prices may have other negative effects for the exporting countries, as the large fluctuations in its prices as a result of sudden increases may lead to increased uncertainty, and often lead to reduced incentives for investment. Moreover, it is becoming more challenging for these economies to plan for the future. Indeed, higher oil prices can lead to a reallocation of resources.

Depending on how much it contributes to the gross domestic product and the government budgets of these countries, the reduction in oil prices will harm the majority of oil-producing nations. In general, the decrease in oil prices will result in lower

exporting nations' earnings, which will harm their budgets, current accounts, and some of these countries' currency rates (Russia, Venezuela, and Nigeria). Although there are certain dangers to financial stability in this sector, they are currently minimal (due to exposure, financial overlap, and diversion of capital flows).

Many middle-and low-income countries depend on oil revenues to finance their budgets to achieve their social and political goals, and the fall in oil prices will turn their situation upside down. Many low-cost producers in the world, especially in the Middle East, will base their budgets on oil prices of more than $100/barrel to balance their balances and cover all expenses.

Figure (05) The estimated price of oil that achieves the break-even point in the budgets of the producing countries for the year 2015



Source: Black Rock Investment Institute, Thomson Reuters and Oxford Economics, 2015, P. 08

Figure 05 demonstrates that oil-producing nations, including Saudi Arabia, Iraq, the Sultanate of Oman, Algeria, Iran, and Libya, base their budgets on oil prices of more than $80 per barrel. With oil prices varying between $40 and $80 per barrel, Kuwait, the United Arab Emirates, and Qatar are creating their budgets. The balances of these nations will show surpluses and deficits if the market price of oil deviates from the anticipated price. These nations manage to balance their books with a surplus.

Several oil-rich nations use the extra money from their oil sales to create sovereign wealth funds that may help them out in rough times. If these nations'

sovereign funds are insufficient to pay their deficits, they can borrow to do so. If their overall debt-to-GDP ratios are low, they can also issue additional debt to make up the difference on their balance sheets. 15 The nations that produce oil may be categorized into three groups based on this standard (Béland, L.-P. and R. Tiagi, 2009).

In the event of a short-term drop in oil prices, nations with sizable foreign financial assets (sovereign wealth) and cash reserves, such as the Kingdom of Saudi Arabia, the United Arab Emirates, and Norway, can afford to finance their budgets;

-Nations with meager foreign financial assets and cash reserves, such as Mexico, Malaysia, Oman, Bahrain, and Colombia, are forced to practice financial austerity and external borrowing;

Venezuela and Nigeria are two examples of countries that are especially susceptible to falling oil prices due to their poor cash flow and limited borrowing ability. They are more likely to experience a devaluation of the domestic currency and a capital flight, which will result in an economic catastrophe inside these nations.

5. CONCLUSION

To raise real per capita income, which has an impact on people's quality of life, the process of economic growth needs a real and cumulative increase in the number of goods and services produced over the long term. This is accomplished by improving the production process and the productivity of production factors.

Economic expansion is associated with a rise in the use of energy generally and oil in particular. In general, sudden fluctuations in oil prices reduce global economic growth rates, but these effects differ for exporting countries. Given that the oil-exporting nations heavily rely on their financial income to fund their development programs, the oil industry plays a significant part in the economic activity of these nations. Due to the weak growth rates of the non-oil sectors, particularly the industrial and agricultural sectors of the oil exporting countries, this sector is regarded as the main driver of the economy. As a result, these nations are forced to use the accumulated financial surpluses to support their economic growth and expand their production capacity.

- **The study results:**

After reviewing the various aspects of the research, we reached the following findings:

1 - The world market for oil is distinct. It is unique in nature and derives its character from the interaction between economic and other variables, whose weight and level of influence on oil prices varies.

2- The oil exporting economies are rather affected by the oil price fluctuations than the oil production itself;

3 - The oil industry plays a significant role in the economies of the nations that produce the majority of the world's oil, making these nations' economies highly dependent on the state of the world's oil markets. This dependence extends to the general budget revenues and economic growth rates as well (fiscal pro-cyclicality).

4- The general budget deficit of countries is one of the biggest problems facing the economies of countries because of its effects on all macroeconomic variables.

5- The world market for oil is distinct. It is unique in nature and derives its character from the interaction between economic and other variables, whose weight and level of influence on oil prices varies.

- **Recommendations**
- Reducing reliance on the hydrocarbon industry, promoting non-hydrocarbon exports, aiding the agricultural, industrial, and tourist sectors, and supporting small and medium-sized businesses that want to add value, reduce unemployment, and generate tax revenues for the government.
- Preparing the oil-producing countries for the post-oil era by rehabilitating them to integrate into the global economy away from hydrocarbons through deep structural and institutional reforms.

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