Crude Oil Fluctuations and Government Expenditure: Jordanian Evidence
An Econometric Study During The Period (1990 - 2017)

Mahmoud Hussein Al-Wadi*
Business Faculty - Middle East University - Amman-Jordan

Abstract
The developing countries, including Jordan, face challenges and difficulties in adjusting their fiscal policy because there is an increasing demand for public expenditures that determine and justify public revenues. There is a relationship between the fluctuations in oil prices and the volume of public expenditure, which is proven by the standard study, and thus the following problem can be formulated: How much oil price volatility affects the public expenditure policy in Jordan. A Least squares method, Granger-causality tests was used. We find that that oil prices have significant impact on government spending This indicates the importance of variable X in the interpretation of Y and its significance. The study also found that the oil price rates have a direct impact on government spending in Jordan, and the increase in oil prices by 1% leads to an increase in the general policies of spending in Jordan by 52.20%.

Keywords
government expenditure, oil fluctuations, Jordanian.

Introduction
The importance of public spending lies in the role it plays as an effective tool of the state's fiscal policy, whose functions have evolved over the ages with the development of public needs. It has borne the brunt of the development of all sectors of the national economy through its fiscal policy to address many economic problems. General reflects the effectiveness of the government and its impact on economic activity.

The developing countries, including Jordan, face challenges and difficulties in adjusting their fiscal policy because there is an increasing demand for public expenditures that determine and justify public revenues. The State uses public revenues to finance its expenditures according to the financial rule.

From the above, it is clear that there is a relationship between the fluctuations in oil prices and the volume of public expenditure, which is proven by the standard study, and thus the following problem can be formulated: How much oil price volatility affects the public expenditure policy in Jordan

Review of Public expenditures scenario in Jordan
Public finance policy is defined as the policy of managing and using public revenues and expenditures to achieve the objectives derived from the state's economic, social and political situation (Khatib and al-Shamiyya, 2012). Traditionally, the fiscal policy is seen as performing three functions: improving efficiency Economic development through reallocation of resources, improved income distribution and economic stability. The function of economic stabilization is linked to the role of fiscal policy in achieving the main objectives of macroeconomic policy makers Economic growth and the stability of the general price level. The budget deficit amounted to 8.6% of nominal GDP in 2011. In addition to the above, the Jordanian economy has been subjected

* Corresponding author: VpHumanities@meu.edu.jo
to severe external shocks, represented by an increase in the bill of energy imports resulting from frequent
interruptions in the flow of natural gas from Egypt and the resort to importing fuel products at a high cost of
generating electricity. To bear the burden of protecting consumers from rising energy prices through subsidies
and social spending; which led to a rise in the central government deficit, and an increase in operating losses in
the National Electricity Company public shareholding that supports electricity tariffs. The pressure on the state
budget in 2012 was exacerbated by the political conditions of some neighboring Arab countries and by
contributing to the burden of providing housing and medical services to refugees coming from Syria. Given the
importance of fiscal policy in moving the pace of activity to the economic role in Jordan, and under these
conditions and developments, this study will try to identify the impact of oil price volatility on the public
expenditure policy in Jordan.

Public expenditures increased by (2.9 percent) in 2016 over the year 2015. This rise was an outcome of an
increase in current expenditures and a decrease in capital expenditures.

Current expenditures recorded an increase in the amount of JD 294.8 million (4.5 percent) in 2016 compared to
2015 to stand at JD 6,919.3 million, accounting for 25.2 percent of GDP compared to 24.9 percent of GDP in
2015. The rise in current expenditures was a result of the increase in the values of many of their components,
mainly the military expenditures, which rose by 10.9 percent, the social benefits also increased by 2.4 percent
(prominently, pensions and compensation expenditures). In addition, the "purchases of goods and services" item
went up by 10.2 percent and the compensation of employees by 1.9 percent. In contrast, the interest payments of
public debt (domestic and external) as well as “subsidies” item (including goods subsidies) were down by 8.7
percent and 17.0 percent, respectively.

Capital expenditures decreased by JD 69.2 million in 2016 compared to 2015 to stand at JD 1,029.2 million,
accounting for 3.8 percent of GDP against 4.1 percent of GDP in 2015. Thus, capital expenditures accounted for
12.9 percent of total public expenditures. The ratio of achievement in 2016, measured by the ratio of actual
capital expenditures to planned capital expenditures in the Budget Law, declined to reach 78.5 percent compared
to 93.5 percent in 2015. Looking at the components of capital expenditures, it is noted that "buildings and
construction" item made up the largest proportion of total capital expenditures, accounting for 46.3 percent.
Capital expenditures with current nature (including subsidies for government units, purchases of goods and
services, compensation of employees, and "studies and research" item) accounted for 35.8 percent of total
capital expenditures. However, the remaining 17.9 percent was distributed among other items, particularly,
machines, equipment, furniture, supplies and lands (CBJ, 2016)

Literature review

Theoretically different studies that were employed to show the relationship between oil fluctuation and
government expenditure policy. Although there is available literature on the negative relationship between oil
price shocks and gross national product for developed countries, the impact on macroeconomic variables in
developing countries has not been established yet.
The following table summarizes these studies and its results

Table (1) Summary of a selected literature

<table>
<thead>
<tr>
<th>Authors/ (year)</th>
<th>Study Aim</th>
<th>sample</th>
<th>Methodology used</th>
<th>Study Period</th>
<th>Main Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zukarnain Zakaria, Sofian Shamsuddin (2017)</strong></td>
<td>Causality Relationship between Crude Oil Variables and Budget Variables in Malaysia</td>
<td>Malaysia</td>
<td>Granger-causality tests</td>
<td>1978-2014</td>
<td>crude oil variables studied have no long run causality relationship with government expenditure</td>
</tr>
<tr>
<td><strong>Leonardo Quero-Virla (2016)</strong></td>
<td>Macroeconomic Effects of Oil Price Fluctuations in Colombia</td>
<td>Colombia</td>
<td>vector auto-regression model</td>
<td>2001-2016</td>
<td>a 10% increase in the oil price generates 0.4% increase in GDP growth</td>
</tr>
<tr>
<td><strong>Akin and Babajide (2011)</strong></td>
<td>Impact of oil price shocks on selected macroeconomic variables in Nigeria</td>
<td>Nigeria</td>
<td>Granger-causality tests</td>
<td>1985-2007</td>
<td>insignificant effect of oil price increases and decreases on government expenditure</td>
</tr>
<tr>
<td><strong>Hamad, Al-Hiti,and Saber Mohammed (2011)</strong></td>
<td>The impact of oil revenue fluctuations in macroeconomic indicators and performance of stock markets in the GCC countries</td>
<td>KSA and UAE</td>
<td>lower squares method</td>
<td>1980-2005</td>
<td>Oil market returns have an impact Positive in the performance of the Gulf financial markets sample of the study</td>
</tr>
<tr>
<td><strong>Oriakhi and Iyoha (2013)</strong></td>
<td>Impact of oil price shocks on selected macroeconomic variables in Nigeria</td>
<td>Nigeria</td>
<td>Granger-causality tests</td>
<td>1970-2010</td>
<td>significant consequences on real government expenditure</td>
</tr>
<tr>
<td><strong>Balakla (2013)</strong></td>
<td>Developments in Oil Prices and their Reflections on the General Budget of the Arab Countries during the Period (2000-2009)</td>
<td>Arab Countries</td>
<td>vector auto regression (VAR) method</td>
<td>2000-2009</td>
<td>Positive implications Due to the rise in oil prices during the study period, which led to a rise in cash flows, Which resulted in an increase in the capacity of financial authorities to expand spending. Thus improving the performance of economic activity</td>
</tr>
<tr>
<td><strong>Hammadi (2009)</strong></td>
<td></td>
<td>Arab</td>
<td>regression</td>
<td>1986-2008</td>
<td>the existence of a positive</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Methodology</td>
<td>Time Period</td>
<td>Findings</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------</td>
<td>---------------------------------------------</td>
<td>---------------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Oil price fluctuations and their</td>
<td></td>
<td>OLS method</td>
<td>1986-2008</td>
<td>relationship between high oil prices and financial resources for Arab oil countries. It also concluded that most of the Gulf States and Libya, Algeria is among the most affected by oil price volatility.</td>
<td></td>
</tr>
<tr>
<td>implications for financing development in Arab countries during the period 1986-2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jbir and Zouari-Ghorbel, (2009)</td>
<td>Tunisia</td>
<td>vector auto regression (VAR) method</td>
<td>1993-2007</td>
<td>positive and negative oil price shocks have significantly affected government spending</td>
<td></td>
</tr>
<tr>
<td>Recent oil price shock and Tunisian economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil price fluctuations and their impact on the macroeconomic variables of Kuwait: A case study using a VAR model. International Journal of Energy Research</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Almulali and Che-Sab (2013)</td>
<td>OPEC countries</td>
<td>vector auto-regression model</td>
<td>1995-2012</td>
<td>positive impact on government expenditure</td>
<td></td>
</tr>
<tr>
<td>Exploring the impact of oil revenues on OPEC members’ macro economy. Energy Review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ebrahim and Mohammad (2012)</td>
<td>Iran</td>
<td>VAR approach</td>
<td>1990-2008</td>
<td>oil price increase influences government capital expenditure and current expenditure</td>
<td></td>
</tr>
<tr>
<td>Asymmetric impacts of oil prices and revenues fluctuation on selected macroeconomic variables in Iran</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dizaji (2014)</td>
<td>Iran</td>
<td>vector auto regression (VAR) and vector error correction (VEC) models</td>
<td>1992-2012</td>
<td>oil revenue (proxy for oil prices) had strong influence on the current and capital expenditure</td>
<td></td>
</tr>
<tr>
<td>The effects of oil shocks on government expenditures and government revenues nexus (with an application to Iran’s sanctions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lorde and Thomas (2009)</td>
<td>Trinidad and Tobago.</td>
<td>VAR approach</td>
<td>1985-2006</td>
<td>increases in oil prices had a positive effect on government revenues and consumption.</td>
<td></td>
</tr>
</tbody>
</table>
Benefits of previous studies:
This study came to discuss two very important issues of price volatility of oil and the performance of fiscal policy during the economic cycle, as fundamental variables in life. Previous studies have led the researcher through his findings and the recommendations made to give a background and conceptual framework for the variables of the study, giving impetus to the researcher To build the methodology of the study by identifying the problem as well as building a model for measuring price fluctuations And its impact on fiscal policy in the Jordanian economy.

Methodology and Data used
To analyse the impact oil price volatility on the public expenditure policy in Jordan, a Least squares method, Granger-causality tests was used. Data of oil prices are Organization of the Petroleum Exporting Countries (OPEC), were data of public expenditure in Jordan from Central Bank of Jordan.

Statistical analysis of data and results discussion

The Least squares method was used to determine the impact of oil price fluctuations on the public spending policies in Jordan.

The regression equation for data given according to (Eviews) program is as follows:

\[ Y = 1823.86 + 52.20 \times X \ldots 1 \]

This equation refers to predicting the future value of Y (public expenditure) if the value of X (oil prices) is known.

The general form of the previous equation is:

\[ y = C + \beta \times X \]

It is clear from the above equation that the coefficient of correlation between the two variables is positive, ie, the oil price rates have a direct impact on government spending in Jordan, and the increase in oil prices by 1% leads to an increase in the general policies of spending in Jordan by 52.20%.

This value can be obtained by multiplying the standard error value by T

\[
\text{COEFFICIENT} = \text{STD.error} \times t - \text{Statistic}
\]

52.20 = 13.25 \times 3.94
The constant $C = 1823.856$ shows that if the price of oil is non-existent, the average government expenditure equals $1823.856\%$.

The validity of the relation between oil prices and government spending in Jordan can be tested through $R^2$, which shows the strength of the relationship between the two variables. From the previous table, the value is equal to 0.51 and is not strong nor weak and positive.

$F\text{-STATISTIC} = 15.53$ We find that that oil prices have significant impact on government spending. This indicates the importance of variable $X$ in the interpretation of $Y$ and its significance.

A weak positive correlation between the two variables is evident from this figure.

References


10. Hammadi (2009), Oil price fluctuations and their implications for financing development in Arab countries during the period 1986-2008, Unpublished MA, Faculty of Economic and Management Sciences, Huseiba Ben Bouali University, Chlef, Algeria.


