

*Feyza Balan\**

## ON ASYMMETRIC CAUSAL RELATIONSHIPS IN PETROPOLITICS

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**ABSTRACT:** *The aim of this paper is to examine whether the First Law of Petropolitics denominated by Friedman in 2006 is valid for OPEC countries. To do this, this paper analyses the relationship between political risk and oil supply by applying the asymmetric panel causality test suggested by Hatemi-J (2011) to these countries for the period 1984-2014. The results show that the First Law of Petropolitics is valid for*

*Angola, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, and the UAE, given that positive oil supply shocks significantly lead to negative political stability shocks, and negative oil supply shocks significantly lead to positive shocks in political stability.*

**KEY WORDS:** *Political risk, oil prices, asymmetric panel causality test, OPEC*

**JEL CLASSIFICATION:** C33, O57, P48, Q41

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## **1. INTRODUCTION**

For a long time, economists and policy makers have produced a large body of literature on the effects of political instability on economic performance, especially with regards to output and growth. For example, Alesina et al (1996) suggest that political instability may reduce investment and the speed of economic development. According to Kijkul (2013), political instability results in uncertainty regarding a country's future. For the most part, property rights are threatened and laws are overthrown. As economic agents are generally risk averse, this hinders productive activity such as investment and consumption, and ultimately lowers economic growth.

In addition to political risk, the price of petrol, one of the most used and most consumed energy sources, has become one of the important variables affecting many macroeconomic parameters of both developed and developing nations in their economic growth and development.

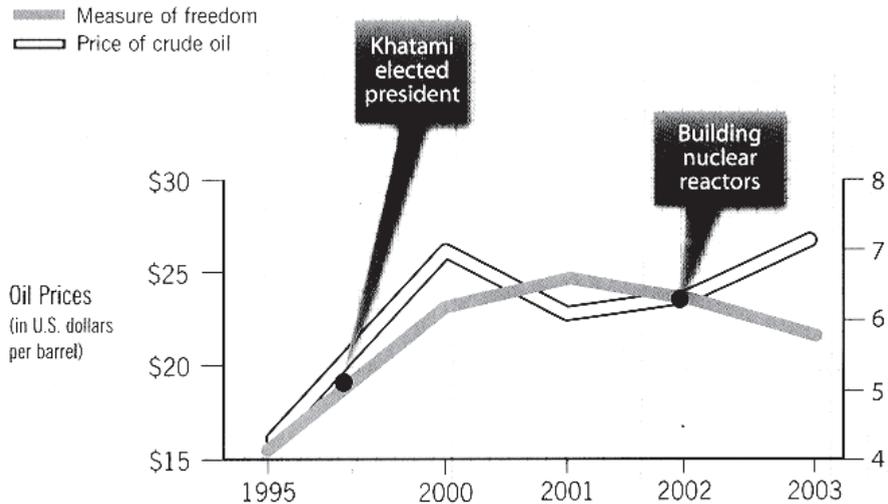
The last 15 months have witnessed some dramatic developments in oil prices. They began to fall from a high of \$115 a barrel in June 2015 to \$40 in January 2016, a decline of 60%. They rallied for a short while in mid-January at around \$60, and then fell; they rallied again to \$65 in May-June, and then reached a low of \$42 in late August. Since then they have crept upwards and hover around \$42-\$50 a barrel. These price fluctuations have taken place at a time when much of the world is experiencing both economic and political turmoil (Ahmad 2015).

There have been many studies on the negative effect of oil prices on politics. In a Foreign Policy article, Thomas L. Friedman called the deleterious effect of oil prices on political regime type the "First Law of Petropolitics" (FLP) (Friedman 2006). As shown in Figures 1, 2, 3, and 4, Friedman stated that a strong negative relationship always exists between oil price and the pace of freedom in oil-rich, less-developed petrolist states.

Friedman defines petrolist states as those that depend on oil production for most of their exports or gross domestic product and that have weak state institutions or outright authoritarian governments. He suggests that as an increasing amount of oil wealth accumulates in petrolist states it begins to distort the whole international system. When the Berlin Wall fell there was a widespread belief that an unstoppable tide of free markets and democratization had been unleashed, but this tide resulting from the proliferation of free elections around the world is now running into an unanticipated counter-wave of petro-authoritarianism,

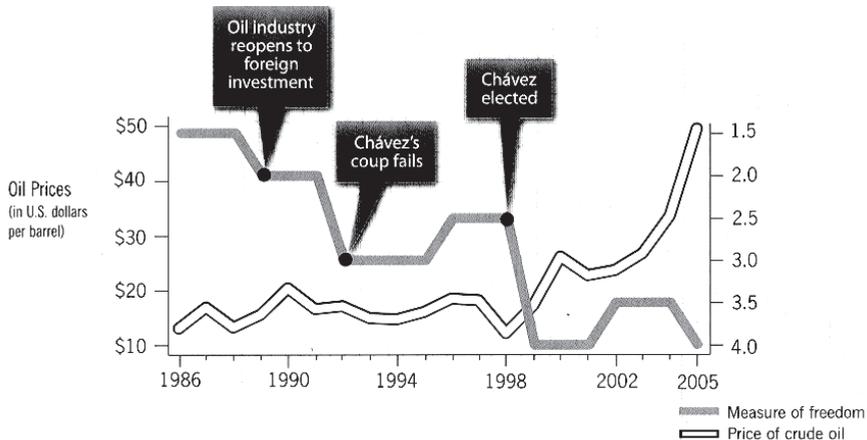
made possible by \$60-a-barrel oil. Friedman has said that the unstoppable tide of democratization that followed the fall of the Berlin Wall seems to have met its match in the black tide of petro-authoritarianism.

**Figure 1:** The example of Iran



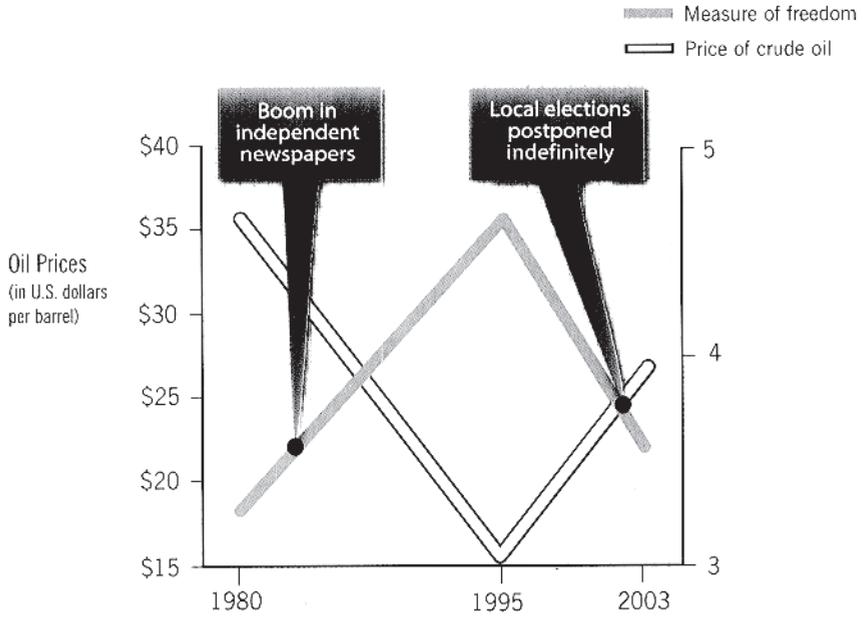
Source: Friedman (2006)

**Figure 2:** The example of Venezuela



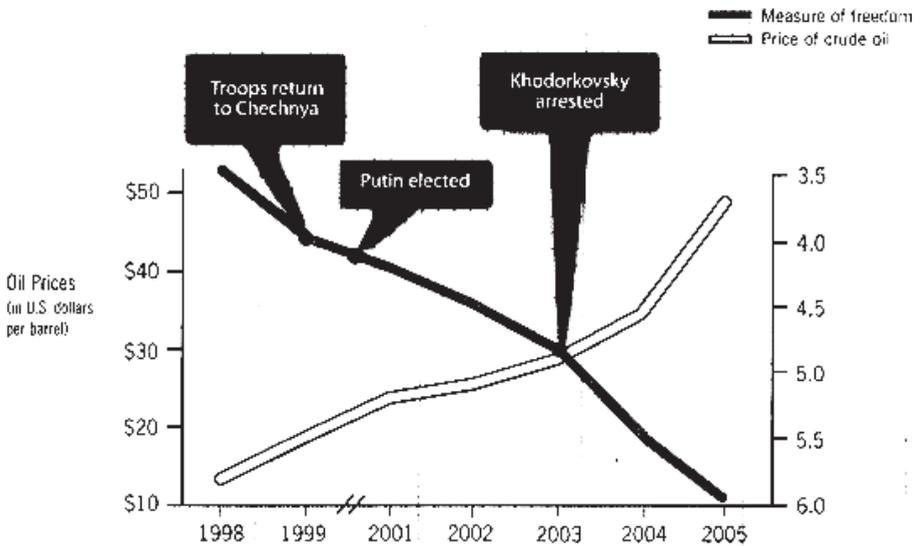
Source: Friedman (2006)

**Figure 3: The example of Nigeria**



Source: Friedman (2006)

**Figure 4: The example of Russia**



Source: Friedman (2006)

The FLP posits that as the global crude oil price increases, the more free speech, free press, free and fair elections, an independent judiciary, the rule of law, and independent political parties are destroyed. The higher the price goes, the less oil-producing leaders are sensitive to outside opinion. The FLP also posits that the more the average global crude oil price decreases, the more oil-producing countries are forced to move toward a political system and society that is more transparent, more sensitive to oppositional voices, and more focused on building the legal and educational structures needed to maximize their people's ability: all developments that attract investment from abroad (Friedman 2006).

This study aims to empirically test the FLP hypothesis for 12 OPEC member countries during the period 1984-2014. By applying a newly developed test by Hatemi-J (2011) allowing asymmetric structures, this study investigates possible causal relationships between political risk and total oil supply in the selected countries.

The rest of the paper proceeds as follows. The next section establishes the links between political risk and the energy sector through a review of the literature. Section 3 describes the dataset and presents the empirical methodology and the empirical findings. The final section offers the concluding points.

## **2. LITERATURE REVIEW**

Using pooled time-series cross-national data from 113 states between 1971 and 1997, Ross (2001) showed that oil does greater damage to democracy in poor states than in rich ones, and a given rise in oil exports will do more harm in oil-poor states than in oil-rich states. Thus, according to Ross (2001), oil inhibits democracy even when exports are relatively small, particularly in poor states.

According to Ross (2001), one explanation of why oil impedes democracy is what he calls the rentier effect. When a government earns significant direct rents from a natural resource, it hinders the development of representative politics by removing the need to collect taxes effectively. When governments derive sufficient revenues from the sale of oil they are likely to tax their population less heavily, and the public in turn will be less likely to demand accountability from their government (Aslaksen 2007).

Dutch Disease, which is associated with the rentier effect, refers to the process of deindustrialization that can result from a sudden natural resource. What

happens in countries with Dutch Disease is that the value of their currency rises, thanks to the sudden influx of cash that results from the discovery of oil, gold, gas, or some other natural resource. This then makes the country's manufactured exports uncompetitive and its imports very cheap (Friedman 2006).

Contrary to Ross (2001), Haber and Menaldo (2009) find that oil does not significantly foster authoritarianism.

Friedman (2006) presents simple time-series graphs of crude oil prices against measures of economic or political freedom for Iran, Venezuela, Nigeria, and Russia, as shown in Figures 1, 2, 3 and 4. The chosen measure of freedom and the time period under consideration differ across these countries, so the time-series graphs reveal that there exists a strong inverse association between measure of freedom and price of crude oil. Contrarily, Wacziarg (2012) denies that there exists any significant relationship between the price of oil and the pace of freedom in particular for oil-producing countries post-1961. Evaluating the relationship between democracy and world oil prices for four regions during the period 1961-2007 by using a variety of time-series and panel-data approaches, Wacziarg (2012) found a positive relationship in the case of OPEC countries, contrary to the implications of the FLP. Similarly to Wacziarg (2012), Townsend (2008) denied the validity of the FLP hypothesis for Iran, Nigeria, Russia, Venezuela, Azerbaijan, Angola, Chad, Egypt, Equatorial Guinea, Kazakhstan, Saudi Arabia, Sudan, and Uzbekistan by using Pearson's pairwise correlations.

Aslaksen (2007) investigated the relationship between natural resources and corruption by applying a panel data method. The results from pooled OLS showed that energy rent is associated with more corruption in government when country and year fixed effects are excluded. Aslaksen (2007) also argued that oil production might do better than oil rent in capturing the effect of oil on corruption. The fixed-effect estimation indicates that, all else being equal, oil quantity, oil reserves, and mineral rents are associated with more corruption in government. These adverse impacts of oil and minerals on corruption were found to be present both for democratic and undemocratic countries and among OPEC member countries and non-OPEC member countries.

Arezki and Brückner (2009) examined the effect of oil rents on corruption and state stability for a panel of 31 oil-exporting countries from 1992 to 2005. Using a fixed effects regression framework, the authors found that an increase in oil rents significantly increases corruption, significantly deteriorates political rights,

but has no significant effect on measures of state stability. At the same time, they found that increases in oil rents lead to a significant improvement in civil liberties.

Using McGuirk's (2013) micro-level survey data from 15 sub-Saharan countries, Ross found strong within-country correlations between increased amounts of natural resource rent, decreases in the (perceived) enforcement of taxation, and declines in the demand for democratic governance (Ross 2015).

Andersen et al. (2013) found that when political institutions are poor, windfall gains from petroleum extraction translate into larger stocks of hidden wealth. In autocratic regimes there is a strong and statistically significant association between changes in petro rents and changes in tax haven deposits, whereas there is no such pattern in other political regimes. The authors suggest that in countries with weak political institutions, rents from the petroleum sector are partly captured by political elites and hidden in havens.

Only petroleum is consistently correlated with less democracy and more corruption, but both petroleum and other mineral resources have been statistically associated with the onset or duration of civil wars (Ross 2003, 2006; Lujala Gleditsch, and Gilmore 2005; Fearon 2004; Collier, Hoeffler, and Rohner 2009; Sorens 2011). Similarly, Besley and Persson (2011) suggested that resource rents increase the likelihood of conflict, conditional on the inability of the state to facilitate peaceful transactions between groups (Ross 2015).

The current study is an attempt to enrich the empirical literature by revisiting the asymmetric causal relationship between political risk and oil supply for the 12 OPEC member countries. It is anticipated that the current study will improve and advance other studies because it uses the most recent data of the selected country group for 1984-2014 and applies the asymmetric causality test to political risk and oil supply in the field of political economics.

### **3. EMPIRICAL ANALYSIS**

This paper attempts an econometric model to illustrate the causal relationship between political risk and oil supply. Hatemi-J's asymmetric panel causality test (2011) is used in order to find empirical support for the possibility of a specific direction between the variables.

### **3.1. Data**

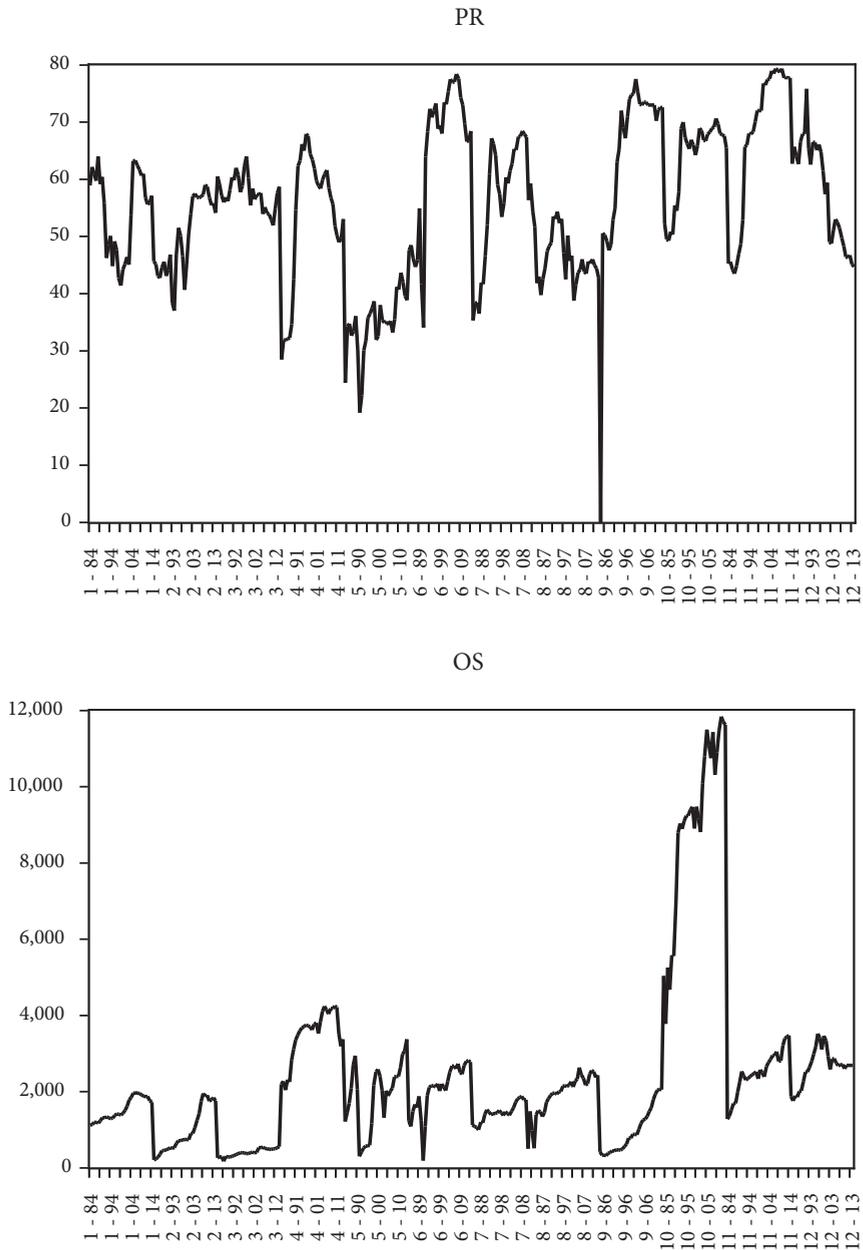
*Political risk (PR)*. The political risk data are from the International Country Risk Guide (ICRG) (2010). These data are available from 1984 onwards. The PRS Group (2005) provided information on 12 risk indicators that address not only political risk but also the various components of political institutions. Our main indicator of political risk is the ICRG political risk index. This index captures countries' overall political risk and includes scores on countries' government stability (measuring the government's ability to carry out its policies and stay in office); socio-economic conditions (measuring socio-economic pressures at work in society); investment profile (measuring investment risk that is not covered by financial and economic risk components); international conflict (measuring political violence in the country); external conflict (measuring the risk to the incumbent government from foreign actions); military in politics (measuring the influence of the military in politics); religious tensions (measuring religious tensions of a single religious group); ethnic tensions (measuring the degree of tension among ethnic groups attributable to racial, nationality, or language divisions); corruption (measuring the level of corruption); democratic accountability (measuring the responsiveness of government to its people); and bureaucracy quality (measuring the institutional strength and impartiality of the legal system).

The political risk index ranges from 0 to 100. If the points are in the 50%-60% range it is high risk, in the 60%-70% range moderate risk, in the 70%-80% range low risk, and in the 80-100% range very low risk.

*Oil supply (OS)*. Total oil supply data. Oil production is measured by the production of crude oil, natural gas plant liquids, and other liquids such as biodiesel and ethanol in thousand barrels per day. The data are from the Energy Information Administration (2015).

Figure 5 illustrates the trend of political risk and oil supply for OPEC countries for the period 1984 to 2014. Table 1 presents descriptive statistics of PR and OS, indicating political risk and total oil supply, respectively. From Table 1 it can be seen that Saudi Arabia and the United Arab Emirates have the greatest total oil supply and political stability, respectively, while Ecuador and Iraq have the lowest total oil supply and political stability, respectively.

**Figure 5:** Political risk and total oil supply of 12 OPEC countries for 1984-2014



Source: the ICRG; the EIA

**Table 1:** Descriptive statistics

	<b>PR</b>	<b>OS</b>
<b>Mean</b>	56.39780	2441.721
<b>Median</b>	57.00000	1955.992
<b>Maximum</b>	79.33333 (Iraq)	11840.68 (Saudi Arabia)
<b>Minimum</b>	19.16667 (United Arab Emirates)	175.3017 (Ecuador)
<b>Std. Dev.</b>	12.62423	2331.862

Source: Author' estimations

### 3.2. Methodology

After obtaining the descriptive statistics, the Lagrange multiplier test statistic ( $LM_{BP}$ ) developed by Breusch and Pagan (1980) is used to see whether the countries are cross-sectionally dependent. The underlying premise is that the increasing interdependence of world economies has necessitated the control of cross-sectional dependence; i.e., a shock affecting individuals forming a panel may also affect other individuals.

Having found the presence of cross-sectional dependence in the panel, we employed the bootstrap tests with cross-dependence proposed by Smith et al. (2004) to examine whether or not the series are stationary. When analysing panel data, the other issue to consider is the testing of slope homogeneity. The homogeneity of the estimated coefficients for each individual in the panel was investigated through Pesaran and Yamagata's (2008) homogeneity tests. Finally, to illustrate the causal relationships between political risk and oil supply, the asymmetric panel causality test proposed by Hatemi-J (2011) was used.

There are a number of test methods that have been developed in the literature in order to test the Granger (1969) causality approach. However, the Granger causality test is based on the supposition that the causal impact of positive shocks is of the same absolute magnitude as the causal impact of negative shocks. Thus the Granger causality approach neglects potential asymmetric causal impacts (Hatemi-J 2011).

Since the pioneering works of Akerlof (1970), Spence (1973), and Stiglitz (1974), it is well-known that many markets are characterized by asymmetric information in the literature the economic actors tend to react more to negative shocks than to positive shocks. Hence whether or not the asymmetric property in the

causality testing is taken into account has become very important (Granger and Yoon 2002; Hatemi-J et al. 2014). To allow for asymmetry in the causality testing, Hatemi-J (2012) suggests that tests for causality should be implemented by using the cumulative sums of the positive and negative components of the underlying variables.

Suppose causality analysis between two cointegrated series such as  $x_{i1,t}$  and  $x_{i2,t}$  are tested:

$$x_{i1,t} = x_{i1,t-1} + e_{i1,t} = x_{i1,0} + \sum_{j=1}^t e_{i1,j} \quad \text{for } i=1, \dots, n.$$

$$x_{i2,t} = x_{i2,t-1} + e_{i2,t} = x_{i2,0} + \sum_{j=1}^t e_{i2,j}$$

where  $x_{i1,0}$  and  $x_{i2,0}$  represent the initial values, and  $n$  is the number of cross-sections within the panel system, and  $e$  is the white noise error term. The positive and negative shocks can be defined as follows:

$$e_{i1,t}^+ := \max(e_{i1,t,0}),$$

$$e_{i2,t}^+ := \max(e_{i2,t,0}),$$

$$e_{i1,t}^- := \min(e_{i1,t,0}),$$

$$e_{i2,t}^- := \min(e_{i2,t,0}).$$

From these definitions the cumulative sums of the shocks are constructed, denoted  $x_{i1,t}^+$ ,  $x_{i2,t}^+$ ,  $x_{i1,t}^-$ ,  $x_{i2,t}^-$ , as follows:

$$x_{i1,t}^+ = x_{i1,0}^+ + e_{i1,t}^+ = x_{i1,0} + \sum_{j=1}^t e_{i1,j}^+$$

$$x_{i2,t}^+ = x_{i2,0}^+ + e_{i2,t}^+ = x_{i2,0} + \sum_{j=1}^t e_{i2,j}^+$$

$$x_{i1,t}^- = x_{i1,0}^- + e_{i1,t}^- = x_{i1,0} + \sum_{j=1}^t e_{i1,j}^-$$

$$x_{i2,t}^- = x_{i2,0}^- + e_{i2,t}^- = x_{i2,0} + \sum_{j=1}^t e_{i2,j}^-$$

Hatemi-J (2011)'s panel causality test is conducted within a vector autoregressive seemingly unrelated regression model of order  $k$ :

$$\begin{bmatrix} x_{i1,t}^+ \\ x_{i2,t}^+ \end{bmatrix} = \begin{bmatrix} \delta_{i0} \\ \gamma_{i0} \end{bmatrix} + \begin{bmatrix} \sum_{r=1}^k \delta_{i1,r} & \sum_{r=1}^k \delta_{i2,r} \\ \sum_{r=1}^k \gamma_{i1,r} & \sum_{r=1}^k \gamma_{i2,r} \end{bmatrix} x \begin{bmatrix} x_{i1,t-r}^+ \\ x_{i2,t-r}^+ \end{bmatrix} + \begin{bmatrix} \varepsilon_{i1}^+ \\ \varepsilon_{i2}^+ \end{bmatrix}$$

where  $\varepsilon_{i1}^+$  and  $\varepsilon_{i2}^+$  are defined as the error terms in the system.  $k$  is the lag order minimizing a panel version of an information criterion. The null hypothesis of the test is as follows:

$H_0 : \delta_{i2,r} = 0, \forall_r$  where  $r=1, \dots, k$ . This hypothesis suggests that  $x_{i2,t}^+$  does not cause  $x_{i1,t}^+$  for the cross-sectional unit  $i$  in the panel, and this hypothesis is tested by using a Wald test according to Hatemi-J (2011). Other combinations of  $(x_{i1,t}^-, x_{i2,t}^+)$ ,  $(x_{i1,t}^+, x_{i2,t}^-)$  or  $(x_{i1,t}^-, x_{i2,t}^-)$  are constructed in a similar way.

### 3.3. The Results

Firstly, Breusch and Pagan (1980)'s cross-section LM testing is employed, since the number of cross-section observations are smaller than the number of time series observed in this study. Table 2 reports the  $LM_{BP}$  test results, confirming the presence of cross-sectional dependence at the 1% significance level in the panel series in both the case of a constant and of a constant and a trend. This finding implies that a shock that occurred in one of the 12 OPEC countries has been transmitted to other countries.

**Table 2:**  $LM_{BP}$  Cross-sectional Dependence Results

Variable	Constant		Constant and Trend	
	Test Statistic	p-value	Test Statistic	p-value
PR	149.946***	0.00	158.675***	0.00
OS	130.031***	0.00	135.418***	0.00

\*\*\* indicates rejection of the null hypothesis at the 1% level of significance.

Source: Author' calculations

The slope homogeneity tests are presented in Table 3.

**Table 3:** Slope Homogeneity Tests Results

<i>Model</i>	$\tilde{\Delta}$ <i>test</i> <i>statistic</i>	<i>p.</i> <i>value</i>	$\tilde{\Delta}^{adj}$ <i>test</i> <i>statistic</i>	<i>p.</i> <i>value</i>
$PR_{it} = \beta_0 + \beta_i \cdot OS_{it} + e_{it}$	19.376***	0.00	20.354***	0.00

\*\*\* indicates rejection of the null hypothesis at the 1% level of significance.

**Source:** Author' estimations

According to Table 3, the homogeneity tests reject the equality hypothesis, which shows that the slope coefficients are homogeneous for the two variables. Hence, the homogeneity restriction on the variable of interest results should not be imposed when panel causality analysis is performed ,or it will result in misleading inferences.

The panel unit root test is employed, as the cumulative sums for each cross-section require ensuring that both series are nonstationary in Hatemi-J's causality approach. Following the findings in Table 2 and Table 3, the bootstrap tests with cross-dependence proposed by Smith et al. (2004) are applied as the panel unit root test, which takes into account cross-sectional dependence.

**Table 4:** The Results of Smith et al.'s (2004) Bootstrap Panel Unit Root Tests

<b>Statistics</b> \ <b>Variable</b>	<b>PR</b>	<b>OS</b>
$\bar{t}$ <b>Statistic (p-value)</b>	-2.433 (0.180)	-2.178 (0.494)
$\overline{\max}$ <b>Statistic (p-value)</b>	-1.565 (0.800)	-1.878 (0.396)
$\overline{LM}$ <b>Statistic (p-value)</b>	5.592 (0.211)	4.928 (0.494)
$\overline{\min}$ <b>Statistic (p-value)</b>	3.108 (0.745)	4.241 (0.266)
$\overline{ws}$ <b>Statistic (p-value)</b>	-1.922 (0.701)	-2.198 (0.336)

A rejection of the null hypothesis of non-stationarity for a given panel indicates that at least one country in the panel does have a unit root and is stationary. The bootstrap p-values are, in each case, based on 10,000 simulations.

**Source:** Author' calculations

The results in Table 4 show that the null hypothesis of a unit root cannot be rejected at the usual significance level for the two variables in their levels. Thus, according to Table 4, the variables of PR and OS are I(1) variables. Finally, the non-asymmetric causality test results are reported in Table 5.

**Table 5:** The Results of Asymmetric Panel Causality Test

<b>Algeria</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \Rightarrow PR^+$	0.401	0.527
	$OS^+ \Rightarrow PR^-$	0.105	0.746
	$OS^- \Rightarrow PR^-$	0.503	0.478
	$OS^- \Rightarrow PR^+$	0.379	0.538
<b>Angola</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \Rightarrow PR^+$	1.414	0.234
	$OS^+ \Rightarrow PR^-$	7.679**	0.022
	$OS^- \Rightarrow PR^-$	0.221	0.638
	$OS^- \Rightarrow PR^+$	53.323***	0.000
<b>Ecuador</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \Rightarrow PR^+$	0.237	0.627
	$OS^+ \Rightarrow PR^-$	1.273	0.529
	$OS^- \Rightarrow PR^-$	1.772	0.412
	$OS^- \Rightarrow PR^+$	1.253	0.534
<b>Iran</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \Rightarrow PR^+$	52.909***	0.000
	$OS^+ \Rightarrow PR^-$	4.091	0.129
	$OS^- \Rightarrow PR^-$	0.187	0.911
	$OS^- \Rightarrow PR^+$	4.407	0.110
<b>Iraq</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \Rightarrow PR^+$	2.737	0.254
	$OS^+ \Rightarrow PR^-$	6.083**	0.048
	$OS^- \Rightarrow PR^-$	0.001	0.970
	$OS^- \Rightarrow PR^+$	39.199***	0.000
<b>Kuwait</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \Rightarrow PR^+$	0.880	0.348
	$OS^+ \Rightarrow PR^-$	60.835***	0.000
	$OS^- \Rightarrow PR^-$	0.584	0.445
	$OS^- \Rightarrow PR^+$	26.051***	0.000
<b>Libya</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>

ON ASYMMETRIC CAUSAL RELATIONSHIPS IN PETROPOLITICS

	$OS^+ \neq PR^+$	32.216***	0.000
	$OS^+ \neq PR^-$	4.918**	0.027
	$OS^- \neq PR^-$	0.063	0.802
	$OS^- \neq PR^+$	0.035	0.851
<b>Nigeria</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \neq PR^+$	0.294	0.588
	$OS^+ \neq PR^-$	18.309***	0.000
	$OS^- \neq PR^-$	28.030***	0.000
	$OS^- \neq PR^+$	17.396***	0.000
<b>Qatar</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \neq PR^+$	8.262**	0.016
	$OS^+ \neq PR^-$	9.544***	0.002
	$OS^- \neq PR^-$	1.534	0.215
	$OS^- \neq PR^+$	0.104	0.747
<b>Saudi Arabia</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \neq PR^+$	51.773***	0.000
	$OS^+ \neq PR^-$	16.225***	0.000
	$OS^- \neq PR^-$	1.396	0.237
	$OS^- \neq PR^+$	0.140	0.708
<b>The UAE</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \neq PR^+$	1.180	0.277
	$OS^+ \neq PR^-$	1.276	0.528
	$OS^- \neq PR^-$	2.147	0.342
	$OS^- \neq PR^+$	27.781***	0.000
<b>Venezuela</b>	<b>Null Hypothesis</b>	<b>M-Wald stat.</b>	<b>P-value</b>
	$OS^+ \neq PR^+$	1.696	0.193
	$OS^+ \neq PR^-$	0.058	0.810
	$OS^- \neq PR^-$	0.057	0.811
	$OS^- \neq PR^+$	1.354	0.245

The vector ( $OS^+$ ,  $PR^+$ ) signifies the cumulative positive shocks and ( $OS^-$ ,  $PR^-$ ) represents the cumulative negative shocks.

**Source:** Author' estimations

According to the empirical results, the null hypothesis of a negative shock in oil supply not causing positive shocks in political stability can be rejected for Angola, Iraq, Kuwait, Nigeria, and the UAE at the 1% significance level. Moreover, the findings reveal that the null hypothesis that a positive shock in oil supply does not cause a negative increase in political stability can be rejected for Angola, Iraq,

Kuwait, Libya, Nigeria, Qatar, and Saudi Arabia at the 5% significance level. In addition, the null hypothesis that a positive shock in oil supply does not cause a similar increase in political stability can be rejected for Iran, Libya, Qatar, and Saudi Arabia. However, the null hypothesis that negative oil supply shocks do not cause similar shocks in political stability can only be rejected for Nigeria. Therefore these results confirm Friedman's "First Law of Petropolitics" for Angola, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, and the UAE.

#### **4. CONCLUSION**

Economists regard political instability as a serious malaise that is harmful to economic performance. Political instability is likely to shorten policymakers' horizons, leading to suboptimal short-term macroeconomic policies. It may also lead to more frequent changes in policy, creating volatility and thus negatively affecting macroeconomic performance.

Political instability is thought to affect economic growth negatively for at least two reasons: First, it disrupts market activities and labour relations, which has a direct adverse effect on productivity (Giskemo 2012). Secondly, political instability reduces growth because it negatively affects investment. Thus on the one hand the uncertainty associated with an unstable political environment may reduce investment and the speed of economic development, and on the other hand poor economic performance may lead to government collapse and political unrest.

To examine the importance of political risk in countries' economic performance, this paper examined the empirical link between political risk and total oil supply using the most recent panel data (1984-2014) of the OPEC countries, namely Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

This paper also tested the First Law of Petropolitics for OPEC countries, which posits that there is always a strong negative relationship between the price of oil and the pace of freedom in oil-producing states.

Using the asymmetric panel causality test suggested by Hatemi-J (2011), the findings of the study show that negative shocks in oil supply cause significant positive shocks in political stability for Angola, Iraq, Kuwait, Nigeria, and the UAE. In addition, the findings showed that positive shocks in oil supply significantly

cause negative increases in political stability for Angola, Iraq, Kuwait, Libya, Nigeria, Qatar, and Saudi Arabia. Furthermore, positive shocks in oil supply cause similar increases in political stability for Iran, Libya, Qatar, and Saudi Arabia. However, the null hypothesis that negative oil supply shocks do not cause similar shocks in political stability can be rejected for only Nigeria. Therefore these results confirm Friedman's "First Law of Petropolitics" for most OPEC members. Underlying this result is that higher oil prices (and backwardation of the forward curve) may stimulate the drawdown of oil stocks. Specifically, Saudi Arabia and a handful of other countries that hold reserve production capacity may decide to move it in or out of production as oil prices rise or fall. On the other hand, higher oil prices could also stimulate higher tight-oil production more quickly than conventional oil production could increase (Difiglio 2014).

Finally, the paper found that total oil supply plays an important role in shaping political instability, which economists consider a serious malaise harmful to economic performance in the OPEC countries. Hence, that OPEC that can have a strong influence on the oil market, especially if it decides to reduce or increase its level of production, should be considered separately from the issue of changes in the prices of oil products such as gasoline or heating oil. In addition, OPEC should continue to support sound environmental policies that are fair and equitable, based on proven needs and designed to address those needs, and it should also continue to support sustainable economic development, which requires steady supplies of energy at reasonable prices (EPP0 2015).

## REFERENCES

- Ahmad, T. (2015). <<http://thewire.in/2015/09/22/how-falling-oil-prices-are-aggravating-economic-and-political-uncertainties-11205/>>, (01.12.2015).
- Alesina, A., S. Özler, N. Roubini, and P. Swagel. (1996). Political Instability and Economic Growth. *Journal of Economic Growth* 1 (June): 189-211.
- Andersen, Jørgen Juel, Niels Johannesen, David Dreyer Lassen, and Elena Paltseva. (2013). Petro Rents and Hidden Wealth: Evidence from Bank Deposits in Tax Havens. *CAMP Working paper* series no 7/2013.

Arezki, R., Brückner, M. (2009). Oil Rents, Corruption, and State Stability: Evidence From Panel Data Regressions. *IMF Working Paper*, WP/09/267.

Aslaksen, S. (2007). Corruption and Oil: Evidence from Panel Data”. Mimeo, Department of Economics, Norwegian University of Science and Technology, Trondheim.

Breusch, T. S. and Pagan, A. R. (1980). The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. *The Review of Economic Studies*, Vol. 47, No. 1, Econometrics Issue, pp. 239-253.

Difiglio, C. (2014). Oil, economic growth and strategic petroleum stocks. *Energy Strategy Reviews*, 5, 48-58.

EPPO, Energy Policy and Planning Office. (2015). <<http://www.eppo.go.th/inter/opec/OPEC-about.html>> (01.12.2015).

EIA, U.S. Energy Information Administration, International Energy Statistics Database.

Friedman, T.L. (2006). The First Law of Petropolitics. *Foreign Policy*, 154, 28-39.

Giskemo, Gunhild Gram. (2012). Exploring the relationship between socio-economic inequality, political instability and economic growth Why do we know so little?, *CMI Working Paper* 2012: 2.

Granger, Clive W.J., Yoon, Gawon. (2002). Hidden Cointegration. Royal Economic Society Annual Conference 2002 92, Royal Economic Society.

Haber, S. and Menaldo, V. (2008). Do Natural Resources Fuel Authoritarianism? A Reappraisal of the Resource Curse. *Working Paper* No. 351, Stanford University.

Hatemi-J, A. (2011). Asymmetric Panel Causality Tests with an Application to the Impact of Fiscal Policy on Economic Performance in Scandinavia. MPRA Paper No 55527. Munich: University Library of Munich.

Hatemi-J, A. (2012). Asymmetric Causality Tests with an Application. *Empirical Economics* 43, 447–456.

Hatemi-J, A., Rangan Gupta, Axel Kasongo, Thabo Mboweni, Ndivhuho Netshitenzhe. (2014). Are there Asymmetric Causal Relationships between Tourism and Economic Growth in a Panel of G-7 Countries? *University of Pretoria, Department of Economics Working Paper Series*, Working Paper: 2014-76.

ICRG, International Country Risk Guide Political Risk Rating System, Political Risk Services Group.

Pesaran MH, Yamagata T. (2008). Testing slope homogeneity in large panels. *Journal of Econometrics* 142: 50–93.

ON ASYMMETRIC CAUSAL RELATIONSHIPS IN PETROPOLITICS

Ross, M. (2001). Does Oil Hinder Democracy? *World Politics* 53: 325-361.

Ross, M.L. (2015). What have we learned about the resource curse? *Annual Review of Political Science*, 18(1): 239-259.

Smith, V., Leybourne, S. and Kim, T.-H. (2004). More Powerful Panel Unit Root Tests with an Application to the Mean Reversion in Real Exchange Rates. *Journal of Applied Econometrics*, 19(2), 147-170.

Townsend, S. (2008). Friedman's First Law fails: Oil prices don't predict levels of freedom. Available online at <http://www.ibis4.com/documents/EP SJ-Friedmanlaw.pdf>

Wacziarg, R. (2012). The First Law of Petropolitics, *Economica* (2012) 79, 641-657.

Received: December 21, 2015

Accepted: February 09, 2016