

The Dynamic Impact Among Oil Dependence Volatility, The Quality of Political Institutions, And Government Spending

Azadeh Pazouki, University of Bedfordshire, Luton, UK, Phone: +447376371620, E-mail: apazouki@bournemouth.ac.uk

Ebrahim Ghorbani, Bournemouth University, Bournemouth, UK, Phone: +447481930303, Email: s5074799@bournemouth.ac.uk

Mohammad Reza Pazouki, Allameh Tabataba'i University, Tehran, Iran, Phone: +989125406647, E-mail: m.reza.pazouki@gmail.com

Nasrin Hozarmoghadam, Insurance Research Center, Tehran, Iran, Phone: +989124980710, E-mail: hozarmoghadam@irc.ac.ir

Overview

This study examines the direct and indirect effect of the role of democracy, and, in turn, the effect of oil dependence volatility on governmental expenditure in oil exporting countries. To achieve this aim, we apply a panel Vector Auto-Regressive (PVAR) model along with panel impulse response functions from the period 1983 to 2020. To capture the full dynamics of the aforementioned relationship in a PVAR setting, we also consider core macro-economic variables, namely the GDP per capita growth rate, inflation rate and exchange rates. In the oil-exporting countries there are both democratic countries and those with limited or no democracy. This implies a question whether oil volatility's impact on government expenditure is influenced by the level of democracy? In this way, this study analyses the effects of oil dependence volatility on government spending, as a percentage of GDP, and does this in this study by separating the countries into two groups, one democratic and the other non-democratic.

The difference in the quality of institutions is important and determines their reaction to oil shocks and reflects on the way that oil countries decide on the allocation of oil revenues in the form of oil rents. Democratic and non-democratic governments both behave and react differently to factors relating to oil volatility and therefore, the quality of political institutions in their response to expenditure brings a significant degree of uncertainty. The response not only changes the share of government expenditure but also changes composition. Thus, it is significant to understand, within the context of the political economy, the differing reactions to oil price volatility and to explore any differences between different forms of government. There is little in literature that researches this important element within the global oil market, and it is a gap in oil literature empirical research.

The results suggest that the quality of political institutions, it is observed that in democratic countries an increase in oil volatility leads to an increase in government expenditure. In contrast, in non-democratic countries, governments respond to oil volatility fluctuating between the positive and negative depending on the quality of political institutions; the more some attributes of democracy are seen, the greater the expenditure. This difference in response between them can be attributed to a variation in institutional quality. Therefore, an improvement in strategic risk planning together with greater government transparency could lead to institutional quality improvement.

The policy implications of these results are straightforward. A policy implication of our findings suggest that occur as a result of this. The destructive effects of oil volatility can be mitigated by improvement in the quality of institutions and the expansion of the degree of democracy in both groups of countries. Governments in democracies are more likely to deal constructively with oil turmoil in order to reduce the destructive effects of turbulence in the domestic economy. Mehlum et al. (2006) also consider the quality of institutions, as a factor that affects the resource curse as a result of natural resources pushing aggregate income down, when institutions are orientated towards political power brokers and rentier elites. Therefore, efforts to improve the quality of institutions and democracy, as confirmed by the results of this research, help to reduce the destructive effects of oil volatility, especially oil revenue volatility. The empirical findings showed that oil revenue volatility has no effect on the domestic economy of democratic countries, indicating that the democratic institutions of these countries use some mechanisms to prevent a direct destructive effect on the budget and economy.

Methods

The PVAR methodology we employ, originally developed by Holtz-Eakin et al. (1988), extends the traditional VAR model introduced by Sims (1980), which treats all the variables in the system as endogenous, with the panel-data approach, which allows for unobserved individual heterogeneity. In its general form, the PVAR model can be expressed as follows:

$$Y_{it} = A_0 + A_1 Y_{it-1} + A_2 Y_{it-2} + \dots + A_j Y_{it-j} + BX_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where Y_{it} is a 1×5 vector of our key dependent/endogenous variables, namely, oil dependence volatility proxies, real GDP per capita (in 2010 US\$), nominal exchange rate (LCU) per US\$, inflation consumer prices

and general government spending and also the sub-categories of government spending comprises of education spending, military spending, and health spending. The autoregressive structure allows all endogenous variables to enter the model with a number of J lags. The optimal lag-length is determined by the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC). μ_i accounts for the unobservable country characteristics (country fixed-effects) and λ_i accounts for any global shocks that may affect all countries in the same way (time fixed-effects). For example, time fixed effects capture common factors such as key global risk factors. To deal with the time fixed effects we time difference all the variables prior to inclusion in the model, which is equivalent to putting time dummies in the system. Finally, ε_{it} denotes the error term (Antonakakis et al. 2017a; Antonakakis et al. 2017b).

In order to get a more complete picture of the dynamic interactions between oil dependence and macroeconomics variables, we perform a panel generalised impulse-response function (PGIRF) analysis, in order to evaluate the speed of adjustments to shocks originating in our aforementioned variables.

Results

The results of our empirical analysis reveal the following regularities. There was a steady increase in government expenditure, as a percentage of GDP, in responding to oil volatility shocks in democratic countries, whilst in non-democratic states there was a stable response to oil revenue shocks and fluctuating responses to oil price and oil rent volatility with these being positive in early periods and then becoming negative.

Multiplying the *xrreg* variable by the oil volatility proxy proved that the more democratic the attributes are in the government of non-democratic countries, the greater the similarity to democratic states is the response of government expenditure, as a percentage of GDP, to oil volatility.

The results also show that there is a convergence in response as the two groups of states move closer to the democratic norm. However, the nature of a number of non-democratic regimes, particularly OPEC members, make them less susceptible to pursuing a democratic paradigm due to their absolute control of both the political and economic levers of power. In other words, they were able to control the process of financial extraction to suit their own ends in what has been described as the voracity effect. Thus, the more democratic the country the greater is the effect of institutions in determining policy that results in diversification and growth and the lower is the effect of rents as a driver of decision making. This suggests that the more democratic the state the more likely it is to provide policies that reduce the effect of volatility which is a conclusion suggested by the results obtained.

Conclusions

The purpose of this study was to investigate the direct and indirect effect of oil dependence volatility on the aggregated government expenditure in a group of democratic and non-democratic countries. The sample period runs between 1983 and 2020 and a panel Vector Auto-Regressive model, along with panel impulse response functions, are employed. This study evaluated the effect of oil dependence volatility in both groups with the intention of establishing whether the influences that form democracies, namely, strong institutions, the rule of law, property rights and the role of the population in selecting leaders created a different dynamic in the distribution of government expenditure.

The results of this empirical analysis show that an increase in oil volatility leads to an increase in the share of government expenditure, as a percentage of GDP. However, the scale of the impact varies between two groups of countries. Additionally, as the democratic features and traits develop in non-democratic countries, the response to oil volatility shocks in relation to government expenditure, as a percentage of GDP is more likely to react in a similar way to that seen in democratic nations.

This difference in response between non-democratic and democratic countries can be attributed to the varying nature of institutional quality. As the literature shows, poor institutions and rents are associated with a weakening of economic policies, financial instability, the voracity effect phenomenon, and the over-sensitivity of fiscal strategies financial policies which are all reflected in oil revenue shocks. Therefore, in relation to the pattern of government expenditures in oil exporting countries, the quality of political institutions is important.

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