

DOES OIL PRICES REALLY MATTER?

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Overview

Large volumes of empirical literature have addressed the significance of Oil, as a natural resource endowment, for long-term economic growth. There are divided opinions as to whether oil is a blessing or a curse for the countries that are abundantly endowed. This controversy follows the fact that oil-rich exporting countries, most especially in the developing world, are characterised by poor and volatile growth episodes even in periods of higher oil prices and increase revenue inflows. Even though several studies have established a negative correlation between natural resource abundance and economic growth, recent empirical findings have revealed that the estimation procedures and functional form specifications followed in those studies suffer from model specification errors. These errors which include model endogeneity, country-specific heterogeneity and time invariant factors, render the cross-country estimation results of those regressions spurious and their policy implications misleading.

Another contention in the literature is the implications of higher oil prices or oil price volatility for growth and macroeconomic stability, most especially for the net oil importing countries. There are evidences of a strong correlation between world oil price movements and global economic outlook, and almost all global economic recession are preceded by a phenomenal increase in international oil prices. Oil price shocks are therefore a global concern and hence several studies have attempted to forecast the implications of higher future oil prices on economic growth and development both at country specific level and global level. Earlier empirical studies in this area, such as those that use unrestricted vector autoregressive estimations, have had their share of criticism concerning their atheoretical foundations and the complexities of the identification procedures used.

In this paper, we have attempted to address these two fundamental issues. In the first instance, we are not really concerned with the negative correlation between oil endowment and economic growth, but rather on whether oil endowment matters in cross-country growth regression. In this regard, we are interested in whether oil endowment is important in explaining cross-country growth differentials, that is, does having oil make a country grow faster than a country that is not so naturally endowed?. We answered this question within the framework of the standard endogenous growth model but taking into cognisance the model specification errors highlighted in the previous empirical works. Secondly, we address the implications, if any, of higher future oil prices on growth and macroeconomic stability both at the country specific level and at the global level, also within the framework of an exactly identified structural vector autoregressive model.

The remainder of the paper is structured thus: section two is a brief review of literature on determinants of cross-country long term growth, section three discusses the model specification, estimation procedures and the results. In section four we introduce the issue of oil price shocks and output performance, while section five is on the model, estimation techniques, and results. Section six contains the general conclusions of the paper and policy options.

Methods

For the significance of oil in cross-country growth regression we develop and estimate a dynamic endogenous growth model using a generalised method of moment techniques. We introduce both country-specific fixed effect terms and period-specific time invariant dummies to correct for attenuation bias, endogeneity and omitted variable effects. We use a 5-year averaging panel data of 122 countries for period 1960 – 2005. We also use Pooled-Ordinary Least Square (OLS), Within-OLS, and System - Instrumental Variable - Generalised Method of Moment estimations.

For the impact of oil price shocks, we estimate a reduced-form structural vector autoregressive model using a time series data from 1960 – 2006 for USA, UK, France, China and the World. We impose identification restrictions on the contemporaneous structural co-variance matrix to generate the Impulse Response Functions and Error Forecast Variance decompositions. Our identification procedures follow prior economic theories and empirical research.

Results

The first results shows that, although there is a negative correlation between the oil dummy and GDP per capita growth rate, the correlation coefficient is highly insignificant. A Null hypothesis that the coefficient is significantly different from zero will be rejected at even 95 percent confidence interval. Other factors, such as, Initial income, government spending, Inflation, Human capital and Institution index are more significant in a cross-country growth regression. This suggest that relatively, natural resource abundance does not account significantly for variation in cross country growth and being rich in oil is not a sufficient pre-condition for fast or steady economic growth.

Secondly, the structural VAR model shows that future positive oil price shocks will have initial negative impact on output growth, Inflation and Trade at both global and country level. However, the impact was less volatile for the United States compared to China, UK and the World. Oil price shocks were actually beneficial to the UK, as GDP per capita growth and manufacturing output increases, and inflation fell in the first three periods of the response. In the world variance decomposition, Inflation and Government Expenditure shocks account more for variation in world output growth, while oil price shocks account significantly for variations in global inflation and trade. In all cases, the negative impacts revert back to positive and steady state after the fourth to fifth period. The effect was rather more devastating for the Sub-Sahara countries, including the oil exporting countries of the Middle East and North Africa.

Conclusions

In this paper we attempt to address two fundamental issues: firstly, we investigate whether the natural abundance of oil is important in global economic growth pattern; and secondly, the macroeconomic implications of future oil price shocks on growth and development. We observe that after controlling for the effects of other macroeconomic indicators, oil endowment is not significant in cross-country growth regression. This finding contradicts the popular believe that oil rich countries are poor because they are rich in oil (Dutch Disease syndrome) and the empirical negative correlation between oil abundance and economic growth is spurious.

Given the current trend of global macroeconomic reforms and consolidation of sustainable high growth strategies, the impact of future oil price shocks, though adverse in the immediate short run, will have a moderate negative effect on global output growth and macroeconomic stability. The vulnerability to oil price shocks by major oil importing countries is significantly curtailed in the long run. However, oil price developments still play very important role at global and country levels in economic decision process, hence oil prices really matter.

References

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