A Comparative Analysis of the Pass-Through Impact of Oil Prices on an Oil-Exporter and an Oil-Importer

Topic: Prices in IO models
Author: Masaaki Kuboniwa

In this study, we provide a comparative analysis of the impact of oil prices on both oil-exporting and oil-importing economies for 1995-2011, using time-series estimators and input-output tools. Time-series analysis is made by using the Johansen vector error correction (VEC) estimator and the fully modified OLS (FMOLS) estimator. Input-output analysis is made based on country-specific tables, considering international tables. We investigate not only oil-importers including Russia but also oil-importers including the Czech Republic.

First, we briefly show that Russian major macroeconomic variables are largely exposed to oil price waves in a positive direction. The Russian business cycle may entirely be explained by the oil price waves. This feature of Russia has been shown in many studies. Unlike other studies, we explicitly show why changes in nominal oil prices explain Russian real growth of GDP and manufacturing output in a well-defined manner, presenting that in Russia oil prices accurately reflect changes in terms of trade (ToT) and the trading gains (TT). We also emphasize that a rapid increase (decrease) in oil prices induced boost (contraction) in Russia's imports.

Second, we examine the impact of oil price changes on the Czech economy, focusing on its macroeconomic relations and trade linkages. This country is an oil and gas importers from Russia. Surprisingly, we find that the Czech GDP growth has a strong positive correlation with oil price changes, which is quite similar to the Russian case. This Czech relation (a cointegrating equation) is not spurious if we rely upon modern time series analysis. As there is no meaningful correlation between oil prices and the Czech ToT, changes in oil prices have a positive impact on the Czech GDP through factors other than effects of ToT, which may include trade linkages with Russia and own energy-saving efforts. Using trade data and input-output tables in both current and constant prices, we investigate the pass-through impact of oil prices on the Czech trade linkages and input-output structures. In all we show that the Czech Republic got along with recent positive and negative oil shocks as in some advanced countries.