

Comments on "Oil Shocks in a DSGE Model for the Korean Economy" by An and Kang

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Oil shocks have been assigned a prominent role in contemporary macroeconomic textbooks and models as examples of supply-side disturbances. Most of the studies in the literature focus on the effect of oil shocks on the US economy. This convention however has an obvious limitation. U.S is a big economy, so any change in the US macroeconomic condition would have an endogenous impact on the oil price. Due to this endogeneity in the oil prices, it is hence difficult to establish a causal relationship between oil price and the real economy. An and Kang bypass this endogeneity problem by focusing on a small economy, the Korean Economy. In my view, this is a very innovative way to quantitatively study the true impact of oil shocks on the economy. The model economy developed by An and Kang uses oil either as direct consumption or an input of production. It is rich enough to study different transmission mechanisms on how oil price affect the economy. The structure model estimation reveals that oil related shocks explain about 40 percent of output fluctuation and about 60 percent of interest movements. So oil shocks are indeed an important source of economic fluctuation.

I now would like to make a few comments about the model specification for improving the paper.

First, despite habit formation, sticky price and sticky wage, the model seems to have a weak internal propagation mechanism as shown by the impulse responses function in figure 1 and figure 2. The impact of monetary shock on output growth is very transitory and volatile. Similar pattern exists under oil price shock too. The reason, I guess, is due to volatile investment. In the presence of habit formation, household has a stronger incentive to accumulate capital especially when the shocks are transitory. Although consumption adjustment is constrained by habit formation, if investment is free to adjust, the resulted output change would still be very volatile and transitory. The above argument

suggests investment adjustment costs maybe an important additional element added to the model economy.

Second, the impulse responses to oil shocks require more detailed discussion. The response of core inflation, interest rate is not intuitive. It is difficult to understand why the core inflation drops on the impact period of a surprising increase in the oil price. Also given both output and inflation drop on the impact period, by the Taylor rule, the interest rate should decline rather than increase.

Third, it is not clear why consumption and investment data is not used in the estimation. The estimation is supposed to select a right model among three models: the baseline, model with no oil in consumption, and model with no oil in production. It is natural to include consumption data for estimation purpose.

Fourth, the variance decomposition can be more informative. Table 5 only includes information on the contribution of shocks to output growth and oil import growth. Other important real variables like consumption, investment and net export are missed.

Finally, the paper assumes that oil shocks and foreign shocks are orthogonal to each other. This assumption may lead to some biased estimation of the importance of different shocks. For example, oil shocks would like to reduce the worldwide output and hence affect Korean export. If so, oil shocks can affect Korean economy also indirectly through foreign demand channel. Assuming oil shocks and foreign shocks are orthogonal hence would underestimate the true impact of oil shocks on the economy.

In conclusion, I think this is an interesting paper. However as I suggested above, there are some issues which require further elaboration.