

ABSTRACT

This paper explores the effects of an oil price shock on Thailand macroeconomy. The framework used in this study is New-Open-Economy-Macroeconomic (NOEM). Additionally, the model introduces the sticky-prices adjustment according to Calvo (1983) in order to capture the ability of firms to set prices of goods. The monetary policy rule is described as simple Taylor rule.

The system of the equilibrium model is solved by using the technique for solving the linear rational expectation model. Based on this technique, the solution of the model provides the system of the vector autoregression that can be used to assess the dynamic responses, in both magnitude and duration, of the endogenous variables to innovations. In this study, it is assumed that there is the only one innovation which is a one-time 10 percent exogenous increase in oil prices.

This study does not attempt to estimate the model. Therefore, the parameters used in this study are based on the relevant economic literature mostly from the Bank of Thailand. In addition, some parameters are calculated from the historical data of Thailand. In regards to the open-economy feature of the model, the parameters for representing the foreign country are taken to match the U.S. data since the U.S. economy is large relative to the world economy and has a large trade account for the Thai economy.

In relating the model to Thailand's economy, we conduct the simulation in which the economy is subjected to an oil price shock, and then compare the predicted standard deviations generated from the model with those from the historical data between 1993Q1-2007Q4. The focused macroeconomic variables are consumption, aggregate demand, inflation, interest rate, energy consumption, capital stocks, real exchange rate and imported goods. Regards to the results, the model cannot replicate the whole business cycle of the Thai economy. The predicted standard deviations of endogenous variables will close to the data only for the consumption, inflation and interest rate. For other endogenous variables; aggregate demand, energy consumption, real exchange rate and imported goods, the predicted standard deviations can not capture the Thai data. Those predicted standard deviations are much higher than those

of the data. In addition, from the comparison of a pairwise correlation matrix, the correlation matrix generated from the model can not match to the one generated from the data. The correlation between variables generated from the model, as broadly stated, predict over-correlation relative to the data. However, the model predicts the direction of correlation between variables consistent to the data for all variables.

In regards to the peculiar results found, the major reasons for the explanation of these peculiar may come from the parameter setting. The next study should be directed at attending to this point. The other aspect that can be taken to account to these peculiar results may be that the sticky prices assumption may not suit in our model.

We also explore the magnitude and duration response of a one-time 10 percent exogenous increase in oil prices on the economics variables through impulse response functions. The results indicate that an oil price shock leads to negative effects on output gap and puts upward pressure on inflation and interest rate. Quantitatively, an oil price shock contracts the output at a maximum level of approximately at 3.0 percent with in fourth to fifth quarter, the inflation rate is put upward approximately at 2.5 percent in the fourth quarter and the interest rate is increased around 2.0 percent.

Finally, experiments with varying value of the persistence coefficient of the oil prices process, the adjustment weight on the past value of aggregate demand and aggregate supply are introduced. The model predicts more severe results relative to the base model when the persistence coefficient of oil prices is lower. The impulse response shape of capital is different from the base model if the model takes the higher values of the weight on the last value of aggregate demand. The model predicts the adverse response from the base model for foreign assets holding and the real exchange rate when the higher weight on the last period value of aggregate supply is experimented.