

RESEARCH SUMMARY

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My job market paper, *Declining Effects of Oil-price Shocks*, addresses the issue that output responses to oil-price shocks tend to be weaker in recent years. A typical perception among policy makers and the general public has been that large increases in the price of oil may cause a prolonged and deep recession since two major oil-price shocks in the 1970's. However, in recent periods, it seems that surges in the price of oil have not yet caused a major recessionary consequence on the US economy. VAR results suggest that, on average, the effect of the oil-price shock has become smaller and peaks earlier than it used to be.

By building a model that incorporates a realistic structure of US petroleum consumption, the paper explores three possible explanations for the observed changes in the US economy in response to the oil-price shock. The first is deregulation in transportation industry, which has started in 1980. Although typical models studying recessionary consequences of oil-price shocks ignore how the US economy consumes oil, this paper argues that it is important to pay special attention to the role of transportation in accounting for the effect of the oil-price shock. It is because the majority of US oil consumption comes from the transportation sector, rather than the industrial sector that typical models have assumed. The second is the contribution of more efficient use of oil, which is apparent in the declining oil expenditure share in GDP. Lastly, the paper also considers the effect of a less persistent oil-price shock. Judging from data, it is clear that movements in the oil price has changed since the mid 1980's. Particularly, they tend to be less persistent compared to the near-unit root nature we have observed up until the mid 1980's.

This paper demonstrates that all three factors are quantitatively equally important. Each factor accounts for 20-25% reductions in the peak response of aggregate value added. Taking all factors together, the model predicts that a 51% reduction in the peak response. The general public as well as policy makers might still hold a view that large increases in the price of oil trigger a deep recession, based on the past experience. However, we expect that large recessionary consequences of oil-price shocks we observed in the 1970's will not be seen again.

Another paper, *The Predictive Power of the Interest Rate for Industry-level TFP: A State-space Approach*, analyzes the predictive power of the interest rate for various industry-level measures of productivity growth. An interesting aspect of the paper is that it deals with data at different frequencies at once. Although industry-level data are typically available annually, other macro variables are available at a higher frequency. By making use of the state-space model and the Kalman filter, it is possible to perform statistical tests at a higher frequency.

The results highlight the heterogeneous nature of predictive power and suggest that the nonexogeneity of the Solow residual reported by Evans (1992) is attributed to manufacturing industries. In addition, two case studies on industries, where an appropriate measure of capital utilization rate is available, show that the forecasting ability of the interest rate diminishes after taking account of variable capital utilization in TFP growth.