

Oil Price Fluctuations and Industrial Production Performance in Japan: A Bayesian Approach

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Abstract

In this paper we examine the dynamic effects of oil price fluctuations on industrial production performance in Japan. To avoid the problems with conventional dynamic models such as difficulties in understanding complex patterns of structural change, we propose applying the Bayesian method based on the smoothness prior approach. Specifically we present a Bayesian dynamic regression modeling approach and a Bayesian time-varying coefficient vector autoregressive modeling approach. Our main results suggest that there are negative correlations between the change in oil prices and the growth of industrial production through most of the period from the late 1950s to the early 2010s. Furthermore, the influence of oil price fluctuations on the performance of industrial production has been increasing since the 2000s.

Keywords: Bayesian modeling; Smoothness prior approach; Time varying coefficient VAR model; Structural change; Oil shock

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