

Time-Varying Sources of Economic Fluctuations in Korea

Won Joong Kim* Chunyan Piao†

Abstract

Using a time-varying parameter (TVP) structural vector autoregression with stochastic volatility, we estimate the GDP dynamics of Korea. Specifically, we estimate the time-varying volatilities from the TVP-VAR analysis and identify three peak periods in the GDP of Korea: 1998:Q1 (the period of Korean Financial Crisis), 2008:Q4 (the period of Global Financial Crisis), and 2020:Q3 (the period of COVID-19 Crisis). Then we compare the impulse responses and the variance decompositions during those periods, together those with the constant parameter (CP) VAR model. The results show that world industrial production, Korea's investment, Korea's export shocks generally have statistically significant and positive effects while Korea's exchange rate rate shock generally has no statistically significant effect on the GDP of Korea in the long run. The variance decomposition from the CP VAR shows that the GDP of Korea is explained by its own shock (41.52%), followed by Korea's investment shock (32.93%), Korea's export shock (15.33%), world industrial production shock (6.59%), and Korea's exchange rate rate shock (3.62%) in the long run. The TVP-VAR analysis shows that, on 1998:Q1, Korea's GDP is affected more by domestic shocks (such as Korea's investment and GDP shocks) than by foreign shocks (such as world industrial production, Korea's export and exchange rate shocks) while both on 2008:Q4 and on 2020:Q3, it is affected more by foreign shocks than domestic shocks. Especially, world industrial production shock has become the predominant sources of fluctuations in the GDP of Korea in 2020:Q3.

Keywords: Korea's GDP, Time-Varying Parameter (TVP) Structural Vector Autoregression, COVID-19, GFC, Financial Crisis of Korea

JEL classification: C11, C15, E32

*First Author. Department of Economics, Konkuk University, Seoul, Republic of Korea. E-mail: wjkim72@konkuk.ac.kr.

†Corresponding Author. Department of Economics, Konkuk University, Seoul, Republic of Korea. E-mail: pcy5614@konkuk.ac.kr.