What drives the recent fluctuations of Japan's output? A structural factor analysis on Japan's industrial productions*

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Abstract

A characteristic feature of the recent fluctuations in Japan's industrial productions (IP) is in the high degree of comovement among sectoral output growth. This suggests that the variations in Japan's output are driven by an aggregate shock which is common across multiple sectors or a sector-specific shock influencing different sectors through production linkages. In this study, to examine the sources of the recent variations in Japan's IP, we apply a method of structural factor analysis developed by Foerster, Sarte, and Watson (2011, JPE). Our data sample includes the large declines in production after the global financial crisis and Great East Japan Earthquake. Through this analysis, we find that the aggregate shock explains a major part of the variations in Japan's IP as a whole, even if we take into account the presence of inter-sectoral production linkages. We also find that the aggregate shock was highly correlated to domestic financial conditions in the 1990s, but became even more closely correlated to foreign economic growth since the beginning of the 2000s. The evidence suggests that the recent variations in Japan's output are largely influenced by world economic conditions, reflecting increased connections between the global economy and Japan's manufacturing activities. However, this does not necessarily mean that production linkages and sectoral shocks are unimportant since these two elements largely contributed to the fall of output growth in the Great East Japan Earthquake period and the recent decline in output levels is partly attributable to negative shocks to some specific sectors.

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