Impacts of China's energy conservation policy on Japan-China Trade: Spatial analysis based on a re-constructed Japan-China multi-regional input-output model

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Author: Zhao Zhao
Co-Authors: Minjun Shi, Xin Zhou

In 2005, the Chinese government set compulsory targets for energy-saving. The national target is a reduction of 20 percent energy consumption per unit of GDP by 2010 based on the level in 2005. The national target is disaggregated into provincial targets which range from 12 - 30 percent of reduction. This policy will have great influences on not only China but also other economies through trade. Among all trade partners of China, Japan is paid great attention because it is one of the most important trade partners of China and vice versa.

The overall impacts of China's energy conservation policy on Japan-China trade are attributable to the impacts at provincial level through both inter-industrial linkage and inter-regional linkage. China has large spatial disparity in terms of both natural endowment and economic growth, which will influence the industrial structure and trade at subnational levels. Therefore to analyze the policy impacts on trade at the provincial level requires an analytical tool which can capture these spatial differences. In this paper, we use a two-country input-output model for China and Japan with disaggregation of China's input-output table into a multi-regional table for thirty provinces to support the analysis.

The following strategies are used to establish such a model: (1) re-construct Japan-China two-country input-output table based on Asian multi-national input-output table; (2) disaggregate China's domestic trade in Japan-China input-output table into inter-provincial trade based on China's inter-provincial input-output table; (3) disaggregate Japan-China trade in Japan-China input-output table into Japan-Chinese provinces trade by using China's Customs statistics. The new table includes Japan and 30 Chinese provinces.

Based on our Japan-China multi-regional input-output model, we analyzed the spatial impacts of China's energy conservation policy on the trade between Japan and China. Our results show that in Japan-China trade, the most influenced sectors are energy sectors, wearing apparel and leather and chemicals. From spatial perspective, the imports of almost all provinces from Japan will decrease and the most influenced provinces are Inner Mongolia, Hubei, Jilin and Henan. However, given the large amount of imports in the coastal areas from Japan, Japan will be affected largely by the changes in coastal provinces in China.