

Constructing a China's provincial multi-year Multi-Regional Input-Output database: 1987-2017

Topic: Input-Output Accounts - II

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China has a large territory and numerous provinces with different resource endowments, locational conditions, and development foundations. On the one hand, the large variances mean that when investigating issues about China, not only the nation-wide but also the provincial analysis should be involved. On the other hand, these variances lead to a large amount of interprovincial trade and a complex trade network. It is necessary to take the role of trade into consideration when analyzing the economy-related issues. As an efficient method to describe the economic links between regions, the Multi-Regional Input-Output (MRIO) model has been widely used to analyze the economy-related issues, such as carbon emission, pollutions, resources, value-added, etc. However, as China's nation-wide data have been well developed, the regional data are still fragmental. There is a lack of regional MRIO database of a long time span constructed with consistent methods, especially at the provincial level.

To fill this gap, this study aims to construct a China's provincial multi-year MRIO database with the principles of keeping reliable information as much as possible, following the "bottom-up" method, using the National Account data as a benchmark, and having no entrepreneurship. We collect Chinese provincial Single-Regional Input-Output (SRIO) tables for 1987, 1992, 1997, 2002, 2007, 2012, and 2017, and reconstruct the data of international trade and domestic trade for each province in the provincial SRIO tables using the customs data. The method of minimizing cross entropy and gravity model are then used to estimate the interprovincial trade flows based on the railway transportation data of goods, as well as several other datasets. With all these information, based on the Chenery-Moses model, we finally build a multi-year MRIO database of the mainland China covering 31 provinces and 42 sectors. We also analyze the characteristics of Chinese provincial economy from 1987 to 2017 using multipliers based on the MRIO database as an example of application.

This study constructs a Chinese provincial MRIO database with consistent methods throughout the years, covering the longest time span when China's provincial SRIO tables available. The database provides a foundation for studies about China's economy-related issues at the provincial level, such as the domestic and global value chains, inter-regional emission flows, regional coordinated development, and related regional policy researches, etc.