

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

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Unlike small-sized countries, 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 a consistent and complete regional MRIO database with a long time span, 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 no entrepreneurship. We collect Chinese provincial Single-Regional Input-Output (SRIO) tables for 1992, 1997, 2002, 2007, and 2012, and reconstruct the data of international trade and domestic trade for each province in the provincial SRIO tables using the customs data. We then use the method of minimizing cross entropy and gravity model to estimate 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 30 provinces (except for Tibet due to data limitation) and 33 sectors. We also analyze the characteristics of Chinese provincial economy from 1992 to 2012 by multipliers based on the MRIO database we build. This database provides a consistent and complete foundation of the provincial data for studies about China's economy-related issues.