



国家信息中心
State Information Center

An Introduction of SIC and Chinese Data for Estimating Productivity at Industry Level

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July 23 2007, Japan

Outline

- ✓ An introduction of the Department of Economic Forecasting at State Information Center (SIC)
- ✓ An introduction of Chinese Data for Estimating Productivity at Industry Level

The Department of Economic Forecasting at SIC

- ✓ One of the major economic research institutes of Chinese Government, especially in quantitative analysis.
- ✓ our major works include economic forecasting and policy analysis; economic model building
- ✓ We have good cooperation with many Chinese research institutes as well as foreign institutes, for example, Institute of Developing Economies (IDE-JETRO), University of Maryland, Monash University.

Those working experiences having close relationship with EU KLEMS Project

1. Input-output analysis
2. Multi-Sectoral Dynamic Model
3. Growth accounting and production function
4. CGE

Input-output analysis

- ✓ In 1982, according to the System of Material Product balances (MPS), SIC and National Bureau of Statistics (both belonging to the Development and Reform Commission (NDRC) at that time) finished China's first I/O table.
- ✓ 1988-1992, SIC and IDE-JETRO finished the China-Japan Transnational Interregional I/O Table (1985), which is China's first international I/O Table.
- ✓ In 1990's, SIC and IDE-JETRO finished the Chinese I/O Table (1990), China-Japan Transnational Interregional I/O Table (1990) and etc.

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✓ 2001-2003, SIC and IDE-JETRO together finished the Multi-Regional Input-Output Table for China (2000).

✓ SIC has used I/O analysis to do studies in many fields, such as the impact of Olympics on Beijing's economy, economic-environmental analysis in China, energy demand forecasting, inter-regional trades, labor migration and poverty reduction and etc.

Multi-Sectoral Dynamic Model

- ✓ Multi-Sector Dynamic Model is an inter-industry macroeconomic model developed by Clapper Almon at the University of Maryland.
- ✓ It is a macroeconomic model with sectoral details, and is actually a two-model model, including a macro model and an I/O model.
- ✓ The macro model is used to generate the aggregate totals of final demand components. The behavior of these aggregate totals is then used to control the movement of the final demand vectors in the I/O model. So it is dynamic.

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- ✓ SIC developed Chinese Macroeconomic Inter-industry Model in 2004. This is a 40-sector model, and its database have a lot of useful information about prices, production, financial demand and etc.
- ✓ This model is used for IMF's test of China's economic stability, the studies of China's fiscal policy and etc.

Growth accounting and production function

- ✓ In order to help NDRC to make the “5-year-plan”, SIC has done a lot of research on production function at national level.
- ✓ At SIC, usually only two inputs, labor and capital, are considered. Output is measured by GDP. And the existed productions are aimed to estimate MFP and potential GDP growth rate.
- ✓ At industry level, in 2005, SIC explored the productivity of ICT industry as well as the impact of ICT industry on China’s whole economy.

CGE

✓ SIC are cooperating with Monash University to build the Chinese Inter-regional CGE Model now.

Data for productivity estimation at industry level in China

1. Input-output tables
2. Gross output
3. Capital
4. Labor
5. Energy, materials and service

Input-output tables

- ✓ From 1987, National Bureau of Statistics published I/O tables every 5 years, therefore there are 4 benchmark tables for 1987, 1992, 1997 and 2002.
- ✓ The 1987 I/O table has 118 sectors, 1992 I/O table has 119 sectors, the 1997 I/O table has 124 sectors, and newly published 2002 I/O table has 122 sectors.
- ✓ For 1990, 1995 and 2000, there are extension tables, only have 33 sectors.

2002 Input-output table

- ✓ 2002 Input-output table of China includes 122 sectors, of which there are 6 sectors for agriculture, 6 sectors for mining, 71 sectors for manufacturing, 1 sector for scrap and waste, 3 sectors for electricity, gas and water production and supply, 1 sector for construction, 9 sectors for transport and warehouse, 1 sector for post, 1 sector for wholesale and retail trade services, 1 sector for food serving services, and 22 sectors for other service.
- ✓ Along with the 122-commodity by 122-commodity I/O table, there are Use table with 42-commodity by 42-industry and Supply table with 42-commodity by 42-industry

Gross output

- ✓ The only source to get the gross output data at industry level is I/O table.
- ✓ Value-added data are available from Statistics Year Book and other publications.

Capital

- ✓ There is no official capital stock data in China. In Chinese Statistics Yearbook and other publications, only original value of fixed assets and net value of fixed assets are reported.
- ✓ Perpetual Inventory Method (PIM) is widely used to calculate the capital stocks in China.
- ✓ The National Bureau of Statistics provided the series of investment in fixed assets data after 1952. However, such data do not cover all enterprises, for example, since 1997, only projects with investment value higher than 500 thousand RMB yuan are covered in the statistics. In practice, people should revise such data to cover the whole economy.

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- ✓ There are many studies about China's capital stocks, but the results of these studies are quite different. For example, at national level, Chow and Li (2002) calculated the whole capital stock for China is 14,112 billion RMB yuan at the end of 1978, but according to Zhu (2004) it is only 12,315 billion yuan.
- ✓ The initial capital stocks at industry level are hard to know, so it is common to assume the initial capital to be zero.
- ✓ In practice, straight-line depreciation and geometric depreciation are both used in PIM.

Labor

- ✓ China's published labor statistics could provide labor inputs for 16 sectors. However, the educational attainment, gender and age of labor force at industry level are hard to know.
- ✓ Since the 1980's, the rural to urban migration increased greatly, but statistics about migrant workers, especially the unskilled, is quite poor. And a lot of unskilled migrant rural people employed in service sectors are not calculated in labor force statistics.
- ✓ The Census on Second Industry in China (1950, 1985 and 1993), the Census on Tertiary Industry in China (1995) and the National Economic Census (2004) can provide data for estimating each industry's labor

Energy, materials and service

- ✓ The decomposing of intermediate inputs is according to I/O table.

Plans for building Chinese productivity database

- ✓ Know more about EUKLEMS;
- ✓ Help from experts of EUKLEMS
- ✓ Find out useful information from our existed database;
- ✓ Have to rely heavily on National Bureau of Statistics of China to provide detailed data;
- ✓ Hardworking