

The Evolution and Issues of I-O Table Compilation during Economy Transformation in China

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There is an explored and developmental process of compiling input-output table in China. The contents in this paper mainly divide into four parts. The first part is some reviews on the course of compiling input-output table in China. The second part introduces input-output survey in China connect with the survey 2007 which is carrying through now. The third part mainly introduces the method so-called direct decomposed used in compiling China input-output table. The fourth part introduces some challenges and conceives in the compiling of input-output table.

? .Reviews the course of compiling input-output table in China

1. Experimentation stage

The input-output technology introduced into China during the end of 1950's and the beginning of 1960's. At that time the focal point is on its application of economy analysis for the influence of economy system. So we pay more attention on the compilation of symmetric input-output table.

In August 1974, the first national input-output table was compiled, it is *physical input-output table 1973*, and this table includes 61 physical commodities.

Since then, input-output table 1981 in value and physical type were compiled, and also include input-output table 1983 which base on some assumption of table 1981.

2. Entire implement stage

In March 1987, the General Office of State Council issued *the circular on the conducting of the national input-output survey*, decided to have the first national input-output survey then compiled input-output table 1987, and would take the survey every five years since then.

The table 1987 were differ in many ways to the tables in former years, it not only includes sphere of material production but also non-material production. It was neither MPS style nor SNA system input-output table, and just was a transition table. But it's a helpful explored on compiling SNA mode table; also accumulate experience on compiling SNA mode table and the conversion from national income estimation to

GDP account.

3. Arrange in routine statistical job

From China benchmark input-output table 1987, the job on compiling input-output table in China entered into a regular course, NBS compile benchmark table every 5 years, and between benchmark years we select middle year to compile the annual table. Up to now we also had compiled benchmark tables in 1992, 1997 and 2002 besides 1987, and some annual tables in year 1990, 1995, 2000 and 2005. Table 1 lists some information on these tables.

Table 1 some information on input-output tables since 1987

Year	Type of the Table	Number of Commodity Sectors	Criterion of Industry Classification
1987	Benchmark table	118	(GB/T 4754-84)
1990	Annual table	33	(GB/T 4754-84)
1992 ¹	Benchmark table	119	(GB/T 4754-84)
1995	Annual table	33	(GB/T 4754-84)
1997	Benchmark table	124	(GB/T 4754-1994)
2000	Annual table	40	(GB/T 4754-1994)
2002	Benchmark table	122	(GB/T 4754-2002)
2005	Annual table	42	(GB/T 4754-2002)

? .Some jobs on input-output survey

As it mention before, it would take input-output survey every five years since 1987, investigate intermediate input information, invest information and so on, and involved data collection various. 2007 is fifth benchmark year since 1987; we had finished design of *input-output survey project 2007*, and we will introduce input-output survey couple with the *project 2007*.

Since in normal statistic, it can't collect data by establishment and the basic

¹ In the year 1992,we also compiled physical input-output table include 151 material productions.

statistical unit is enterprise, the object of input-output survey would be enterprise too.

1. Survey mode and method

In 2007, it will take tradition way of input-output survey, utilize the mode of conjoint of local statistical office and the related manage ministry. Some economy activity were controlled by the state and their production activity across the district regions, such as railway and post, their survey will separate be in charge by Ministry of Railway and State Post Bureau, and they feel back the data of provinces individual. Other survey will charge by statistical office, includes composing of fixed-asset investment, and the survey on industry sector, construction sector, service industry exclude railway and post industry, and representative survey.

Ponder the cost, effect and the workload, national input-output survey 2007 will conjoint the method of entirely survey, sample survey and representative survey. It will take entirely survey for large-sized industrial enterprise above designated size, sample survey for other enterprise. There are some reasons for the large-sized industrial enterprise to take entirely survey, first their total output level take a high proportion in all industrial enterprise and second they have better manage situation on finance record, ability of statisticians and accountants good enough to complete survey forms more integrity and nicety. Survey on transport margin, traveling expenses, administrative expenses etc., that need check vast original finance records, in order to reduce the workload, we choose representative survey.

2. Main contents of *input-output survey project 2007* and its change

(1). Survey forms to the enterprise

In the project 2007, Survey forms to the enterprise are the most important composition, and it has 52 survey forms by industries. They deal with input composing of manufacturing, construction industry and service industry, when enterprises of these sectors produce product or supply service; and also survey on structure of several composite indexes in period costs, such as transport fee and traveling expenses etc., and fix-asset investment composing.

In the project 2007, we add survey forms on some items of inflow and outflow information among provinces, and eight survey forms on service industry compare to the project 2002. To meet the demand of decomposes some synthesis index in the period cost; we add some representative surveys about packaging cost and R&D charge etc.

At the same time, we adjust survey forms for medium-sized industrial enterprise.

In 2003, NBS issued a circular on *Partition of Large, Medium and Small Enterprise in Statistics*, and enhanced the standard of medium-sized enterprise, and many enterprises which belong to large-sized in the past incorporated into medium-sized. In the input-output survey 2007, we require the medium-sized enterprise to fill the same survey form with large-sized enterprise.

(2).Classification of commodity sectors in input-output table

In input-output table 2007, the classification of commodity sectors will be constituted according to *classification of national industry* (GB/T 4754-2002), and include 144 commodity sectors, increase 22 sectors compare to 2002; in the secondary industry, it increase 10 sectors and tertiary industry increase 12 sectors.

(3).Use list of raw material for industry sectors and construction sectors

In the project of 2007, we add the use list of raw material for industry sectors and construction sectors to reflect all goods consume during the process of manufacture, such as raw material, fuel and power. We nominate them as *use list for industrial enterprise* and *use list for construction enterprise*, and they separately include 95 commodity groups and 39 commodities, and 85 commodity groups and 27 commodities. The purpose to set these use lists: (a) meet the demands of reform in compiling PPI of manufacture production, (b) also a try on the condition of compiling use table by the commodity flows method.

(4). Vary in input-output survey to industry sector

NBS will develop cost and fee survey of over-level industry enterprise in annual industry survey from 2007. To avoid overlap, input-output survey in 2007 for industrial enterprise above designated size will just focus on manufacture cost but no involved in period fee of the enterprise. We can get those information from industry annual survey when compile input-output table 2007.

? . The method so-called direct decomposed used in compiling China input-output table

The 1993 SNA recommends that the statistical supply and use tables should serve as the foundation from which the analytical input-output tables (include symmetric products table and symmetric industry table) are constructed. Many countries are follow the methods recommend in 1993 SNA.

In China we compile supply table, and use the method of direct decomposed to compile symmetric products table, then construct use table in certain analytical

assumptions. The following lists the brief procedure of compiling input-output table in China:

- (a) Collect information from normal statistic and other source then calculate total output for all commodity sectors.
- (b) Estimate value-added base on income approach for all commodity sectors base on the information from input-output survey and national accounts.
- (c) Calculate final demand and its composition for all commodity sectors base on the information from various source.
- (d) Calculate intermediate input for all commodity sectors with survey data.
- (e) Amend the data in the primary table through the data or information from various source, and equilibrium the total use and output for all commodity sectors.
- (f) Deduct margin and transport fee, then get the input-output table at producer price.

The method of direct decomposed mainly represent in the step calculate intermediate input for all commodity sectors with survey data. As it mention before, the normal statistic and the input-output survey are collect data by enterprise, and most enterprise especially manufacture enterprise usually product various productions, and its productions involved in different sectors. Gross industrial output value estimate by 'factory method', which only calculate the total value of production have sold and could be sold, and do not include the value of intermediate production which product for own use.

To obtain the composition of manufacturing cost in different input-output sectors, the enterprise which productions overlap across various sectors should fill composition of manufacturing cost by input-output sectors in survey form according to their finance, statistic and business operation data. At the same time, intermediate production which product for own use should be decomposed by cost then revert to all goods purchase from other enterprise, and assign them to relative input-output sectors. If the basic statistical unit can't transfer from enterprise to establishment that would be difficult to alter the method now we used in compiling input-output table.

? . Correlative challenge and prospect

1. Some issues and challenges

In current market economy situation, enterprise would not like to assume

decomposition the cost and fee by sectors for the volumes workload, and the will of cooperation are lower. NBS should adjust the method we used now and phase in the method recommend in 1993 SNA. But we must adjust normal statistic survey first; at least we face four challenges as follow:

- (a) Basic statistical unit must transfer from enterprise to establishment.
- (b) The commodity classification should be established and provide relevant data.
- (c) The statistical on industrial value volume and physical volume need to be assorted with. At the present, gross industrial output value include the total value of production have sold and could be sold, but only some major manufacture on physical volume, and their classification of the manufacture isn't integrated.
- (d) The data on service industry are not complete, especial scarcity on output and cost and fee.

For these reasons we can not use method of commodity flows to compile input-output table at present time.

2. Correlative prospect on improving our job

For the transform of economy system, the traditional method on compiling input-output table is confronted with many difficulties. We are taking it into account to compile supply table and use table with commodity flows method.

First we will provide some advice on statistical reforms aim at the issues we mention before. During the course of reform, we investigate the method to compile supply and use table. In the circumstance that data source would meet the demand, we will change our method.

In 2008, China will take the second economy census. Around 2009, we conceive to take a transition method to calculate an input-output table on the year 2008 base on the data from input-output survey 2007, the information from 2008 census and also input-output table 2007; maybe partly use the commodity flows.

In other side, we will focus more on how to exert the framework function of input-output table in national accounts beside its appliance in economy analyze, then search for a way to establish the framework on supply-use table.