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Quarterly GDP Estimation in China

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Summary

This paper briefly introduces the industrial classification, data sources, compilation methods, accounting and release procedure of quarterly GDP estimation in China and some aspects to be improved in the future.

China's quarterly GDP estimation was formally established in 1992. Afterwards, following the development of SNA in China, quarterly GDP is successively standardized and improved in accounting classification, compilation methods and accounting procedure. Quarterly GDP estimation of China is on a cumulative base and quarterly GDP by expenditure approach is still being on trail, so this paper will focus on cumulative quarterly GDP compilation by production approach.

I. Industrial Classification

According to the Industrial Classification & Codes of National Economy (GB/T 4754-2002) of China and the data availability, three

levels industrial classification have been used in quarterly GDP Estimates. One-digit category follows Three Industries Division Regulation directly, which was established by NBS in 2003, but the tertiary industry does not include International Organizations. Two-digit category is basically equal with GB/T 4754-2002 at Two-digit category (section level). Three-digit category is basically equal with GB/T 4754-2002 at division level. However, due to the restrictions on data sources, Agriculture, Forestry, Animals husbandry and Fishery, Industry, Construction, Scientific Research, Technical Service and Geologic Prospecting, Management of Water Conservancy, Environment and Public Facilities, Health, Social Security and Social Welfare, Culture, Sports and Entertainment have not been subdivided into division level but estimated at section level. Therefore, quarterly GDP is measured by 35 industries (see Annex attached).

II. Data Sources

Data which used in quarterly GDP estimates are mainly derived from statistical survey data in NBS and administrative records in other government departments. Statistical survey data in NBS include survey on Agriculture, Forestry, Animal Husbandry and Fishing, Industry, Construction, Wholesale and Retail Trade, Hotels and Catering Services, Real Estate, some service industries and survey on labor force and salaries, price, household, etc. Administrative records refer to the data

from Ministry of Finance, Administration of Taxation, People's Bank of China, China Insurance Regulatory Commission, China Securities Regulatory Commission, Administration for Industry & Commerce, Ministry of Civil Affairs, etc.

III. Measurement of Value-Added by Industries

For quarterly GDP, depending on availability of source data, different methods are used in different industries. For the calculation sequence, some industries calculate current price value firstly, and then get constant price value; some estimate vice versa.

1.Value-added at current price

Basically we adopt two kinds of methods in calculating value-added at current price.

(1)Value-added Ratio method, i.e. Value-added=Gross output × Value-added Ratio

As to this method, value-added ratio is usually determined by the annual result of last year and the production situation of the reference quarter. We use this method to calculate the value-added of Agriculture, Forestry, Animals husbandry and Fishery, Industry and Construction at current price.

(2) Extrapolation method, i.e. Value-added=Value-added of previous period × Extrapolative indicator

As to this method, we first calculate the growth rate of reference

indicator which can describe the real development of related industries, and then adjust it according to the relationship between the growth rate of value-added and the growth rate of reference indicator in the previous year, finally we can get the value-added by extrapolation. Reference indicators include total sale of wholesale and retail trades, operating revenue, turnover tax, labor compensation, deposits and loans, turnover of stocks and funds, premium revenue, etc. We use this method to calculate the value-added of the service industries.

2.Value-added at constant price

The constant-price estimation is in the form of fixed-base system, not using the chain-linking method. The base year for 1992-2000 is 1990, for 2000-2005 is 2000, for 2005-now is 2005. Basically we adopt two kinds of methods in calculating value-added at constant price.

(1) Extrapolation method, i.e. Value-added at constant price =Value-added of previous period at constant price × Extrapolative volume indicator

Extrapolative volume indicators include total turnover volume of freight transport, total passenger kilometers, business volume of postal and telecommunication services, floor space sold of commercial buildings, etc. We use this method to calculate the constant-price value-added of Transport Via Railway, Transport Via Road, Water Transport, Air Transport, Post, Telecom & Other Information

Transmission Services, Development and Management of Real Estate and Agency Services for Real Estate, Owner Occupied Dwellings Services, etc.

(2)Deflation method

We mainly adopt single deflation method, i.e. Value-added at constant price = Value-added at current price ÷ Deflator.

Deflators include producer price indices for farm products, producer price index for manufactured goods, price indices of construction and installation, consumer price indices, retail price indices, price indices of some service items, etc. We use this method to calculate the constant-price value-added of Agriculture, Forestry, Animals husbandry and Fishery, Industry , Construction and some service industries.

IV. Accounting and release procedure

In the aspect of accounting and release procedure, a series of standardized systems are established. After approved from the State Council in 2003, the three steps of accounting procedure in sequence are settled up, which are preliminary accounting, preliminary revision and final revision. The preliminary accounting results are released in 15 days or so after the end of the reference quarter. The preliminary revision is done after the preliminary revision of annual GDP has finished and then the quarterly GDP is benchmarked to the preliminary revision results of annual GDP. The final revision is done after the final revision of annual

GDP has finished and then the quarterly GDP is benchmarked to the final revision results of annual GDP. In addition to the above accounting procedures, when the annual historical GDP data are revised due to the new source data discovered from the economic census or the significant change of calculation methods and classification standards, the quarterly should also be benchmarked to the revised annual data.

V. Some Aspects to be improved

To improve quarterly GDP estimation in China following aspects need to be improved:

1. Industrial classification in quarterly GDP estimates should be more detailed

When the quarterly GDP estimation was formally established in 1992, industrial classification in quarterly GDP estimates was only divided into 8 industrial sectors. Now it can be divided into 35 sectors because of more data sources obtained. However, compared to some other countries, industrial classification in quarterly GDP estimates is not detailed enough in china. Each industry in quarterly GDP estimation may contain many different kinds of production activities, so it is difficult to choose an appropriate reference indicator which can describe the real development of this industry. So the industrial classification in quarterly GDP estimates should be more detailed and then we can choose more representative reference indicator to improve the overall quality of the

estimation.

2. Establish discrete quarterly GDP estimation

Due to the limitation in source data, Quarterly GDP estimation of China is cumulative quarterly accounting, that is, calculate the data for first quarter, half year, first to third quarter and the whole year. Discrete quarterly data is not available now. So the growth rate of China's quarterly GDP in only in the form of year-to-year rather than period-to-period. Compared to the cumulative data, the discrete quarterly data can better reflect the economic trends and is helpful for identifying the turning points of the business cycle at an early stage. So with the help of domestic and international experts, we are now doing some research on discrete quarterly estimation. In order to establish discrete quarterly GDP estimation in China, we should improve our basic statistics and establish corresponding discrete quarterly statistics for each industry.

3. Establish formal quarterly GDP estimation by expenditure approach

Quarterly GDP by expenditure approach in China has been studied since 2000 and is still being on trail, so we have not published any formal quarterly expenditure GDP estimates. The result of tentative quarterly GDP estimation by expenditure approach has not been satisfied due to insufficiency of source data and inconsistency between production and expenditure results. We will further investigate the source data to select

proper source data for estimation, and further improve existing tentative estimation scheme, enhance accuracy of estimation result, and establish formal estimation scheme by expenditure approach.

4. Make use of administrative records of all the departments and improve the data quality

Although statistic departments have much detailed statistical survey data, we should still make use of administrative records of all the departments and institutions in quarterly national accounts. Use of the administrative records not only can reduce costs, but it also can review the data quality of estimated indicators from the other sides. Though the other administrative departments have a large number of administrative records in china, resource sharing is still in low level. We should do a lot of work to integrate the administrative records resources of all the departments under its responsibility. We should also make use of those administrative records as much as possible in GDP estimates, and review the data quality from the other sides.

Table1   Industrial Classification in China's Quarterly GDP Estimation

One-digit categories	Two-digit categories	Three-digit categories
Primary industry	Agriculture, Forestry, Animals husbandry and Fishery	
Secondary industry	Industry	
	Construction	
Tertiary industry	Traffic, Transport, Storage and Post	Transport Via Railway Transport Via Road Urban Public Traffic Water Transport Air Transport Transport Via Pipeline Loading, Unloading, Portage and Other Transport Services Storage Post
	Information Transmission, Computer Services and Software	Telecom & Other Information Transmission Services Computer Services Software Industry
	Wholesale and Retail Trades	Wholesale Trade Retail Trade
	Hotels and Catering Services	Hotels Catering Services
	Financial Intermediation	Bank and Other Financial Activities Security Activities Insurance
	Real Estate	Development and Management of Real Estate and Agency Services for Real Estate Property Management and Other Real Estate Activities Owner Occupied Dwellings Services
	Leasing and Business Services	Leasing Business Services

	Scientific Research, Technical Service and Geologic Prospecting	
	Management of Water Conservancy, Environment and Public Facilities	
	Services to Households and Other Services	Services to Households Other Services
	Education	Education
	Health, Social Security and Social Welfare	
	Culture, Sports and Entertainment	
	Public Management and Social Organization	Public Management and Social Organization