The Development, Reform and Challenge of China's National Accounts

XU Xianchun[1]

Abstract

This paper reviews the establishment and development of China's National Accounts from the initial stage of reform and opening-up until the first Economic Census. This review includes the establishment and development of GDP estimation, Input-Output tables, institutional sector accounts and balance sheets. This paper describes a number of the reforms of China's national accounts during the period of the Economic Census and their new developments after the Economic Census. It discusses the problems and challenge of China's current National Accounts. The blueprint for further reform and development of China's National Accounts is drafted.

Keywords: National Accounts, Development, Reform, Challenge

[1] Work unit of author：National Bureau of Statistics of China；E-mail：xuxc@stats.gov.cn；Address for contact： No.57 Yuetan Nanjie, Sanlihe, Xicheng District, Beijing, 100826, China.

The Development, Reform and Challenge of China's National Accounts

I. Establishment and development of China's national accounts prior to the Economic Census

From the beginning years of the foundation of the People's Republic of China to the initial stage of reform and opening-up, which went from 1950s to the mid 1980s, China's National Accounts were compiled based on the Material Product System (MPS). The MPS was created by the former Soviet Union and Eastern European countries which were characterized by a highly centralized planned economy; from the mid 1980s to early 1990s, China's National Accounts gradually introduced the System of National Accounts (SNA) created by the market economy countries, but estimates based on the MPS were still produced; from early 1990s to present, the SNA, instead of the MPS, was adopted as the official accounting system in China. Now, China's National Accounts include Gross Domestic Product (GDP), Input-Output Tables, Institutional Sector Accounts, and Balance Sheet.

(I) GDP Estimation

1. Establishment and development of GDP estimation

From the beginning years of the foundation of the People's Republic of China to the initial stage of reform and opening-up, the core indicator of China's National Accounts was National Income in line with the MPS. This indicator reflected the production activity of material product industries, such as Agriculture, Industry, Construction, Commerce, and Transportation, but did not reflect the production activity of non-material service industries.

After the reform and opening-up, the non-material service industries, such as Finance and Insurance, Real Estate, Education and so on, have experienced fast development and had an increasing impact on the national economy. Macroeconomic policy makers needed information to set up appropriate policies to insure the healthy development of non-material service industries in coordination with other industries. Therefore, in response to the needs of macroeconomic analysis and management, the National Bureau of Statistics (NBS) started to carry out an annual production-based GDP estimation in 1985, an annual expenditure-based GDP estimation in 1989 and quarterly production-based GDP estimation in 1992.

For the purpose of macroeconomic analysis and management, the NBS extrapolated the 1952-1984 production-based GDP and expenditure-based GDP historical data using the historical data of previous MPS National Income and other related indicators obtained during the late 1980s and the early 1990s.

In order to fill out the gap of data sources needed for estimating value-added in service industries, the NBS conducted the first Tertiary Industry Census in 1991 and 1992. In order to maintain the comparability of historical data, the NBS made in 1995 a comprehensive revision of GDP historical time series, from 1978 to 1990, benchmarked on the results of this census.

In order to improve GDP estimation and its data quality, the NBS kept on standardizing data sources for and methodologies of GDP estimation in practice. In order to establish a summary of the practices and methodologies used, the NBS published *Methods of Annual GDP Estimation in China* (Department of National Accounts, 1997a) and *Methods of Quarterly GDP Estimation in China* (Department of National Accounts, 1997b) in 1997 and the NBS also compiled and published *Manual of GDP Estimation in China* (Department of National Accounts, 2001) in 2001.

In 2003, the NBS decided on a three stage procedure for annual and quarterly GDP estimation: "preliminary estimation", "first revision" and "final revision". The NBS also decided that related data should be systematically published at the same time as the GDP release，and methodological notes should be published when necessary. (NBS, 2003a)

In 2003, the State Council decided to establish a system of periodic economic census, i.e. carrying out an economic census every 5 years-- years of the 3rd and the 8th year of a decade (State Council, 2003). In the same year, the NBS also decided to establish a formal revision system for GDP historical data that requires revising GDP historical data when new basic data sources arise or methodology and basic classification are changed during each census on economic fields. (NBS, 2003a)

2. Basic classification, main data sources and basic methods of GDP estimation

(1) Basic classification

Before the first Economic Census in 2004, annual production-based GDP was broken down into 16 industries, which were Agriculture; Industry; Construction; Service Activities for Agriculture; Geological Prospecting and Water Conservancy; Transportation and Storage; Post and Communication; Wholesale, Retail Trade and Restaurants; Finance and Insurance; Real Estate; Social Service; Health, Sport and Social Welfare; Education, Culture and Broadcasting, Movies, Television; Scientific Research and Technological Services; Public Administration and Social Organizations; and Other.

Quarterly production-based GDP was estimated and broken down into 8 industries, which were Agriculture; Industry; Construction; Transportation, Storage, Post and Communication; Wholesale, Retail Trade and Restaurants; Finance and Insurance; Real Estate; and Other Services.

Annual expenditure-based GDP was broken down into final consumption expenditure, gross capital formation, and net exports of goods and services. Then, final consumption expenditure was divided into household consumption expenditure and government consumption expenditure; gross capital formation was divided into gross fixed capital formation and change in inventories; net exports of goods and services were divided into exports of goods and services and imports of goods and services, and household consumption expenditure was further divided into rural household consumption expenditure and urban household consumption expenditure.

(2) Main data sources

The main data sources for GDP estimation in China are as follows: First, statistical sources, including data from the NBS and other data from related ministries of the State Council. Second, administrative sources, including final fiscal statements, industrial and commercial registration data, etc. Third, financial statements sources including financial statements for bank, insurance, aviation, railway, post and communication. Statistical sources originating from the NBS are the main sources: they include statistics on Agriculture, Industry, Construction, Wholesale, Retail Trade and Restaurants, Fixed Assets Investment, Compensation of Employees, Price, Household Survey, etc. The data from related ministries of the State Council mainly include Statistics of Communication and Transport, Statistics of Customs, Statistics of Balance of Payment and so on. The following paragraphs focus on data sources from the NBS.

Statistics on Agriculture cover gross output and intermediate inputs. Statistics on Industry cover production, sales and financial status of Industrial enterprises above a cut-off level[2], and the main economic indicators for both Industrial enterprises below a cut-off level[3] and for individual businesses of Industry. Statistics on Construction cover production and financial status of construction enterprises that have an official qualification[4]. Statistics on Wholesale, Retail Trade and Restaurants cover the financial information of wholesale, retail trade and restaurants enterprises above a cut-off level[5]. Statistics on Fixed Assets Investment refers to total investment in fixed

[2] Industrial enterprises above a cut-off level consist of all state-owned enterprises plus other enterprises with annual sales of five million Yuan and above. From 2006 on, instead they refer to all incorporated industrial enterprises with annual principal operating income above five million Yuan.

[3] Industrial enterprises below a cut-off level consist of all non-state owned enterprises with annual sales less than five million Yuan. From 2006 on, instead they refer to all incorporated industrial enterprises with annual principal operating income under five million Yuan.

[4] Construction enterprises that have an official qualification consist of all construction enterprises satisfying with the *Technical Capability Grade of Construction Enterprises* jointly formulated by Ministry of Construction and other related ministries.

[5] Wholesale, retail trade and restaurants enterprises above a cut-off level consist of all enterprises above a cut-off level in wholesale, retail trade and restaurants. Enterprises above a cut-off level in wholesale trade

assets, which include construction and installation, purchase of equipment and instruments, and others. Statistics on compensation of employees refers to employment wages by industry. Statistics on prices refers to producers' price indices for farm products, agricultural production means price indices, ex-factory price indices of Industrial products, retail price indices, consumer price indices, price indices of investment in fixed assets, selling price indices of houses, and renting price indices of houses. Statistics on Household Survey refers to consumption expenditure obtained through the urban and rural household surveys.

The regular statistics of the NBS are mainly based on comprehensive reporting and sample surveys. For example, statistics on production, sale and financial status of Industrial enterprises above a cut-off level, statistics on production and financial status of construction enterprises with an official qualification, and statistics on financial status of wholesale, retail trade and restaurants enterprises above a cut-off level are based on comprehensive reporting. Staff from these enterprises fills out uniform reporting forms designed by the NBS and submit them to the county level statistical bureaus. After recording them digitally, the county level statistical bureaus transfer these data to the NBS and provincial bureaus of statistics directly. Statistics on main economic indicators of Industrial enterprises below a cut-off level and individual businesses of Industry, statistics on prices, and statistics on household survey are based on sample surveys. Statistics on yield of major farm crops and intermediate consumption of major farm crops used for calculating gross output and intermediate input of Agriculture, and statistics on farm crops' prices are also based on sample surveys. The NBS uses a harmonized methodology and questionnaires for these sample surveys. Local survey organizations under the NBS or local bureaus of statistics send sample survey investigators or assistant investigators to conduct the survey for selected enterprises, individual businesses and households. The national data may either be estimated directly by NBS based on the samples or derived by aggregating the sample-based extrapolated estimates made by the local bureaus of statistics or local survey organizations at provincial level. (NBS, 2003b)

(3) Basic estimation methods

Annual production-based GDP and expenditure-based GDP in China are estimated at current prices and constant prices. Current prices estimation uses prices of the current period, while constant prices estimation uses prices of a fixed base year. Before 2000, the fixed base year was updated every 10 years: for example, 1980 is the base year for the period from 1981 to 1990 and 1990 is the base year for the period from 1991 to 2000. After 2000, the fixed base year is updated every 5 years: 2000 is the base year for the period from 2000 to 2005 and 2005 is the base year for the period from 2006 to 2010. The following section introduces these basic estimation methods which were adopted before the 2004 Economic Census.

---

consist of enterprises with 20 or more workers and with annual sales of 20 million Yuan or more. Enterprises above a cut-off level in retail trade consist of enterprises with 60 or more workers and with annual sales of 5 million Yuan or more. Enterprises above a cut-off level in restaurants consist of enterprises with 40 or more workers and with annual sales of 2 million Yuan or more.

1) Production-based GDP estimation at current prices

The production-based GDP at current prices is the sum of value-added by industries. Value-added by industry can be estimated using either the production approach or the income approach. The production approach consists of subtracting intermediate consumption from gross output to obtain value-added. The formula is as follows:

Value-added by production approach = gross output – intermediate consumption

The income approach consists of adding up the components of value-added, such as compensation of employees, net taxes on production, depreciation of fixed assets and operating surplus. The formula is as follows:

Value-added by income approach= compensation of employees + net taxes on production + depreciation of fixed assets + operating surplus

Before the 2004 Economic Census, a mixed approach combining the production approach and the income approach was used: value-added of Agriculture and Industry was estimated using the production approach, while that of other industries was estimated using the income approach.

2) Production-based GDP estimation at constant prices

Production-based GDP estimation at constant prices is the sum of value-added at constant prices by industries. The estimation of value-added at constant prices by industries includes three basic methods: base year price valuation, price index deflation and volume index extrapolation. Base year price valuation revalues the current quantity using the base year prices (multiplying base year prices with the current quantity of various products). Price index deflation includes double deflation and single deflation. Double deflation means that both gross output and intermediate input at current prices are deflated by the corresponding output price index and intermediate input price index to obtain gross output and intermediate input at constant prices respectively. The difference between the former and the latter is defined as value-added at constant prices. Single deflation mainly means that value-added at current prices is deflated by the output price index to achieve value-added at constant price. Parallel to the case of deflation, volume index extrapolation also includes double extrapolation and single extrapolation. Double extrapolation means that both gross output and intermediate input at base year prices in the base year are extrapolated by using volume indices of output and intermediate input to arrive at gross output and intermediate input at constant prices in the current year. The difference between the former and the latter is defined as value-added at constant prices in the current year. Single extrapolation indicates that value-added at base year prices in the base year is extrapolated by using volume indices of output to achieve value-added at constant prices in the current year.

In Production-based GDP estimation at constant prices, value-added at constant prices of Transportation, Storage, Post and Communication are estimated by using single extrapolation, value-added at constant prices of other industries except Agriculture and Industry are estimated by using single deflation. The method used for estimating value-added at constant prices of Agriculture and Industry was changed significantly in 2002. Before 2002, the gross output of Agriculture and Industry at constant prices was estimated using base year price valuation, the intermediate input of Agriculture at constant prices was estimated by using the price index deflation method, and the difference between the former and the latter was defined as value-added at constant prices of Agriculture. Value-added at current prices of Industry deflated by output price index, which was derived by output of Industry at current prices and at constant prices, was defined as value-added at constant prices of Industry. Since 2002, the value-added at constant prices of both Agriculture and Industry is estimated by using single deflation, i.e. the producers' price index for farm products and the ex-factory price index for Industrial products are adopted as deflators for Agriculture and Industry respectively.

3) Expenditure-based GDP estimation at current prices

The expenditure-based GDP estimation at current prices (GDP estimation by expenditure approach) consists in estimating the final use items including final consumption expenditure, gross capital formation, net export of goods and services. The formula is as follows:

Expenditure-based GDP = final consumption expenditure + gross capital formation + net export of goods and services
= (household consumption expenditure + government consumption expenditure)
+ (gross fixed capital formation + changes in inventories)
+ (export of goods and services - import of goods and services)

4) Expenditure-based GDP estimation at constant prices

The expenditure-based GDP estimation at constant prices uses corresponding price indices to deflate the final use items at current prices to obtain the final use items at constant prices. Expenditure-based GDP at constant prices equals to the sum of the final use items at constant prices.

3. Regional GDP estimation

From 1985, 31 provincial bureaus of statistics (except Tibet Bureau of Statistics) of China started GDP estimation simultaneously with the NBS. The NBS formulates a unified methodology for GDP estimation, but each provincial bureau of statistics estimates GDP for its own region. The GDP estimation for Tibet started a little bit later than in other regions. Tibet started annual GDP estimation on trial bases in 1985, and then conducted a full estimation starting in 1987. Quarterly GDP estimation ofor Tibet did not start until 1999.

(II) Input-Output Tables

In cooperation with the former National Economic Planning Committee (NEPC), the Chinese Academy of Science, and other partners in the 1970s, the NBS compiled the first input-output tables for China, i.e. the 1973 physical input-output tables. In the early 1980s, during the initial stage of the reform and opening-up, and in order to meet the requirement of users from macro-economic planning and management, the NBS, in cooperation with the former NEPC and other agencies, started to compile monetary input-output tables in line with the MPS. The NBS compiled national input-output tables in 1981 and 1983, respectively. In order to reflect the fast growth of the tertiary industry after the reform and opening-up and to assist formulating appropriate policy for the tertiary industry, China established a system for regularly compiling I-O tables in line with the SNA in 1987. That is, in years ending with a 2 or a 7, benchmark I-O tables are compiled by conducting large-scale I-O surveys; in years ending with a 0 or a 5, updated I-O tables are compiled by conducting small-scale targeted surveys to collect information for technical coefficient revisions. Since the early 1990s, in order to adapt to the actual situation of enterprises operating in the market economy and assist macro-economic management, NBS continued to improve the methodologies and compilation methods for I-O surveys. Up to now, NBS has compiled four national benchmark I-O tables consistent with the SNA for the years 1987, 1992, 1997 and 2002, and four SNA consistent updated I-O tables for 1990, 1995, 2000 and 2005.

I-O tables in China consist of the supply table, the use table and the symmetric input-output table (product × product table). The number of product groups and industries in supply and use tables are equal. The classification is more detailed in the benchmark tables than in the updated tables. The number of products and industries varies over time. For example, the number of products and industries in benchmark I-O table has been 117, 118, 124 and 122 in 1987, 1992, 1997 and 2002, respectively, and the number of products and industries in the updated I-O table was 33, 33, 40 and 42 in 1990, 1995, 2000 and 2005 respectively.

The procedure for compiling input-output tables in most countries is to first compile supply and use tables and then derive the symmetric I-O table based on the former two tables. China adopted a different method, as it first compiles the supply table and the symmetric I-O table and then derives the use table based on the former two tables. The main reason for adopting such a procedure is that the basic production statistical units in China are enterprises rather than establishments. Enterprises, especially large-scale enterprises, produce several or even dozens of products. Compared with establishments, the principal product of an enterprise is insignificant and poor in homogeneity. The adoption of the alternative I-O compiling procedure would result in biased symmetric I-O tables.

The method for compiling symmetric I-O tables in China is called the “direct decomposition” method. Under “direct decomposition”, an enterprise self-classifies

its various products into different product groups based on the uniform product group classification formulated by the NBS, and then decomposes its input costs into intermediate inputs and primary input components of various product groups according to the uniform requirement of the NBS. The NBS then uses the input component data sources provided by enterprises, combined with other related sources, to compile symmetric I-O tables.

From 1987 on, most provincial bureaus of statistics adopted the method formulated by the NBS and started to compile their own regional I-O tables simultaneously.

(III) Institutional Sector Accounts

NBS started to compile institutional sector accounts (excluding balance sheet) in 1992. Based on 1993 SNA recommendations, the NBS systematically revised its institutional sector accounts and established relatively standardized forms and compiling methods in 1996. Up to now, the NBS has compiled 13 years of institutional sector accounts, from 1992 to 2004.

Institutional sector accounts in China classify all resident institutional units into non-financial corporations, financial corporations, general government, and households; all non-resident institutional units which have economic transactions with resident institutional units are classified into the rest of the world. Therefore, institutional sector accounts in China consist of the non-financial corporations accounts, the financial corporations accounts, the general government accounts, the households accounts and of the rest of the world accounts. Of these five accounts, the first four accounts are called domestic institutional sector accounts and their summation accounts are referred to the total economy accounts. (NBS, 2003c)

As the operating funds of non-profit institutions serving households in China (including trade unions, consumer associations, charities and relief organizations and so on) mainly come from the governments, the NBS categorizes the non-profit institutions serving households into the general government sector, in line with the classification principles of 1993 SNA on such kinds of non-profit institutions. Therefore, differing from the 1993 SNA, there are no non-profit institutions serving households sector as a separate institutional sector in Chinese national accounts.

Each domestic institutional sector accounts and the total economy accounts consist of the production account, the distribution and use of income account, the capital account and the financial account. The rest of the world accounts are composed of the current account, the capital account and the financial account. The production account is the combination of the production account and the generation of income account in the 1993 SNA. The distribution and use of income account is the combination of the allocation of primary income account, the secondary distribution of income account and the use of disposable income account in the 1993 SNA. The capital account and the financial account are almost the same as the corresponding

accounts in the 1993 SNA. Constrained by data sources, the items in the above accounts are simplified compared with corresponding ones in the 1993 SNA. For example, property income is classified in the following way in the 1993 SNA: interest, distributed income of corporations, reinvested earnings on direct foreign investment, property income attributed to insurance policyholders and rent. Distributed income of corporations is further classified into dividends and withdrawals from income of quasi-corporations. However, property incomes in the institutional sector accounts in China are only categorized into four components, which are interest, dividend, rent and other.

Institutional sector accounts in China do not include the entrepreneurial income account, the allocation of other primary income account, the redistribution of income in kind account, the use of adjusted disposable income account and the other changes in assets accounts in 1993 SNA.

Similar to the main data sources for GDP estimation, the main data sources for the institutional sector accounts in China cover the statistical data, administrative records and final fiscal statements of the NBS and related ministries of the State Council. The institutional sector accounts are compiled using an approach combining direct estimation with indirect estimation. For example, value-added in the accounts of financial corporations, general government and households is derived from the direct original data sources, while value added in the account of non-financial corporations is derived by the residuals between production-based GDP and value added of the aforementioned three institutional sectors.

From 1992 on, most provincial bureaus of statistics adopted the method formulated by NBS and begun compiling institutional sector accounts for their own regions simultaneously.

(IV) Balance Sheets

The NBS started to compile balance sheets in 1997. Based on its own experience and learning from estimation method of fixed assets in Canada, the NBS gradually improved the methodology for balance sheet construction. As of now, the NBS has compiled balance sheets for 1997-2004.

From 1997 on, some provincial bureaus of statistics adopted the method formulated by the NBS and begun compiling their own regional balance sheets simultaneously.

II. Reform of China's National Accounts in the Year of the Economic Census

(I) GDP Estimation

The first Economic Census, conducted in 2004, is the most comprehensive census in the history of China in terms of coverage, as it includes all industries except Agriculture. The Economic Census covers Industry, Construction and all service industries except service activities for Agriculture. The Economic Census provides relatively complete data sources for GDP estimation in China. Compared with GDP estimation in regular years, there are many revisions of GDP estimation in the year of the Economic Census, including revision on data sources, production coverage, basic classification, estimation methods, and treatments for some specific issues. (NBS, 2007a; Xu Xianchun, 2006) Of these revisions, the revision of data sources is the most important, and it explains the bulk of the significant changes in the level, structure, and growth rate of GDP.

1. Revision of data sources

The revision of data sources of GDP estimation in the year of Economic Census covers revisions for both production-based GDP and expenditure-based GDP.

(1) Revision of data sources for production-based GDP

The main revisions of data sources for production-based GDP are as follows:

A. The financial statements data of enterprises. They are important data sources for estimating enterprises' value added. Some of the financial statements data are used in regular statistics as they are of good quality, such as those for Industry enterprises above a cut-off level, construction enterprises with official qualification and enterprises in wholesale, retail trade and restaurants above a cut-off level. All of them have complete financial statements. Those data sources are close to the data from the Economic Census. However, regular statistics do not cover the following enterprises: construction enterprises without official qualification, enterprises in wholesale, retail trade and restaurants below a cut-off level, renting and business services enterprises, computer services enterprises, enterprises of information transmission services, enterprises of household services, etc. As a regular statistical system of financial statements for these enterprises which could be used to estimate their value added has not yet been established, value-added for those enterprises is, in practice, estimated mainly using related indicators. The Economic Census included questionnaires on the financial situation or questionnaires on the operating status for those enterprises, which were then used for deriving value added. (Census Office, 2004)

B. Data sources for administrative and public institutional units. Value-added

estimation for administrative and public institutional units in regular years is mainly based on statistics on Compensation of Employees and final fiscal statements data, which cannot provide complete value-added estimation. In order to close this gap, the Economic Census developed a questionnaire on the financial situation of administrative and public institutional units allowing for a comprehensive estimation of value-added. (Census Office, 2004)

C. Data for individual businesses. In regular years, value-added created by individual businesses is estimated mainly based on data from the records of Industrial and Commercial Administration. However, some of the individual businesses are not registered by administrative departments and their data are thus missing. The Economic Census worked out a questionnaire for all individual businesses, including non-registered individual businesses, which provides more comprehensive data sources for their value-added estimation. (Census Office, 2004)

D. Data on establishments whose activities are different from the principal activity of the enterprise to which they belong. For example, an Industry enterprise may include some establishments who conduct other activities. Regular statistics provide very limited data on such activities. Therefore, their value-added are easily neglected. The Economic Census designed a questionnaire to obtain the basic information for these establishments that is used for estimating their value-added. (Census Office, 2004)

(2) Revision of data sources for expenditure-based GDP

There are three main aspects of revisions of data sources for expenditure-based GDP:

A. Revision of data sources on household consumption expenditure. In regular years before the Economic Census, commodity consumption in household consumption expenditure (which includes rural household consumption expenditure and urban household consumption expenditure) was calculated using the retail sale of consumer goods. In the year of the Economic Census, data sources for household consumption expenditure were changed, and instead used household income and expenditure obtained in the rural household survey and household consumption expenditure obtained in the urban household survey. The reasons behind such revisions can be summarized as follows: first, the retail sale of consumer goods not only includes goods sold to rural and urban households, but also goods sold to enterprises and administrative and public institutional units. In practice, it is very difficult to distinguish them correctly. Second, retail sale of consumer goods also include construction material sold to rural households to be used to build houses. Although it should not be included in household consumption expenditure, it is difficult to deduct it from the retail sale of consumer goods. Third, if commodity consumption in household consumption expenditure is estimated by using retail sale of consumer goods, it is impossible to classify household consumption expenditure by

types of consumer goods. It is undoubtedly not conducive to analyses of the structure of household consumption expenditure.

B. Revision of data sources on government consumption expenditure. Government consumption expenditure is estimated by expenditure in-budgetary and extra-budgetary in final fiscal statements. In regular years before the Economic Census, some items have to be extrapolated because of the lack of details in item classification, while other components of government consumption expenditure in-budgetary are estimated using the corresponding data sources. Meanwhile, components of government consumption expenditure in extra-budgetary items were estimated indirectly using arbitrary assumptions due to the lack of detailed classification of extra-budgetary items. In recent years, the Ministry of Finance breaks down the items in-budgetary and extra-budgetary in final fiscal statements, which enables annual government consumption expenditure to be estimated directly in the census year.

C. Revision of data sources on changes in inventories. This revision is mainly for Industry's enterprises below a cut-off level and wholesale and retail trade enterprises below a cut-off level. In regular years before the Economic Census, changes in inventories of these enterprises were estimated using related indicators because of lack of inventory information for those enterprises. However, in the year of the Economic Census, information on inventories of Industry's enterprises below a cut-off level and wholesale and retail trade enterprises below a cut-off level was included in the financial status questionnaires, which enabled changes in inventories to be estimated directly.

2. Revision on production coverage

In the Economic Census year, the production coverage of GDP estimation based on data sources from the Economic Census expanded along the following lines: 1) Inclusion of some business service activities, which were not completely included in regular statistics, based on the financial information of all types of service enterprises provided by the Economic Census; 2) Inclusion of service activities of administrative and public institutional units, which were not completely included in regular statistics, based on the financial information of administrative and public institutional units provided by the Economic Census; 3) Inclusion of production activities of those individual businesses which do not register with the departments of commerce and industry administration, based on information on individual business operations provided by the Economic Census; 4) Inclusion of production activity of establishments whose activities are different from the principal activity of an enterprise to which they belong based on establishment data provided by the Economic Census.

In addition, the production coverage of GDP in the year of the Economic Census expanded, using data from the Household Survey, for the following two aspects: 1)

Inclusion of owner occupied dwelling rent services of household; 2) Inclusion of some paid household services (tutor services and domestic services).

3. Revision of basic classifications

The basic classifications used in GDP estimation in the past regular years are revised in the GDP estimation in the year of the Economic Census, including the industrial classification used in the production-based GDP estimation and the expenditure components classification used in the expenditure-based GDP estimation. In the past regular years, production-based GDP was divided into 16 industries while for the year of the Economic Census it is divided into 94 industries which are very close to the 2 digits classification in the Industrial Classification for National Economic Activities of China. The revisions on the classification of the expenditure components aimed to break down rural and urban households' consumption expenditures based on separate consumption expenditure items from rural and urban household surveys, and to better classify import and export of goods and services based on data from the Balance of Payments. Rural household consumption expenditure and urban household consumption expenditure were broken down into 11 and 12 groups, respectively, which include expenditure on foods, clothing, dwelling services, etc. The breakdown of export of goods includes export of ordinary goods, processing goods and other goods; the breakdown of export of services includes 8 groups consisting of export of transportation services, tourism services, communication services, etc. The breakdown of import of goods and services is the same as that for the exports of goods and services.

4. Revision of the methods for GDP estimation

The revision of methods used for GDP estimation in the year of the Economic Census included the following three aspects: 1) In response to data sources from the Economic Census for enterprises, administrative and public institutional units, individual businesses and auxiliary establishments, which have no statistics in regular years, a new method for estimating their value added and changes in inventories was introduced. 2) In response to the change of data sources for estimating household consumption expenditure and government consumption expenditure, a new method was introduced, replacing the old method, also called the extrapolation method, with related indicators. 3) GDP estimation in the year of the Economic Census used the production approach, the income approach and the expenditure approach simultaneously and provided three independent GDP estimations. Although GDP estimation in the past regular years also partially used these three approaches, it was not possible to estimate value-added both by the production approach and income approach for each industry. Value-added for Agriculture and Industry used the production approach, while value-added for other industries used the income approach. Therefore, the method used in the past regular years could not generate GDP estimation using the production approach, income approach and expenditure approach independently.

5. Revision of the treatment of some specific issues

In order to comply with the treatment as recommended by international standards and make GDP data more comparable internationally, GDP estimation in the year of the Economic Census improved the treatment of or introduced a treatment for some specific issues, such as: 1) Revision of FISIM treatment. In the past regular years, the net interest of various industries was treated as an intermediate input and deposit interest of households was treated as part of value added of the financial industry. In the year of the Economic Census, FISIM was distributed across industries and final users either as intermediate input for corresponding industries or final use for final users, respectively. The deposit interest of households is no longer treated as value-added for the financial industry. 2) Computer software treatment. In the past regular years, there was no definite rule on whether the acquisition of computer software should be treated as an intermediate input or as gross fixed capital formation. However, in the year of the Economic Census, the acquisition of computer software has been treated as gross fixed capital formation. 3) Revision of the estimation method for households' owner-occupied dwellings depreciation. First, the method was changed, using prices based on current construction costs rather than historical costs to measure households' owner-occupied dwellings. Second, the depreciation rate of rural households owner-occupied dwellings was changed from 2% to 3%, and the rate for their urban counterpart from 4% to 2%, based on the data on use life of rural and urban households' owner-occupied dwellings from household survey. The changes in the above three treatments or methodologies affect GDP estimation for the production approach, income approach, and expenditure approach

6. Revision of GDP data

Compared with GDP estimation in the past regular statistics, and as a result ofthe revision of data sources, production coverage, estimation methods, treatments for some specific issues and so on, the amount of production-based GDP in the year of the Economic Census increased 2.3 trillion Yuan, which is 16.8% more than the pre-revision GDP. Value-added of tertiary industry increased 2.13 trillion Yuan, 92.6% of the total increase. The share of the tertiary industry in GDP rose from 31.9% to 40.7%, an increase of 8.8 percentage points.

Compared with the GDP estimation in regular statistics, and as a result of the revision of data sources, estimation methods, treatments for some specific issues and so on, expenditure-based GDP in the year of the Economic Census increased by nearly 1.8 trillion Yuan, which is 12.6% more than the pre-revision expenditure-based GDP. Final consumption expenditure increased 15.4% to near 1.2 trillion Yuan; and gross capital formation increased 10.0% to 0.6 trillion Yuan; increases in final consumption expenditure and gross capital formation accounted for 64.8% and 35.2% of the total increase in expenditure-based GDP respectively. The share of final consumption expenditure in expenditure-based GDP rose from 53.0% before the revision to 54.3% after the revision, an increase of 1.3 percentage points, while the

share of gross capital formation fell from 44.2% to 43.2%, a decrease of 1.0 percentage point.

(II) Institutional sector accounts

Through more than 10 years of practice, China's institutional sector accounts have established relatively normative forms and compiling methods, which still leave much to be desired in the three following aspects: First, the classification of institutional sectors is too aggregated, and can not reflect the economic activities of detailed institutional sectors and the economic relationship among them, e.g. it can not capture the economic activities of the central government and local governments respectively and the economic relationship between them; Second, the coverage of some indicators in China's institutional sector accounts is not consistent with international standards; Third, the lack of sufficient data sources means that estimating methods have to be relied on heavily.

The first Economic Census not only provided GDP estimation with detailed data sources, but also provided institutional sector accounts with better quality data sources. The NBS made use of this opportunity to introduce many reforms such as revision of data sources, institutional sectors classification, compiling methods, etc. (Department of National Accounts, 2007b)

1. Revision of data sources

The revision of data sources of institutional sector accounts in the year of the Economic Census covers the following two aspects: First, they adopt the data from the first Economic Census, in particularly for estimating components of GDP by the production approach, income approach, and expenditure approach, which are now based on the data sources from the Economic Census; Second, compared with the past regular years, they make better use of final fiscal statements, financial statements of banks, securities, insurances, tax statistics, and social insurance fund statistics.

2. Revision of the classification of institutional sectors

The institutional sector accounts in the year of the Economic Census broke down the four resident institutional sectors into more detailed institutional sectors, i.e. non-financial corporations are further divided into Industrial corporations and other non-financial corporations; financial corporations are further divided into banks, securities, insurances and other financial corporations; general government is further divided into central government and local government; and households are divided into rural households and urban households.

3. Revision of compiling methods for institutional sector accounts

Revision of compiling methods for the institutional sector accounts mainly consists of the following aspects:

First, more direct methods are used instead of indirect methods. Because GDP by the production approach, income approach and expenditure approach are estimated with more detailed classifications by using the comprehensive data sources from the Economic Census, and because the data sources from final fiscal statements, financial statements of banking, security and insurance, tax statistics, and social insurance fund are fully used, the estimation of most indicators for the institutional sector accounts in the year of the Economic Census adopt direct methods. For instance, value added for non-financial corporations is directly estimated through value-added of relevant industries in the year of the Economic Census, while it was previously estimated as a residual between production-based GDP and the value-added of the other three resident institutional sectors in the past regular years.

Second, deposit and loan interests in property income are adjusted. In the past regular years, deposit and loan interests in the institutional sector accounts were taken directly from the original data sources, without revision. For examples, deposit interest expenditures and loan interest incomes in financial corporations were directly taken from deposit interest payable and loan interest receivable in the annual financial statements of financial institutions. The deposit and loan interests based on original sources are modified in the year of Economic Census. For instance, in financial corporations, deposit interest expenditures are equal to deposit interest payable from original data sources plus deposit imputed service charges, while loan interest incomes are equal to loan interest receivable from original data sources minus loan imputed service charges. The sum of deposit and loan imputed service charges is the output of imputed services of financial intermediary. Deposit imputed service charges are distributed among non-financial institutional sectors according to the ratio of deposits of each sector accounting for total deposits of financial institutions. Loan imputed service charges are distributed among non-financial institutional sectors according to the ratio of loans of each sector accounting for total loans of financial institutions.

Third, “Pension and medical expense paid by undercovered units” is removed from other current transfers in non-financial corporations accounts, while it was included in the past regular years. Since the reform of the social insurance system, all employees of enterprises are covered by a social insurance program so that enterprises do not pay the pension and medical expense for their employees directly. Thus, Pension and medical expense paid by undercovered units are removed and only included in other current transfers of general government accounts.

Fourth, capital transfers have been revised. In the past regular years, infrastructure expenditures in final fiscal statements were treated as capital transfers from general government to non-financial corporations. In the year of the Economic Census, infrastructure expenditures in final fiscal statements are divided into two parts: one is infrastructure expenditures in non-financial corporations, the other is infrastructure expenditures in general government itself. Only the former part should be regarded as capital transfers from general government to non-financial

corporations.

III The new development of China's national accounts after the Economic Census

(I) GDP estimation

1. Revision on historical data of GDP

As data sources, production coverage, estimation methods, and the treatment of some specific issues changed significantly in the year of the Economic Census, GDP estimtes in that year underwent great changes. If historical GDP estimates had not been revised, they would not be comparable with GDP estimates in the year of the Economic Census. Meanwhile, the great changes in GDP estimates in the year of Economic Census indicate that historical GDP data can not reflect the economic situation objectively, so the NBS decided to revise GDP historical data in line with GDP in the year of the Economic Census. The GDP historical revision includes revisions on production-based GDP data and expenditure-based GDP data.

(1) Revision of production-based GDP historical data

1) Revision of industry classification

Taking feasibility into account, we classify production-based GDP to be revised into the following 8 industries: Agriculture, Industry, Construction, Transportation, Storage, Post and Communication, Wholesale, Retail Trade and Restaurants, Finance and Insurance, Real Estate, and Other Services.

2) Revision period

The essential causes leading to the change in the GDP figure in the year of the Economic Census can be attributed to two developments: The first one is changes in data sources. The first Economic Census provided sufficient information which can make up for the gap in data sources in regular years; The second one is changes in the treatment of some specific issues, which mainly included the change in the treatment of FISIM, changes in the valuation of housing stock and an adjustment to depreciation rates with respect to estimating the housing services of owner-occupied dwellings. Of the above 8 industries, changes for value-added of Industry, Construction, Transportation, Storage, Post and Communication, Wholesale, Retail Trade and Restaurants, and Other Services were mainly caused by the first change, while changes for value-added in Agriculture, Finance and Insurance, Real Estate were mainly caused by the second modification. Hence, the revision period for value added of Transportation, Storage, Post and Communication, Wholesale, Retail Trade and Restaurants, and Other Services was from 1993 to 2003, because the increase of 2.3

trillion in GDP in the year of the Economic Census mostly come from these industries, and because after the first census for tertiary industry in 1991 and 1992, the NBS had already revised value-added historical data for these industries from 1978 to 1990. As the second reason not only affects historical data from 1993 on, but also historical data before 1993, the revision period for value added in Finance and Insurance and Real Estate was from 1953 to 2003. As changes of value added in Agriculture, Industry and Construction were not significant, their revision period was from 1993 to 2003, the same as that of Transportation, Storage, Post and Communication, Wholesale, Retail Trade and Restaurants, and Other Services.

3) Revision method

Revision of production-based GDP historical data includes revision of data at current prices and revision of data at constant prices. The revision method for data at current prices is called "trend deviation" approach. This method is simple and visible, and can keep the original trend of the historical data series. The basic steps are as follows: first, we calculate the compound growth rate of the old and new value added series for each industry during the revision period respectively; then we extrapolate the original value added of each industry in the base year 1992(or 1952) to obtain the trend values of these two series based on the above compound growth rates respectively; third, we calculate the ratio of the trend value of the original series to its original series from 1993(1953) to 2003; fourth, we obtain the revised series by multiplying the trend deviation ratio of the original series by the new trend series; lastly, we aggregate the revised value added of 8 industries to get revised GDP historical data.

The revision method for data at constant prices is as follows: First, according to the detailed industrial structure of value added of each of the eight industries in the year of the Economic Census, we revise the deflator for its historical series; then, we obtain the revised historical data of value added at constant prices for each industry based on its revised historical data of value added at current prices and its revised deflator; finally, we aggregate revised historical data of value added at constant prices of each of the eight industries to obtain revised historical estimates of GDP at constant prices (NBS, 2006a).

(2) Revision of expenditure-based GDP historical data

The classification for expenditure-based GDP remained the same as that before the Economic Census, i.e. household consumption expenditure, government consumption expenditure, gross capital formation, changes in inventories, export of goods and services, and import of goods and services. Household consumption expenditure can be further classified into rural household consumption expenditure and urban household consumption expenditure. The revision period is 1979-2003. The revision method is similar to that for production-based GDP historical data (NBS, 2006a).

2. Development of regular statistics

The first Economic Census fully shed light on the lack of China's regular statistics for service industries. To change this situation as soon as possible, the NBS accelerated the reform and development of statistics for service industries after the Economic Census. First, a financial statistics sample survey system was established for 12 sub-industries of services such as business services, rental service, computer services, household services, etc. (NBS, 2005). Second, a pilot financial statistics sample survey was conducted for wholesale and retail trade enterprises, hotels and restaurants below a cut-off level, and real estate property management and real estate intermediary service (NBS, 2006b; 2006c). Third, *The Financial Report Forms of Service Industries (Trail)* was designed after negotiating with 17 ministries such as the Ministry of Education, the Ministry of Culture, the Ministry of Health, the Ministry of Science and Technology, the Ministry of Civil Affairs (NBS, 2007a).

Previously the annual statistical reports of Industrial enterprises above a cut-off level required enterprises to break down their costs and estimate value added in line with estimation methods of value added formulated by the NBS. This was hard work and necessitated a high level of technical knowledge. Meanwhile, as enterprises statisticians have very different levels of professional skills, those with lower professional skills likely made mistakes in estimating value added. So this method not only increased enterprises' workload, but it also introduced mistakes which the statisticians of government statistical offices were unable to find and correct. Indeed, government statisticians can only do the summation work, no matter how developed their professional skills. The NBS therefore decided to reform the statistical system of Industrial enterprises above a cut-off level in 2007, namely, to no longer require that enterprises report their value added and have government statistical offices estimate value added according to the data from the cost structure survey covering key Industrial enterprises which is conducted by the NBS(NBS,2007b).

3. Formulation of *Annual GDP Estimation Scheme for the Years of Non Economic Census*

In order to ensure the comparability of annual GDP data between the years of no economic census and the year of Economic Census, and make the annual GDP estimation in the years of no economic census more scientific and normative, the NBS has formulated *Annual GDP Estimation Scheme for the years of Non Economic Census* (hereinafter *Scheme* in short), which normalizes the classification of industries and expenditure items, data sources and estimation methods of the annual GDP in the years of no economic census.

It stipulates that the annual GDP estimation in the years of non-economic census adopt the same classification of industries and expenditure items as that of the year of Economic Census. Since the data sources of annual GDP estimation for the years of non-economic census and the year of Economic Census are quite different, the

estimation methods are also different. A financial statistics sample survey system was introduced in 12 sub-industries of services such as business services, rental services, computer services, household services after the Economic Census. This survey makes it possible to work out value-added for the 12 sub-industries. For those service sub-industries in which a regular financial statistics system has not yet been established, the *Scheme* also works out their value-added estimation method for the years of non-economic census, based on the relationship between their value-added and their related indicators in the year of Economic Census. For example, for the private enterprises, foreign enterprises and individual businesses engaging in transport of road and water in which a financial statistics survey system has not yet been introduced, the *Scheme* uses the relationship of value-added and turnover volume of freight and passengers of transport of road and water in the year of Economic Census to extrapolate value-added in the years of non-economic-census. The *Scheme* also takes into full account the cost structure questionnaires of each industry, especially that for service industries as shown in the 2007 Input-Output survey scheme, which is used to adjust the estimation method for each industry.

(II) Input-Output tables

1. Compilation of 2002 IO tables

The 2002 IO tables used the data of production-based GDP and expenditure-based GDP which were revised after the Economic Census for 2002, ensuring that the 2002 IO tables are consistent with the revised GDP estimates in the same year.

2. Revision of historical data of basic IO tables

After the historical GDP estimates had been revised, the NBS also revised the basic IO tables in 1987, 1992 and 1997, ensuring that the revised IO tables were not only consistent with the revised GDP estimates in the year in question, but also were comparable to the 2002 IO tables. The basic IO tables revised using the Kuroda approach, in the three years, are divided into 96 industries.

3. Scheme for the 2007 National Input-Output Survey

According to the regulation of the statistical system, 2007 is the year to conduct a national input-output survey and compile input-output tables. Based on the experiences of Input-Output Surveys in past years and the pilot input–output survey of 2007, the NBS has worked out a *Scheme on 2007 National Input-Output Survey* (NBS, 2007c), and detailed the tasks of the 2007 national input-output survey. Compared with the previous survey plans, this *Scheme* makes progress in the following areas:

First, the classification of industries in input-output tables is more disaggregated. The 2007 input-output tables are divided into 144 industries, the most detailed classification since China started compiling input-output tables. Of these industries,

Primary Industry is divided into 5 industries, Secondary Industry is divided into 93 industries, and Tertiary Industry is divided into 46 industries.

Second, the questionnaires for service industries are added. In order to more accurately reflect the composition of intermediate and primary inputs in service industries by different type, and in response to differences in accounting systems of service enterprises by various type, the 2007 input-output survey will add questionnaires for cost structure and profits for those enterprises engaging in transportation by road, water and air, computer services and software as well as business services.

Lastly, questionnaires for interregional flows are added. In order to satisfy the needs for compiling regional input-output tables and national non-competition input-output tables, the 2007 input-output survey will add a questionnaire for source of materials purchased by Industrial enterprises and a questionnaire for primary use destination of products produced by Industrial enterprises.

(III) Institutional sector accounts

1. Revision of historical data of institutional sector accounts

Just as the historical GDP data in the past regular years needed to be revised, given changes in data sources and compiling methods , the data on institutional sector accounts in the year of Economic Census also changed significantly. In order to maintain the comparability of data for institutional sector accounts between the past regular years and the year of Economic Census, and also to make the historical data of institutional sector accounts in the past regular years reflect the actual economic situation, the NBS revised the historical data of institutional sector accounts.

Taking the practical feasibility into account, the revision of historical estimates for institutional sector accounts in the past regular years kept the same classification as before, i.e. non-financial corporations, financial corporations, general government, households and the rest of the world, also retaining the indicator setting. Revision were made to data for 9 indicators such as value-added, compensation of employees, net taxes on production, taxes on income, household consumption expenditure, government consumption expenditure, capital transfer, gross fixed capital formation, and changes in inventories, while balance items of institutional sector accounts including gross balances of primary income, gross disposable income, gross savings, and net financial investment were generated automatically according to the balance relation of the accounts.

A number of methods of revision for the historical data of the above 9 indicators were adopted as follows: the first was to use directly the revised historical data for GDP components such as household consumption expenditure and government consumption expenditure; the second was to use the revised historical data of GDP components as aggregate controls to be distributed among different institutional

sectors, based on either direct calculation or original composition of institutional sectors or related indicator extrapolation, for those indicators such as value added, gross fixed capital formation, and changes in inventory; the third was to first re-clarify and adjust the coverage of some indicators, then revise their data in an appropriate way, (those indicators cover net taxes on production and capital transfer). Taxes on house property and taxes on value-added of land were treated as taxes on income in the institutional sector accounts prior to revision. Now, however, those two types of taxes are treated as taxes on production in the institutional sector accounts. In the institutional sector accounts prior to revision, the entire expenditure of capital construction in the final fiscal statements was treated as capital transfer to non-financial corporations from general government, but now only the part of it used for non-financial corporations is treated as capital transfer to non-financial corporations from general government, excluding the part used for general government itself. The fourth method was to use aggregate data calculated directly from the primary data sources or extrapolated by using related indicators to be distributed among different institutional sectors in line with the original composition of institutional sectors, for the indicator such as compensation of employees and taxes on income.

2. Formulation of *Scheme of Institutional Sector Accounts in the Years of Non-Economic Census*

In order to keep data comparability of institutional sector accounts between the years of non-economic census and the year of Economic Census, and make institutional sector accounts in the years of non-economic census more scientific and normative, the NBS has formulated *Scheme of Institutional Sector Accounts in the Years of Non-Economic Census* which standardizes classification, data sources and compiling methods of institutional sector accounts in the years of non-economic census.

The Scheme stipulates that the institutional sector accounts in the non-economic census years should adopt the same classification as that in the year of Economic Census, i.e. the first digit classification includes non-financial corporations, financial corporations, general government, households and the rest of the world; for the two digits classification, non-financial corporations are further broken down into Industrial corporations and other non-financial corporations; financial corporations are broken down into banks, securities, insurances, and other financial corporations; general government is broken down into central government and local government; households are broken down into rural households and urban households. Obviously, the compiling methods of institutional sector accounts between the years of non-economic census and the year of Economic Census are quite different because of differences in data resources. The basic features of the *Scheme* are as follows: First, for some indicators, their data directly come from the corresponding components of GDP estimates; second, the GDP components as aggregate controls are used to be distributed among different institutional sectors, based on either direct calculation or

related indicator extrapolation; lastly, primary data sources or related indicators are used to calculate or extrapolate the indicators in the institutional sector accounts.

IV. The problems and challenges of China's national accounts

Although China's national accounts experienced rapid convergence with international standards, there are still some differences with the 1993 SNA, with developed countries, with requirements from macro-economic management departments, the civil society and international organizations. National accounts in China are facing some problems and challenges.

(I) GDP estimation

1 .Regular statistics on services industries

As mentioned above, the regular service statistics in China still remains a weakness. The results of the first Economic Census showed that the shortcomings of regular service statistics had deeply affected the accuracy and exhaustiveness of GDP data. Although NBS has made considerable efforts to improve service statistics after the first Economic Census, the gap in data sources still existed. For instance, financial statistics system have not been built up in wholesale and retail trade, hotel and restaurants below a cut-off level, real estate property management and real estate intermediary services enterprises, private and foreign funded enterprises engaging in road and water transportation, etc.

2. GDP estimation at constant prices

Shortcomings of GDP estimation at constant prices are mainly due to the following two factors:

A. The lack of producer price indices for the service industries. As China has not yet compiled PPIs for service industries, some related components from the CPI are used as proxies for the estimation of value added at constant prices in service industries. However, some of those services industries such as computer services, accounting services and advertisement services are not related with households. In fact, there are no proper price indices for estimating value-added at constant prices for those service industries. Using related price indices as substitutes in such cases affects, by definition, the accuracy of estimation of value-added at constant prices for some services industries.

B. The lack of price indices for exports and imports of services. As China has not yet compiled price indices for exports and imports services, the price indices of imports and exports of goods and some related service price indices at home and abroad are used for the estimation of exports and imports of service at constant prices.

This definitely affects the accuracy of estimation of export and import of services at constant prices.

3. Quarterly GDP estimation

The main shortcomings of quarterly GDP estimation are the following:

First, quarterly GDP estimation in China is only production-based as quarterly expenditure-based GDP estimation has not yet been formally established. Quarterly expenditure-based GDP estimation reflects the quarterly final demand. It includes consumption demand, investment demand and net export demand. The information provided by quarterly expenditure-based GDP is as important as quarterly production-based GDP to macro-economic analysis and policy making. Starting in 2000, the NBS conducted some trial estimation of quarterly expenditure-based GDP. However, due to the gaps in data sources and inconsistencies between data sources from the production side and the expenditure side, the quarterly expenditure-based GDP estimation system has not been formally built up and data has not been published as of yet.

Second, quarterly GDP estimation in China is on a cumulative basis rather than discrete basis. The cumulative quarterly GDP estimation provides GDP data from the first quarter to the current quarter. The discrete quarterly GDP estimation provides each quarter's GDP data. Compared with the cumulative basis, the discrete basis gives a better indication of economic trends in the quarter and provides important and timely information for short term macro-economic analysis and policy making. Therefore, it is more valuable than cumulative quarterly GDP estimation. The reason for continuing to estimate and publish cumulative quarterly GDP data in China is that basic statistics at hand do not meet the requirement for discrete quarterly GDP estimation. Especially, there is no discrete quarterly data on fixed assets investment and some price indices are also lacking.

4、Regional GDP estimation

Each bureau of statistics at the level of provinces, autonomous regions and municipalities has adopted the method formulated by the NBS and compiles their own regional GDP. Due to a number of reasons, the summation of regional GDP estimates is systematically different from the national GDP. From 1992 onwards, the growth rate based on the summation of regional data is always higher than that based on the national data. From 1996, the level of the sum of regional GDP is always higher than that of national GDP. In order to improve the data quality and minimize the gap between the sum of regional data and national data, the NBS started in 1999 to jointly evaluate and verify regional data quality. It has already achieved some good results in standardizing regional GDP estimations and improving their data quality. In 2005, the NBS cooperated with provincial bureaus of statistics to estimate 2004 GDP at the provincial level according to the Economic Census data. However, although the gap between the sum of regional data and national data was largely reduced, this

problem has not been completely solved.

Because the regional GDP and national GDP are estimated by provincial bureaus of statistics and the NBS, respectively, some discrepancy between the sum of regional estimates and the national estimate is inevitable. The problem is that the gap is too big for many years, exceeding a reasonable boundary. Reasons for such big difference are as following: 1) Some regions blindly pursue fast growth target and compete with each other. This creates incentives to manipulate the statistical estimates. 2) There are shortcomings in the statistical system. There are especially big gaps in data sources for service industries and it is hard for the NBS to control regional data quality of related industries.

（II）Input-output tables

As noted before, in China, the basic production statistical unit is the enterprise, not the establishment. In order to keep the homogeneity of the same product group, China compiles symmetric I-O tables using the method of direct decomposition. However, this method puts too much burden on the enterprise. In the development of a socialist market economy, private enterprises and foreign investment corporations grow very fast, and even state owned enterprises put more and more emphasis on their economic performance. Therefore, there is an increasing reluctance on the part of enterprises to accept such a heavy statistical duty as to decompose input according to the kind of product. The degree of cooperation from enterprises is therefore significantly dropping.

In order to adapt to the actual situation of enterprises under the market economy and alleviate the burden of enterprises, NBS should abandon the method of direct decomposition of symmetric I-O tables, and use the method adopted by most countries, which is to first compile a supply table and a use table, and then derive symmetric I-O tables accordingly. It will need to adjust the basic production statistical unit from the enterprise to the establishment. This will involve a major adjustment of the statistical system and will be a hugely difficult task.

（III）Institutional sector accounts

The development of a socialist market economy has raised many new challenges related to the limitation of data sources or to a lack of agreement about the treatment of specific issues in the institutional sector accounts. The outstanding problems can be seen as comprising the following aspects.

Land transfer charges. In China, the law explicitly stipulated that the urban land belongs to the state. Since the late 1990s, many local governments have begun to transfer the land use rights to obtain considerable land transfer charges, which served as an important fund resource for urban construction and renovation. However, these funds have not been treated in institutional sector accounts, mainly for two reasons: 1) lack of national information on land transfer charges. 2) Agreement has not been

reached yet on how it should be treated. There are two opinions, of which one advocates the recognition of land use right as an intangible-asset, with government selling the right and receiving the funds. This can be seen as the sale of an intangible-asset with the government receiving the corresponding financial-asset. The other view recommends that the land transfer charges be treated as land rental, and apportioned during the whole period of transferring the land use right.

The performance of fund management corporations. In recent years, fund management corporations are growing rapidly in China, with expanding scale of fund sale, stock and other securities purchase. Nevertheless, there is no perfect statistical system for the performance of fund management corporations so far; therefore, institutional sector accounts have not reflected the change in the financial assets and liabilities of fund management corporations.

Dividend distribution of non-listed corporations. Because of the lack of data sources, the bonus of non-listed corporations have not been involved in the institutional sector accounts, which affects indicators such as property income, gross balances of primary income, gross disposable income and gross savings of related institutional sector accounts.

In addition, the indicators of the institutional sector accounts are too aggregated. For instance, there are no sub-indicators for production tax and income tax, and thus it can not reflect details of tax transactions among general government and other institutional sectors. In regular years, many indicators have to be extrapolated indirectly for the lack of data sources.

V. The blueprint for further development of China's national accounts

(I) GDP estimation

1. Regular statistics on service industries

In order to solve the problem of data gaps for some service industries in GDP estimation in the years of non-economic census, and based on the summary of the experiences of pilot surveys, the NBS will establish a system of conducting sample financial surveys on some service enterprises, such as wholesale and retail trade enterprises below a cut-off level, hotels and restaurants below a cut-off level, and real estate property management and real estate intermediary services enterprises; based on the experiences of experiment and consulting with 17 related ministries such as the Ministry of Education, the Ministry of Culture, the Ministry of Hygiene, the Ministry of Science and Technology, the Ministry of Civil Affairs, etc, the NBS will then

establish a formal financial statistics system of service industries managed by related ministries; in cooperation with the Ministry of Communications, the NBS will step by step introduce a system of conducting sample surveys of financial statistics on private and foreign funded enterprises engaging in transportation of road and water.

2. GDP estimation at constant prices

In order to solve the problem of data gaps for price indices for GDP estimation at constant prices, the NBS needs to study and develop producer prices indices for service industries and price indices for exports and imports of services.

3. Quarterly GDP estimation

A. Systematically summarize the experiences of quarterly expenditure-based GDP estimation in the past years, especially in relation to the lack of data sources and poor data quality . Other tasks will be to establish and improve specific statistics and departmental administrative statistics in related ministries as well as the quality of data sources and align data sources from the production side and expenditure side including the alignment of price deflators from production side and expenditure side. Thus, NBS will be able to establish the formal quarterly expenditure-based GDP estimation based on these improvements.

B. Regarding the problem of insufficient data sources for the estimation of discrete quarterly GDP, establish corresponding discrete quarterly specific statistics step by step, especially discrete quarterly fixed assets investment statistics and discrete quarterly prices indices. Discrete quarterly GDP estimation will be set up based on these new statistics.

4. Regional GDP estimation

NBS is planning to reform the pattern of regional GDP estimation when it has sufficient data sources, in other words, NBS will estimate directly or organize partial provincial bureaus of statistics to estimate provincial GDP in a unified way. This will change the current practice of each provincial bureau estimating its own GDP and reduce the manipulation of regional GDP data.

（II）Institutional sector accounts

First of all, a statistical system of land transfer charges is to be established, and the treatment of land transfer charges in institutional sector accounts will be decided. Second, indicators of institutional sector accounts such as production taxes, production subsidies, income taxes and property income and so on, will be disaggregated in order to reflect some key transactions in greater details. Third, data sources will be established and improved, including the establishment and improvement of a statistical system of performance of fund management corporations as well as the statistical system of dividend distribution of non-listed corporations

Consequently the compiling methods of institutional sector accounts may keep on improving; Fourth, the time lag of compiling institutional sector accounts should be shortened, i.e. the existing time lag of 2-3 years should be shortened to one year or so.

References

1. NBS, 2003a: *Reform on GDP Estimation and Data Releasing in China, NBS Document (2003) No.70*

2. NBS, 2003b: *System of National Statistical Survey, 2003 Formulated in 2003.*

3. NBS, 2003c: *System of National Accounts of China, 2002, Published by China Statistical Publishing House in March 2007.*

4. NBS, 2005: *Trial Scheme of Sample Survey on part of Service Industries, Formulated in October 2005*

5. NBS, 2006a: *Revision Algorithm of Annual GDP Historical Data, NBS Document (2006) No.2*

6. NBS, 2006b: *Trial Scheme of Sample Survey on Real Estate Property Management and Real Estate Intermediary Service, NBS Document (2006) No.156.*

7. NBS, 2006c: *Trial Scheme of Sample Survey on Enterprises below a cut-off level in Wholesale and Retail Trade, Hotels and Restaurants, Formulated in December 2006.*

8. NBS, 2007a: *Financial Report Forms on Services Industries (trial), Formulated in May, 2007.*

9. NBS, 2007b: *Scheme on Costs and Expenses Survey of Industrial enterprises above a cut-off level (trial), NBS Document (2007) No.121*.

10. NBS, 2007c: *Scheme on 2007 National Input-Output Survey, Formulated in August 2007.*

11. Department of National Accounts, NBS, 1997a: *The Methods of Annual GDP Estimation in China, Published by China Statistical Publishing House in May, 1997.*

12. Department of National Accounts, NBS, 1997b: *The Methods of Quarterly GDP Estimation in China, Published by China Statistical Publishing House in May, 1997.*

13. Department of National Accounts, NBS, 2001: *Manual of GDP Estimation in China, Formulated in 2001.*

14. Department of National Accounts, NBS, 2007a: *The Methods of the GDP Estimation in the Year of Economic Census, Published by China Statistical Publishing House in February 2007.*

15. Department of National Accounts, NBS, 2007b: *The Methods of Flow of Fund Accounts in the Year of Economic Census, Published by China Statistical Publishing House in March, 2007.*

16. State Council, 2003: *Notice on Conducting the First Economic Census by State Council, State Council Document (2003) No.29.*

17. Executive Office of the Leading Group of the Economic Census, 2004: *Plan of the First National Economic Census, Formulated by NBS and Executive Office in September 2004.*

18. XU Xianchun, 2006: *Adjustments of GDP Estimation in the Year of Economic Census, The Journal of Economics Research, 2-2006.*