

Methodology of GDP Estimation in the Year of the First Economic Census of China

XU Xianchun

Department of National Accounts, NBS

The first economic census is the most comprehensive census in the history of China in terms of the coverage, which includes all industries except agriculture, forestry, animal husbandry and fishing. That is, the economic census covers Mining and quarrying, Manufacturing, Production and supply of electricity, gas and water, Construction and all service industry except service activities for agriculture, forestry, animal husbandry and fishing. The economic census will provide relatively complete source data for GDP estimates of China.

This economic census provides a good opportunity for improving GDP estimation in China comprehensively. Comparing to the SNA 1993, an international standard for national accounts developed jointly by the five international organizations including UN, the coverage of Chinese GDP estimates still bears problems of incompleteness in some areas, and some methods applied are lack of reasonableness. Although we try to expand the accounting coverage and change the unreasonable estimation methods in a number of years, we are hampered by the constraint of the data sources and the maintenance of the comparability of the historical data. This economic census shares lights into the improvement of these two fields. Therefore, formulating a good plan of GDP estimation in the year of economic census is of great significance.

In summary, comparing to GDP estimation in other years, the plan of GDP estimation in the year of this economic census presents three characteristics as follows: adopting new data sources; expanding accounting coverage; and updating some estimation methods.

I. Main purposes and contents of the plan of GDP estimation in the year of economic census

In my point of view, there are three main purposes for making the plan of GDP estimation in the year of economic census. First, improve the accuracy and completeness of GDP estimation through improving the scientificness and standardization of GDP estimation in the year of economic census; Second, maintain the comparability between national data and regional data, or among regional data themselves; Third, increase the transparency of GDP estimation in the year of economic census to facilitate the users to understand, supervise and appropriately use GDP estimates.

In regards to the basic contents of the plan of GDP estimates in the year of economic census, again three aspects need to be considered. First, define the accounting coverage of GDP estimates in the year of economic census; Second, determine the industrial classification and expenditure classification of GDP estimates in the year of economic census; Third, standardize the data sources and estimation methods of GDP estimates in the year of economic census, including the standardization of data sources and estimation

methods of value-added of industries by production approach and income approach, and expenditure item by expenditure approach.

II. Coverage of GDP estimates in the year of economic census

System of National Accounts of China, 2002 explicitly defines that the production boundary in national accounts in China includes three parts, which are: Production of all goods and services produced and provided to or intended to provide to other units by the producers; Own account production of all goods either used as final consumption or used as fixed capital formation; Owner occupied dwelling services and own account household services provided by the paid household workers. (NBS, 2003a). In other words, all activities of goods production (either for own use or for sales) are included in the production boundary, all services provided to units other than producers are also included in the production boundary, only two own account household services, owner occupied dwelling services and household services provided by the paid household workers, are included in the production boundary. This definition is consistent with that in the SNA 1993. However, in practice, some activities are missed in China's national accounts due to the constraint of data sources.

The coverage of GDP estimates will be clarified and put in a more specific way in the plan of GDP estimates in the year of the economic census. For instance, it will explicitly stated that own account services, such as owner occupied dwelling services, household services provided by the paid nannies are included in GDP production; Explicitly show the method to include as much as possible the economic activities which are omitted or neglected in the past due to the lack of data sources and becomes available in the year of economic census; Explicitly show how to estimate activities such as tutor services that is still lack of information even in the year of economic census. By doing so, the coverage of GDP estimates in the year of economic census will become as complete as possible, and will benefit GDP estimation in years other than economic census. Comprehensive and complete GDP estimation will enable a better reflection of economic performance of both economic census year and non-economic census years.

III. Industrial Classification of GDP estimation in the year of economic census

The classification adopted in this economic census follows the *Industrial Classification for National Economic Activities (ICNEA) (GB/T4754-2002)* of China established by the General Administration of Quality Supervision, Inspection and Quarantine (GAQSIQ, 2002) of China. In which, all economic activities are classified into 19 sections (1 digit), 94 divisions (2 digit), 395 groups (3 digit), 912 classes¹ (4 digit).

In order to satisfy users of different purpose, GDP estimation of China has been conducted at three detail levels. The first detail level includes Primary Industry, Secondary Industry and Tertiary Industry. The second level and the third level are based on sections and divisions in the *Industrial Classification for National Economic Activities (GB/T4754-2002)* respectively. Due to the restriction of the data sources, the

¹ It is worth noting that international organizations are excluded from the sections, divisions, groups and classes etc. , because such activities are beyond the production boundary of China.

third level of classification is still very broad and different from divisions in the *ICNEA, GB/T4754-2002* to great extent. (XU, 2004). In my point of view, with better data sources in years of economic census, the industrial classification of GDP estimation could be further divided into more breakdowns to provide better information for macro-economic analysis or other purposes. The partition of the first detailed level follows the three-industry-classification in the *Rule of Industrial Classification of Three Main Industries* directly by excluding the international organizations in the tertiary industry. (XU, 2004). The partition of the second detailed level could be basically in line with the sections in the new industrial classification *ICNEA, GB/T4754-2002*. From the perspective of GDP estimation, information available by divisions in the *ICNEA, GB/T4754-2002* is also very important. For instance, further partitioning the value-added of the manufacturing into that of manufacturing by type; further partitioning the value-added of the “Transportation, Storage and Post” into that of railway transport, road transport, water transport, air transport, pipeline transport, storage, and post etc. are very useful for the economic structural analysis. Therefore, the third level of the industrial classification is preferable to be consistent with the divisions in the *ICNEA, GB/T4754-2002* generally, with necessary adjustment by considering the experience of the practical requirement of the national accounts data gathered in the past several years, and by referring to the second and third level of industrial classification of other countries.

The adjustment focuses in the following three areas: first, *Industry*²; second, real estate; third, public administration and social organizations. Regarding the *Industry*, the section of *Industry* was disappeared in the Industrial Classification for National Economic Activities since 1994, instead, three sections, Mining and Quarrying, Manufacturing, and Production and Supply of Electricity, Gas and Water were explicitly listed. However, the application of the value-added of *Industry* is widely used in China, therefore, the breakdown of *Industry* is still kept in the second detailed level of GDP estimation. Consequently, the Mining and Quarrying, Manufacturing, and Production and Supply of Electricity, Gas and Water become the third detailed level of GDP estimation. Accordingly, the divisions within the above three sections in the new industrial classification *ICNEA GB/T4754-2002* are treated as the fourth detailed level of GDP estimation. In the new industrial classification *ICNEA GB/T4754-2002*, the section of the Real Estate is consistent with the division of the Real Estate. Further breakdowns of the real estate happens in the three-digit and four-digit level, that is, the Real Estate is further partitioning into four sub-industries, which are Real Estate Development and Operation, Property Management, Real Estate Intermediate Services, and Other Real Estate Activities. In the GDP estimation in the past years, the sub-partitions of the Real Estate were Real Estate Management, Real Estate Development and Operation, Owner Occupied Dwelling Services of Urban Households, and Owner Occupied Dwelling Services of Rural Households. Combining these two classifications, together with the consideration of the needs in analyzing real estate, the further partition of the Real Estate should include six-subcategories, which are Real Estate Development and Operation, Property Management, Real Estate Intermediate Services, Owner Occupied Dwelling Services of Urban Households, and Owner Occupied Dwelling Services of Rural Households, and Other Real Estate Activities. In the new industrial classification, *ICNEA GB/T4754-2002*, the section of the Public Administration and Social Organizations are further divided into five divisions, which are Organs of

² *Industry* hereby is a traditional terminology in Chinese industrial classification, which refers to Mining and Quarrying, Manufacturing, Production and Supply of Electricity, Gas and Water.

Communist Party of China; Organs of State; People’s Political Consultative Conference and Democratic Parties; Mass Communities, Social Associations and Religious Organizations; and Grassroots Self-control Organizations. In terms of the limited analytical function in economic structural analysis of the above five sub-categories in the section of the Public Administration and Social Organizations, it is not necessary to do the same partition in the national accounts.

In summary, the industrial classification adopted in GDP estimation in the year of economic census is showed in Table 1.

Table 1: Industrial Classification of China’s GDP Estimation in the Year of Economic Census

First Level	Second Level	Third Level	Fourth Level
Primary Industry	Agriculture, Forestry, Animal Husbandry and Fishing	Agriculture Forestry Animal husbandry Fishing Service activities for agriculture, forestry, animal husbandry and fishing	Agriculture Forestry Animal Husbandry Fishing Service activities for agriculture, forestry, animal husbandry and fishing
Secondary Industry	<i>Industry</i>	Mining and quarrying	Mining and washing of coal Extraction of petroleum and natural gas Mining of ferrous metal ores Mining of non-ferrous metal ores Mining and processing of nonmetal ores Mining of other ores n.e.c
		Manufacturing	Manufacture of beverage Manufacture of tobacco Manufacture of textile Manufacture of textile wearing apparel, footwear, and caps Manufacture of leather, fur, feather and its products Processing of timbers, manufacture of wood, bamboo, rattan, palm, and straw products Manufacture of furniture

			<p>Manufacture of paper and paper products</p> <p>Printing, reproduction of recording media</p> <p>Manufacture of articles for culture, education and sport activity</p> <p>Processing of petroleum, coking, Processing of nucleus fuel</p> <p>Manufacture of chemical raw material and chemical products</p> <p>Manufacture of medicines</p> <p>Manufacture of chemical fiber</p> <p>Manufacture of rubber</p> <p>Manufacture of plastic</p> <p>Manufacture of non-metallic mineral products</p> <p>Manufacture and processing of ferrous metals</p> <p>Manufacture and processing of non-ferrous metals</p> <p>Manufacture of metal products</p> <p>Manufacture of general purpose machinery</p> <p>Manufacture of special purpose machinery</p> <p>Manufacture of transport equipment</p> <p>Manufacture of electrical machinery and equipment</p> <p>Manufacture of communication equipment, computer and other electronic equipment</p> <p>Manufacture of measuring instrument and machinery for cultural activity and office work</p> <p>Manufacture of artwork, other manufacture n.e.c</p> <p>Recycling and disposal of waste</p>
		Production and supply of electricity, gas and water	<p>Production and supply of electric power and heat power</p> <p>Production and distribution of gas</p> <p>Production and distribution of water</p>

	Construction	Construction of building and civil engineering Architectural installation Architectural decoration Other construction	Construction of building and civil engineering Architectural installation Architectural decoration Other construction
Tertiary Industry	Transportation, Storage and Post	Transport via railway Transport via road Urban public transportation Water transport Air transport Transport via pipeline Loading, unloading, portage and other transport services Storage Post	Transport via railway Transport via road Urban public transportation Water transport Air transport Transport via pipeline Loading, unloading, portage and other transport services Storage Post
	Information Transfer, Computer Hardware and Software Services	Telecom and other information transfer services Computer hardware services Software services	Telecom and other information transfer services Computer hardware services Software services
	Wholesale and Retail Trade	Wholesale Retail trade	Wholesale Retail trade
	Hotels and Restaurants	Hotels Restaurants	Hotels Restaurants
	Finance and Insurance	Bank Securities Insurance Other financial activities	Bank Securities Insurance Other financial activities
	Real Estate	Real estate development Property management Real estate Intermediaries Service Owner occupied dwelling services of urban residents Owner occupied dwelling services of rural residents Other real estate activities	Real estate development Property management Real estate Intermediaries Service Owner occupied dwelling services of urban residents Owner occupied dwelling services of rural residents Other real estate activities
	Renting and Business Services	Renting Business services	Renting Business services

	Scientific Research, Technological Services and Geological Surveying	Research and experimental development Professional technique services Services of science and technique intercommunion and generalization Geological surveying	Research and experimental development Professional technique services Services of science and technique intercommunion and generalization Geological surveying
	Management of Water Conservancy, Environmental Resource and Public Infrastructure	Management of water conservancy Management of environmental resource Management of public infrastructure	Management of water conservancy Management of environmental resource Management of public infrastructure
	Resident Services and Other Services	Resident services Other services	Resident services Other services
	Education	Education	Education
	Health, Social Security and Welfare	Health Social security Social welfare	Health Social security Social welfare
	Culture, Sports and Recreation	Journalism and publishing activities Broadcasting, movies, television and audiovisual activities Culture and art Sports activities Recreation	Journalism and publishing activities Broadcasting, movies, television and audiovisual activities Culture and art Sports activities Recreation
	Public Administration and Social Organizations	Public administration and social organizations	Public administration and social organizations

By taking the above industrial classification, GDP estimation of China actually have four levels of partition. The fourth level breakdowns of all industries except *Industrial* activities are consistent with those of the third level. Of which, there are 17 breakdowns in the second level, 59 in the third level, and 95 in the fourth level. Comparing to the industrial classification used in current GDP estimation, the new industrial classification of GDP estimation in the year of economic census has an additional fourth level, 2 more breakdowns in the second level, 33 more breakdowns in the third level, which can better satisfy the needs of macro-economic analysis or various other purpose.

In addition, the adoption of the new industrial classification and the new standard of three-industry-partition makes the industrial classification in the year of economic census bear several other differences comparing to that of the previous years. Specifically, (i) Service Activities for Agriculture, Forestry, Animal Husbandry and Fishing is reclassified from the tertiary industry in the past to the primary industry in the year of economic census of GDP estimation; (ii) Harvesting of Timbers and Bamboos is adjusted from Mining and Quarrying to Agriculture, Forestry, Animal Husbandry and Fishing (concretely

to Forestry); (iii) Four breakdowns of the previous Social Services, which are Urban Public Transportation, Hotels, Computer Application Services, and Renting Services, are rearranged respectively to Transportation, Storage and Post, Hotels and Restaurants, Information Transfer, Computer Application and Software Services, Renting and Business Services.

IV. Classification of expenditure items of GDP estimation in the year of economic census

GDP estimation by expenditure approach in the current practice adopts an item classification of four levels. In the first level, there are three breakdowns that are Final Consumption Expenditure, Gross Capital Formation, Net Export of Goods and Services; In the second level, Final Consumption Expenditure is further divided into Household Consumption Expenditure and Government Consumption Expenditure; Gross Capital Formation into Gross Fixed Capital Formation and Changes in Inventories; Net Export of Goods and Services into Export of Goods and Services, and Import of Goods and Services; In the third level, Household Consumption Expenditure is further divided into Rural Household Consumption Expenditure and Urban Household Consumption Expenditure. In the fourth level, Rural Household Consumption Expenditure is broken into five broad categories such as Consumption of Traded Consumer Goods, Consumption of Own Account Consumer Goods. Urban Household Consumption Expenditure is broken into seven broad categories such as Consumption of Traded Consumer Goods, Income in Kind. In summary, the classification of expenditure items of GDP estimation in current practice is shown as follows:

Final consumption Expenditure

Household Consumption Expenditure

Rural Household Consumption Expenditure

Consumption of Traded Consumer Goods

Consumption of Own Account Consumer Goods

Consumption of Culture and Recreation Services

Consumption of Housing, Water, Electricity and Gas

Consumption of Owner-occupied Dwellings Services

Urban Household Consumption Expenditure

Consumption of Traded Consumer Goods

Consumption of Own Account Consumer Goods

Consumption of Income in Kind

Consumption of Culture and Recreation Services

Consumption of Housing, Water, Electricity and Gas

Consumption of Owner-occupied Dwellings Services

Consumption of Free Medical Services

Consumption of Collective Welfare Services

Government Consumption Expenditure

Gross Capital Formation

Gross Fixed Capital Formation

Changes in Inventories

Net Export of Goods and Services

Export of Goods and Services

Import of Goods and Services

Based on the needs of macro-economic analysis and the existing data sources, the components of both rural and urban household consumption expenditure are primarily considered to be adjusted; the categories of both export and import of goods and services are to be further disaggregated into a more detailed level.

Apart from breakdowns of *Consumption of Free Medical Care, Consumption of Financial Intermediation Services and Insurance Services, Imputed Owner-Occupied Dwelling Services*, the breakdowns of Rural Household Consumption Expenditure are adjusted to be consistent with those breakdowns in the first level classification of Household Consumption Expenditure in the Rural Household Survey. That is,

Rural Household Consumption Expenditure

Consumption of Foods

Consumption of Clothes

Consumption of Dwelling Services

Consumption of Family Appliances and Services

Consumption of Health Care Services

Consumption of Free Medical Care Services

Consumption of Transport and Telecom Services

Consumption of Appliances and Services of Education, Culture and Recreation

Consumption of Financial Intermediation Services and Insurance Services

Consumption of Owner-occupied Dwelling Services

Consumption of Other Goods and Services

Apart from breakdowns of *Consumption of Free Medical Care, Consumption of Financial Intermediation Services and Insurance Services, Imputed Owner-Occupied Dwelling Services, Consumption of Income in Kind*, the breakdowns of Urban Household Consumption Expenditure are adjusted to be consistent with those breakdowns in the first level classification of Household Consumption Expenditure in the Urban Household Survey. That is,

Urban Household Consumption Expenditure

Consumption of Foods

Consumption of Clothes

Consumption of Dwellings Services

Consumption of Family Appliances and Services

Consumption of Health Care Services

Consumption of Free Medical Care Services

Consumption of Transport and Telecom Services

Consumption of Appliances and Services of Education, Culture and Recreation

Consumption of Financial Intermediation Services and Insurance Services

Consumption of Owner-occupied Dwelling Services

Consumption of Income in Kind

Consumption of Other Goods and Services

The export of goods and services are first disaggregated into export of goods and exports of services. Then further breakdowns are achieved by making use of the breakdowns in the Balance of Payment accounts. That is,

Export of Goods and Services

Export of Goods

Export of General Goods

Export of Processing Goods

Export of Other Goods

Export of Services

Export of Transportation Services

Export of Tourism Services

Export of Communication Services

Export of Construction Services

Export of Insurance Services

Export of Computer and Information Services

Export of Other Services

The breakdown of *Export of Other Goods* in the above classification includes *goods repairing, Goods purchased in port by various vehicles* etc.; The breakdown of *Export of Other Services* in the above classification includes *Fee for Patent and Royalty, Consultation Services, Advertisement and Publicity, Movies and Audio-video Products, Other Commercial Services and Governments Services* etc. The import of goods and services has the same detailed classification with the export of goods and services.

V. Change of data sources for GDP estimation in the year of economic census

Economic census provided very much informative survey data for GDP estimation, of which, some are unique in the census year, some are more informative than the regular statistics, and some are different from the regular statistics. Differences can be shown in the following aspects:

- (I) The Financial statements data of the following types of cooperation or other legal entities are not available in the regular statistics.

All of non-grades Construction enterprises

Both Road Transport enterprises and water Transport enterprises out of domination of Ministry of Communications

Urban Public Traffic enterprises

Computer Hardware and Software Services enterprises

Wholesale and Retail Trade enterprise below cut-off

Hotels and Restaurants enterprises below cut-off

Enterprises for Management concerning Dwellings, Agency Services and Other Real Estate Services

Renting and Business Services enterprises

Scientific Research, Technological Services and Geological Surveying enterprises and legal entities

Enterprises and legal entities of Management of Water Conservancy, Environmental Resource and Public Infrastructure

Household Services and Other Services enterprises

Enterprises and legal entities of Education, Health, Social Security and Social Welfare

Enterprises and legal entities of Internet Information Services, Broadcasting and Television Transmission Services, and Satellite Signal Transmission Services

Enterprises and legal entities of Culture, Sports and Recreation

Legal entities of Public Administration and Social Organizations

The economic census provided relatively detailed financial statements data on the above various types of corporations or other legal entities (Census Office, 2004).

Questionnaire of Situations of Production and Management of Subcontractor and Construction Enterprises with Non-qualification Criteria

Questionnaire of Financial Situation of Transport, Post and Telecommunication Enterprise

Questionnaire of Financial Situation of Enterprise below Designated Size in Wholesale and Retail Trade

Questionnaire of Situations of Production and Management of Enterprise below Designated Size in Hotels and Catering Services

Questionnaire of Situations of Production and Management of Property Management, Intermediaries Service and Other Real Estate Enterprise

Questionnaire of Financial Situation of Service Enterprise

Questionnaire of Financial Situation of Administrative and Institutional Unit

(II) Financial statements indicators for **Industrial** enterprises under cut-off level in the sample survey questionnaires in regular statistics are different from those in the economic census (Census Office, 2004, NBS, 2003b).

(III) Data on the performance of individual business operators in various industries are very limited in the regular statistics. By contrast, specific questionnaires with indicators of Operating Income, Operating Cost, Compensation of Employee, and Taxes etc., *Questionnaire of Operating Status of Individual Business Operators*, are designed for a number of industries including **Industry**, Construction, Transportation, Wholesale, Retail Trade, Hotels, Restaurants, Real Estate, Renting and Business Services, Education, Health Care and Social Welfare, Household Services, Culture,

Sports and Recreation Services, Other Services in the economic census year.(Census Office, 2004). Such information constructs the base of value added estimation of the individual business

- (IV) Data on the establishments whose activities are different from the main activity of cooperation or other legal entities are very limited in regular statistics. Therefore, *Questionnaire on Basic Information of Establishments* is designed in the economic census to provide data on value-added estimation of the establishments (Census Office, 2004).

VI. Adjustment of Method of GDP Estimation in the Year of Economic Census

Due to the change of data sources, method of GDP estimation in the year of economic census needs to be adjusted accordingly. The corresponding adjustment of method of GDP estimation caused by the four types of change mentioned above is as follows:

- (I) In years other than economic census, due to the lack of financial statements data on various types of corporations or other legal entities mentioned in the previous section, value-added estimation of corresponding activities has to be derived with an indirect or mainly indirect method by using the relevant indicators in the regular statistics. In years of economic census, questionnaires on financial statements, and questionnaires on operating status are designed to collect corresponding information of the above legal entities. Therefore, new method can be employed to estimate the value-added of relevant activities. Although these financial data may still be not fully enough for value-added estimation, the new method can be addressed as “direct method” or “mainly direct
- (II) Since financial statements indicators for *Industrial* enterprises under cut-off level in the questionnaires of economic census are different from those in the sample survey questionnaires in regular statistics, the estimation method of value-added of the enterprises under cut-off level need to be adjusted accordingly.
- (III) Due to the limited data on individual business operators available in the regular statistics, all value-added of such activities are estimated through taxes or other relevant indicators. *Questionnaire of Operating Status of Individual Business Operators* is designed for 14 industries in this economic census, therefore, the value-added created by these activities can be derived based on the corresponding indicators in the above questionnaire.
- (IV) *Questionnaire on Basic Information of Establishments* is designed in the economic census to provide data on value-added estimation of the activities of establishments, which are different from the main activity of the cooperation or other legal entities. Therefore, the method of value-added estimation of these establishments needs to be adjusted based on the above questionnaire accordingly.

VII. Main data sources and basic method of GDP estimation in year of economic census

- (I) Basic method of GDP estimation in the year of economic census

Three approaches are used to estimate GDP, which are production approach, income approach, and expenditure approach. The specific formula of each approach is shown as follows:

$$\begin{aligned} \text{GDP by production approach} &= \Sigma \text{ value-added by production approach} \\ &= \Sigma (\text{output} - \text{intermediate input}) \end{aligned}$$

$$\begin{aligned} \text{GDP by income approach} &= \Sigma \text{ value-added by income approach} \\ &= \Sigma (\text{compensation of employees} + \text{net production taxes} + \text{depreciation} + \\ &\text{operating surplus}) \end{aligned}$$

$$\begin{aligned} \text{GDP by expenditure approach} &= \text{Final consumption expenditure} \\ &\quad + \text{Gross capital formation} \\ &\quad + \text{Net export of goods and services} \\ &= (\text{Household consumption expenditure} + \text{Government consumption expenditure}) + (\text{Gross fixed} \\ &\text{capital formation} + \text{Changes in Inventories}) \\ &\quad + (\text{Export of goods and services} - \text{Import of goods and services}) \end{aligned}$$

GDP estimation in year of economic census will undertake the above three approaches simultaneously. Indicators in each formula of the above are clearly defined in the *System of china's National Accounts, 2002* (NBS, 2003a). Based on these definitions, specific estimation method will be given in the plan of GDP estimation in the year of economic census.

(II) Main data source of production-oriented GDP estimation in the year of economic census

Production-oriented GDP estimation is basically value-added estimation of each industry, which includes production approach and income approach.

Estimation method of value-added of Agriculture, Forestry, Animal Husbandry, and Fishing will remain the same since they are not included in this economic census. Estimation method of all other industries will adopt new methods based on the data from economic census. The detailed description of data sources based on the economic census is as follows:

Table 2: Data Sources Based on the Economic Census for GDP Estimation in the year of Economic Census

Industry	
	1. Questionnaire of Situations of Production of Industrial Enterprise above Designated Size
	2. Questionnaire of Financial Situation of Industrial Enterprise above Designated Size
	3. Questionnaire of Situations of Production and Management of Industrial Enterprise below Designated Size
	4. Questionnaire of Basic information of Establishment
	5. Questionnaire of Individuals Business Operation

Construction	<ol style="list-style-type: none"> 1. Questionnaire of Situations of Production of General Contractor and Professional Contractor (Special Trade) of Construction Enterprise 2. Questionnaire of Financial Situation of General Contractor and Professional Contractor (Special Trade) of Construction Enterprise 3. Questionnaire of Situations of Production and Management of Subcontractor and Construction Enterprises with Non-qualification Criteria 4. Questionnaire of Basic information of Establishment 5. Questionnaire of Individuals Business Operation
Transportation, Storage and Post	<ol style="list-style-type: none"> 1. Questionnaire of Financial Situation of Transport, Post and Telecommunication Enterprise 2. Questionnaire of Profit and Loss Statement of Railway Transportation Enterprise 3. Questionnaire of Statement of Total Expenditure of Railway Transportation Enterprise 4. Questionnaire of Financial Situation of National Post Agency 5. Questionnaire of Financial Situation of Service Enterprise 6. Questionnaire of Financial Situation of Administrative and Institutional Unit 7. Questionnaire of Basic Information of Establishment 8. Questionnaire of Individuals Business Operation
Wholesale and Retail Trade	<ol style="list-style-type: none"> 1. Questionnaire of Financial Situation of Enterprise above Designated Size in Wholesale and Retail Trade 2. Questionnaire of Financial Situation of Enterprise below Designated Size in Wholesale and Retail Trade 3. Questionnaire of Basic Information of Establishment 4. Questionnaire of Attachment to Basic Information of Establishment 5. Questionnaire of Individuals Business Operation
Hotels and Catering	<ol style="list-style-type: none"> 1. Questionnaire of Situations of Production and Management of Enterprise above Designated Size in Hotels and Catering Services 2. Questionnaire of Situations of Production and Management of Enterprise below Designated Size in Hotels and Catering Services 3. Questionnaire of Basic Information of Establishment 4. Questionnaire of Attachment to Basic Information of Establishment 5. Questionnaire of Individuals Business Operation
Finance and Insurance	<ol style="list-style-type: none"> 1. Questionnaire of Profit and Loss Statement of Bank and Financial Enterprise 2. Questionnaire of Balance Sheet of Bank and Financial Institution 3. Questionnaire of Profit and Loss Statement of Insurance Enterprise 4. Questionnaire of Expenses Statement of Insurance Enterprise 5. Questionnaire of Balance sheet of Insurance Enterprise 6. Questionnaire of Profit and Loss Statement of Securities Enterprise

	<ul style="list-style-type: none"> 7. Questionnaire of Expenses Statement of Securities Enterprise 8. Questionnaire of Balance sheet of Securities Enterprise
Real Estate	<ul style="list-style-type: none"> 1. Questionnaire of Situations of Production and Management of Real Estate Development Enterprise 2. Questionnaire of Financial Situation of Real estate Development Enterprise 3. Questionnaire of Situations of Production and Management of Property Management, Intermediaries Service and Other Real Estate Enterprise 4. Questionnaire of Attachment to Basic Information of Establishment 5. Questionnaire of Individuals Business Operation
Renting and Business Services	<ul style="list-style-type: none"> 1. Questionnaire of Financial Situation of Service Enterprise 2. Questionnaire of Financial Situation of Administrative and Institutional Unit 3. Questionnaire of Attachment to Basic information of Establishment 4. Questionnaire of Individuals Business Operation
Scientific Research, Technological Services and Geological Surveying	<ul style="list-style-type: none"> 1. Questionnaire of Financial Situation of Service Enterprise 2. Questionnaire of Financial Situation of Administrative and Institutional Unit 3. Questionnaire of Basic information of Establishment
Management of Water Conservancy, Environmental Resource and Public Infrastructure	<ul style="list-style-type: none"> 1. Questionnaire of Financial Situation of Service Enterprise 2. Questionnaire of Financial Situation of Administrative and Institutional Unit 3. Questionnaire of Basic information of Establishment
Resident Services and Other Services	<ul style="list-style-type: none"> 1. Questionnaire of Financial Situation of Service Enterprise 2. Questionnaire of Financial Situation of Administrative and Institutional Unit 3. Questionnaire of Basic information of Establishment 4. Questionnaire of Individuals Business Operation
Education	<ul style="list-style-type: none"> 1. Questionnaire of Financial Situation of Service Enterprise 2. Questionnaire of Financial Situation of Administrative and Institutional Unit 3. Questionnaire of Basic information of Establishment 4. Questionnaire of Individuals Business Operation
Health, Social Security and Welfare	<ul style="list-style-type: none"> 1. Questionnaire of Financial Situation of Service Enterprise 2. Questionnaire of Financial Situation of Administrative and Institutional Unit 3. Questionnaire of Basic information of Establishment 4. Questionnaire of Individuals Business Operation
Culture, Sports and Recreation	<ul style="list-style-type: none"> 1. Questionnaire of Financial Situation of Service Enterprise 2. Questionnaire of Financial Situation of Administrative and Institutional Unit 3. Questionnaire of Basic information of Establishment

	4. Questionnaire of Individuals Business Operation
Public Administration and Social Organizations	1. Questionnaire of Financial Situation of Administrative and Institutional Unit

Estimation method of value-added of each industry in the year of economic census is formulated based on the indicators in the above questionnaires of the economic census in combination with indicators from relevant sample surveys.

(III) Changes in the data sources and methods of expenditure-oriented GDP estimation in the year of economic census

As mentioned above, GDP by expenditure approach consists of Household Consumption Expenditure, Government Consumption Expenditure, Gross Fixed Capital Formation, Changes in Inventories, Export of Goods and Services, Import of Goods and Services. The data sources and estimation method of these items in the year of economic census will be adjusted in the following aspects:

1. Household Consumption Expenditure

Comparing with the previous years, data sources and estimation method of Household Consumption Expenditure in the year of economic census varies in two aspects. First, the population used for calculating Rural Household Consumption Expenditure and Urban Household Consumption Expenditure are data from the census, which are counted by current residence, rather than those used in the non-census years, which are counted by the registered permanent residence. Second, in non-census years, Consumption of Traded Consumer Goods is calculated based on the indicator of Retails of Commodities, whereas in census years, it is based on the household consumption expenditure data from the Rural Household Survey and the Urban Household Survey.

2. Government Consumption Expenditure

Comparing with the previous years, the main change of the data sources and estimation method of Government Consumption Expenditure in the year of economic census is as follows: While in non-census years, *Government Consumption Expenditure* is estimated mainly based on government financial statements data, and equals to the sum of current expenditure in budgetary operating expenses, current operating expenditure in extra-budgetary expenditure, depreciation of fixed assets of government, and current expenditures of urban neighborhood committee and village committee, in the year of economic census, it is estimated mainly using relevant data from the economic census, and equals to the difference between the sum of output of government sectors and the operating income of government sectors.

3. Gross Fixed Capital Formation

Comparing with the previous years, the main change of the estimation of Gross Fixed Capital Formation is the adjusted treatment of software expenditure. Such adjustment will expand the coverage and consequently increase the level of Gross Fixed Capital Formation.

4. Changes in Inventories

Comparing with the previous years, the main change of the estimation of Changes in Inventories in the year of economic census is that in the previous years, Changes in Inventories is mainly estimated according to various regular statistics and financial statements, whereas in census year, it is mainly estimated by census data.

5. Import and Export of Goods and Services

Comparing with the previous years, the main change of the estimation of Import and Export of Goods and Services in the year of economic census is that items of detailed Export of Goods and Services and items of detailed Import of Goods and Services are estimated based on the detailed data of the Balance of Payment.

VIII. Adjustment of Some Special Treatment

As stated in the very beginning of this paper, comparing to the SNA 1993, some treatments in Chinese GDP estimation are lack of reasonableness, including treatment of financial intermediation services, treatment of taxes on imported goods, treatment of software, etc. (XU, 2001). Although we try to adjust such treatments in a number of years, we are hampered by the constraint of the data sources and the requirement of maintaining of the comparability of the historical data. We plan to take the opportunity of the economic census and the following historical adjustment of GDP estimation to rectify these unreasonable treatments.

(I) Adjustment of the treatment of financial intermediation services

In current practice, net interest accrued of each industry is treated as intermediate input. This treatment overestimated the use of financial intermediation services, therefore artificially increase the intermediate input of industries in total. In order to offset this effect, the interest receivable of household deposit is added into the value-added of financial industry. This treatment is either different from SNA 1968, or from SNA 1993 (XU, 2002). A preliminary consideration is to develop a new treatment in the year of economic census both of maneuverability and to be consistent with SNA 1993 as much as possible. A distribution ratio is developed in the new method, which can be calculated either by using the sum of interests receivable and interests payable of each industry and final user over the sum of interests receivable and interests payable of financial intermediation institutions, or by using the sum of the stock of the loans and the stock of the deposits of each industry and final user over the sum of stock of the loans and stock of the deposits of financial intermediation institutions. With the distribution ratio, the output of financial intermediation services is allocated across industries and final users. The proportion distributed to industries is treated as the intermediate consumption, while the proportion distributed to the final users is treated as the final consumption. The above new method guarantees the consistency between the production and use of financial intermediation services. Consequently, the interest receivable of household deposit is no longer treated as a component of value-added of financial intermediation industry.

(II) Adjustment of the treatment of taxes on imported goods

In current practice, taxes on imported goods is added to the value-added of wholesale and retail trade industry. This treatment is different from that recommended in the SNA, where taxes on imported goods (deducting subsidies) is not considered at industry level when value-added is estimated at basis prices, but is included lump-sum in the item of products tax (deducting subsidies) of production-oriented GDP. When value-added is estimated at producers' prices, it is included in the GDP by production approach and by income approach as a separate item (UN, 1993). In the year of economic census, the treatment will follow SNA's recommendation and the taxes on imported goods is to be concluded lump-sum in the GDP by production approach and by income approach rather than added into the value-add of wholesale and retail trade industry as before.

(III) Adjustment of the Treatment of Computer Software

In SNA 1993, *computer software that an enterprise expects to use in production for more than one year is treated as an intangible fixed asset. Such software may be purchased on the market or produced for own use. Acquisitions of such software are therefore treated as gross fixed capital formation. Software purchased on the market is valued at purchasers' prices, while software developed in-house is valued at its estimated basic price or at its costs of production if it is not possible to estimate the basic price* (Paragraphs 10.92 and 10.93, UN, 1993). Due to the constraint of data sources, whether the acquisition of computer software treated as fixed capital formation or treated as intermediate input is not clearly defined in current practice (XU, 2001). In the year of economic census, the treatment will change to be consistent with that recommended in the SNA according to the census data as much as possible.

(IV) Adjustment of the depreciation ratio used in the imputed calculation of households owner-occupied dwellings

In current practice, the depreciation ratio used in the imputed calculation of owner-occupied dwellings of rural households is 2%, while for urban households is 4% (DNA, 2001). Such treatment cannot reflect the economic reality, since owner-occupied dwellings in urban area is generally of higher quality than those in rural area in terms of firmness and durability. Therefore, the depreciation ratio for urban owner-occupied dwellings is not reasonable to be higher than that of rural owner-occupied dwellings. These two ratios will be adjusted to be consistent in the year of economic census.

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