



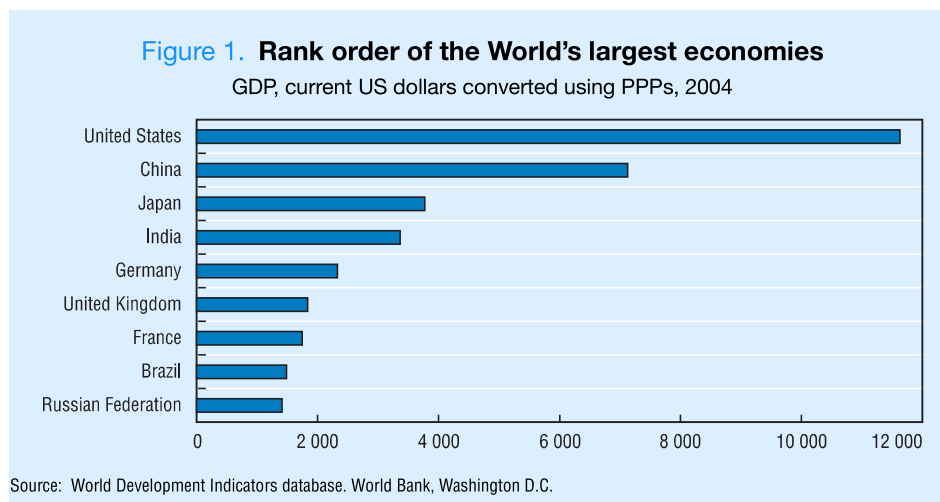
Chapter 13

CHINA'S NATIONAL ACCOUNTS

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1. Introduction

With more than 1.25 billion inhabitants, China's population dwarfs that of all other countries except India. According to the World Bank estimates shown in Figure 1 below, China is also an economic giant, with a GDP in 2004 second only to that of the United States. China's GDP is shown as more than one and a half times bigger than that of the next largest country – Japan – and its GDP is larger than those of Germany, the United Kingdom and France combined. Question: how reliable are the numbers for China in Figure 1?



In order to compare the levels of GDP between the countries shown in Figure 1, their GDPs in national currencies have been converted to US dollars using *Purchasing Power Parities (PPPs)*. For three countries – China, India and Brazil – the PPPs are World Bank estimates based on PPPs that were directly measured only several years ago. The China PPP is not even an official estimate and is based on an estimate made for 1995 by an independent Chinese researcher.¹ There are several indications that the PPP used for China in Figure 1 may be too low by a substantial margin – thereby exaggerating the size of China's GDP. It is probable, however, that in economic terms China is either number two or three in the world – either ahead of, or just behind, Japan.²

What about China's estimate of GDP in national currency? The reliability of both the level and growth rates of China's GDP have often been criticised in the European and

American press and in academic literature. One of the most detailed criticisms was made by Professor Angus Maddison,³ who concluded that both growth rates and GDP levels were being overstated. However, history does not seem to vindicate his assessment: China's GDP level was recently (December 2005) revised by 16.8% following the incorporation of new data on the service sector, and real GDP in the last decade has been revised by +0.5% per year (see Box 3).

The Chinese statisticians have reacted to criticism of their national accounts and related economic statistics in a way that does credit to them – by inviting advice and collaboration both from national statistical agencies (in the United States, Australia and Italy, for example), and from statisticians working in international organisations (such as the World Bank, the IMF and the OECD). This chapter draws on discussions between statisticians from the OECD and the Chinese National Bureau of Statistics (NBS) about the methods used to estimate the national accounts: how reliable are they and how might they be improved.⁴

The conclusion reached here is that China's national accounts are a reliable guide to the level and growth of GDP, even though the margins of error are certainly larger than for most developed countries.

2. Background

From 1952 to 1984, China's national accounts were compiled according to the *Material Product System (MPS)*. This system was developed by the Soviet Union to manage a planned economy in which the supply and use of resources were determined by multiyear plans. Up until the mid-1960s, China received technical assistance from Soviet statisticians in implementing the Material Product System and in designing the system of data collection on which it was based.

National accounts based on the United Nations *System of National Accounts (SNA)* were first published on a regular basis in 1985, although these SNA estimates were essentially derived from the MPS accounts using an approximate conversion table developed by the United Nations Statistical Office. From 1985 to 1992, accounts were published according to both the MPS and the SNA, and in 1992 the SNA was adopted as the official accounting system for China. The MPS was abandoned, and since 1993 the national accounts have been compiled following SNA rules. Despite this, the statistical practices and habits learned during the MPS years still impinge to some extent on the way that Chinese statistics are compiled and presented (see Box 1).

China's national accounts cover mainland China. Therefore, they include the special economic zones within China but exclude the Special Administrative Regions of Hong Kong and Macao. Taipei Province of China, legally considered to be part of China, is also excluded.

Box 1. Lingering effects of the MPS (Material Product System)

Although the MPS has long been officially abandoned, old habits die hard and some features of the MPS, as well as the data collection system used to support it, remain. In particular:

The quarterly national accounts are compiled on a cumulative basis – *i.e.* January to March, then January to June, January to September, and finally January to December. Cumulative data collection – both monthly and quarterly – was the standard practice under central planning because the main concern of government officials was meeting the annual targets set by the central planners. At the end of each month or quarter, they needed to know how near they were to meeting the annual targets.

Under central planning, detailed information was collected from every farmer, every factory, every shop, every truck operator and indeed from every unit in which people were employed. Comprehensive reporting is unreliable because it is impossible in practice to monitor the quality of the reported data. It is particularly unreliable in China where information is collected by the lowest-level administrative agency relevant for the particular enquiry – typically villages, neighborhood committees and townships.

The data are then passed on to the next higher level where they are added up, and then on to next level, eventually ending up at the NBS or another agency of the central government. This long reporting chain allows many possibilities for inadvertent error. Since the early 1990s, the NBS has been progressively introducing sample surveys to collect data on important areas of the economy, notably in agriculture and industry. In particular, for most types of activities NBS has abandoned comprehensive reporting for enterprises below a certain size, and sample surveys have been introduced in their place. This has resulted in progressive improvement in the quality of the basic data underlying the Chinese national accounts, but there are still a few areas where comprehensive reporting continues to be used.

Central planning encourages dishonesty in statistical reporting. Local officials can expect to be rewarded when they report that planned output has been achieved or exceeded, but there are no thanks for missing a target. The sheer size of China limits the ability of the central authorities to monitor properly reporting at the local level. And although central planning has been effectively abandoned, overstatement of output and income remains a problem in the statistics reported by most of China's 30 Provinces.^{*} In several recent years, the growth rate of China's GDP estimated by the National Bureau of Statistics has been lower than the growth rates of regional GDP estimated by almost all of the 30 provincial statistical offices. Statistically, this is almost impossible and the NBS is implicitly accusing most of the provincial statistical offices of overstating their GDP.

As its name implies, the Material Product System focused on the production of physical objects – agriculture, forestry, fishing, industry and construction – and only services directly linked to these goods-producing sectors were considered to be productive. Retail and wholesale trade and transport of goods were therefore included, but other services, such as financial, legal and business services, health, education, cultural and personal services, were not regarded as productive. Production and consumption of these services were defined as transfers and so did not contribute to national income.

Box 1. Lingering effects of the MPS (Material Product System) (cont.)

The NBS carried out a first Census of the Tertiary Sector in 1992 and this covered all the service activities that are included in the SNA. But for more than a decade after that, there were no comprehensive surveys of the tertiary sector until the 2004/5 Economic Census, which was incorporated into the national accounts in December 2005, leading to a +16.8% increase in the level of GDP. The NBS is now planning regular surveys of service activities using the results of the Economic Census as the survey frame, and this will fill what has hitherto been an important gap in the national accounts data base.

* For example, the IMF reports that a national inspection team led by the NBS in 2001 reviewed statistical returns submitted during 1999 and 2000. Over 60 000 cases of violation of the statistical law were uncovered of which around 20 000 cases involved punishment. The remaining cases were less serious and were addressed through corrective measures taken by the enterprises. Among various types of violation the misreporting of data accounted for almost 60 per cent of total cases, mainly over-reporting of output and underreporting of income by enterprises. (See the page *Data Integrity and Access by the Public for China* on the IMF website – <http://dsbb.imf.org/Applications>.)

3. Published national accounts

For *annual national accounts*, the following tables are published by China's National Bureau of Statistics:

- Gross domestic product at current market prices for 16 kinds of activities.
- For GDP at constant prices, only growth rates for the 16 kinds of activities are published. A fixed base year – now 2000 – is used.
- GDP by expenditure is compiled at current and constant prices, but the constant price estimates are not published. Only totals are shown for government consumption expenditure, gross fixed capital formation, changes in inventories, and exports less imports of goods and services. Household consumption expenditure is shown separately for *urban* and *rural* households.
- Income and outlay accounts are published for five institutional sectors: non-financial corporations sector; financial corporations sector; general government sector; household sector; and the rest of the world sector. Note that the sector “non-profit institutions serving households (NPISH)” is not recognised in China's national accounts. Political parties, religious organisations, trade unions, civil rights organisations and such that are allocated to the NPISH sector in most countries are considered to be part of the general government sector in China. (This seems to be a correct interpretation of the SNA since these organisations are largely funded and controlled by government.)
- The income components of GDP – compensation of employees, operating surplus and consumption of fixed capital – are published only in the input-output tables, which are generally produced every five years.

Quarterly national accounts are compiled in both current and constant 2000 prices, but only growth rates – referring to the change compared with the same period of the

previous year – are published. Growth rates are shown separately for the three sectors – *primary*, *secondary* and *tertiary* (see below). As noted above, the quarterly accounts are on a cumulative basis rather than for discrete quarters (see Box 2). The cumulative quarterly accounts for January to December are considered preliminary estimates of the annual accounts.

Input-output tables according to the SNA were first published for 1987. The input-output tables are now compiled twice every five years. One is a detailed benchmark table, the other is a less-detailed updated table. In 1987, 1992, 1997 and 2002, benchmark tables based on special input-output surveys were compiled, while in 1990, 1995, 2000, the tables were updated in less detail. The input-output tables treat customs duties and “financial intermediation services indirectly measured” (or FISIM) differently from the GDP estimates. So the input-output tables are not fully consistent with the GDP estimates.

Box 2. “De-cumulating” China’s quarterly national accounts

As noted, the quarterly national accounts are compiled on a cumulative basis and not for discrete quarters. Cumulative data can of course be “de-cumulated” by subtracting the previous quarter’s results from the current quarter. NBS statisticians caution against doing this because errors and omissions detected in the course of the year are not assigned to their correct quarter but are all included in the latest cumulative estimates. As a result, de-cumulating may result in these corrections being assigned to the wrong quarter.

For some time, the OECD Statistics Directorate published de-cumulated quarterly national accounts for China in Main Economic Indicators (MEI). The editors of MEI believed that most of their readers are so unfamiliar with cumulative quarterly data that they will either regard them as unusable, or they will attempt to de-cumulate (incorrectly) the series themselves. However, publication of the de-cumulated quarters has now been discontinued for the reasons mentioned above.

4. Publication schedule

Annual national accounts.

The “preliminary” estimates for a given year are published 20 days after the end of the year. These are the quarterly estimates for January to December.

Revised estimates are published 9 months after the end of the year. These are estimates of annual GDP made independently from the quarterly estimates.

The final estimates are published 17 months after the end of the year.

The accounts for institutional sectors are published 24 months after the end of the year.

Quarterly national accounts

The first estimates of Quarterly GDP are published about 20 days after the end of the quarter.

The revised estimates are published about 45 days after the end of the quarter.

When the final annual estimates are published 17 months after the end of the year, the quarterly accounts are benchmarked to the annual figures and become final.

5. Classification

Types of activities

In tables and accounts showing GDP by type of economic activity, the NBS uses a classification based on the “historical sequence of economic development”. Three kinds of production are distinguished – primary, secondary and tertiary. This designation is based on the theory that each sector will, in turn, dominate the economy as development proceeds. The full breakdown is:

Primary sector (consisting of agriculture, forestry and fishing).

Secondary sector broken down between *construction* on the one hand and *industry* on the other. Industry consists of mining and quarrying, manufacturing, gas, water and electricity production.

Tertiary sector, further broken down into:

- Services for agriculture, forestry and fishing.
- Geological prospecting and water conservancy.
- Transport.
- Post and telecommunications.
- Wholesale and retail trade and catering.
- Banking and insurance.
- Real estate.
- Social services.
- Health care, sports and social welfare.
- Education, culture and arts, radio, film and television.
- Scientific research and technological services.
- Government agencies, parties and social organisations.
- Other services.

What is striking about this classification is that there is only a two-part breakdown for the large secondary sector (construction, on the one hand, and all other secondary activities on the other), yet there is a much more detailed breakdown of the tertiary sector, which is considerably smaller. In 2004, the secondary and tertiary sectors accounted for 53% and 32% of GDP, respectively. The primary sector – 15% of GDP in 2004 – is also shown as a single total, although the components – agriculture, forestry and fishing – are very different kinds of activities.

According to NBS, the reason for these classifications is that data are collected for each enterprise as a whole. In the primary and secondary sectors, most large enterprises have many separate units that produce different kinds of products, and enterprises are assigned to the kind of activity that accounts for the greatest part of their gross output. For example, a single enterprise may extract mineral ore, refine it, produce several different kinds of metal products, construct its own buildings and generate its own electricity. Because the entire output and value added of the enterprise can be assigned to only one of these activities, the NBS consider it misleading to publish a more detailed breakdown for the primary and secondary sectors. This is less of a problem for the tertiary sector, since the vast majority of service enterprises produce only one kind of output.

Note, however, that the input-output tables provide a detailed breakdown of output and value added by kind of economic activity. The input-output tables are based on special surveys that collect detailed information on outputs and intermediate consumption for each production unit within the enterprise. The latest input-output table distinguishes 124 kinds of activities.

Table 1 shows the composition of GDP according to the primary, secondary, tertiary classification, from the beginning of the economic reforms in 1978 to 2004. The period averages in the bottom panel of the table show that the share of agriculture forestry and fishing has been halved over the period and that the tertiary sector has increased by around 50%. The secondary sector has been rather stable over the period although there has been a marked rise in construction activity.

Table 2 gives a more detailed breakdown of the tertiary sector. Posts and telecommunications, hotels and other tourism-related services have been growing rapidly. Within “other services”, education, culture and arts, radio, film and television have all increased their shares of GDP.

6. Ownership

Chinese policy makers are much concerned with the trend and structure of economic ownership. In the past, the economy was completely dominated by state-owned and collective enterprises, but since the Reform and Opening Policy, which began in 1978, the structure of enterprise ownership has changed greatly.

Table 1. Composition of gross domestic product
 Percentage of GDP, current prices

	Gross Domestic Product	Primary Sector	Secondary Sector				Tertiary Sector	
			Total	Industry	Construction	Total	Transport and com-munications	Wholesale and retail trade and catering
1978	100.0	27.9	47.9	44.1	3.8	24.2	4.7	7.3
1979	100.0	31.0	47.1	43.6	3.5	21.9	4.5	5.4
1980	100.0	29.9	48.2	43.9	4.3	21.9	4.5	4.7
1981	100.0	31.6	46.1	41.9	4.2	22.3	4.3	5.2
1982	100.0	33.1	44.8	40.6	4.1	22.1	4.4	3.7
1983	100.0	32.9	44.4	39.8	4.5	22.7	4.4	3.9
1984	100.0	31.8	43.1	38.7	4.4	25.1	4.5	5.7
1985	100.0	28.2	42.9	38.3	4.6	28.9	4.5	9.7
1986	100.0	26.9	43.7	38.6	5.1	29.4	4.6	9.2
1987	100.0	26.6	43.6	38.0	5.5	29.9	4.5	9.6
1988	100.0	25.5	43.8	38.4	5.4	30.7	4.4	10.8
1989	100.0	24.9	42.8	38.2	4.7	32.3	4.6	9.9
1990	100.0	26.9	41.3	36.7	4.6	31.8	6.1	7.6
1991	100.0	24.3	41.8	37.1	4.7	33.9	6.5	9.6
1992	100.0	21.5	43.5	38.2	5.3	35.0	6.2	10.2
1993	100.0	19.5	46.5	40.1	6.4	34.0	6.3	9.1
1994	100.0	19.7	46.4	40.3	6.2	33.9	6.0	9.0
1995	100.0	19.7	47.2	41.1	6.1	33.1	5.6	9.0
1996	100.0	19.5	47.6	41.4	6.2	33.0	5.7	9.0
1997	100.0	18.0	47.6	41.7	5.9	34.4	5.8	9.3
1998	100.0	17.3	46.2	40.3	5.9	36.5	6.1	9.6
1999	100.0	16.2	45.8	40.0	5.8	38.0	6.5	9.8
2000	100.0	14.8	45.9	40.4	5.6	39.3	7.4	9.7
2001	100.0	14.1	45.2	39.7	5.4	40.7	7.7	9.8
2002	100.0	13.5	44.8	39.4	5.4	41.7	7.8	9.9
2003	100.0	12.6	46.0	40.5	5.5	41.5	7.4	9.9
2004	100.0	13.1	46.2	40.8	5.4	40.7	7.6	9.5
1978-1980	100.0	29.7	47.7	43.9	3.9	22.6	4.6	5.7
1981-1985	100.0	31.2	44.0	39.6	4.4	24.8	4.5	6.1
1986-1990	100.0	26.1	42.9	37.9	5.0	31.0	4.9	9.3
1991-1995	100.0	20.4	45.8	39.8	5.9	33.8	6.0	9.2
1996-2000	100.0	17.0	46.5	40.7	5.8	36.5	6.4	9.5
2001-2004	100.0	13.3	45.6	40.2	5.4	41.1	7.6	9.8

Table 2. Composition of value added of the tertiary sector

Percentage of value added, current prices

	1997	1998	1999	2000	2001	2002
Transport, storage, post and telecommunication services	16.9	16.8	17.1	18.8	18.8	18.7
Wholesale and retail trade and catering services	26.9	26.3	25.8	24.7	24.2	23.8
Finance and insurance	13.3	12.0	11.2	10.5	9.8	9.2
Real estate	10.8	11.2	10.8	10.7	10.6	10.7
Other services	32.1	33.7	35.2	35.3	36.7	37.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

In 1998, the NBS promulgated Regulations on the Statistical Classification of Economic Ownership. The economy is classified into public and non-public sectors with five sub-types of ownership:

- Public sector
 1. State-owned economy
 2. Collective economy
- Non-public sector
 3. Private economy
 4. Economy funded by entrepreneurs from Hong Kong, Macao and Taiwan
 5. Foreign-funded economy

The share of the public sector has been reduced greatly in recent years, and most of the growth in the Chinese economy now comes from the non-public sector, which now accounts for more than one third of China's GDP.

7. Data sources

At the present time, most of GDP is based on data collected under NBS supervision. The main areas where administrative reporting is still important are: transportation, finance, insurance, education, health, culture, radio and TV broadcasting, and film production. The

following are the most important data sources developed by NBS and used for the national accounts:

Censuses of the Tertiary Sector, Industry and Agriculture conducted in 1992, 1995 and 1996, respectively.

NBS carries out an annual sample survey of crop production because of the evident weaknesses in the reporting of crop production under the comprehensive reporting system; the NBS survey is based on random sampling, with crop production measured on a sample of farms at harvest time.

The NBS has a quarterly survey of small, non-state-owned industrial enterprises. The number of these enterprises has been growing rapidly in recent years, and the NBS believed their output and value added were being seriously overstated by local officials.

Other important NBS surveys include a household labour force survey and income and expenditure surveys of rural and urban households.

An Economic Census covering the secondary and tertiary sectors was carried out in 2004/5 and resulted in substantial revisions to both the level and growth rates of China's GDP during the period 1993 to 2004 (see Box 3 "2005 Revisions to China's national accounts").

8. How is GDP estimated?

The most reliable estimate of China's GDP is obtained as the total value added of different kinds of activities. For agriculture and industry, value added is obtained by subtracting intermediate consumption from gross output; this is usually termed the *production approach*. For other activities, NBS uses what it describes as the *input approach* – value added is obtained by adding up compensation of employees, consumption of fixed capital and operating surplus.

9. GDP by type of economic activity

For *mining, manufacturing, construction, electricity, gas and water, trade, hotels and restaurants*, the standard procedure is to divide producers into two groups 1) larger enterprises required to report to NBS; and 2) a second group consisting of smaller enterprises. Different criteria are used to distinguish the two groups depending on the kind of activity. For example:

In mining, manufacturing and utilities, the first group consists of all state-owned enterprises *plus* other enterprises with annual sales of five million yuan or more.

Box 3. 2005 Revisions to China's national accounts

The table below shows the revisions to China's GDP estimates published in 2005. These revisions were mainly based on the results of the 2004/5 Economic Census, which covered the secondary and tertiary sectors. The revisions to the level of GDP following the Economic Census have been dramatic – for 2004, more than 16% for GDP and nearly 50% for value added in services.

Table 3. Percentage of GDP and its components, current prices

	GDP	Primary sector	Secondary sector			Tertiary sector
			Total	Industry	Construction	
1993	2.02	0.07	0.15	0.31	-0.83	5.90
1994	3.08	0.15	0.33	0.63	-1.59	9.05
1995	3.96	0.23	0.49	0.94	-2.38	11.96
1996	4.85	0.30	0.66	1.26	-3.16	14.82
1997	6.06	0.38	0.86	1.57	-3.93	17.96
1998	7.73	0.45	1.00	1.89	-4.68	22.27
1999	9.27	0.53	1.17	2.21	-5.47	26.10
2000	10.89	0.60	1.38	2.53	-6.22	30.22
2001	12.68	0.67	1.56	2.85	-6.95	34.61
2002	14.42	0.76	1.73	3.17	-7.71	39.15
2003	15.70	0.83	1.90	3.49	-8.43	43.71
2004	16.80	0.91	2.10	3.81	-9.17	48.71

These revisions are a reminder of the large margins of error that surround GDP estimates for China – and indeed for GDP estimates in many other countries as well. Most OECD countries revise the level of their GDP on the occasion of so-called “benchmark” revisions, which, as in China, are often based on new data from comprehensive economic censuses. In most cases, these revisions increase the size of GDP by between 1% and 4%, but much larger revisions have also been recorded: Italy (around +15% in 1987), Greece (around +17% in 1996), Turkey (around +25% in 1995).

Table 4 shows the changes to the estimated real growth rates over the same period. For the primary and secondary sectors, NBS considered that although the levels in current prices should be revised – particularly for construction – there were no reasons to change estimates of real growth rates. (This implies, of course, some substantial revisions to the deflators used to deflate the current price estimates.) For the tertiary sector, on the other hand, the revisions to volume growth rates averaged about 1.5% per year, and for volume GDP the growth rates for the periods 1993-2004 have been revised upwards by 0.5% per year, on average.

Box 3. 2005 Revisions to China's national accounts (cont.)

Note that most foreign observers have argued that the NBS has been exaggerating both the size and growth rate of China's economy. The 2004/05 Economic Census suggests the exact opposite: both the level and growth of GDP have been underestimated for at least the last decade.

**Table 4. Revisions in volume growth rates
(compared to pre-December 2005 data)**

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2001	2003	2004
Primary and secondary sectors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary sector	1.4	1.4	1.4	1.5	1.6	0.0	1.6	1.6	1.8	1.7	1.7	1.7
GDP	0.5	0.5	0.4	0.4	0.5	0.0	0.5	0.4	0.8	0.8	0.5	0.6

For construction there is a government grading scheme that classifies enterprises according to their technical capability, and all enterprises assigned a grade of any level are assigned to the first group.

For retail trade, the first group consists of enterprises with both 60 or more workers and those with annual sales of 50 000 yuan per year.

For hotels, all those rated as one-star or higher are in the first group.

For *crop production*, NBS uses the data from its own survey on yields per hectare multiplied by the estimated area for each crop. Total production of each crop is then valued at producers prices in local markets. Expenditures on seeds, fertilisers, water, etc., are deducted to obtain value added. For *animal husbandry, forestry and fishing*, data from the comprehensive reporting system are used to estimate gross output and value added.

For *insurance*, value added is estimated directly from obligatory financial reports made to the China's Insurance Supervision and Management Commission. For *banks*, data are from the Peoples' Bank of China and the China Banking Regulatory Commission (See Box 4 for more).

Real estate covers imputed rents of homeowner-occupiers and activities of enterprises engaged in the development and operation of real estate and the provision of housing services. No estimates are made for housing provided by enterprises and general government free of charge to employees, nor for the for-profit leasing of housing by urban and rural households. Provision of free or subsidised housing by government and state-owned enterprises is declining although still extensive; house-leasing for profit by households is growing in urban areas but is still insignificant.

Box 4. Informal banking in China

In China, informal banking (*hui*) is widespread and has a long tradition. Neighbourhood loan clubs are formed with members making regular payments into a fund from which interest-bearing loans are made to club members selected by seniority, consensus, competitive bidding or (sometimes) lottery. Interest rates are high and *hui* is illegal. In practice, many small and medium-sized enterprises are funded in this way, but the activities of these loan clubs are not covered in the national accounts.

Note that omission of *hui* does not affect GDP. There is no compensation of employees because *hui* is self-policing, and there are no paid staff to assess the risks of loans or to enforce repayment; there is no operating surplus since all interest is paid back to the fund. *Hui* does generate FISIM (or “financial intermediation services indirectly measured” – see Chapter 4). But FISIM in this case is all consumed by the enterprise sector, and so it is an intermediate and not a final expenditure. However, although GDP is not affected, omission of the activities of loan clubs means that the financial tables of the national accounts provide an incomplete picture of how enterprises are funded in China.

It is worth noting that *hui* is not confined to China. Informal banking activities are common in Chinese immigrant communities throughout the world but, as in China, they are not recorded in the national accounts for practical reasons.

Imputed rents of homeowner-occupiers are considered as equal to depreciation (calculated at historic costs). This is a simplified version of the “user cost” measure of dwelling services – simplified because the other component of user cost, namely the net operating surplus, is assumed to be zero.

Government services cover administrative and legislative agencies at all levels of government – central, provincial and local – as well as the military, the Chinese Communist Party and its offices at each level, all the peoples’ parties and their offices at each level, trade unions, the Chinese Communist Youth League, the women’s federations, cultural federations, religious organisations and various types of urban household commissions and village commissions.

The value added of government services is calculated by summing the components of value added using information contained in the *Annual Statistical Report on Labour* (compensation of employees), the *Annual Report on Fixed-Asset Investment* (consumption of fixed capital) and other sources, including information from the Ministry of Finance.

Other services consist of services for: agriculture, forestry, animal husbandry and fishing, geological prospecting and water conservancy management, social services, health, sports and social welfare, education, culture, radio, film and television, scientific research and technological services, and personal services.

To calculate the value added for other services, the income approach is used (as with government services), based on the same sources: the *Annual Statistical Report on Labour* (compensation of employees), the *Annual Report on Fixed-Asset Investment* (consumption of fixed capital) and other sources, including information from the Ministry of Finance.

10. Final expenditure share of GDP

Household consumption expenditure has three components: goods and services purchased by households, and goods and services received as income in kind; the imputed value of goods (mainly crops and livestock); and housing services produced and consumed by households.

The data sources are the NBS statistics on total retail sales of consumer goods, and household expenditure surveys carried out in urban and rural areas by the NBS. Separate estimates are shown for rural and urban household consumption expenditure.

Government consumption expenditure consists of:

Current expenditures within the “scope of the budget”. The data are taken from the annual final accounts of government, compiled by the Ministry of Finance.

Extra-budgetary current expenditures. These expenditures are made by government units financed from levies similar to taxes but earmarked for the provision of specific services. The data on extra-budgetary expenditures are supplied by the Ministry of Finance.

Depreciation of fixed assets of government administrative units and non-profit public utility units. This is estimated by NBS at historic costs and not at current market prices as required in the SNA. In a normal situation, where prices of fixed assets are rising, depreciation at historic costs will be lower than depreciation at current prices. With even moderate rates of inflation, the difference between the two estimates can be large.

The gross output less operating income of urban household commissions and rural village commissions. These commissions provide most of their services, such as family planning advice and road cleaning on a non-market basis, but they may also operate market establishments, selling such items as steam bread, milling grain, etc.

For gross *fixed capital formation*, data are collected by NBS on all fixed-asset investments of 500 000 yuan or more made by state-owned units, collective units, joint enterprises, joint-stock companies and foreign-owned enterprises. Sample surveys are used to collect information on investments of more than 200 yuan made by rural enterprises and government agencies and above 50 yuan for rural. A number of additions are made to the above estimates, including the costs of mineral prospecting and transaction costs on sales of dwellings. *Changes in inventories* are calculated for: agriculture, forestry and fishing, industry, construction, transport and communications, wholesale and retail trade, catering, and other services. Only the estimates for industry, wholesale and retail trade, and catering are adjusted to remove holding gains and losses.

Net export of goods and services is the difference between exports of goods and services and imports of goods and services. Both exports and imports of goods and services are taken directly from the Chinese Balance of Payments Statistics.

11. Estimates at constant prices

To convert estimates from current to constant prices, NBS uses a number of price statistics the most important of which are:

- Consumer price index, compiled separately for rural and urban households.
- Index of ex-factory prices of industrial output.
- Price index of fixed-asset investment.
- Price indices of exports and imports of goods.
- Farm-gate prices of crops and livestock products.

The quality of some of these price statistics is acknowledged by NBS to be poor – the price index of fixed-asset investment and the price indices of exports and imports, in particular.

There are also problems with the constant price estimates for value added in manufacturing. In the past, the NBS together with other departments drew up a “catalogue” covering a large range of industrial products to each of which a base year price was assigned. Enterprises then reported the value of their output each period using these constant prices. However, the base year prices were not necessarily transaction prices, there was no systematic updating of the catalogue to include new products, and the catalogue products and prices were updated at only infrequent intervals (the 1990 catalogue was still being used in 2001). This method was changed in 2004, and now current-price industrial output and value added are deflated by a producer price index. Although this is an improvement over the previous method, it would be better to obtain constant-price value added via double-deflation (*i.e.* by deflating both gross output and intermediate consumption separately). Double deflation is the standard method used by most OECD countries for industrial value added.

For a few types of activity, value added at constant prices is obtained by extrapolating base year value added by a volume index. For example, indices of freight and passenger kilometres are used to obtain constant-price value added for transport. Also, the volume of post and telecommunications traffic is used to extrapolate base year value added for post and telecommunications. To derive constant-price indices, NBS generally makes less use of volume indices than OECD countries.

12. Conclusions

To compile national accounts for a country with the size and complexity of China is no easy task, and it is made more difficult because some of the basic data are collected through an administrative procedure that uses comprehensive reporting. This provides many opportunities for both genuine mistakes and for deliberate misreporting.

Box 5. Where to find China's national accounts

The NBS publication, *The China Statistical Yearbook*, is the main source for the annual national accounts estimates. There are a total of 25 tables including GDP by kind of activity, household consumption expenditure by province, accounts for institutional sectors (which NBS refers to as *flow of funds* tables) and technical coefficients from the latest input-output table. Metadata is also provided on the definitions and methodology and the *Yearbook* contains a CD-ROM version of the text and tables.

The NBS website, www.stats.gov.cn/english, gives the latest quarterly national accounts: levels in current prices are shown for value added in the primary, secondary and tertiary sectors, together with growth rates at constant prices. The website provides a link to the *Yearbook* tables and text for the annual national accounts.

The IMF website <http://dsbb.imf.org/Applications> (the Web page for the IMF *Special Data Dissemination Standards*) gives detailed descriptions of the sources and methods underlying the Chinese national accounts and also gives the latest quarterly and annual national accounts.

The OECD publishes national accounts for China – annual and quarterly estimates of GDP for the three main kinds of activity – in the monthly *Main Economic Indicators*. This is the only source for China's seasonally adjusted quarterly GDP. These data and methodological notes are also available in the OECD Statistics web page, www.oecd.org/statsportal. Also, the OECD has published the most detailed description available in English of China's national accounts methodology: *National Accounts for China; Sources and Methods*, OECD, Paris 2000. This was written by two senior NBS statisticians, Xu Xianchun and Ye Yanfei, with advice from OECD staff. You can browse it free of charge on the OECD online bookshop (www.oecdbookshop.org).

However, while it is clear that China's *provincial* GDP estimates are flawed by systematic overstatement, there is less evidence of deliberate misreporting when it comes to the *national* GDP figures published by the NBS. For most economic activities, NBS has set up its own surveys for national accounts purposes. Independent checks on other economic activities are also available to NBS from its household expenditure and labour force surveys, and from the periodic censuses of agriculture, industry and services carried out under direct NBS supervision.

NBS acknowledges a number of weaknesses in its estimates:

Service activities have been poorly covered in the past, but the 2004/05 Economic Census has provided a new benchmark, creating the framework for a new system for surveying (on a regular basis) service activities, which in the past were poorly monitored or simply ignored.

Constant price estimates are acknowledged to be unreliable by NBS. Price information on capital goods and on imports and exports is particularly weak. This said, there is no evidence of bias in the NBS estimates of real GDP levels or growth, and they are just as likely to be under- as over-stated.

Value added of housing services is underestimated because housing services provided by publicly owned dwellings are excluded, because the imputation for ownership

of dwellings does not include an operating surplus, and because depreciation is based on historic book values for the dwellings rather than the (much higher) current market values.

In a recent article in the *Review of Income and Wealth*, Xu Xianchun, Director of the National Accounts Department at the NBS, concluded that China's GDP in current prices may be understated by about 1.5% per year during the period 1991 to 1997. This was mainly due to the underestimation of housing services and of welfare services provided by enterprises to their employees but also to the large subsidies designed to keep prices of essential goods low for households, which Xu argues should properly be considered as a type of government consumption expenditure. While these errors would raise GDP, they are partially offset by likely errors in overstatement of value added in livestock production and rural industry.⁵

The above are all weaknesses in the system used to derive Chinese national accounts estimates, and NBS is working to correct them. But these weaknesses do not in any sense undermine the validity of Chinese national accounts. These remain a reliable guide to the level and growth of GDP in the world's largest nation, even though the margins of error are certainly larger than for most developed countries.

Critics sometimes suggest that the national accountants in China change their results to match government forecasts, or to support (rather than reflect the impact of) government policies. Close professional contact with China's national accountants during more than a decade has convinced the authors that this does not happen. The authorities in Beijing have no interest in falsifying NBS statistics, and neither do the national accounts statisticians at NBS. As with all countries, China's national accounts are wrong in the sense that they are point estimates within a range of plausible figures, but they are not politically manipulated.

Notes

1. Ren Rouen, *China's Economic Performance in an International Perspective*, OECD Development Centre, Paris, 1997.
2. All the countries in Figure 1 are taking part in the 2005 International Comparison Project and more accurate PPPs for the benchmark year 2005 will be published in the first part of 2007. Regrettably, the PPP for China is expected to refer only to 11 cities and so will not be representative of the country as a whole. This means that there will continue to be much uncertainty about the relative size of the Chinese economy.
3. Angus Maddison, *China's Economic Performance in the Long Run*, OECD Development Centre, Paris, 1998.
4. Since 1996, the National Bureau of Statistics and the Statistics Directorate of the OECD have held annual seminars on practical and conceptual issues of national accounts. The proceedings of these seminars are published by NBS in the bilingual series *Paper Collection for NBS-OECD Workshops on National Accounts*.
5. See Xu Xianchun, "Study on Some Problems in Estimating China's Gross Domestic Product" in *The Review of Income and Wealth*, Series 48, Number 2, June 2002