About the Paper

Bishnu Dev Pant and Derek Blades discuss present practices in compiling statistics in the services sector of the People's Republic of China. They identify gaps and weaknesses in the computation of data and in the estimation procedures being used, and make recommendations to improve estimates of the services sector in the People's Republic of China.

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Measurement of Services Sector Statistics in the People's Republic of China:
How can They be Improved?

Bishnu Dev Pant and Derek Blades

November 2007

Asian Development Bank

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Foreword

The ERD Occasional Statistical Paper Series is based on papers prepared by staff of the Economics and Research Department, their consultants, or resource persons. The purpose of the Series is three fold. First, it deals with studies on the quality and comparability of the data compiled by the Asian Development Bank from national sources in its developing member countries and data prepared by international organizations. Second, it attempts to fill information gaps by deriving new statistical series from available data. Third, it presents new applications of statistical methods for use in the ADB's operational work and member countries. The Series papers are prepared mainly for internal readership within the Asian Development Bank, but may be accessed by interested external readers.

Contents

Abstract

The People's Republic of China (PRC) is one of the fastest growing economies in the world. It has achieved very high gross domestic product (GDP) growth rates over more than two decades. Because of the PRC's size and its impact on the world economy, its national accounts estimates have been highly scrutinized by experts over the years. Questions have been raised about the accuracy of official estimates of GDP level and growth rates. The services sector presents a particular cause of concern because of the lack of regular and reliable statistics on service activities. The consequence of this is that official estimates of services sector value-added have been underestimated in the past. This paper discusses present practices in compiling statistics on the PRC's services sector, identifies gaps and weaknesses in the computation of data and in the estimation procedures being used, and makes recommendation for improving estimates of the services sector in the PRC.

I. Introduction

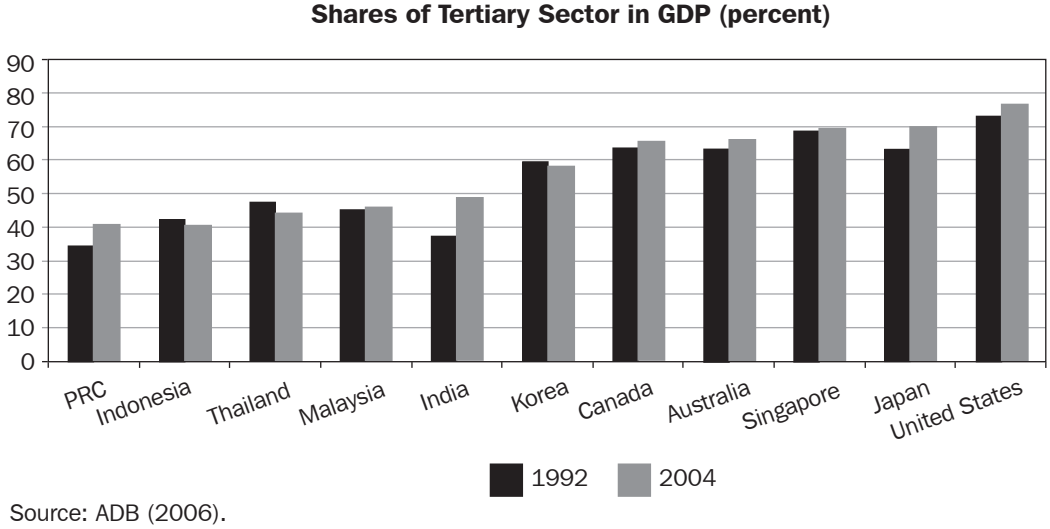
Because of the size of the People's Republic of China's (PRC) economy and its impact on world trade, the level and high growth of the PRC's gross domestic product (GDP) in recent years has been of great interest throughout the world. Estimates of the PRC's GDP have been increasingly scrutinized in recent years and a number of questions have been raised about the accuracy of both the growth rates and the levels of official GDP estimates. Several researchers (Maddison 1998, Wu 2002, Rawski 2002, among others) have proposed alternative GDP estimates that differ significantly from the official estimates.

Maddison examined the official national accounts estimates for the period 1952 to 1995 and noted that the estimates of the level of GDP in the 1990s together with the official growth rates since 1952 implied per capita GDP estimates for 1952 that were implausibly low. He therefore concluded that the levels of GDP in the latter part of the period must be underestimated; or that the growth rates had been overestimated; or that both errors were present. Wu focused on the industrial sector and used data on physical output of over a hundred industrial products, together with data from the 1987 input–output tables to recalculate industrial value-added. Wu concluded that growth rates of industry were significantly overstated in the national accounts for the period 1978 to 1994. Rawski argued that in recent years, the PRC's GDP estimates have been deliberately biased upward by the need to support the government's overambitious growth targets. In 2002 he wrote: "My review of available information has convinced me that official growth claims for 1998 and 1999 are totally divorced from reality, and that actual growth amounted to a maximum of two percent (and possibly much less) annually for these years, with negative growth a real possibility. Beginning in 2000, performance has improved substantially. The economy is surely growing but, in my view, at something like half of the officially claimed rate" (Rawski 2002, 2). Both the levels and growth rates of the PRC's GDP have been called into question. Some users assume that although GDP levels may be wrong, the growth rates may be reasonably accurate so long as the measurement errors are constant. The errors alleged by these and other researchers imply that the growth rates are as unreliable as the levels.

The National Bureau of Statistics (NBS) has worked to improve the PRC's GDP estimates over several years, and has made serious efforts to explain their methodology and to identify problem areas (see, for example, Xu 1999 and 2006, and OECD 2000). Despite these efforts, confidence in official estimates has not significantly increased. The services sector presents a particular cause for concern because of the lack of regular and reliable statistics on service activities, a consequence of which is that the official figures of services sector value-added have been greatly underestimated in the past. This became evident following publication of the results of the 2004 Economic Census by the NBS (National Bureau of Statistics 2006) and the consequent large revisions to the estimates of value-added in services and to GDP.

The figure below shows the contribution of the tertiary sector to GDP in the PRC and 10 other countries for 1992 and 2004. In 1992, services accounted for only about 34% of GDP in the PRC but by 2004 the share had risen to 41%. The 2004 share is about the same as in Indonesia but is still less than the services sector shares in India, Malaysia, Singapore, and Thailand; and much below the shares shown for the industrialized countries of the Organisation for Economic Co-operation and Development (OECD), whose shares are in the 60–75% range.

The conclusions to be drawn from the figure are, first, that value-added in services has been growing faster in the PRC than value-added in other sectors. Second, this relatively faster growth is likely to continue as the PRC economy continues to grow and



Source: ADB (2006).

to resemble more closely the developed economies of the OECD. The accurate measurement of the size and growth of the tertiary sector must, therefore, be given a high priority by the PRC's national accountants.

This paper discusses present practices in compiling statistics on the PRC's services sector, identifies gaps and weakness in the compilation of data and the estimation procedures in use, and makes recommendations for improving the estimates of the services sector. The paper is organized as follows. Section II reviews the present practices, while Section III identifies the gaps and weaknesses in the collection and estimation of data. Section IV provides some general recommendations for improving the compilation and estimation of services sector statistics. The Appendix describes the 2005 Beijing Pilot Survey of Service Activities (Pant 2007), a sample survey of service producers carried out in 2005 in Beijing with the assistance of the Asian Development Bank, and which could serve as a model for nationwide surveys of service activities in the future.

II. Present Practices in Data Collection of Service Activities

In recent years, the PRC's national accounts compilation has been carried out according to the guidelines of the 1993 System of National Accounts (SNA). The accounting system that was used before the SNA, the Material Product System, concentrated on the production of goods and only measured service activities that had a direct link with goods production. Thus, for example, freight transport was fully recorded in the former accounting system but passenger transport was not. Many services were in fact ignored in the former system so that when it switched to the SNA in 1985, NBS had to find a new system for collecting data on a wide range of personal, business, cultural, and government services. This has only been partially successful. Some information was available on services that were produced by state-owned enterprises, but very little information was available on activities of *getihu* (unincorporated enterprises) and other privately owned businesses. Equally serious was the fact that NBS had little or no information on many of the newer service activities such as computer and software services, real estate, equipment rental, and business and consultancy services (ADB 2002).

The 1992 Tertiary Census conducted in 1993 by the NBS was the first comprehensive survey of the PRC's services sector (see *China Statistical Yearbook 2005* of NBS). It showed the gaps and weaknesses in data on the services sector prior to 1992 and resulted in very large revisions to the value-added of many service activities. For 1992, total services sector value-added in current prices was revised upward by 33.1%, with particularly large upward revisions in retail and wholesale trade and catering, and in transport and communications. Total GDP was revised upward by 9.3%. However the value-added for several services sector activities was underestimated in the years since 1992, while that of some new services sector activities were omitted altogether. The growing importance of the service industry in the PRC has raised the need to survey and measure the contribution of these activities,

including transportation; storage and communication; wholesale and retail trade; banking, insurance, and other financial services; real estate and ownership of dwellings; information and communication technology services such as software development and e-commerce; legal, accounting, marketing, and other business services; and the wide range of services that are still provided by government. These service activities are undergoing structural changes that will have an impact on their share of the national income.

The PRC conducted its first economic census in 2005 with 2004 as the reference year, the results of which were used to revise the GDP estimates. Accordingly, GDP in current prices was revised upward by 16.8% in 2004 with progressively smaller increases in the years back to 1993. Not all of the revisions were due to the results of the 2004 Economic Census. They also include a number of other, mainly methodological, changes. These included a downward revision to value-added in the construction industry, because the previous estimates were partly based on information about construction sites while the new estimates use information from construction enterprises. Two significant methodological changes were also made to the estimates of services value-added. For ownership of dwellings, depreciation is now based on current values rather than historical values as in the past. Annual depreciation rates have been revised from 2% to 3% for rural dwellings, and from 4% to 2% for urban dwellings. For banks, a methodology closer to that recommended in the 1993 SNA has been introduced for the measurement of financial intermediation services indirectly measured. Much of the revision occurred, however, because the NBS had very poor information to extrapolate the results of the 1992 Tertiary Census for the period up to the 2004 Economic Census. It is clear that the methodology used to extrapolate the results of the 1992 Tertiary Census was unreliable. Also, a new estimation system will need to be put in place to extrapolate the results of the 2004 Economic Census until the next benchmark estimate becomes available.

The table below shows the dramatic impact that the 2004 Economic Census has had on the current price estimates of the PRC's GDP. It also demonstrates that most of the revisions were due to the failure to track the growth of service activities in the years following the 1992 Tertiary Census.

The PRC's GDP at Current Prices: Revised and Original Estimates, 1992–2004
(in billion yuan)

	GDP	Agriculture, Forestry, Fishing	Mining, Manufacturing, Gas, Water, Electricity	Construction	Services
Revised Estimates					
1992	2,692	580	1,028	142	942
1993	3,533	689	1,419	227	1,199
1994	4,820	947	1,948	297	1,628
1995	6,079	1,202	2,495	373	2,009
1996	7,118	1,389	2,945	439	2,346
1997	7,897	1,427	3,292	462	2,717
1998	8,441	1,462	3,402	499	3,078
1999	8,968	1,455	3,586	517	3,410
2000	9,922	1,472	4,003	552	3,894
2001	10,966	1,552	4,358	593	4,463
2002	12,033	1,624	4,743	647	5,019
2003	13,582	1,707	5,495	749	5,632
2004	15,988	2,096	6,521	869	6,502

continued next page.

The PRC's GDP at Current Prices: Revised and Original Estimates, 1992–2004. continued.

	GDP	Agriculture, Forestry, Fishing	Mining, Manufacturing, Gas, Water, Electricity	Construction	Services
Original Estimates					
1992	2,664	580	1,028	142	914
1993	3,463	688	1,414	229	1,132
1994	4,676	946	1,936	301	1,493
1995	5,848	1,199	2,472	382	1,795
1996	6,789	1,384	2,908	453	2,043
1997	7,446	1,421	3,241	481	2,303
1998	7,835	1,455	3,339	523	2,517
1999	8,207	1,447	3,509	547	2,704
2000	8,947	1,463	3,905	589	2,991
2001	9,732	1,541	4,238	638	3,315
2002	10,517	1,612	4,598	701	3,608
2003	11,739	1,693	5,309	818	3,919
2004	13,688	2,077	6,282	957	4,372
Percent Change: Revised Compared to Original					
1993	2,0	0,1	0,4	–0,9	5,9
1994	3,1	0,1	0,6	–1,3	9,0
1995	4,0	0,3	0,9	–2,4	11,9
1996	4,8	0,4	1,3	–3,1	14,8
1997	6,1	0,4	1,6	–4,0	18,0
1998	7,7	0,5	1,9	–4,6	22,3
1999	9,3	0,6	2,2	–5,5	26,1
2000	10,9	0,6	2,5	–6,3	30,2
2001	12,7	0,7	2,8	–7,1	34,6
2002	14,4	0,7	3,2	–7,7	39,1
2003	15,7	0,8	3,5	–8,4	43,7
2004	16,8	0,9	3,8	–9,2	48,7

Sources: The revised figures are from the NBS website (www.stats.gov.cn). The original figures are available from *China Statistical Yearbook 2005 and 2006* (NBS various years).

The estimation of output and value-added at constant prices for service producers is generally recognized as being more difficult than for goods production. There are no standard practices for estimating value-added at constant prices. The 1993 SNA makes some broad recommendations and in general favors the use of double deflation although other methods, namely single deflation and extrapolation, may also be used for service activities.[1] The industrialized countries disaggregate service activities in more detail than NBS and use several different methods for the various activities. For example, value-added of wholesale and retail trade in the PRC is converted to constant prices using the overall consumer price index, whereas in most of the OECD countries, trade in motor vehicles, wholesale trade, and retail trade are converted to constant prices using separate deflators or volume extrapolators for each of the three activities. Moreover, in the PRC, the most common method by the NBS is single deflation of value-added. This is generally regarded as the most questionable of the three methods and is the least commonly used by other major countries. Improving the estimates of constant price value-added for services is a high priority for the PRC national accountants. This will entail improvements

[1] Double deflation involves the separate calculation of gross output and intermediate consumption in volume terms with real value-added obtained as the difference. Single deflation current price value-added is converted to real terms using an appropriate price index. Extrapolation methods use a relevant volume indicator to move forward the estimate of value-added of the base year.

to the existing price indices in line with the new international recommendations for consumer and producer price indices,[2] collection and presentation of data at disaggregated levels, and development of volume extrapolators where appropriate.

III. Quality and Reliability of Services Data

The specific problems affecting the reliability of information on service activities can conveniently be classified according to four domestic institutional sectors as defined in SNA 1993: general government, financial corporations, nonfinancial corporations, and households including unincorporated enterprises.

A. General Government

There are two main issues concerning the measurement of government activities in the national accounts: coverage of institutional units according to the definition of general government sector, and quality of the data available for the various units that make up the government sector. As regards coverage and scope of the general government sector, some explanation is required regarding the accounting rules in the PRC. According to these rules, any incorporated unit must implement one of these accounting rules: enterprise accounting, administrative accounting, or public utility accounting. The units that implement enterprise accounting are allowed to have profits and must pay taxes, while those that implement administrative accounting can only rely on revenue from the government. The units that implement public utility accounting are somewhat special in that they are allowed to have operating revenue, as well as revenue from government, but they are not allowed to have profit, and do not pay taxes. Clearly, units that implement administrative accounting belong to the general government sector but questions arise regarding the treatment of units that implement public utility accounting, since these units—typically those providing health, educational, and cultural services—receive grants from government but may also earn fees from selling services to the general public. According to the SNA, the institutional units that produce their outputs mainly financed from the prices charged for the services produced by them should be treated outside general government, and instead treated as nonperforming institutions under nonfinancial corporations. The public utility units have so far been classified under the general government sector. This treatment needs reconsideration because an increasing part of their total income is coming from sales of services.

The Ministry of Finance (MOF) collects the data on budgets, which are usually broken down into two categories: central and local budget. The central budget reflects financial resources and expenditure of central government, while the local budgets records those of local governments. The local budget covers financial resources and expenditures of four levels of local governments: provincial government, city government, county government, and town government. The MOF collects data on *revenues* from the government officers responsible for collecting the taxes. The statistics on *expenditures* are recorded at the time the budgets are implemented by local branches of the MOF. Thus the expenditure data are collected from local government, rather than from the government agencies that collect the revenues and provide government services. As a result, the budget statistics compiled by MOF do not capture nongovernment sources of revenues. Furthermore, the data on public utility units' revenues from government are not based on reports from the units, but based on the implementation of budgets. Thus there is a need to establish a system to analyze details of incomes and expenditures from the financial accounts of the enterprises following public utility accounting to estimate their contribution to GDP.

There is also a need to explore alternative data sources in certain areas that may be more reliable and timely than the current data sources. With regard to education services, there are alternative data sources that appear to be more reliable than the data supplied by the MOF. The *China Educational Finance Statistical Yearbook* is compiled jointly by the Ministry of Education and the NBS (Ministry of Education and National Bureau of Statistics 2001). It covers all educational establishments except those run by the Communist Party, Army, and labor and women's associations. It excludes private sector institutions that do not need to get official approval for the educational certificates and degrees that they award. This yearbook also provides complete information on total income and expenses. It provides the basic information to calculate the gross output of

[2] See ILO et al. (2004) and IMF et al. (2004).

educational establishments. Ratios taken from the 2004 Economic Census could be used to derive value-added and compensation of employees. Likewise, the Ministry of Health (MOH) compiles annual National Health Accounts that cover all institutions that provide health care. Data from these accounts can be used to estimate gross output of health services and, as in the case of education services, ratios taken from the 2004 Economic Census could be used to derive value added and compensation of employees.

B. Financial Corporations

Financial corporations include banks acting as financial intermediaries, life and nonlife insurance companies, and enterprises providing related financial services such as stock exchanges, financial leasing, and financial advisory services. Under the current regulatory system and legislative structure in the PRC, all financial corporations are registered with one of three regulatory commissions, namely, China Banking Regulatory Commission, China Insurance Regulatory Commission, or China Securities Regulatory Commission.

Regulatory operations have been carried out very effectively by the regulatory agencies, and all registered and legal financial corporations are almost certainly covered in the data collected by these agencies. The only exception will be underground and illegal financial activities. There is currently no information on the size of these activities, and given the fact that they are illegal, it would be difficult to make regular estimates of their value-added or gross output. Nevertheless some investigation of illegal financial activities could be undertaken by the NBS or China Banking Regulatory Commission. One possible way to proceed would be to ask a sample of newly established enterprises about the sources of their start-up funds.

Under current regulatory practice, all registered and legal financial corporations are required to keep complete sets of accounts. The financial data should therefore be good enough to support the application of the income approach that is currently used by NBS to estimate their contribution to GDP. The major issue in the current practice is the coordination between the regulatory agencies and the NBS. Regulatory agencies focus on the data they need for purposes of regulation and not what is required for the national accounts. As a result, data that could be useful for the national accounts statisticians may be available in the accounts of the financial corporations, although the regulatory agencies do not require them to submit the information. In general, adequate information is available for financial intermediaries and for insurance companies, but data collection in the securities industry has focused on transactions data rather than on financial data of the securities institutions themselves.

Under current circumstances, the statistical work could be improved substantially if there were better communication and coordination between regulatory and statistical agencies, which would lead the statistical departments of the regulatory agencies to better understand the needs of the national accountants. This would guarantee that all data relevant for national accounts purposes, which are already being collected by the regulatory agencies, are passed on to the NBS.

C. Nonfinancial Corporations

For nonfinancial corporations there are problems with coverage, classification by kind of activity, treatment of headquarters or "management" companies, data reliability, and business registers. The main problem here is that institutional units in the fields of education, health care, culture, and entertainment, which were formerly financed mainly or entirely by government, are increasingly financing their operations by charging for their services. According to the SNA, if the institutional unit such as a school or a hospital produces outputs mainly financed from the prices charged for the services produced by them, then these should be treated outside general government and treated as nonperforming institutions under nonfinancial corporations. By this test it is clear that some hospitals, universities, and TV companies should be removed from the general government sector and treated as nonfinancial corporations. In order to do this, NBS would need detailed information on the financial activities of the units concerned. However, at the present time, NBS only has access to aggregated data for covering both units that are mainly financed by government, and those that are mainly financed by charging for their services. Thus there is a need to establish a system of analysis of details of incomes and expenditures from the financial accounts of the

enterprises following public utility accounting to estimate their contribution to GDP.

State-owned enterprises typically engage in a variety of activities ranging from mining and manufacturing to retailing, transport, and provision of health and education services. NBS uses the "factory approach" in calculating the contribution of each enterprise to GDP, whereby the entire value-added of the enterprise is assigned to the single activity that makes the largest contribution to value-added. This approach may not affect the overall level of GDP, and does not reflect the correct structure of GDP by industry. It is likely therefore that this will underestimate the contribution of services to GDP.

This problem can only be solved by splitting the accounts of the enterprise between the separate units or "establishments" that are engaged in each kind of activity. The accounting systems currently in use in the PRC make it difficult to compile separate estimates for establishments within enterprises. Companies that operate in many different parts of the country often have a headquarters or management office in Beijing, Shanghai, or other major city. The headquarters may provide management services such as accounting, auditing and legal advice, market research, advertising, and dealing with government offices to obtain licenses, building permits, patents, etc.

If the headquarters makes explicit charges for the services they provide to their subsidiaries or branches, the headquarters can be treated like any other enterprise. But if, as is often the case, the headquarters do not charge for the management services they provide, they will have no gross output (because they do not show any sales of services to their subsidiaries or branches located in other parts of the PRC), even as they will report operating expenses. As a result, their value-added will be negative and their operating surplus, obtained after deducting compensation of employees, will be negative by an even larger amount.

For these headquarters the best way to proceed is as follows:

(i) gross output should be calculated as the sum of three items: compensation of employees, consumption of fixed capital, and intermediate consumption
(ii) gross value-added should be equal to gross output minus intermediate consumption
(iii) gross operating surplus should be equal to gross value-added minus compensation of employees
(iv) net operating surplus should be equal to gross operating surplus minus consumption of fixed capital (and so will be zero)

Although this treatment will not have an impact on the GDP of the enterprise, it will provide a more accurate representation of activities of different establishments of that enterprise, hence the overall economy. Implementation of the above, however, necessitates availability of separate data on the incomes and expenditures of the headquarters and each of the establishments, so that necessary adjustments can simultaneously be made to account for that part of output of the headquarters that is for the intermediate consumption of other establishments in the enterprise.

Corporations providing nonfinancial services are supposedly covered by the comprehensive reporting system. In practice, however, there is no regular reporting system in place for activities in some new business and personal services including housing and real estate; legal, accounting, and business consulting services; data and computing services; equipment rental services; and miscellaneous personal services. For corporations covered by the regular reporting system, some may overreport their costs while underreporting their income in order to reduce their taxes or cover up other, possibly illegal, payments levied by local officials. Thus, for example, labor compensation may be shown as an operating cost and deducted from their value-added. There are also the widely known "double/triple book-keeping" practices whereby some income items are completely hidden. There may also be incentives for some corporations to exaggerate their income in order to qualify for listing on the stock exchange, or in order to get bad debt written off or swapped for equity.

Under the comprehensive reporting system, data are collected at the local level and aggregated data are passed upward to the next level of government. As already noted, this provides local officials with the opportunity to exaggerate the performance of enterprises in their district and limits the possibilities for the NBS staff to carry out standard quality control checks such as comparing the data supplied by a given enterprise with data for similar enterprises, or monitoring the development over time of costs and incomes in each enterprise.

Problems due to misreporting are not unique to the PRC but are in fact common in all countries. The approach used by most countries is to use stratified sample surveys in which information is collected from all enterprises above a certain size but from only a sample of other enterprises. Because a smaller amount of information is being collected, the statistical offices can spend more time checking the accuracy of the information supplied. The sample survey approach will improve the quality of data, provided they are conducted under the supervision of NBS or provincial statistical offices with statistical staff trained in designing the survey, managing field operations involving collection and scrutiny of survey data; and finally validating, processing, and analyzing the data collected. This requires both financial and human resources to establish a credible survey infrastructure with adequate systems of quality control, so as to ensure that nonsampling errors are minimal and do not vitiate the results. It also requires existence of sampling frames with systems on how to regularly update the selection of samples.

The 2004 Economic Census required the construction of comprehensive lists of corporate enterprises for all provinces and municipalities. These lists provided information on the names and addresses, corporation codes, type of ownership, kind of activity, sales revenue in 2004, numbers employed, prefecture code, and name and telephone number of the "legal delegate", i.e., the contact person vis-à-vis the statistical services. This business register was an important byproduct of the 2004 Economic Census and will need to be kept up-to-date. This involves a system for adding new enterprises and, usually more difficult, removing from the register enterprises that are no longer operating.

D. Household Sector including Unincorporated Enterprises

According to the SNA, the household sector includes individuals and unincorporated enterprises that may engage in productive service activities. Individual, self-employed workers and other unincorporated enterprises (except rural peasant households) are supposed to be registered by the State Administration for Industry and Commerce (SAIC). Estimates of the value-added for self-employed and other private unincorporated enterprises in the service sector have traditionally been based mainly on the regular reporting system via the SAIC. In addition, NBS also uses data from the urban and rural household sample surveys of expenditure and employment to improve the estimation quality of household expenditures on services. Macroeconomic data from the Ministries of Health, Social Security, and Finance are also used to cross check the estimates of household consumption expenditure on services.

There are numerous problems with these sources. The SAIC lists of self-employed persons and other unincorporated enterprises are not complete and include many units that have ceased trading. The rural and urban sample surveys keep the same sample of households for two or more years and this may result in substantial underreporting because households resent the reporting burden imposed on them. The most common method used by other countries to collect information on unincorporated enterprises is to carry out quarterly or annual sample surveys of randomly selected businesses. In some countries the samples are selected from a list of businesses registered with the tax authorities or other regulatory body. An alternative is to use "area" sampling. In this case the sample frame consists of a list of neighborhoods, villages, or street blocks rather than a list of businesses. A number of neighborhoods are randomly selected; a comprehensive list of all unincorporated businesses operating in each neighborhood is drawn up; and the necessary information is collected either from all enterprises in the area or from a randomly selected subset.

IV. Main Recommendations for Improving Services Statistics

In order to improve the data on services sector statistics, existing weaknesses in the collection of data must be corrected. The following recommendations are made for strengthening data collection especially in the area of institutional sectors.

The long-term objective of the NBS should be to develop a system of scientifically based sample surveys covering all types of enterprises involved in all service activities except those provided by government agencies. This means that both corporations and *getihu* enterprises should be covered by the sample surveys. However, this may be too ambitious in the first instance and NBS should therefore identify the

service activities where their present data sources are the poorest. The four activities covered in the Beijing pilot sample in 2005 of rental (tenancy) services, other business services, personal services, and other services could be the starting point (see the Appendix for more details). In order to improve the accuracy of both the PRC's quarterly and annual national accounts, the surveys should be designed to produce data for each quarter. However, the surveys should be carried out continuously throughout each quarter so that approximately the same number of enterprises are interviewed each month. The 2005 Beijing Pilot Survey of Service Activities has shown that sample surveys can be used to collect information on service activities, and there is now a need to extend the sample survey to the whole of the PRC.

To improve data in the general government sectors, government units that implement *administrative accounting* clearly belong to the government sector but questions arise regarding the treatment of units that implement *public utility accounting*. This is because these units—typically providing educational, health, and cultural services—receive grants from the government but also earn fees from selling services to the general public. These public utility units have so far been classified in the general government sector but this treatment needs reconsideration because an increasing part of their total income is coming from sales of services.

For education and health services, there are alternative data sources that appear to be more reliable than the data supplied by the MOF. The *Education Finance Statistical Yearbook* of the Ministry of Education covers all educational establishments except those run by the Communist Party, Army, and labor and women's associations. The *Education Finance Statistical Yearbook* provides basic information to calculate the gross output of educational establishments. Ratios taken from the 2004 Economic Census could be used to derive value-added and compensation of employees. Likewise, the MOH compiles annual national health accounts that cover all institutions providing health care. Data from these accounts can be used to estimate gross output of health services and, as in the case of education services, ratios taken from the 2004 Economic Census could be used to derive value-added and compensation of employees.

In case of financial corporations, there is currently no information on the size of illegal financial activities; and given the fact that they are illegal, it would be difficult anyway to make regular estimates of their value-added or gross output. Nevertheless some investigation of illegal financial activities could be undertaken by NBS or by the China Banking Regulatory Commission. One possible way to proceed would be to ask a sample of newly established enterprises about the sources of their start-up funds.

The main problem concerning national accounts data on financial corporations is the need for better coordination between the regulatory agencies and the NBS. Regulatory agencies focus on the data they need for purposes of regulation and not what is required for the national accounts. As a result, data that could be useful for the national accounts statisticians may be available in the accounts of the financial corporations, but the regulatory agencies do not require them to submit that information. Alternatively, the information may be submitted to the regulatory agencies but it is not subsequently sent on to the NBS. In general, adequate information is available for financial intermediaries and for insurance companies but data collection in the securities industry has focused on transactions data rather than on the financial data of the securities institutions themselves.

Likewise, the nonfinancial corporations of the PRC, as in other countries, sometimes underreport income so as to reduce taxes, although some enterprises may overstate their income so as to make their financial position look better than it really is. To reduce errors from deliberate misreporting, most countries use stratified sample surveys in which information is collected from all enterprises above a certain size, but from only a randomly selected sample of other enterprises. Because fewer enterprises are being surveyed, the statistical offices can spend more time checking the accuracy of the information supplied.

Some service activities are misclassified because the value-added of an entire enterprise is classified according to the single most important activity carried out by that enterprise. If most of the value-added of an enterprise comes from manufacturing even as it also operates trade outlets and restaurants, the value-added of these two service activities will be "concealed" within manufacturing. This problem can only be solved by splitting the accounts of the enterprise between the separate units—establishments—that

are engaged in each different kind of activity in a separate location. This change would be in line with the 1993 SNA, which recommends that in tables showing value-added by kind of economic activity, information should be collected for establishments rather than for enterprises.

It has already been noted that financial intermediation through neighborhood credit unions (which is illegal but tolerated by the authorities) is widespread but it is not presently covered in the national accounts. It is likely that there are other, nonfinancial, service activities that should, according to the 1993 SNA, be included in the GDP estimates but which are omitted because they are carried out by individuals or informal enterprises. Most OECD countries and a number of transition countries in Eastern Europe and Central Asia are now following guidelines developed jointly by the international organizations to improve coverage of the "non-observed economy" (OECD et al. 2002). NBS and the provincial statistical offices should consider using these methods to assess the possible undercoverage of service activities in the PRC.

The recent government reforms have resulted in a rapid expansion of services sector activities. This expansion has included the fast development of information and communication technology services including software and e-commerce, growth of financial and banking sector activities, expansion of the real estate sector in both urban and rural areas, rapid increase of informal sector activities, and expansion of tourism services. Globalization has also had a direct impact on trade and communication services. The expansion and improvement in services will result in a higher economic share for the sector in terms of investments and output. Official estimates of the output and value-added of the services sector have been sharply revised upward following the 2004 Economic Census and now more accurately reflect the expansion of the services industries. The challenge now is to develop methods for regularly updating these new, more accurate, estimates.

The basic statistics underlying the estimates of gross output and value-added of most service activities are collected at the level of the village or urban neighborhood and are then passed on to the next higher levels of government: city, county, and province levels. Aggregated data are then sent to NBS by the provincial governments. This practice limits the ability of NBS to check the data and improve methods of collection. Moreover, the lack of separation between administrative and statistical functions at the local level gives provinces the opportunity to misreport data so as to appear more progressive and profitable. Consequently, the perception among foreign commentators is that some numbers published by provincial statistical offices could be overestimated. This view is shared by the national accounts experts at NBS. They are now using modern sample survey methods to collect basic statistics on agriculture and small industrial enterprises under their own supervision. NBS plans to extend the use of sample surveys to the services sector in the near future. Till the method of data collection through the sample surveys initiated by NBS is established, NBS can consider sample checking of data provided by the local governments to have an indication of the type and size of errors and misreporting in the data. Many times, the staff collecting the data are not sensitized enough on the usage/implications of the data they report. Training of the administrative staff to correctly classify (report) the data, and also introducing simple scrutiny checks at the data collection stage could help in improving data quality produced as an outcome of administrative activity. This will involve improvements of the existing price indices in line with the new international recommendations for consumer and producer price indices, and the development of volume extrapolators where appropriate.

Statistical measurements in the service industry must take these new developments into account, to make the role of the private sector more transparent and effective, and to facilitate good governance and monitoring of the economy. One area that should be given utmost priority by the NBS is the improvement of estimates of constant price value-added for services. The statistical system of the PRC should develop new methods for measuring and collecting data to capture these changes.

Appendix
2005 Beijing Pilot Survey of Service Activities

Probability sample surveys are the standard means by which most countries collect economic statistics for their national accounts. A sample survey collects information from a selected group of enterprises rather than from all enterprises. Probability sample surveys are already being used by NBS (e.g., to collect information from farmers and from small industrial enterprises) and some of the provincial statistical offices also use sample surveys. Sample surveys have several advantages compared to data collection from all enterprises:

(i) fewer enterprises are involved in the survey so that more time can be spent supervising data collection and checking the responses

(ii) sample surveys are easier and cheaper to carry out so that, for a given sum of money, sample surveys can be carried out more frequently than censuses

(iii) sample surveys are carried out under the direct supervision of the provincial statistical offices or by the NBS, hence it is much less likely that the answers will be changed for political reasons

(iv) provided that the sample of enterprises is selected according to scientific principles, statisticians can calculate the margins of error for the key variables in the questionnaire and can reduce or widen these margins by increasing or reducing the number of enterprises in the survey

The NBS, with the assistance of the Asian Development Bank, carried out a pilot sample survey in one province to test the feasibility of sample surveys for service activities, called 2005 Beijing Pilot Survey of Service Activities. The survey was carried out in 2005 in Beijing province by the Beijing Municipal Bureau of Statistics. The survey was confined to two large groups of services on which NBS has not been able to collect sufficient information through the regular reporting system in the past. These were *Tenancy and Business Services* (Code L in the national industrial classification) and *Resident Services and Other Services* (Code O). More specifically, the survey covered enterprises engaged in the following service activities:

(i) *Tenancy Services* (also called "renting" or "leasing" services)
- renting machinery and equipment for use in agriculture, construction, engineering, computing and communications
- renting books, audiovisual products, and other domestic equipment such as bicycles, gym equipment, and cameras

(ii) *Business Services*
- corporation management institutions
- investment, asset, and other management services
- accounting, auditing, and taxation services
- market research and other consultancy services
- travel agencies and conference and exhibition services
- security services
- office services such as data entry, photocopying, fax services, and translation services

(iii) *Resident Services* (also commonly called "personal" services)
- home services and preschool child care
- laundry and dry cleaning services
- hairdressing, beauty parlors, and bathing services
- marriage services including "dating" agencies and organizing weddings
- funeral services

(iv) *Other Services*
- repair and maintenance services for vehicles, office equipment, and household appliances
- cleaning services
- miscellaneous services

Two kinds of enterprises provide these services, the legally constituted corporations and the *getihu* (private unincorporated enterprises, including self-employed workers). Different methods were used for the two kinds of enterprises:

(i) The sample of legal corporations was chosen from the list of corporations that had been drawn up for the 2004 Economic Census. Legal corporations providing the services listed above were divided into groups (or "strata") according to the reported value of their sales in 2004. Relatively more enterprises were selected from strata with high values of sales than from strata with lower sales.

(ii) For the *getihu,* cluster sampling was used based on the list of villages and urban neighborhoods drawn up for the 2004 Economic Census. This list showed the number of *getihu* and the reported sales revenue for each village and urban neighborhood. Places with large

numbers of *getihu* were divided into parts of villages or urban neighborhoods so that each part contained about 40 *getihu.* Sixty areas, each containing approximately 40 *getihu,* were then randomly selected and all *getihu* in those areas were required to complete questionnaires.

(iii) Different questionnaires were used for the legal corporations and the *getihu*, with the *getihu* questionnaires asking for less information. Both types of questionnaires were kept short. They fit onto a single side of paper and focused on the information needed for the national accounts.

(iv) Legal corporations were sampled by mail while the *getihu* were visited by enumerators who helped the owners complete the questionnaires.

The table below compares some results of the 2005 Beijing Pilot Survey of Service Activities with the results of the 2004 Economic Census and the estimates for 2005 made by the Beijing Municipal Bureau of Statistics using their regular procedures. Some points to note:

(i) The "regular estimate" for 2005 used the comprehensive reporting system for enterprises "above quota", i.e., with sales above specified cut-off points depending on the kind of service activity. For enterprises below quota, the Beijing Office used what it describes as the "speculation method." This means assuming that the value added of "below quota" enterprises in 2005 was the same proportion of total value added as the proportion estimated for 2004 from the Economic Census.

(ii) In practice, for their 2005 estimates, the Beijing Office used the results from the sample survey because it considered these more reliable than the "regular estimates."

Comparison of Results of the 2004 Economic Census, Regular Estimates for 2005, and 2005 Beijing Pilot Survey of Service Activities (all values in current prices)

	Kind of Activity				
	Tenancy Services (n = 73)	Business Services (n = 74)	Resident Services (n = 82)	Other Services (n = 83)	Total of Four Services
			Value-added		
2004 Economic Census	7.95	268.67	28.99	50.64	356.25
2005 regular estimate by the Municipal Bureau of Statistics	9.98	350.18	11.90	58.95	431.02
2005 Beijing Pilot Survey of Service Activities	9.91	336.91	21.76	62.74	431.32
			Compensation of Employees		
2004 Economic Census	3.22	187.55	20.75	22.37	233.89
2005 regular estimate by the Municipal Bureau of Statistics	4.75	304.44	10.28	29.22	348.69
2005 Beijing Pilot Survey of Service Activities	3.89	273.70	19.23	28.30	325.12

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