

REFORMING CHINA'S STATISTICAL SYSTEM

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Executive Summary

1. Since the late 1970s, China's statistical system has been considerably transformed. Such restructuring is indispensable to accommodating the expanding economy which has undergone market transformation and been increasingly integrated into the world economy.
2. The first important transformation is the organization reshuffling. The original structure of National Bureau of Statistics (NBS) and its associated regional Bureaus was supplemented with a more centralized arrangement of survey teams.
3. NBS' authority and control over data collecting and compilation were significantly strengthened as the survey teams were brought under NBS' direct jurisdiction and extended to cover all 333 prefectures. This to a large extent ensures that key economic indicators are collected more timely, consistently, and without much interference from other government divisions at various local levels.
4. In addition to organizational reshuffling, China has made the important shift from the Soviet style System of Material Product Balance to the more widely recognized United Nations System of National Account. Such a shift is essential to accommodate China's increasingly diverse, complex, and open economy. It also enables greater international compatibility.
5. Moreover, China has accepted statistical principles of depending more on direct surveys and censuses instead of indirect reports through government bureaucracy. Many key economic indicators, such as various price indices, household income and expenditure, are obtained through surveys conducted by the survey teams.
6. Nonetheless, China's statistical system continues to face challenges. As the pre-reform parallel structure, consisting of NBS and the ministerial statistical

divisions with overlapping responsibilities, has remained largely unaffected, one major issue is coordination and related quality control of statistics compiled by different branches of the statistical agencies.

7. Most prominent is the inconsistency with respect to GDP estimates. There have been persistent discrepancies between figures compiled by the survey teams and those obtained by aggregating regional components. The latter is based on data gathered by NBS' regional branches, which are exposed to possible influence from local governments.
8. Overall, China's statistical system has made remarkable progress regarding reliability, relevance, accessibility and timeliness, through both efforts within the government and engagement of various international organizations. It seems that further improvement is imminent and the quality of China's statistics will be further enhanced to close the gap with the world's best practice.

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HUANG Langhui & Sarah Y. TONG*

Reform to Conform to International Standards

- 1.1 As China's economy has been transformed gradually from socialist central planning to a largely market economy, remarkable changes have taken place in its statistical system. Significant changes are reflected in three key aspects: the institutional re-organization, the data collection method, and the compilation of statistical indicators. On one hand, the system is changing in response to the underlying evolving economy. On the other hand as the country is increasingly incorporated into the world economy, great efforts have been made to bring China's statistical system closer to international norms and practices.
- 1.2 The first transformation has been the considerable re-organization of the institutional arrangement since the 1980s. Under China's socialist central planning, information regarding the country's economic activities was gathered through two parallel vertical reporting systems. One consists of information from the National Bureau of Statistics (NBS) and statistical bureaus at various local levels. The other includes data from the statistical divisions of different government ministries at both the central and local levels. In the 1980s and 1990s, another important branch, incorporating three survey teams, was added to China's statistical system.¹ The three vertically structured survey teams were later merged into one and came under NBS' direct jurisdiction. The highly centralized survey teams play a crucial role in the

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¹ For more discussion on the structural features of China's statistical system under central planning, see John Wong and Ren Caifang, "Understanding China's Statistical System", *EAI Background Brief Number 75*, November 2000.

reforming of China's overall statistical system and in raising the quality and standard of China's statistics.

- 1.3 Central to such institutional reorganization is the change in the method of identifying and defining key statistical indicators. Under central planning, production data are essential for the Chinese government's future planning. The statistics are collected to be used in the System of Material Product Balance. Since the 1980s, China's statistical system has moved toward the more widely adopted System of National Accounts, which covers a much wider spectrum of economic activities instead of concentrating solely on the output.
- 1.4 Such major changes in the statistical system are motivated by two underlying forces. First, with gradual reform and liberalization, the economy has been transformed almost completely from one of central planning to that of a market economy. As a result, there are a much greater number of economic entities with a variety of ownership structures and the economy is no longer dominated by state-owned production units. Furthermore, a complex and increasingly open economy generates far more economic information than before. There is also a much greater need for timely and accurate data for businesses in their decision making and various governments for their policy making. Consequently, the old reporting system, covering mostly the state sector, was no longer effective or sufficient in accounting the activities and the outcome of the economy.
- 1.5 Second, as China's economy grew rapidly over the past three decades, it has been increasingly incorporated into the global economic system to become one of the major players in the world economy. By joining and working closely with various international organizations, including the World Bank, the International Monetary Fund, and the World Trade Organization, there has been a growing need for a statistical system that conforms to international norms. Indeed, the Chinese government has made great efforts in improving its statistical system to meet internationally recognized standards. In fact,

China has joined the General Data Dissemination System (GDDS) and is on the way to meet the Special Data Dissemination Standard (SDDS).

- 1.6 Besides changes in the institutional organization and estimation of indicators, there has been a gradual but considerable move away from relying solely on a vertical reporting system for data collection. A vertical system details economic activities transmitted from the units at the grassroots level to supervising government agencies for aggregation and assembling. In recent decades, official statistics depend increasingly on the more reliable supplementary data gathering methods, including frequent direct surveys and periodical censuses.
- 1.7 However, China's statistical system continues to face challenges. Primarily, there is the issue of coordination and quality control. Within the NBS system, there are two vertical structures: the survey teams (from central to local) and the regional Statistical Bureaus (from central to local). Outside this system, there are the reporting schemes run by various functional ministries, also with a vertical structure. As a result, in addition to regular statistical series promptly published by NBS, individual provinces, cities, special economic zones and prefectures regularly publish their voluminous statistical yearbooks. So do many ministries and commissions/agencies, even though there is considerable overlapping in their coverage.²
- 1.8 Particularly problematic is the administrative ambiguity regarding NBS' regional bureaus. While receiving professional guidelines from NBS for carrying out statistical work, the regional bureaus are under the direct jurisdiction of the local government and are inevitably exposed to various degrees of local influence. Statistical inconsistency easily occurs when data compiled are directly or indirectly affected by the evaluation and promotion of local leaders. One prime example is the estimate on gross regional products. The statistics reported by NBS and the provinces have shown persistent discrepancies and their reliability is questioned.

² John Wong and Ren Caifang, "Understanding China's Statistical System", *EAI Background Brief Number 75*, November 2000.

- 1.9 Overall, China's statistical system has made remarkable progress in providing more reliable, relevant, accessible and timely statistical information. Such improvement has been achieved through efforts in many aspects, including institutional re-organization, NBS system reform, international engagement, and legislation. Further improvement is imminent and the quality of China's statistics is likely to be further enhanced to match standards set by the world's best practice.

Organizational Reshuffling

- 2.1 One essential transformation in China's statistical system is the restructuring of the institutional organization. Under the socialist central planning, prior to 1978, statistical information was collected by two parallel arrangements, firstly the NBS and secondly the statistical branches of various government ministries, commissions and agencies. In both cases, statistical agencies at the central and local levels obtained information primarily through the ministries and their regional and local bureaus. The role of the statistical agencies was largely that of a coordinator and compiler.
- 2.2 Since 1978, there have been two major changes in this organization setting. First, while the parallel arrangement remains, there has been a significant strengthening of the vertical directorial power of the NBS. Second, three survey teams were established in the 1980s and were later put under NBS' direct jurisdiction. These have strengthened considerably the power and capacity of NBS as the highest authority to ensure the quality of China's statistics.
- 2.3 NBS was established in 1952, shortly after the founding of the People's Republic of China in 1949, under the administration of the State Planning Committee. In March 1978, NBS was brought under the direct jurisdiction of the State Council. Bureaus of Statistics at various local levels were already set up during the early years and, initially, they fall under the authority of respective local governments. These local bureaus or offices, administered by

local governments, were responsible for data compilation and dissemination at various localities, while NBS was at the national level.

- 2.4 Besides the NBS system, the statistical offices at government ministries, commissions, and agencies, both at the central and local levels, are responsible for collecting and compiling information of certain specialized areas, including government financing, monetary, import and export, education, healthcare, science and technology, and culture and sports activities. Such information, while less essential during the central planning era, was also aggregated up to the national level and constituted part of the national statistics.
- 2.5 Common to both NBS and the statistical branches of government ministries is the clearly defined vertical hierarchical architecture. Within the organization of the NBS, there exist bureaus or offices of statistics at each of the five levels of governments,³ from central government down to township government. Similarly, the statistical branches or statistical staff constitutes parts of the regional divisions of many different ministerial organizations, from ministries in Beijing to the bureaus at the county level.
- 2.6 Another common feature is the method used to obtain statistical information. In both cases, the systems rely on reports collected and transmitted by the statistical staff at the lower levels. The role of the statistical agencies is largely that of a coordinator and compiler.
- 2.7 Since the late 1970s, the NBS system has been augmented and considerably consolidated. First, in March 1978, NBS was brought under the direct jurisdiction of the State Council. Second, three survey teams were established in the following decades: the Rural Survey Team (RST) and the Urban Survey Team (UST) in 1984 and the Enterprise Survey Team (EST) in 1994. These survey teams were tasked to obtain important economic information directly

³ The five levels of China's government are central government, provincial government (including municipalities with provincial-equivalent status), prefectural government (including cities with prefectural-equivalent status), county government, and township government.

for the central government. For example, RST was responsible for gathering reliable data on agricultural production, as well as income and expenditure of rural households; UST for national and regional price indexes, income and expenditure of urban households while EST was responsible for following the development of large state-owned enterprise reform and industrial groups, as well as conducting surveys on economic sentiment and small enterprises.

- 2.8 Third, in 2005, the three survey teams were merged into one comprehensive survey team and brought under the direct administration of NBS and no longer under the supervision of local statistical bureaus. Indeed, the local chiefs of the survey teams were given the same bureaucratic rank as those of the local Statistical Bureaus to do away with the influence of local governments. At the same time, the survey teams were extended to all prefectures to form a comprehensive and reliable survey network.
- 2.9 As shown in the Appendix diagram, China's statistical system today basically consists of two sub-systems, one of the NBS and the other of government ministries. The NBS system is further divided into two arms, one of statistical bureaus at various government levels and the other of a consolidated survey team. This makes up the third section of China's statistical system. Together, these three sections are exposed to different influences from various local governments and government ministries due to varying administrative arrangements.
- 2.10 The first section covers all 333 prefectures (within which 890 counties), has a total of around 20,000 staff, and is the most reliable source of national statistics. The survey teams in this section, at provincial and various local levels, are under strict vertical jurisdiction of the NBS, with respect to staff appointment and promotion, as well as budget. Consequently, they can now avoid the influences of local governments.
- 2.11 The second section consists of statistical bureaus at the provincial, local and county levels. In general, they are under the dual governance of both the local government and the statistical bureaus at the higher jurisdiction. While they

report to and are under the guidance of the statistical bureau one level up, the staff appointment and promotion were determined by local authorities and their budget was also provided locally. Understandably, regional and local statistical bureaus were exposed to a higher degree of influence from local authorities. The total number of staff in this section, covering all 2653 counties and including statistical personnel at township level, is estimated to be around 90,000.

2.12 The third section consists of statistical offices and staff at various government ministries. These statistical units are responsible for collecting and compiling statistical data relevant to the respective government functional branches, including government finance, financial and monetary data, trade, culture, education, healthcare, science and technology, environment, and resources. While under the guidance of statistical bureaus, particularly for their professional expertise, these statistical units are part of the government ministries to which they are directly reporting. The role of NBS, with respect to this section, is one of cooperation and coordination.

2.13 Due to the mix and complexity of China's statistical system, as well as the increasing demand for accurate and reliable statistical data, improving the quality and strengthening institutional coordination of the statistical system are essential. Since 2003, NBS has established a system of supervision and inspection by sending teams to local statistical undertakings and statistical offices in the ministries. Since 2007, a mechanism to hold regular joint meetings, including 31 ministries, has been established. The goal is to strengthen the NBS' central monitoring capacity and to help minimize interferences from the administrative branch of the governments.

Shift to the System of National Accounts

3.1 In addition to the institutional reorganization of China's statistical system, changes have been made in the way economic activities are accounted and reported. Under central planning, China adopted the Material Product System (MPS) to measure the country's economic activities, following the likes of

former Soviet Union and Eastern European countries. Since 1980s, to accommodate the increasingly diverse economy, China's has moved gradually toward the United Nation's System of National Accounts (SNA), which is more internationally recognized and widely used today.

- 3.2 The SNA⁴ provides a complete and consistent conceptual framework for measuring the economic activity of a nation, such as the production, income and expenditure of various economic actors including corporations, government, and households. A number of aggregate measures in the national accounts, such as gross domestic product (GDP), disposable income, saving and investment, are generally of strongest interest to economic policymakers, while detailed national accounts, for example, input-output tables, contain a rich source of information for economic analysis.
- 3.3 China started its preparation of using SNA in the early 1980s and, in 1985, NBS established the rules to calculate GDP while continuing the use of the MPS for national aggregate data. In 1992, after a few years of experiment and research, "China's System of National Accounts (Draft)" was approved by the State Council to be implemented gradually nationwide. In the following year, SNA was formally adopted as the basis for national accounting.
- 3.4 First, the estimation of GDP is at the center of the SNA. Following international practices, GDP was estimated using the dual methods of production and expenditure. Moreover, the frequency of GDP estimates was increased from yearly to quarterly. Third, China abandoned its indirect method of adjusting and amending national income data. Instead, it is estimating GDP directly using both production and expenditure method. The classification of industries and sectors was further refined for more reliable data.

⁴ The main structural differences between MPS and SNA are attributable to a different interpretation of newly created value, and of the accumulation of stocks of wealth. Consequently, there are differences in grossing and netting procedures for the main aggregates. In MPS, many services are not regarded as value-adding, and therefore excluded from total net output. As the name suggests, the MPS aims to measure the annual output of material goods, in contrast with services.

- 3.5 In addition to a systematic shift from MPS to SNA, the government also started to compile Input-Outcome Tables (IO Tables) in the 1970s, which constitute an important part of the SNA. Since 1987, NBS has established a rule to compile IO Tables periodically. Every five years, starting from 1987, a large scale input-output survey will be conducted to compile basic IO Tables. From 1990, a small scale survey will be conducted every five years to provide information for compiling a simplified IO Table by adjusting the basic IO table. So far, a total of eight IO tables were prepared, running from 1987 to 2005, and the number of sectors increased from 118 to 192.
- 3.6 China's SNA was revised in 2002 and implemented in 2003. There are a number of improvements in the current version. From 2004, China has followed the international practice regarding the dissemination timing of GDP estimation: preliminary estimate by the end of the following January, verified estimate by the following September before arriving at the final estimate by the end of the following year. Various other revisions were also implemented, such as using regular residents, instead of registered residents, for the calculation of per capita GDP. The rules for estimating Gross Regional Product and Gross Regional Income were also revised.
- 3.7 In addition to GDP and IO Tables, there are two other important components in the SNA, the Flow of Fund Table, and the Balance of Payment. In both cases, China started compiling the tables in the 1980s. The two were included in the 1992 draft of "China's System of National Accounts" and the rules for compiling the Tables were further amended in the following years. The current Flow of Fund Table composed of two parts: the physical (real) transaction part is compiled by the NBS' National Accounts Department, and the financial transactions part is compiled by the Survey and Statistics Department of the People's Bank of China. The Balance of Payment Table is compiled by the Balance of Payment Department of the State Administration of Foreign Exchanges.
- 3.8 Once the institutional reorganization is in place and the accounting principle selected, it is natural to focus on the following two essential tasks. The first is

the design and standardization of the statistical indicators to be computed. The second is the method for collecting data. Both are important to improving the quality of China's statistics as well as to enabling international comparison.

3.9 In 1984, a working group was established to formulate statistical rules and standards. A number of important documents on classification have since been prepared and publicized. These include Industrial Classification and Code of the National Economy, Job Classification and Code, Rules on the Type of Business Registration Requirements (1998), Rules on the Statistics of Economic Components, High-tech Industry Statistics Categories (2002), Classification of Cultural and Related Industries (2004), Temporary Regulations on Statistical Classification of Information Related Industries (2005), and Temporary Regulations on Statistical Classification of Urban and Rural Areas.⁵

3.10 In addition, the coverage of statistics has been expanded considerably to reflect many different aspects of the country's economic as well as social development. Before the 1980s, China's statistics included mostly the production of the agricultural and industrial sectors. Statistical coverage has since been greatly improved. For example, Agricultural Production Statistics has been replaced by Rural Social and Economic Statistics. Since the 1990s, the government has accelerated its efforts to establish a more internationally compatible economic indicator, including those concerning labor, high-tech industries, cultural, industrial, information industries, social security, environment, service, and energy.

3.11 Alongside the revisions in classifications and indicators, there has been a fundamental change in data collecting method since the mid-1990s. In May

⁵ Industrial Classification and Code of the National Economy (国民经济行业分类与代码), Job Classification and Code (职业分类和代码), Rules on the type of Business Registration Requirements (关于划分企业登记注册类型的规定 1998), Rules on the Statistics of Economic Components (关于统计上划分经济成分的规定), High-tech Industry Statistics Categories (高技术产业统计分类 2002), Classification of Cultural and Related Industries (文化及相关产业分类 2004), Temporary Regulations on Statistical Classification of Information Related Industries (统计上划分信息相关产业暂行规定 2005), and Temporary Regulations on Statistical Classification of Urban and Rural Areas (关于统计上划分城乡的暂行规定 2006).

1994, NBS proposed a new statistical principle, which is to “use periodical census as the foundation, regular sampling as the main source, and supplemented by in-depth survey of selected samples, scientific extrapolation, and short tables with full coverage”. This principle was approved by the State Council later in the year and then implemented. In recent years, enterprises are increasingly encouraged to report directly to NBS through computers. Geographic Information System and Remote Sensing Technology have also been applied to obtain certain statically information.

- 3.12 In part, these efforts are also necessary for China to join the international community in statistical standards and to raise the quality of its statistics. Since the 1990s, China has implemented various statistical modifications according to the standards and requirements of GDDS before it was admitted in April 2002. Currently GDDS has 80 member countries.
- 3.13 GDDS specifies four major areas of requirements. The first refers to the coverage, periodicity, and timeliness of statistics. The second concerns the quality of the data, including data collection methodology, classification, and dissemination program. The third area is the integrity, including such issues as transparency of practices and procedures of statistical offices. And the last issue is on public access to statistical data. China is also working toward joining the SDDS. Primarily, SDDS adopts the same principles as GDDS but has stricter requirements regarding coverage, periodicity, and timeliness. Currently, 60 countries have joined SDDS.
- 3.14 China has also participated in the International Comparison Program (ICP). The program is organized by the United Nations Statistical Committee, while managed by the World Bank. The main goal is to produce better estimates of Purchasing Power Parities.

Tackling Remaining Challenges

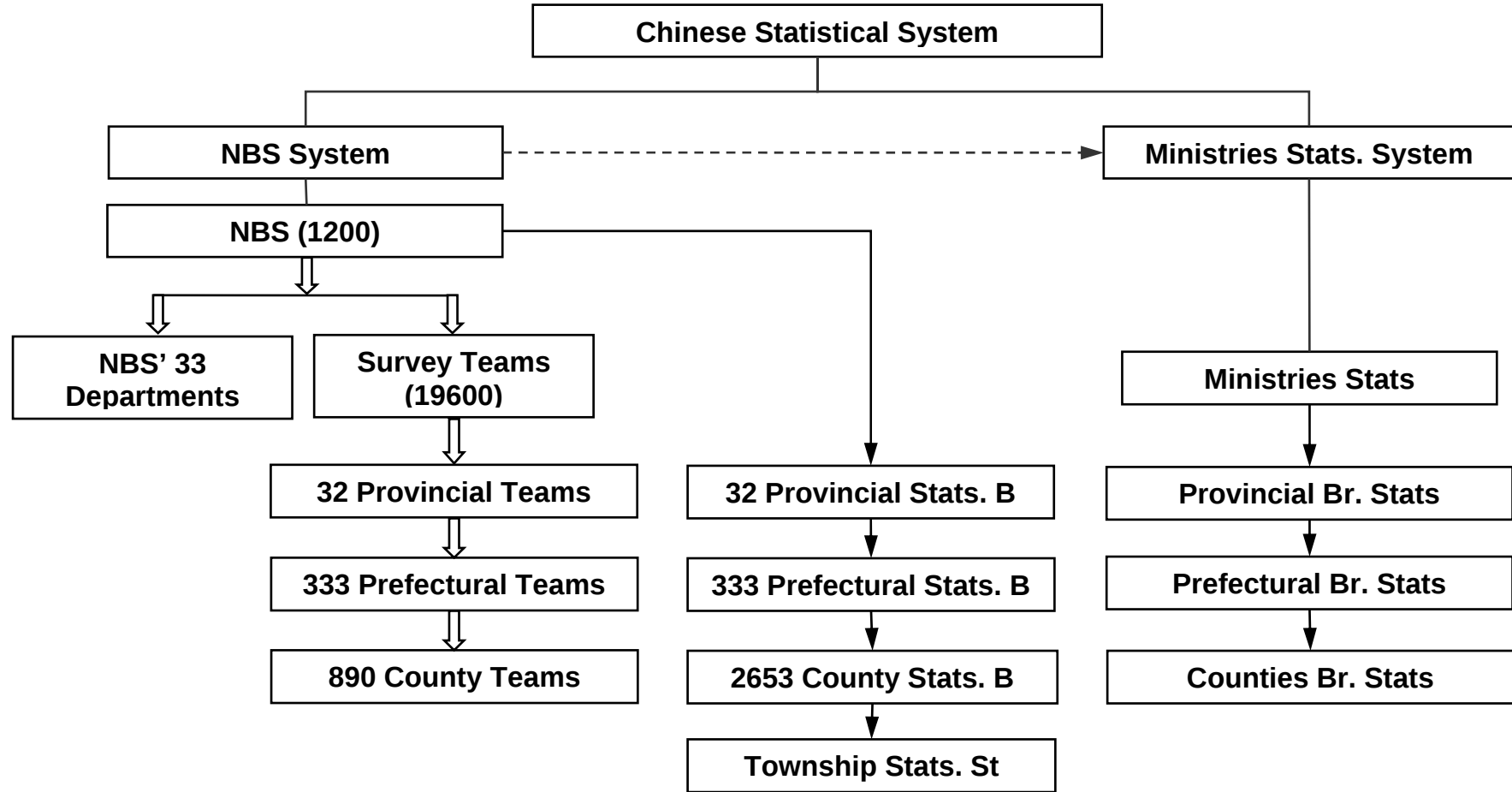
- 4.1 Despite the great efforts in overhauling the system and the resultant improvements, problems and challenges remain with China’s statistical system.

For example, the horizontal coordination between NBS' bureaus and the survey teams, as well as that between NBS and the ministries' statistical divisions remain relatively weak. In particular, as the regional Statistical Bureaus fall under the administration of various regional authorities and accept only professional guidelines from NBS, it is not certain that statistical data compiled by NBS' regional divisions are unfettered from local government pressure. It is particularly problematic as both NBS, through its survey teams, and NBS' regional branches are primarily estimating the same indicators and there is no clear division of labor between the two.

- 4.2 Consequently, one essential concern is the consistency of data compiled by different branches of the system. A prime example, and the most important one, is the estimation of GDP and its regional components. Under the current arrangement, NBS compiles national GDP with information gathered directly through its survey teams at various localities. At the same time, regional Statistical Bureaus also collect information to compile gross regional product at their respective localities.
- 4.3 Due to weak coordination across different statistical agencies as well as technical intricacies, considerable discrepancies persist. For example, following NBS' guidelines, the headquarters of large corporations should only report to local bureaus the value-added attributive at their respective location, rather than of the total, for the purpose of aggregating regional product. Such guidelines may not always be followed which would result in double counting.
- 4.4 To improve data quality and consistency, NBS established a consulting committee on GDP estimation. It includes experts from universities and China's Academy of Social Sciences, as well as NBS and relevant government ministries. The ultimate solution is to grant NBS and its subordinate survey teams the exclusive responsibility of estimating the GDP, at both national and regional level, or to bring regional Statistical Bureaus under direct NBS jurisdiction.

- 4.5 More generally, there is an important issue of coordination between different branches and different levels of the Statistical System. At present, to deal with such coordination problems, NBS has established rules of supervision and inspection by sending teams to regional bureaus and statistical offices in the ministries. The goal is to strengthen the NBS' central monitoring capacity and to help minimize interferences from the administrative branch of the governments. To totally eliminate the organizational ambiguity, the regional Statistical Bureaus should come under direct NBS jurisdiction, or be assigned statistical responsibilities not overlapping with NBS' survey teams.
- 4.6 The issue of professional independence for statistical bureaus is also managed through legislation. The Statistical Law of People's Republic of China was first issued in 1983. Later in 1987, the Regulation for Enforcing the Statistical Law of PRC was announced. To ensure enforcement of the law, inspection teams were sent, by the Standing Committee of People's Congress, to various localities over the years. The law is currently under revision.
- 4.7 The NBS has also worked hard in a number of other areas to improve the China's statistical system, including strengthening the training of statisticians; building an IT system for data collection, verification, transmission, storage, analysis and dissemination; and improving statistical services to both policy-makers and the public.
- 4.8 Overall, China's statistical system has made remarkable progress in providing statistical information with significantly higher reliability, relevance, accessibility and timeliness. Most importantly, there is now much greater confidence in the reliability of China's statistics, particularly its GDP estimation at the national level. Such improvement has been achieved through efforts in many aspects, including particularly institutional re-organization. It seems that additional improvement is imminent and the quality of China's statistics will be further enhanced to close its gap with the world's best practice.

Appendix



Notes:

1. 32 provincial survey teams include 31 for provinces, autonomous regions, municipalities, and 1 for Xinjiang Production Unit.
2. $\Rightarrow$ indicates direct administrative relation, $\rightarrow$ indicates a supervising relation with respect to professional expertise, and $- - \rightarrow$ indicates a relationship of providing professional expertise.