

Main changes in official statistical production process of China

Xu Ronghua*

National Bureau of Statistics

Beijing, China, 100826

xurh@gj.stats.cn

Abstract

In order to further improve statistical ability, data quality and credibility of official statistics, in recent 3 years, the National Bureau of Statistics of China is highly propelling the statistical reform bearing the main content of “innovating and development, standardization and integration, publicity and transparency.” The goal is to design and organize the integrated business survey program, to gather basic data directly from enterprises through internet or electronic equipment, and to manage and control data quality throughout the whole working process.

Key Words: Integrated business survey, Business register, Statistical standardization, Data quality control

1. Introduction

During the years of reforms and the opening-up policies started since the 1980's, China has witnessed dramatic development of official statistics, which has formed the national statistical survey system. This system embraces national account as the core, industrial statistics and main subject statistics as the supporting polar, which basically satisfied the need of statistical information from the central and local governments, enterprises, research institution, universities and colleges, and the public. However, the design and development of this official statistical system was a process by steps, which deteriorated the level of integration. The mainly problem existed in that the economic census and regular business surveys were designed separately with different business registers, indicators and classifications were not standardized, the whole process from source data collection to data processing and tabulating was carried out in isolation. The above situation resulted in absence of complementation among industrial and subject statistical programs, irrelevancy of statistical data from different sources and statistical information can not be shared, which also reduced the efficiency of the whole statistical agency and consistency of statistical products.

In 2008, a warm debate on implementation of scientific approach to development was rolled out in all government agencies all over the country. The key issue of the debate was how to promote sound development of Chinese statistics and improve its consistency with international standards. Government agencies involved in statistical production and management at all levels put forward more than 690 pieces of comments and suggestions on improvement of Chinese statistics. On this basis, the NBS made serious comparison and took advantage of international experiences including the concepts, observations and practices gained through long-term cooperation with other National Statistical Offices and international organizations to sort out a number of 89 areas for improvement, which were further integrated into an operational plan for overall improvement and optimization of Chinese statistics. The goal is to design and organize the integrated enterprise-based survey programs, to gather basic data directly from enterprises through internet or electronic equipment,

and to manage and control data quality throughout the working process. The details are elaborated in the following three parts.

2. Design and organize the integrated enterprise-based statistical survey activities

Holding on to the philosophy of overall planning, resource concordance, collaborative operation, enterprise-based surveys which used to be carried out separately are required to be consolidated, the integrated design of indicators and questionnaires are implemented, as well as the unification of survey unit identification and original data collection from enterprises.

Firstly, integrated design of enterprise-based survey programs. By systematically clearing up the current enterprise-based questionnaires, we summed up the regular and general information requirement from national account, industrial statistics¹ and subject-area statistics². Basing on micro information from operational, managing and financial aspect within the enterprise, a core indicator system and the correspondent metadata standards used in the enterprise-based surveys are formulated and established with the complete coverage of basic information including production, sales, labor force, investment, etc. Indicators' name, definition, method of calculation, classification, statistical code, reporting form, survey frequency and reporting deadline are all standardized and integrated for enterprise-based surveys. During the designing process of indicators, we persist in the principle of "preciseness, conciseness, verifiability and applicability", indicators barely supported by basic information from enterprises or those increase calculating burdens are strictly excluded. In this way, the goal is to create unified and standardized electronic statistical program for enterprise surveys. The program should not only fulfill the statistical expectation from the clients including central and local government, enterprise, institution and the public user, but also meet the need of information from subject-based statistics and national account. The program should be convenient for the enterprise to carry out, and reduce reporting burden for the respondent.

Secondly, harmonized identification of target units for enterprise-based surveys. The working mechanism should be built to ensure enterprise-based surveys have at their disposal a common set of statistical units, bearing the faith of "unit has to be listed in the Business Register (BR) first and then become possible data source; unit not listed in BR will never be used as the valid data source". The business register made of industrial establishments and legal entities updated by economic census periodically conducted every 5 years. Therefore, NBS formulated the regulation on using, managing, updating and maintaining BR and the implementation details, which clearly claim the request that enterprise-based surveys strictly use units listed in BR, and ruling the ones not listed in BR out of the scope of statistical survey target unit. The implementation details regulate the responsibility of central and local statistical agencies, divisions of duty among departments within NBS. The working procedure is as follows: survey departments come up with requirements and deliver to one in

¹ Surveys on mining and quarrying, manufacturing, production and supply of electricity, heat, gas and water, construction, wholesale and retail, catering and lodging, real estate development, etc.

² Surveys on labor force and revenue, fixed asset investment, technology, energy, etc.

charge of business register, and then, the later provides identified list of survey target units. Enterprise information involving newly established and de-registered units would be updated monthly basing on the application from county level statistical office after verified by the provincial statistical office and approved by the central statistical bureau.

Thirdly, unitary organization for data collection. We recommend collecting data only once from the same enterprise for the monthly, quarterly and yearly programs each, which effectively avoids repeated data collection from different subject-based statistics, indeed realizes “catch all in need at one time”. and practically reduces response burden from enterprises’ perspective. Meanwhile, in order to meet different needs from subject-based statistics on enterprise information, we adopted “each subject-based statistics takes what in need from the information pool collected at one time” as working pattern, the temporary offices focusing on enterprise-based surveys were set up inside the statistical agencies, the working staff from subject-based statistics divisions involving industrial statistics, labor force and revenue, energy, technology and fixed asset investment are required to gather in the temporary office for data examination and verification during the appointed working period for yearly report and periodic report.

Fourthly, construction of commonly used data processing platform. NBS designated two computer companies through competitive bidding to deliberate and develop data collecting and processing platform used in enterprise-based surveys in an integrated approach, which helped to satisfy the online requirement of collecting, processing, aggregating, analyzing and storing of enterprise-based data from the statistical agencies over four levels i.e. national level, provincial level, prefecture level and county level. The platform relies on the standardized statistical working process, aiming at highly sharing and processing data within statistical agencies over different levels and subject-based statistics, the platform with the characteristics of “perfect in function, convenient in using, unified in standards, friendly and compatible” not only effectively resolved the problem of using multiple data processing softwares in different survey departments, but also integrated and standardized the data processing procedure of the enterprise-based surveys, increased the credibility, timeliness and consistency of statistical data.

3. Collect source data directly from the enterprise or other survey unit through internet or electronic equipment

In order to make sure the data reported independently and authentically from the enterprises and other respondents to the official statistical department, extremely eliminate the man-made interference from statistical or other agencies over all administrative levels, NBS decided to amend working process from the step-up approach which ask statistical agency at the basic level gather data from the target unit and then report to the agencies at the higher level, to the approach of gathering data directly from the enterprises with the support of internet or electronic equipment

Firstly, the on-line reporting system for the large and medium sized enterprises was established. Since 2012, NBS has been delivering requirements and instructions for the large and medium sized enterprises to submit questionnaires directly to official

statistical department online, which goes in line with legislative and regulatory criterions. Therefore, a national data management center and 14 provincial sub-centers were found for receiving online data. Meanwhile, the exit bandwidth of the internet has been broadened, system device has been expanded and upgraded and CA security certification system has been introduced for enterprise data. Nowadays, we have enabled more than 0.9 million enterprises report source data directly through internet to the national data center or provincial sub-centers, source data from enterprises can be synchronized and shared online for the four levels of statistical agencies, i.e. national level, provincial level, prefecture level and county level, the on-line reporting enterprises covers those in the sectors of mining and quarrying, manufacturing, production and supply of electricity, heat, gas and water, and wholesale enterprises with annual mainly operating income more than 20 million yuan; retail sales enterprises with annual mainly operating income more than 5 million yuan; lodging and catering enterprises with annual mainly operating income more than 2 million yuan; certified construction enterprises; all the real estate development enterprises; and important enterprises in service industry.

Secondly, make use of personal digital assistant (PDA) in obtaining sample data in price survey, urban and rural household income and expenditure survey. Nowadays, the data can be collected by PAD device and transmitted through the wireless network to the national data center in 500 prefectures and counties of consumers' price survey sample regions, and in 200 counties of rural area pedlars' market sample survey regions throughout the country. Since January of 2013, the electronic account keeping method and the use of PDA in collection data from household have been gradually promoted, the plan is to complete the transformation in method of account keeping and data collecting for 70 thousand investigated urban and rural households throughout the country before the end of year 2013.

Thirdly, make full use of PDA device in collecting data from enterprises and self-employed businesses in the upcoming Third National Economic Census. Field investigators should arrive in site holding PDA device, collect information such as building address, name and space coordinates by making use of GPS module equipped in PDA, take a picture of "Organization Code Certificate", "Business License", "Tax Registration Certificate" or "self-employed business' commercial license" to run out OCR recognition and data conversion consequently facilitate verification and registration of survey unit. The data collected by investigator would be submitted to the appointed computer servers through wireless network or statistical intranet (WAN) at township census agencies. According to the relevant regulation, the data could only be approved submitting by county census agencies on behalf of township ones in deficiency of network condition. Basing on feedbacks from census pilot in prophase, investigators and respondents both favored using PDA device in collecting and processing census data, which guaranteed the full coverage of census scope and ensured the quantity of census unit with no redundancy and no omission. The use of PDA device also provides clues for investigators to locate the specific unit, and increase the efficiency in seeking out census unit. PDA device will synchronize data collection and data input procedures, simplify the working process, reduce working

hour, and decrease the working load for both census staff and respondents.

4. The overall management and control of statistical data quality throughout the working process

Aiming at better enhance and improve the management of statistical data quality in China, effectively resolve the prominent problems such as humble standard in quality evaluation, separate management from subject-based statistics, partial control in particular sub-process, inadequate attention to users expectation, etc. NBS China is about to develop and implement “Statistics China’s Data Quality Assurance Framework” basing on “National Quality Assurance Framework (NQAF)” and its working guidance issued by the United Nations Statistical Commission.

Firstly, renovate traditional concept and standard in regarding accuracy as the single criterion in assessing data quality. With reference to relevant definitions and standards from NQAF of United nations, statistical data quality should be evaluated by seven dimensions including applicability, accuracy, timeliness, accessibility, comparability, coherence and validity. Meanwhile, the assessing of data quality should not only focus on the production side, user’ expectations should also be paid due attention to. Various needs from the clients including governments over levels, enterprises and institutions, the public users should all be met in the aspects of definition, gauge and scope of statistical data. Sampling error should be imposed at a reasonable level, and investigation error should be limited to the most extent. Under the given circumstances, the length of time between the reference point of survey and the date of data dissemination should be set as short as possible. Efforts should be devoted to facilitating client in obtaining and using data in a convenient and rapid approach. Statistical indicators over time and space should be suitable for comparative analyze, relevant data obtained from different sources or approaches describing the same population can be linked and matched together. Otherwise, the efforts should also be made to reduce respondent burden and achieve the maximum benefit with minimum input.

Secondly, take various measures to fully assure the quality of statistical data. This refers to strengthen legislative system, ensure the elements, requirements, procedures and measures which are formulated by statistical law be put into practice. Improve statistical institution and mechanism, regulate the scientific working flow and build practicable working mechanism. We should focus on the objectives in completing statistical standards, gradually promoting the construction of statistical standard system, optimizing the allocation of statistical resources to guarantee enough budgetary resources devoted to census, regular statistical programs, specific-area surveys, and other related issues. We should insist on independent statistics, independently exercise the privileged right in the field of statistical survey, statistical report and statistical supervise pursuant to the statistical legislation. We should also create the statistical culture where quality plays the central role and give guidance to promote statistical staff correctly understand and positively involve in the management work of statistical data quality.

Thirdly, overall control of statistical data quality throughout the working process. The goal is to formulate the detailed quality control standard and guidance specific to each

survey program basing on separation of statistical working flow into 9 sub-processes, including requirement confirmation, statistical design, approval or kept for record, task assignment, data collection, data processing, evaluation and adjustment, analyze and dissemination, storage and archive. At the same time, the management system for regulating the working process is planned to be built where the standards and guidances for quality control would be consolidated into every sub-process, this system will help in providing platform and measures for standardized quality management.

5. Conclusion

The NBS actively learns from the advanced concepts of integrated statistics from the outside world, makes full use of modern information technology, and after a certain period of implementation and operation, has basically achieved the expected goal. We organizes data collection, and the statistical agencies at different levels obtain the raw data directly via the Internet for further processing, which can avoid repeated data submission by responding units and reduce the duplication of labor inside statistical agencies. Meanwhile, we have realized centralized management of data, share of information, unified maintenance and whole-process support, to maximize the effect of statistical tasks and greatly improve the statistical capacity. We will examine the working patterns and explore an organizational pattern suitable for integrated business survey programs via direct on-line reporting system. Grassroots statistical agencies, in particular, need to give more emphasis of their work to seek and verify information in the business register of basic units, guide enterprises to consolidate their foundation by establishing statistical ledger and original records, and to verify the data submitted by enterprises.