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WEB-BASED SURVEY FOR INDUSTRIAL STATISTICS IN CHINA

Supporting paper submitted by the National Bureau of Statistics of China∗

BACKGROUND INFORMATION

Importance of industrial statistical survey

1. China's industrial sector[1] has a large share in the national economy, 46% of GDP in 2004, contributing to GDP growth by 56%. Therefore, good measurement of industrial activities will make important contributions to the good measurement of the entire economic activities of China.

The organization of industrial statistics

2. Industrial statistics are collected by the National Bureau of Statistics (NBS), provincial offices and local offices. Industrial enterprises above the cut-off point in terms of annual sales revenue over 5 million yuan are included in industrial statistical surveys. The information included, both in monthly and annual surveys, covers a number of components such as inputs, production, cost, profits, assets and liabilities.

3. Questionnaires, with instructions for their completion, are designed by the NBS, and they are distributed and collected by local level offices. Computer programs for the industrial surveys are developed or organized by the NBS for use by local offices.

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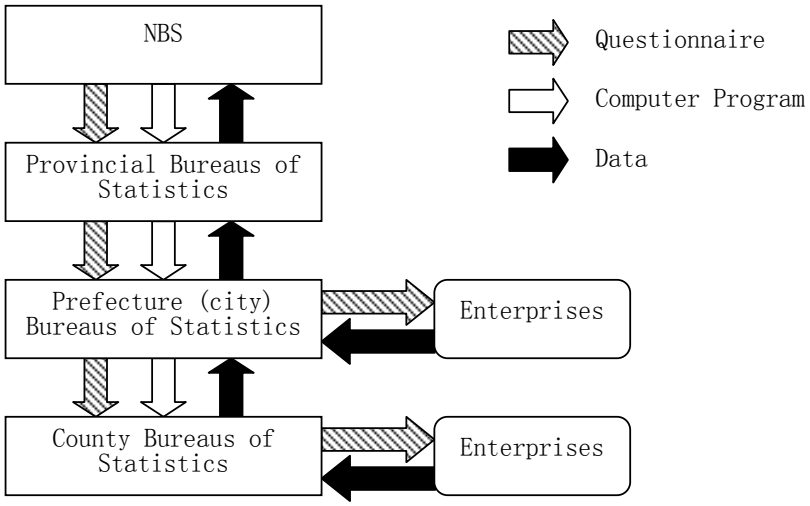
Conventional data reporting of industrial statistics

4. The conventional data reporting system has been used in China's industrial statistics for decades. This system employs indirect data collection in a way that information is reported from enterprises to the local statistical office, which in turn reports to statistical offices at higher levels and finally to the NBS. The reporting system is designed as follows: enterprises report their completed questionnaires to county/city statistical offices; these offices enter the data, edit and process the data before transmitting the results to statistical offices at the next highest level, and this practice is repeated until the processed data reach the NBS. The data transmissions are made through WAN.

Flow Chart of Conventional Data Transmission



Problems with the conventional method and planning of web-based data reporting

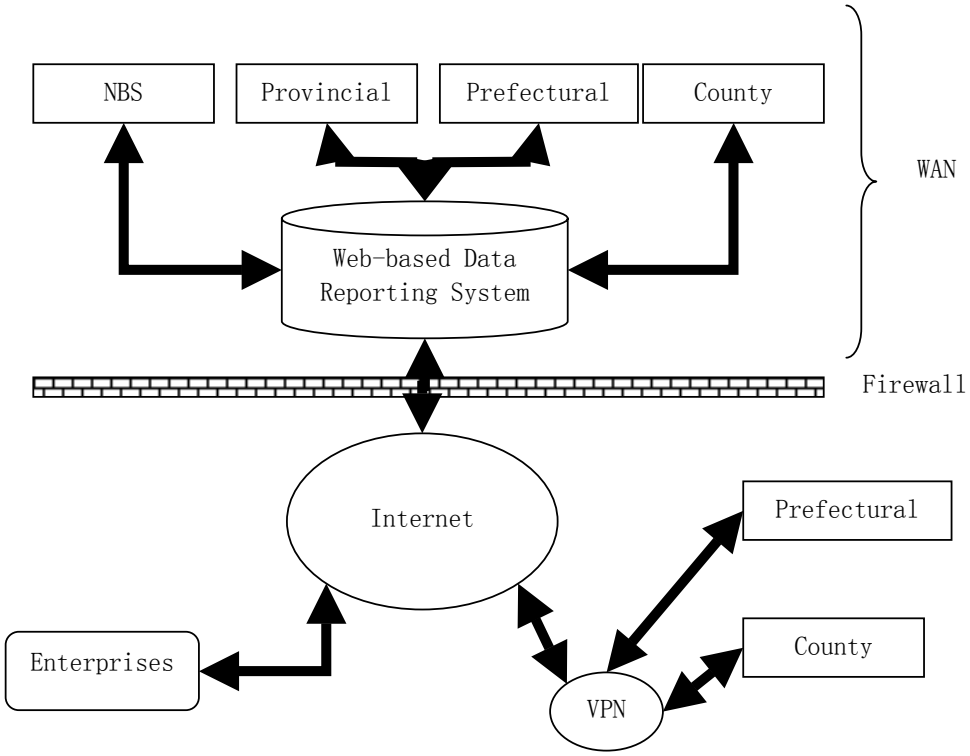
5. The conventional method has some problems. First of all, data entry is very resource-consuming. For example, China's industrial survey in 1998 covered 180 thousand enterprises, and the data entry, even though decentralized at the local office level, still put great pressure on local offices to meet the time deadlines. Secondly, heavy workload leaves little time for sufficient editing and checking, and therefore, data quality cannot be ensured. Thirdly, the conventional system cannot meet the requirements of the government for express surveys on important issues, especially in the context of China's highly dynamic economic development.

6. The rapid expansion of Internet in China provides a tool that helps the NBS solve the problem on a trial basis. In 1998, a plan of Internet-based statistical survey to renovate conventional method of data reporting through networking technology was developed. The completion of a WAN in the National Bureau of Statistics made web-based reporting physically possible.

FRAMEWORK OF WEB-BASED DATA REPORTING

7. The framework of data report networking is an Internet-based statistical data reporting system, a way of service to users through website. Industrial enterprises as respondents and local level statistical bureaus as data collectors are all registered as users in the system. Enterprises provide data to the networking successively, and statistics bureaus at all levels as data collectors shall, in line with their respective authorization, conduct data processing, tabulation and analysis. Statistics bureaus at all levels can acquire data immediately when data entry into the networking is done by enterprises.

Flow Chart of web-based data reporting



8. Web-based data reporting has overcome the problems experienced in the conventional reporting. Firstly, data entry is done by each enterprise registered in the reporting system, thus separating and alleviating the burden of data entry; secondly, occurrence of data entry errors has been reduced, and data quality is enhanced; thirdly, it makes express statistical survey possible; fourthly, it makes it possible to produce customized information, transform government functions, and provide better service to enterprises and the society.

DEVELOPMENT OF WEB-BASED DATA REPORTING SYSTEM

9. The web-based data reporting has developed the following stages: planning and development, test running and regular operation.

Planning and development

10. Main tasks at this stage were to identify demands, make plans and develop programs. The NBS completed initially WAN and started online data reporting in 1998. It was a success of joint efforts of the subject matter department and the Computer Center of the NBS: The Department of Industry and Transport Statistics made user's requirements and the Computer Center provided technical support and outsourced software development. The greatest challenge confronted at this stage was how to translate the plan into reality.

Testing

11. Major tasks at this state included systematic arrangements, trial operation, improvement and training. Quite a number of technical problems were solved and initial success was made at this stage.

12. There were some industrial enterprises that were not incorporated into the web-based data reporting due to difficulties of Internet access. Out of 180 thousand enterprises, only 5000 large ones in terms of their assets, sales revenue, and profits plus taxes were chosen as pilot enterprises. Coverage of industries is another consideration. The 5000 enterprises chosen consist of only 2.7% in terms of numbers, but 40-50% in terms of total assets, sales revenue, and profits plus taxes. Furthermore, these enterprises enjoy better Internet access service. After training was carried out, test run started on December 30, 1999.

Regular operation

13. At the initial stage of regular operation, the response rate was poor and fluctuated due to narrow bandwidth and poor stability of the system. Great efforts were made to renovate and improve the network and bandwidth. Training of enterprises was also enhanced. As a result, response rate reached 95% by the end of June 2003.

SOME CASES

14. Through the web-based reporting system a number of regular surveys were conducted. And furthermore, by taking advantage of the character of fast response of the web-based system, some express statistical surveys on important issues of the economic development were conducted.

Monthly survey on prediction of industrial production

15. In order to predict how industrial production changes, NBS conducted this monthly survey through the web-based system for over one year. The enterprises are required to submit the data by 27th every month, and the NBS produces the results of the survey on 28th. The average response rate is over 95%.

Survey on SARS impact on current industrial production in 2003

16. The unexpected SARS epidemic in the spring of 2003 had a great impact on people's lives, production and transportation. By using the web-base data reporting, an express statistical survey on SARS epidemic and its impact on current operation and performance of the 5000 pilot industrial enterprises was carried out, so as to test applicability and accuracy of the networking. Response rate was over 90%.

Survey on power and coal shortage in January 2004

17. The NBS conducted surveys on power demand and supply in 1505 enterprises of high power consumption, and on coal demand and supply of 998 enterprises of major coal consumption.

18. These successful surveys showed clearly that: 1) the web-based survey is convenient, flexible, and timely. The whole survey process, including questionnaire design, online distribution, data reporting and data tabulation, took about a week. The entire process of collection was much faster than any conventional surveys; 2) the web-based data reporting could enable statistics bureaus at all levels to access statistics in prime time. Statistics bureaus could do real-time monitoring immediately after enterprises posted their data on the networking, make data analysis, learn operation and performance of production of their own region timely and dynamically, and to provide data to departments concerned; 3) online statistical survey could reduce work-load of statistics departments at local levels.

19. Assigning tasks and collecting data level by level, and then processing and reporting to higher levels are becoming history. Through the web-based data report system, enterprises' data reporting can be monitored dynamically, and enterprises can be urged to report data. Efficiency of data collection and application is raised, and data quality is improved.

FACTORS THAT MAKE DATA REPORT NETWORKING A SUCCESS

Convenience

20. In data report, all the enterprises as users should do is to log in the website of http://www.5000.gov.cn, by typing in user name and ID, and then start data input after authorization. Such a convenient and simple operation is a key for success. The reporting page is a simple design and directly perceivable, and plug-ins are avoided as much as possible. For enterprises, operation is easy to be done after a brief training, or even without training.

Stability and efficiency

21. Stable and efficient running is critical for the success of data report networking. Instability, failing to log in, and having troubles in data transmission can all thwart the enthusiasm of enterprises users. The following efforts have been made to secure stability and efficiency: 1) constant upgrading and perfecting of the software system; 2) expanding capacity of bandwidth and hardware.

Security vs. efficiency

22. High efficiency is a key to securing smooth data reporting by enterprises and data security is very much associated with their cooperation to do data report on line. Efforts should be made to strike a balance between security and efficiency. Data security is secured while efficiency is maintained.

Information feedback

23. Great amounts of statistics are posted on the NBS website, and tailored information services are provided, in order to get an increasing number of enterprises to do data reporting online.

PLANS FOR NEXT STEP

Cover more enterprises in the web-based data reporting system

24. It is planned that the number of enterprises incorporated in the web-base data reporting system shall be extended from the current 5000 to 23000. Work on extension shall start at the second half of 2005.

Authorize local statistical bureaus to conduct their own surveys

25. Local statistical bureaus will also make use of the system to design their own questionnaires and conduct their own online surveys.

Increase information feedback

26. More statistical information shall be posted on the website, and tailored information service shall be provided to those enterprises who use the system.

[1] In China's statistics, industry sector consists of three parts: mining and quarrying, manufacturing, and supply of gas, water and electricity.

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