Further Challenges in Quality Management of Statistics at the Bank of Japan

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**Abstract**

The Bank of Japan compiles a variety of economic statistics, including financial statistics, price indexes, and the *Tankan* (Short-Term Economic Survey of Enterprises in Japan), which draw a great deal of attention from media, economists, and policy makers. As the central bank of Japan, the Bank faces three challenges in compiling statistics: it relies solely on the voluntary cooperation of data contributors, while it also needs to meet the expectations of the public for the high quality management of statistics, all under considerable labor and budgetary constraints. The Bank ensures the quality of its statistics by ensuring they comply with “The Basic Principles for the Compilation, Release, and Development of Statistics,” published by the Bank in 2009. The Bank also makes ongoing efforts to further improve the quality of its management of statistics. This paper considers recent challenges facing the *Tankan*, and the Bank's efforts toward enhancing its data quality in order to engage users — including through visualization and dissemination — and meet their demands in a cost-efficient and responsive manner. Specifically, the paper explains the motivation behind these efforts, the process for the improvement of statistics compilation, and the desired results. The paper also considers another quality management framework, the European Statistics Code of Practice developed by Eurostat, and issues related to the European Statistical System’s Vision 2020.

**Keywords**: Quality management of statistics, data quality improvement, sample design method, dissemination, *Tankan*

**1. Challenges in the quality management of statistics at the Bank of Japan**

**1-1. Basic Principles for statistics at the Bank of Japan**

The Bank of Japan compiles a variety of statistics, such as financial statistics, price indexes, and the *Tankan* (Short-Term Economic Survey of Enterprises in Japan) which indicates corporate sentiment. “The Basic Principles for the Compilation, Release, and Development of Statistics” (hereafter referred to as the Basic Principles) published in 2009[[1]](#footnote-1) outlines the Bank’s basic principles for the compilation of statistics and forms a quality assurance system. The principles cover various aspects of statistics management across seven categories, as in Table 1.

[Table 1] Basic Principles for statistics at the Bank of Japan

**1-2. Recent improvements of statistics compiled by the Bank of Japan**

In recent times, the Bank has made improvements to a variety of statistics, as in Table 2.

[Table 2] Recent improvements of BOJ Statistics



When the Bank makes substantial revisions to its statistics, as is mentioned in 3-2-1 and 3-2-2, the Bank announces the changes in advance. By doing so, the Bank ensures it can receive comments and opinions from a broad range of users and reporting entities, following principle number 3 of the Basic Principles.

**2. Japan’s Current statistical system**

**2-1. Comprehensive revision of the Statistics Act**

The current Statistics Act (Act No.53 of 2007, hereafter referred to as the Current Statistics Act) came into effect from April 1 2009, through the first full revision in 60 years of the previous Statistics Act (Act No.18 of 1947, hereafter referred to as the Previous Statistics Act). The Current Statistics Act, “recognizing that official statistics provide critical information for citizens to incorporate into their reasonable decision making,” stipulates that official statistics shall be developed in a systematic and efficient manner. Only some of the statistics compiled and released by the Bank (hereafter referred to as BOJ Statistics) were covered by the Previous Statistics Act, but the Current Statistics Act defines all BOJ Statistics as “official statistics” and requires that they be in accordance with the fundamental principles of the Current Statistics Act.

**2-2. Basic measures towards the further enhancement of official statistics**

In March 2009, the Cabinet decided for the first time on the “Master Plan Concerning the Development of Official Statistics” (hereafter referred to as the Master Plan). Based on Article 4 of the Current Statistics Act, the Master Plan was created in order to promote comprehensive and systematic measures for the development of official statistics. The first term Master Plan covered a period of five years (from April 2009 to March 2014), and outlined in a concrete manner what official statistics should be; the range of obstacles facing the production of official statistics, including the deterioration of the survey environment and resource constraints; and appropriate measures to overcome such obstacles. Since this first term plan, the Master Plan has been updated around every five years. The second term Master Plan was for the five year period from April 2014 to March 2019. In December 2016, the Council on Economic and Fiscal Policy decided on the Statistics Reform, which was then endorsed by the Statistics Reform Promotion Council in May 2017. This brought the third term Master Plan forward one year, starting in April 2018 and lasting until March 2024.

**2-3. Report on implementation following the Statistics Act**

Article 55 (2) of the Current Statistics Act requires the Minister of Internal Affairs and Communications to compile a report each year on the state of the Act’s implementation, including progress report on the corresponding Master Plan. It also requires that the report’s outline is publicized, and reported to the Statistics Commission. In November 2017, the report of the 2016 fiscal year was released. As one of the topics for the 2016 report, a review of the explanatory documents for Fundamental Statistics was conducted. Fundamental Statistics are particularly important official statistics (e.g., *Population Census*, *Economic Census*), as designated by the Current Statistics Act. Following the categories in Table 3, which mainly focuses on the accuracy of data collection, the explanatory documents for each set of statistics were reviewed by giving a score from one to three. The scores were then visualized as radar charts.

[Table 3] Categories for the review of explanatory documents of statistics and radar charts

 

**3. The *Tankan***

**3-1. What is the *Tankan*?**

The *Tankan* (Short-Term Economic Survey of Enterprises in Japan) is a statistical survey conducted by the Bank in accordance with the Current Statistics Act. The *Tankan* aims to provide an accurate picture of the business trends for enterprises in Japan, thereby contributing to the appropriate implementation of monetary policy. The survey is conducted quarterly, in March, June, September, and December. In principle, survey results are released at the beginning of April, July, October, and mid-December.

The target survey population of the *Tankan* comprises of private enterprises (excluding financial institutions) in Japan with capital of 20 million yen or more. Based on the 2014 *Economic Census for Business Frame* (hereafter referred to as the *Economic Census*) jointly conducted by the Ministry of Internal Affairs and Communications (MIC) and by the Ministry of Economy, Trade and Industry (METI) in July 2014, the survey population consists of approximately 220,000 such private enterprises. The number of sample enterprises is around 10,000. Sample enterprises are selected from the survey population based on industry and size to satisfy established criteria such as that of statistical accuracy. The Bank conducts the *Tankan* survey via a survey form which is sent to sample enterprises by mail or online.

The *Tankan* has a long history extending back to its predecessor, the *Principal Enterprises Tankan*, which was started in 1957. The survey framework of the current *Tankan* consists of survey items in the following four categories: (1) Judgment Survey, (2) Annual Projections, (3) Inflation Outlook of Enterprises, and (4) Number of New Graduates Hired (only included in June and December surveys). Figures based on the current framework of the *Tankan* are available from the March 1975 survey.

**3-2. Recent improvements of the *Tankan***

In order to capture the actual economic conditions accurately and respond to rapidly changing financial and economic structures, the Bank takes great care to ensure the appropriateness of *Tankan* survey items. In addition, the Bank makes continuous efforts to enhance the methodologies used in the compilation of the *Tankan*. Non-sampling errors are also checked with a number of measures. Following are some examples of recent improvements of the *Tankan*.

***3-2-1. Revision of survey items***

In terms of conducting the *Tankan* survey, the Bank aims to improve user convenience as well as to reduce the burden on survey respondents to the greatest extent possible. While the Bank has added some necessary survey items, it has also removed items that draw relatively less attention from users and overlap with other sets of statistics, as in Table 4.

[Table 4] Changes in survey items



Note: Asterisk (\*) indicates a change of survey term from semi-annual to annual basis to obtain fiscal-year figures.

***3-2-2. Revision of sample design method***

Since the March 2018 survey, a new sample method — which was released in April 2018 — has been used to conduct the *Tankan* survey based on the latest revision of sample enterprises. In order to capture economic conditions accurately, the Bank regularly revises the *Tankan* sample enterprises according to its information on the survey population. The Bank then releases the results of the revision of sample enterprises based on the most up-to-date information on the population (comprising approximately 220,000 enterprises), taken from the *Economic Census*.

In this revision of sample enterprises, a new sampling method has also been introduced. In the new method, stratified sampling based on sales instead of number of employees has been introduced. In other words, the Bank changed the criterion for subdividing the population of enterprises into multiple groups (strata) from number of employees to sales. The estimate of population total is calculated in each stratum. The new sampling method is intended to improve statistical accuracy and reduce the total burden on survey respondents.

 [Figure1] Standard error ratios of sales (population estimates)

 for six main categories by industry and enterprise size



Note: The pre-revision figures above are the same as the data in the previous regular revision of sample enterprises in March 2015.

Figure 1 compares the standard error ratios of sales under stratified sampling based on the number of employees (hereafter referred to as employee stratification) with those under stratified sampling based on sales (hereafter referred to as sales stratification). As a result of this revision, the standard error ratios significantly decrease in all six main categories by industry and scale. This is especially the case in nonmanufacturing, for which the errors are less than half of those from before the revision for all enterprise sizes, indicating a significant improvement in statistical accuracy.

Figure 2 exhibits the standard error ratios of fixed investment based on the two stratification methods. The standard error ratios for all six main categories also decrease under the sales stratification. In particular, a significant decline is seen in small nonmanufacturing enterprises, which have shown high standard error ratios under the employee stratification (from 28.0 percent for the employee stratification to 11.8 percent for the sales stratification). This is because the sales stratification is effective in controlling standard error ratios of fixed investment, with fixed investment more highly correlated with sales than with the number of employees.

[Figure 2] Standard error ratios of fixed investment (Population estimates)

for six main categories by industry and enterprise size



In addition, the number of sample enterprises was greatly reduced, from 11,126 in the previous regular revision in March 2015, to 10,020 in the current revision — a significant reduction in the total burden on survey respondents. Revision of the sampling methodology allowing the use of detailed accounting information obtained from the *Economic Census* enables the Bank to compile more accurate statistics with fewer samples. This helps to capture actual economic conditions in Japan more accurately as well as to reduce the total burden on survey respondents.

***3-2-3. Expansion of the Tankan explanatory document***

The Bank is currently in the process of expanding the *Tankan* explanatory document to allow the further visualization of statistics and dissemination of the statistics compilation to users. In doing so, the Bank refers to the categories for the review of explanatory documents of Fundamental Statistics as discussed in 2-3. The revised document will be released around this summer.

**4. Comparison with the European quality management framework**

Table 5 shows the improvements of the *Tankan* which correspond to the items of the quality management framework in the *European Statistics Code of Practice* (hereafter referred to as CoP) developed by Eurostat in yellow highlight. The improvements do not only relate to the quality of statistics, (CoP numbers 7-12), but also to the quality of statistics dissemination (CoP number 15).

 [Table 5] European Statistics Code of Practice



The Bank’s position on the improvement of statistics also overlaps significantly with that of the European Statistical System’s Vision 2020 (hereafter referred to as ESS Vision 2020); for example, “Identifying user needs and cooperation with stakeholders” (Key Area 1) in the ESS Vision 2020. As mentioned in 3-2-1 and 3-2-2, when the Bank plans to make substantial statistical revisions, user need is always a key point of consideration. Just as the “Quality of European statistics” (Key Area 2) is outlined in the ESS Vision 2020, the Bank has its own comprehensive quality assurance framework for statistics, which is outlined in the Basic Principles for Statistics, as discussed in 1-1.

**5. Conclusion**

This paper has discussed recent improvements of BOJ statistics, mainly in relation to enhancing the data quality of the *Tankan* — including its visualization and dissemination. These improvements have been undertaken in order to engage users and meet their demands in a cost-efficient and responsive manner. The Bank will continue on in its efforts to further improve the quality of its statistics.

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1. The background to compiling the Basic Principles was the full revision of the Statistics Act (Act No.18 of 1947) for the first time in 60 years. For further detail, refer to the Bank of Japan (2009). [↑](#footnote-ref-1)