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Session3: Innovations/new ways of interaction with users

New Outputs of the Business Register in Japan (Register-based Statistics)

1. Introduction

The Japan Business Register (JBR), formally called the Establishment Frame Database, is developed by integrating the results of the Economic Census, various statistical surveys, and administrative data sources. Moreover, information on all establishments and enterprises is kept updated on a regular basis.

The main data source for the JBR is the Economic Census, which is conducted every five years. In the interim years of the Economic Census, the Statistics Bureau of Japan (SBJ) utilizes the results of various statistical surveys and administrative data to update the JBR. In other words, there are several statistical surveys and administrative data specialized for industries or conditions of establishments and enterprises respectively, and the information on establishments and enterprises not limited to specific industries stored in the JBR is updated every year by integrating these data.

Recently, in order to better grasp the status of the Japanese economy on an annual basis, especially in years in which the Economic Census is not conducted, we are attempting to create new “Register-based Statistics” based on the JBR. These “Register-based Statistics” are statistics aggregated using the data extracted from the JBR. As the JBR contains information on all establishments and enterprises, it could potentially be used to produce statistics covering all industries by region every year in a manner similar to an economic census.

We have published a trial version of the “Register-based Statistics” for the first time this year. Here, we will introduce the data sources for the “Register-based Statistics” and the procedure for aggregating them.

2. Brief Introduction to the Business Register in Japan

In Article 27 of the Statistics Act, it is stipulated that the Minister for Internal Affairs and Communications shall develop the JBR. Based on the Act, the SBJ, which is one of the

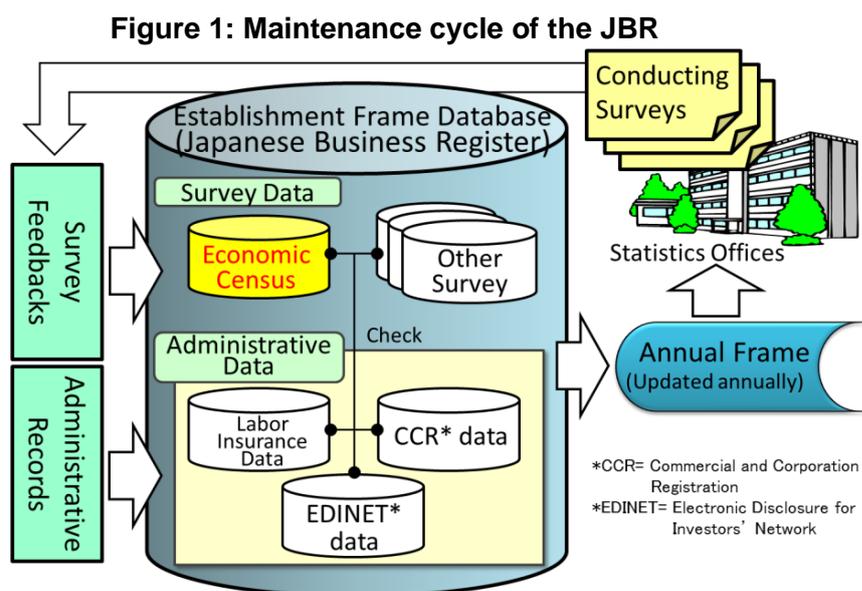
¹ The views expressed in this paper are those of the authors and do not necessarily reflect the policies of the Statistics Bureau of Japan.

organizations of the Ministry of Internal Affairs and Communications, is in charge of operating the JBR.

The current JBR was renovated in 2012 and aims mainly to provide the latest business frame every year, called the “Annual Frame,” as a sampling frame for business surveys conducted by the national and local governments as well as incorporated administrative agencies in order to reduce the burden on respondents to statistical surveys conducted by these organizations. In fact, the SBJ has been continuously providing the Annual Frame every year since 2014. After the renovation in 2012, the JBR has been storing data (results) from various surveys such as the Economic Census, Census of Commerce, and Financial Statements Statistics of Corporations by Industry, as well as administrative data consisting of Labor Insurance (LI) data, Commercial and Corporation Registration (CCR) data, and EDINET (Electronic Disclosure for Investors’ Network) data.

Information on all establishments and enterprises in Japan is stored in the JBR (about 7 million establishments and 4 million enterprises as of 2021).

The chart below summarizes the maintenance cycle of the JBR for reference.



3. Outline of the Economic Census as the Main Data Source for the JBR

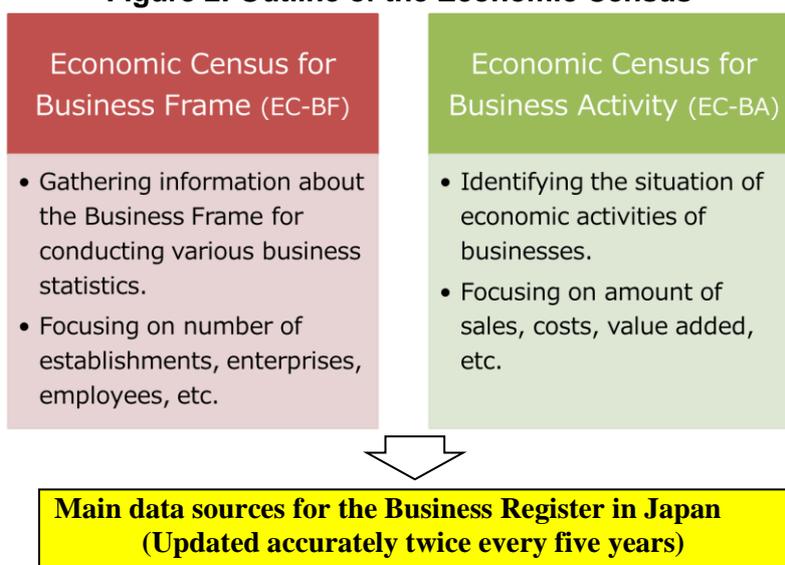
The main data source for the JBR is the Economic Census. The objectives of the Economic Census are to identify the actual situation of business activities of establishments and enterprises as well as to identify the comprehensive industrial structure in Japan, and to organize information on the population for conducting various statistical surveys on establishments and enterprises.

In Japan, the Economic Census consists of the following two surveys.

- a) The Economic Census for Business Frame (EC-BF), which identifies the basic structure of establishments and enterprises
- b) The Economic Census for Business Activity (EC-BA), which identifies the situation of economic activities of establishments and enterprises

These two surveys have been conducted approximately once every five years, beginning in FY 2009.² Thus, the EC-BF was conducted in FY 2009, 2014, and 2019, and the EC-BA was conducted in FY 2011, 2016, and 2021. As a result, the records stored in the JBR are accurately updated twice every five years using the main data source (Economic Census data).

Figure 2: Outline of the Economic Census



As mentioned earlier, in the interim years of the EC, the Business Register is updated regularly using administrative data and other survey results. This method has been very effective for the maintenance of the Business Register in Japan.

4. Introduction to a New Statistical Survey Conducted in the Interim Years of the Economic Census for Business Activity

For the years in which the EC-BA is not conducted, we have established a new Annual Business Survey (ABS) through the integration and reorganization of existing statistical surveys.

The ABS was established in 2019 as a new Fundamental Statistical Survey under the Statistics Act. The survey is conducted every year (except years in which the EC-BA is conducted) in order to identify the structure of the manufacturing and service industries such as their added value and to contribute to improving the accuracy of national accounts.

² The fiscal year starts in April and ends in March of the following year.

This survey makes it possible to grasp the economic structure of the major industries that account for over 90% of GDP and their changes more accurately every year. Thus, it further improves the accuracy of national accounts and is expected to make it possible to assess economic conditions more precisely and to contribute to more effective administrative policies based on an understanding of economic structure and management decisions by companies. Also, the results of this survey are used to update the JBR every year.

5. Producing Business Statistics Using the Business Register

5-1. Formulation of the Master Plan

Based on societal issues, the 3rd Term Master Plan Concerning the Development of Official Statistics was implemented via Cabinet decision in March 2018. The plan indicates the following future directions for the Business Register.

Figure 3: The Master Plan (Extract)

Producing business statistics	<p>In the interim years of the EC-BA,</p> <ul style="list-style-type: none"> • establish the ABS through the integration and reorganization of existing service and commerce statistical surveys. • produce statistics on a regional basis using the Business Register with research into methods for estimating added value, while enriching the JBR using new administrative information, etc.
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As described earlier, the Business Register is updated twice every five years using the results of two surveys. In interim years, it is updated mainly using the ABS. There is a need to consider more useful products of the Business Register. For example, small-area statistics would be valuable for dealing with social issues in Japan, since the ABS can only grasp nationwide economic conditions. It should be possible to annually produce and provide small-area statistics such as number of establishments by size and attribute, which would be meaningful to social issues, etc. In addition, we aim to flexibly produce business statistics in response to requests from users.

5-2. Trial Production of Business Statistics Using the Business Register

We initially tried to produce statistics by simply aggregating the latest Annual Frame from 2019. As the JBR contains data on all enterprises and individual proprietors, any statistics can be produced by adding up the Annual Frame. However, the JBR is updated with respect to certain industries and conditions every year, so some estimation is necessary in order to produce statistics.

5-3. Estimation Method

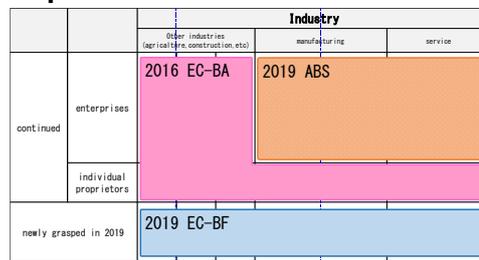
Not all surveys utilized to update the Business Register cover all industries and use the exact same survey items.

The data sources for the 2019 Annual Frame are represented visually below. There are some bottlenecks from the viewpoint of uniform updating. For example, we cannot update data on enterprises in industries other than the manufacturing and service industries from the 2019 ABS, and since the EC-BF is not a survey focused on accounting information, we don't have added-value data for new enterprises or individual proprietors in the 2019 EC-BF (but do have data on sales and number of employees).

With regard to the former issue, the coverage of the ABS is planned to be expanded to all industries starting with the 2022 survey. (Accordingly, we aggregated it as is for now.)

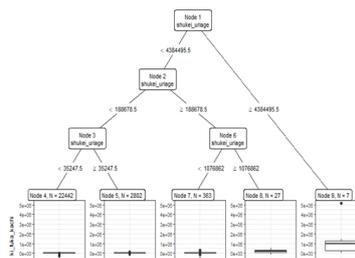
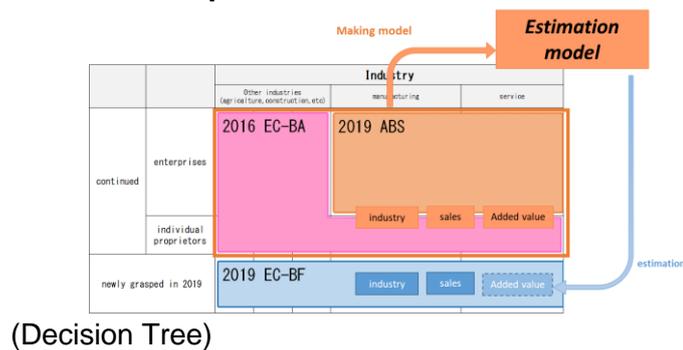
With regard to the latter issue, we performed an estimation.

Figure 4: Visual representation of data sources for Annual Frame (2019)



The method is similar to hot-deck imputation. We divided corporations into several groups based on their industry, number of employees, etc. (using a decision tree), and for each group, we created a model from information on existing corporation to estimate the added value of new corporations from their numbers of employees and sales.

Figure 5: Visual representation of added-value estimation



6. Publishing and Future Plans

After estimation, we simply aggregated the Annual Frame for 2019 and produced statistics for sales, number of employees, added value, etc. by region. We published the results on June 30, 2021. (This is a trial aggregation, and only a Japanese page exists for now.)

We will make further efforts to improve the accuracy of estimation. At the same time, other economic survey statistics are also being changed, so we need to comprehensively consider the role and objectives of the Register-based Statistics.