# Efforts for Statistical Reform

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## Criticism of Government Statistics & Statistical Reform

This article provides an overview of the current status and outlook for government statistical reform. Increased criticism of government statistics was triggered by a comment made by Finance Minister Taro Aso at the Council on Economic and Fiscal Policy meeting in October 2015. Aso pointed out that the Wage Index for the Monthly Labor Statistics fluctuates widely when the sample data is switched, and that the movements in Consumption Expenditure of the Family Income and Expenditure Survey and the movements in Retail Sales of the Current Survey of Commerce were different.

The Statistics Commission of Japan which leads improvement efforts for government statistics has presented improvement plans for each statistic. But doubts cast on the statistics were not eliminated, and in August 2016, when Minister Kozo Yamamoto stated that "Gross Domestic Product (GDP) cannot be trusted", momentum to reform government statistics rose within the entire government.

The low level of trust towards GDP can be highlighted by the degree of revision that needs to be made after the preliminary results are released. According to an analysis made by an OECD economist, the width of revision made after the preliminary results of Japan's quarterly GDP (compared to the previous year) is the second largest after Norway. Looking at the actual examples of the revisions, the real GDP growth rate for July-September 2008, during the Lehman Shock, compared to the previous quarter was a negative 0.4% in the preliminary results, a small negative figure. But as time went on, the negative range grew larger and the final figure was revised downwards to a negative 6.5%.

In December 2016, the Statistical Reform Promotion Council was established with Chief Cabinet Secretary Yoshihide Suga serving as its chairman, and the Final Report of the Statistical Reform was announced in June 2017. In the final report, the policy to "improve economic statistics around GDP statistics" was put forward, and the policy aims to enhance and improve various basic statistics, and also to improve the accuracy of GDP statistics by reviewing the methodology of generating GDP. Revision to the statistical method based on the policy of the final report is scheduled for 2018. In the past, the Statistics Commission has only discussed statistics when a change needed to be made. It was, in other words, passive in nature, but once a revision is made to the Statistics Law, the committee can implement improvements to statistics based on its own awareness, and can also recommend improvements to each ministry.

Measures to address the challenge raised by Aso in 2016 also progressed. The method for data sample shuffle for the Monthly Labor Statistics was changed from shuffling and changing the entire data sample to switching one third (half during the transitional period) every time and choosing to release numerical data for continued sampling where the switch has not been made. The new method began with the statistics for January 2018. For the Family Income and Expenditure Survey, the Consumption Trend Index (CTI), which is closer to the concept of consumption in the GDP statistic, has been calculated and released since January 2018.

## Improvements to Inappropriate Statistics

Just as the Statistical Reform Promotion Council was established and government efforts were to begin addressing statistical reform, inappropriate handling of data was discovered in the Survey of Textile Distribution in December 2016. It was discovered that even though there was no response reported from the respondent, the same numerical data as previous months had been used for many years. Since then, various issues unfolded, such as errors in figures being discovered in government statistics other than the Survey of Textile Distribution, inspection systems for figures were discovered to be not strict, or data collection was not meeting the standard.

It is the role of the Statistics Commission to address these issues systematically. In order to improve the statistical accuracy, the Statistics Commission conducted a cross-examination of all of the fundamental statistics in fiscal 2017, and in March 2018 the Report on the Final Deliberation Results to Improve Statistical Accuracy was released. The report picks up the issue of complementing missing values. It is on how to fill data using statistical methods when there is a no response category. Various statistical approaches were considered, and a desirable case study was introduced.

There are also various technical challenges to government statistics. One example is how to handle consumption tax in the statistical surveys. The Economic Census for Business Activity which looks thoroughly at enterprises released its first results for the 2012 Survey (looking at 2011 figures), and the second results for the 2016 Survey (looking at 2015 figures). Sales went up by around 20% (5% annually) from 1,336 trillion yen in 2011 to 1,603 trillion yen in 2017. The value-added amount which is close to the concept of GDP also

went up by around 20% (5% annually) from 245 trillion yen to 295 trillion yen. The corresponding growth in nominal GDP was an annual rate of 2%, quite a high growth rate. This is because the survey method changed between the first survey of "including consumption tax", and the second survey of "select method of either including or excluding consumption tax" which greatly impacted the results. The first survey should have been marked as including income tax, but since calculations are done excluding consumption tax for accounting purposes, it was pointed out that many enterprises may have responded by excluding consumption tax. Thus, the first survey underestimated the growth of sales. Therefore, the second survey including consumption tax showed higher growth of sales than in the first survey.

This may occur in a variety of statistics and a change in the economic environment may give rise to new challenges, and therefore there is a need to constantly verify the validity of the statistics.

## Expansion of Coverage

The next challenge is the enrichment of the information amount. The basis for various business statistics is the actual number of business enterprises that exist across Japan (population). Grasping the number of these enterprises has so far been conducted as the Economic Census for Business Activity. Enterprises are identified one by one by an investigator on foot. But nowadays, there are instances where the enterprise looks like a normal house from the outside and thus it is difficult to determine whether there is a business activity taking place inside or not. In addition, Internet-related enterprises can do business without any staff on site if the location is regularly maintained.

Such cases have led to concerns that the number of enterprises has not been properly covered for statistical population purposes. Indeed, the sample number for the Financial Statements Statistics of Corporations by Industry Survey is 2.81 million enterprises, but it is 1.75 million enterprises for the Economic Census for Business Activity and there is a deviation. It may be possible that corporations that are not operating are included in the number, and the figure of 2.55 million companies for the Taxation Statistics is closer to reality. Even so, it means that the Economic Census for Business Activity is unable to account for close to 800,000 enterprises *(Chart 1)*.

Looking forward, the number of business enterprises will not be accounted for through the Economic Census for Business Activity, and the number of sample enterprises will be periodically grasped through the business enterprises population database. Profiling will be conducted for large companies, and various kinds of information such as financial statements and news will be collected to understand corporate activities. For other companies as well, the plan is to switch to a method where for each of the regions, each and every company can be identified and recognized.

For companies that are not readily visible, such as Internet companies, taxation information is useful. Taxation statistics are currently not available for statistics, but it is planned to check the population information by using the business information as population information.

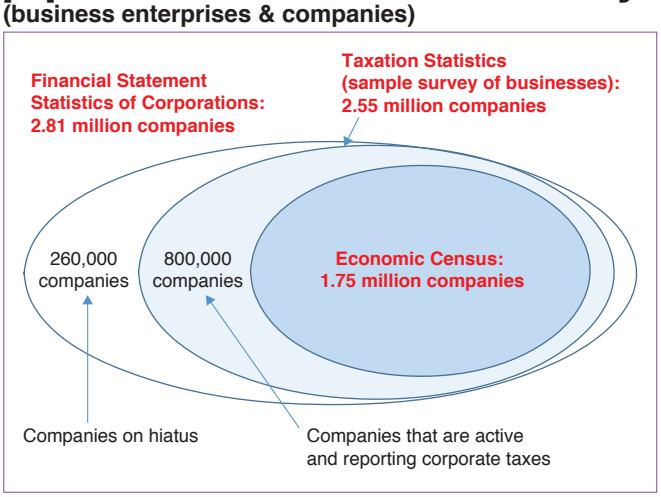
## Accurate Understanding of Input-Output Structure

In the past, GDP statistics have been created using an Input-Output Table. Because GDP can be built by compiling the production of each industry, ideally it is better to create GDP using the Input-Output Table. But since GDP is value-added, there is a need to comprehend the production amount as well as the cost structure. It is difficult to grasp the cost structure every year and thus the value-added amount is estimated assuming that the input ratio is constant. Even the Input-Output Table which comes out every five years relies greatly on estimations. This is because as industry became more subdivided, the harder it was to collect statistics and hence estimations were used for sections where statistics were not obtained.

The Input-Output Table is an ideal tool, but since it is difficult to measure, the G7 countries excluding Japan have been using the Supply and Use Table (SUT) as a basis for creating GDP statistics, which is more easily measurable. With the planned reform, Japan will now also change and use the SUT. In addition, the SUT will be created once every five years, several business statistics will be renamed and enhanced as the Business Survey, and this survey is planned to be compiled every year to resemble something close to

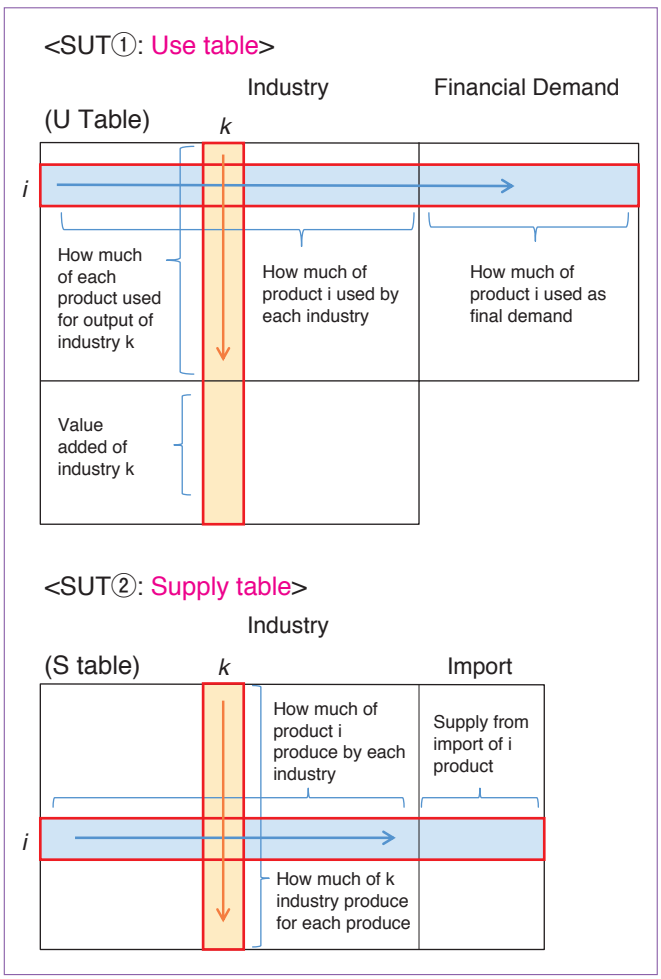
CHART 1

**Difference in the list of sample population for the Statistical Survey**
**(business enterprises & companies)**




*Source: Created by the author from reference materials of the Statistics Commission Office of the Ministry of Internal Affairs and Communications, as of 2014.*

CHART 2
## Supply Use Table




*Source: Compiled by the author*

the SUT. By doing so, the accuracy of Japanese GDP is expected to improve *(Chart 2)*.

It was also decided that when creating GDP, for those sectors in the fundamental statistics where increased accuracy was expected, improvements were to be prioritized. These sectors are termed as the five sectors: construction and real estate, medical care and nursing, and education. In the construction industry, construction maintenance and repair (home improvement and renovation) have not been included, but Building Renovation and Renewal Statistics have been created, and with the revision to the standard being planned for 2020 it will be included in GDP. In real estate, brokerage commissions for sales and purchases of real estate or profit margins on sales and purchases of used houses or non-residential houses are not included in GDP. In the medical care and nursing sector, the challenge is how to grasp GDP for pharmaceuticals. Currently, the output amount for pharmaceuticals can be obtained, but intermediate input cannot be accounted for as an annual statistic. Since the monetary amount involved is large, improvements are desirable. In education, the total cost of public schools is currently unaccounted for, and again, improvements are desirable.

A shift from the Input-Output Table to an SUT-system will take longer than anticipated. The basis for the SUT is the Economic Census which is a complete census, and to change that is a huge undertaking. To reconsider classifications of all of the industries in Japan, and to create questionnaires according to each industry type without creating disruptions for the businesses is an enormous task, different in so many levels compared to a regular change in statistical surveys. The next economic census is expected to create an SUT for the service industry, and the one after that will create an SUT for all industries, but that alone can take 10 years. A long-term outlook is necessary in carrying out statistical reform.

### Price of Service & Output

One important theme when creating GDP statistics is the Price Index. This is because Real GDP is calculated by dividing Nominal GDP by the Price Index.

Statistics for price are not just about surveying how much things cost. The Price Index needs to indicate “given a constant quality, how much prices have changed”. Prices of personal computers do not appear to show much fluctuation, but capabilities and performance keep going up as computing speed and memory storage capacity continue to increase. What is required for the Price Index are the prices of computers with the same processing capabilities, and given the quality, prices seem to have dropped considerably. Changes in prices of computers may appear to be flat, but there is a need to express this situation as being, higher quality = lower prices.

There is a need to adjust for the changes in quality for all products, not just for computers. Consideration has been delayed so far for quality adjustment in the service sector. For example, rents. The GDP Statistics is supposed to use “imputation” where even if a house is self-owned, the owner pays rent to himself or herself. Hence the percentage of rent in overall consumption is considerably large. Rent for a property built 10 years ago should be less expensive than rent for that property newly reformed because of degradation with the passing of years. The increase in the number of properties with degradation over time indicates a fall in quality, and the Price Index should rise. This needs to be embedded in the statistics. According to a paper released by the Ministry of Internal Affairs and Communications in 2018, the effect of degradation over time is around 1%. Looking ahead, there is a need to calculate the overall impact on consumer prices. Quality adjustment needs to be reviewed in various sectors including education and medical care.

## Fundamental Revision of QE

The most closely watched statistic amongst the private sector economists is the Quarterly Estimates of GDP (QE). But there have been many criticisms of the QE statistics. The fundamental problem is the fact that the numerical values are revised quite dramatically after the initial announcement. This is because the statistics used for the estimations are different. This is not the same as changing the value after careful examination of the content of the statistics. Revision of the standard year every five years will be based on the Input-Output Table, but annual estimations are created around the Census of Manufacturers. But since the Census of Manufacturers is not ready yet for the first year of the annual estimation, the Current Survey of Production is used.

On the other hand, QE uses the Current Survey of Production as well as statistics from the demand side. Of those statistics, the Family Income and Expenditure Survey by the Ministry of Internal Affairs and Communications is influential for household finance statistics, as is the Financial Statements Statistics of Corporations by Industry by the Ministry of Finance for business statistics.

The Family Income and Expenditure Survey is a tabulation of surveys conducted on around 8,000 households. The households need to keep a household expenditure book and it is therefore said to be a burdensome survey. Respondents to the survey tend to be the elderly or civil servants, and hence the sample is said to be biased. Households who do not mind keeping books for their expenditures tend to also be mindful of saving, and as a result consumption expenditures may tend to be lower than the actual situation. Another problem that is pointed out is the low number of samples for single-person households often found in the younger generation and the elderly generation.

The problem with the Financial Statements Statistics of Corporations is the time lag in when it is released. The statistics do not make the release of the First QE which comes 90 days later where the estimations are done using Current Production Statistics, and the Financial Statements Statistics of Corporations is not used until the Second QE. Proposals from the Statistical Reform Promotion Committee and others have prompted early data contributions from businesses. While it will increase the burden on businesses, being able to use data from Financial Statements Statistics of Corporations for the First QE will lessen revisions being made to the Second QE.

## Sharing Economy

When creating statistics, we need to be careful not to miss riding the new trends of economic society. Integrating “sharing economy” into statistics is one such example.

Sharing economy is business intended to utilize idle assets of individuals, and the use of matching functions on the Internet is also one of the characteristics. Examples include vacation rentals or utilizing unused cars, buying and selling of unwanted goods (sharing goods), lending costumes, and crowdfunding. In the case of vacation rentals, self-employed owners register the vacation rentals with the businesses undertaking the matching, and users of the rentals make reservations through the website.

The problem with the statistics is private individuals running a lodging service business. For business enterprises, there is already a system established to account for the statistics for both private enterprises and corporate enterprises, but there is no way to understand to what degree the individuals are engaged in sharing economy-related activities. If an individual were to run a lodging business, added-value will increase and therefore there is a need to include that in the GDP statistics. Looking ahead, there is a need to change the statistics so that businesses run by individuals, not just lodging, are included. The size of sharing economy is not that large for now, but it is fast expanding. There is a possibility that GDP will be undervalued unless the statistics are fine-tuned.

Another challenge is how to account for free services on Social Networking Service (SNS) in GDP. By using SNS, one can casually communicate with acquaintances and exchange opinions. The service provides enrichment. But if it is free, expenditure is zero and hence consumption does not increase. If consumption goes up via SNS advertisements, the same amount should equal the increase in GDP. There are also views that stating the difference in the amount that one is willing to pay and the actual price (consumer surplus) should be calculated and incorporated into GDP. It is still in the research process, but it will be an endeavor that will greatly change the way we view GDP *(Chart 3)*.

## Cooperation with Local Governments

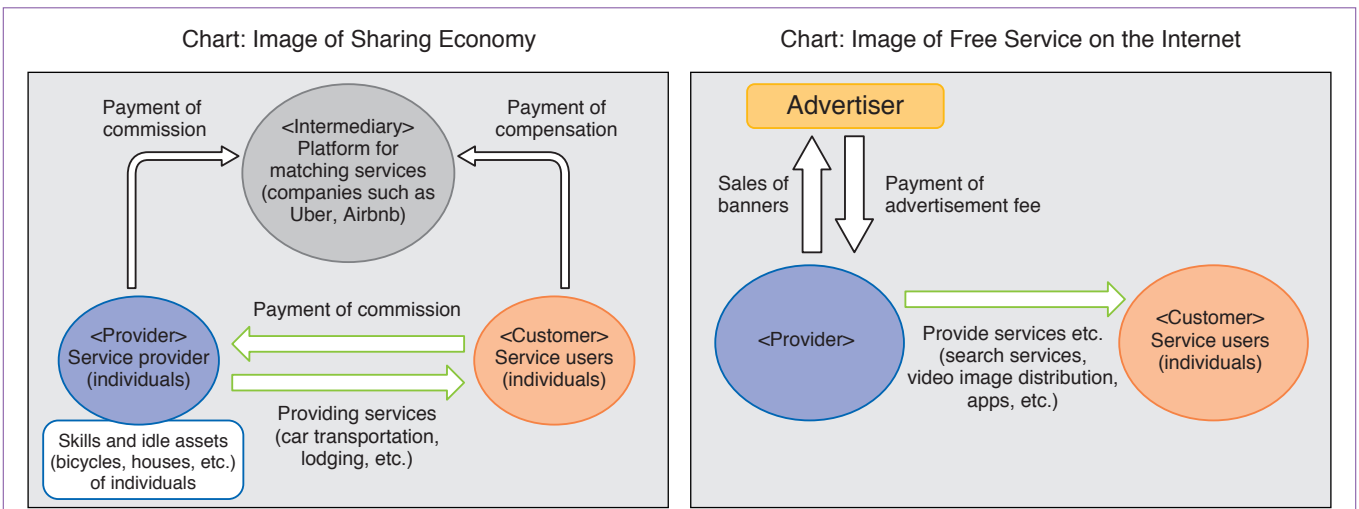
The issue of national versus local is also important. Government statistics are created by the central government, but the actual survey relies much on regional statistics organizations such as prefectures.

For example, the Family Income and Expenditure Survey is under the auspices of the Ministry of Internal Affairs and Communication, but in reality the investigators that go around each household are managed by the local municipalities. The recent situation surrounding the investigators is looking worse. The number of full-time statistics personnel has consistently been declining in accordance with the national capacity rationalization plan. Capacity for fiscal 2017 was 1,702 staff, down 24% from fiscal 2004 *(Chart 4)*. The ageing of the investigators also continues and the percentage of investigators who are 61 years or older rose from around 40% in fiscal 2005 to 60% in 2015.

With the rise in people’s awareness of personal information

CHART 3

## Framework for sharing economy & free service on the Internet

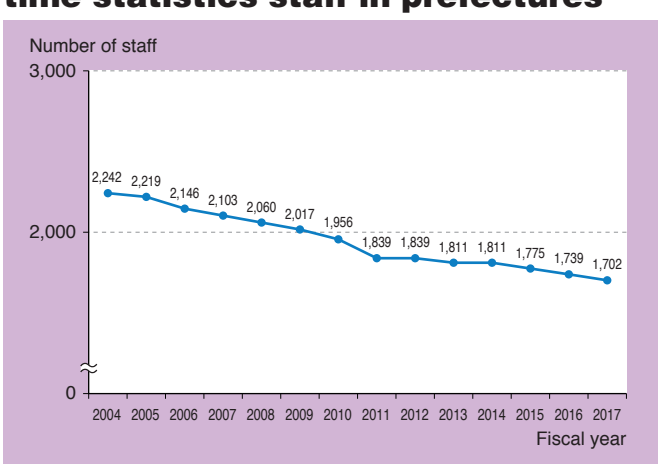



<Problem with understanding statistical information>
- It is difficult to grasp the transaction since it is primarily a service transaction between individuals.
- It is difficult to grasp the value of the transaction since it is a service transaction that does not involve giving and receiving cash.

*Source: Report on Research and Study of Rebuilding Service Statistics, Mitsubishi Research Institute, Inc., March 2017*

CHART 4

## Trends in appointed number of full-time statistics staff in prefectures




*Source: Director-General for Policy Planning, Ministry of Internal Affairs and Communications (officer in charge of statistics standard)*

protection, surveys conducted by investigators have become difficult. Entrances to apartment buildings have been locked and automated, and thus the investigators are unable to go inside, which has led to a situation where an entire building missed being surveyed for the statistics.

In response, the Basic Plan created by the government went on to demonstrate support for improvement efforts and has begun measures to allocate more statistics staff accordingly. Pilot efforts conducted so far include coordination with universities and others to utilize university student statistical investigators (Aomori Prefecture, Chiba Prefecture), consultations with management associations for measures on automatically locked buildings (Saitama Prefecture, Okayama Prefecture), setting up an investigator development system (Aomori Prefecture), and convening study meetings to improve statistical research (Nagasaki Prefecture).

Statistical representation of prefectures is also a major challenge. Merely publishing the national total value after all the efforts investigators have made in collecting the prefectural data undermines the morale of the individual prefectures. Statistics by prefecture also become important when a major natural disaster, such as the Great East Japan Earthquake or the Kumamoto Earthquake, strikes a region. Understanding the magnitude of the disaster and the situation around reconstruction simply from figures on national value is impossible. The number of samples by prefecture is limited and there may be issues around the accuracy of the statistics, but it is hoped that efforts to create statistics by prefecture will be sought. JS

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