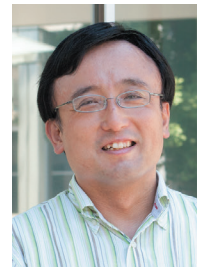


# Japan's Revised SNA Changed Recent Records of GDP Level



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## What Is the SNA?

The Systems of National Accounts (SNA) is a system to record the overall picture of the state of the economy of a nation systematically in a manner that allows international comparisons. The most closely watched indicator is GDP. This indicates the gross amount of added value that a country produces, and per capita GDP is often used as an indicator to compare a country's wealth internationally.

GDP is created by processing various economic statistics. The timing of when individual economic statistics become available varies, and therefore GDP is released and revised several times. The 1st Preliminary Estimate of Japanese GDP is released about one month after a particular quarter ends, and about two months later the 2nd Preliminary Estimate is released. The Annual Estimates of GDP are then released roughly nine months after the particular fiscal year ends. For example, the 1st Preliminary Estimates for the third quarter of 2016 was released on Nov. 14 and the 2nd Preliminary Estimate on Dec. 8. The Annual Estimates of GDP for 2015 were released between December 2016 and January 2017.

## Questioning Reliability of GDP

There has been a recent surge in views questioning the reliability of Japan's GDP. In December 2015, the 2nd Preliminary Estimate for Japan's real GDP growth rate for the third quarter of fiscal 2015 was announced to be an annualized 1.0%, and because this showed a significant upward revision from the negative 0.8% as released in the 1st Preliminary Estimate, there was wide coverage in the media. In addition, Bank of Japan staff published a paper in July 2016 that noted there was a possibility that Japan's real GDP growth rate for fiscal 2014 may have been positive. The Annual Estimates of GDP for fiscal 2014 which were released in December 2015 confirmed a negative real GDP growth rate for Japan of 1.0%.

These arguments highlight the challenges Japan faces in estimating its GDP. The current GDP estimations consolidate supply-side statistics such as production and demand-side statistics from

surveys of entities engaging in consumption and investments. One of the aims of this is to create preliminary estimates. Before the current system, preliminary estimates of GDP were announced around the time the current 2nd Preliminary Estimate is released, and this was strongly criticized for being too late for making comparisons with other countries. The main reason was that the demand-side statistics of capital investment in the "Financial Statements Statistics of Corporations by Industry" (Ministry of Finance) were not released until two months after the quarter had ended. By using supply-side statistics, the 1st Preliminary Estimate is now released a month earlier than before. On the other hand, "Financial Statements Statistics of Corporations by Industry" are required for the 2nd Preliminary Estimate, and therefore it is inevitable that revisions will be made from the 1st to the 2nd Preliminary Estimate.

According to my revision study for the 52 quarters between the second quarter of 2002, when the current estimations began, and the first quarter of 2015, the average revised range for the real GDP growth rate between the 1st and 2nd Preliminary Estimate is almost zero. There have been both positive revisions and negative revisions, but on average it is zero. But in identifying the average for each quarter, the first quarter shows significant positive revisions while the third quarter shows negative revisions. Moreover, the average of the absolute value of the revision range is 0.8 points on an annual basis. This is not a small revision range for the Japanese economy which suffers from a low growth rate around less than 1% on an annual average.

## Economic Activities Not Captured by GDP

One way to minimize the revision between the 1st and the 2nd Preliminary Estimate is to conduct the GDP estimates around the supply-side statistics. It may even allow the release to come out earlier. For example, the United Kingdom's GDP, whose estimates are based on supply-side statistics, is released within a month of the end of a particular quarter, and the revision range is relatively small. But the paper by the BOJ staff points out that this may not be able to

capture the added value that has been created.

GDP can be captured from three angles: production, income, and expenditure. The production side of GDP is defined to be Output minus Input. Japanese production GDP is calculated using the supply-side statistics of the Annual Report on National Accounts, and the income side of GDP is thought to be equivalent to this figure. The paper by the BOJ staff estimates the breakdown of income-side GDP using taxation data, and points to the possibility that the real GDP growth rate for fiscal 2014 may have been 2.4%.

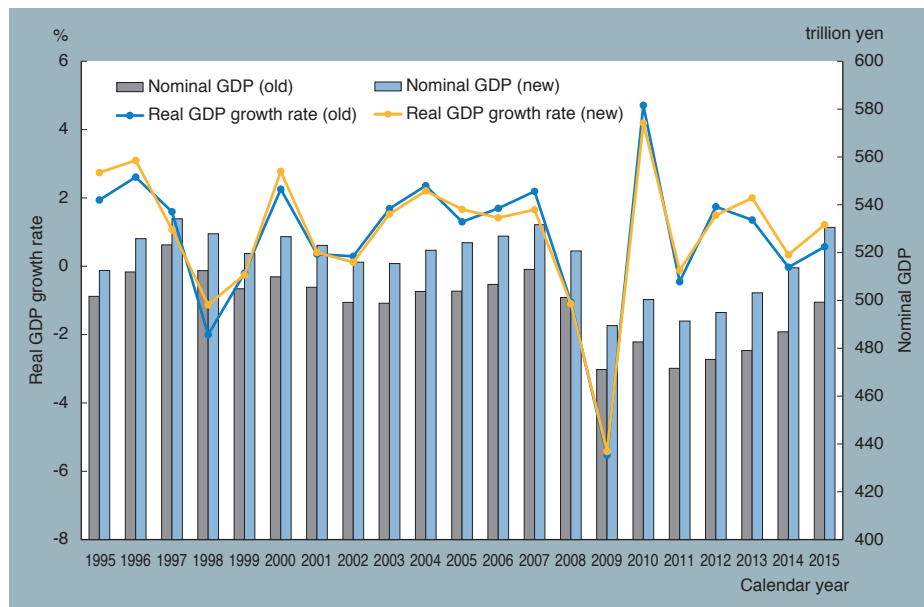
Of course, the estimations by the BOJ staff may have a margin of error, but the paper highlighted the importance of multidimensional observations in capturing economic activities. For example, the United States also releases the growth rate of gross domestic income (GDI) which captures the growth in income in addition to the GDP growth rate, and the average for both rates is also indicated.

### Increase in GDP with Introduction of 2008 SNA

The 2nd Preliminary Estimate for the third quarter of 2016 was released on Dec. 8. The real GDP growth rate was an annualized 1.3%, revised from the 2.2% in the 1st Preliminary Estimate. What changed even more than the current growth rate were the past actual figures. Nominal GDP for 2015 was 530.5 trillion yen, and this has increased by 31 trillion yen from the 499.3 trillion yen of the 1st Preliminary Estimate (Chart). For periods before 2014, nominal GDP increased roughly by between 6 trillion yen and 27 trillion yen per year. On the other hand, the real GDP growth rate for 2015 was 1.2%, revised from the 0.6% in the 1st Preliminary Estimate. The average annual growth rate from 1994 to 2015 was 0.9%, revised from the 0.8% in the 1st Preliminary Estimate.

These significant revisions began with Japan's GDP introducing 2008 SNA (it used to be 1993 SNA). The 2008 SNA, the latest edition of the international standards, was adopted by the United Nations in January 2009. The 2008 SNA has several features and the main reason for the increase in GDP is the capitalization of research and development (R&D). In the 1993 SNA, expenditure on R&D was treated as intermediate consumption, so it was not included in GDP. In the 2008 SNA, it is treated as gross fixed capital formation.

CHART  
**Trend in GDP**



Note: The "old" data was released on Nov. 14, 2016 and "new" data on Dec. 8, 2016.  
Source: SNA (National Accounts of Japan), Cabinet Office

According to a document released by the Cabinet Office on Sept. 15, 2016, with the introduction of the 2008 SNA, nominal GDP for 2011 increased by roughly 20 trillion yen, of which roughly 17 trillion yen resulted from the capitalization of R&D.

### Benchmark Year Changed to 2011

From the actual figures released from Dec. 8 onwards, the benchmark year for GDP will be changed to 2011 (it was previously 2005). The Input-Output Table used to estimate GDP will also change to the one for 2011 and the latest results of the Population Census will also be incorporated. Real GDP for 2011 is regarded as equal to nominal GDP, and therefore the standard for real GDP also changes. Changes to the past actual figures also reflect the revisions made to the benchmark year.

Close monitoring of how the revision patterns will change for Japanese GDP with the introduction of the 2008 SNA and the change in benchmark year will be essential.

**Note:** This article is based on publicly available information as of Dec. 8, 2016.

**JS**

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## ECONOMIC INDICATORS FOR JAPAN

Calendar year, Quarter and Month	Real GDP		Nominal GDP		IIP rate of increase over previous year/term (month) (%)	CPI (All terms, less fresh food) rate of increase over previous year/the same term (month) of the previous year (%)
	Amount (trillion yen)	Rate of increase over previous year/term (%)	Amount (trillion yen)	Rate of increase over previous year/term (%)		
2007	504.8	1.7	531.7	0.9	2.8	0.0
2008	499.3	-1.1	520.7	-2.1	-3.4	1.5
2009	472.2	-5.4	489.5	-6.0	-21.9	-1.3
2010	492.0	4.2	500.4	2.2	15.6	-1.0
2011	491.5	-0.1	491.4	-1.8	-2.8	-0.3
2012	498.8	1.5	495.0	0.7	0.6	-0.1
2013	508.8	2.0	503.2	1.7	-0.8	0.4
2014	510.5	0.3	513.7	2.1	2.1	2.6
2015	516.7	1.2	530.5	3.3	-1.2	0.5
2015/4th Qtr.	515.4	-0.4	531.3	-0.3	0.1	-0.1
2016/1st Qtr.	518.9	0.7	535.4	0.8	-1.0	-0.1
2nd Qtr.	521.2	0.5	536.7	0.2	0.2	-0.4
3rd Qtr.	523.0	0.3	537.3	0.1	1.3	-0.5
2016/Mar.	—	—	—	—	3.8	-0.3
Apr.	—	—	—	—	0.5	-0.4
May.	—	—	—	—	-2.6	-0.4
Jun.	—	—	—	—	2.3	-0.4
Jul.	—	—	—	—	-0.4	-0.5
Aug.	—	—	—	—	1.3	-0.5
Sep.	—	—	—	—	0.6	-0.5
Oct.	—	—	—	—	0.0	-0.4
Sources	"SNA (National Accounts of Japan)", Cabinet Office				"Indices of Industrial Production", Ministry of Economy, Trade and Industry	"Consumer Price Index", Statistics Bureau, Ministry of Internal Affairs and Communications

Calendar year, Quarter and Month	Foreign Trade Statistics									
	Exports amount (trillion yen)	Exports rate of increase over previous year/ the same term (month) of the previous year (%)	Imports amount (trillion yen)	Imports rate of increase over previous year/ the same term (month) of the previous year (%)	Exports amount to US (trillion yen)	Exports to US rate of increase over previous year/ the same term (month) of the previous year (%)	Imports amount from US (trillion yen)	Imports from US rate of increase over previous year/ the same term (month) of the previous year (%)	Exports amount to EU (trillion yen)	Exports to EU rate of increase over previous year/ the same term (month) of the previous year (%)
2007	83.9	11.5	73.1	8.6	16.9	-0.2	8.3	5.5	12.4	13.6
2008	81.0	-3.5	79.0	8.0	14.2	-15.9	8.0	-3.7	11.4	-7.8
2009	54.2	-33.1	51.5	-34.8	8.7	-38.6	5.5	-31.4	6.7	-41.0
2010	67.4	24.4	60.8	18.0	10.4	18.8	5.9	7.2	7.6	12.8
2011	65.5	-2.7	68.1	12.1	10.0	-3.4	5.9	0.3	7.6	0.0
2012	63.7	-2.7	70.7	3.8	11.2	11.7	6.1	2.5	6.5	-14.7
2013	69.8	9.5	81.2	14.9	12.9	15.6	6.8	12.0	7.0	7.7
2014	73.1	4.8	85.9	5.7	13.6	5.6	7.5	10.7	7.6	8.4
2015	75.6	3.4	78.4	-8.7	15.2	11.5	8.1	6.9	8.0	5.3
2015/4th Qtr.	18.9	-4.6	19.0	-13.9	3.9	1.5	1.9	-1.0	2.1	5.8
2016/1st Qtr.	17.5	-7.9	17.2	-15.7	3.7	-3.5	1.8	-9.4	2.1	6.0
2nd Qtr.	17.0	-9.5	15.5	-18.8	3.4	-9.6	1.8	-14.7	1.9	1.9
3rd Qtr.	17.0	-10.2	16.0	-19.5	3.3	-11.6	1.8	-10.4	1.9	-2.3
2016/Mar.	6.5	-6.8	5.7	-14.9	1.3	-5.1	0.6	-20.0	0.8	12.1
Apr.	5.9	-10.1	5.1	-23.3	1.2	-11.8	0.6	-18.1	0.7	9.9
May.	5.1	-11.3	5.1	-13.7	1.0	-10.7	0.6	-8.5	0.6	-4.0
Jun.	6.0	-7.4	5.3	-18.7	1.2	-6.5	0.6	-17.1	0.7	-0.4
Jul.	5.7	-14.0	5.2	-24.6	1.2	-11.8	0.6	-15.2	0.7	-6.5
Aug.	5.3	-9.6	5.3	-17.2	1.0	-14.5	0.6	-9.5	0.6	-0.7
Sep.	6.0	-6.9	5.5	-16.2	1.2	-8.7	0.6	-6.0	0.7	0.7
Oct.	5.9	-10.3	5.4	-16.5	1.2	-11.2	0.6	-9.8	0.7	-9.5
Sources	"Trade Statistics of Japan", Ministry of Finance									

Calendar year, Quarter and Month	Cash salary amount rate of increase over previous year/ the same term (month) of the previous year (%)	Active job openings-to-applicants ratio (time(s))	Unemployment rate (%)	M2 rate of increase over previous year/ the same term (month) of the previous year (%)	Balance of payments		Yen/\$ rate (averaged during the term)
					Trade balance (trillion yen)	Current balance (trillion yen)	
2007	-1.0	1.04	3.9	1.6	14.2	24.9	117.8
2008	-0.3	0.88	4.0	2.1	5.8	14.9	103.3
2009	-3.9	0.47	5.1	2.7	5.4	13.6	93.5
2010	0.5	0.52	5.1	2.8	9.5	19.4	87.8
2011	-0.2	0.65	4.6	2.7	-0.3	10.4	79.8
2012	-0.9	0.80	4.3	2.5	-4.3	4.8	79.8
2013	-0.4	0.93	4.0	3.6	-8.8	4.5	97.6
2014	0.4	1.09	3.6	3.4	-10.5	3.9	105.8
2015	0.1	1.20	3.4	3.7	-0.6	16.4	121.0
2015/4th Qtr.	0.2	1.26	3.3	3.4	0.1	3.4	121.5
2016/1st Qtr.	0.7	1.29	3.2	3.2	0.9	6.0	115.4
2nd Qtr.	0.6	1.36	3.2	3.4	1.5	4.6	108.1
3rd Qtr.	0.5	1.37	3.1	3.4	1.5	5.8	102.4
2016/Mar.	1.5	1.30	3.2	3.2	0.9	3.0	113.1
Apr.	0.0	1.34	3.2	3.4	0.7	1.8	109.7
May.	-0.1	1.36	3.2	3.4	0.0	1.8	109.2
Jun.	1.4	1.37	3.1	3.5	0.8	1.0	105.4
Jul.	1.2	1.37	3.0	3.4	0.6	1.9	104.0
Aug.	0.0	1.37	3.1	3.3	0.2	2.0	101.3
Sep.	0.0	1.38	3.0	3.5	0.6	1.8	102.0
Oct.	0.1	1.40	3.0	3.7	0.6	1.7	103.8
Sources	"Monthly Labour Survey", Ministry of Health, Labour and Welfare	"Employment Referrals for General Workers", Ministry of Health, Labour and Welfare	"Labour Force Survey", Statistics Bureau, Ministry of Internal Affairs and Communications	"Money Stock", Bank of Japan	"Balance of Payments", Ministry of Finance		Bank of Japan

Calendar year, Quarter and Month	Foreign Trade Statistics									
	Imports amount from EU (trillion yen)	Imports from EU rate of increase over previous year/ the same term (month) of the previous year (%)	Exports amount to Asia (excluding China) (trillion yen)	Exports to Asia (excluding China) rate of increase over previous year/ the same term (month) of the previous year (%)	Imports amount from Asia (excluding China) (trillion yen)	Imports from Asia (excluding China) rate of increase over previous year/ the same term (month) of the previous year (%)	Exports amount to China (trillion yen)	Exports to China rate of increase over previous year/ the same term (month) of the previous year (%)	Imports amount from China (trillion yen)	Imports from China rate of increase over previous year/ the same term (month) of the previous year (%)
2007	7.7	10.2	27.6	10.3	16.5	6.1	12.8	18.9	15.0	9.1
2008	7.3	-4.8	27.0	-2.0	17.2	4.1	12.9	0.9	14.8	-1.4
2009	5.5	-24.3	19.1	-29.3	11.6	-32.8	10.2	-21.0	11.4	-22.9
2010	5.8	5.5	24.7	29.5	14.1	22.0	13.1	27.8	13.4	17.3
2011	6.4	10.1	23.8	-3.9	15.7	11.7	12.9	-1.4	14.6	9.2
2012	6.6	3.6	23.3	-1.8	16.3	3.3	11.5	-10.8	15.0	2.7
2013	7.6	15.2	25.2	8.1	18.3	12.6	12.6	9.7	17.7	17.4
2014	8.2	6.8	26.1	3.5	19.4	6.2	13.4	6.0	19.2	8.6
2015	8.6	5.6	27.1	3.7	18.9	-2.6	13.2	-1.2	19.4	1.3
2015/4th Qtr.	2.3	13.3	6.5	-8.0	4.6	-9.6	3.4	-6.8	4.9	-6.5
2016/1st Qtr.	2.1	5.2	6.0	-13.1	4.3	-14.4	2.9	-7.1	4.5	-7.5
2nd Qtr.	1.9	-5.5	6.0	-11.9	3.8	-17.2	3.0	-10.8	4.0	-13.0
3rd Qtr.	2.0	-10.9	6.1	-10.5	3.9	-17.5	3.0	-10.8	4.2	-17.8
2016/Mar.	0.7	-3.6	2.2	-11.0	1.4	-14.7	1.1	-7.1	1.5	6.4
Apr.	0.6	-8.3	2.0	-12.8	1.2	-21.6	1.0	-7.7	1.3	-16.7
May.	0.7	-1.5	1.9	-12.1	1.3	-11.5	0.9	-14.9	1.3	-9.7
Jun.	0.7	-6.6	2.1	-10.9	1.3	-17.8	1.0	-10.0	1.4	-12.3
Jul.	0.7	-15.6	2.0	-14.4	1.3	-24.2	1.0	-12.7	1.3	-21.6
Aug.	0.7	-12.4	2.0	-9.7	1.3	-11.9	1.0	-8.8	1.3	-15.3
Sep.	0.7	-3.7	2.1	-7.3	1.3	-15.7	1.0	-10.6	1.5	-16.6
Oct.	0.7	-12.0	2.0	-10.3	1.3	-16.8	1.1	-9.2	1.4	-17.9
Sources	"Trade Statistics of Japan", Ministry of Finance									