

An international comparison of the number of births and innovation

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21 FEBRUARY 2020

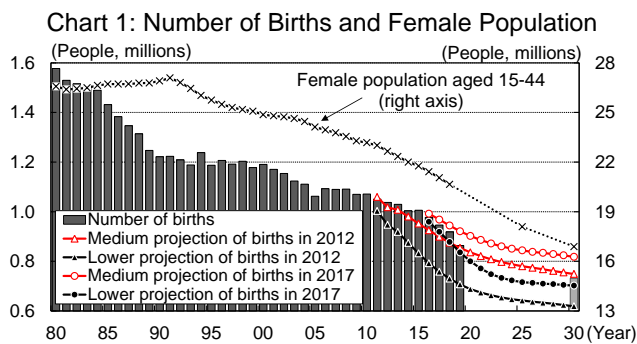
(ORIGINAL JAPANESE VERSION RELEASED ON 30 JANUARY 2020)

1. The Real Economy

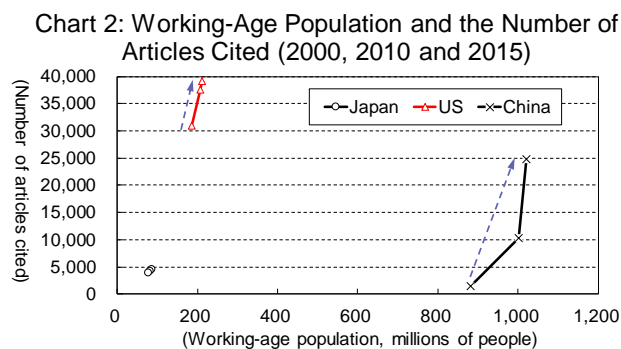
The domestic number of Japanese births for 2019 (estimate) published at the end of last year was 864,000 (Chart 1). The fact that this number has fallen below 900,000 has drawn attention, but it is also important to note the pace of the decline. It took 11 years from when the number fell below 1.1 million in 2005 to when it fell below 1 million in 2016; however, it took merely 3 years to fall from 1 million to less than 900,000 now.

The population of women aged between 15 and 44 – usually described as the reproductive age – is decreasing, which means this acceleration in the falling number of births was expected to a certain extent. In fact, in terms of estimates for the number of births, the median estimate of births published in 2012 – calculated based on a more conservative assumption of the total fertility rate – most accurately predicted the corresponding number of births last year. Based on current demographics, the population of women aged 15 to 44 in 2030 is estimated to be 18.2% lower than it was in 2018 and the number of births is calculated to be around 730,000, provided the birth rate remains unchanged. Even if the birth rate were to improve, it cannot be assumed that the trend of the number of births and the population would be stable as the decrease in the absolute number of women aged 15 to 44 is almost guaranteed. It is safe to say there is an urgent need for comprehensive measures to address the structure of the economy and the social security system for an era of full-scale population decline.

In terms of achieving constant innovation, it is important to keep a close eye on the international comparison of the number of births. As digitalisation progresses and environmental issues grow more serious, it seems the degree to which innovation influences an economy's performance is increasing. Therefore, a population above a certain size is thought to be important in creating innovative human resources in terms of numbers. Looking at the annual number of births in other countries, the scale is vastly different to that of Japan: 3.79 million in the US (2018), 14.65 million in China (2019), approximately 25 million in India (2016). In light of the fact numerical differences between working-age populations will increase further in future, there are hopes Japan will strengthen its investment in human resources strategically with an eye on the medium and long term (Chart 2).



Note: 1. The "number of births" estimate in 2019 does not include foreigners living in Japan or Japanese living overseas. 2030 estimate based on female population and carried out by Economic Research Office
 2. "Number of births" assumes the medium variant of no. of deaths for each year
 3. "Female population" is as of 1 Oct each year. Data for 2025 is the female pop. aged 5-34 in 2015 and for 2030 is the female pop. aged 0-29 in 2015.
 Source: Ministry of Health, Labour and Welfare, Ministry of Internal Affairs and Communications, National Institute of Population and Social Security Research, MUFG Bank Economic Research Office



Note: 1. "Number of articles cited" uses fractional counting (takes into account the degree of contribution to the production of papers) and is the number of adjusted top 10% of papers in terms of citations
 2. Based on authors' selected nationalities, not country/region of publication
 3. The direction of arrows shows change from 2000 to 2015
 Source: United Nations, Ministry of Education, Culture, Sports, Science and Technology, National Institute of Science and Technology Policy, MUFG Bank Economic Research Office

2. Prices and Financial Markets

2.1 Monetary Policy

The Bank of Japan (BoJ) decided to maintain its current policy at its monetary policy meeting on 20th and 21st January. At the press conference following the meeting, Governor Kuroda said the downside risks from overseas economies are somewhat lower than before, yet they are still large, thereby maintaining his cautionary tone from the press conference in December last year and presenting an outlook that the current monetary policy with an easy bias will be sustained for some time. On the other hand, the overall trend of consumer prices has not changed and the Bank maintains the view that the inflation rate is rising towards their price stability target of 2%. However, the median of policy board members' CPI forecasts were revised downwards by 0.1% point for every year from FY2019 to FY2021 (Chart 3). There is still the possibility that risk factors will cause GDP to slow and will put downward pressure on prices, so it is important to keep a close watch on developments in the global economy.

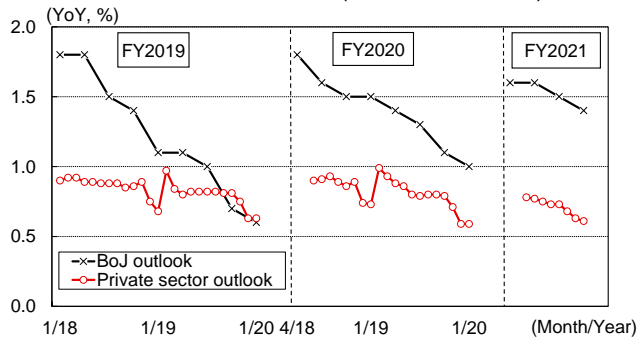
2.2 Financial Markets

In the bond market, the 10-year Japanese government bond (JGB) yield fell close to -0.3% for a short while in September last year and then rose into positive territory at the end of the year. The yield is currently around 0%. However, while the 20-year JGB yield also increased towards the end of last year, the amount it rose from its lowest point remained roughly the same as the 10-year JGB yield, regardless of the fact it is a super-long-term bond (Chart 4).

As a result, the yield curve is no longer becoming steeper for the most part, but Governor Kuroda repeated what he said at the press conference in December last year at the aforementioned press conference in January: "I wouldn't be surprised if super-long-term bond yields rose a bit further". This suggests the Bank is keeping an eye on the trend of super-long-term bond yields. Although the BoJ is reducing its amount of 20-year JGB purchases in increments, it is also reducing its amount of 10-year JGB purchases, which is thought will make it difficult to increase the gap between yields. While it is feasible that a further decrease of 20-year JGB purchases will encourage a rise in the yield, the amount of bond purchases of "life and non-life insurance companies" and "banks" have increased since September last year

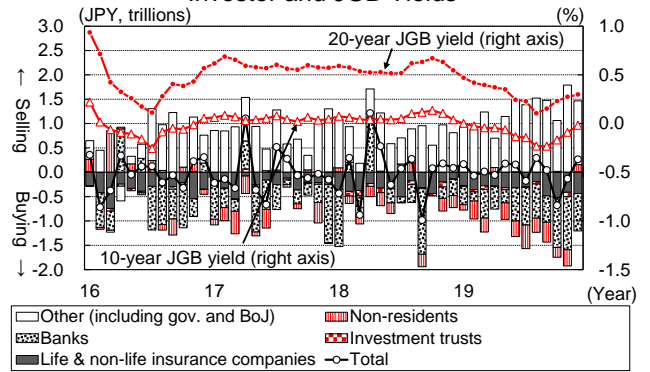
when yields rose (Chart 4); it appears the hearty appetite for super-long-term bonds will continue. Looking ahead, even if a “risk-on” sentiment continues to prevail in markets and it becomes easier for JGB yields to rise further, a certain amount of demand for bonds will inhibit an increase of super-long-term bonds. As a result, it is important to remain cautious about the possibility that a steepening of the yield curve will be harder to achieve.

Chart 3: CPI Outlook (Less Fresh Food)



Notes: "BoJ outlook" = median of policy meeting members' forecasts; "Private sector outlook" = average of private research institutions' outlooks (approx. 40) in response to the ESP Forecast Survey. Direct impacts of consumption tax rate hikes omitted from BoJ Outlook before Feb 2019 and from Private Sector Outlook before Mar 2020. Direct impacts included after.
Source: Bank of Japan, Japan Center for Economic Research, MUFG Bank Economic Research Office

Chart 4: Trading Volume of Super-Long-Term Bonds by Investor and JGB Yields



Note: "Banks" includes financial institutions for agriculture and forestry amongst others
Source: Japan Securities Dealers Association, Bloomberg, MUFG Bank Economic Research Office

(Translated by Elizabeth Foster)

MAIN ECONOMIC AND FINANCIAL INDICATORS (JAPAN)

1. Main Economic Indicators

As of Jan. 30, 2020

	Fiscal	Fiscal	2019			2019				
	2017	2018	1Q	2Q	3Q	AUG	SEP	OCT	NOV	DEC
Real GDP Growth Rate <% changes from previous period at SA annual rate>	1.9	0.3	2.6 (0.8)	2.0 (0.9)	1.8 (1.7)	***	***	***	***	***
Index of All Industries Activity	1.8	0.8	-0.5 (0.3)	0.5 (0.2)	0.5 (1.3)	0.0 (-0.6)	1.9 (3.4)	-4.8 (-3.8)	0.9 (-2.8)	
Industrial Production Index	2.9	0.3	-2.5 (-1.7)	0.6 (-2.3)	-0.5 (-0.8)	-1.2 (-4.7)	1.7 (1.3)	-4.5 (-7.7)	-1.0 (-8.2)	
Production										
Shipments	2.2	0.2	-2.1 (-1.6)	1.0 (-2.7)	-0.1 (-0.1)	-1.3 (-4.5)	1.5 (2.2)	-4.5 (-7.3)	-1.7 (-7.7)	
Inventory	5.1	0.2	0.9 (0.2)	0.9 (3.0)	-1.7 (0.9)	-0.1 (2.6)	-1.4 (0.9)	1.3 (2.6)	-0.9 (1.6)	
Inventory/Shipments Ratio (2015=100)	101.9	105.0	105.9 [104.3]	106.9 [104.0]	108.8 [105.0]	110.5 [104.4]	108.4 [105.2]	113.4 [105.1]	115.9 [104.5]	[107.2]
Domestic Corporate Goods Price Index	2.7	2.2	-0.8 (0.9)	0.4 (0.6)	-0.6 (-0.9)	-0.3 (-0.9)	0.0 (-1.1)	1.1 (-0.4)	0.2 (0.1)	0.1 (0.9)
Consumer Price Index(SA, total, excl.fresh foods)	0.7	0.8	-0.2 (0.8)	0.4 (0.8)	-0.1 (0.5)	0.1 (0.5)	0.0 (0.3)	0.1 (0.4)	0.1 (0.5)	0.1 (0.7)
Index of Capacity Utilization (2015=100)	102.7	102.5	100.5 [102.2]	102.4 [103.3]	100.6 [101.9]	99.3 [102.8]	100.3 [101.7]	95.8 [104.8]	95.5 [105.0]	[104.2]
Machinery Orders(Private Demand, Excl.Electric Power and Ship building)	-0.8	2.8	-3.2 (-2.5)	7.5 (4.1)	-3.5 (-2.7)	-2.4 (-14.5)	-2.9 (5.1)	-6.0 (-6.1)	18.0 (5.3)	
Manufacturing	9.2	3.8	-7.7 (-8.0)	2.5 (-8.5)	-0.9 (-10.2)	-1.0 (-17.4)	-5.2 (-4.4)	-1.5 (-15.0)	0.6 (-12.8)	
Non-manufacturing Excl.Electric Power & Ship building	-7.8	2.1	-0.3 (1.8)	13.1 (15.9)	-7.3 (3.6)	-8.0 (-12.1)	2.6 (11.8)	-5.4 (2.9)	27.8 (22.5)	
Shipments of Capital Goods (Excl.Transport Equipment)	7.0	-0.3	-7.4 (-6.9)	2.5 (-6.6)	2.9 (-0.3)	2.5 (-7.0)	8.9 (8.1)	-11.9 (-12.0)	-6.1 (-14.5)	
Construction Orders	0.7	6.5								
Private	0.6	14.5								
Public	-5.4	-15.0								
Public Works Contracts	-4.3	1.1								
Housing Starts 10,000 units at Annual Rate, SA	94.6	95.3	94.2 (5.1)	91.8 (-4.7)	90.0 (-5.4)	89.1 (-7.1)	89.7 (-4.9)	87.9 (-7.4)	83.4 (-12.7)	
Total floor	(-2.8)	(0.7)	(7.6)	(-0.6)	(-0.3)	(-0.8)	(-1.0)	(-4.5)	(-10.8)	
Sales at Retailers	1.9	1.6								
Real Consumption Expenditures of Households over 2 persons (SA)	0.3	0.0	-0.2 (2.0)	0.6 (3.3)	2.5 (4.1)	2.4 (1.0)	5.5 (10.5)	-11.5 (-4.0)	2.6 (-1.4)	
Propensity to Consume (SA,%)	71.7	69.2	69.8 [71.0]	67.5 [68.8]	72.5 [70.6]	70.2 [70.4]	75.8 [70.4]	65.2 [70.4]	66.9 [70.1]	[65.5]
Overtime Hours Worked (All Industries, 5 employees or more)	0.4	-1.7	-0.7 (-2.1)	1.0 (-2.4)	-1.2 (-1.0)	-1.6 (-2.0)	1.6 (0.0)	0.2 (-1.8)	-2.2 (-2.7)	
Total Cash Earnings (Regular Employees Only; All Industries, 5 employees or more)	0.7	0.9								
Employment Index(Regular Employees Only;All Industries, 5 employees or more) (Change over the M/Q/Y)	99	1	96	86	100	95	107	109	110	
Ratio of Job Offers to Applicants (SA,Times)	1.54	1.62	1.63 [1.59]	1.62 [1.61]	1.58 [1.62]	1.59 [1.63]	1.57 [1.63]	1.57 [1.62]	1.57 [1.63]	[1.63]
Unemployment Rate (SA,%)	2.7	2.4	2.4	2.4	2.3	2.2	2.4	2.4	2.2	
Economy Watcher Survey (Judgment of the present condition D.I.%)	50.5	47.8	46.0 [49.5]	44.5 [48.7]	43.6 [48.0]	42.8 [48.7]	46.7 [48.3]	36.7 [48.6]	39.4 [49.5]	39.8 [46.8]
Bankruptcies (Number of cases)	8,367 (-0.2)	8,110 (-3.1)	1,916 (-6.1)	2,074 (-1.6)	2,182 (8.2)	678 (-2.3)	702 (13.0)	780 (6.8)	727 (1.3)	704 (13.2)

(Notes)

Unless otherwise indicated, tabulated figures and those in parentheses show % changes from previous quarter/month as applicable.

The figures in () indicate % changes from previous year.

[] show the comparable figure of the previous year.

2. Balance of Payments

As of Jan. 30, 2020

	Fiscal	Fiscal	2019			2019				
	2017	2018	1Q	2Q	3Q	AUG	SEP	OCT	NOV	DEC
Customs Clearance (Exports in Yen Terms)	10.8	1.9	(-3.9)	(-5.6)	(-5.0)	(-8.2)	(-5.2)	(-9.2)	(-7.9)	(-6.3)
Value	5.5	2.5	(1.2)	(0.7)	(-2.8)	(-2.4)	(-2.9)	(-5.0)	(-3.1)	(-4.6)
Volumes	5.0	-0.6	(-5.0)	(-6.2)	(-2.2)	(-6.0)	(-2.3)	(-4.4)	(-5.0)	(-1.9)
Imports (In Yen terms)	13.7	7.2	(-2.0)	(-0.1)	(-4.9)	(-11.9)	(-1.5)	(-14.7)	(-15.6)	(-4.9)
Value	8.9	5.7	(-0.2)	(0.0)	(-7.1)	(-6.2)	(-7.7)	(-9.2)	(-8.2)	(-6.0)
Volumes	4.4	1.4	(-1.8)	(-0.1)	(2.3)	(-6.1)	(6.8)	(-6.1)	(-8.1)	(1.2)
Current Account (100 mil. yen)	221,749	192,434	59,541	45,676	57,603	21,517	15,802	18,168	14,368	
Goods (100 mil. yen)	45,396	6,963	2,141	-16	-312	459	28	2,540	-25	
Services (100 mil. yen)	-4,567	-7,123	3,561	-1,046	-1,637	125	64	-995	1,630	
Financial Account (100 mil. yen)	206,805	212,310	88,169	65,220	67,091	16,013	40,652	8,799	5,728	
Gold & Foreign Exchange Reserves (\$1mil.)	1,268,287	1,291,813	1,291,813	1,322,279	1,322,279	1,331,583	1,322,581	1,324,468	1,317,322	1,323,750
Exchange Rate (¥/\$)	110.80	110.88	110.17	109.85	107.30	106.27	107.41	108.12	108.86	109.18

3. Financial Market Indicators

	Fiscal	Fiscal	2019			2019					
	2017	2018	1Q	2Q	3Q	AUG	SEP	OCT	NOV	DEC	
Uncollateralized Overnight Call Rates	-0.050	-0.062	-0.054 [-0.048]	-0.060 [-0.065]	-0.059 [-0.063]	-0.046 [-0.059]	-0.059 [-0.059]	-0.022 [-0.060]	-0.043 [-0.070]	-0.038 -0.068	
Euro Yen TIBOR (3 Months)	0.065	0.062	0.037 [0.078]	0.049 [0.084]	0.022 [0.077]	0.009 [0.091]	0.009 [0.050]	0.009 [0.050]	0.018 [0.050]	0.021 [0.050]	
Newly Issued Japanese Government Bonds Yields (10 Years)	0.045	-0.095	-0.095 [0.045]	-0.165 [0.030]	-0.215 [0.125]	-0.280 [0.110]	-0.215 [0.125]	-0.150 [0.130]	-0.080 0.085	-0.025 [-0.010]	
Average Contracted Interest Rates on Loans and Discounts(City Banks) (% changes from previous period)	0.817	0.751	0.751 (-0.008)	0.749 (-0.002)	0.738 (-0.011)	0.746 (-0.001)	0.738 (-0.008)	0.741 (0.003)	0.737 (-0.004)		
The Nikkei Stock Average (TSE 225 Issues)	21,454	21,206	21,206 [21,454]	21,276 [22,305]	21,756 [24,120]	20,704 [22,865]	21,756 [24,120]	22,927 [21,920]	23,294 [22,351]	23,657 [20,015]	
M2(Average)	(3.7)	(2.7)	(2.3)	(2.5)	(2.4)	(2.4)	(2.4)	(2.4)	(2.7)	(2.7)	
Broadly-defined Liquidity(Average)	(3.1)	(1.9)	(1.7)	(1.8)	(1.7)	(1.7)	(1.7)	(1.9)	(2.4)	(2.7)	
Principal Figures of Financial Institutions											
Loans and Discount (Average)	Banks & Shinkin	(2.8)	(2.2)	(2.3)	(2.4)	(2.1)	(2.1)	(2.0)	(2.0)	(2.1)	(1.8)
	Banks	(2.8)	(2.2)	(2.4)	(2.6)	(2.3)	(2.2)	(2.2)	(2.2)	(2.2)	(1.9)
	City Banks etc.	(2.0)	(1.0)	(1.6)	(2.4)	(2.2)	(2.1)	(2.1)	(2.0)	(2.2)	(1.6)
	Regional Banks	(3.6)	(4.3)	(4.1)	(5.1)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.2)
	Regional Banks II	(3.0)	(-0.4)	(-0.8)	(-6.6)	(-5.7)	(-5.7)	(-5.7)	(-5.7)	(-5.7)	(-5.7)
Deposits and CDs (Average)	Shinkin	(2.7)	(2.1)	(1.7)	(1.4)	(1.1)	(1.2)	(1.0)	(1.0)	(1.0)	(0.9)
	Total(3 Business Condition)	(4.2)	(3.4)	(3.1)	(2.5)	(2.3)	(2.3)	(2.5)	(2.6)	(3.0)	(2.8)
	City Banks	(5.9)	(4.9)	(4.7)	(3.5)	(3.1)	(3.1)	(3.4)	(3.6)	(4.2)	(3.6)
	Regional Banks	(2.5)	(2.7)	(2.3)	(3.4)	(3.1)	(3.1)	(3.1)	(3.2)	(3.4)	(3.6)
	Regional Banks II	(2.1)	(-1.3)	(-2.0)	(-6.2)	(-5.4)	(-5.4)	(-5.5)	(-5.5)	(-5.3)	(-5.3)

(Notes)

Newly Issued Japanese Government Bonds Yields and Interest rates are averages. The Nikkei Stock Average is as of month-end. Unless otherwise indicated, tabulated figures and those in parentheses show % changes from previous quarter/month as applicable. The figures in () indicate % changes from previous year. [] show the comparable figure of the previous year.

(Sources)

Cabinet Office, National Accounts, Machinery Orders; METI, Indices of Tertiary Industry Activity, Industrial Production, Current Survey of Commerce; MOF, Trade Statistics, Balance of Payments; MPMHAPT, Consumer Price Index, Family Income and Expenditure Survey, Labour Force Survey; MHLW, Monthly Labour Survey; Ministry of Land, Infrastructure, and Transport, Economic Construction Statistics; BOJ, Corporate Price Index, Financial and Economic Statistics Monthly, etc.

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