STATISTICAL HANDBOOK OF

JAPAN

2020

Statistics Japan

Edited and Published by
Statistics Bureau
Ministry of Internal Affairs and Communications
Japan
19-1 Wakamatsu-cho, Shinjuku-ku
Tokyo 162-8668 Japan

Printed in Japan
ISSN 0081-4792

https://www.stat.go.jp/english/data/handbook/index.html

Preface

This handbook is designed to provide a clear and coherent overview of present-day Japan through statistics.

It provides statistical tables, figures, maps and photographs to portray conditions in modern-day Japan from a variety of perspectives, including demographics, economic and social trends, and culture. Most of the comments and statistical data for this purpose have been drawn from principal statistical publications available from government and other leading sources.

For more in-depth statistical information on Japan, readers are invited to peruse the Japan Statistical Yearbook.

We hope that this handbook will serve as a guide in your search for knowledge about Japan. We are always happy to receive opinions or requests from readers.

You can also view the contents of this handbook on the website of the Statistics Bureau.

September 2020

SAIKI Shuji
Director-General
Statistics Bureau
Ministry of Internal Affairs
and Communications
Japan

Notes for Users

1. The present issue basically contains statistics that became available by May 31, 2020.
2. Unless otherwise indicated, "year" refers to the calendar year and "fiscal year" refers to the 12 months beginning April 1 of the year stated.
3. Metric units are used in all tables and figures in which the data are measured in weight, volume, length or area. Refer to Appendix 2 for conversion factors.
4. Unless otherwise indicated, amounts shown are in Japanese yen. Refer to Appendix 3 for exchange rates of JPY per U.S. dollar.
5. Statistical figures may not add up to the totals due to rounding.
6. The following symbols are used in the tables:

・・・	Data not available
―	Magnitude zero or figures not applicable
0 or 0.0	Less than half of unit employed
#	Marked break in series
*	Provisional or estimate

7. Data relating to "China" generally exclude those for Hong Kong SAR, Macao SAR and Taiwan.
8. All contents of the present issue, including tables, figures, and maps, are also available on the website:

   https://www.stat.go.jp/english/data/handbook/index.html

9. When any contents of the present issue are to be quoted or copied in other media (print or electronic), the title is to be referred to as follows:

   Source: Statistical Handbook of Japan 2020, Statistics Bureau, Ministry of Internal Affairs and Communications, Japan.

10. "Statistics Bureau, MIC" in the tables and figures is an abbreviation of "Statistics Bureau, Ministry of Internal Affairs and Communications, Japan".

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Cover photo: Mt.Fuji

Mt. Fuji at dawn. Mt. Fuji is the highest peak in Japan, with an elevation of 3,776 meters. In June 2013, it was registered as a World Cultural Heritage Site, making it the 17th World Heritage Site in Japan.

Chapter 1

Land and Climate

Japan has four seasons, and beautiful natural scenes can be enjoyed in spring, summer, fall, and winter. June is the rainy season in Japan and the best time to see hydrangea. All over town, one can spot hydrangea in colors like blue, violet, and pink.

1. Land

Japan is an island country situated off the eastern seaboard of the Eurasian continent in the northern hemisphere. The islands form a crescent-shaped archipelago stretching from northeast to southwest parallel to the continental coastline with the Sea of Japan in between. The land is located between approximately 20 to 45 degrees north latitude and between approximately 123 to 154 degrees east longitude. It consists of the main islands of Hokkaido, Honshu, Shikoku, Kyushu and Okinawa, and more than 6,800 smaller islands of various sizes. Its surface area totals 377,975 square kilometers.

Since the Japanese archipelago is located in the world's newest mobile belt, it is particularly prone to various geological phenomena. Therefore, the number of earthquakes in the country is quite high, and so is the proportion of active volcanoes. The land is full of undulations, with mountainous regions including hilly terrain accounting for about three-quarters of its total area. The mountains are generally steep and are intricately carved out by ravines. Hilly terrain extends between the mountainous regions and the plains.

Table 1.1
Surface Area of Japan (2019)
(Square kilometers)

District	Area
Japan	377,975
Honshu	231,236
Hokkaido	83,424
Kyushu	42,231
Shikoku	18,803
Okinawa	2,281

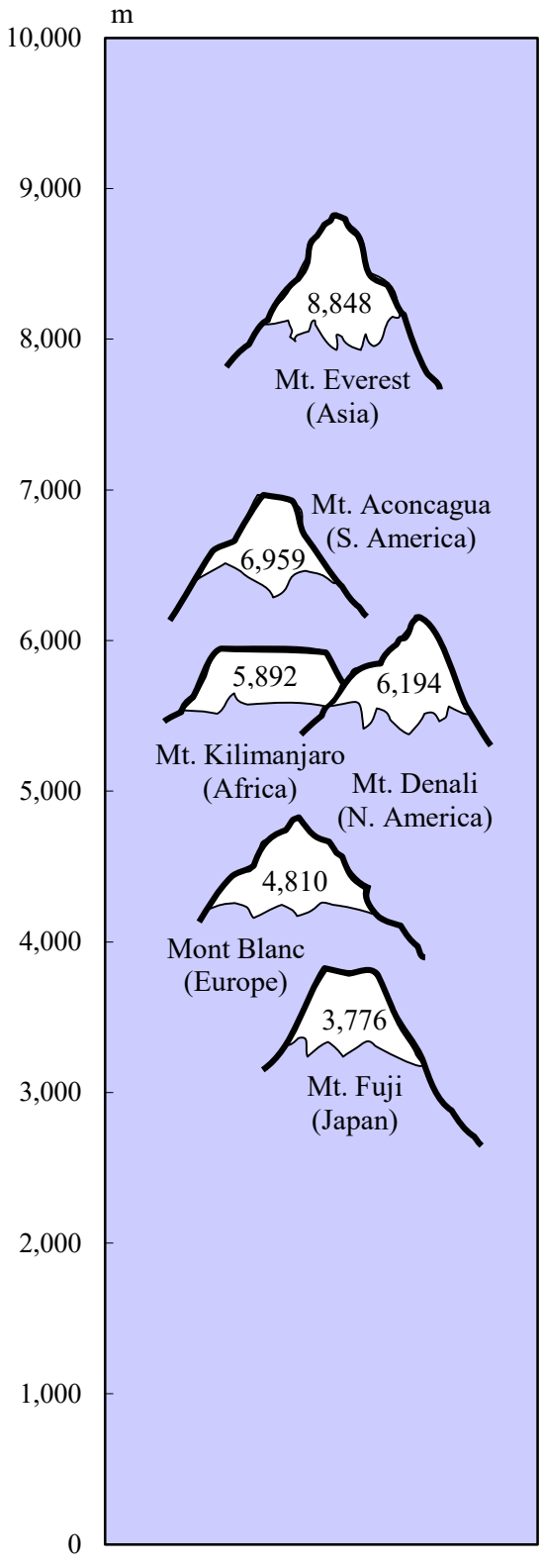
Source: Geospatial Information Authority of Japan.

Table 1.2
Top 10 Countries According to Surface Area (2018) [1)]
(1,000 square kilometers)

Country	Area
World [2)]	130,094
Russia	17,098
Canada	9,985
U.S.A.	9,834
China	9,600
Brazil	8,516
Australia	7,692
India	3,287
Argentina [3)]	2,796
Kazakhstan	2,725
Algeria	2,382

1) Comprising land area and inland waters. Excluding polar regions and uninhabited islands. 2) Land area only. 3) Including islands.
Source: United Nations.

Figure 1.1
Famous Mountains of the World



Source: National Astronomical Observatory of Japan.

Table 1.3
Mountains (As of January, 2020)
(Meters)

Name	Height
Mt. Fuji	3,776
Mt. Kitadake	3,193
Mt. Ainodake	3,190
Mt. Oku-Hotaka	3,190
Mt. Yarigatake	3,180
Mt. Higashidake	3,141
Mt. Akaishi	3,121
Mt. Karasawa	3,110
Mt. Kita-Hotaka	3,106
Mt. Obami	3,101

Source: Geospatial Information Authority of Japan.

Table 1.4
Rivers (As of April, 2019)
(Kilometers)

Name	Length
Shinano River	367
Tone River	322
Ishikari River	268
Teshio River	256
Kitakami River	249
Abukuma River	239
Kiso River	229
Mogami River	229
Tenryu River	213
Agano River	210

Source: Ministry of Land, Infrastructure, Transport and Tourism.

Table 1.5
Lakes (As of January, 2020)
(Square kilometers)

Name	Area
Lake Biwa	669.3
Lake Kasumigaura	168.1
Lake Saroma	151.6
Lake Inawashiro	103.2
Lake Nakaumi	85.7
Lake Kussharo	79.5
Lake Shinji	79.2
Lake Shikotsu	78.5
Lake Toya	70.7
Lake Hamana	64.9

Source: Geospatial Information Authority of Japan.

As of 2016, forestland and fields account for the largest portion of the nation's surface area. There are 25.40 million hectares of forestland and fields (which equates to 67 percent of the nation's surface area), followed by 4.47 million hectares of agricultural land (12 percent) combined. Together, forestland, fields and agricultural land thus cover approximately 80 percent of the nation. There are 1.94 million hectares of developed land (5 percent).

Table 1.6
Surface Area by Use

(million hectares)

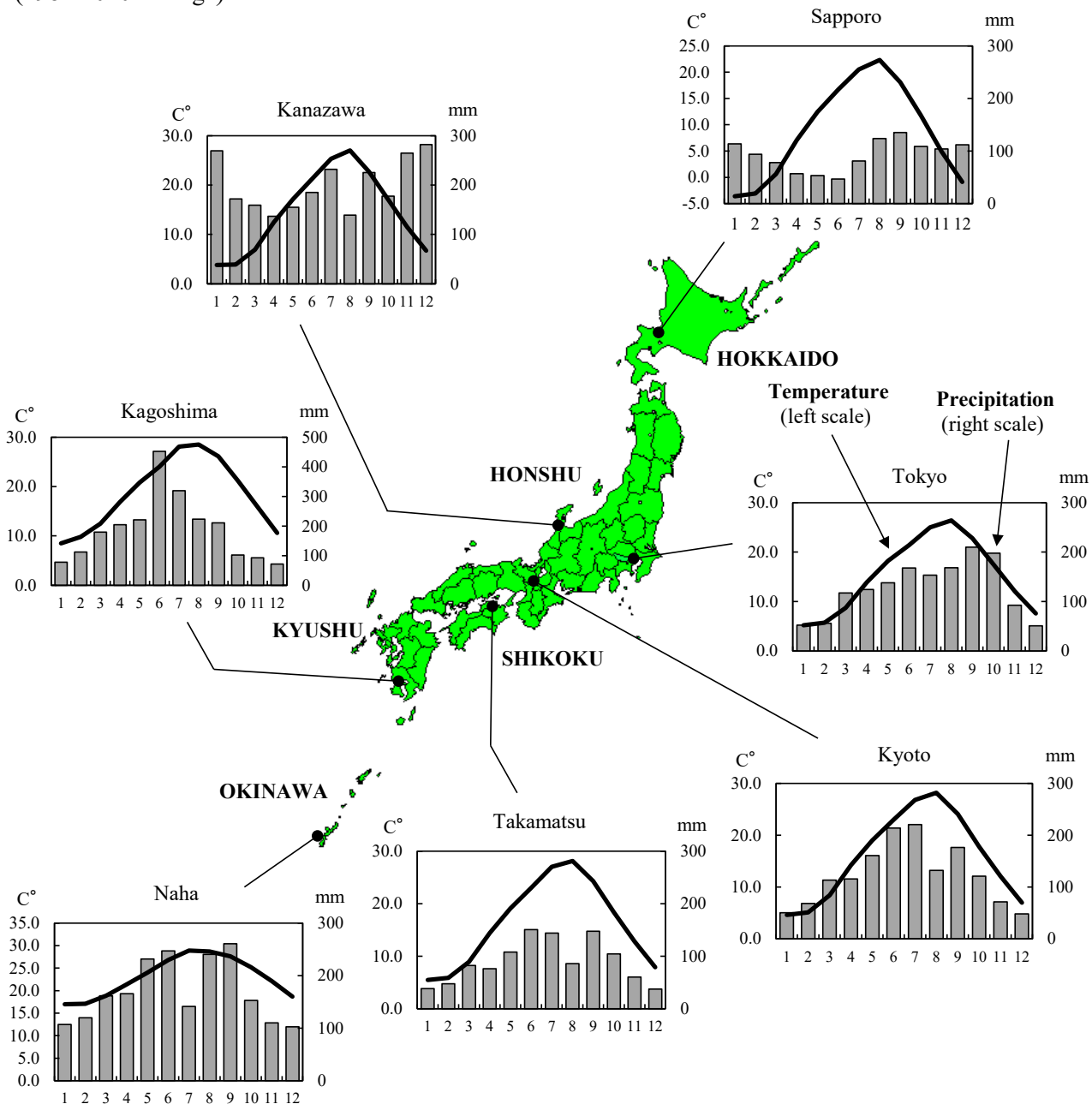
Year	Total	Forestland and fields	Agricultural land	Inland water	Roads [1)]	Developed land [2)]	Others
1980	37.77	25.68	5.59	1.31	0.99	1.39	2.81
1990	37.77	25.52	5.33	1.31	1.14	1.60	2.87
2000	37.79	25.38	4.91	1.35	1.27	1.79	3.09
2010	37.79	25.35	4.67	1.33	1.36	1.90	3.19
2016	37.80	25.40	4.47	1.33	1.39	1.94	3.25
Percentage distribution (%)							
2016	100.0	67.2	11.8	3.5	3.7	5.1	8.6

1) Including farm roads and forest roads, etc. 2) Such as residential and industrial land.
Source: Ministry of Land, Infrastructure, Transport and Tourism.

2. Climate

Although the Japanese archipelago has a temperate marine climate, it differs by region depending on the effects of seasonal winds and ocean currents. Due to the topography of Honshu featuring a series of mountain ranges running from north to south, the northwest monsoon in the winter brings humid conditions with heavy precipitation (snow) to the Sea of Japan side of Honshu but comparatively dry weather with low precipitation to the Pacific Ocean side. In the summer, the southeast monsoon brings high temperatures and low rainfall on the Sea of Japan side, and high temperatures and high humidity on the Pacific Ocean side. Another unique characteristic of Japan's climate is that it has two long spells of rainy seasons, one in early summer when the southeast monsoon begins to blow, and the other in autumn when the winds cease.

Figure 1.2
Temperature and Precipitation (Normal value)
(1981-2010 average)



Source: Japan Meteorological Agency.

Table 1.7
Temperature and Precipitation (Normal value) (1981-2010 average)

Temperature (℃) Precipitation (mm)

Observing station			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual [1)]
Sapporo	Temp.	High	-0.6	0.1	4.0	11.5	17.3	21.5	24.9	26.4	22.4	16.2	8.5	2.1	12.9
		Low	-7.0	-6.6	-2.9	3.2	8.3	12.9	17.3	19.1	14.2	7.5	1.3	-4.1	5.3
	Prec.		114	94	78	57	53	47	81	124	135	109	104	112	1,107
Tokyo	Temp.	High	9.6	10.4	13.6	19.0	22.9	25.5	29.2	30.8	26.9	21.5	16.3	11.9	19.8
		Low	0.9	1.7	4.4	9.4	14.0	18.0	21.8	23.0	19.7	14.2	8.3	3.5	11.6
	Prec.		52	56	118	125	138	168	154	168	210	198	93	51	1,529
Kanazawa	Temp.	High	6.8	7.3	11.0	16.9	21.6	25.0	28.8	30.9	26.6	21.3	15.5	10.2	18.5
		Low	0.9	0.7	3.0	8.2	13.1	18.0	22.3	23.7	19.5	13.3	7.7	3.4	11.2
	Prec.		270	172	159	137	155	185	232	139	226	177	265	282	2,399
Kyoto	Temp.	High	8.9	9.7	13.4	19.9	24.6	27.8	31.5	33.3	28.8	22.9	17.0	11.6	20.8
		Low	1.2	1.4	4.0	9.0	14.0	18.8	23.2	24.3	20.3	13.6	7.8	3.2	11.7
	Prec.		50	68	113	116	161	214	220	132	176	121	71	48	1,491
Takamatsu	Temp.	High	9.4	10.1	13.4	19.5	24.1	27.3	31.2	32.4	28.4	22.8	17.2	12.1	20.7
		Low	1.6	1.8	4.4	9.4	14.4	19.3	23.6	24.4	20.7	14.2	8.5	3.7	12.2
	Prec.		38	48	83	76	108	151	144	86	148	104	60	37	1,082
Kagoshima	Temp.	High	12.8	14.3	17.0	21.6	25.2	27.6	31.9	32.5	30.1	25.4	20.3	15.3	22.8
		Low	4.6	5.7	8.4	12.7	17.1	21.0	25.3	25.6	22.8	17.5	11.9	6.7	14.9
	Prec.		78	112	180	205	221	452	319	223	211	102	92	71	2,266
Naha	Temp.	High	19.5	19.8	21.7	24.1	26.7	29.4	31.8	31.5	30.4	27.9	24.6	21.2	25.7
		Low	14.6	14.8	16.5	19.0	21.8	24.8	26.8	26.6	25.5	23.1	19.9	16.3	20.8
	Prec.		107	120	161	166	232	247	141	241	261	153	110	103	2,041

1) Annual average for temperature and annual total for precipitation.
Source: Japan Meteorological Agency.

Chapter 2

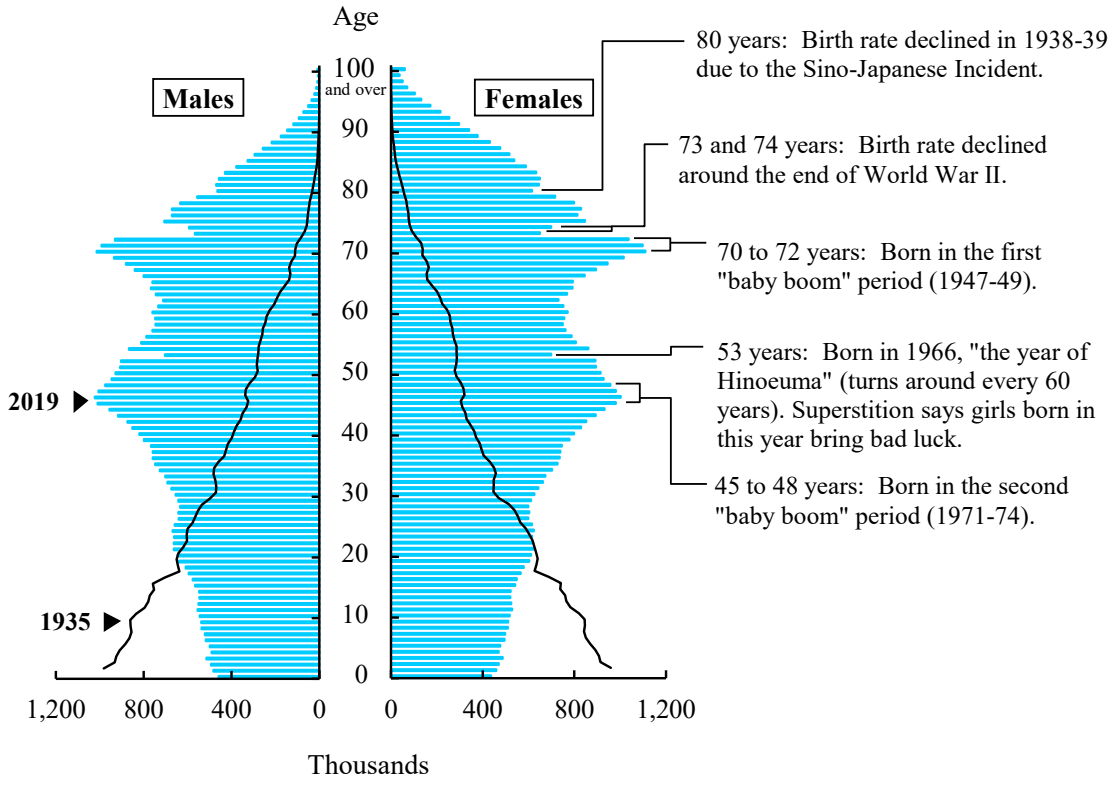
Population

A mother and her baby taking a photo with a monkey.
The number of live births in 2019 was 865,234, a decline of 53,166 births from the previous year's total of 918,400. The total fertility rate fell to 1.36 in 2019 from 1.42 in 2018.

1. Total Population

Japan's total population in 2019 was 126.17 million. This ranked 11th in the world and made up 1.6 percent of the world's total. Japan's population density measured 340.8 persons per square kilometer in 2015, ranking 11th among countries or areas with a population of 10 million or more.

Figure 2.1
Population Pyramid



Source: Statistics Bureau, MIC.

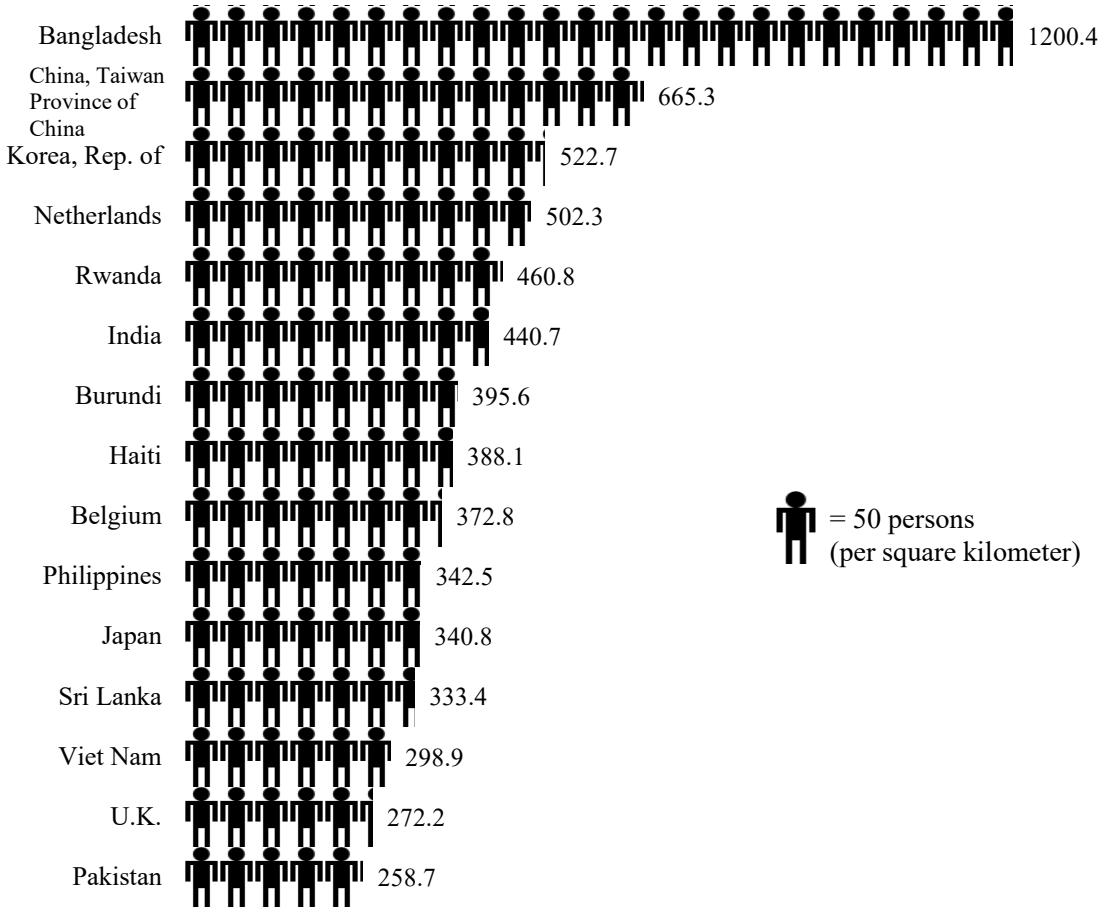
Table 2.1
Countries with a Large Population (2019)

(Millions)

Country	Population	Country	Population
World	7,713	Brazil	211
China	1,434	Nigeria	201
India	1,366	Bangladesh	163
U.S.A.	329	Russia	146
Indonesia	271	Mexico	128
Pakistan	217	Japan	126

Source: Statistics Bureau, MIC; United Nations.

Figure 2.2
Population Density by Country or Area [1] (2015)



1) Top 15 countries or areas with a population of 10 million or more.
Source: Statistics Bureau, MIC; United Nations.

From the 18th century through the first half of the 19th century, Japan's population remained steady at about 30 million. Following the Meiji Restoration in 1868, it began expanding in tandem with the drive to build a modern nation-state. In 1912, it reached 50 million, and in 1967, it surpassed the 100 million mark. However, Japan's population growth slowed afterward, with the rate of population change about 1 percent from the 1960s through the 1970s. Since the 1980s, it has declined sharply. Japan's total population was 127.09 million according to the Population Census in 2015. This was a decrease by 962,607 people as compared to the previous Census (2010), indicating the first population decline since the initiation of the Census in 1920. In 2019, it was 126.17 million, down by 0.28 million from the year before.

Table 2.2
Trends in Population (as of October 1)

Year	Population (1,000)	Age composition (%)			Rate of population change (%)	Population density (per km^2)
		0-14 years old	15-64	65 years old and over		
1872 [1)]	34,806	...	...	...	...	91
1900 [1)]	43,847	33.9	60.7	5.4	0.83	115
1910 [1)]	49,184	36.0	58.8	5.2	1.16	129
1920	55,963	36.5	58.3	5.3	1.30	147
1930	64,450	36.6	58.7	4.8	1.42	169
1940	71,933	36.7	58.5	4.8	1.10	188
1950	84,115	35.4	59.6	4.9	1.58	226
1955	90,077	33.4	61.2	5.3	1.38	242
1960	94,302	30.2	64.1	5.7	0.92	253
1965	99,209	25.7	68.0	6.3	1.02	267
1970	104,665	24.0	68.9	7.1	1.08	281
1975	111,940	24.3	67.7	7.9	1.35	300
1980	117,060	23.5	67.4	9.1	0.90	314
1985	121,049	21.5	68.2	10.3	0.67	325
1990	123,611	18.2	69.7	12.1	0.42	332
1995	125,570	16.0	69.5	14.6	0.31	337
2000	126,926	14.6	68.1	17.4	0.21	340
2005	127,768	13.8	66.1	20.2	0.13	343
2010	128,057	13.2	63.8	23.0	0.05	343
2015	127,095	12.6	60.7	26.6	-0.15	341
2016	126,933	12.4	60.3	27.3	-0.13	340
2017	126,706	12.3	60.0	27.7	-0.18	340
2018	126,443	12.2	59.7	28.1	-0.21	339
2019	126,167	12.1	59.5	28.4	-0.22	338
(Projection, 2017)						
2030	119,125	11.1	57.7	31.2	-0.52	319
2040	110,919	10.8	53.9	35.4	-0.71	297
2050	101,923	10.6	51.8	37.7	-0.84	273
2060	92,840	10.2	51.6	38.1	-0.93	249

1) As of January 1.
Source: Statistics Bureau, MIC; National Institute of Population and Social Security Research; Geospatial Information Authority of Japan.

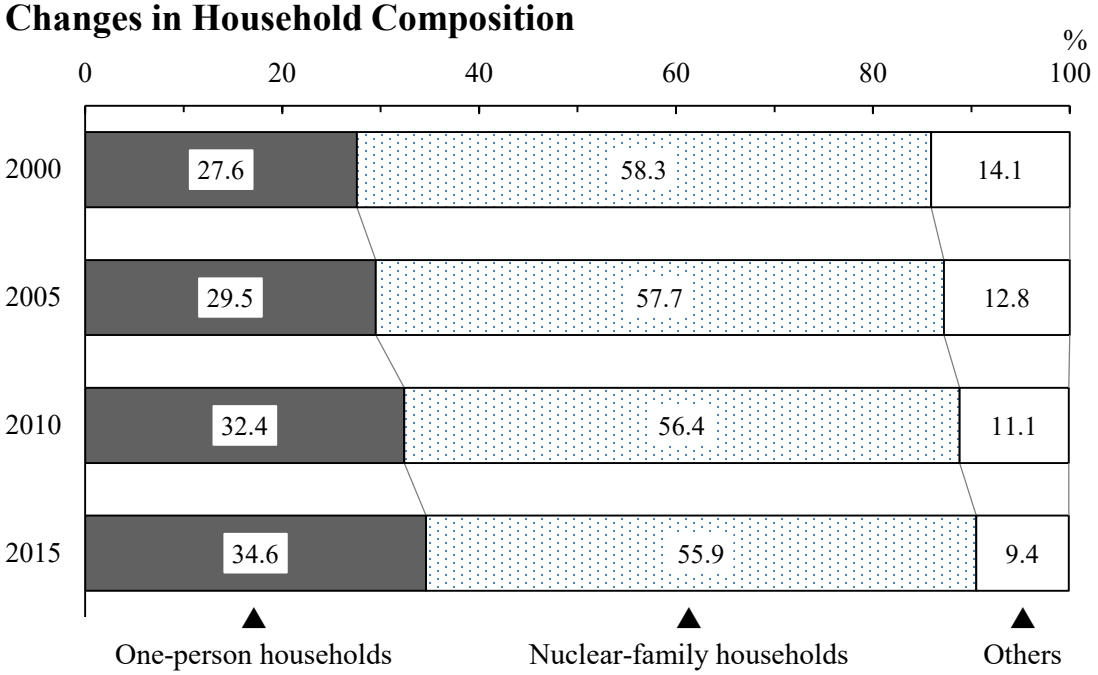
2. Households

(1) Household Size and Household Composition

The Population Census shows that Japan had 53.33 million private households (excluding "institutional households" such as students in school dormitories) in 2015, showing a consistent increase since the

initiation of the Census. Of that total, 55.9 percent were nuclear-family households, and 34.6 percent were one-person households.

Figure 2.3
Changes in Household Composition



Source: Statistics Bureau, MIC.

From the 1920s to the mid-1950s, the average number of household members remained about 5. However, due to the increase in one-person households and nuclear-family households since the 1960s, the average size of households was down significantly in 1970, to 3.41 members. The number of household members has continued to decline, dropping to 2.33 in 2015. Although the Japanese population shifted into the declining phase, the number of households is expected to continue to increase for some years to come, as the size of the average household will shrink at a slow pace. The number of households is projected to peak in 2023 and then decrease thereafter.

Table 2.3
Households and Household Members [1)]

Year	Private house-holds (1,000)	Rate of private households change(%) [2)]	Private household members (1,000)	Members per household	Population (1,000)	Rate of population change(%) [2)]
1960	22,539	…	93,419	4.14	94,302	4.7
1970	30,297	a) 15.9	103,351	3.41	104,665	5.5
1975	33,596	10.9	110,338	3.28	111,940	7.0
1980	35,824	6.6	115,451	3.22	117,060	4.6
1985	37,980	6.0	119,334	3.14	121,049	3.4
1990	40,670	7.1	121,545	2.99	123,611	2.1
1995	43,900	7.9	123,646	2.82	125,570	1.6
2000	46,782	6.6	124,725	2.67	126,926	1.1
2005	49,063	4.9	124,973	2.55	127,768	0.7
2010	51,842	5.7	125,546	2.42	128,057	0.2
2015	53,332	2.9	124,296	2.33	127,095	-0.8

1) In the 1965 Census, the definition of household differs, and it is not possible to recombine the survey subjects into private households.
2) Change over preceding Population Census.
a) The rate of change over 10 years is converted to a rate of change over 5 years.
Source: Statistics Bureau, MIC.

(2) Elderly Households

The number of elderly households (private households with household members aged 65 years old and over) in 2015 was 21.71 million. They accounted for 40.7 percent of the total private households. There were 5.93 million one-person elderly households. Among these, there were approximately two times as many females as males.

Table 2.4
Trends in Elderly Households

(Thousands)

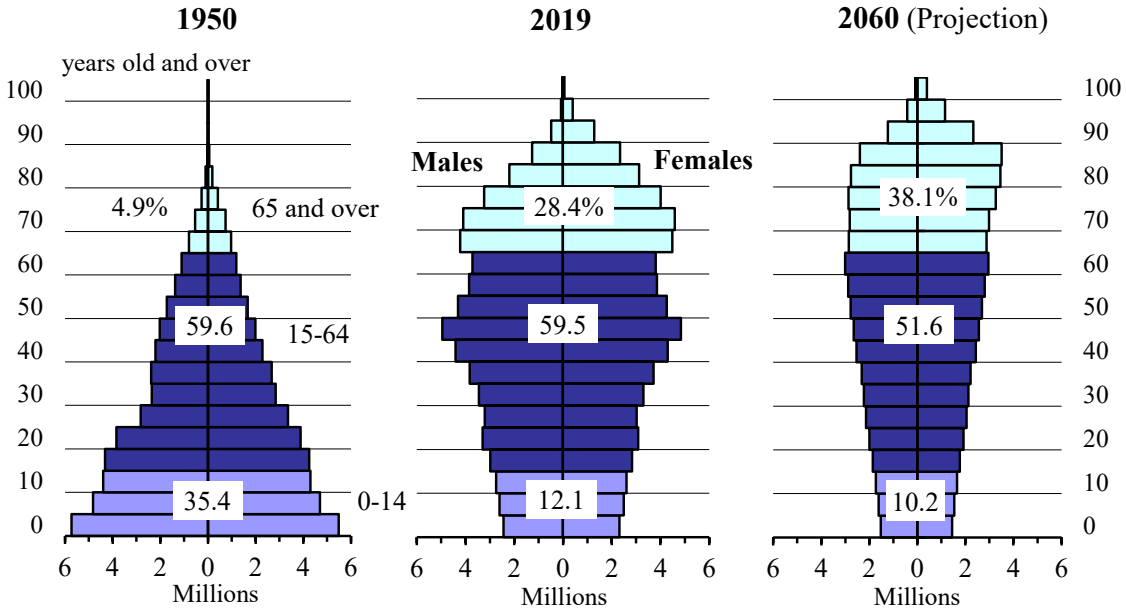
Type of households	1995	2000	2005	2010	2015
Private households	43,900	46,782	49,063	51,842	53,332
Elderly households	12,790	15,057	17,220	19,338	21,713
(percentage)	29.1	32.2	35.1	37.3	40.7
One-person households	2,202	3,032	3,865	4,791	5,928
Males	460	742	1,051	1,386	1,924
Females	1,742	2,290	2,814	3,405	4,003
Nuclear-family households	5,149	6,783	8,398	10,011	11,740
Others	5,439	5,241	4,956	4,536	4,045

Source: Statistics Bureau, MIC.

3. Declining Birth Rate and Aging Population

The population pyramid of 1950 shows that Japan had a standard-shaped pyramid with a broad base. The shape, however, has changed dramatically as both the birth rate and death rate have declined. In 2019, the aged population (65 years old and over) was 35.89 million, constituting 28.4 percent of the total population (i.e., 1 in every 4 persons) and marking a record high.

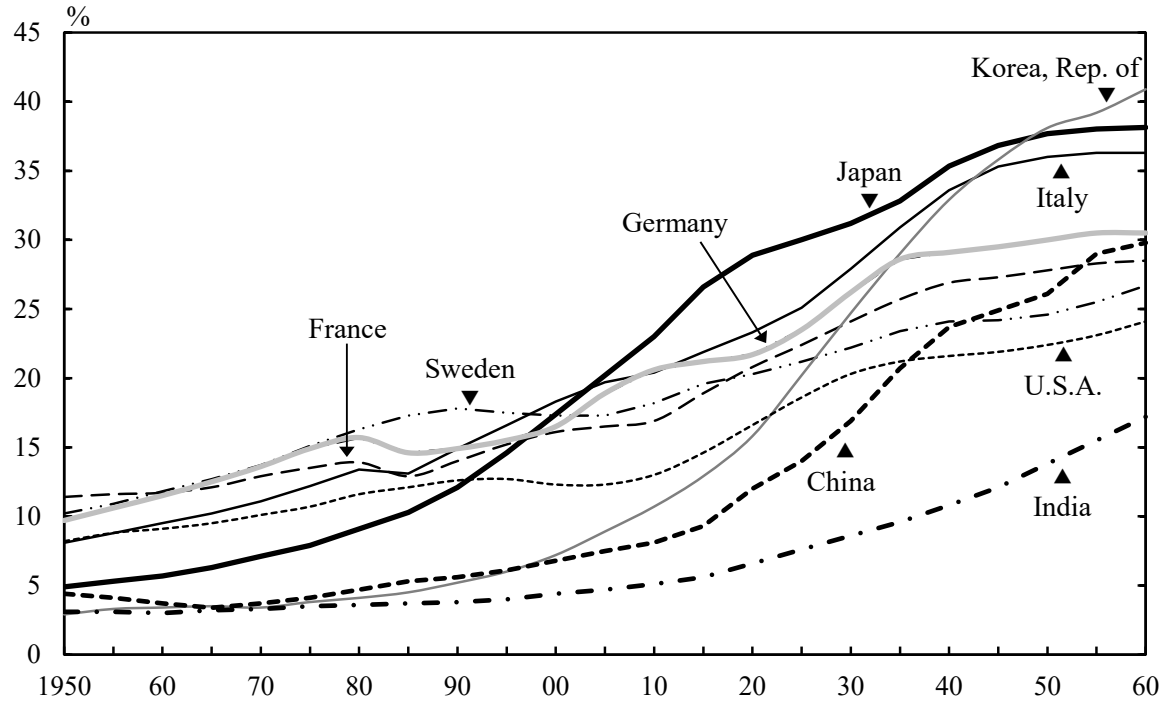
Figure 2.4
Changes in the Population Pyramid



Source: Statistics Bureau, MIC; National Institute of Population and Social Security Research.

In Japan, the percentage of persons aged 65 years old and over exceeded 10 percent in 1985, but as of 1950, this percentage was already 11.4 percent in France and 10.2 percent in Sweden. The percentage exceeded 10 percent in 1955 in Germany, 1965 in Italy, and 1970 in the U.S.A., all earlier than in Japan. However, in 2015, the percentage of the population aged 65 years old and over in Japan was 26.6 percent, exceeding the U.S.A. (14.6 percent), France (18.9 percent), Sweden (19.6 percent), Germany (21.2 percent), and Italy (21.9 percent), indicating that the aging society in Japan is progressing quite rapidly as compared to the U.S.A. and European countries.

Figure 2.5
Proportion of Elderly Population by Country (Aged 65 years old and over)



Source: Statistics Bureau, MIC; National Institute of Population and Social Security Research; United Nations.

Table 2.5
Age Structure of Population by Country

(%)

Country	2015			2060 (projection)		
	0-14 years old	15-64	65 years old and over	0-14 years old	15-64	65 years old and over
Korea, Rep. of	13.8	73.4	12.9	10.0	49.2	40.9
Japan	12.6	60.7	26.6	10.2	51.6	38.1
Italy	13.7	64.3	21.9	11.4	52.3	36.3
Germany	13.2	65.6	21.2	14.2	55.3	30.5
China	18.1	72.6	9.3	14.0	56.2	29.8
France	18.4	62.8	18.9	15.3	56.3	28.5
Brazil	22.4	69.6	8.0	13.7	59.3	27.0
U.K.	17.6	64.5	18.0	15.4	57.6	27.0
Sweden	17.3	63.1	19.6	16.0	57.3	26.7
Canada	16.0	68.0	16.1	14.5	58.9	26.6
Russia	16.9	69.6	13.6	17.3	58.1	24.6
U.S.A.	19.2	66.1	14.6	16.2	59.7	24.1
India	28.4	65.9	5.6	17.1	65.8	17.2

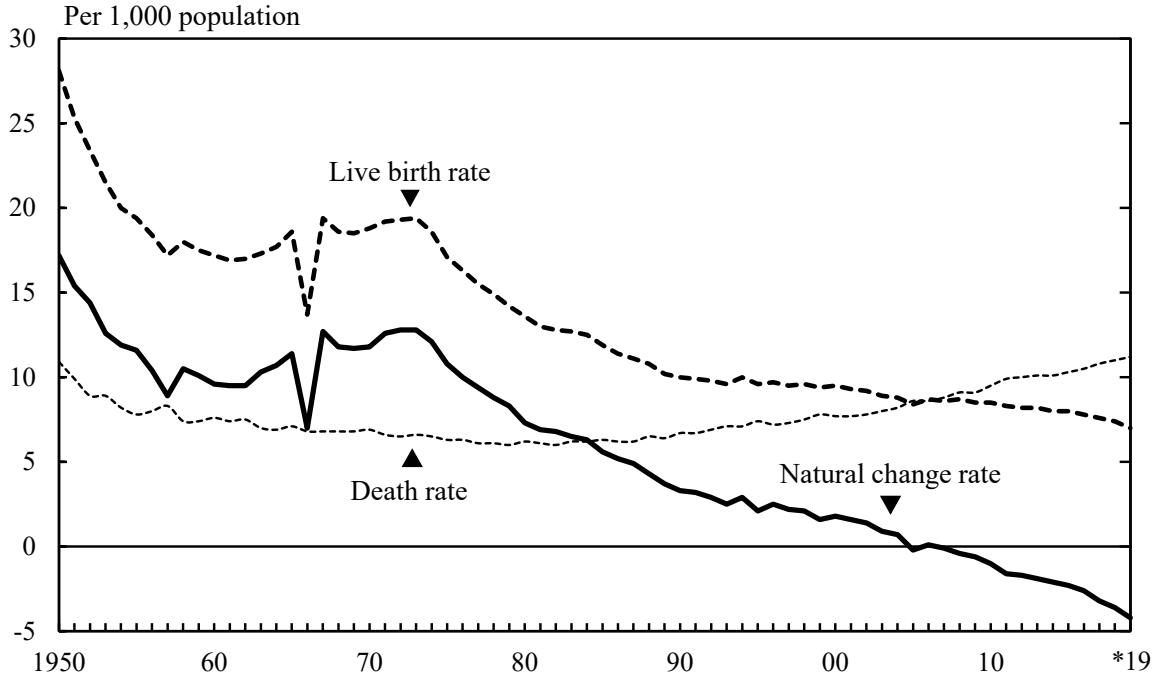
Source: Statistics Bureau, MIC; National Institute of Population and Social Security Research; United Nations.

On the other hand, in 2019, the child population (0-14 years old) in Japan amounted to 15.21 million, accounting for 12.1 percent of the total population, which was the lowest level on record. In terms of their proportion of the total population, the aged (65 years old and over) have surpassed the child population since 1997. The productive-age population (15-64 years old) totaled 75.07 million, accounting for 59.5 percent of the entire population. This population is continuing to decline since 1993. As a result, the ratio of the dependent population (the sum of aged and child population divided by the productive-age population) was 68.1 percent.

4. Births and Deaths

Population growth in Japan had primarily been driven by natural increase, while social increase played only a minor part. However, in 2005, the natural change rate (per 1,000 population) became minus for the first time since 1899, and has been on a declining trend since then. In 2019, the natural change rate was -4.2 and decreased for the 13th consecutive year.

Figure 2.6
Natural Population Change



Source: Ministry of Health, Labour and Welfare.

During the second baby boom between 1971 and 1973, the live birth rate (per 1,000 population) was at a level of 19. Since the late 1970s, it has continued to fall. The rate for 2019 was 7.0. The decline in the live birth rate may partly be attributable to the rising maternal age at childbirth. The average mothers' age at first childbirth rose from 25.6 in 1970 to 30.7 in 2019.

The total fertility rate was on a downward trend after dipping below 2.00 in 1975, and reached a record low of 1.26 in 2005. The rate was on a path of recovery with an increase after that. However, the total fertility rate decreased for 4 consecutive years and dropped to 1.36 in 2019.

The death rate (per 1,000 population) was steady at 6.0 - 6.3 between 1975 and 1987, and has maintained an uptrend since 1988, reflecting the aging of the population. It reached 11.2 in 2019.

Table 2.6
Vital Statistics

Year	Rates per 1,000 population [1]				Total fertility rate [2]	Life expectancy at birth (years)	
	Live births	Deaths	Infant mortality	Natural change		Males	Females
1950	28.1	10.9	60.1	17.2	3.65	a) 59.57	a) 62.97
1955	19.4	7.8	39.8	11.6	2.37	63.60	67.75
1960	17.2	7.6	30.7	9.6	2.00	65.32	70.19
1965	18.6	7.1	18.5	11.4	2.14	67.74	72.92
1970	18.8	6.9	13.1	11.8	2.13	69.31	74.66
1975	17.1	6.3	10.0	10.8	1.91	71.73	76.89
1980	13.6	6.2	7.5	7.3	1.75	73.35	78.76
1985	11.9	6.3	5.5	5.6	1.76	74.78	80.48
1990	10.0	6.7	4.6	3.3	1.54	75.92	81.90
1995	9.6	7.4	4.3	2.1	1.42	76.38	82.85
2000	9.5	7.7	3.2	1.8	1.36	77.72	84.60
2005	8.4	8.6	2.8	-0.2	1.26	78.56	85.52
2010	8.5	9.5	2.3	-1.0	1.39	79.55	86.30
2015	8.0	10.3	1.9	-2.3	1.45	80.75	86.99
2016	7.8	10.5	2.0	-2.6	1.44	80.98	87.14
2017	7.6	10.8	1.9	-3.2	1.43	81.09	87.26
2018	7.4	11.0	1.9	-3.6	1.42	81.25	87.32
2019	* 7.0	* 11.2	* 1.9	* -4.2	* 1.36	81.41	87.45

1) The infant mortality rate is per 1,000 live births.
2) The sum of the age-specific fertility rates from age 15 to 49 years old.
a) 1950-1952 period.
Source: Ministry of Health, Labour and Welfare.

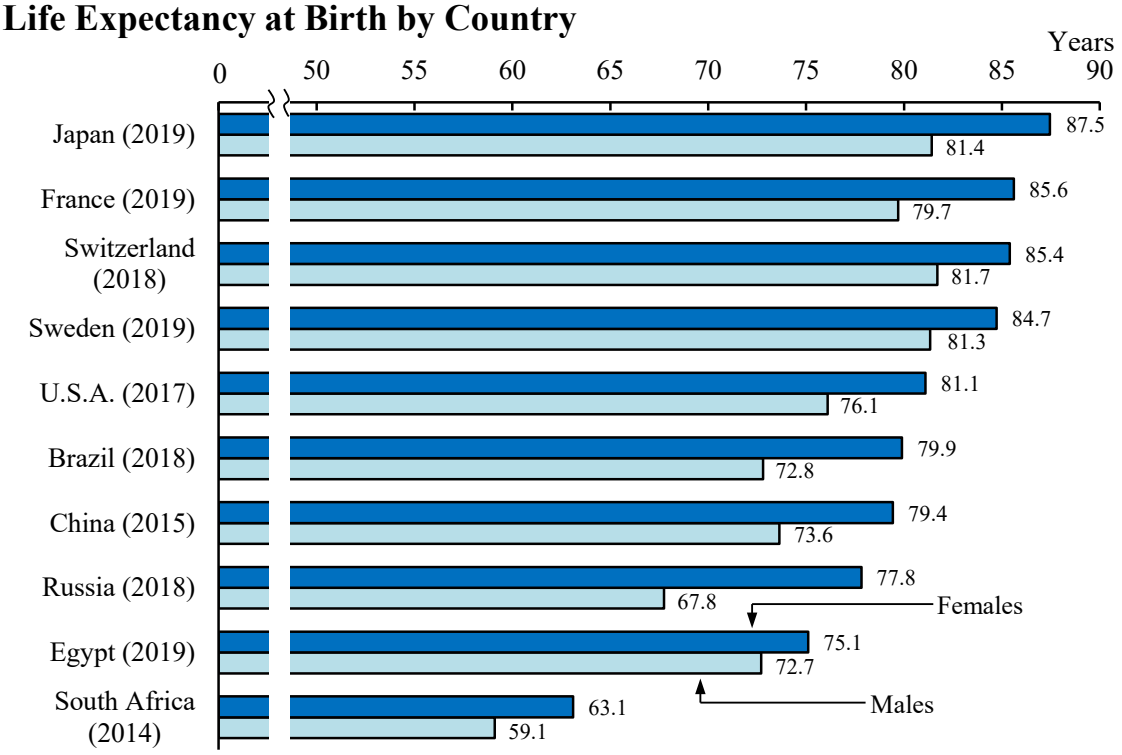
Table 2.7
Changes of Mothers' Age at Childbirth

Year	Number of births (1,000) [1]	Distribution of mothers' age (%) [2]						Mean age bearing first child
		Under 19	20-24	25-29	30-34	35-39	40 and over	
1970	1,934	1.0	26.5	49.2	18.5	4.2	0.5	25.6
1980	1,577	0.9	18.8	51.4	24.7	3.7	0.5	26.4
1990	1,222	1.4	15.7	45.1	29.1	7.6	1.0	27.0
2000	1,191	1.7	13.6	39.5	33.3	10.6	1.3	28.0
2010	1,071	1.3	10.4	28.6	35.9	20.5	3.3	29.9
2015	1,006	1.2	8.4	26.1	36.3	22.7	5.4	30.7
2016	977	1.1	8.4	25.7	36.3	22.9	5.6	30.7
2017	946	1.0	8.4	25.5	36.5	22.9	5.7	30.7
2018	918	1.0	8.4	25.5	36.5	23.0	5.8	30.7
2019*	865	0.9	8.3	25.5	36.1	23.2	5.9	30.7

1) Including mothers' ages that were not reported. 2) Percentage in relation to number of births, excluding those for which mothers' ages were not reported.
Source: Ministry of Health, Labour and Welfare.

Average life expectancy in Japan climbed sharply after World War II, and is today at quite high level in the world. In 2019, it was 87.5 years for females and 81.4 years for males, setting a new all-time record for both genders.

Figure 2.7
Life Expectancy at Birth by Country



Source: Ministry of Health, Labour and Welfare.

5. Marriages and Divorces

It showed an apparent marriage boom in the early 1970s that the annual number of marriages in Japan exceeded 1 million couples coupled with the marriage rate (per 1,000 population) hovering over 10.0. However, both the number of couples and the marriage rate have been on a declining trend thereafter. In 2019, 598,965 couples married, and the marriage rate was 4.8.

The mean age of first marriage was 31.2 for grooms and 29.6 for brides in 2019. The mean age of first marriage for grooms rose by 2.5 years, while that of brides rose by 2.8 years over the past 20 years (in 1999: grooms, 28.7; brides, 26.8). In addition, there has been an increasing trend in the proportion of those who have never married until he or she turns the exact age 50, reaching 23.4 percent for males and 14.1 percent for females in 2015, the highest percentages ever. The declining marriage rate, rising marrying age and increased choice of unmarried life in recent years as described above could explain the dropping birth rate.

Table 2.8
Mean Age of First Marriage

Year	Grooms	Brides
1950	25.9	23.0
1955	26.6	23.8
1960	27.2	24.4
1965	27.2	24.5
1970	26.9	24.2
1975	27.0	24.7
1980	27.8	25.2
1985	28.2	25.5
1990	28.4	25.9
1995	28.5	26.3
2000	28.8	27.0
2005	29.8	28.0
2010	30.5	28.8
2015	31.1	29.4
2016	31.1	29.4
2017	31.1	29.4
2018	31.1	29.4
2019*	31.2	29.6

Source: Ministry of Health, Labour and Welfare.

Table 2.9
Proportion of Never Married at Exact Age 50 by Sex [1)]

(%)

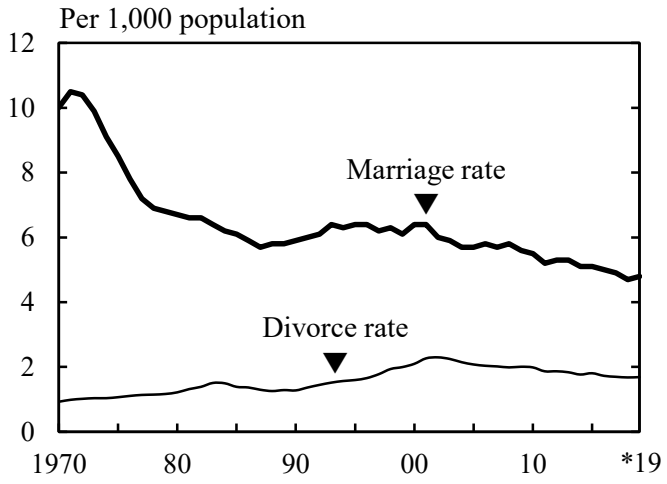
Year	Males	Females
1950	1.5	1.4
1960	1.3	1.9
1970	1.7	3.3
1980	2.6	4.5
1990	5.6	4.3
2000	12.6	5.8
2005	16.0	7.3
2010	20.1	10.6
2015	23.4	14.1

1) The Proportion is computed as the mean value of the proportion remaining single at ages 45-49 and 50-54.

Source: National Institute of Population and Social Security Research.

In contrast, there was an upward trend about the divorces since the late 1960s, hitting a peak of 289,836 couples in 2002. Subsequently, both the number of divorces and the divorce rate have been declining since 2003. In 2019, the number of divorces totaled 208,489 couples, and the divorce rate (per 1,000 population) was 1.69.

Figure 2.8
Changes in Marriage Rate and Divorce Rate



Source: Ministry of Health, Labour and Welfare.

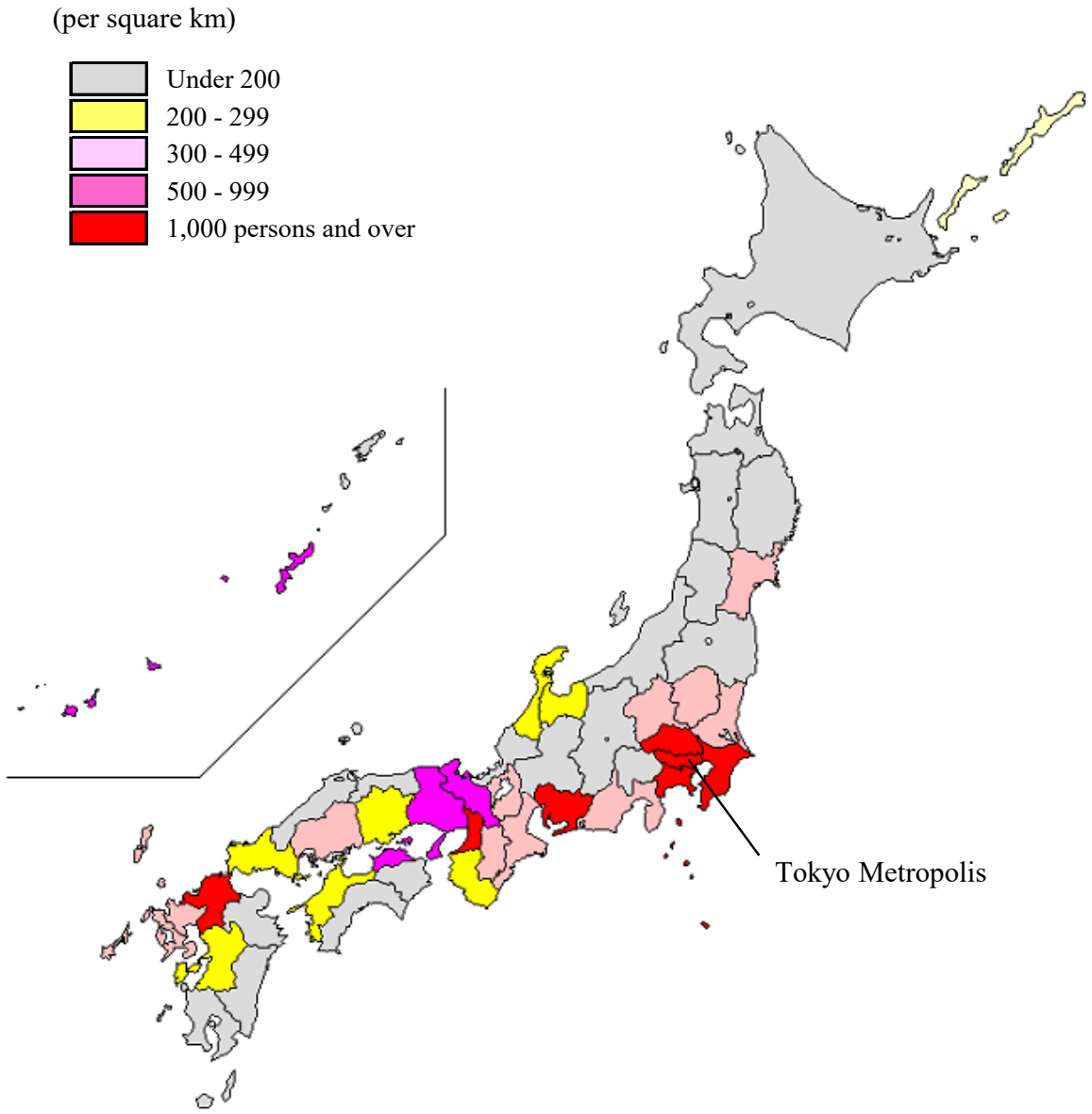
6. Population Density and Regional Distribution

(1) Population Density

In 2015, Tokyo Metropolis had the largest population of 13.52 million among Japan's 47 prefectures, followed in decreasing order by the prefectures of Kanagawa, Osaka, Aichi, and Saitama. These 5 prefectures each had a population of 7 million or more, and together accounted for 36.4 percent of the total population.

In addition, the population density in Tokyo Metropolis was the highest among Japan's prefectures, at 6,168.7 persons per square kilometer. This was almost 18.1 times larger than the national average (340.8 persons per square kilometer).

Figure 2.9
Population Density by Prefecture (2015)



Source: Statistics Bureau, MIC.

In 2015, there were 12 cities in Japan with a population of 1 million or more. Their total population topped 29 million, a figure equivalent to 23.2 percent of the national total. The largest single city was the 23 Cities of Tokyo Metropolis, with 9.27 million citizens. It was followed in decreasing order by Yokohama City (3.72 million), Osaka City (2.69 million), and Nagoya City (2.30 million).

Table 2.10
Population of Major Cities

(Thousands)

Cities	Population		Cities	Population	
	2010	2015		2010	2015
Tokyo, 23 Cities	8,946	9,273	Kobe City	1,544	1,537
Yokohama City	3,689	3,725	Kawasaki City	1,426	1,475
Osaka City	2,665	2,691	Kyoto City	1,474	1,475
Nagoya City	2,264	2,296	Saitama City	1,222	1,264
Sapporo City	1,914	1,952	Hiroshima City	1,174	1,194
Fukuoka City	1,464	1,539	Sendai City	1,046	1,082

Source: Statistics Bureau, MIC.

(2) Population Distribution

The percentage of the urban population started increasing in the late 1950s. In 2015, 51.9 percent of the total population was concentrated in the 3 major metropolitan areas: the Kanto, Chukyo, and Kinki major metropolitan areas. Population density in the Kanto major metropolitan area was 2,771 persons per square kilometer. In the Chukyo major metropolitan area, it was 1,288 persons per square kilometer, and in the Kinki major metropolitan area, it was 1,459 persons per square kilometer.

Table 2.11
Population of 3 Major Metropolitan Areas [1] (2015)

Areas	Population (1,000)	Percentage of the total (%)	Surface Area (km^2)	Population density (per km^2)
Kanto major metropolitan area	37,274	29.3	13,452	2,771
Chukyo major metropolitan area	9,363	7.4	7,271	1,288
Kinki major metropolitan area	19,303	15.2	13,228	1,459
Total of three major metropolitan areas	65,940	51.9	33,951	1,942

1) Major metropolitan areas consist of central cities (Kanto: 23 Cities of Tokyo Metropolis, Yokohama City, Kawasaki City, Sagamihara City, Saitama City, and Chiba City; Chukyo: Nagoya City; Kinki: Osaka City, Sakai City, Kyoto City, and Kobe City) and surrounding areas (cities, towns and villages).
Source: Statistics Bureau, MIC.

Chapter 3

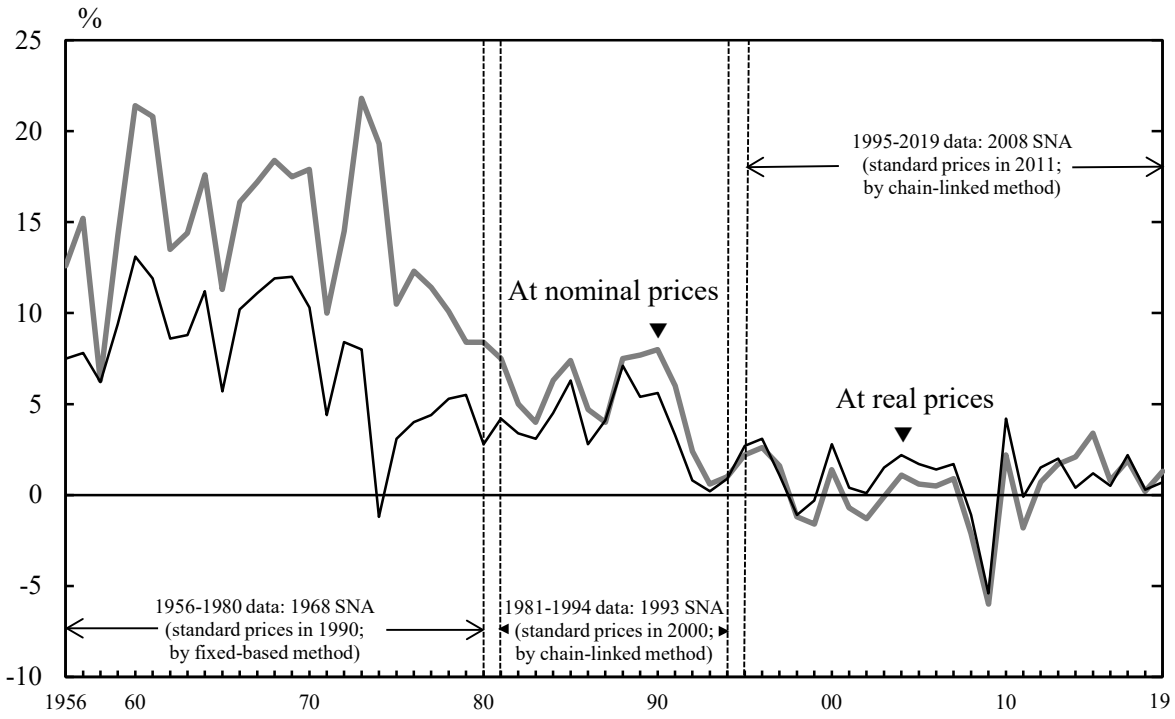
Economy

Night view from the Sumida River Ohashi Bridge. There are walkways on both the north and south sides of the bridge, high enough to provide superb views. The lights of Tokyo, the heart of Japan's economy, dazzle the viewer.
When looking at Japan's net worth (national wealth), it was 3,457 trillion yen at the end of 2018.

1. Economic Development

During the 1960s, Japan's economy grew at a rapid pace of over 10 percent per annum. This rapid economic growth was supported by: (i) the expansion of private investments in plant and equipment, backed by a high rate of personal savings; (ii) a large shift in the working population from primary to secondary industries and "an abundant labour force supplied by a high rate of population growth"; and (iii) an increase in productivity brought about by adopting and improving foreign technologies.

Figure 3.1
Economic Growth Rates



Source: Economic and Social Research Institute, Cabinet Office.

In the 1970s, the sharp increase of Japan's exports of industrial products to the U.S.A. and Europe began to cause international friction. In 1971, the U.S.A. announced it would end the convertibility of the dollar into gold. In December 1971, Japan revalued the yen from 360 yen against the U.S. dollar, which had been maintained for 22 years, to 308 yen. In February 1973, Japan adopted a floating exchange-rate system.

In October 1973, the fourth Middle East War led to the first oil crisis, triggering high inflation. Accordingly, Japan recorded negative economic growth in 1974 for the first time in the post-war period. Following the second oil crisis in 1978, efforts were made to change Japan's industrial structure from "energy-dependent" to "energy-saving", enabling Japan to successfully overcome inflation.

In the 1980s, the trade imbalance with advanced industrial countries expanded because of the yen's appreciation. As part of administrative and financial reforms, Japan National Railways and Nippon Telegraph and Telephone Public Corporation were privatized. As a result, domestic demand-led economic growth was achieved.

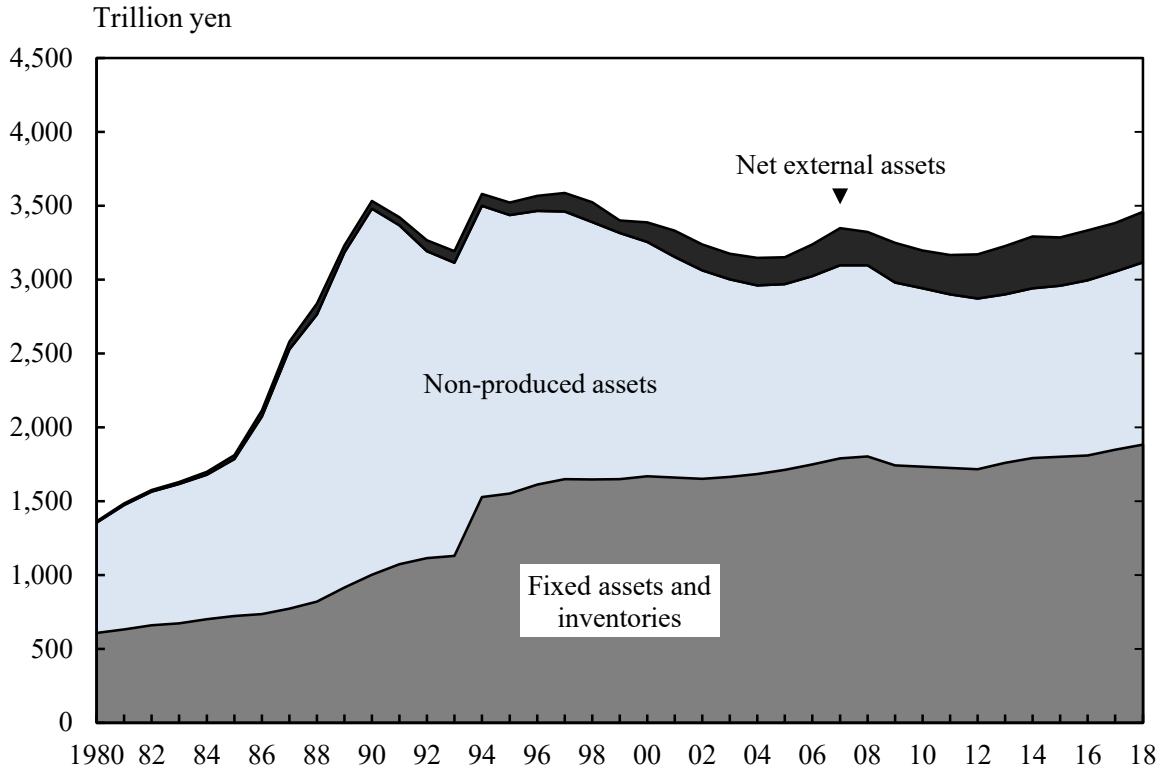
2. Bubble Economy and Its Collapse

At the end of the 1980s, Japan's economy enjoyed favorable conditions, with stable wholesale prices and a low unemployment rate. Corporate profits were at their highest level in history, and corporate failures were at their lowest level, while investments in plant and equipment for manufacturing products, such as semiconductors, were very active. Stock and land prices continued to rise rapidly, and large-scale urban developments and resort facility developments in rural areas progressed at a very fast pace. However, excessive funds flowed into the stock and real estate markets, causing abnormal increases in capital asset values (forming an economic bubble).

At the end of 1980, Japan's net worth (national wealth) stood at 1,363 trillion yen, 5.6 times the GDP. It then increased, reaching 3,531 trillion yen, 8.0 times the GDP, at the end of 1990, owing to increasing land and stock prices. At the beginning of 1990, stock prices plummeted, followed by sharp declines in land prices. This marked the start of major economic recession (collapse of the bubble economy). Japan's financial and economic systems, which were excessively dependent on land, consequently approached collapse.

Due to the collapse of the bubble economy, the national wealth decreased, and while there were fluctuations, continued on a downward trend. Since 2012, it has been on an upward trend. At the end of 2018, it was 3,457 trillion yen.

Figure 3.2
National Wealth [1)]

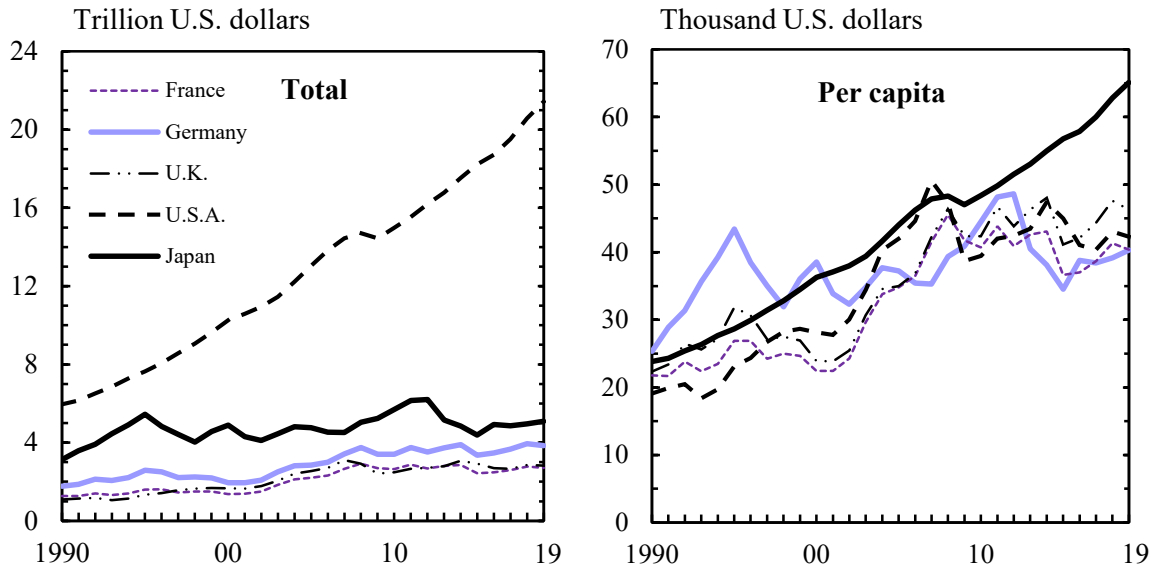


1) Data was estimated using a different method beginning in 1994.
Source: Economic and Social Research Institute, Cabinet Office.

Massive bad debts were created in financial institutions' loan portfolios, as corporate borrowers suffered serious losses due to declining land prices. As a result, shareholders' equity in financial institutions shrank. In 1997, large banks began to fail. In 1998 and 1999, the government injected public money into the banking sector to stabilize the financial system.

The Japanese economy began to make a moderate recovery in February 1999. This, however, was only a temporary phenomenon, as investments in plant and equipment were weak and the recovery was too dependent on foreign demand and information and communication technologies. With the global decline in IT demand from mid-2000, Japan's exports to Asia dropped, necessitating adjustments of excess inventory and production facilities. In line with this, the Japanese economy again entered into an economic downturn in 2001.

Figure 3.3
Gross Domestic Product (Nominal prices, converted into U.S. dollars)



Source: OECD.

On the economic recovery phase starting at the beginning of 2002, the corporate sector, with export-related industries, as the central part, became favorable based on the steady recovery of the global economy, and shifted generally with a bullish tone up until mid-2007.

3. Recent Economic Trends

At the start of 2008, the Japanese economy was faced with a standstill in its path to recovery as private consumption and investments in plant and equipment fell flat and so did production. This occurred against the backdrop of soaring crude petroleum and raw material prices and repercussions from the American subprime mortgage loan problem that, since mid-2007, rapidly clouded future prospects for the world economy further. In addition, the bankruptcy of the major American securities firm Lehman Brothers in September 2008 led to a serious financial crisis in Europe and the U.S.A. Japan was also affected by the yen's rise and the sudden economic contraction in the U.S.A. and other countries. Declining exports contributed to a large drop in production and a sharp rise in unemployment.

Table 3.1

Gross Domestic Product [1] (Expenditure approach)

(Billion yen)

Item	2016	2017	2018	2019
Gross domestic product (GDP)	519,630.5	530,897.5	532,359.9	535,901.3
Domestic demand	523,695.7	532,016.9	533,531.1	537,981.9
Private demand	391,876.5	399,875.0	400,374.9	402,043.9
Private final consumption expenditure	294,945.6	298,821.4	298,783.0	299,206.0
Private Residential Investment	15,932.3	16,196.3	15,117.3	15,421.9
Private plant and equipment	80,360.0	83,600.6	85,396.3	85,982.2
Changes in inventories of private sectors	550.1	1,196.4	1,067.3	1,408.4
Public demand	131,824.6	132,146.3	133,159.0	135,938.1
Government final consumption expenditure	106,018.5	106,188.5	107,102.5	109,177.6
Gross capital formation by public sectors	25,828.1	25,954.3	26,031.4	26,790.0
Changes in inventories of public sectors	-5.8	25.8	58.9	-13.8
Net exports of goods and services	-4,306.7	-1,534.8	-1,800.7	-2,625.2
Exports of goods and services	84,491.5	90,263.7	93,410.3	91,917.7
(less) Imports of goods and services	88,798.2	91,798.5	95,211.1	94,542.9
(Reference)				
Trading gains/losses	9,755.3	6,436.7	2,769.8	3,745.7
Gross domestic income (GDI)	529,385.9	537,334.2	535,129.7	539,647.0
Net income from the rest of the world	17,860.3	19,335.5	19,877.6	19,576.4
Incomes from the rest of the world	28,682.4	31,053.0	33,178.9	33,944.6
(less) Incomes to the rest of the world	10,822.2	11,717.5	13,301.3	14,368.2
Gross national income (GNI)	547,246.1	556,669.7	555,007.2	559,223.4

1) Quarterly estimates of GDP, 2008 SNA (standard prices in 2011; by chain-linked method).
Source: Economic and Social Research Institute, Cabinet Office.

Subsequently, the Japanese economy recovered with foreign demand and economic measures after April 2009, and came to a standstill starting around October 2010. In early 2011, however, it began to rally. The Great East Japan Earthquake taking place on March 11, 2011, and the nuclear power plant accident caused by it weakened the economic recovery.

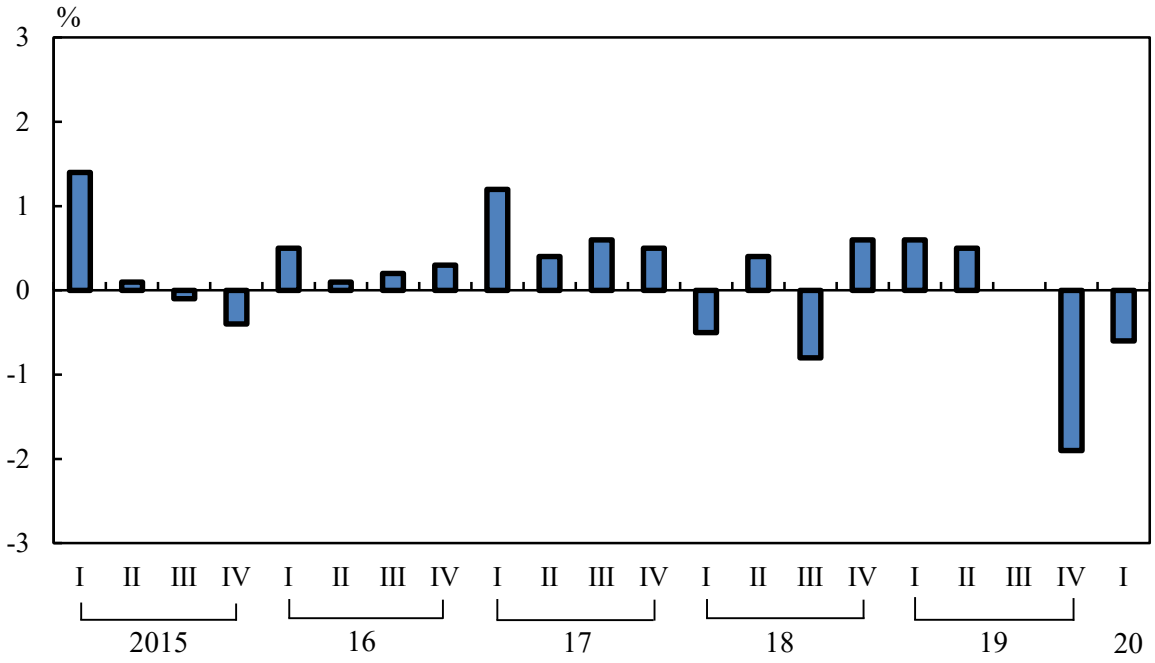
In order to achieve an early end to deflation and break free of economic stagnation, in January 2013, the government set forth its "three-arrows" strategy (also known as "Abenomics").

The first "arrow" is "aggressive monetary policy". The Bank of Japan (BOJ) made it clear that it would set two percent annual growth rate of consumer price index as a "price stabilization target". The BOJ also introduced "quantitative and qualitative monetary easing" to double the monetary base over two years.

The second "arrow" is "flexible fiscal policy". An emergency economic stimulus package with a scale of approximately 10 trillion yen was developed.

The third "arrow" is "growth strategy that promotes private investment". Efforts are being made in growth strategies such as encouraging investments by private corporations based on the easing of regulations.

Figure 3.4
Economic Growth Rates [1] (Quarterly changes)



1) Quarterly estimates of GDP, 2008 SNA (standard prices in 2011; by chain-linked method; seasonally adjusted).
Source: Economic and Social Research Institute, Cabinet Office.

Amidst these initiatives, the Japanese economy has continued to show signs of moderate recovery, with profits of companies at high levels, and continued improvement in the employment and income environment. However, due to factors like the slowdown in the Chinese economy, and a lull in global demand for information-related goods, weakness has been evident in some areas of export and production since the second half of 2018. On the other hand, the increasing trend in domestic demand has been maintained, supported by factors like improvement in the employment and income environment, and high company profits.

4. Industrial Structure

Japan's industrial structure has undergone a major transformation since the end of World War II. The chronological changes in the industrial structure during this period by industry share of employed persons and GDP show that shares in the primary industry in particular have fallen dramatically since 1970, when Japan experienced rapid economic growth. During the 1980s, the secondary industry's share of employed persons and GDP also began to decline gradually. On the other hand, the tertiary industry's share of them have risen consistently.

Table 3.2
Changes in Industrial Structure

(%)

Year	Employed persons [1]			Gross domestic product (GDP) [2]		
	Primary industry	Secondary industry	Tertiary industry	Primary industry	Secondary industry	Tertiary industry
1950	48.6	21.8	29.7	...	...	...
1955	41.2	23.4	35.5	19.2	33.7	47.0
1960	32.7	29.1	38.2	12.8	40.8	46.4
1965	24.7	31.5	43.7	9.5	40.1	50.3
1970	19.3	34.1	46.6	5.9	43.1	50.9
1975	13.9	34.2	52.0	5.3	38.8	55.9
1980	10.9	33.6	55.4	# 3.5	# 36.2	# 60.3
1985	9.3	33.2	57.5	3.0	34.9	62.0
1990	7.2	33.5	59.4	2.4	35.4	62.2
1995	# 6.0	# 31.3	# 62.7	# 1.7	# 31.6	# 66.7
2000	5.2	29.5	65.3	1.5	29.5	69.0
2005	4.9	26.4	68.6	1.1	27.2	71.7
2010	4.2	25.2	70.6	1.1	25.7	73.1
2015	4.0	25.0	71.0	1.1	26.6	72.3

1) Due to the revision of the Japan Standard Industrial Classification, the figures from 1995 onward are not strictly consistent with those for 1990 or earlier. 2) Data from 1955 to 1979 are based on the 1968 SNA. Data from 1980 onward are based on the 1993 SNA. Data in 1994 and afterwards differs in the estimation method.
Source: Statistics Bureau, MIC; Economic and Social Research Institute, Cabinet Office.

In 1970, the primary industry accounted for 19.3 percent of employed persons, the secondary industry for 34.1 percent, and the tertiary industry for 46.6 percent. In 2015, the corresponding shares of these three sectors were 4.0 percent, 25.0 percent and 71.0 percent, respectively.

As for GDP by type of economic activity, in 1970, the primary, secondary and tertiary industries accounted for 5.9 percent, 43.1 percent and 50.9 percent, respectively. In 2015, these figures were 1.1 percent, 26.6 percent and 72.3 percent, respectively.

Table 3.3
Gross Domestic Product by Type of Economic Activity

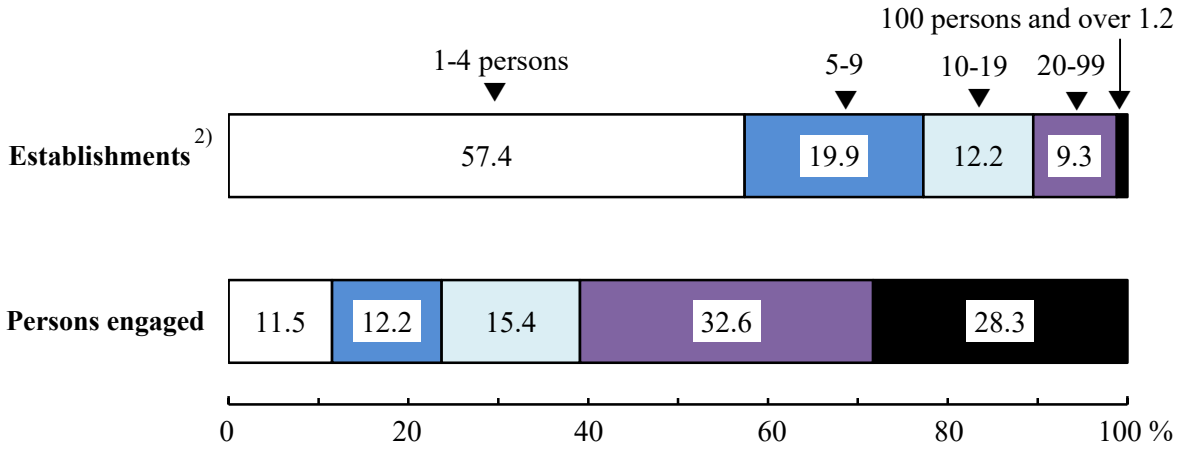
(%)

	1995	2000	2005	2010	2015	2018
Primary industry						
Agriculture, forestry and fishing	1.7	1.5	1.1	1.1	1.1	1.2
Secondary industry						
Mining	0.2	0.1	0.1	0.1	0.1	0.1
Manufacturing	23.5	22.6	21.6	20.8	20.8	20.7
Construction	7.8	6.9	5.6	4.8	5.5	5.7
Tertiary industry						
Electricity, gas and water supply and waste management service	3.0	3.2	2.9	2.8	2.6	2.6
Wholesale and retail trade	13.8	13.1	14.4	13.8	14.0	13.7
Transport and postal services	5.5	4.9	5.1	5.0	5.1	5.2
Accommodation and food service activities	3.1	3.1	2.7	2.6	2.3	2.5
Information and communications	3.2	4.6	4.9	5.1	5.0	4.9
Finance and insurance	5.0	4.9	6.0	4.8	4.4	4.2
Real estate	9.9	10.3	10.4	11.9	11.4	11.3
Professional, scientific and technical activities	4.8	5.8	6.4	7.0	7.2	7.5
Public administration	4.8	5.2	5.1	5.3	5.0	5.0
Education	3.6	3.6	3.6	3.6	3.6	3.6
Human health and social work activities	4.4	5.3	5.5	6.4	6.8	7.2
Other service activities	5.2	5.2	4.9	4.7	4.4	4.2

Source: Economic and Social Research Institute, Cabinet Office.

According to the "2016 Economic Census for Business Activity", there were 5.3 million establishments (excluding businesses whose operational details are unknown, national government services, and local government services) in Japan, at which a total of 56.9 million persons were employed. The average number of persons engaged per establishment was 10.6 and establishments with less than 10 persons accounted for 77.3 percent of the total.

Figure 3.5
Shares of Establishments and Persons Engaged by Scale of Operation [1)]
(2016)



1) Excluding businesses whose operational details are unknown, national government services, and local government services. 2) Excluding establishments consisting of only loaned or dispatched employees.
Source: Statistics Bureau, MIC; Ministry of Economy, Trade and Industry.

With regard to the number of establishments by the major groupings of the Japan Standard Industrial Classification, the most numerous category was the "wholesale and retail trade", numbering 1.4 million, followed by "accommodations, eating and drinking services" and "construction". In terms of the number of persons engaged, establishments in the "wholesale and retail trade" ranked first as they employed 12.0 million persons, followed by "manufacturing" and "medical, health care and welfare".

Table 3.4
Number of Establishments and Persons Engaged [1] (2016)

Item	Establishments	Persons engaged
Total	5,340,783	56,872,826
By industry		
Primary industry		
Agriculture, forestry and fisheries	32,676	363,024
Secondary industry		
Mining and quarrying of stone and gravel	1,851	19,467
Construction	492,734	3,690,740
Manufacturing	454,800	8,864,253
Tertiary industry		
Electricity, gas, heat supply and water	4,654	187,818
Information and communications	63,574	1,642,042
Transport and postal activities	130,459	3,197,231
Wholesale and retail trade	1,355,060	11,843,869
Finance and insurance	84,041	1,530,002
Real estate and goods rental and leasing	353,155	1,462,395
Scientific research, professional and technical services	223,439	1,842,795
Accommodations, eating and drinking services	696,396	5,362,088
Living-related and personal services and amusement services	470,713	2,420,557
Education, learning support	167,662	1,827,596
Medical, health care and welfare	429,173	7,374,844
Compound services	33,780	484,260
Services, n.e.c.	346,616	4,759,845
By type of legal organizations		
Individual proprietorships	2,006,773	5,719,403
Corporations	3,305,188	51,032,017
Companies	2,882,491	42,716,541
Organizations other than corporations	28,822	121,406

1) Excluding businesses whose operational details are unknown, national government services, and local government services.
Source: Statistics Bureau, MIC; Ministry of Economy, Trade and Industry.

The domestic manufacturing industry has progressed in the relocation of production bases overseas, for the cutback on production costs, the production in consumption areas, and the evasion of fluctuations in exchange rates.

The number of overseas affiliates in the manufacturing industry was 11,344 companies at the end of fiscal 2018, and the overseas production ratio was 25.1 percent in actual performance in fiscal 2018. This was on the same level as the previous fiscal year, when the ratio was the highest ever recorded.

Table 3.5
Trends of Overseas Affiliated Company (Manufacturing industries)

Fiscal year	Number of overseas affiliates [1)]	Value of Sales (Million yen)	Overseas production ratio [2)] (%)	Value of capital investment (Million yen)	Ratio of overseas capital investment [3)] (%)
2009	8,399	78,305,761	17.0	2,058,685	15.9
2010	8,412	89,327,934	18.1	2,325,418	17.1
2011	8,684	88,289,996	18.0	3,082,273	21.5
2012	10,425	98,384,657	20.3	3,815,707	25.8
2013	10,545	116,997,649	22.9	4,646,055	29.4
2014	10,592	129,712,997	24.3	4,649,364	28.1
2015	11,080	134,996,164	25.3	4,571,639	25.5
2016	10,919	123,636,074	23.8	3,766,446	20.7
2017	10,838	138,024,661	25.4	3,961,088	20.8
2018	11,344	138,584,467	25.1	4,384,020	21.5

1) End of fiscal year. 2) Overseas production ratio = Sales of overseas affiliates/(Sales of overseas affiliates + Sales of domestic companies) × 100.
3) Ratio of overseas capital investment = Amount of capital investment in overseas affiliates/(Amount of capital investment in overseas affiliates + Amount of capital investment in domestic companies) × 100.
Source: Ministry of Economy, Trade and Industry.

In the future, it is anticipated that companies in the manufacturing industry in Japan will expand their overseas business. There are many companies that are planning on expanding their business to India, China, Vietnam and Thailand.

Chapter 4

Finance

© Fukaya City

Eiichi Shibusawa, often called the "father of the modern Japanese economy", was born into a farming family in the city of Fukaya in Tenpo 11 (1840). He left a legacy of many achievements, including involvement in the founding of around 500 companies including the First National Bank, support for about 600 social/public projects and welfare/educational organizations, as well as private diplomacy. It has been decided that his image will appear on the new 10,000 yen note starting from 2024.

1. National and Local Government Finance

(1) National Government Finance

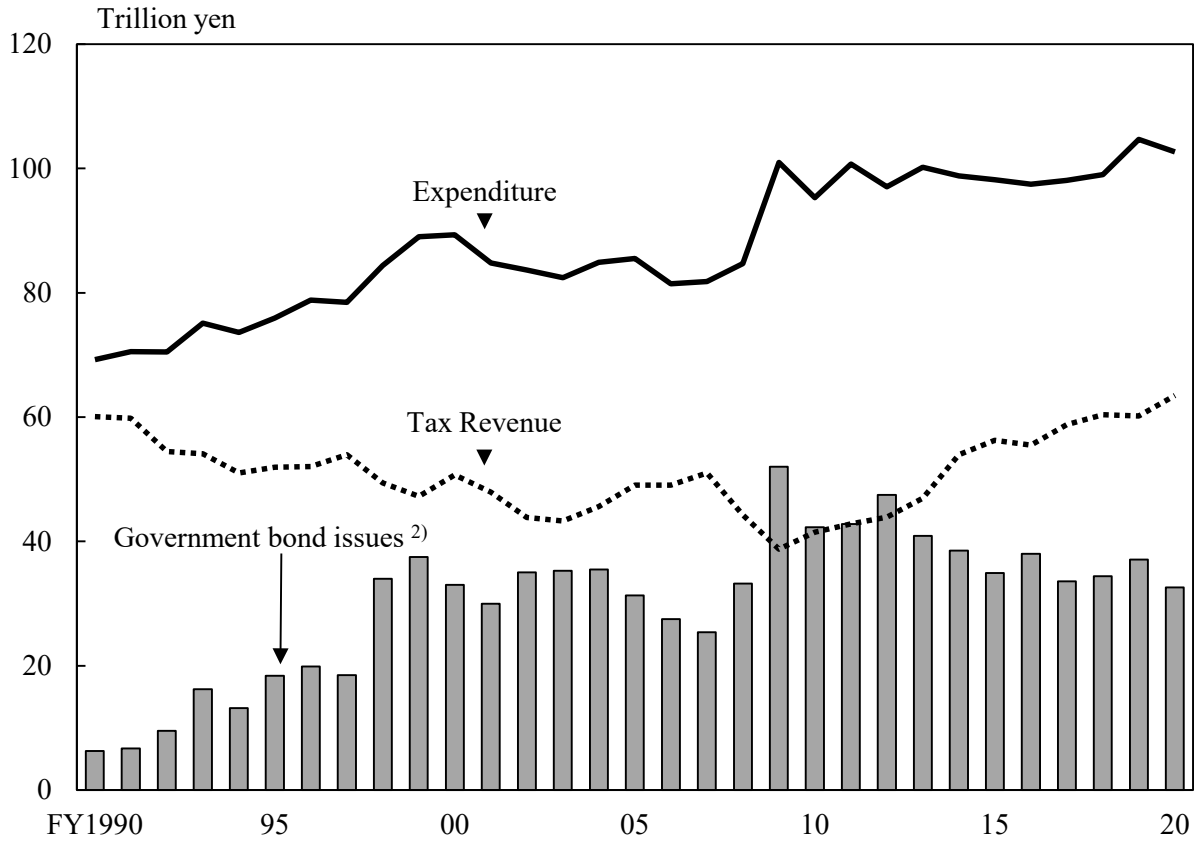
Japan's fiscal year starts in April, and ends in March of the following year. In setting the national budget, the government submits a proposed budget for the upcoming fiscal year to the Ordinary Session of the Diet, which begins in January. The proposal is then discussed, and approved usually before the fiscal year begins in April (initial budget). In the event that the Diet does not approve the budget by the end of March, an interim budget comes into effect. The interim budget is effective from the beginning of April until such time when the proposed budget is approved. If it becomes necessary to amend the budget in the course of a fiscal year, the government submits a supplementary budget for Diet approval. In April 2020, some expenditures were appropriated in a fiscal 2020 supplementary budget as a result of "Emergency Economic Measures for Response to COVID-19".

Japan's national budget consists of the general account budget, special account budgets, and the budgets of government-affiliated agencies. Using revenues from general sources such as taxes, the general account covers core national expenditures such as social security, public works, education and science, and national defense.

Special accounts are accounts established for the national government to carry out projects with specific objectives, and their management and administration are independent of the general account. The number and particulars of special accounts change from year to year; for fiscal 2020, there are a total of 13 special accounts, including the National debt consolidation fund, the Local allocation tax and local transfer tax, and the Reconstruction from the Great East Japan Earthquake.

Government-affiliated agencies are entities established by special laws and are entirely funded by the government. Currently, the Japan Finance Corporation, the Okinawa Development Finance Corporation, Japan Bank for International Cooperation, and the Japan International Cooperation Agency (Finance and Investment Account) are operated.

Figure 4.1
Revenue and Expenditure in the General Account [1)]



1) Based on settled figures until FY2018, draft supplementary budget for FY2019, and draft budget for FY2020. 2) Excludes some special accounts. A figure in FY2019 and FY2020 includes the bond issued for the Temporal and Special Measures.

Source: Ministry of Finance.

In the national government finance, expenditure has continued to surpass revenue. Since fiscal 2008 in particular, the worsening economy has decreased tax revenue, contributing to an increasing gap between revenue and expenditure. From fiscal 2009 to fiscal 2012, bond issues exceeded tax revenue in most years, but starting in fiscal 2013, tax revenue has exceeded borrowing on an initial budget basis.

The size of the general account budget for fiscal 2020 was 103 trillion yen, an increase of 1.2 trillion yen (1.2 percent) from the initial budget of fiscal 2019. This is equivalent to 18.0 percent of the fiscal 2020 GDP, forecasted by the government at 570 trillion yen.

Table 4.1
Expenditures of General Account

(Billion yen)

Fiscal year	Total (A)+(B)+(C)	General expenditures (A)	Social security	Education and science	Pensions	National defense	Public works
2000	89,321	52,046	17,636	6,872	1,418	4,907	11,910
2005	85,520	49,343	20,603	5,701	1,065	4,878	8,391
2010	95,312	56,978	28,249	6,051	709	4,670	5,803
2015	98,230	58,966	31,398	5,574	387	5,130	6,378
2017	98,116	60,028	32,521	5,703	286	5,274	6,912
2018	98,975	60,420	32,569	5,748	241	5,475	6,913
2019 1)	104,652	66,113	34,151	6,304	209	5,675	8,475
2020 2)	102,658	63,495	35,861	5,505	175	5,313	6,857

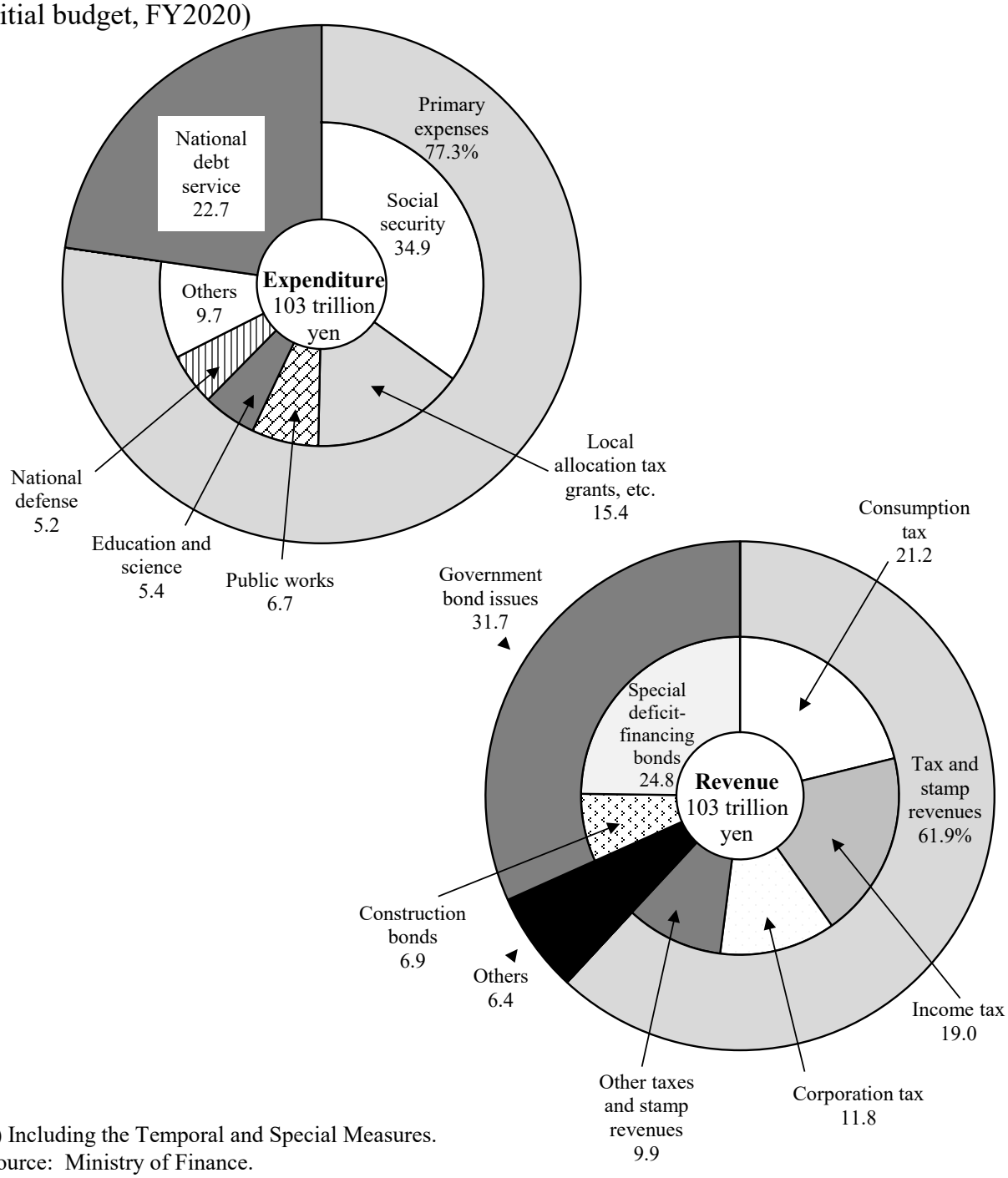
Fiscal year	Economic cooperation	Small and medium-sized business promotion	Energy measures	Food stable supply	Others	National debt service (B)	Local allocation tax grants, etc. (C)
2000	1,012	933	677	247	6,434	21,446	15,829
2005	784	237	493	657	6,536	18,736	17,441
2010	746	830	845	1,122	7,953	19,544	18,790
2015	661	340	968	1,276	6,854	22,464	16,801
2017	651	319	969	1,181	6,211	22,521	15,567
2018	642	525	973	1,122	6,212	22,529	16,026
2019 1)	630	621	1,050	1,202	7,796	22,506	16,032
2020 2)	512	175	949	984	7,164	23,352	15,810

1) Revised budget. 2) Initial budget.
Source: Ministry of Finance.

In fiscal 2020, major expenditures from the initial general account budget include social security (34.9 percent), national debt service (22.7 percent), local allocation tax grants, etc. (15.4 percent), public works (6.7 percent), education and science (5.4 percent), and national defense (5.2 percent).

With regard to revenue sources for the fiscal 2020 initial general account budget, consumption tax, income tax and corporation tax account for 52.0 percent. Even with the addition of other taxes and stamp revenues, these revenue sources only amount to 61.9 percent of the total revenue.

Figure 4.2
Composition of Revenue and Expenditure of General Account Budget 1)
(Initial budget, FY2020)



1) Including the Temporal and Special Measures.
Source: Ministry of Finance.

(2) Local Government Finance

There are two budget categories in local government finance: the ordinary accounts and the public business accounts. The former covers all kinds of expenses related to ordinary activities of the prefectural and municipal governments. The latter covers the budgets of independently accounted enterprises such as public enterprises (water supply and sewerage systems,

hospitals, etc.), the national health insurance accounts, and the latter-stage elderly medical care accounts.

While expenditures such as defense expenses are administered solely by the national government, a large portion of expenditures that directly relate to the people's daily lives are disbursed chiefly through local governments. In particular, a high proportion of the following expenditures are disbursed through local governments: sanitation expenses, which include areas such as medical service and garbage disposal; school education expenses; judicial, police, and fire service expenses; and public welfare expenses, which cover the development and management of welfare facilities for children, the elderly, and the mentally and/or physically challenged.

The revenue composition of local governments usually remains almost the same each fiscal year, while their budget scale and structure vary from year to year. The largest portion of fiscal 2018 (net) revenues came from local taxes, accounting for 40.2 percent of the total. The second-largest source, 16.3 percent, was local allocation tax.

Table 4.2

Local Government Finance [1] (Ordinary accounts)

(Million yen)

Item	FY2014	FY2015	FY2016	FY2017	FY2018
Revenues	102,083,467	101,917,496	101,459,848	101,323,315	101,345,285
Local taxes	36,785,451	39,098,563	39,392,391	39,904,402	40,751,442
Local transfer tax	2,936,867	2,679,246	2,340,232	2,405,224	2,650,873
Special local grants	119,188	118,868	123,300	132,800	154,400
Local allocation tax	17,431,428	17,390,640	17,239,008	16,768,005	16,548,225
National treasury disbursements	15,518,925	15,282,155	15,687,149	15,520,357	14,885,189
Local bonds	11,518,456	10,688,010	10,387,277	10,644,892	10,508,424
Expenditures	98,522,799	98,405,225	98,141,464	97,998,369	98,020,611
General administration	9,869,954	9,608,827	8,901,591	9,121,944	9,285,987
Public welfare	24,450,891	25,254,815	26,340,756	25,983,397	25,665,947
Sanitation	6,143,397	6,301,793	6,258,413	6,262,562	6,236,691
Agriculture, forestry and fishery	3,348,633	3,218,216	3,171,208	3,299,187	3,251,691
Commerce and industry	5,509,540	5,516,105	5,195,146	4,901,049	4,760,301
Civil engineering work	12,050,506	11,707,165	12,018,244	11,919,457	11,880,636
Education	16,658,138	16,795,536	16,745,847	16,888,597	16,878,150

1) Settled figures of the net total of prefectural and municipal government accounts after deducting duplications. The breakdown consists of major items only.

Source: Ministry of Internal Affairs and Communications.

(3) National and Local Government Finance

Finance refers to revenue and expenditure of administrative services from national and local governments. In the initial budget for fiscal 2019, the gross total of national government expenditure was 493 trillion yen, the net total was 245 trillion yen after eliminating duplications between both accounts. Furthermore, the local public finance plan, which consists of the estimated sum of ordinary accounts for the following fiscal year for all local governments, amounted to 91 trillion yen. Therefore, after eliminating duplications between national and local accounts (36 trillion yen), the net total of both national and local government expenditures combined was 300 trillion yen.

Table 4.3
Expenditures of National and Local Governments (Initial budget)

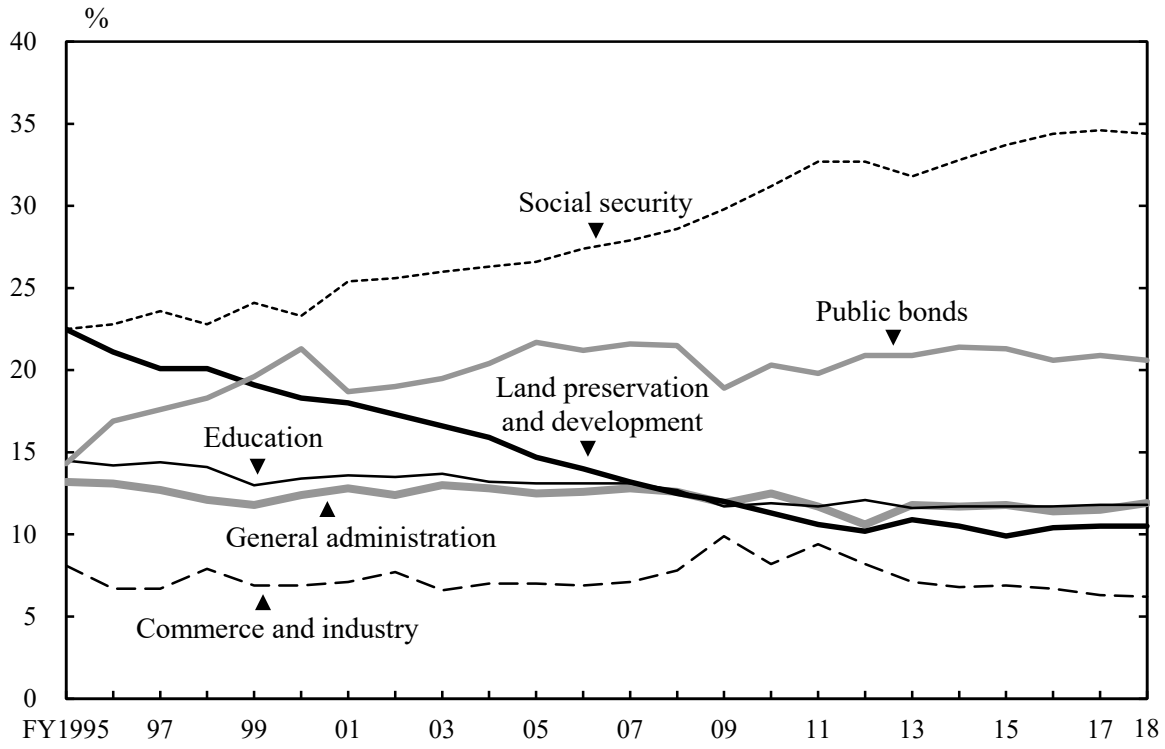
(Billion yen)

Item	FY2000	FY2005	FY2010	FY2015	FY2018	FY2019
General account	84,987	82,183	92,299	96,342	97,713	101,457
Special accounts	318,689	411,944	367,074	403,553	388,496	389,457
Government-affiliated agencies	7,661	4,678	3,135	2,216	1,727	1,817
Gross total (national)	411,337	498,805	462,508	502,111	487,936	492,731
Duplications	200,435	257,490	244,744	262,184	247,460	247,909
Net total (national)	210,902	241,316	217,764	239,927	240,476	244,822
Local public finance plan	88,930	83,769	82,127	87,768	88,109	90,798
Gross total (national + local)	299,832	325,084	299,891	327,694	328,585	335,619
Duplications	37,216	32,689	31,563	35,484	34,100	35,829
Net total (national + local)	262,616	292,395	268,328	292,211	294,485	299,791

Source: Policy Research Institute, Ministry of Finance.

The settlement amount for fiscal 2018, the net total of national and local government expenditures was 169 trillion yen. The national government disbursed 42.5 percent of this amount, while the local governments disbursed 57.5 percent.

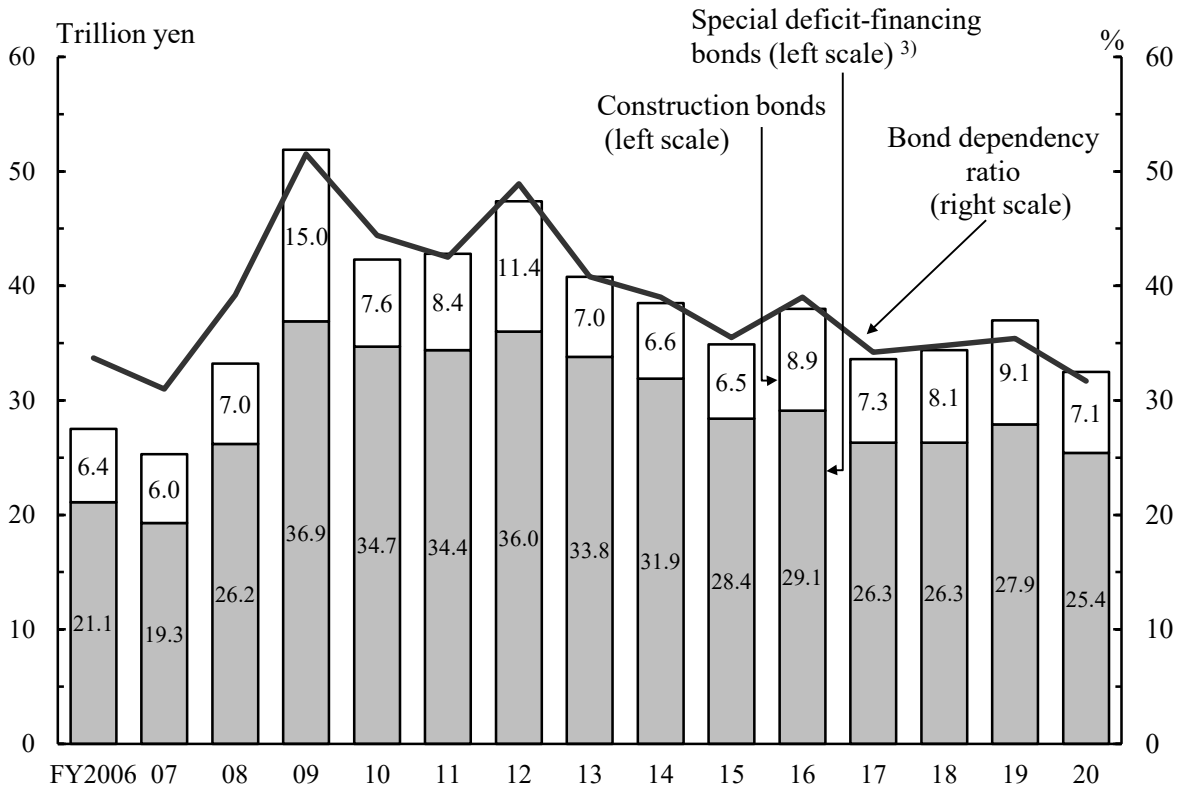
Figure 4.3
Ratio of Net Total National and Local Expenditures by Function



Source: Ministry of Internal Affairs and Communications.

A function-by-function breakdown of these expenditures showed that social security expenditure accounted for the largest portion (34.4 percent), followed by public bonds (20.6 percent), general administration (11.9 percent), education (11.8 percent), and then land preservation and development (10.5 percent). Public bonds are issued to compensate for shortages of national and local revenues. Their issue volumes have increased mainly due to, for example, economic stimulus measures and decreasing tax revenues after the bubble economy ended at the beginning of 1990. A rising amount of public bond redemptions and an increase in social security expenditures associated with the progression of an aging society in recent years have resulted in public bonds and social security expenditures making up a high percentage of net total government expenditures.

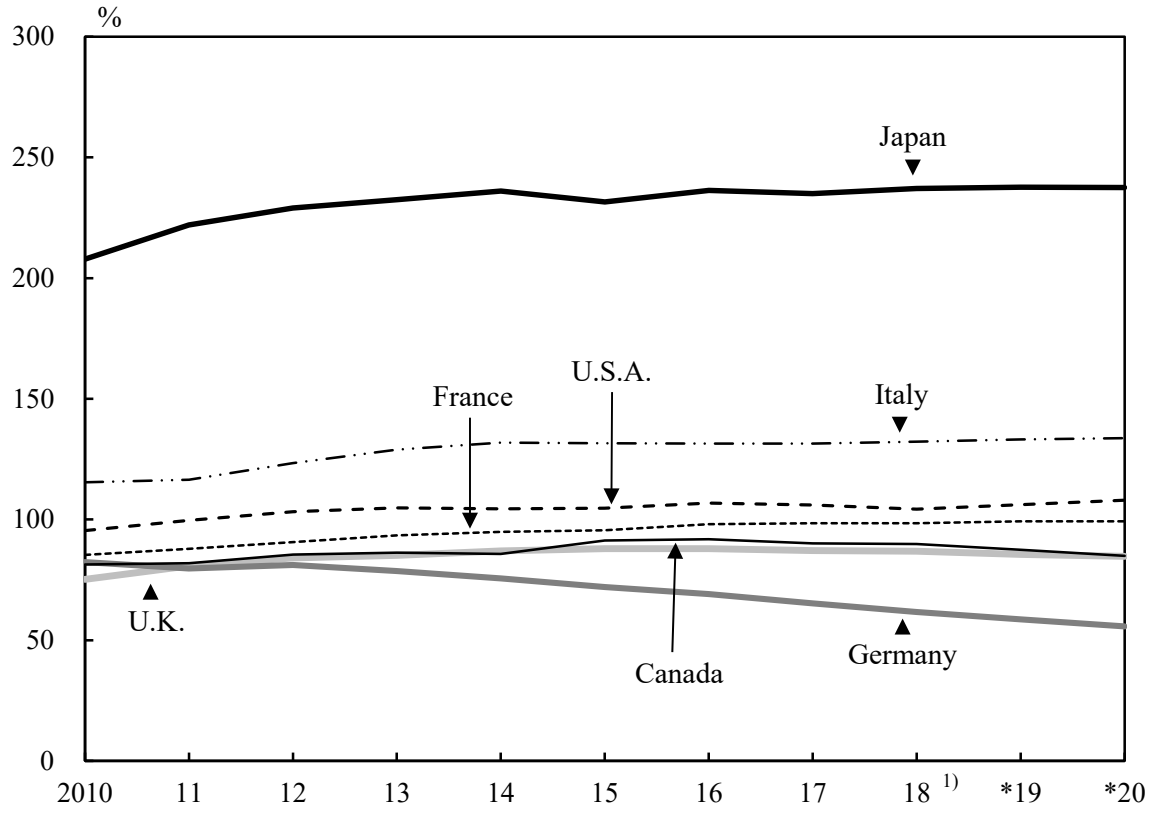
Figure 4.4
National Government Bond Issue and Bond Dependency Ratio [1) 2)]



1) Based on settled figures until FY2018, draft supplementary budget for FY2019, and draft budget for FY2020. 2) A figure in FY2019 and FY2020 includes the bond issued for the Temporal and Special Measures. 3) Excludes some special accounts.
Source: Ministry of Finance.

Japan's ratio of outstanding general government debt to GDP, a stock measure in a fiscal context, has been quite high as compared to major industrial countries achieved a steady advance of fiscal consolidation in the second half of 1990s, and is now the highest among them.

Figure 4.5
Ratio of General Government Gross Debt to GDP



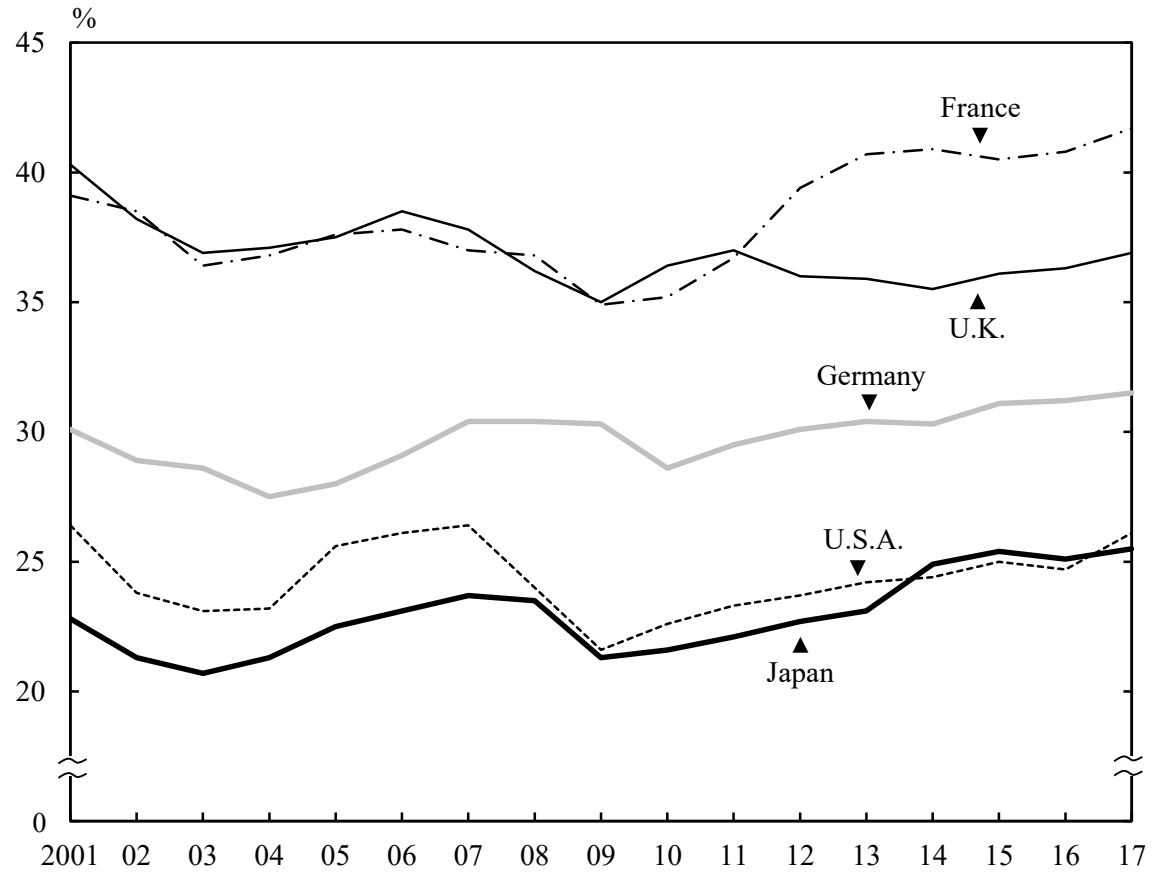
1) The data for Japan indicates estimated figure.
Source: Ministry of Finance.

(4) Tax

Taxes consist of national tax (income tax, corporation tax, etc.), which is paid to the national government, and local tax, which is paid to the local government of the place of payer's residence. The ratio of taxation burden, which is the ratio of national and local taxes to national income, was 18.3 percent in fiscal 1975. This ratio gradually increased thereafter, reaching 27.7 percent in fiscal 1989. The ratio subsequently decreased due to the decline in tax revenue arising from the recession that ensued after the bubble economy ended, reaching 20.7 percent in fiscal 2003. In fiscal 2017, it was 25.5 percent in terms of national and local taxes combined (15.6 percent for national tax and 10.0 percent for local tax). Japan's ratio is

lower in comparison with other major industrial countries. However, the consumption tax rate was raised from 8 to 10 percent on October 1, 2019 due to the need to transition Japan's social security system, which is currently focused on benefits for the elderly, to an "all-generation type" usable by anyone, from children and youth to the elderly.

Figure 4.6
Ratio of Taxation Burden to National Income by Country (Actual basis)



Source: Ministry of Finance.

2. Bank of Japan and Money Stock

As the central bank, the Bank of Japan (i) issues banknotes; (ii) manages and stores treasury funds and provides loans to the government; (iii) provides deposit and loan services to general financial institutions; and (iv) implements monetary policies by adjusting the level of money stock to promote the sound development of the economy.

At the end of 2019, currency in circulation totaled 117.7 trillion yen (112.7 trillion yen in banknotes and 5.0 trillion yen in coins), up 2.2 percent from the year before.

Table 4.4

Currency in Circulation (Outstanding at year-end)

(Billion yen)

Item	2015	2016	2017	2018	2019
Total	103,120	107,203	111,508	115,208	117,695
Banknotes	98,430	102,461	106,717	110,363	112,742
Coins	4,690	4,742	4,792	4,845	4,954

Source: Bank of Japan.

The Bank of Japan compiles and publishes statistics on the following indices of money stock: (i) M1, or currency in circulation plus deposit money deposited at depository institutions; (ii) M2, or currency in circulation plus deposits deposited at domestically licensed banks, etc.; (iii) M3, or currency in circulation plus deposits deposited at depository institutions; and (iv) L, or M3 plus pecuniary trusts plus investment trusts plus bank debentures plus straight bonds issued by banks plus commercial paper issued by financial institutions plus government securities plus foreign bonds. The average amounts outstanding of money stock in 2019 was 796 trillion yen in M1 and 1,027 trillion yen in M2.

Table 4.5

Money Stock [1] (Average amounts outstanding)

(Billion yen)

Year	M2	M3	M1	Quasi-money	CDs	L (Broadly-defined liquidity)
2015	906,406	1,222,534	616,484	568,831	37,220	1,651,484
2016	936,870	1,257,340	659,804	564,753	32,782	1,685,551
2017	973,993	1,299,628	711,885	556,268	31,475	1,736,635
2018	1,002,453	1,332,498	755,601	546,668	30,229	1,772,777
2019	1,026,994	1,360,262	796,075	535,079	29,107	1,806,364

1) "Money stock" indicates the aggregate amount of money, including currency in circulation and deposit money, held by money holders such as non-financial corporations, individuals, and local governments.

Source: Bank of Japan.

In January 2013, the government and the Bank of Japan decided to strengthen policy coordination in order to overcome deflation and achieve sustainable economic growth with stable prices. In April 2013, the Bank of Japan changed the operating target for money market operations from the uncollateralized overnight call rate to a monetary base to facilitate quantitative easing. The Bank of Japan first introduced Quantitative and Qualitative Monetary Easing (QQE) in April 2013; in January 2016, it decided to introduce "QQE with a Negative Interest Rate". In September 2016, it was decided to introduce "QQE with Yield Curve Control" by strengthening these two policy frameworks, in order to achieve as early as possible the "price stability target" of a 2 percent year-on-year increase in consumer prices.

Japan's monetary base is the amount of currency supplied by the Bank of Japan. It is the combined total of banknotes in circulation, coins in circulation, and current account deposit in the Bank of Japan. It was 529.2 trillion yen as of the end of April 2020, up 2.8 percent from the same month of the previous year, and setting a new record high.

Table 4.6
Financial Markets (Interest rates, etc.)

(% per annum)

End of year	Basic discount rate and basic loan rate	Call rates [1)]	Prime lending rates [2)]	Average contract interest rates on loans and discounts [3)]	10 years' newly issued Govt. bonds yields
2010	0.30	0.079	1.475	1.187	1.120
2011	0.30	0.075	1.475	1.102	0.980
2012	0.30	0.076	1.475	1.034	0.795
2013	0.30	0.068	1.475	0.880	0.740
2014	0.30	0.066	1.475	0.850	0.320
2015	0.30	0.038	1.475	0.778	0.265
2016	0.30	-0.058	1.475	0.623	0.040
2017	0.30	-0.062	1.475	0.584	0.045
2018	0.30	-0.055	1.475	0.597	-0.005
2019	0.30	-0.068	1.475	0.602	-0.025

1) Uncollateralized overnight. 2) Principal banks. Short-term loans.
3) Outstanding loans and bills discounted. Short-term loans and discounts. Figures are those of banking accounts of domestically licensed banks (excluding several banks) that conduct transactions with the Bank of Japan.
Source: Bank of Japan.

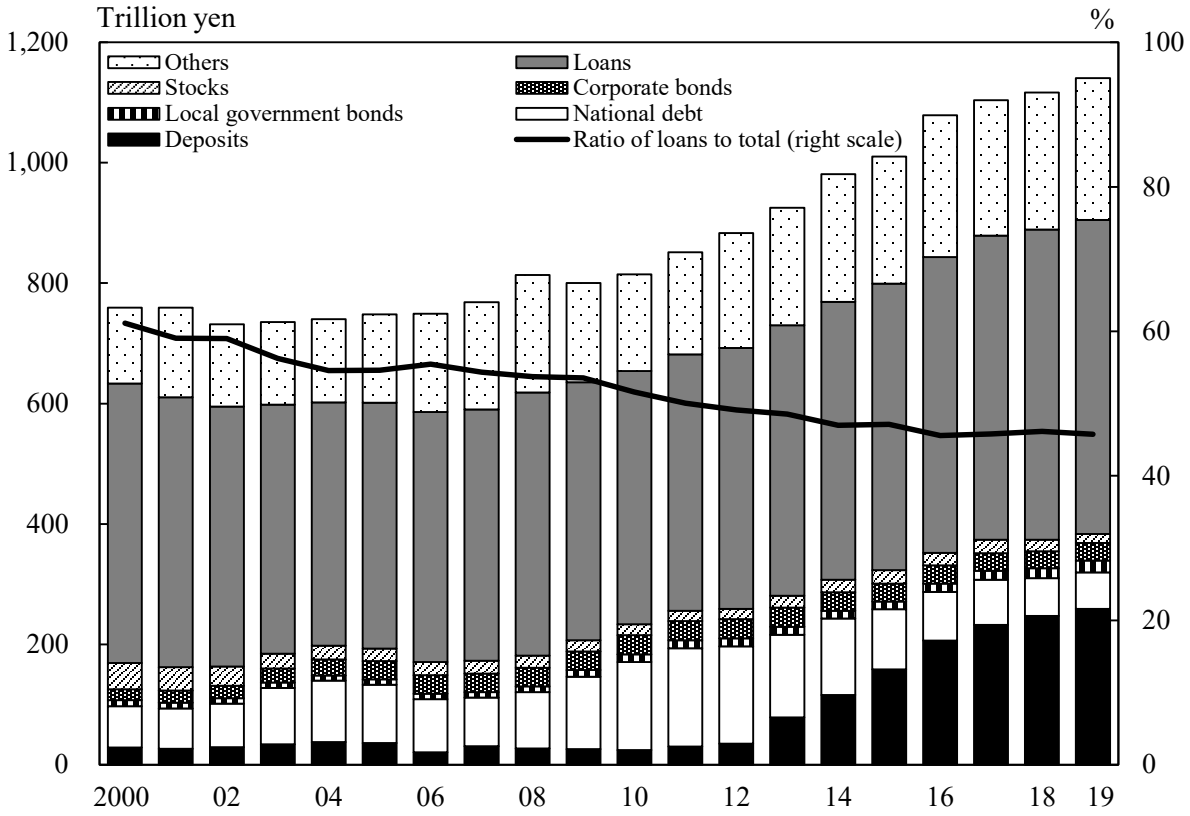
3. Financial Institutions

In addition to the Bank of Japan, Japan's financial system is comprised of private and public financial institutions. Private financial institutions include those that accept deposits (banks, credit depositories, agricultural cooperatives, etc.) and those that do not (securities companies, insurance companies, etc.).

In the course of the financial system reform, mergers and restructuring progressed among major banks, resulting in their being reorganized into three major financial groups. Regional banks and credit depositories operating in their respective regions have been making efforts to expand their operations bases through corporate mergers. As of September 2019, in the number of offices operated domestically, including the branches of financial institutions, post offices had the largest network with 23,930 offices. Domestically licensed banks, including city banks and regional banks, had a combined total of 13,521 offices and branches.

The fundamental role of the bank sector is to adjust the surplus and deficiency of funds. However, the corporate sector has been in a fund surplus throughout the 2019 year, and thus the percentage of loans to bank assets has generally been on a consistent downward trend. The decline in percentage of national debt and the increase in deposits are thought to be a result of the Bank of Japan buying national debt owned by banks due to the abovementioned monetary easing policy.

Figure 4.7
Assets of Domestically Licensed Banks (Banking accounts, end of year)



Source: Bank of Japan.

4. Financial Assets

The Flow of Funds Accounts Statistics, which is a comprehensive set of records of financial transactions, assets and liabilities, indicates that financial assets in the domestic sectors totaled 7,903 trillion yen at the end of March 2019. Of these assets, those of the domestic nonfinancial sector were 3,783 trillion yen. Of this sector, the household sector (including the business funds of individual proprietorships) had assets of 1,855 trillion yen, in the forms of deposits, stocks and other financial assets. In Japan, the household sector holds more than 50 percent of its financial assets in cash and deposits.

Table 4.7
Financial Assets and Liabilities of Japan

(Billion yen)

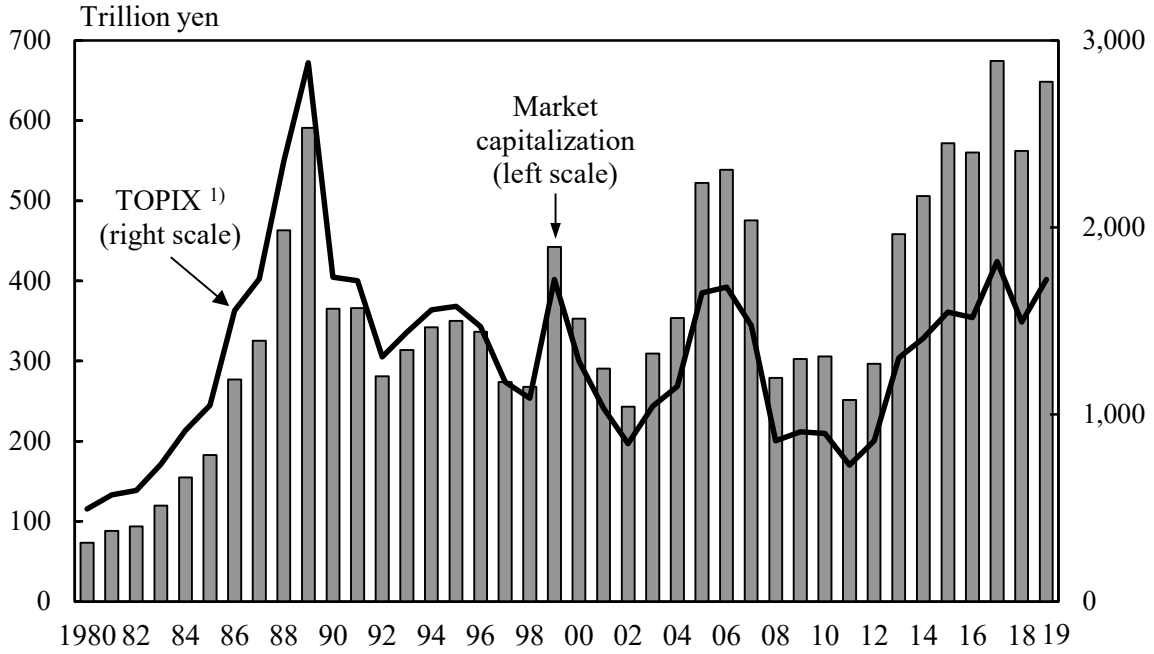
Sectors	March 2018	March 2019	Annual change (%)
Financial assets			
Domestic sectors	7,793,885	7,903,053	1.4
Financial institutions	4,023,315	4,120,106	2.4
Domestic nonfinancial sector	3,770,570	3,782,948	0.3
Nonfinancial corporations	1,259,333	1,244,911	-1.1
General government	607,073	624,195	2.8
Households (incl. individual proprietorships)	1,844,621	1,854,972	0.6
Private nonprofit institutions serving households	59,543	58,870	-1.1
Overseas	666,692	701,370	5.2
Financial liabilities			
Domestic sectors	7,479,904	7,540,988	0.8
Financial institutions	3,892,823	3,963,187	1.8
Domestic nonfinancial sector	3,587,081	3,577,800	-0.3
Nonfinancial corporations	1,949,419	1,906,642	-2.2
General government	1,287,901	1,316,762	2.2
Households (incl. individual proprietorships)	320,039	324,382	1.4
Private nonprofit institutions serving households	29,722	30,014	1.0
Overseas	977,215	1,059,906	8.5

Source: Bank of Japan.

5. Stock Market

Stock prices in Japan rose sharply in the second half of the 1980s, spearheading the bubble economy. However, it started to fall in 1990 ahead of land prices. At the end of 1989, the total market capitalization in the Tokyo Stock Exchange First Section was 591 trillion yen, but only 3 years later, it had dropped by more than 50 percent to 281 trillion yen. Even after recovering to 442 trillion yen at the end of 1999, the stock market repeatedly fell and rose afterwards. The bankruptcy of the major American secrities firm Lehman Brothers in September 2008 led to a fall in total market capitalization, which amounted to 251 trillion yen at the end of 2011. From 2012 to 2019, there was a major upturn due to the effects of various measures including a comprehensive economic policy package called "Abenomics".

Figure 4.8
Stock Price Index and Market Capitalization
(Tokyo Stock Exchange First Section, end of year)



1) A free-float adjusted market capitalization-weighted index that is calculated based on all the domestic common stocks listed on the Tokyo Stock Exchange First Section. It shows the measure of current market capitalization assuming that market capitalization as of the base date (January 4 ,1968) is 100 points.
Source: Tokyo Stock Exchange, Inc.

In 2012, the high yen in Japanese economy was corrected due to

expectations toward anti-deflationary economic and fiscal policies by the new government, and share prices soared. In April 2013, changes in policies of the Bank of Japan were regarded as affecting stocks and markets, and the Nikkei Stock Average at the end of 2013 was 16,291.31 yen, representing an increase of 56.7 percent as compared to that of the end of 2012 (10,395.18 yen) and the first significant gain in 8 years. Afterwards, the Nikkei Stock Average in April 2015 recovered to the 20,000 yen level for the first time in 15 years. The closing value at the end of 2019 was 23,656.62 yen, up 3,641.85 yen, or 18.2 percent for the year, the first rise in 2 years.

Table 4.8
Stock Prices (Tokyo Stock Exchange First Section)

Year		Number of listed companies [1)]	Market capitalization [1)] (million yen)	Total trading value (million yen)	TOPIX [1) 2)] Tokyo stock price index, average	Nikkei Stock Average (225 issues) [1)] (yen)
2000		1,447	352,784,685	242,632,346	1,283.67	13,785.69
2001		1,491	290,668,537	199,844,292	1,032.14	10,542.62
2002		1,495	242,939,136	190,869,955	843.29	8,578.95
2003		1,533	309,290,031	237,905,753	1,043.69	10,676.64
2004		1,595	353,558,256	323,918,214	1,149.63	11,488.76
2005		1,667	522,068,129	459,136,406	1,649.76	16,111.43
2006		1,715	538,629,548	644,308,788	1,681.07	17,225.83
2007		1,727	475,629,039	735,333,528	1,475.68	15,307.78
2008		1,715	278,988,813	568,538,950	859.24	8,859.56
2009		1,684	302,712,168	368,679,737	907.59	10,546.44
2010		1,670	305,693,030	354,598,763	898.80	10,228.92
2011		1,672	251,395,748	341,587,524	728.61	8,455.35
2012		1,695	296,442,945	306,702,280	859.80	10,395.18
2013		1,774	458,484,253	640,193,836	1,302.29	16,291.31
2014		1,858	505,897,342	576,525,070	1,407.51	17,450.77
2015		1,934	571,832,889	696,509,496	1,547.30	19,033.71
2016		2,002	560,246,997	643,205,780	1,518.61	19,114.37
2017		2,062	674,199,186	683,218,254	1,817.56	22,764.94
2018		2,128	562,121,332	740,746,041	1,494.09	20,014.77
2019		2,160	648,224,522	598,213,662	1,721.36	23,656.62
2020	Jan.	2,158	633,726,111	46,059,959	1,684.44	23,205.18
	Feb.	2,160	568,169,555	53,547,232	1,510.87	21,142.96
	Mar.	2,165	530,612,107	84,254,180	1,403.04	18,917.01
	Apr.	2,170	553,960,812	55,216,484	1,464.03	20,193.69

1) End of year or month. 2) A free-float adjusted market capitalization-weighted index that is calculated based on all the domestic common stocks listed on the Tokyo Stock Exchange First Section. It shows the measure of current market capitalization assuming that market capitalization as of the base date (January 4 ,1968) is 100 points.
Source: Tokyo Stock Exchange, Inc.; Nikkei Inc.

At the end of March 2019, the total number of individual stockholders (individuals of Japanese nationality and domestic groups without corporate status) in possession of stocks listed on the Tokyo/Nagoya/Fukuoka/ Sapporo Stock Exchanges totaled 54.7 million. In terms of value, the ratio of stocks they possessed was 17.2 percent, up 0.2 percentage points from the previous fiscal year. The ratio of Japanese stocks held by foreign investors (total of corporations and individuals) was 29.1 percent in terms of value, down 1.2 percentage points from the previous fiscal year.

A survey conducted by the Japan Securities Dealers Association (JSDA) showed that 32.1 percent of 265 securities firms offered Internet trading at the end of September 2019. Internet trading thus accounted for 18.8 percent of the total value of stock brokerage transactions from April to September 2019.

Chapter 5

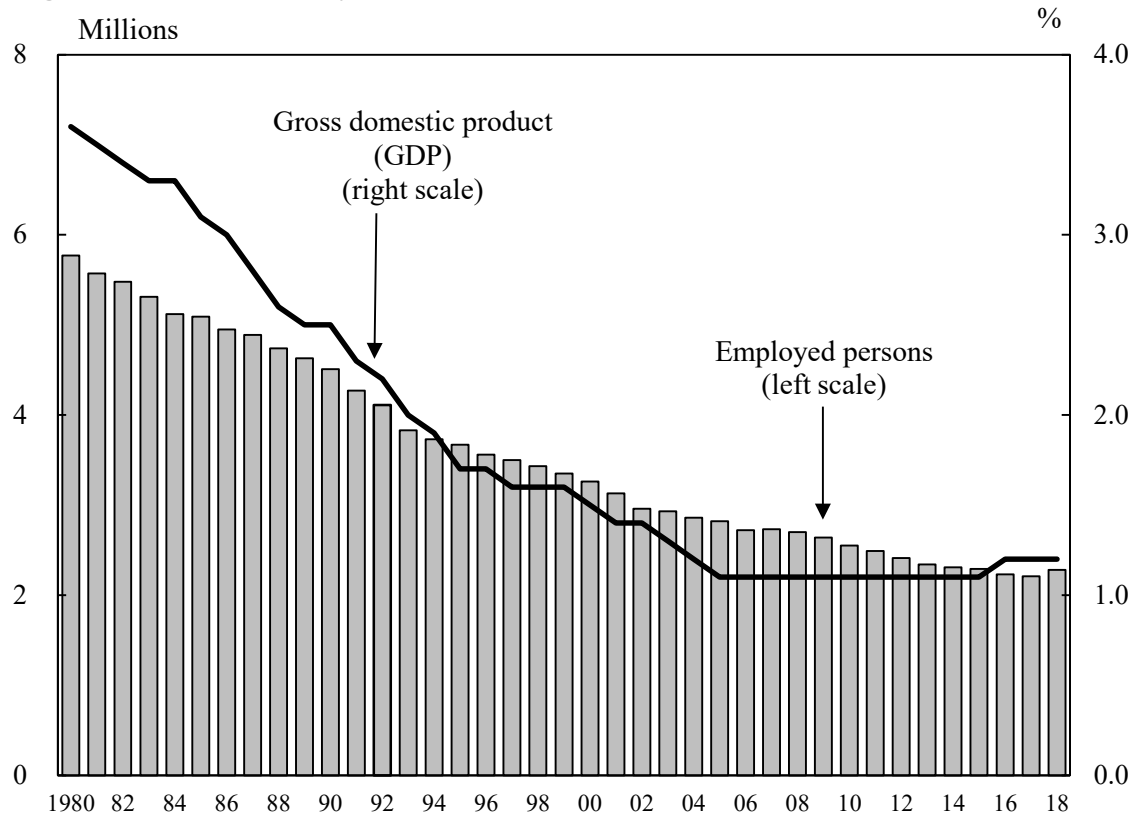
Agriculture, Forestry, and Fisheries

At the Big Catch Prayer Festival held every year on Marine Day in Oma Town, Aomori Prefecture, residents pray for safety on the seas and a bountiful catch, and fishing boats head out to sea in a group flying colorful fishing banners. Offshore, they pray for a big catch by dedicating kagura (sacred Shinto music and dance) to the gods. Fishing boats adorned with colorful fishing banners cutting through the rough waves is a very stirring sight! Maguro (tuna) caught offshore from Oma are called "Oma Maguro". These fish are famous throughout Japan and command high prices.

1. Overview of Agriculture, Forestry, and Fisheries

Over the course of Japan's economic growth, its agricultural, forestry and fishing industries have employed fewer and fewer workers every year, and their nominal GDP share has also dropped. The number of employed persons decreased from 5.77 million in 1980 (10.4 percent of the total employed persons) to 2.28 million in 2018 (3.4 percent), and the GDP share of the industries fell from 3.6 percent in 1980 to 1.2 percent in 2018.

Figure 5.1
Number of Employed Persons [1] **and Percentage of Gross Domestic Product** (Nominal prices) [2] **for Agriculture, Forestry, and Fisheries**



1) 1980-2001 data: The 10th revision of the Japan Standard Industrial Classification (JSIC). 2002-2017 data: The 12th and 13th revisions of JSIC. 2) 1980-1993 data: 1993 SNA, Benchmark year = 2000. 1994-2017 data: 2008 SNA, Benchmark year = 2011.
Source: Statistics Bureau, MIC; Economic and Social Research Institute, Cabinet Office.

2. Agriculture

(1) Agricultural Production

Japan's total agricultural output in 2018 was 9.06 trillion yen, down 2.4 percent from the previous year. Among this, crops yielded 5.78 trillion yen, down 3.0 percent from the previous year. Livestock yielded 3.21 trillion yen, down 1.2 percent from the previous year.

Table 5.1
Total Agricultural Output

(Billion yen)

Item	2014	2015	2016	2017	2018
Total	8,364	8,798	9,203	9,274	9,056
Crops	5,363	5,625	5,980	5,961	5,782
Rice	1,434	1,499	1,655	1,736	1,742
Vegetables	2,242	2,392	2,557	2,451	2,321
Fruits and nuts	763	784	833	845	841
Livestock and its products	2,945	3,118	3,163	3,252	3,213
Beef cattle	594	689	739	731	762
Dairy cattle	805	840	870	896	911
Pigs	633	621	612	649	606
Chickens	853	905	875	903	861

Source: Ministry of Agriculture, Forestry and Fisheries.

Table 5.2
Agricultural Harvest

(Thousand tons)

Products	2014	2015	2016	2017	2018
Cereal grains					
Rice	8,439	7,989	8,044	7,824	7,782
Wheat	852	1,004	791	907	765
Vegetables, sweet potatoes, and beans					
Potatoes	2,456	2,406	2,199	2,395	2,260
Sweet potatoes	887	814	861	807	797
Soybeans	232	243	238	253	211
Cucumbers	549	550	550	560	550
Tomatoes	740	727	743	737	724
Cabbages	1,480	1,469	1,446	1,428	1,467
Chinese cabbages	914	895	889	881	890
Onions	1,169	1,265	1,243	1,228	1,155
Lettuces	578	568	586	583	586
Japanese radishes	1,452	1,434	1,362	1,325	1,328
Carrots	633	633	567	597	575
Fruits					
Mandarins	875	778	805	741	774
Apples	816	812	765	735	756
Grapes	189	181	179	176	175
Japanese pears	271	247	247	245	232
Industrial crops					
Crude tea [1)]	84	80	80	82	86
Sugar beets [2)]	3,567	3,925	3,189	3,901	3,611

1) Production. 2) Area of Hokkaido prefecture.
Source: Ministry of Agriculture, Forestry and Fisheries.

(2) Farmers and Farmland

In 2015, the number of farm households engaged in commercial farming (which refers to households with of cultivated land under management 0.3 hectares and over, or with annual sales of agricultural products amounting to 500,000 yen or more) was 1.33 million. Of these commercial farm households, 33.3 percent were full-time farm households, 12.4 percent were part-time farm households with farming income exceeding non-farming income, and 54.3 percent were part-time farm households with non-farming income exceeding farming income.

Of the commercial farm household members, 2.10 million people were engaged in farming as their principal occupation (commercial farmers) in 2015, 63.5 percent of whom were aged 65 years and over.

Table 5.3
Commercial Farm Households and Commercial Farmers

Year	Commercial farm households (1,000)				Commercial farmers	
	Total	Full-time	Part-time		(1,000)	Aged 65 years and over (%)
			Mainly farming	Mainly other job		
1995	2,651	428	498	1,725	4,140	43.5
2000	2,337	426	350	1,561	3,891	52.9
2005	1,963	443	308	1,212	3,353	58.2
2010	1,631	451	225	955	2,606	61.6
2015	1,330	443	165	722	2,097	63.5

Source: Ministry of Agriculture, Forestry and Fisheries.

In 2018, agricultural gross income per management unit was 6.26 million yen, up 0.4 percent from the previous year. On the other hand, farm expenditures increased 4.4 percent to 4.52 million yen. As a result, agricultural income declined by 8.7 percent to 1.74 million yen.

Japan's cultivated acreage shrank year after year from 6.09 million hectares in 1961 to 4.40 million hectares in 2019. After 1989, the cultivated acreage has continued to decrease due to diversion into residential land, ruined land continuously resulting from devastated land, etc.

3. Forestry

As of 2017, Japan's forest land area is 25.05 million hectares (approximately 70 percent of the entire surface area of the country). Among Japan's forests, natural forests account for 13.48 million hectares, while planted forests, most of which are conifer plantations, make up 10.20 million hectares.

Japan's forest growing stock is 5,242 million cubic meters as of 2017, 3,308 million cubic meters of which are from planted forests. The stock rose mainly with the increase of that from planted forests on deforested sites right after World War II and during the period of rapid economic growth. Such forests are in a period of full-scale use as resources. There is a need to further promote use of domestic timber as lumber in housing, public buildings, etc., and as biomass for energy, for reasons such as effective use of forest resources, proper management and manifestation of the diverse functions of forests, and development of the forestry industry and mountainous areas.

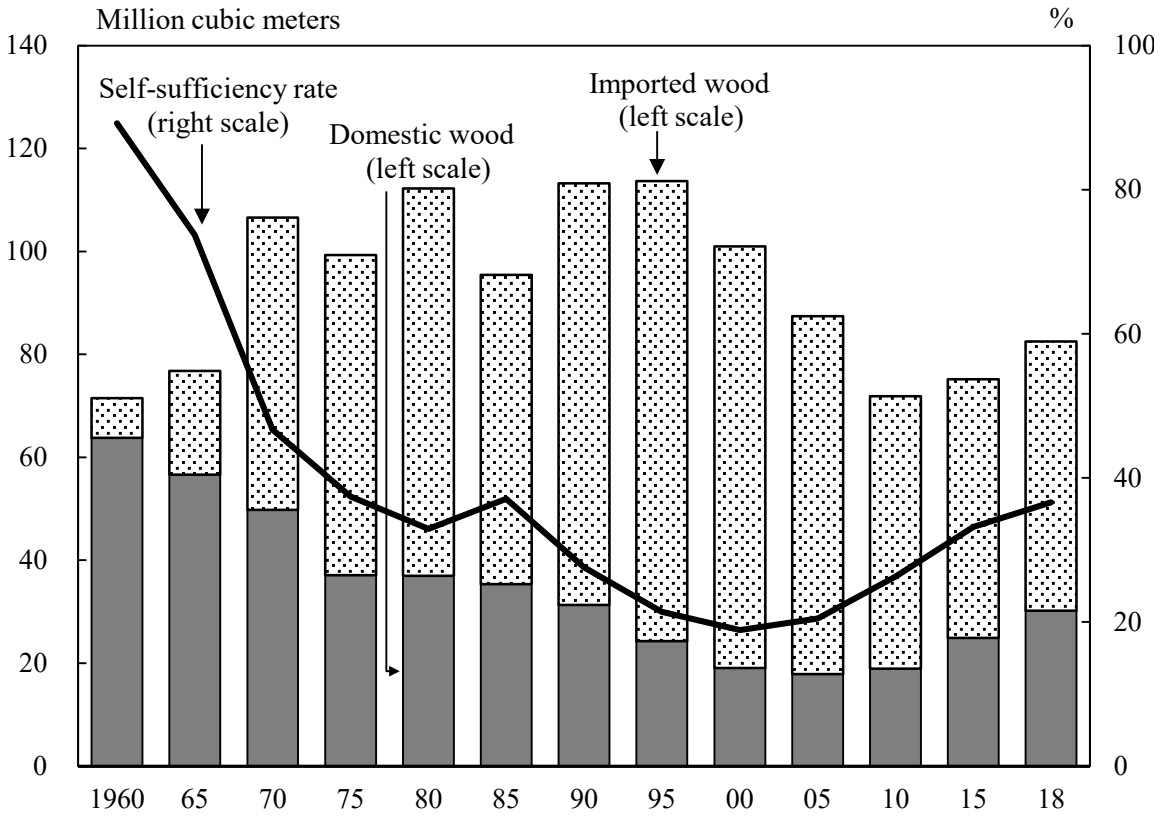
Table 5.4
Forest Land Area and Forest Resources (2017)

Item	Total	National forest	Non-national forest		
			Public	Private	Others
Forest land area (1,000 ha)	25,048	7,659	2,995	14,347	48
Forest growing stock (million m^3) ..	5,242	1,226	616	3,394	6
Planted forest					
Land area (1,000 ha)	10,204	2,288	1,334	6,569	13
Growing stock (million m^3)	3,308	513	397	2,396	3
Natural forest					
Land area (1,000 ha)	13,481	4,733	1,531	7,188	28
Growing stock (million m^3)	1,932	712	218	999	3

Source: Ministry of Agriculture, Forestry and Fisheries.

After reaching a low of 16.9 million cubic meters in 2002, domestic wood supply is on a rising trend, against the background of an enrichment of forest resources, increase in the use of domestic timber such as Japanese cedar for plywood material, increase in use of domestic timber in wood biomass power generation facilities, etc.

Figure 5.2
Wood Supply and Self-Sufficiency Rate [1)]



1) Wood supply refers to the sum of wood for industrial use, fuel wood and wood for mushroom production converted into a log equivalent.
Source: Ministry of Agriculture, Forestry and Fisheries.

Although the number of workers engaged in forestry is declining due to a slowdown in domestic lumber production activities, the pace of decline has slackened in recent years. In 2015, there were 63,663 workers engaged in forestry, approximately one out of five workers was aged 65 and over.

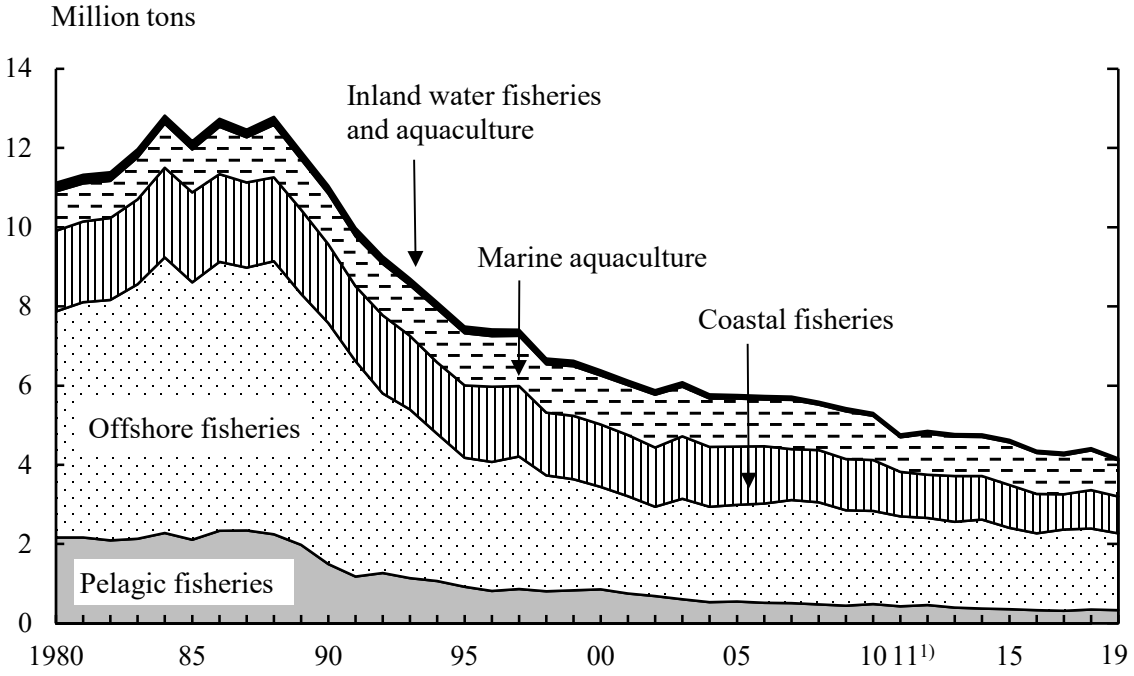
4. Fisheries

(1) Fishery Production

Japan is facing a problem in that its fishery production is in a declining trend over the long term. This is likely due to a variety of factors, such as changes in the marine environment and more intensive operations by foreign fishing boats in waters surrounding Japan. There are thought to be many fishery resources whose decline could have been prevented or mitigated with more appropriate resource management.

After peaking in 1984, Japan's fishery output decreased rapidly until around 1995, and has continued to decrease gradually afterwards. Its 2019 fishery production totaled 4.16 million tons.

Figure 5.3
Production by Type of Fishery



1) Excluding figures lost in Iwate, Miyagi and Fukushima prefectures because of the Great East Japan Earthquake.
Source: Ministry of Agriculture, Forestry and Fisheries.

Table 5.5

Production by Fishery Type and Major Kinds of Fish

(Thousand tons)

Fishery type and species	2015	2016	2017	2018	2019*
Total	4,631	4,359	4,306	4,421	4,163
Marine fishery	3,492	3,264	3,258	3,359	3,197
Tunas	190	168	169	165	163
Skipjack, Frigate mackerel	264	240	227	260	242
Sardine	311	378	500	522	535
Mackerels	530	503	518	542	445
Shellfishes	292	266	284	350	386
Crabs	29	28	26	24	22
Squids	167	110	103	84	75
Marine aquaculture	1,069	1,033	986	1,005	912
Yellowtails	140	141	139	138	136
Oysters	164	159	174	177	162
Laver ("nori")	297	301	304	284	251
Seaweed ("wakame")	49	48	51	51	45
Pearl (tons)	20	20	20	21	19
Inland water fishery	33	28	25	27	# 22
Salmons, trouts	13	8	6	8	# 7
Sweet fish	2	2	2	2	# 2
Shellfishes	13	12	13	13	# 10
Inland water aquaculture	36	35	37	30	31
Eel	20	19	21	15	17
Trouts	8	8	8	7	7
Sweet fish	5	5	5	4	4

Source: Ministry of Agriculture, Forestry and Fisheries.

(2) Fishery Workers

The number of workers in the marine fishery/aquaculture industry (those who engage in work at sea for 30 days or more yearly) has been decreasing constantly. In 2018, the number of such workers was 151,701 workers, down 1.2 percent.

Table 5.6
Enterprises and Workers Engaged in the Marine Fishery/ Aquaculture Industry

Year	Enterprises			Workers		
	Total	Individual households	Corporate entities	Total	Self-employed	Hired
2005	126,020	118,930	7,090	222,170	…	…
2010	103,740	98,300	5,440	202,880	128,270	74,610
2015	85,210	80,570	4,640	166,610	100,520	66,100
2017	78,890	74,470	4,420	153,490	91,950	61,530
2018	79,067	74,526	4,541	151,701	86,943	64,758

Source: Ministry of Agriculture, Forestry and Fisheries.

While the aging of workers and fishing vessels progresses fisheries have been gaining attention as a place for employment, based on the diversification of values regarding work and life, and support is being provided for new fishery workers.

5. Self-Sufficiency in Food

With regard to Japan's food self-sufficiency ratio on a calorie supply basis, although there is a downward trend over the long term, it has been fluctuating at a level of around 40 percent since fiscal 1996. Whereas the ratio was 53 percent in fiscal 1980, it was 37 percent in fiscal 2018. The major reason behind the decrease in the food self-sufficiency ratio is that while declining in consumption of rice, for which demand can be met with domestic production, diversification of the Japanese dietary life has led to increased consumption of livestock products and oils and fats, for which overseas dependence for feed and raw materials is inevitable.

In fiscal 2018, the self-sufficiency ratio per item (on weight basis) was 97 percent for rice, 12 percent for wheat, 7 percent for beans, 77 percent for vegetables, 38 percent for fruits, 51 percent for meat, and 55 percent for seafood. While almost completely self-sufficient in rice, the staple food of its people, Japan rely almost entirely on imports for the supply of wheat and beans.

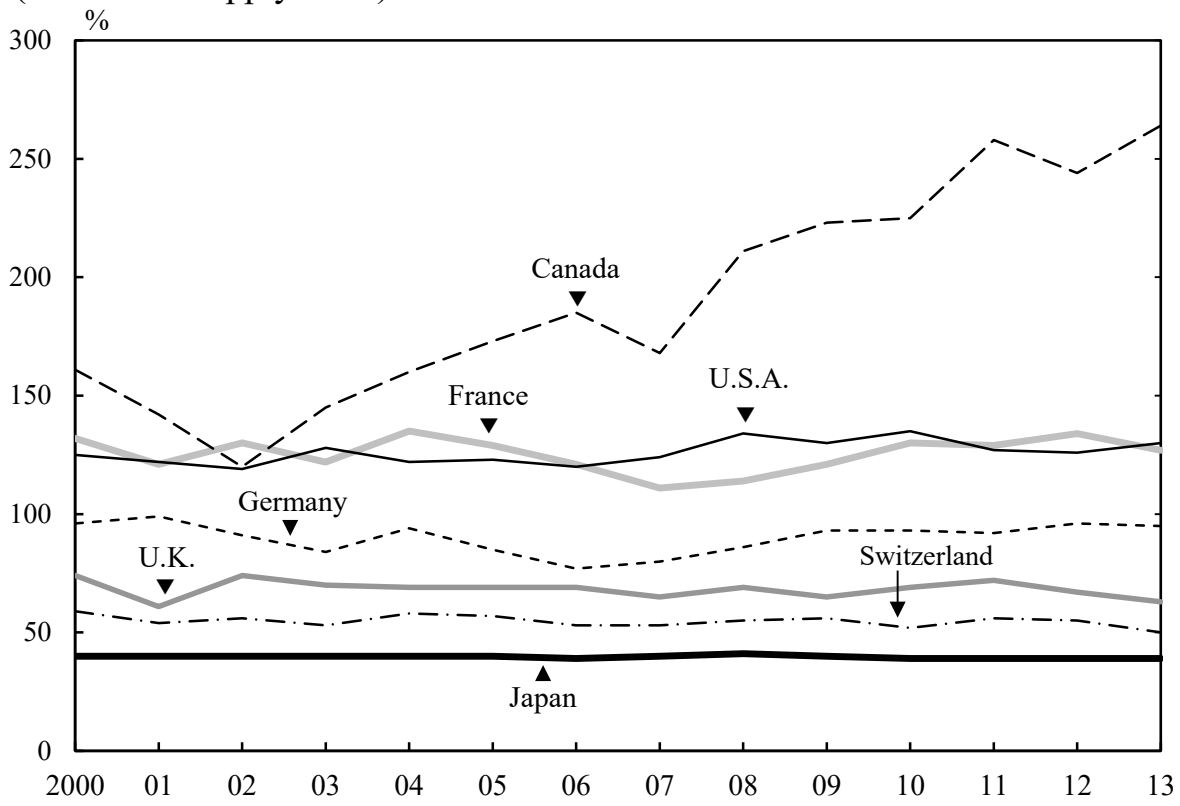
Table 5.7
Domestic Production, Supplies for Domestic Consumption, Food Self-Sufficiency Ratio, and Imports

Fiscal year	Domestic production (1,000 t)	Supplies for domestic consumption (1,000 t)	Food self-sufficiency Ratio (%)	Imports (1,000 t)
Rice				
2000	9,490	9,790	95	879
2005	8,998	9,222	95	978
2010	8,554	9,018	97	831
2015	8,429	8,600	98	834
2018*	8,208	8,446	97	787
Wheat				
2000	688	6,311	11	5,688
2005	875	6,213	14	5,292
2010	571	6,384	9	5,473
2015	1,004	6,583	15	5,660
2018*	765	6,510	12	5,638
Beans				
2000	366	5,425	7	5,165
2005	352	4,790	7	4,482
2010	317	4,035	8	3,748
2015	346	3,789	9	3,511
2018*	280	3,946	7	3,530
Vegetables				
2000	13,704	16,826	81	3,124
2005	12,492	15,849	79	3,367
2010	11,730	14,508	81	2,783
2015	11,856	14,776	80	2,941
2018*	11,306	14,605	77	3,310
Fruits				
2000	3,847	8,691	44	4,843
2005	3,703	9,036	41	5,437
2010	2,960	7,719	38	4,756
2015	2,969	7,263	41	4,351
2018*	2,833	7,430	38	4,661
Meat				
2000	2,982	5,683	52	2,755
2005	3,045	5,649	54	2,703
2010	3,215	5,769	56	2,588
2015	3,268	6,035	54	2,769
2018*	3,366	6,545	51	3,196
Seafood				
2000	5,736	10,812	53	5,883
2005	5,152	10,201	51	5,782
2010	4,782	8,701	55	4,841
2015	4,194	7,663	55	4,263
2018*	3,923	7,157	55	4,049

Source: Ministry of Agriculture, Forestry and Fisheries.

Japan's present food self-sufficiency ratio is the lowest among major industrialized countries, and Japan is thus the world's leading net importer of agricultural products.

Figure 5.4
Trends in Food Self-Sufficiency Ratio of Major Countries [1)]
(On calorie supply basis)



1) Estimates except for Japan.
Source: Ministry of Agriculture, Forestry and Fisheries.

Chapter 6

Manufacturing and Construction

Extending over the Kawasaki coast, the Keihin region is Japan's leading industrial zone. Infrastructure and advanced technology industries are currently concentrated here, including petroleum, steel, electric, machinery, and environmental industries. When night falls, lights for work switch on at the region's densely concentrated factories. These night views have attracted attention as "industrial night scenery".

1. Overview of the Manufacturing Sector

The proportion of added value produced in Japan's manufacturing sector to its nominal GDP has been around 20 percent recently, and the sector has a large ripple effect on other sectors.

In Japan, the bankruptcy of the major American securities firm Lehman Brothers in September 2008 led to a sharp drop in worldwide demand for the mainstays of Japan's manufacturing industries, namely, consumer durables such as automobiles and capital goods such as machine tools. Additionally, in 2011, the Great East Japan Earthquake, the historically high yen, and the slowing global economy contributed to sluggish domestic production. Against such background, the Japanese government announced an economic policy ("Abenomics") in January 2013, resulting in the Japanese economy shifting to a recovery. Afterwards, in April 2014, there were impacts caused by a response to last-minute demand associated with the increase in consumption tax. However, the economy has continued a gradual upward momentum, and improvements in earnings can also be seen in enterprises in the manufacturing industry, which are also linked to an expansion in employment and rise in wages, leading to a "virtuous economic cycle". Against the backdrop of worsening labour shortages in recent years, Japan has faced major structural changes such as strengthening of domestic business sites due to automation and labour-savings achieved through the use of IT and digital technology.

In 2018, there were 188,249 establishments (with 4 or more persons engaged) in the manufacturing sector. By industry, "fabricated metal products" had the most, with 25,543 establishments (component ratio of 13.5 percent), followed by "food" with 24,892 establishments (13.2 percent) and "production machinery" with 18,476 establishments (9.8 percent).

In 2018, there were 7.70 million persons engaged, and by industry, "food" had the most, with 1.14 million persons engaged (component ratio of 14.8 percent), followed by "transportation equipment" with 1.08 million persons engaged (14.1 percent) and "fabricated metal products" with 0.61 million persons engaged (7.9 percent).

The value of manufactured goods shipments in 2017 was 319.0 trillion yen, and by industry, "transportation equipment" had the most at 68.3 trillion yen (component ratio of 21.4 percent), followed by "food" at 29.1 trillion

yen (9.1 percent) and "chemical and related products" at 28.7 trillion yen (9.0 percent).

Table 6.1
Establishments, Persons Engaged, and Value of Manufactured Goods Shipments of the Manufacturing Industry [1)]

Industries	Number of establish-ments (2018)	Number of persons engaged (2018)	Value of manu-factured goods shipments (2017) (billion yen)
Manufacturing	188,249	7,697,321	319,036
Food	24,892	1,138,973	29,056
Beverages, tobacco and feed	3,975	102,129	9,516
Textile products	11,582	251,923	3,762
Lumber and wood products [2)]	5,014	90,819	2,717
Furniture and fixtures	4,907	95,505	1,957
Pulp, paper and paper products	5,519	186,657	7,384
Printing and allied industries	10,245	258,298	5,076
Chemical and allied products	4,610	366,260	28,724
Petroleum and coal products	912	25,573	13,287
Plastic products [3)]	12,302	435,564	12,443
Rubber products	2,325	115,472	3,168
Leather tanning, leather products and fur skins	1,204	21,301	354
Ceramic, stone and clay products	9,343	239,873	7,533
Iron and steel	4,051	220,408	17,556
Non-ferrous metals and products	2,457	140,144	9,762
Fabricated metal products	25,453	606,216	15,199
General-purpose machinery	6,724	327,617	11,780
Production machinery	18,476	610,154	20,521
Business oriented machinery	3,816	206,822	6,927
Electronic parts, devices and electronic circuits	3,975	406,874	15,930
Electrical machinery, equipment and supplies	8,466	485,679	17,259
Information and communication electronics equipment	1,250	128,446	6,707
Transportation equipment	9,884	1,083,760	68,263
Miscellaneous manufacturing industries	6,867	152,854	4,156

1) Establishments with 4 or more persons engaged. 2) Excluding furniture.
3) Excluding plastic furniture, plastic plate making for printing, etc., which are included in other industrial classification.
Source: Ministry of Economy, Trade and Industry.

With regard to the "Indices on Mining and Manufacturing" (2015 average=100), the production index for 2019 was 101.1, down 3.0 percent from the previous year, while shipments stood at 100.2, a decrease of 2.7 percent from the year before.

Table 6.2

Indices on Mining and Manufacturing (2019)

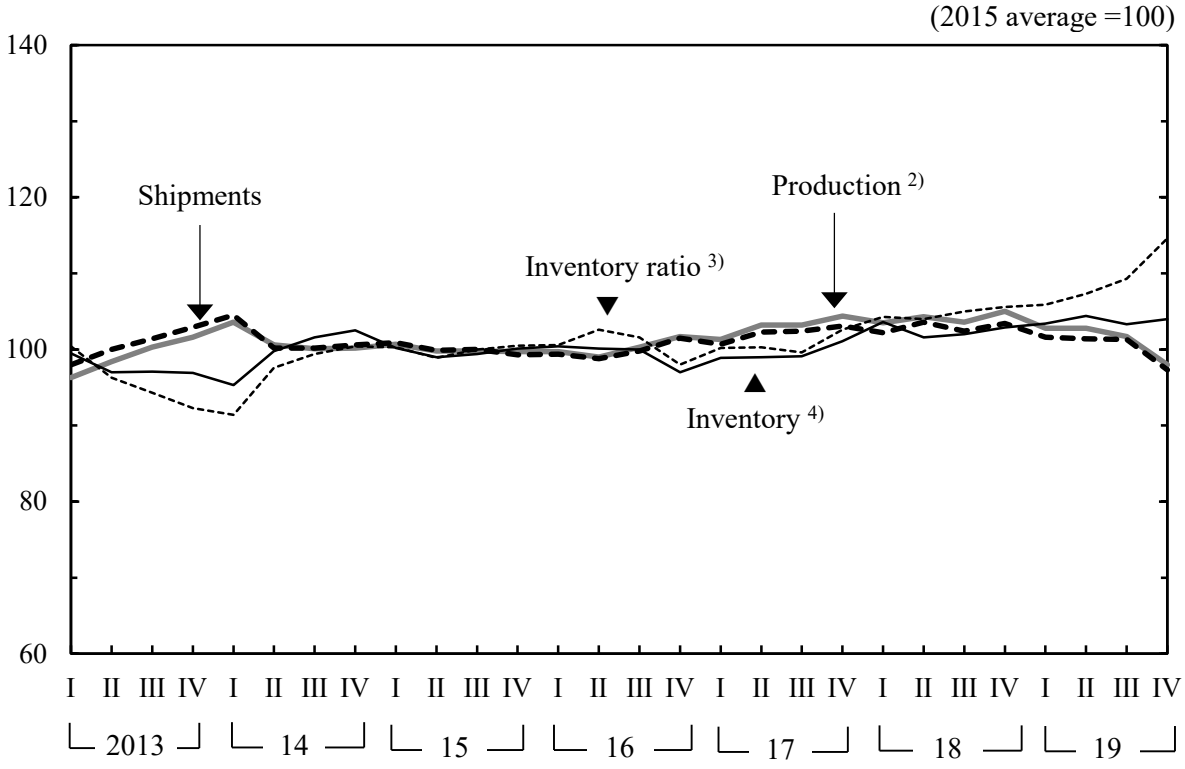
(2015 average =100)

Industries	Production [1]		Shipments		Inventory [2]		Inventory Ratio [3]	
		Annual growth (%)		Annual growth (%)		Annual growth (%)		Annual growth (%)
Mining and manufacturing	101.1	-3.0	100.2	-2.7	101.7	1.2	109.6	4.8
Manufacturing	101.1	-3.0	100.2	-2.7	101.8	1.3	109.6	4.8
Iron, steel and non-ferrous metals	97.5	-5.3	97.7	-5.4	105.2	3.8	110.2	8.3
Iron and steel	96.4	-5.5	96.4	-5.9	105.7	4.2	112.6	8.6
Fabricated metals	97.7	-1.9	98.2	-1.6	99.0	3.1	104.6	3.1
Production machinery	106.3	-8.6	106.7	-9.0	87.9	4.9	95.7	10.8
General-purpose and business oriented machinery	102.4	-5.3	100.8	-6.0	111.5	4.0	119.0	23.4
General-purpose machinery	102.2	-6.4	102.7	-6.4	110.5	0.1	108.2	16.7
Electronic parts and devices	95.0	-11.0	91.9	-7.8	66.3	-11.6	90.2	5.9
Electrical machinery, and information and communication electronics equipment	98.2	-4.0	98.2	-3.8	96.8	-9.4	121.8	0.2
Electrical machinery	101.0	-6.1	99.9	-6.0	101.4	-2.7	122.2	-1.2
Transport equipment	104.8	-0.8	106.9	-0.1	78.8	-6.5	85.1	-3.2
Ceramics, stone and clay products	97.9	-4.2	98.0	-4.3	100.1	1.0	108.1	8.1
Chemicals	106.5	-0.7	103.7	-0.6	122.6	7.3	115.3	11.5
Petroleum and coal products	93.0	-0.5	91.9	-1.3	89.0	-9.6	100.2	-1.6
Plastic products	104.2	-1.4	104.8	-1.2	108.4	3.6	108.4	6.6
Pulp, paper and paper products	98.2	-2.1	95.3	-4.3	102.9	12.1	110.2	6.1
Foods and tobacco	100.6	1.2	98.5	0.0	108.2	0.6	136.5	-9.2
Other manufacturing	93.9	-2.5	93.7	-2.5	103.0	0.3	107.2	4.6
Mining	92.7	-5.1	99.2	-2.5	98.7	-2.4	105.8	0.3
(Reference) Electricity, gas, heat supply and water	99.4	-1.9	99.7	-1.8	-	-	-	-

1) Value added weights. 2) End of the year. 3) Inventory ratio = Inventory quantity / Shipments quantity.

Source: Ministry of Economy, Trade and Industry.

Figure 6.1
Trends in Indices on Mining and Manufacturing [1)]



1) Seasonal adjustment indices. 2) Value added weights. 3) Inventory ratio = Inventory quantity / Shipments quantity. 4) End of the quarter.
Source: Ministry of Economy, Trade and Industry.

2. Principal Industries in the Manufacturing Sector

This section describes the major industries in the manufacturing sector. For each industry, (a) is described by the "Census of Manufacture 2017 (with 4 or more persons engaged)", and (b) is described by the "Indices on Mining and Manufacturing" (2015 average = 100).

(1) Machinery Industry

(A) Transport Equipment Industry

(a) In 2018, a total of 9,884 establishments employed 1,083,760 persons, and shipped 68.3 trillion yen worth of products in 2017.

(b) In 2019, production and shipments decreased by 0.8 percent and 0.1 percent, respectively, from the previous year, representing their first

decrease in four years. These decreases (in both production and shipments) were due to a decrease in "car body and automobile parts", "trucks", etc.

(B) Production Machinery Industry

(a) In 2018, a total of 18,476 establishments employed 610,154 persons, and shipped 20.5 trillion yen worth of products in 2017.

(b) In 2019, production and shipments decreased by 8.6 percent and 9.0 percent, respectively, from the previous year, representing their first decrease in three years. These decreases (in both production and shipments) were due to a decrease in "semiconductor and flat-panel display manufacturing equipment", "metal forming machinery", etc.

(C) Electrical Machinery Industry

(a) In 2018, a total of 8,466 establishments employed 485,679 persons, and shipped 17.3 trillion yen worth of products in 2017.

(b) In 2019, production and shipments decreased by 6.1 percent and 6.0 percent, respectively, from the previous year, representing their first decrease in four years. These decreases (in both production and shipments) were due to a decrease in "switching devices", "electrical rotating machinery", etc.

(D) Electronic Parts and Devices Industry

(a) In 2018, a total of 3,975 establishments employed 406,874 persons, and shipped 15.9 trillion yen worth of products in 2017.

(b) In 2019, production and shipments decreased by 11.1 percent and 7.8 percent, respectively, from the previous year, representing their first decrease in three years. These decreases (in both production and shipments) were due to a decrease in "integrated circuits", "electronic devices", etc.

(E) General-Purpose Machinery Industry

(a) In 2018, a total of 6,724 establishments employed 327,617 persons, and shipped 11.8 trillion yen worth of products in 2017.

(b) In 2019, production and shipments both decreased by 6.4 percent from the previous year, representing their first decrease in three years. These decreases (in both production and shipments) were due to a decrease in "parts of general-purpose machinery", "pumps and compressors", etc.

(2) Foods and Tobacco Industry

(a) In 2018, a total of 24,892 establishments employed 1,138,973 persons, and shipped 29.1 trillion yen worth of products in 2017.

(b) In 2019, production increased by 1.2 percent, and shipments were on the same level, compared to the previous year. This marked the first increase in production in three years. The increase in production was due to an increase in "alcoholic beverages", "bakery and confectionery", etc.

(3) Chemical Industry

(a) In 2018, a total of 4,610 establishments employed 366,260 persons, and shipped 28.7 trillion yen worth of products in 2017.

(b) In 2019, production and shipments decreased by 0.7 percent and 0.6 percent, respectively, from the previous year. This marked the first decrease in five years in production, and the second consecutive year of decrease in shipments. The decrease in production was due to a decrease in "cosmetics" and "plastic", etc. The decrease in shipments was due to a decrease in "plastic", "cyclic intermediate", etc.

(4) Iron and Steel Industry

(a) In 2018, a total of 4,051 establishments employed 220,408 persons, and shipped 17.6 trillion yen worth of products in 2017.

(b) In 2019, production and shipments decreased by 5.5 percent and 5.9 percent, respectively, from the previous year, representing their first

decrease in three years. The decrease in production was due to a decrease in "hot rolled steel", "iron and steel crude products", etc. The decrease in shipments was due to a decrease in "hot rolled steel", "cold finished steel", etc.

(5) Fabricated Metals Industry

(a) In 2018, a total of 25,453 establishments employed 606,216 persons, and shipped 15.2 trillion yen worth of products in 2017.

(b) In 2019, production and shipments decreased by 1.9 percent and 1.6 percent, respectively, from the previous year, representing their first decrease in three years. The decrease in production was due to a decrease in "cans", "sintered products", etc. The decrease in shipments was due to a decrease in "cans", "metal products of building", etc.

3. Construction

The construction industry is indispensable in supporting the development of social capital, and fulfills a large role in building a vibrant future for Japan, such as through urban regeneration and regional revitalization. It also plays an extremely important role as a local guardian in disaster recovery, disaster prevention/reduction, deterioration countermeasures, maintenance, etc.

Construction investments at nominal prices was on a declining trend after reaching a peak of 84 trillion yen in fiscal 1992, and fell to half of this peak (42 trillion yen) in fiscal 2010. Since then, they have been on a recovery trend due to such factors as the recovery from the Great East Japan Earthquake.

Construction investments in fiscal 2018 amounted to 60.9 trillion yen at nominal prices, up 0.3 percent compared to the previous fiscal year; they totaled 54.6 trillion yen at constant fiscal 2011 prices, down 2.8 percent from the previous fiscal year.

A breakdown of construction investment (nominal prices) shows that building construction totaled 40.5 trillion yen (up 0.7 percent from the previous fiscal year), while civil engineering works amounted to 20.4 trillion yen (down 0.3 percent).

In terms of public and private construction investment (nominal prices) in fiscal 2018, public investment amounted to 20.7 trillion yen (down 2.6 percent from the previous fiscal year), while private investment totaled 40.2 trillion yen (up 1.9 percent). Public investment accounted for 34.0 percent of total construction investment, while private investment accounted for 66.0 percent.

Table 6.3
Construction Investment (Nominal prices)

(Billion yen)

Item	FY2015	FY2016	FY2017*	FY2018*
Total	56,647	58,740	60,680	60,880
Building construction	37,092	38,306	40,220	40,490
Dwellings	16,481	17,221	17,450	17,470
Public sector	790	758	610	550
Private sector	15,691	16,463	16,840	16,920
Non-dwellings	13,082	13,722	15,160	15,500
Public sector	3,491	3,480	3,730	3,730
Private sector	9,592	10,243	11,430	11,770
Extension and renovation	7,528	7,363	7,610	7,520
Public sector	1,328	1,343	1,320	1,340
Private sector	6,200	6,020	6,290	6,180
Civil engineering works	19,555	20,434	20,460	20,390
Public sector	14,596	15,405	15,600	15,080
Private sector	4,959	5,029	4,860	5,310
Total				
Public investment	20,205	20,986	21,260	20,700
Private investment	36,442	37,754	39,420	40,180
Building construction				
Public investment	5,609	5,581	5,660	5,620
Private investment	31,483	32,725	34,560	34,870
Civil engineering works				
Public investment	14,596	15,405	15,600	15,080
Private investment	4,959	5,029	4,860	5,310

Source: Ministry of Land, Infrastructure, Transport and Tourism.

The number of new construction starts of dwellings (in the case of apartment buildings, the number of apartment units was counted) in 2019 was 0.90 million housing units (down 4.0 percent from the previous year), representing a decrease for the third consecutive year. When compared according to owner-occupant relations, the number of owned housing units and the number of housing units built for sale increased; however, this was because the number of housing units for rent decreased.

The floor space (public and private) of the entire building whose construction started in 2019 was 127.56 million square meters, down 2.7 percent compared to the previous year.

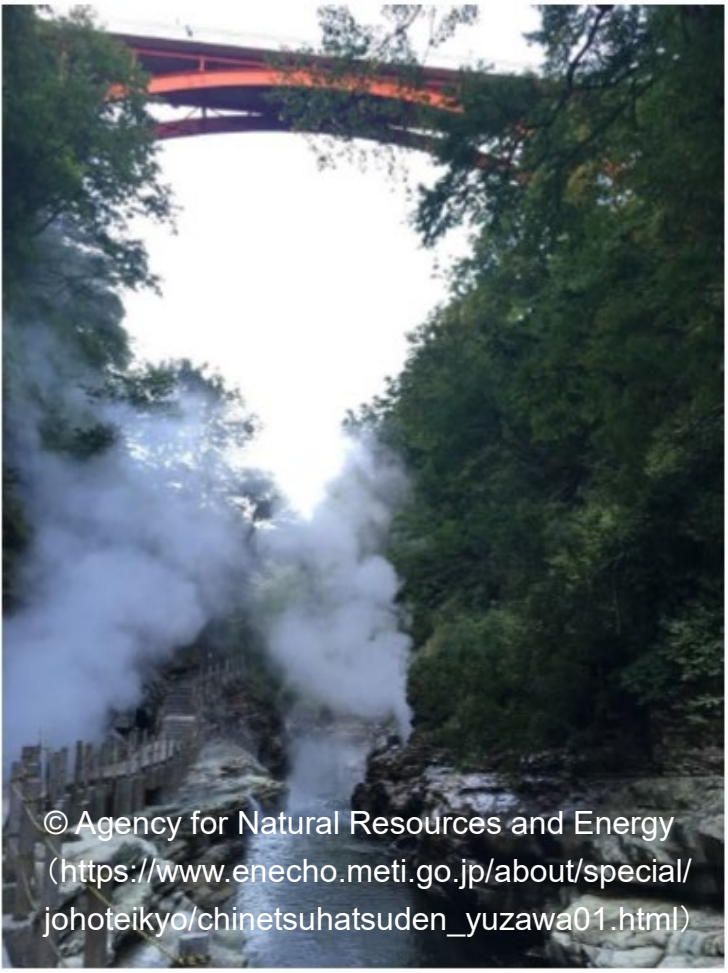
Table 6.4
Building Construction Started by Types of Investor, Dwellings and Industries, and Structure

Types	Floor space (1,000 m^2)		Construction cost (billion yen)	
	2018	2019	2018	2019
Total	131,149	127,555	26,718	27,281
Investor				
Public	6,253	5,938	1,916	1,977
Private	124,896	121,617	24,801	25,304
Dwellings and Industries				
Dwelling	78,718	78,868	15,265	15,930
Non-dwelling	52,432	48,687	11,453	11,351
Structure				
Wooden	55,456	55,718	9,349	9,479
Non-wooden	75,693	71,837	17,369	17,802

Source: Ministry of Land, Infrastructure, Transport and Tourism.

Chapter 7

Energy



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（https://www.enecho.meti.go.jp/about/special/johoteikyo/chinetsuhatsuden_yuzawa01.html）

With geothermal power, electricity is produced using geothermal energy lying latent underground. This is a highly-stable, domestically-produced form of energy with almost zero carbon emissions, no fuel costs, and no variation due to factors like the weather.
In Yuzawa City, Akita Prefecture, there are vestiges of an ancient volcanic eruption, and even today, this area has plentiful reserves of geothermal energy available underground. The abundance of this energy is also evident in the area's hot spring spas and other tourist destinations.

1. Supply and Demand

Japan is dependent on imports for 88.2 percent of its energy supply. Since experiencing the two oil crises of the 1970s, Japan has taken measures to promote energy conservation, introduce alternatives to petroleum such as nuclear power, natural gas, coal, etc., and secure a stable supply of petroleum through stockpiling and other measures. As a result, its dependence on petroleum declined from 75.5 percent in fiscal 1973 to 40.3 percent in fiscal 2010. However, since the Great East Japan Earthquake, the percentage of fossil fuels has been increasing, as a substitute for nuclear power as fuel for power generation. The level of dependence on petroleum, which had been on a declining trend, increased to 44.5 percent in fiscal 2012. However, it is once again on a declining trend as the switch to LNG power and renewable energy progresses.

In fiscal 2018, the domestic supply of primary energy in Japan was 19,728 petajoules, down 1.8 percent from the previous fiscal year. Its breakdown was: 37.6 percent in petroleum, 25.1 percent in coal, 22.9 percent in natural gas and city gas, 3.5 percent in hydro power, and 2.8 percent in nuclear power. Other sources were also used, including energy from waste, geothermal, and natural energy (photovoltaic, wind power, biomass energy, etc.).

Energy units

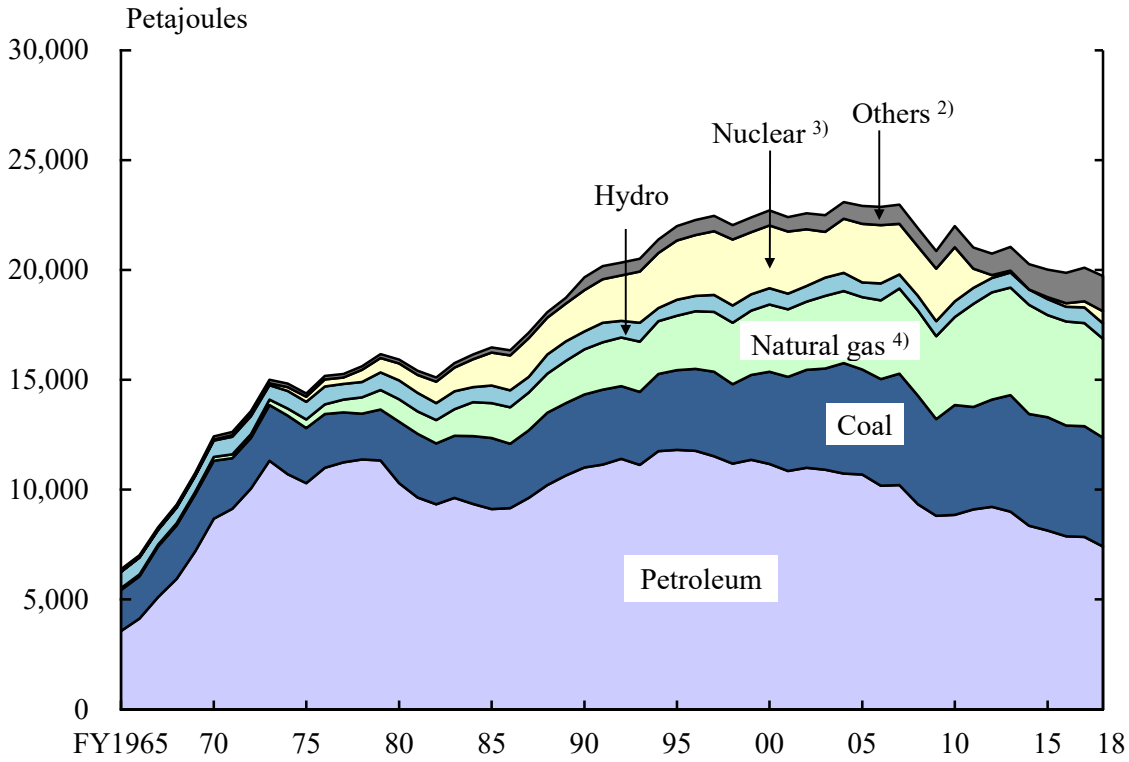
Joule (J) is employed as a common unit (International System of Units: SI) for energy across all energy sources in presenting international statistical information. The unit Petajoule (PJ: 10^{15} or quadrillion joules), etc. is used here to reduce the number of digits. The energy of one kiloliter of petroleum is calculated using the following formulae:

1 kiloliter of petroleum = 3.87×10^{10} joules
1 gigajoule = 10^{9} joules
1 petajoule = 10^{15} joules
1 exajoule = 10^{18} joules

Petroleum is traded internationally using the volume unit of barrels. One barrel equals approximately 158.987 liters.

The government has been working to construct a new energy supply-demand structure oriented toward stable supply of energy and lowering energy costs. In this process, energy-saving and renewable energy that takes global warming into consideration has been introduced, and aims are being made toward reducing dependency on nuclear power.

Figure 7.1
Domestic Supply of Primary Energy by Energy Source [1)]



1) A different statistical method was used for the figures since FY1990. 2) Photovoltaic, wind power, geothermal energy, etc. 3) In fiscal 2014, the domestic supply of nuclear energy was zero due to the suspended operation of all nuclear power plants in Japan. 4) Natural gas and city gas.
Source: Ministry of Economy, Trade and Industry.

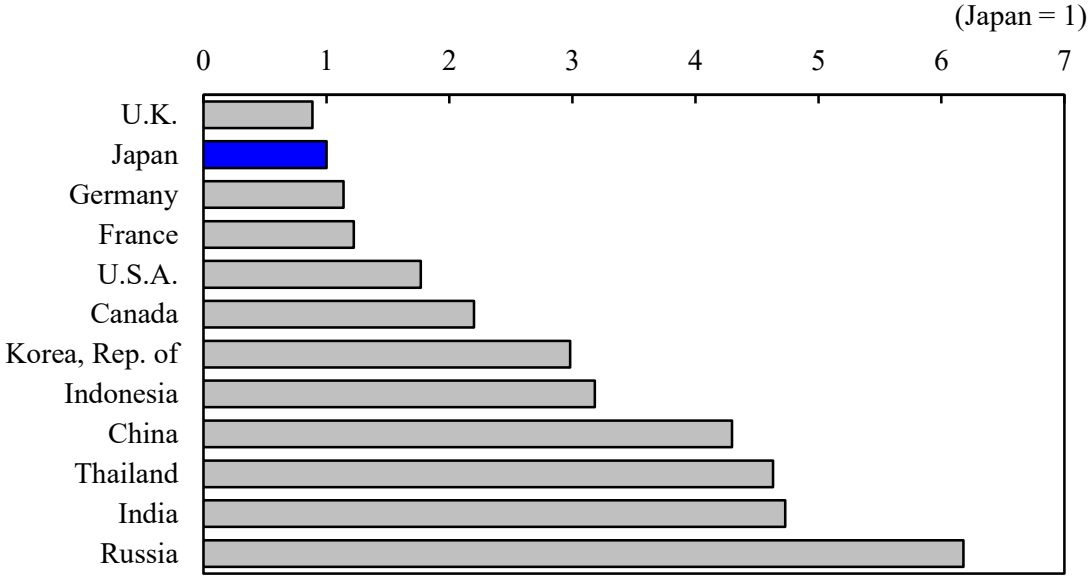
Table 7.1
Trends in Domestic Supply of Primary Energy and Percentage by Energy Source

(Petajoules)

Item	FY2005	FY2010	FY2015	FY2017	FY2018
Domestic supply of primary energy ..	22,906	21,995	20,019	20,099	19,728
Energy self-sufficiency (%) [1]	19.6	20.3	7.4	9.5	11.8
Petroleum	10,691	8,858	8,138	7,842	7,415
Coal	4,782	4,997	5,154	5,043	4,947
Natural gas and city gas	3,291	3,995	4,657	4,696	4,510
Hydro	671	716	726	714	690
Nuclear	2,660	2,462	79	281	553
Others [2]	809	967	1,266	1,523	1,613
Percentage					
Petroleum	46.7	40.3	40.6	39.0	37.6
Coal	20.9	22.7	25.7	25.1	25.1
Natural gas and city gas	14.4	18.2	23.3	23.4	22.9
Hydro	2.9	3.3	3.6	3.6	3.5
Nuclear	11.6	11.2	0.4	1.4	2.8
Others [2]	3.5	4.4	6.3	7.6	8.2

1) Domestic production of primary energy (including nuclear) / Domestic supply of primary energy × 100. 2) Photovoltaic, wind power, geothermal energy, etc.
Source: Ministry of Economy, Trade and Industry.

Figure 7.2
International Comparison of Energy/GDP Ratio [1] (2017)

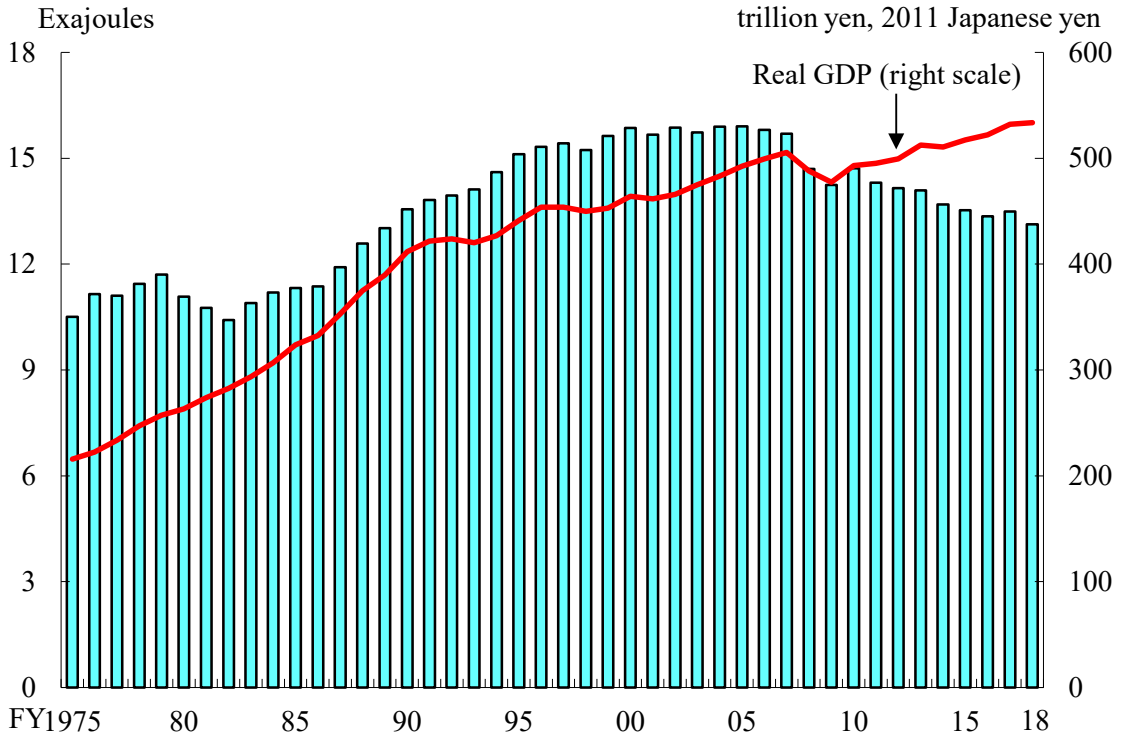


1) Primary energy consumption (tons of oil equivalent) / Real GDP (2010 U.S. dollars).
Source: Ministry of Economy, Trade and Industry.

Energy consumption per GDP is lower in Japan than in other industrialized countries. This indicates that Japan is one of the most energy-efficient countries in the world.

Energy consumption in Japan was suppressed due to greater energy conservation brought on by two oil shocks in the 1970s. After that, consumption increased until the 1990s due to a decrease in crude oil prices. However, in the 2000s, as crude oil prices rose again, final energy consumption peaked in fiscal 2005, and then started decreasing. In fiscal 2018, real GDP was higher than in fiscal 2017, but final energy consumption decreased for the first time in 2 years.

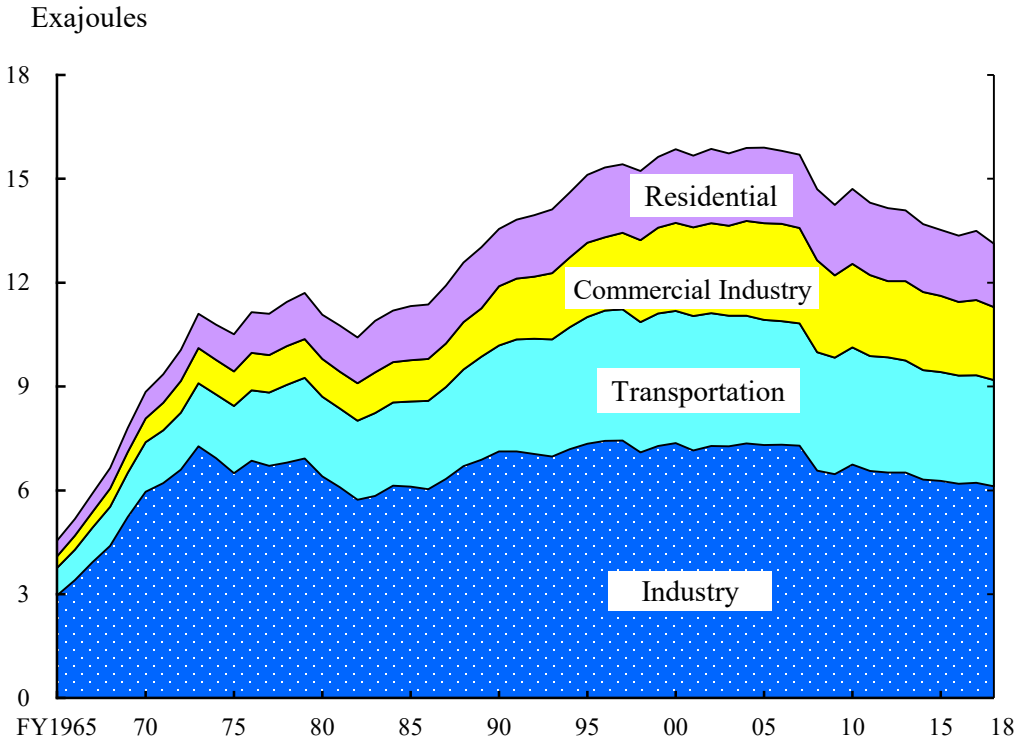
Figure 7.3
Trends in Final Energy Consumption and Real GDP 1)



1) A different statistical method was used for the figures since FY1990.
Source: Cabinet Office; Ministry of Economy, Trade and Industry.

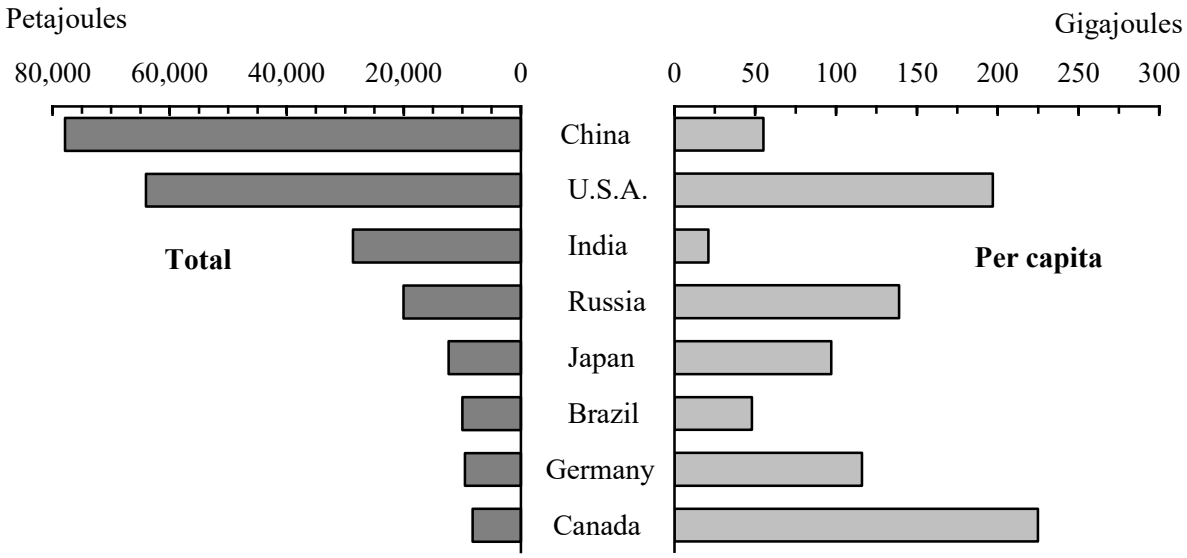
Final energy consumption in fiscal 2018 decreased 2.7 percent from the previous fiscal year, and even by sector, it has decreased in the industry sector, commercial industry sector, residential sector, and transportation sector.

Figure 7.4
Trends in Final Energy Consumption by Sector [1)]



1) A different statistical method was used for the figures since FY1990.
Source: Ministry of Economy, Trade and Industry.

Figure 7.5
Final Energy Consumption by Country (2017)



Source: United Nations.

2. Electric Power

Approximately half of Japan's primary energy supply of petroleum, coal and other energy sources is converted into electric power.

Electricity output (including in-house power generation) in Japan totaled 1,000 billion kWh in fiscal 2018, down 0.7 percent from the previous fiscal year. Of this total, thermal power accounted for 82.3 percent; hydro power, 8.7 percent; nuclear power, 6.2 percent.

Table 7.2
Trends in Electricity Output and Power Consumption [1)]

(Million kWh)

Item	FY2005	FY2010	FY2015	FY2017	FY2018
Electricity Output					
Total	1,157,926	1,156,888	1,024,179	1,007,341	1,000,409
Thermal	761,841	771,306	908,779	861,435	823,589
Hydro	86,350	90,681	91,383	90,128	87,398
Nuclear	304,755	288,230	9,437	31,278	62,109
Others [2)]	4,980	6,671	14,580	24,500	27,313
Percentage					
Total	100.0	100.0	100.0	100.0	100.0
Thermal	65.8	66.7	88.7	85.5	82.3
Hydro	7.5	7.8	8.9	8.9	8.7
Nuclear	26.3	24.9	0.9	3.1	6.2
Others [2)]	0.4	0.6	1.4	2.4	2.7
Electricity Power Consumption [3)]					
Total	1,043,800	1,056,441	955,345	984,335	973,376
Generated by electric power suppliers	918,265	931,059	841,542	914,374	896,199
Consumption of in-house generation	125,535	125,382	113,803	69,960	77,177

1) Including in-house generation. 2) Photovoltaic, wind power, geothermal energy, etc.
3) Changes were made to the categorization of Electricity Suppliers since FY2016.
Source: Ministry of Economy, Trade and Industry.

3. Gas

Gas production was 1,688 petajoules in fiscal 2018, down 2.6 percent from the previous fiscal year. Of this total, natural gas plus vaporized liquefied natural gas accounted for 96.5 percent; and the remaining 3.5 percent was made up of petroleum gases, such as vaporized liquefied petroleum gas and other petroleum-based gas. Gas purchases for fiscal 2018 totaled 578 petajoules.

Gas sales for fiscal 2018 totaled 1,740 petajoules, or a year-on-year drop of 2.0 percent. Of this total, 59.0 percent was sold to industry, 22.2 percent to residential use, and 10.2 percent to the commercial sector.

Table 7.3
Trends in Production and Purchases, and Sales of Gas [1) 2)]

(Petajoules)

Item	FY2010		FY2015		FY2017		FY2018	
Production and purchases [3)]	1,547		1,610		2,308		2,267	
Production	1,288	(100.0)	1,372	(100.0)	1,734	(100.0)	1,688	(100.0)
Petroleum gases [4)]	46	(3.6)	48	(3.5)	58	(3.3)	59	(3.5)
Natural gas and vaporized liquefied natural gas [5)]	1,241	(96.4)	1,324	(96.5)	1,676	(96.7)	1,629	(96.5)
Others	…	(…)	…	(…)	…	(…)	…	(…)
Purchases	259	(100.0)	238	(100.0)	575	(100.0)	578	(100.0)
Petroleum gases [6)]	6	(2.4)	3	(1.1)	…	(…)	…	(…)
Natural gas and vaporized liquefied natural gas	253	(97.6)	236	(98.9)	571	(99.5)	575	(99.4)
Others	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Sales	1,477	(100.0)	1,526	(100.0)	1,776	(100.0)	1,740	(100.0)
Residential	410	(27.7)	387	(25.3)	413	(23.3)	387	(22.2)
Commercial	198	(13.4)	177	(11.6)	183	(10.3)	178	(10.2)
Industrial	738	(50.0)	842	(55.2)	1,025	(57.7)	1,027	(59.0)
Others	131	(8.9)	120	(7.9)	155	(8.7)	148	(8.5)

1) Figures in parentheses indicate a percentage. 2) A different statistical method was used for the figures since FY2017. 3) Since there are some concealed sources, the breakdown totals may not match the overall totals. 4) Figures up until FY2016 are a total of volatile oil gas, liquefied petroleum gas, and other petroleum-based gas. Starting FY2017, figures are a total of vaporized liquefied petroleum gas and other petroleum-based gas. 5) Figures up until FY2016 are a total of natural gas and liquefied natural gas. 6) Vaporized liquefied petroleum gas, other petroleum-based gas.

Source: Ministry of Economy, Trade and Industry.

Chapter 8

Science and Technology/ Information and Communication

Woman taking a selfie with a smartphone.
According to the "Communications Usage Trend Survey" in 2019, the individual ownership rate of smartphones was 67.6%. By age group, this rate exceeded 80 percent in each age group between 13 and 59 years old.

1. Science and Technology

(1) Researchers and R&D Expenditures

Japan's expenditures for the research and development (R&D) of science and technology are at a top level among major countries, and support the technology-based nation of Japan. Researchers in the fields of science and technology (including social sciences and humanities) as of the end of March 2019 totaled 874,800. The total R&D expenditures in fiscal 2018 amounted to 19.5 trillion yen, an increase of 2.5 percent from the previous fiscal year. Relative to GDP, R&D expenditures was 3.56 percent and has increased for 2 consecutive years.

Table 8.1
Trends in Researchers and Expenditures on R&D

Year [1]	Number of Researchers [2]	Females (%)	Fiscal year	R&D expenditures (billion yen)	GDP (billion yen)	Ratio of R&D expenditures to GDP (%)
2010	840,300	13.6	2009	17,246	491,957	3.51
2011	842,900	13.8	2010	17,110	499,429	3.43
2012	844,400	14.0	2011	17,379	494,043	3.52
2013	835,700	14.4	2012	17,325	494,370	3.50
2014	841,600	14.6	2013	18,134	507,255	3.57
2015	866,900	14.7	2014	18,971	518,235	3.66
2016	847,100	15.3	2015	18,939	532,786	3.55
2017	853,700	15.7	2016	18,433	536,851	3.43
2018	867,000	16.2	2017	19,050	547,586	3.48
2019	874,800	16.6	2018	19,526	548,367	3.56

1) As of the end of March. 2) Business enterprises, non-profit institutions and public organizations: Prorated by the percentage of time that researchers are actually engaged in R&D activities. Universities and colleges: headcount.

Source: Statistics Bureau, MIC.

As of the end of March 2019, the number of researchers amounted to 504,700 persons in business enterprises, 38,600 persons in non-profit institutions and public organizations, and 331,400 persons in universities and colleges. In terms of R&D expenditures in fiscal 2018, business enterprises spent 14.2 trillion yen (72.9 percent of total R&D expenditures), non-profit institutions and public organizations spent 1.6 trillion yen (8.3 percent), and universities and colleges spent 3.7 trillion yen (18.8 percent).

Universities and colleges spent more than 90 percent of their R&D expenditure on natural sciences and engineering for basic research and applied research, while business enterprises allocated over 70 percent for development purposes.

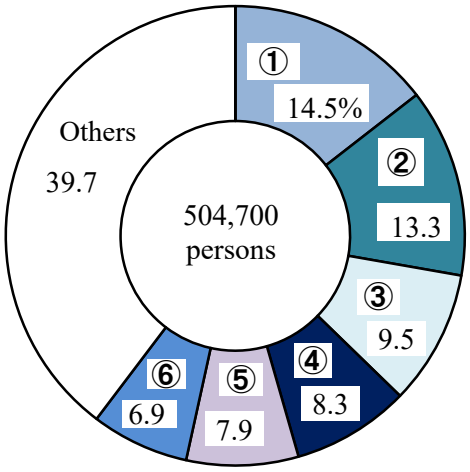
With regard to the portion in the R&D expenditures in fiscal 2018 by specific objective, 3.1 trillion yen went to the life sciences field (16.0 percent of total R&D expenditures), 2.5 trillion yen (12.6 percent) to the information technology field, 1.2 trillion yen (6.3 percent) to the environmental science and technology field and 1.6 trillion yen (5.4 percent) to the energy field, etc.

Approximately 90 percent of the 504,700 researchers at business enterprises at the end of March 2019, or 441,500 persons, were in the manufacturing industries; the largest number was in the motor vehicles, parts and accessories industry, followed by the information and communication electronics equipment industry, then by the business oriented machinery industry.

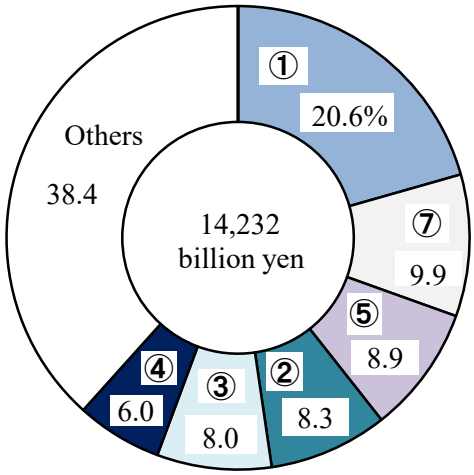
In terms of R&D expenditures in fiscal 2018, of 14.2 trillion yen spent by business enterprises, 12.3 trillion yen was spent by manufacturing industries. The motor vehicles, parts and accessories industry spent the most, followed by the medicines industry, then by the electrical machinery, equipment and supplies industry.

Figure 8.1
Researchers and Expenditures by Industry (Business enterprises)

Researchers (as of end-March 2019)



Expenditures (FY2018)



① Motor vehicles, parts and accessories ② Information and communication electronics equipment
③ Business oriented machinery ④ Electronic parts, devices and electronic circuits
⑤ Electrical machinery, equipment and supplies ⑥ Chemical products ⑦ Medicines
Source: Statistics Bureau, MIC.

(2) Technology Balance of Payments (Technology Trade)

Technology trade is defined as the export or import of technology by business enterprises with other countries, such as patents, expertise, and technical guidance. In fiscal 2018, Japan earned 3,871.1 billion yen from technology exports, which was down 0.3 percent from the previous fiscal year. This was the first decrease in 2 years. Of the total receipts, 74.3 percent was from overseas parent/subsidiary companies. Meanwhile, payments to technology imports stood at 591.0 billion yen, a decrease of 6.2 percent compared with the previous fiscal year. It decreased for the first time in 2 years. Of this figure, 30.5 percent was for payments to overseas parent/subsidiary companies.

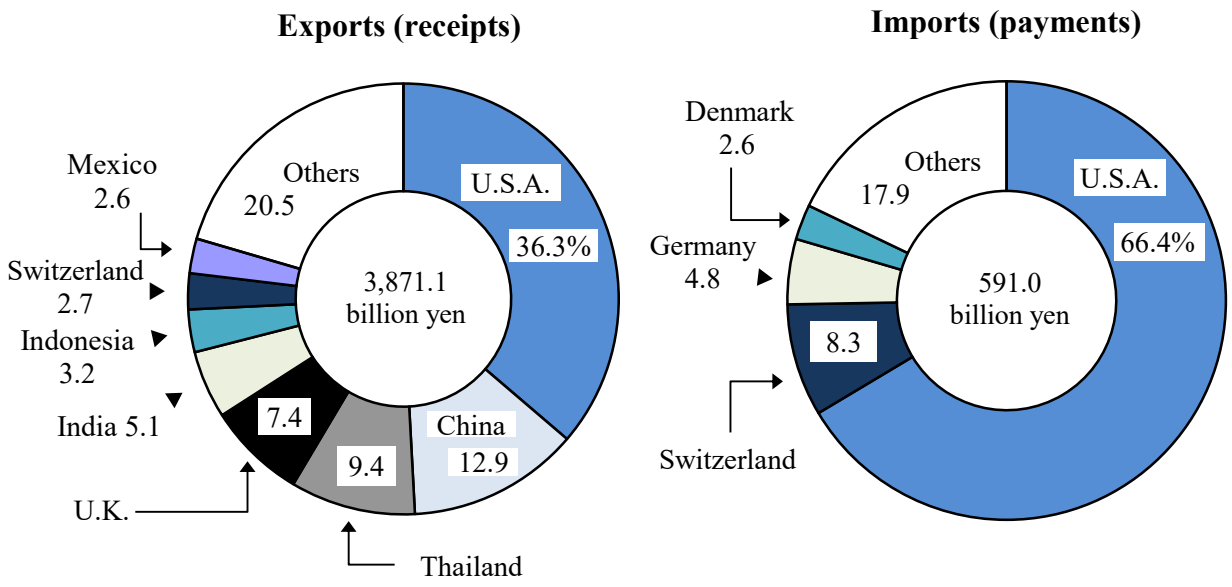
Table 8.2
Technology Trade by Business Enterprises [1)]

Fiscal year	Exports		Imports		Exports value / Imports value
	Value (billion yen)	Annual increase rate (%)	Value (billion yen)	Annual increase rate (%)	
1990	339.4	3.0	371.9	12.7	0.91
1995	562.1	21.6	391.7	5.7	1.43
2000	1,057.9	10.1	443.3	8.0	2.39
2005	2,028.3	14.6	703.7	24.0	2.88
2010	2,436.6	20.9	530.1	-0.9	4.60
2015	3,949.8	7.9	602.6	17.5	6.55
2017	3,884.4	8.7	629.8	39.1	6.17
2018	3,871.1	-0.3	591.0	-6.2	6.55

1) The survey coverage was expanded in FY1996 and FY2001.
Source: Statistics Bureau, MIC.

In fiscal 2018, Japan exported 3,871.1 billion yen of technologies; major export destinations were: the U.S.A. (1,406.2 billion yen, or 36.3 percent of total exports), followed by China (498.7 billion yen), Thailand (364.2 billion yen), and the U.K. (285.3 billion yen). On the other hand, Japan imported 591.0 billion yen of technologies, mainly from the U.S.A. (392.6 billion yen, or 66.4 percent of total imports), followed by Switzerland (49.2 billion yen), Germany (28.2 billion yen) and Denmark (15.4 billion yen).

Figure 8.2
Composition of Technology Trade by Major Country (FY2018)



Source: Statistics Bureau, MIC.

2. Patents

The total number of patent applications remained robust in and after 1998 as more than 400,000 applications were filed every year, but a gradual drop has been seen since 2006. Applications fell significantly in 2009, and after 2015, have continued to be flat. In 2018, there were 313,567 applications (down 1.54 percent from the previous year).

Table 8.3
Patents

(Cases)

Item	2000	2005	2010	2015	2018
Applications	436,865	427,078	344,598	318,721	313,567
Registrations	125,880	122,944	222,693	189,358	194,525
Existing vested rights	1,040,607	1,123,055	1,423,432	1,946,568	2,054,276

Source: Japan Patent Office.

Table 8.4
PCT International Applications by Country

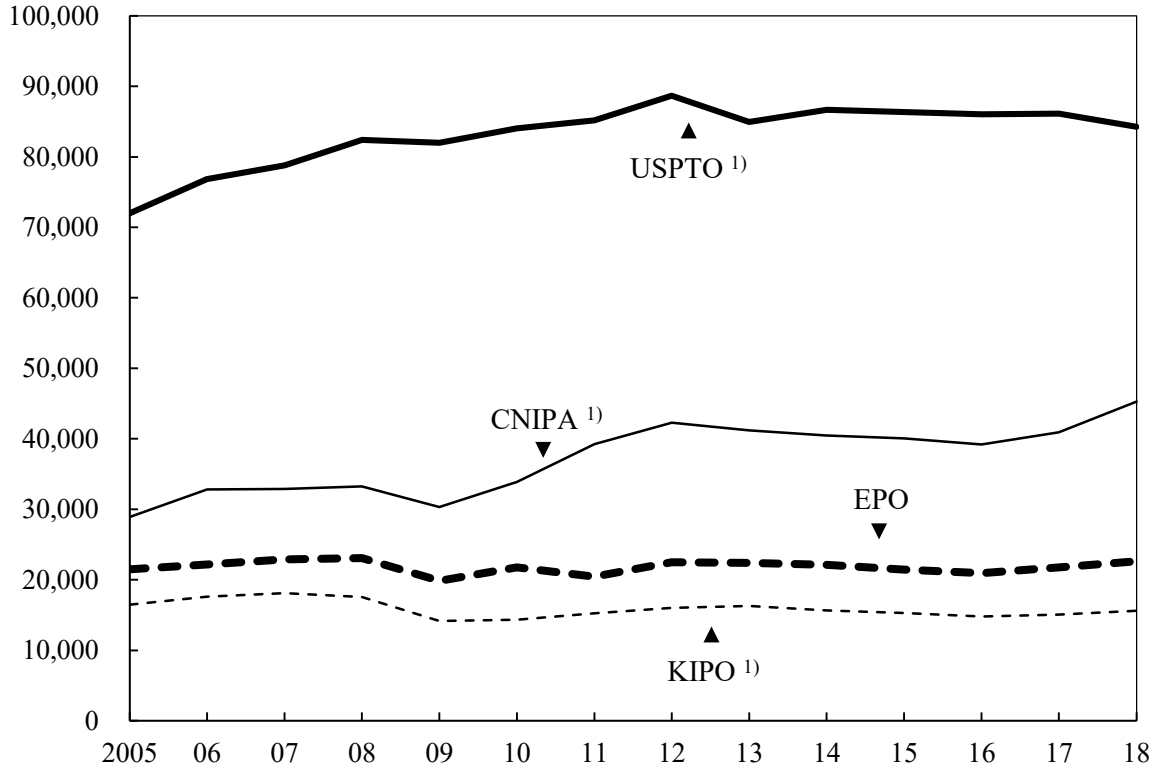
Country	2016	2017	2018*	Change from 2017 (%)
Total	232,907	243,511	253,000	3.9
U.S.A.	56,591	56,676	56,142	-0.9
China	43,091	48,905	53,345	9.1
Japan	45,209	48,205	49,702	3.1
Germany	18,307	18,951	19,883	4.9
Korea, Rep. of	15,555	15,751	17,014	8.0
France	8,210	8,014	7,914	-1.2
U.K.	5,504	5,568	5,641	1.3
Switzerland	4,369	4,488	4,568	1.8
Sweden	3,719	3,975	4,162	4.7
Netherlands	4,675	4,430	4,138	-6.6

Source: World Intellectual Property Organization.

Over 150 countries, including Japan, have joined the international patent system of the World Intellectual Property Organization (WIPO) as of October 2019. In 2018, the number of international patent applications filed under the Patent Cooperation Treaty (PCT) was 253,000, of which 49,702 were from Japan, accounting for 19.6 percent.

The United States Patent and Trademark Office ranked first among major patent offices for applications filed by Japanese applicants in 2018, with 84,280 applications. The number of patent applications filed by Japanese applicants at China National Intellectual Property Administration was 45,284.

Figure 8.3
Changes in Patent Applications with Major Offices by Japanese Applicants



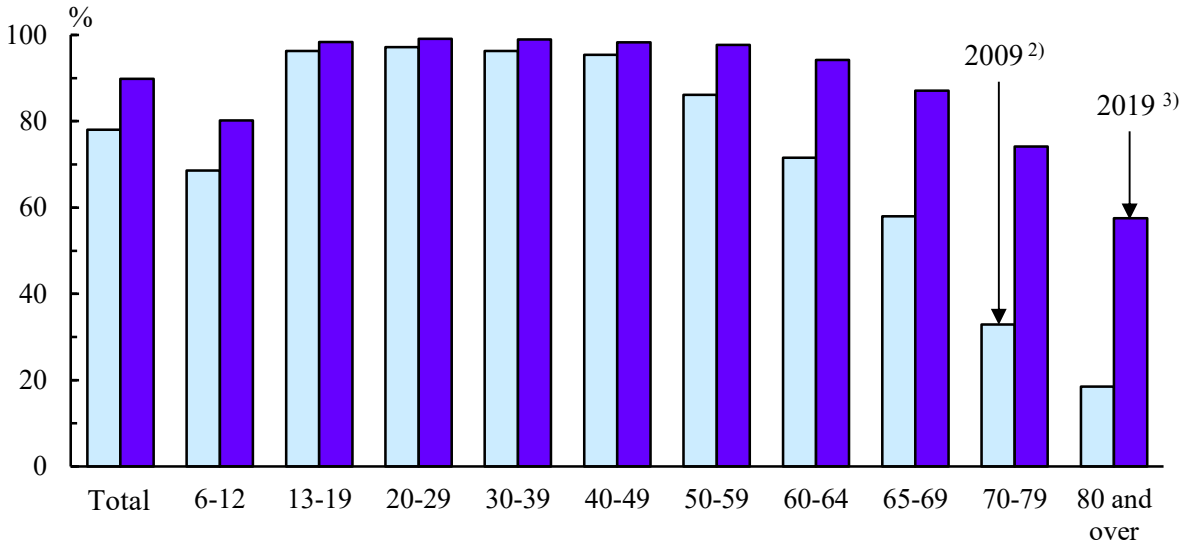
1) The USPTO, CNIPA and KIPO data for 2018 are provisional.
EPO: European Patent Office; KIPO: Korean Intellectual Property Office; CNIPA: China National Intellectual Property Administration; USPTO: United States Patent and Trademark Office.
Source: Japan Patent Office.

3. Information and Communication

(1) Diffusion of the Internet

The ratio of individuals using the Internet, of which commercial usage started in 1993, exceeded 80 percent in 2013. At the end of September 2019, the ratio of individuals who had used the Internet in the past year (individuals who are 6 years of age and older) was 89.8 percent, which was a significant increase from 79.8 percent the previous year. According to the individual Internet usage rate by age group, the usage rate exceeded 90 percent in each age group between 13 and 69 years old.

Figure 8.4
Trends in Internet Usage Rate by Age Group [1)]



1) Ages 6 years and over. 2) End of 2009. 3) End of September 2019.
Source: Ministry of Internal Affairs and Communications.

According to the status of Internet use by device by age group as of the end of September 2019, the usage rate of smartphones was the highest (63.3 percent), followed by computers (50.4 percent). Figures for the rate of Internet use by device by age group show that more than 70 percent use smartphones in each age group between 13 and 59 years old.

Table 8.5
Status of Internet Use by Device by Age Group (2019)

(%)

Item	Usage rate	6-12 years	13-19	20-29	30-39	40-49	50-59	60-69	70-79	80 and over
Smartphones	63.3	35.0	76.7	87.9	87.7	83.5	79.3	55.6	27.2	7.8
Computers	50.4	23.6	42.3	66.0	68.9	64.8	63.9	49.0	31.4	11.3
Tablets	23.2	36.6	28.8	26.3	33.2	30.0	26.2	17.1	8.3	3.3
Mobile phones [1)]	10.5	4.9	6.4	9.1	11.4	9.9	11.7	12.4	14.3	8.8

1) Cell phones and PHS (Personal Handyphone System).
Source: Ministry of Internal Affairs and Communications.

As of the end of September 2019, 20.2 percent of enterprises had introduced telework. The most frequent telework pattern was mobile work, 63.2 percent, followed by working from home, 50.4 percent and working from a satellite office, 16.4 percent.

(2) Progress of Communication Technologies

The number of broadband (connection) subscribers as of the end of March 2019 was 243 million. Among the number of broadband subscribers, those with subscriptions for 3.9-4G mobile phones (LTE) were the highest, amounting to 137 million subscriptions and accounting for 56.2 percent of the total. Those with BWA (Broadband Wireless Access) service (access service connecting to networks via broadband wireless access systems using the 2.5GHz band [WiMAX, etc.]) was the second highest, with 66 million subscribers, making up 27.2 percent of the total.

Meanwhile, IP phone services (voice phone services that use Internet Protocol technology across part or all of the communication network), which use broadband circuits as access lines, entered full-scale use between 2002 and 2003. As of the end of March 2019, the total number of IP phone subscribers was 43 million.

Table 8.6
Subscribers to Telecommunications Services [1)]

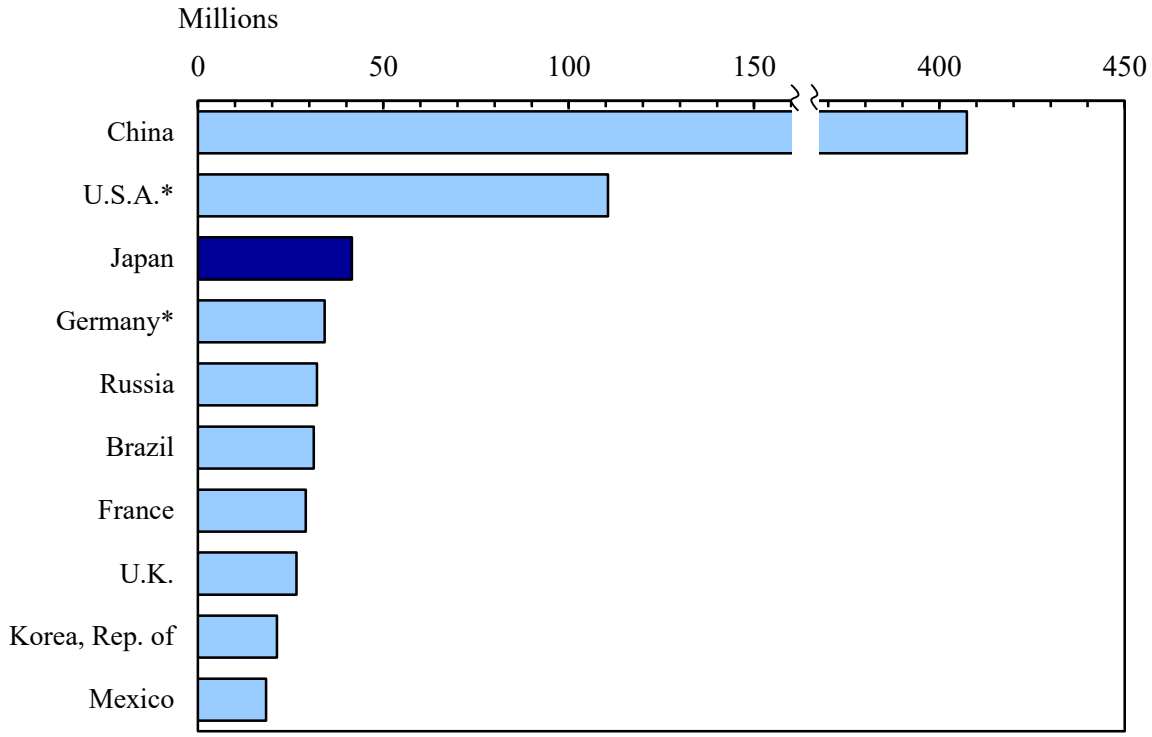
(Thousands)

Item	2015	2016	2017	2018	2019
Public phones (NTT [2)] only)	184	171	161	158	155
Fixed phone services	24,081	21,703	19,868	18,450	17,242
Mobile phones [3)]	157,857	160,560	166,853	172,790	179,873
IP phone	35,641	38,456	40,954	42,443	43,298
ISDN (Integrated Services Digital Network)	3,652	3,374	3,116	2,904	2,715
DSL (Digital Subscriber Line)	3,753	3,203	2,512	2,146	1,730
Cable Internet	6,428	6,727	6,847	6,881	6,855
FTTH (Fiber To The Home)	26,676	27,975	29,460	30,604	31,661
BWA (Broadband Wireless Access)	19,466	35,137	47,888	58,226	66,241
3.9-4G mobile phones (LTE)	67,781	87,472	102,942	120,727	136,642
International phone calls, sent and received	614,600	512,600	472,200	493,400	448,500

1) End of March. 2) Nippon Telegraph and Telephone Corporation.
3) Cell phones and PHS (Personal Handyphone System).
Source: Ministry of Internal Affairs and Communications.

In 2018, the number of fixed-broadband subscribers in Japan was 41 million, the third-largest after China, 407 million and the U.S.A., 111 million.

Figure 8.5
International Comparison of Fixed-Broadband Subscribers (2018)

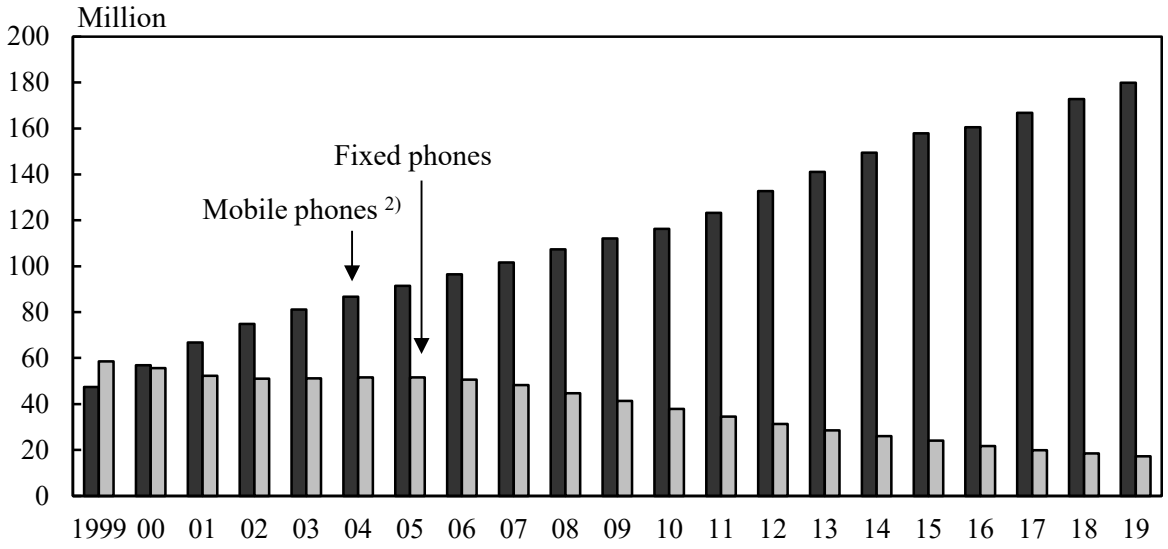


Source: International Telecommunication Union.

(3) Telephones

The number of fixed phone service subscription contracts has continued to decrease in recent years. As of the end of March 2019, the number of fixed phone subscribers was 17 million (down 6.5 percent from the previous year). Meanwhile, the number of mobile phone subscribers (cell phones and personal handyphone systems) totaled 173 million at the end of March 2018, marking a rise by 4.1 percent year-on-year to 180 million at the end of March 2019.

Figure 8.6
Telephone Service Subscribers [1)]



1) End of March. 2) Subscribers of cell phones and PHS (Personal Handyphone System).
Source: Ministry of Internal Affairs and Communications.

(4) Postal Service

As of the end of March 2020, Japan Post Co., Ltd. had 24,341 post offices nationwide. In fiscal 2019, post offices handled 20.9 billion items of domestic mail (including parcels), which was a 2.2 percent decrease from the previous fiscal year. Furthermore, the total quantity of international mail (letters, Express Mail Services [EMS], and parcels) sent in fiscal 2019 amounted to 41.2 million items, a decrease of 0.8 percent from the previous fiscal year.

Table 8.7
Postal Services

(Millions)

Item	FY2000	FY2005	FY2010	FY2015	FY2018	FY2019
Domestic						
Letters	26,114.4	22,666.1	19,757.9	17,981.0	16,739.0	16,308.9
Parcels	310.5	2,075.0	2,968.4	4,052.4	4,592.6	4,543.1
International						
Sent	106.0	77.5	54.2	48.9	41.5	41.2
Letters [1)]	104.3	76.1	52.8	44.1	38.0	38.4
Parcels	1.7	1.5	1.4	4.8	3.5	2.8

1) Including Express Mail Services (EMS).
Source: Japan Post Co., Ltd.