



Labor Productivity per Hour in Japan Compared Internationally

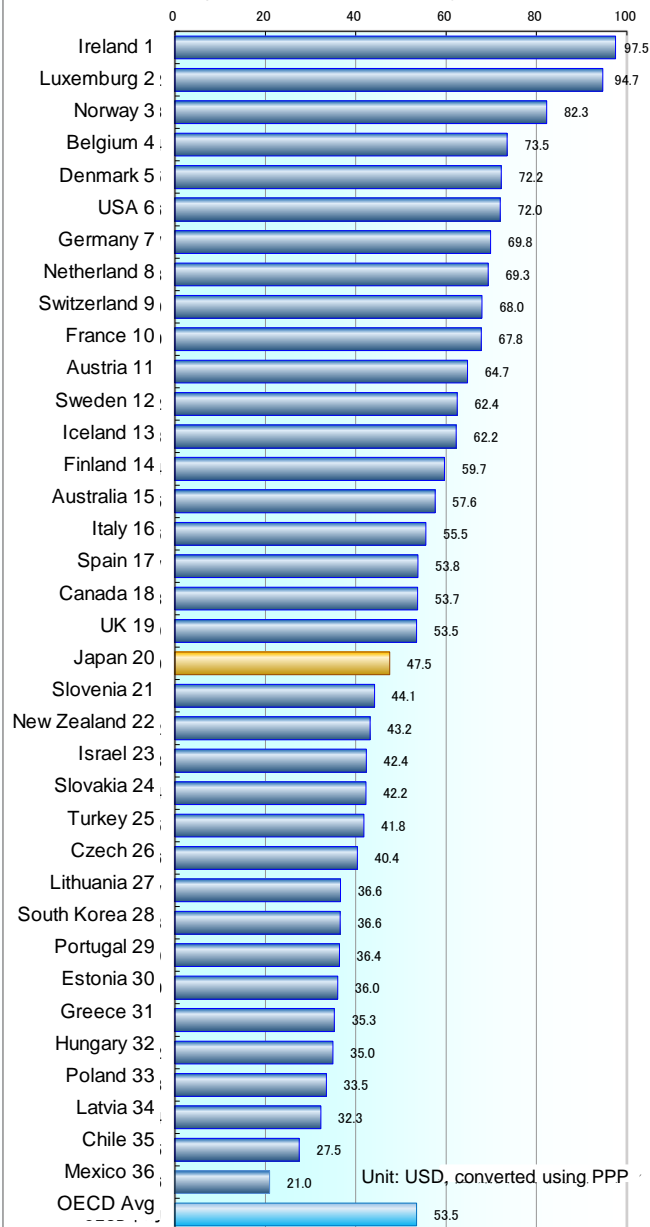
(See pp.7-12 of the Report)

JAPAN PRODUCTIVITY CENTER

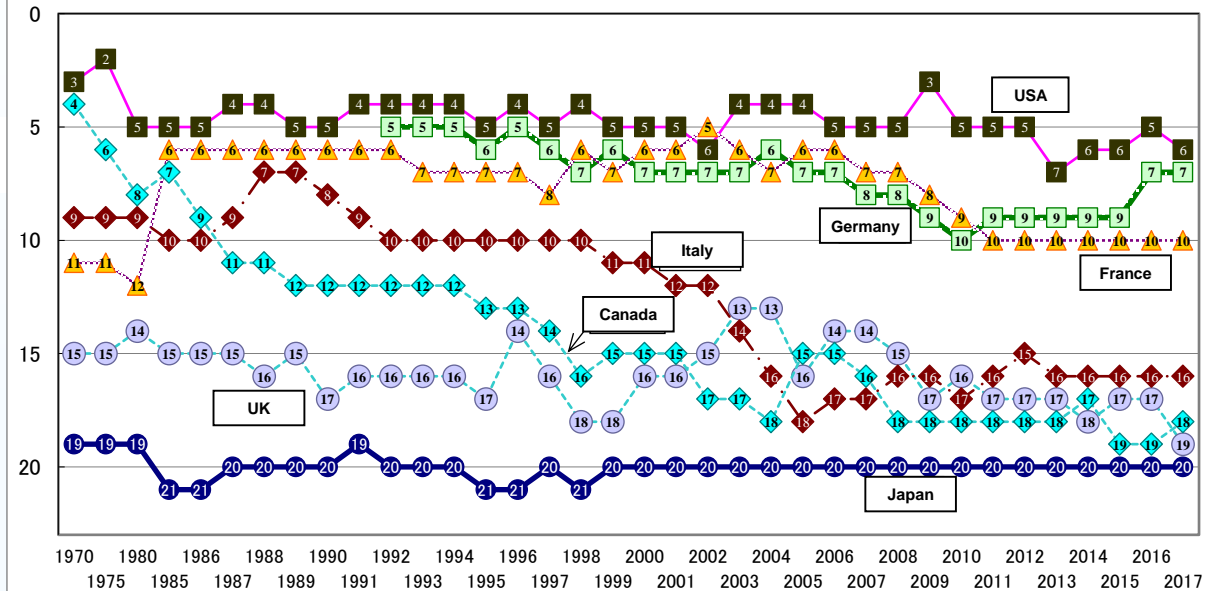
Japan's labor productivity per hour is 47.5 USD. It ranked 20th among 36 OECD countries, same as the previous year.

- In 2017, labor productivity per hour in Japan was 47.5 USD (4,733 JPY, converted using Purchasing Power Parity (PPP)). It ranked 20th among 36 OECD countries, same as the previous year (20th).
- Although increase in workers was a factor to lower productivity, nominal productivity increased by 1.4% from the previous year thanks to increase in nominal GDP and reduction in average working hours. (Real productivity increased 0.9% from the previous year and 0.6% from 2016 (+0.3%).)
- Labor productivity in Japan is about 2/3 of that in USA (72.0 USD, 7,169 JPY) and slightly lower than that in Canada (53.7 USD, 5,348 JPY) and that in the UK (53.5 USD, 5,328 JPY). Among the OECD countries, Ireland (97.5 USD, 9,710 JPY) and Luxembourg (94.7 USD, 9,430 JPY) have by far the highest productivity because of the effects of industrial structure, tax system, etc.

Labor Productivity per Hour in OECD Countries (2017, 36 countries)



Rankings of G7 Countries in terms of Labor Productivity per Hour



10 Countries with World's Highest Labor Productivity per Hour

	1980	1990	2000	2010	2017
1	Luxemburg	Luxemburg	Luxemburg	Luxemburg	Ireland
2	Switzerland	Belgium	Norway	Norway	Luxemburg
3	Netherland	Netherland	Belgium	Belgium	Norway
4	Belgium	Switzerland	Netherland	Ireland	Belgium
5	USA	USA	USA	USA	Denmark
6	Iceland	France	France	Denmark	USA
7	Sweden	Norway	Germany	Netherland	Germany
8	Canada	Italy	Switzerland	Switzerland	Netherland
9	Italy	Denmark	Denmark	France	Switzerland
10	Australia	Iceland	Sweden	Germany	France
-	Japan (19th)	Japan (20th)	Japan (20th)	Japan (20th)	Japan (20th)

(Material) Created by Japan Productivity Center with data from OECD database

* Comparisons are made among 36 countries because currently there are 36 OECD countries including Lithuania, which joined July 2018.

Data about OECD countries have been updated retrospectively according to GDP revisions, etc. Therefore, levels and rankings of Japan's productivity are different from those in last year's report.



Labor Productivity per Worker in Japan Compared Internationally

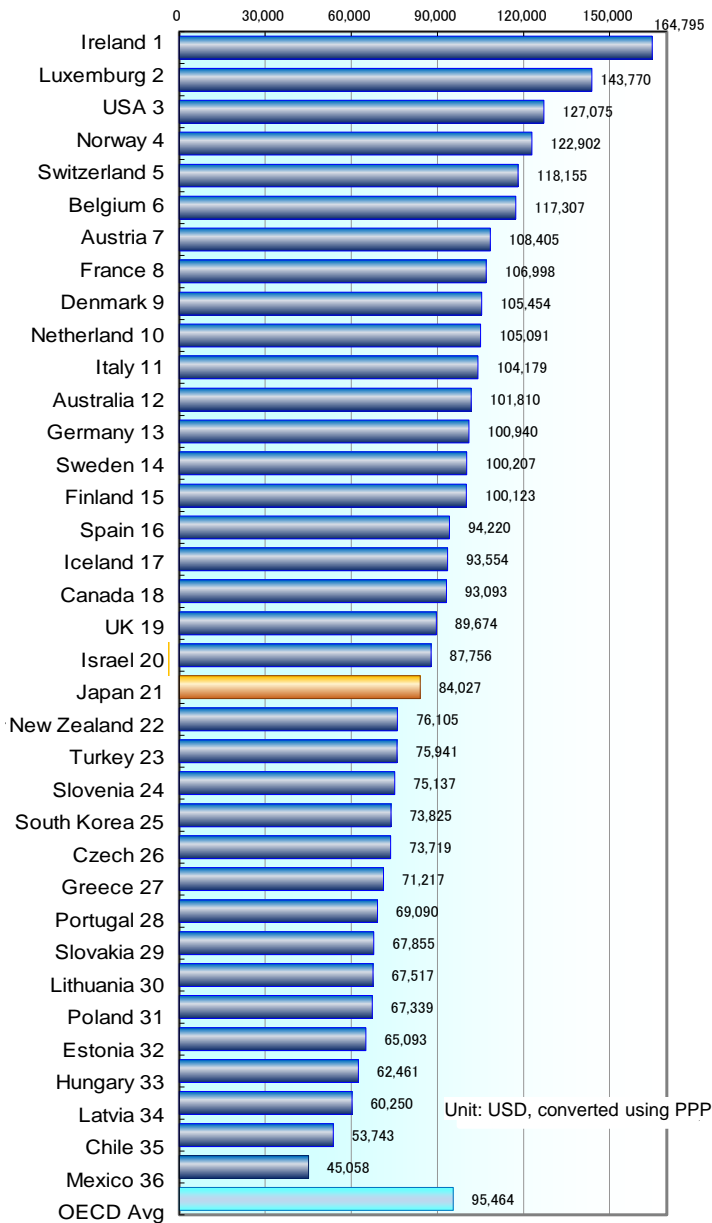
(See pp.3-7 of the Report)

JAPAN PRODUCTIVITY CENTER

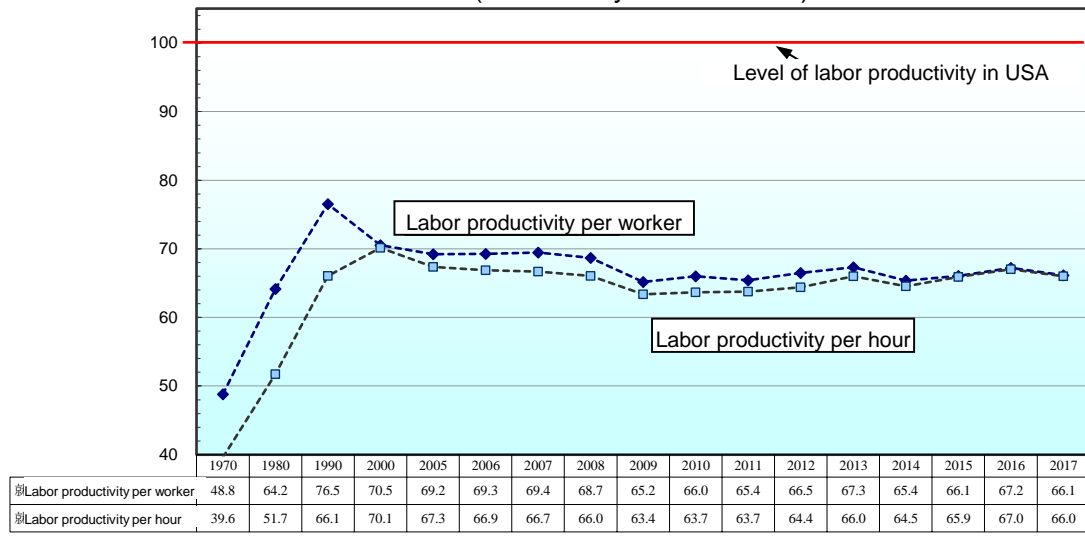
Labor productivity per worker in Japan is 84,027 USD, ranked 21th among 36 OECD countries.

- In 2017, labor productivity per worker in Japan was 84,027 USD (8.37 million JPY, converted using PPP). It ranked 21th among 36 OECD countries and the ranking has remained the same since 2013. As with labor productivity per hour, labor productivity per worker in Japan is also at the lowest level among the G7 countries.
- Labor productivity per worker in Japan is higher than that in New Zealand (76,105 USD, 7.58 million JPY) and slightly lower than that in the UK (89,674 USD, 8.93 JPY) and Canada (93,093 USD, 9.27 million JPY).
- Labor productivity per worker in Japan is about 2/3 of that in USA (127,075 USD, 12.66 million JPY). Although it was nearly 3/4 of that in USA in 1990, it dropped to about 70% in the 2000s and has been about 2/3 since the 2010s.

Labor Productivity in OECD Countries (2017, per worker, 36 countries)



Level of Japan's Labor Productivity Compared with USA (Productivity in USA = 100)



10 Countries with World's Highest Labor Productivity per Worker

	1970	1980	1990	2000	2010	2016
1	USA	Netherlands	Luxembourg	Luxembourg	Luxembourg	Ireland
2	Luxembourg	Luxembourg	Belgium	USA	Norway	Luxembourg
3	Canada	USA	USA	Norway	USA	USA
4	Australia	Belgium	Italy	Italy	Iceland	Norway
5	Belgium	Italy	Germany	Israel	Switzerland	Switzerland
6	Germany	Germany	Netherlands	Belgium	Belgium	Belgium
7	New Zealand	Iceland	France	Ireland	Italy	Austria
8	Italy	Canada	Austria	Switzerland	France	France
9	Sweden	Austria	Iceland	France	Netherlands	Denmark
10	Austria	France	Canada	Netherlands	Denmark	Netherlands
-	Japan (20th)	Japan (20th)	Japan (15th)	Japan (21th)	Japan (21th)	Japan (21th)

Material) Created by Japan Productivity Center with data from OECD database
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Labor Productivity in Japan's Manufacturing Industry Compared Internationally

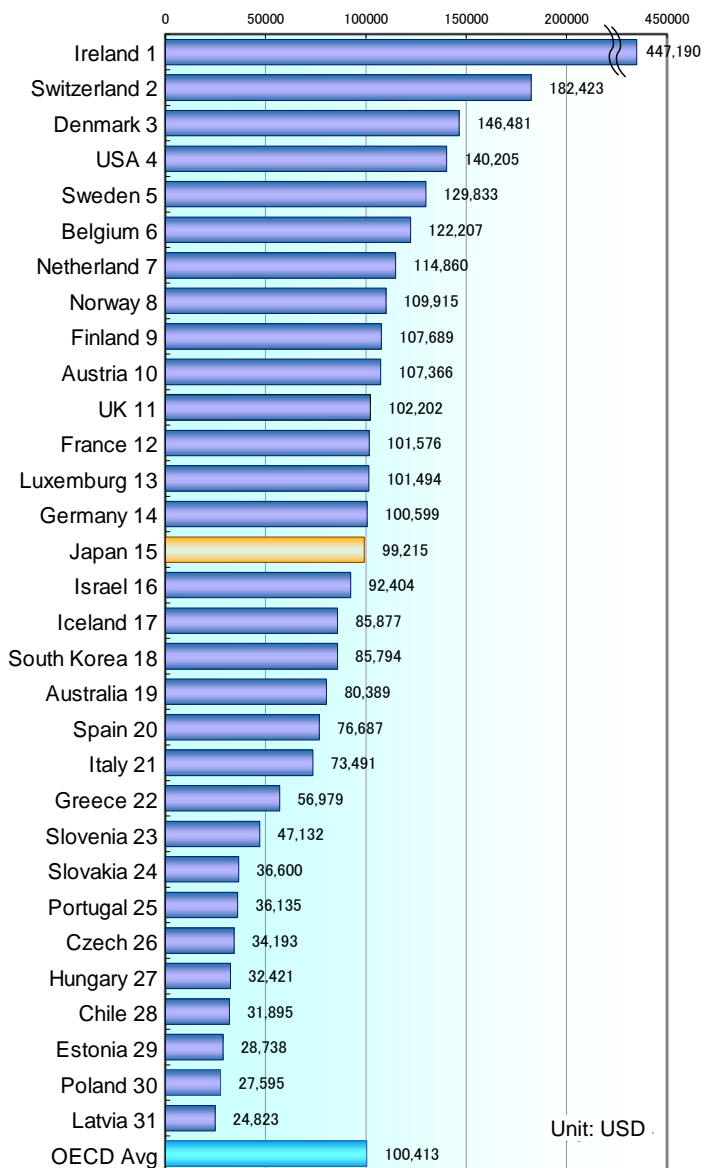
(See pp. 22-23 of the Report)

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Labor productivity in Japan's manufacturing industry is 99,215 USD (2016), ranked 15th among 31 OECD countries.

- Labor productivity (per worker) in Japan's manufacturing industry is 99,215 USD (11.15 million JPY, converted using exchange rate). It is about 70% of that in USA (140,205 USD, 15.76 million JPY) and slightly lower than in France (101,576 USD, 11.42 million JPY), Luxembourg (101,494 USD, 11.41 million JPY) and Germany (100,599 USD, 11.31 million JPN).
- In 1995 and 2000, labor productivity in Japan was at the highest level among the major nations. It started to move down significantly on the list in the 2000s and ranked 15th in 2016, having dropped a place from the previous year (2015).
- Labor productivity in manufacturing industry has been increasing steadily in yen, but has recently been growing little in dollar due to the impact of the exchange rate. Exchange rate (moving average) was weakened for the yen by about 20% (21.7%) from 2010 to 2016, which slowed down the rate of dollar-based productivity increase.

Nominal Labor Productivity in Manufacturing (2016, OECD countries)



15 Countries with World's Highest Labor Productivity in Manufacturing

	1995	2000	2005	2010	2016					
1	Japan	88,093	Japan	85,182	Ireland	154,011	Ireland	230,321	Ireland	447,190
2	Belgium	73,386	Ireland	84,696	USA	103,967	Switzerland	164,272	Switzerland	182,423
3	Luxembourg	71,393	USA	78,583	Sweden	103,812	Sweden	130,804	Denmark	146,481
4	Sweden	69,771	Sweden	75,803	Finland	103,497	USA	128,394	USA	140,205
5	Netherlands	69,568	Finland	74,454	Belgium	99,761	Denmark	125,744	Sweden	129,833
6	Finland	67,561	Belgium	68,427	Norway	99,633	Norway	124,556	Belgium	122,207
7	France	64,289	Luxembourg	64,955	Netherlands	98,138	Belgium	121,351	Netherlands	114,860
8	Germany	62,162	Netherlands	63,648	Japan	94,186	Finland	119,763	Norway	109,915
9	Austria	59,914	Denmark	62,542	Denmark	88,739	Netherlands	115,400	Finland	107,689
10	Denmark	59,104	France	61,961	Austria	86,597	Austria	108,969	Austria	107,366
11	Norway	56,832	Austria	59,052	Luxembourg	85,327	Japan	105,569	England	102,202
12	Ireland	54,935	England	59,004	France	84,090	France	103,143	France	101,576
13	England	51,229	Norway	58,714	England	83,706	Germany	98,699	Luxembourg	101,494
14	Italy	48,094	Germany	55,737	Germany	78,871	Canada	92,597	Germany	100,599
15	Australia	43,468	Israel	54,873	Australia	66,588	Iceland	91,889	Japan	99,215

Unit: USD (Converted using weighted average exchange rate)

((Material) Created by Japan Productivity Center with data from OECD database

* For the conversion to dollar, actual exchange rates were used in moving average method. Normally, it is desired to use PPP by industry. However, as PPP in manufacturing in 2016 has not been announced, actual exchange rate is used for the purpose of convenience. The exchange rate used for this calculation was 112.40 yen to dollar.

* 1995 US data has not been calculated due to lack of data necessary for the measurement. Please also note that the comparison was made among only 31 OECD countries of which data necessary for the measurement was available.

[Changes in Labor Productivity in Major Nations and Japan]

Changes in Nominal Labor Productivity in G7
(per hour, 2000-2017)

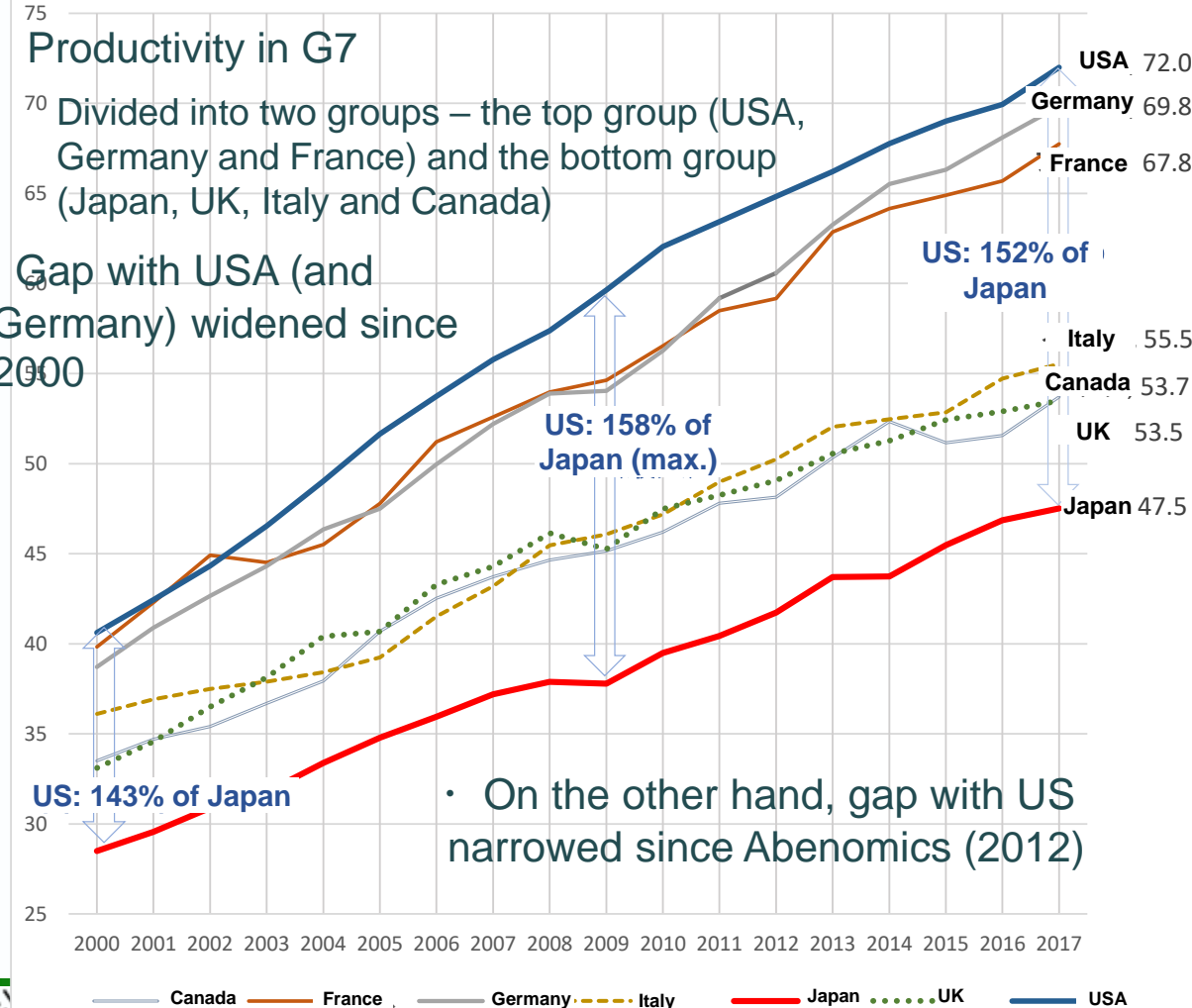
Converted to USD using PPP

Productivity in G7

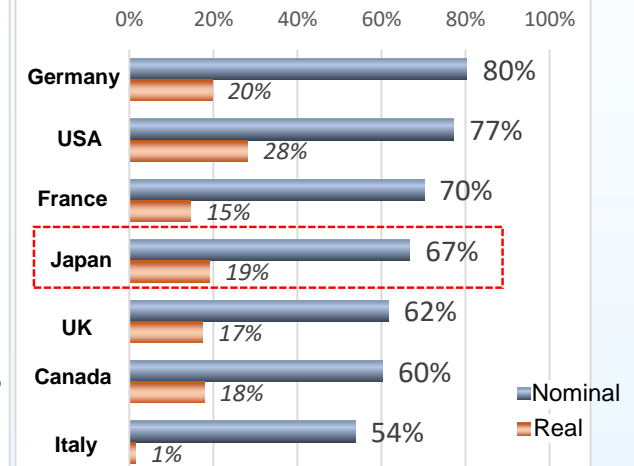
Divided into two groups – the top group (USA, Germany and France) and the bottom group (Japan, UK, Italy and Canada)

Gap with USA (and Germany) widened since 2000

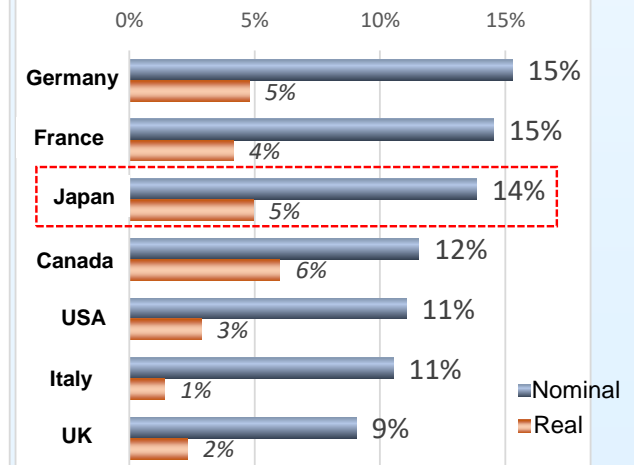
On the other hand, gap with US narrowed since Abenomics (2012)



Increase in Labor Productivity (2000 → 2017)



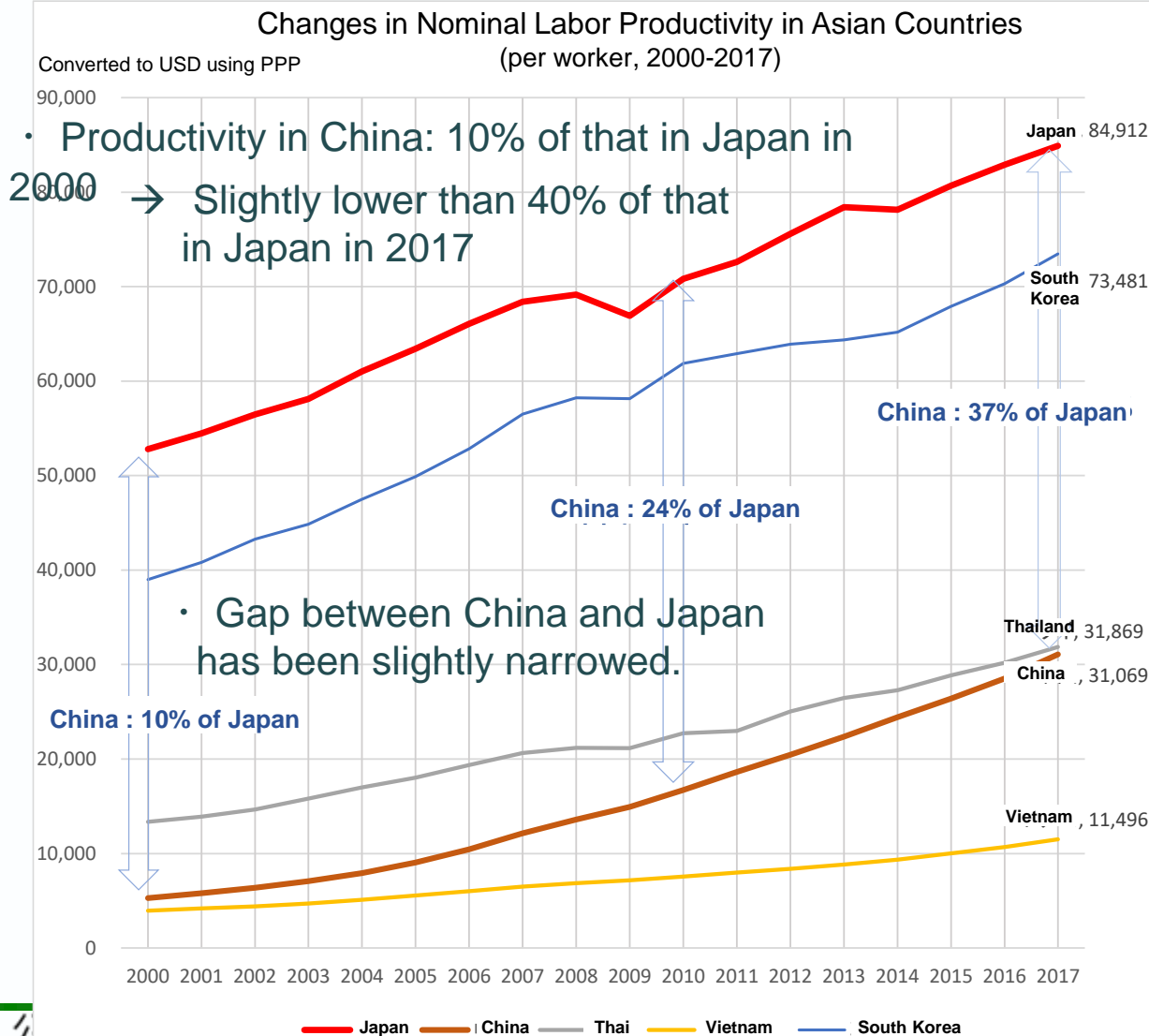
Increase in Labor Productivity (2012 → 2017)



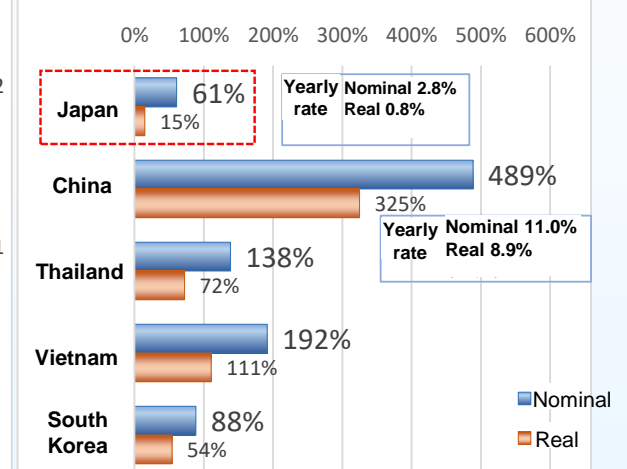
* Increase in nominal productivity: Calculated from nominal values converted to USD using PPP
Increase in real productivity: Calculated from real values converted to USD using 2010 standard PPP



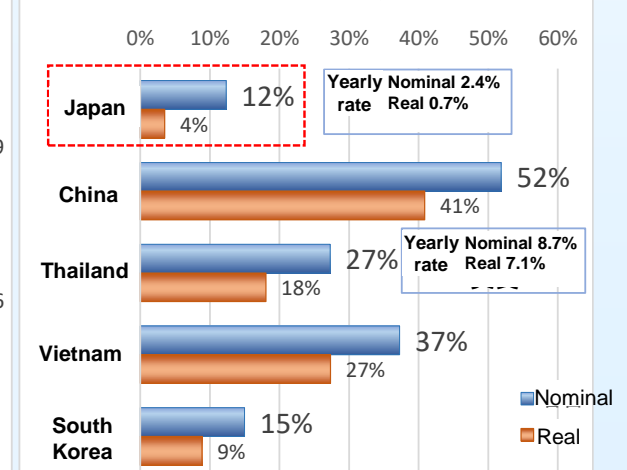
[Changes in Labor Productivity in Japan and Other Asian Countries]



Increase in Labor Productivity (2000 → 2017)



Increase in Labor Productivity (2012 → 2017)



* Increase in nominal productivity: Calculated from nominal values converted to USD using PPP
 Increase in real productivity: Calculated from real values converted to USD using 2010 standard PPP

What is Labor Productivity?

What is Labor Productivity?

→ Indicator for output per worker or per hour, represented in the following formula

$$\text{Labor productivity} = \frac{\text{Output (amount of added value, production, etc.)}}{\text{Input (labor input [no. of workers, or no. of workers} \times \text{no. of working hours])}}$$

* Labor productivity shows how efficiently workers produce output in a quantitative manner and it increases with improvement of workers' abilities, efforts for efficiency improvement, improvement of management efficiency, etc. Increase in labor productivity is considered a factor that brings economic growth and economic affluence.

※ Purchasing Power Parity (PPP)

For the measurement for the Report, Purchasing Power Parity (PPP) was used for currency conversion. PPP shows real purchasing power of each currency adjusted in view of price level, etc. in the form of exchange rate. Exchange rate is often used for currency conversion, but values may fluctuate as the rate fluctuates. Therefore, OECD recommends the use of PPP instead of exchange rate for the comparison of productivity.

PPPs are actually measured in the International Comparison Program (ICP) of the United Nations. The PPP rate is calculated by checking how much money is needed to buy a certain amount (certain basket to be set) of an item (product or service) in different countries and equating the values.

For example, if the price of the same quality and same quantity of McDonald hamburger is 1 dollar in USA and 100 yen in Japan, the PPP for the hamburger is 100 yen to dollar. PPP for GDP is average PPP of the whole national economy calculated as weighted average of the PPPs of many items calculated in the above-described method. PPPs are announced by OECD and the World Bank. The 2017 PPP for yen-dollar exchange announced by OECD is 99.594 yen to dollar.