Mizuho Economic Outlook & Analysis

7 million labor shortage is expected in 2030

Japan needs to raise productivity through investment in labor saving and human capital

April 28, 2023

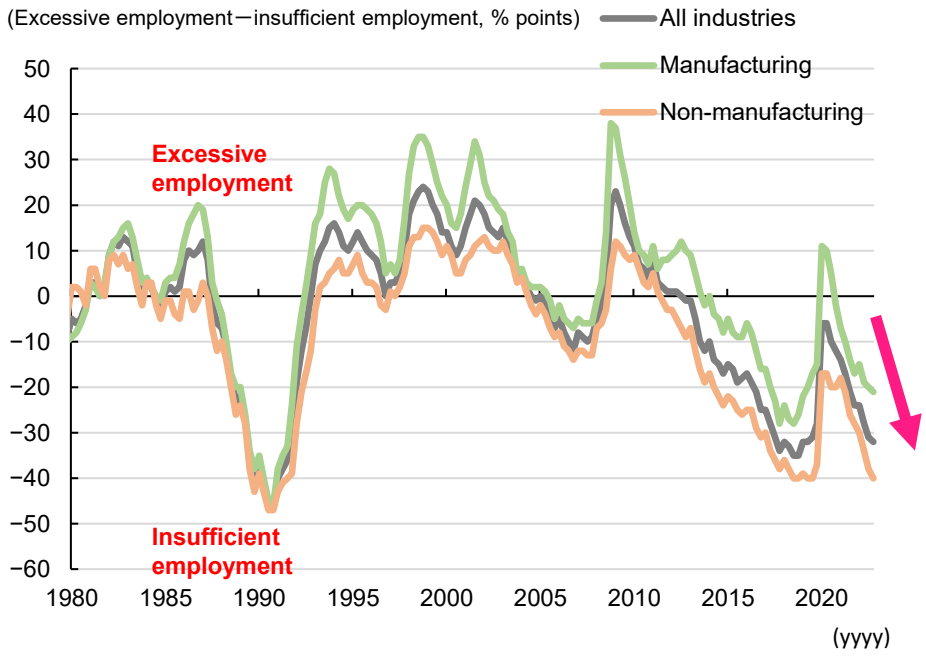
Mizuho Research & Technologies, Ltd.

MIZUHO

Labor shortage reaches pre-pandemic levels

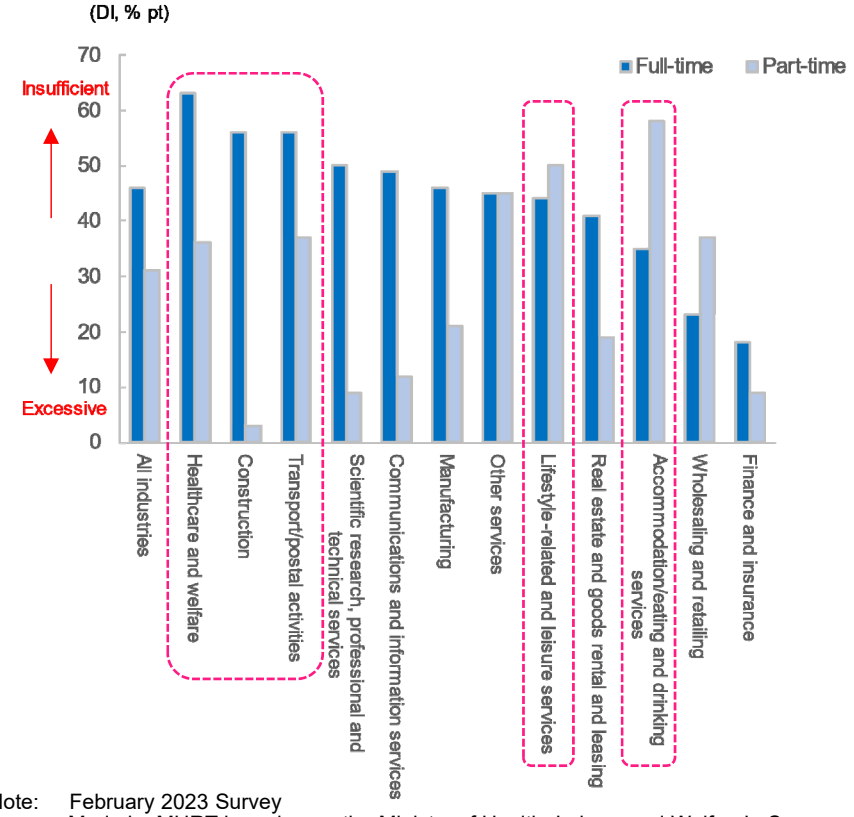
- The labor shortage is becoming a serious issue, particularly in labour-intensive service sectors.
  - The latest employment conditions DI (BOJ's March 2023 Tankan Survey) was ▲32％Pt. It approached 2018–2019 level, when labor shortage was mostly concerned in recent times. This shortage is especially remarkable in the non-manufacturing sector.
  - Welfare, construction, and transport/postal services are short of full-time workers. Accommodation/eating and drinking services and lifestyle-related and leisure services are short of part-time workers.

Employment Conditions DI



Source: Made by MHRT based upon the Bank of Japan's *Short-Term Economic Survey of Enterprises in Japan* (Tankan Survey)

Employment Conditions DI (full-time and part-time workers)

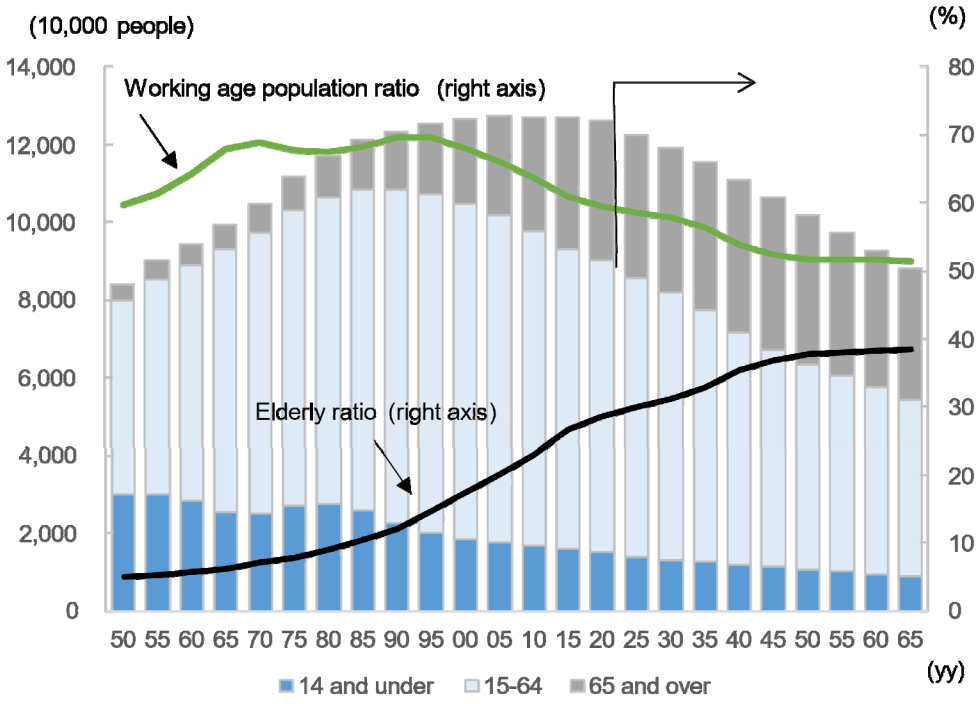


Note: February 2023 Survey
Source: Made by MHRT based upon the Ministry of Health, Labour and Welfare's *Survey on Labour Economy Trend*

Working age population is decreasing at a faster pace

- The working age population is decreasing at a faster pace, therefore enterprises will face acute shortage of employees.
  - The total population peaked out in 2010. The population will drop below 90 million in 2065, and the percentage of elderly people (65 and over) will rise to 38%.
  - The working age population (15–64) will shrink at a faster pace going forward and will fall at a significantly fast pace in the 2030s. (From -470,000 in 2020–2025 and -590,000 in 2025–2030 to -760,000 in 2030–2035 and -1.03 million in 2035–2040)

Total population



Note: The figures for 2025 onwards are based on the National Institute of Population and Social Security Research's *Population Projections for Japan* (estimated in 2017): Medium-fertility projection and medium-mortality projection.
Source: Made by MHRT based upon the Ministry of Internal Affairs and Communications' *National Census*, etc.

Outlook for the total and working age population

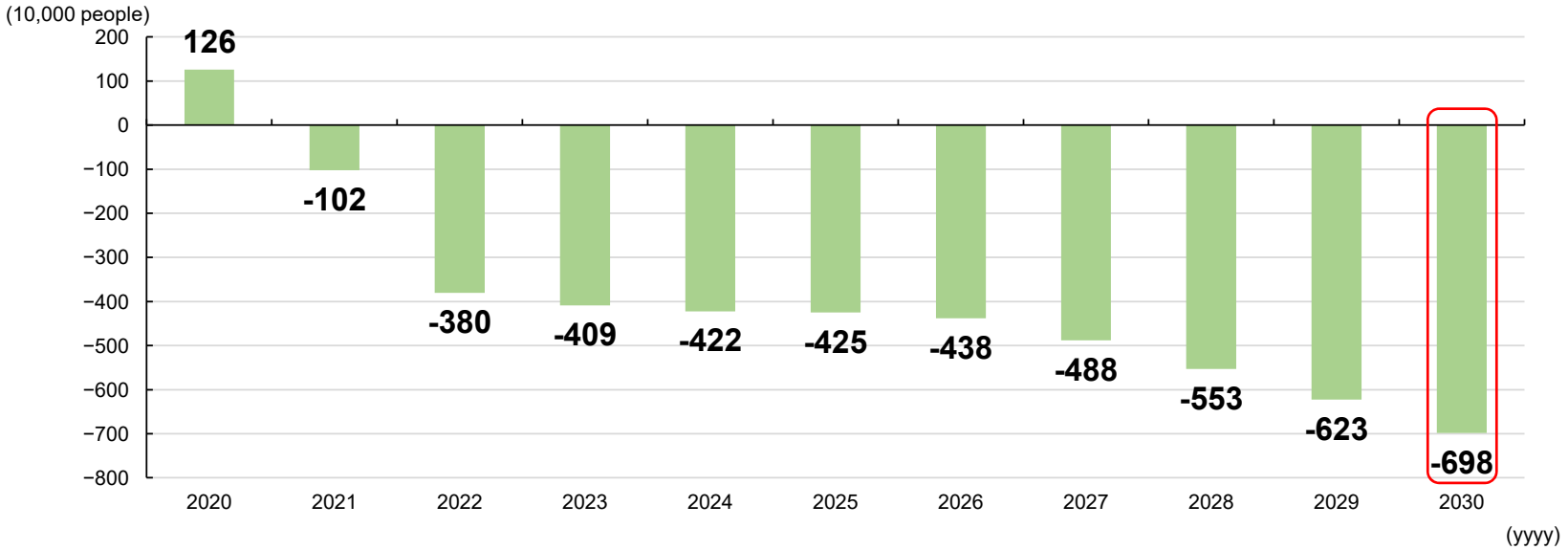
	Total population		Working age population	
	Rate of change (annualized, %)	Average annual change (10,000 people)	Rate of change (annualized, %)	Average annual change (10,000 people)
1990→1995	0.3	39.2	0.3	22.4
1995→2000	0.2	27.1	−0.2	−17.6
2000→2005	0.1	16.8	−0.5	−39.2
2005→2010	0.0	5.8	−0.6	−53.7
2010→2015	−0.2	−19.2	−1.1	−89.1
2015→2020	−0.3	−35.4	−0.8	−64.5
2020→2025	−0.4	−55.6	−0.6	−47.1
2025→2030	−0.6	−68.4	−0.8	−58.9
2030→2035	−0.7	−78.2	−1.1	−76.2
2035→2040	−0.8	−85.9	−1.6	−103.3

Note: Medium-fertility projection and medium-mortality projection
Source: Made by MHRT based upon the National Institute of Population and Social Security Research's *Population Projections for Japan* (estimated in 2017)

Labor shortage is expected to reach 7 million in 2030

- Japan will be short of around 7 million workers in 2030.
  - MHRT estimates that the shortage of workers will be 6.98 million in 2030.
  - The population shrinkage will accelerate from 2031, therefore the labor shortage problem will become more acute.
  - If labor productivity growth remains low, the potential growth rate could fall into negative territories in the near future.

Estimated labor shortages up until 2030



Note: Past labor shortages (until 2022) are calculated by the method of the Japan Institute for Labour Policy and Training's *Useful Labor Statistics 2021* (*10.2 Estimate of Excessive Employment Using the Labor Cost Ratio Method*). The excessive employment is estimated based on the ratio of labor costs to sales. The calculation formula is outlined below:

Excessive employment rate = (the labor cost to sales ratio – the labor cost to sales ratio in 2012) / the labor cost to sales ratio

Past labour shortages (excesses) are calculated by multiplying the excessive employment rate for each year with the number of workers in *the Labour Force Survey*. The future labour shortage(2023–2030) is calculated from the deviation between labor demand and labour supply. Labour demand is calculated by multiplying MHRT's mid-term GDP forecast (内外経済の中期見通し *Medium Term Domestic and Global Economic Outlook*, December 2022) with employment elasticity (0.5: estimate for the period between Q1 2012 and Q4 2019). Labour supply is calculated by the rate of employment and the estimated future population. Rate of employment is assumed to rise at the average pace of the previous ten years, with the ceiling set as the potential employment rate (based on working intentions by gender/age),

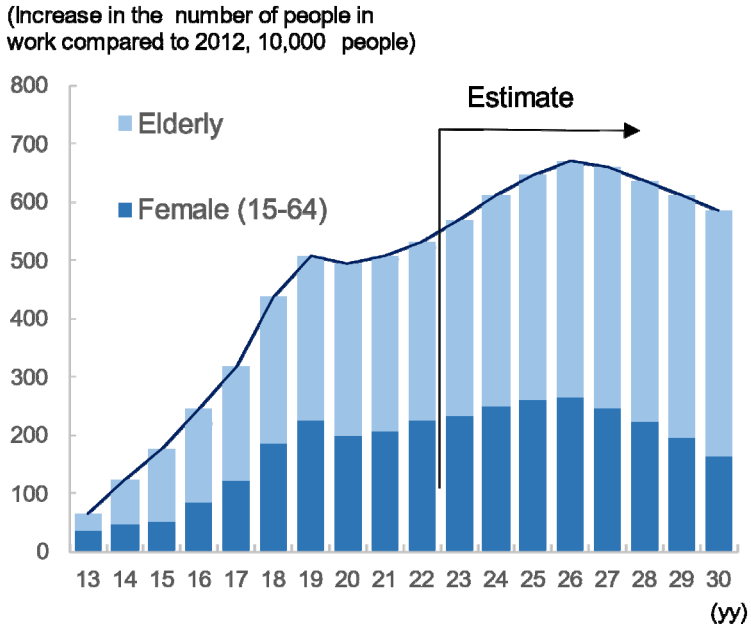
Source: Made by MHRT based upon the Ministry of Internal Affairs and Communications' *Labour Force Survey,* the Cabinet Office's *System of National Accounts,* the Japan Institute for Labour Policy and Training's *Useful Labor Statistics,* the Ministry of Finance's *Surveys for the Financial Statements Statistics of Corporations by Industry*, and the National Institute of Population and Social Security Research's *Population Projections for Japan* (estimated in 2017)

MIZUHO

Women and elderly workers are peaking out (1)

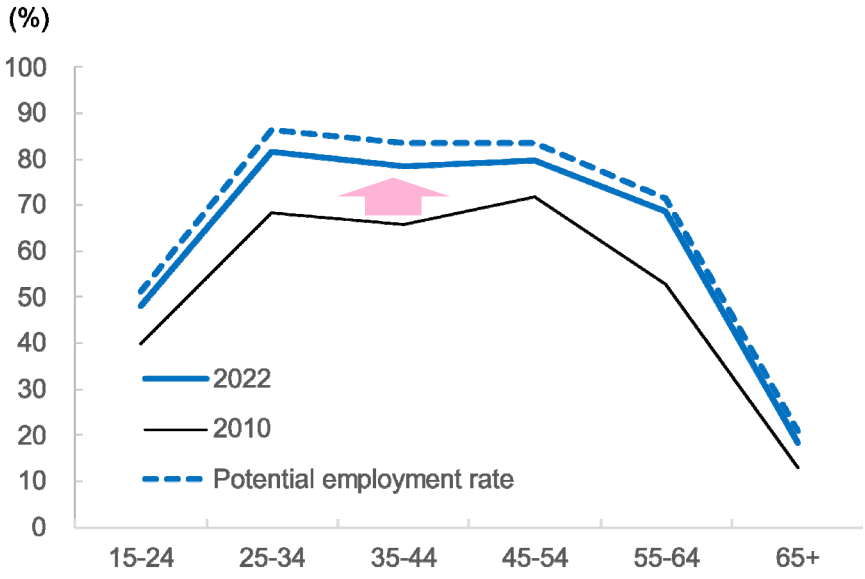
- Rising participation rates of women and the elderly contributed to increase work force, but this trend will peak out in the late 2020s.
  - More women and elderly people entered the workforce in the 2010s. However, this trend will probably reverse in the late 2020s.
  - 'M-shaped curve' (Women labour participation rates shows an M-shaped curve. It means many 30s and 40s women quit their jobs due to marriage and having children) has been almost removed, so further increase of female workers can not be expected.

The potential for increased female and elderly labor force participation



Note: The number of workers are calculated based on the estimated future population, assuming that the rate of employment will rise at the average pace of the previous ten years, with the ceiling set as the potential employment rate (based on working intentions by gender/age).
Source: Made by MHRT based upon the Ministry of Internal Affairs and Communications' *Labour Force Survey* and the National Institute of Population and Social Security Research's *Population Projections for Japan* (estimated in 2017)

Female labor participation rates

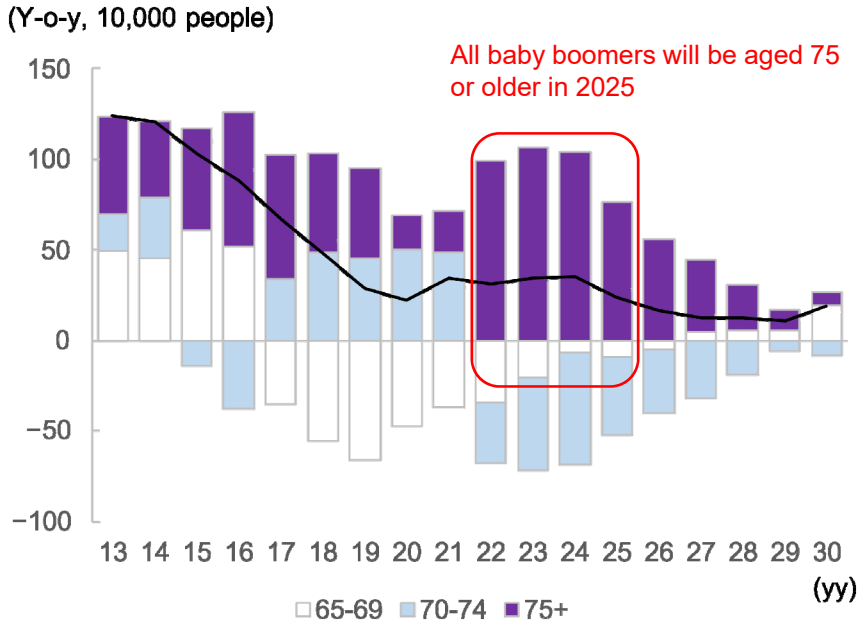


Note: The potential employment rate is an estimate based on working intentions for each age category.
Source: Made by MHRT based upon the Ministry of Internal Affairs and Communications' *Labour Force Survey*

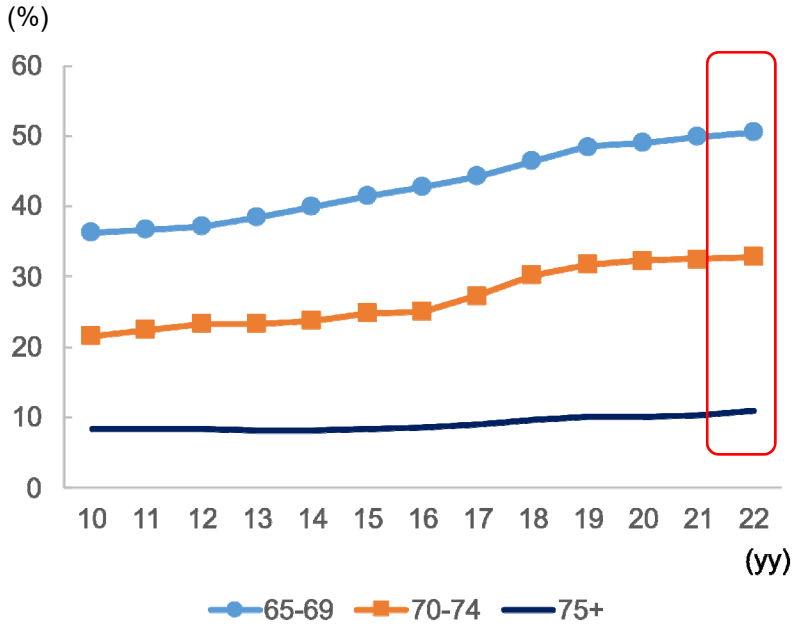
Women and elderly workers are peaking out (2)

- The baby boom generation has reached their mid-70s, so the pace of increase in employment of seniors is projected to decelerate.
  - The baby boom generation (those born between 1947–1949) will all have reached the age of 75 by 2025.
  - The employment rate for seniors aged 75 and over has been significantly lower than those aged between 65 and 74.

Number of seniors



Employment rate of seniors



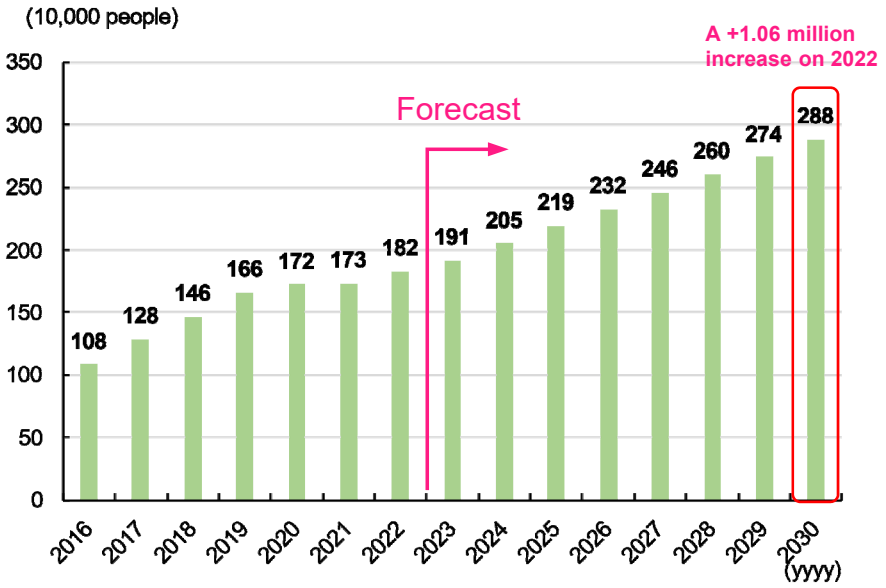
Note: Estimated based on the Ministry of Internal Affairs and Communications' *Population Estimates* until 2021. Estimated based on the National Institute of Population and Social Security Research's statistics from 2022 onwards.
Source: Made by MHRT based upon the Ministry of Internal Affairs and Communications' *Population Estimates, and* the National Institute of Population and Social Security Research's *Population Projections for Japan* (estimated in 2017)

Source: Made by MHRT based upon the Ministry of Internal Affairs and Communications' *Labour Force Survey*

Foreign workers will increase by one million by 2030; this will be insufficient to cover labor shortages

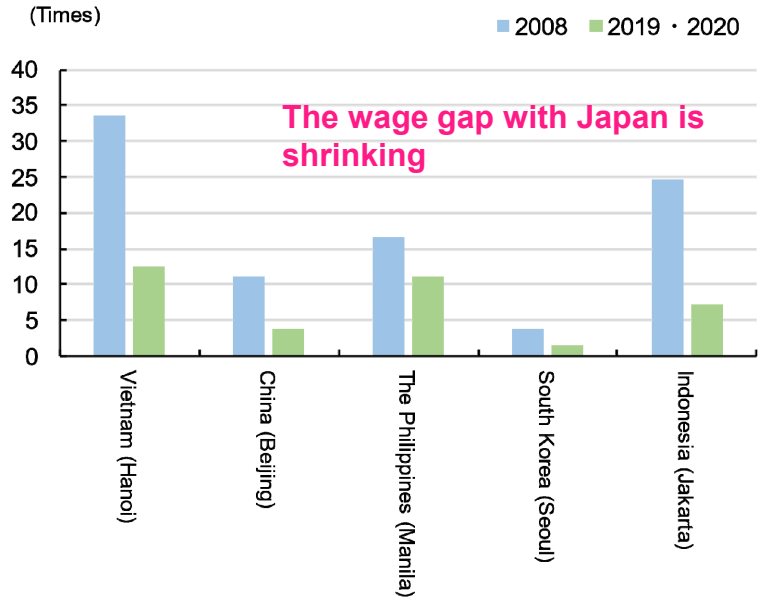
- The number of foreign workers will continue to grow, but the pace is expected to be slower.
  - The number of foreign workers is expected to increase by an annual average of 132,000 until 2030, though the pace will decelerate compared to 2016–2019 (+152,000).
  - The number of foreign workers is estimated to grow by 1.06 million in 2030 compared to 2022. Though this will somewhat support Japan's labor market, it will be insufficient to make up for the shortfall of around 7 million.
  - The salary gap between Japan and other Asian countries is shrinking, so if Japan wants to attract foreign workers, it will need to relax immigration restrictions and improve the system for accepting foreign workers.

Number of foreign workers



Note: The following model is estimated with reference to Mizuho Research Institute's (currently MHRT) *Will Japan Need to Accept More Foreign Workers to Eliminate Labor Shortages?* (2018).
$(No.\ of\ workers\ living\ in\ Japan\ _{i,t}) = -0.23 + 0.95^{*} \log(No.\ of\ workers\ living\ in\ Japan\ _{i,t-1}) + 0.1^{*} \log(working\ age\ population\ _{i,t}) - 0.09^{*} \log(comparative\ scale\ of\ the\ economy_{i,t}) - 0.04^{*} \log(distance_{i,t}) + time\ fixed\ effects_{t} + error\ terms_{i,t}$
*is significant at the 5% level. Estimatioin period = 2014–2022.
Source: Made by MHRT based upon releases by the IMF, United Nations, and the Ministry of Health, Labour and Welfare

Comparative wages in Japan and other Asian countries (general manufacturing jobs)

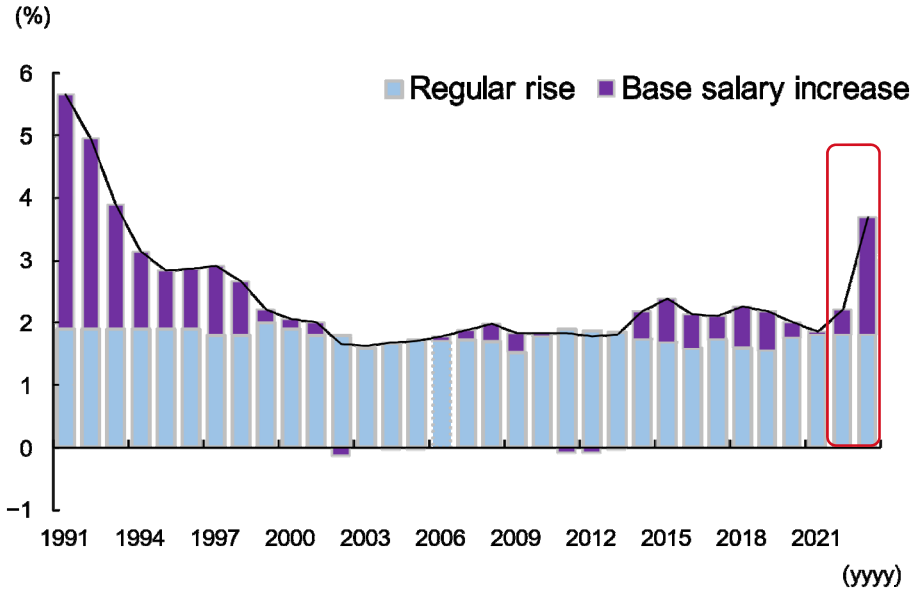


Note: Wage levels in Yokohama when wages in each country are set as 1. The figures for China and South Korea are for 2020. The figures for other countries are for 2019.
Source: Made by MHRT based upon Japan External Trade Organization's *Comparative Survey of Investment-Related Costs*

The 2023 spring labor management wage negotiations led to a high wage hike; the question is whether high wage rises will be sustained going forward

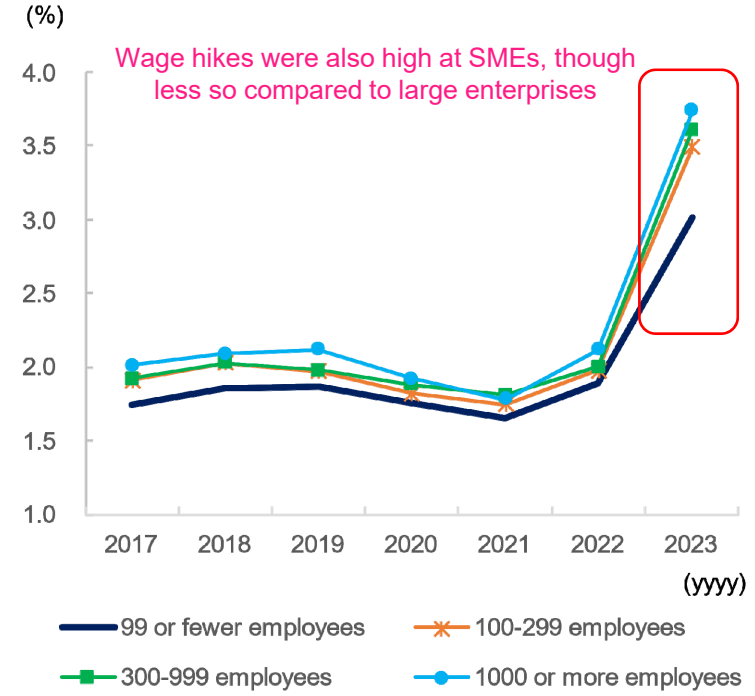
- The annual spring labor management wage negotiations agreed to relatively high wage increases this year.
  - The average rate of increase in wages for employees in labor unions -- which belongs to the Japanese Trade Union Confederation (Rengo) -- marked the highest level in about 30 years. This was due to improved corporate profits, high prices and labor shortages.
- However, with the rising cost of raw materials and fuel putting pressure on profits, many small and medium sized firms (hereafter referred to as "SMEs") were forced to lift wages to retain workers.
  - According to a survey by the Japan Chamber of Commerce and Industry,* around 60% of those SMEs planning to lift wages responded that this year's wage hikes were not accompanied by improvement in corporate profits (in 2023).
    * Japan Chamber of Commerce and Industry's *Survey on the Minimum Wage and Wages/Employment at Small and Medium Sized Companies* (March 2023).

Results of spring wage negotiations



Note: The figure for 2023 is the Japanese Trade Union Confederation's 4th totaled result.
Source: Made by MHRT based upon the Ministry of Health and Japanese Trade Union Confederation (Rengo), Central Labor Relations Commission

Results by type of employment and firm size (total wage increase)

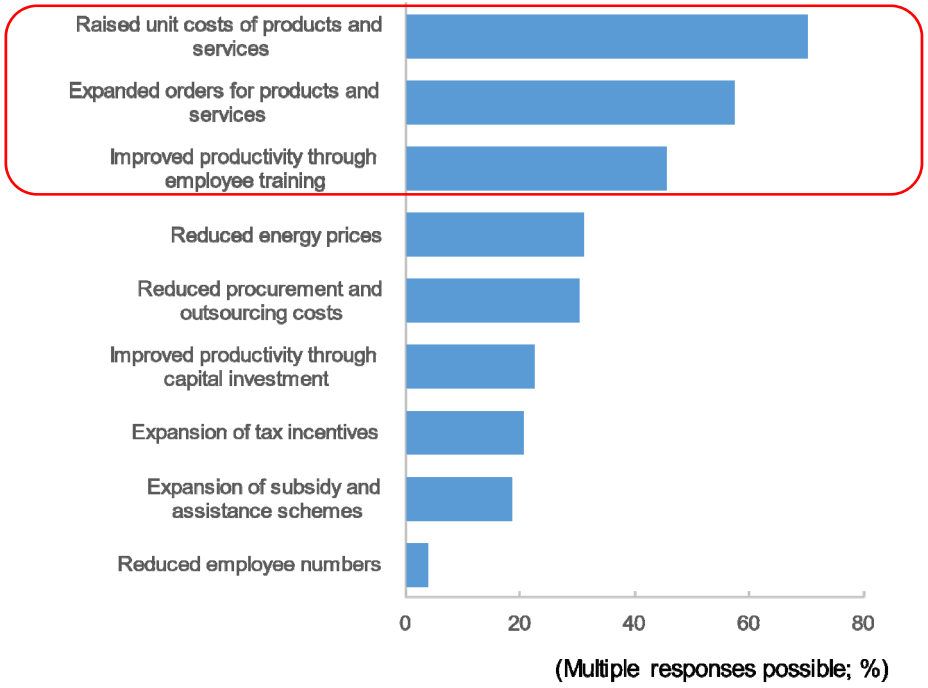


Note: The figure for 2023 is the 4th totaled result.
Source: Made by MHRT based upon the Japanese Trade Union Confederation

The key to sustainable wage rises lies in price pass-through and productivity

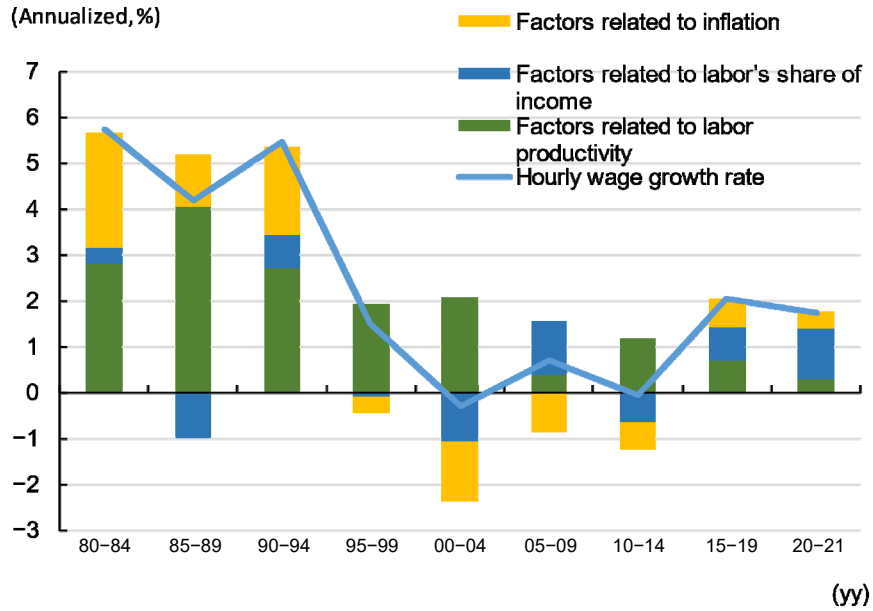
- Firms intend to secure money for wage rises by appropriate price pass-through.
  - Over 70% of firms say “raised unit costs of products and services” will be necessary to pay for wage hikes. The next most common answers were “expanded orders for products and services” and “improved productivity through employee training.”
- Higher labor productivity growth is essential in the long term.
  - An analysis of three factors behind mid- to long-term wage shifts (namely (1) labor productivity, (2) labor’s share of income, and (3) inflation) shows labor productivity growth decelerated sharply in the late 1990s.

What is necessary to implement wage rises?



Source: Made by MHRT based upon Tokyo Shoko Research’s *FY2023 Survey on Wage Increases (No. 2)* (February 20, 2023)

Factors behind wage increases by contribution



Note: An analysis of contribution levels based on the following formula. GDP deflator factors are interpreted as ‘factors related to inflation.’
Average hourly wages = employee compensation/total labor hours = (employee compensation/nominal GDP) × (nominalGDP/realGDP) × (realGDP/ total labor hours)
= labor’s share of income × GDP deflator × labor productivity

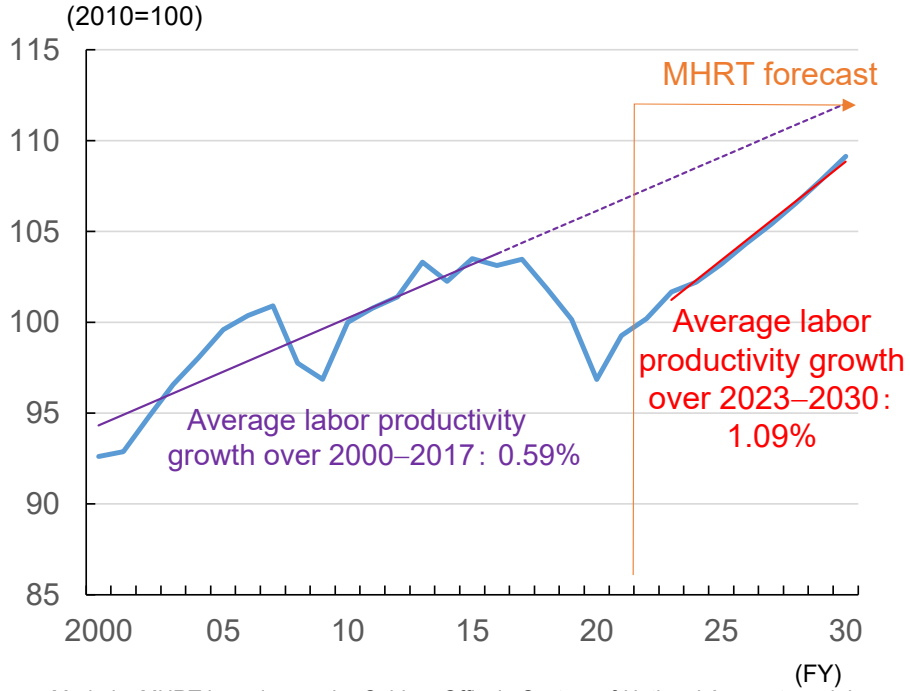
Source: Made by MHRT based upon the OECD’s *National Accounts and Labour*.

MIZUHO

It is getting more and more important to invest in labor saving and human capital

- Japan needs to promote investment in labor saving and human capital.
  - Labor productivity growth is expected to improve to 1.1% in 2023–2030 (2000–2017: 0.6%) after COVID-19 shock.
  - With the population set to shrink at a faster pace after FY2030, Japan will need to maintain high labor productivity growth through the promotion of investment in labor saving and human capital in order to keep positive growth.

Labor productivity (GDP per worker): Results and forecast



Source: Made by MHRT based upon the Cabinet Office's *System of National Accounts* and the Ministry of Internal Affairs and Communications' *Labour Force Survey*

Measures to raise labor productivity

Investment in labor saving (capital investment)

(raising productivity through higher capital intensity)

- Utilization of robots (manufacturing, transportation, nursing care, etc.)
- Promotion of digitization (software, AI, etc.)

Investment in human capital (investment in intangible assets)

(raising productivity by improving workers' skill)

- Improved education and training (especially Off-JT)
- Redeployment of staff through reskilling

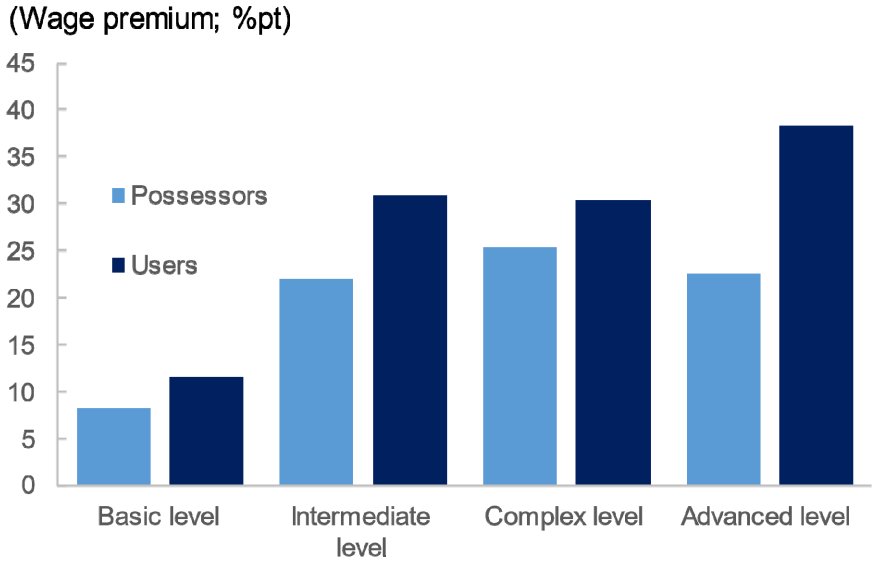
Source: Made by MHRT based upon various materials

MIZUHO

Reskilling and labor mobility are required for sustainable wage growth backed by productivity

- ICT skills and wages have a positive correlation. Wages tend to rise when skills are actually used in job settings.
  - Workers with ICT skills have a wage premium over those who don't possess ICT skills. Furthermore, when ICT skills are actually used in job settings, this wage premium tends to expand as skill levels go higher.
- In order to achieve sustainable wage increases backed by improved productivity, reskilling and active in-house/inter-company labor mobility will be essential.

The correlation between ICT skills and the wage premium



Note 1: The wage premium shows the amount by which hourly wages are higher compared to people with absolutely no ICT skills (it shows a correlation not a cause).
2: All wage premium estimates are statistically significant.
Source: Made by MHRT based on SANO Shinpei, etc.(2023)'s *Empirical Analysis of Skill Possession and Skill Use: Focusing on ICT and English skills* (RIETI Discussion Paper Series 22-J-032)

Two types of labor mobility (staff reallocation)

Internal labor market (in-house labor mobility)	External labor market (labor mobility between companies)
Switch to new tasks or positions	Move to a new company
Transfer to a different department	Get a side job
In-house side jobs	Volunteer
Employee secondment	

Source: Made by MHRT based upon releases by the Ministry of Health, Labour and Welfare, etc.

It will be essential to introduce and enhance the policies to alleviate the labor supply decline, promote price pass-throughs, and raise labor productivity

Alleviate the labor supply decline

- Accept more foreign workers
- Reform the tax and social security system to encourage workers to join the labor force

Promote price pass-throughs (enhance the price bargaining power of SMEs)

- Eliminate unfair business practices through monitoring

Raise labor productivity

- Support private-sector investment in labor saving (capital investment tax reductions, subsidies, etc.)
  - Support the development and usage of robots (manufacturing, transportation, nursing care, etc.)
  - Support digitization (software investment, introduction of AI, etc.)
- Public support to promote investment in human capital
  - Promote reskilling (subsidies for companies and workers, etc.)
  - Improve public job training programs
  - Compulsory disclosure related to human capital

MIZUHO