

---

# Mizuho Economic Outlook & Analysis

---

June 21, 2018

---

## *Looking at the future potential labor supply through the first release of labor underutilization indicators*

### < Summary >

- ◆ Japan's Ministry of Internal Affairs and Communications began releasing labor underutilization indicators, starting with the Labour Force Survey (Detailed Tabulation) in the January-March quarter of 2018. With the country's labor shortage becoming increasingly serious, the ministry's data are attracting attention as indicators measuring the potential labor supply in the future.
- ◆ An international comparison clearly shows Japan's disproportionately large number of female part-time workers wishing to work extra hours. The additional utilization of the female labor force holds the key to boosting the country's potential labor supply.
- ◆ However, the challenge of mismatches between job openings and applicants in terms of "skills and gender" and "preferences" needs to be addressed. Improving labor conditions, such as increasing wages and implementing work-style reforms, is essential to eliminate these mismatches.

---

Mizuho Research Institute Ltd.

**Naoki Hattori**, Senior Economist, Economic Research Department

naoki.hattori@mizuho-ri.co.jp

**Yusuke Koshiyama**, Economic Research Department

yusuke.koshiyama@mizuho-ri.co.jp

**Takayuki Miyajima**, Senior Economist, Economic Research Department

takayuki.miyajima@mizuho-ri.co.jp

---

This publication is compiled solely for the purpose of providing readers with information on a free-of-charge basis and is in no way meant to solicit transactions. Although this publication is compiled on the basis of sources which we believe to be reliable and correct, Mizuho Research Institute does not warrant its accuracy and certainty. Readers are requested to exercise their own judgment in the use of this publication. Please also note that the contents of this publication may be subject to change without prior notice. In the event readers do not wish to receive information free of charge from Mizuho Research Institute, readers are requested to notify their wish to suspend subscription.

---

## 1. The government begins to release new labor underutilization indicators

While the Japanese economy continues on an expansionary track, various domestic industries are facing a growing labor shortage. In fact, Japan's unemployment rate in April 2018 was 2.5%, the lowest level since mid-1993. With the working-age (16-64) population projected to follow a downward trajectory in the future, securing the nation's labor force is likely to become increasingly difficult.

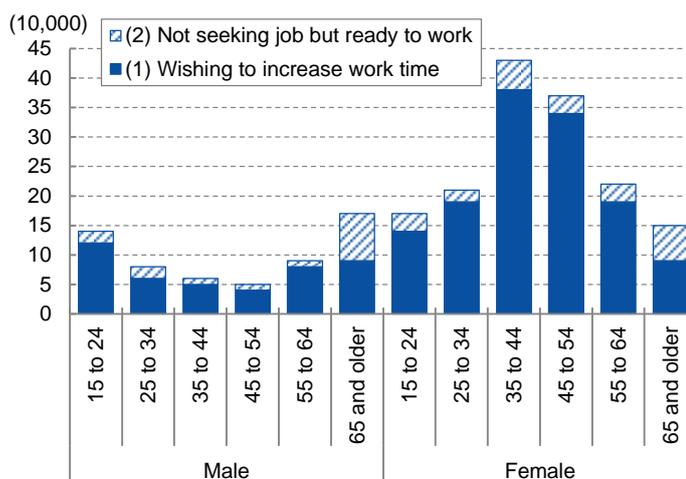
Under these circumstances, the Ministry of Internal Affairs and Communications began releasing labor underutilization indicators, starting with the Labour Force Survey (Detailed Tabulation) in the January-March quarter of 2018. Labor underutilization refers to employed persons wishing to work longer hours or people who are not actively seeking work but want to work in the near future. For example, some part-time workers actually want to work on a full-time basis, but cannot fulfill their wish and end up working short hours as part-timers. People in this case are not only registered as part-time workers but are also newly recorded as labor underutilization. By understanding labor underutilization, including persons in time-related underemployment, namely, employed persons wishing to work additional hours, it becomes possible to measure the future growth potential of Japan's labor supply.

This report employs the newly released labor underutilization indicators to explore the growth potential of the labor supply in the coming years. Refer to the appendix for a detailed definition of labor underutilization.

## 2. Labor underutilization concentrates on female time-related underemployment

**Chart 1** shows the released labor underutilization indicators by gender and age. These data reveal that most of the country's labor underutilization represents (1) people who wish to increase their work time (persons in time-related underemployment), and above all, concentrates predominantly on women in the 35-54 age groups. With the wages of male heads of household stagnating in recent years, the number of married female workers has been rising,

**Chart 1: Labor underutilization by gender and age**



Source: Made by MHRI based upon the Ministry of Internal Affairs and Communications, *Labour Force Survey*.

and yet, women are still struggling to find full-time employment, probably because of the barriers of the Japanese tax and social insurance systems (the so-called 1.03 million yen and 1.3 million yen barriers, respectively) and the country's rigid work styles<sup>1</sup> of full-time employees.<sup>2</sup>

Meanwhile, (2) people who are not seeking jobs but are ready to work (potential labor force) include a relatively large number of elderly men and women. This result suggests there are quite a few senior citizens who can still work or want to work after retirement if suitable jobs are available.<sup>3</sup>

### **3. An International comparison shows Japan's labor underutilization skewed towards women**

Next, this report evaluates Japan's labor underutilization based on an international comparison, focusing on persons in time-related underemployment who occupy most of the country's labor underutilization.

When comparing the ratio of persons in time-related underemployment to employed persons with major countries (**Chart 2**), Japan is higher than South Korea but lower than France and the UK. The number of Japanese people in time-related underemployment is not necessarily high, at least compared with other countries.

However, the male-female ratio of persons in time-related underemployment (**Chart 3**) reveals that Japan has a higher ratio of women with a relatively skewed distribution.<sup>4</sup>

With the system and culture of labor markets varying in each country, the evaluation of this international comparison needs to be open to wider interpretations. Even so, female time-related underemployment likely holds the key at least for Japan to expand the future potential of its labor supply.

---

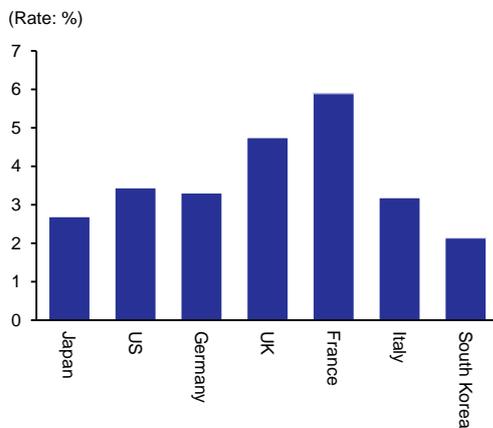
<sup>1</sup> Looking at the "reason (main reason) for taking non-regular employment" by non-regular employees in the Ministry of Internal Affairs and Communications' Labour Force Survey (Detailed Tabulation) in the January-March quarter of 2018, approximately 31% of female non-regular employees aged 35-44 years old replied, "for housework, child-rearing, or nursing care," accounting for the largest share of responses. Compared with other age groups, the percentage citing the same reason is large. These results suggest that non-regular workers choose non-regular employment over regular employment to balance work and housework, child-rearing, or nursing care.

<sup>2</sup> Refer to Oshima (2016).

<sup>3</sup> Looking at the reason for not seeking a job by persons not in the labor force in the Ministry of Internal Affairs and Communications' Labour Force Survey (Detailed Tabulation) in the January-March quarter of 2018, roughly 11% of the respondents aged 65 years old and over answered, "not suitable for their own knowledge or skills," representing a larger proportion than other age groups.

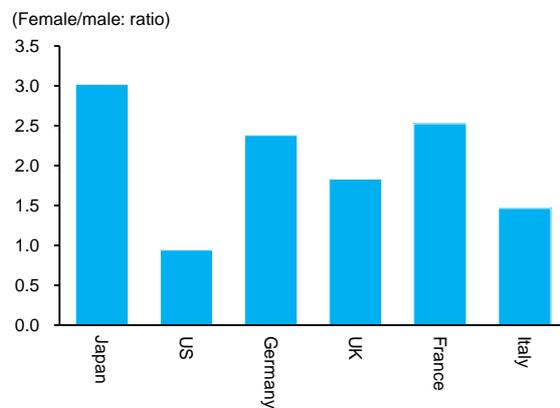
<sup>4</sup> Comparisons by age cannot be presented in detail due to statistical constraints, but Japan and European countries have larger numbers of women aged 25 to 54 years in time-related underemployment.

**Chart 2: Persons in time-related underemployment (ratio to the number of employed persons)**



Note: 1. Ratios are based upon the January-March quarter of 2018 for Japan and 2017 for other countries.  
 2. The US ratio is calculated by "persons at work part-time for economic reasons."  
 Sources: Made by MHRI based upon the Ministry of Internal Affairs and Communications, *Labour Force Survey*, the Census Bureau, US Department of Commerce, Eurostat, and Statistics Korea.

**Chart 3: Male/female ratio of persons in time-related underemployment**



Note: 1. Ratios are based upon the January-March quarter of 2018 for Japan and 2017 for other countries.  
 2. The US ratio is calculated by "persons at work part-time for economic reasons."  
 Sources: Made by MHRI based upon the Ministry of Internal Affairs and Communications, *Labour Force Survey*, the Census Bureau, US Department of Commerce, and Eurostat.

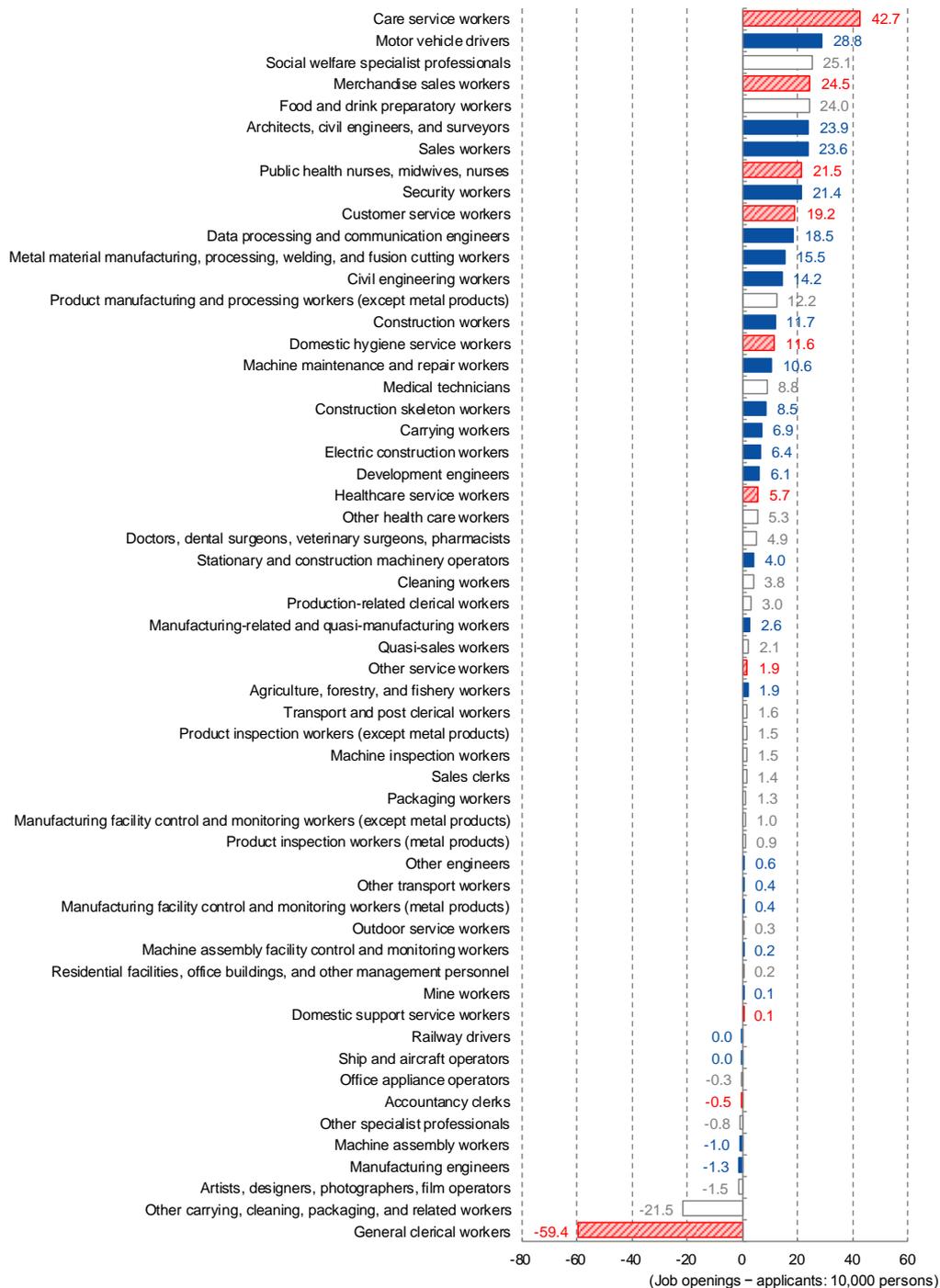
#### 4. Two mismatches present challenges for utilizing the female labor force

In Japan, the number of women in time-related underemployment during the January-March quarter of 2018 was 1.33 million. This figure is hardly small in scale in light of the number of female full-time employees growing by 360,000 in 2017, and shows it is still possible to increase the labor supply to a certain extent by taking full advantage of these people eager for extra working hours.

To greater utilize the labor force of female time-related underemployment, it is necessary to eliminate the barriers created by the above-mentioned tax and social insurance systems, for example, by reviewing the spouse exemption. But this approach is not sufficient because female employment involves certain mismatches between job openings and applicants.

**Chart 4** shows an organized list of the net number of 2017 job openings (= the number of job openings - the number of applicants) by occupation. The bars with higher positive values indicate fewer applicants for job openings, suggesting that businesses are struggling to overcome a labor shortage. In addition, the occupations colored blue indicate that the proportion of male employee is relatively large. On the other hand, the occupations colored red indicate that the proportion of female employee is relatively large. Using this chart, two mismatches can be confirmed in terms of female employment.

**Chart 4: Net number of job openings by occupation (2017)**



Note: 1. Occupations are for general workers (excluding part-timers).  
 2. The net number of job openings is the sum of active job openings – active applicants at the end of 2016 and new job openings – new applicants in 2017.  
 3. For the data on employed persons by occupation and gender in the Ministry of Internal Affairs and Communications' Labour Force Survey, the occupations occupied by a relatively large proportion of male employees are colored blue, the occupations with a relatively large proportion of female employees are colored red (diagonal stripes), and the others are displayed in white.

Sources: Made by MHRI based upon the Ministry of Health, Labour and Welfare, *Employment Referrals for General Workers*, and the Ministry of Internal Affairs and Communications, *Labour Force Survey*.

### **(1) Mismatch in skills and gender**

The first mismatch is related to job applicants' traits such as skills and gender. Care service workers recorded the highest positive value in the net number of job openings (+427,000 people), followed by motor vehicle drivers (+288,000 people), architects, civil engineers, and surveyors (+239,000 people), and public health nurses, midwives, and nurses (+215,000 people), with most of these occupations requiring official qualifications and technical knowledge. No matter how many women wish to work extra hours, securing these kinds of jobs is impractical without qualifications and knowledge.

In addition, occupations such as security workers (+214,000 people), civil engineering workers (+142,000 people), and construction workers (+117,000 people) are dominated by men. Considering the safety and physical aspects of such jobs, women will inevitably face limited opportunities for these types of jobs that are more suited to men.

### **(2) Mismatch in preferences**

The second mismatch involves job seekers' preferences. For example, many women are in the occupations such as merchandise sales, customer service, and general clerical work, with such jobs considered relatively easy to find without official qualifications and technical knowledge. Looking at the net number of job openings, however, merchandise sales and customer service workers are considerably high at +245,000 and +192,000 people, respectively, whereas general clerical workers recorded the highest negative value of all occupations at -594,000 people. These results suggest that it is difficult to solve a labor shortage in merchandise sales and customer service work simply by advertising job openings to attract applicants, while numerous job seekers apply for a small number of job offers for general clerical work, with the labor shortage easily eliminated.

In these ways, job seekers' preferences possibly result in significant differences in the level of labor shortages among occupations dominated by female workers.

## **5. Minimizing mismatches is the key to utilizing the female labor force**

So what measures are required to minimize these mismatches and maximize the labor force of female time-related underemployment?

Measures for dealing with the first mismatch can include education and vocational training support to acquire qualifications as well as mechanization to reduce physical labor. Both measures are important issues in the medium and long term, but they are not particularly effective in promoting the employment of women wishing to work additional hours in the short term.

Taking this perspective into account, minimizing the second mismatch involving

preferences becomes more important. It is essential to improve the attractiveness of merchandise sales and customer service work, as compared with general clerical work, by increasing wages and promoting flexible work styles, such as expanding short-hour work system. Effective use of labor underutilization that has not been statistically analyzed is therefore crucial in tackling Japan's increasingly serious labor shortage.

**Refer to the original Japanese report by clicking the URL below for the reference material**

<https://www.mizuho-ri.co.jp/publication/research/pdf/insight/jp180621.pdf>

## Appendix. Labor underutilization indicators

### (1) Definition of new terms

This section explains the terms newly defined in the Ministry of Internal Affairs and Communications' Labour Force Survey (Detailed Tabulation) in the Jan-Mar quarter of 2018. (Labor underutilization indicators are calculated using these new terms in addition to existing concepts. Refer to the next section for the definitions of labor underutilization indicators.)

The definitions of these new terms are organized in **Chart 5**. First, among persons who worked during the last seven days of the month (upper table, employed persons in **Chart 5**), those with short working hours who wish to work longer hours are referred to as persons in time-related underemployment. Specifically, they refer to employed persons who worked less than 35 hours during the last seven days of the month and wish and are able to work additional hours.<sup>5</sup>

Next, among persons who did not work during the last seven days of the month (bottom table, excluding employed persons in **Chart 5**), those who engaged in job seeking activities within one month and are ready to work if work is available<sup>6</sup> are referred to as unemployed persons. An unemployed person represents a broader concept that expands the previous definition of a total unemployed person. As a result of the revision, the definition of labor force expanded from "Labor force = Employed persons + Total unemployed persons" to "Labor force = Employed persons + Unemployed persons." Therefore, it should be noted that persons not in the labor force in **Chart 5** are calculated not by the conventional equation of "Persons not in the labor force = Population aged 15 years old and over – (Employed persons + Total unemployed persons)," but by the revised equation of "Persons not in the labor force = Population aged 15 years old and over – (Employed persons + Unemployed persons)."

In addition, the concept of potential labor force is defined as a related concept of unemployed persons. The potential labor force is part of persons not in the labor force and defined as the aggregate of unavailable job seekers and available potential job seekers. Unavailable job seekers refer to people who engaged in job seeking activities within one month, yet are unable to work immediately but would be within two weeks. On the other hand, available potential job seekers represent people who are ready to work

---

<sup>5</sup> Employed persons who are able to work additional hours refer to those who can (1) extend their current working hours, (2) start a second job, or (3) change to a job with longer working hours.

<sup>6</sup> Persons who are ready to work if work is available refer to those who are ready to work within the last seven days of the month at the respondent's convenience.

if work is available, but did not engage in job seeking activities within one month.

## **(2) Definitions of labor underutilization indicators**

This section introduces the definitions of labor underutilization indicators (LU1-LU4) using the new terms featured in the previous section. The precise definition of each indicator is provided in **Chart 6**.

LU1 is the rate of unemployed persons to the labor force. This labor underutilization indicator is probably the concept most directly expanded from the conventional total unemployment rate. LU2 is the rate of unemployed persons plus persons in time-related underemployment to the labor force. This indicator enables a better understanding of the underutilized labor force hidden among employed persons as well as unemployed persons. LU3 is the rate of unemployed persons plus potential labor force to the labor force and potential labor force. Unlike LU1 and LU2, LU3 even recognizes the potential labor force, or part of persons not in the labor force, as labor underutilization. LU4 is the rate of unemployed persons added by persons in time-related underemployment and potential labor force to the labor force and potential labor force. This indicator represents the scale of overall labor underutilization, namely, all people available for work in the labor market.

Suppose that the total unemployment rate is declining, but LU4 is now bottoming out or turning upward. This case is interpreted as potential workers remaining in the labor supply. Moreover, a comparison of the four LU indicators helps identify the types of people included in the potential labor supply.

In these ways, labor underutilization indicators can be used to analyze in greater detail the supply and demand conditions in the labor market. In addition, the accumulation of these data enables both cross-sectional and chronological comparisons, thereby revealing more details of structural changes in the labor market.

**Chart 5: Definitions of new terms**

Person (employed person) who worked during the last seven days of the month		
	Number of hours worked during the last seven days of the month	
	Less than 35 hours	35 hours and over
Wishing and able to work additional hours	Persons in time-related underemployment among employed persons (1.77 million, 1.6%)	Other employed persons (700,000, 0.6%)
Not wishing or unable to work additional hours	Other employed persons (19.73 million, 17.8%)	Other employed persons (43.57 million, 39.3%)

Person (excluding employed person) who did not work during the last seven days of the month			
	Days of the last job seeking activities since the survey date		
	Within one week	Within one month	Earlier than one month
Ready to work if work is available	Total unemployed persons (1.69 million, 1.5%)	Unemployed persons (1.84 million, 1.7%)	Available potential job seekers among the potential labor force (350,000, 0.3%)
Not ready to work immediately but would be within two weeks	Unavailable job seekers among the potential labor force (20,000, 0.0%)		Others not in the labor force (130,000, 0.1%)
Not ready to work within two weeks or not wishing to work	Others not in the labor force (120,000, 0.1%)		Others not in the labor force (42.9 million, 38.7%)

**Chart 6: Definitions of labor underutilization indicators**

$$LU1 = \frac{\text{Unemployed persons}}{\text{Labor force}} \times 100$$

$$LU2 = \frac{\text{Unemployed persons} + \text{Persons in time-related underemployment}}{\text{Labor force}} \times 100$$

$$LU3 = \frac{\text{Unemployed persons} + \text{Potential labor force}}{\text{Labor force} + \text{Potential labor force}} \times 100$$

$$LU4 = \frac{\text{Unemployed persons} + \text{Persons in time-related underemployment} + \text{Potential labor force}}{\text{Labor force} + \text{Potential labor force}} \times 100$$

Note: 1. The shaded cells refer to the newly defined terms.  
 2. The parentheses represent the actual numbers and ratios to the population aged 15 years old and over.

Source: Made by MHRI based upon the Ministry of Internal Affairs and Communications, *Labour Force Survey*.

Source: Made by MHRI based upon the Ministry of Internal Affairs and Communications, *Labour Force Survey*.