

KEY TOPIC

Challenges for Promoting Innovations and Realizing Work-Life Balance

MHLW'S White Paper on the Labor Economy 2017

Given the constraints on labor supply resulting from the declining birth rate and aging population, improvement in labor productivity is an important task for Japan to achieve economic growth. The Ministry of Health, Labour and Welfare (MHLW) analyzes the present situation and challenges Japan faces based on the thoughts that improving labor productivity would require efforts to facilitate innovation and establish work-life balance.

Delay in innovation hinders Japan's TFP and economic growth

According to the MHLW's white paper *Analysis of the Labour Economy 2017*, one of the causes of Japan's sluggish economic growth—that is, the low labor productivity—is the delay in the creation of innovation and utilization of its results. The creation of innovation constitutes a portion of Japan's total factor productivity (TFP).*

Until the 1980s, Japan had the highest economic growth rate among the major countries such as France, Germany, the UK and the US. However, since the late 1990s, it has been stuck at only a low growth rate in comparison with other major countries. Looking at recent figures, from the 2000s, Japan has had a low growth rate of less than 1%, in contrast with other major countries which are achieving growth at an annual average of over 1% on the whole.

The growth of GDP can be broken down into three factors: the contributions of (i) increase in capital input, (ii) increase in labor input, and (iii) increase in TFP. The white paper shows that in all of the major countries, factors (i) and (ii) made a significant contribution to the real GDP growth rate until the 1990s, but have been making a smaller contribution from the 2000s onward. A comparison of Japan with the US in terms of (iii) shows that in recent years the US has had a high rate of increase in

both TFP and GDP, while Japan has had a low rate of increase in TFP and GDP.

The white paper analyzes that the sudden slowdown in Japan's GDP growth rate from the 1990s is attributable not only to the decrease in capital investment and the drop in the labor supply, but also the major decline in the margin of increase in the TFP increase rate. It suggests that it is important to ensure an increase in TFP in order to secure future economic growth.

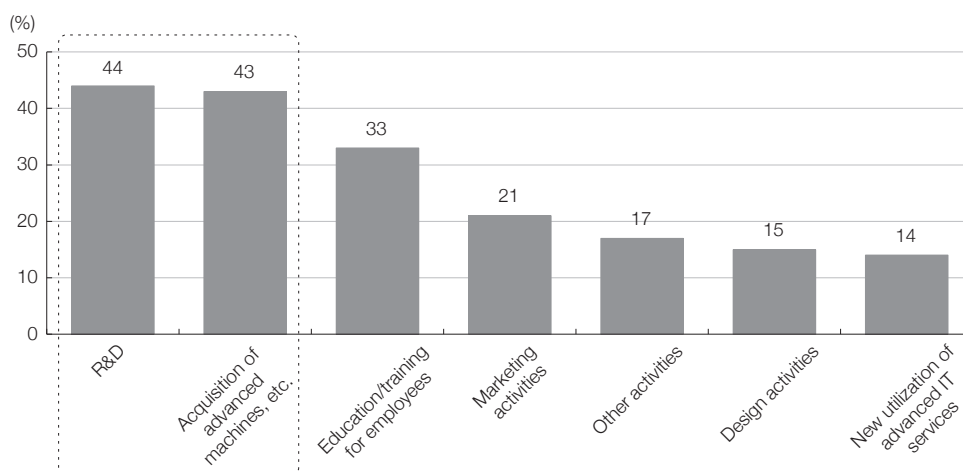
* TFP (total factor productivity) refers to growth factors other than capital and labor inputs (e.g., innovations, etc.) when the economic growth is decomposed.

R&D and acquisition of advanced machinery

The white paper notes a positive correlation between TFP and innovations. It argues that it is innovation activities that contribute to an increase in TFP. In an international comparative perspective, Japan has a low percentage of companies realizing innovations, and also a low TFP increase rate. In contrast, Germany and France have high percentages of companies realizing innovations and high TFP increase rates.

So, what are the factors that promote innovation, and what are the factors that obstruct it? Figures on the content of activities pursued by those companies engaging in innovation activities show high percentages of companies engaging in “R&D (research and development)” and “acquisition of advanced machines, etc.” (Figure 1). On the contrary, as the factors obstructing innovation activities, around 70% of companies cited “lack of competent employees” (Figure 2).

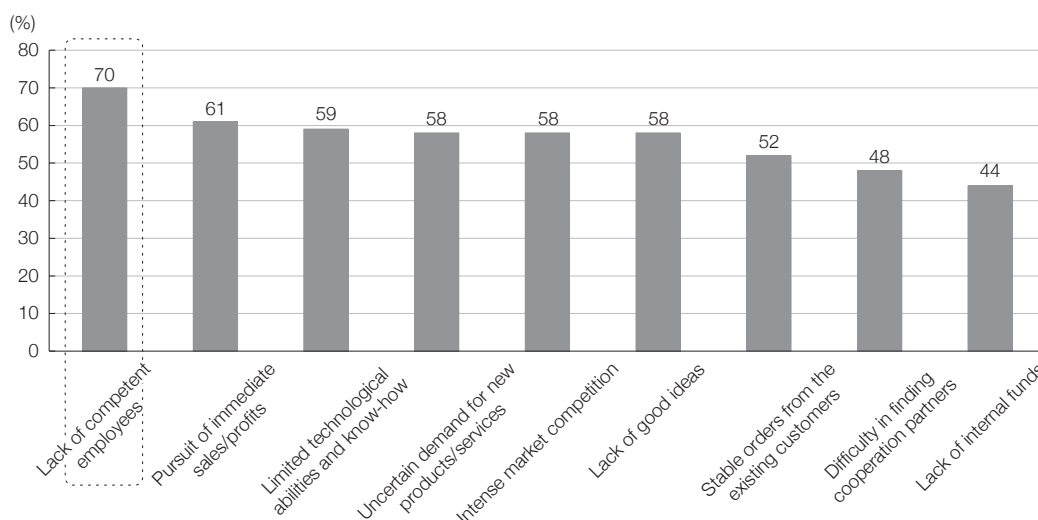
In light of these figures, the white paper states that facilitating innovation activities would require the active pursuit of initiatives in R&D and other such areas that involve more active capital investment and securing competent human resources.



Source: Prepared by Office of Counsellor for Labour Policy Planning of MHLW, based on the “Report on the Fourth Round of the Japanese National Innovation Survey” (2016) by the National Institute of Science and Technology Policy (NISTEP) and Ministry of Education, Culture, Sports, Science and Technology (MEXT).

Note: Data are tabulation results of surveying specific innovative endeavor implemented by companies engaging in innovation activities.

Figure 1. Promoting factors for innovation activities (multiple responses)



Source: Same as Figure 1.

Note: Data are tabulation results of surveying obstructive factors for innovation activities by companies engaging in innovation activities, and reasons for no innovative activities by companies negative in innovation activities.

Figure 2. Obstructive factors for innovation activities (multiple responses)

Polarizing labor market by skill level

The white paper highlights the changes in the numbers of workers of the different skill levels involved in their occupation types. Focusing on occupation types in Japan, the US, and the UK, it analyzes those changes from 1995 onward, by dividing occupations into three categories: high-

skill occupations (“managers,” “professionals/ technicians, or associate professionals,” etc.), middle-skill occupations (“clerical support workers,” “service and sales workers,” etc.), and low-skill occupations (“workers in routine jobs,” etc.).

This reveals that all three countries are experiencing a job polarization in skills, as the numbers of workers in middle-skill occupations are on the decline, while

that of workers in low-skill and high-skill occupations are on the increase. In comparison with the US and UK, Japan has a low rate of increase in the numbers of workers in high-skill occupations. In the US and UK, the rate of increase in the numbers of workers in high-skill occupations is high in comparison with that of workers in low-skill occupations.

As a potential explanation for this polarization of skills in Japan, the white paper notes an almost consistent decrease in the share of middle-skill routine work, in contrast with an almost consistent increase in the share of non-routine work for both the high-skill and low-skill occupations since the 1960s. In other words, there has been going notable polarization in Japanese labor market. As possible factors behind the increase in the number of workers in low-skill occupations, the white paper notes Japan's failure to keep up with the IT revolution, the increase in the numbers of non-regular workers due to the diversification in working styles.

The impacts of AI on employment

The white paper analyzes how employment is affected by advancements in AI (artificial intelligence).

Results of estimates of the potential increases or decreases in the number of workers brought about by advancements in AI and other such developments (the left-hand side of Figure 3) show that while the number of workers is estimated to fall by around 1.61 million by 2030 in comparison with present figures, the labor force population is estimated to decrease by an even greater amount. The provisional calculations suggest that even if Japan adapts to advancements in AI and other such aspects of the fourth industrial revolution by 2030, there will not be an increase in the numbers of unemployed persons, but rather an around 640,000 shortage in the labor force.

Looking at the estimates by industry, the manufacturing industry is anticipated to see a decrease of around 1.6 million workers, while non-manufacturing industries are estimated to see a decrease of only around 10,000.

The figures by occupation (center of Figure 3) show that the occupations anticipated to see an increase in the number of workers are home health and personal care

aid workers (estimated rise of around 1.08 million), sales workers (estimated rise of around 470,000), and engineers (estimated rise of around 450,000). On the contrary, the occupations anticipated to see a decrease are manufacturing process workers (estimated decrease of around 1.87 million), and clerical workers (estimated decrease of around 790,000).

Figure 3 (right-hand side) also includes a comparison of the estimated increases or decreases in the numbers of workers when they are divided into three occupation types such as (i) occupations requiring techniques (engineers, professional workers, and people engaged in creative fields), (ii) occupations requiring human added values (sales workers, home health and personal care aid workers, and service workers), and (iii) other occupations such as clerical work mainly involving routine work.

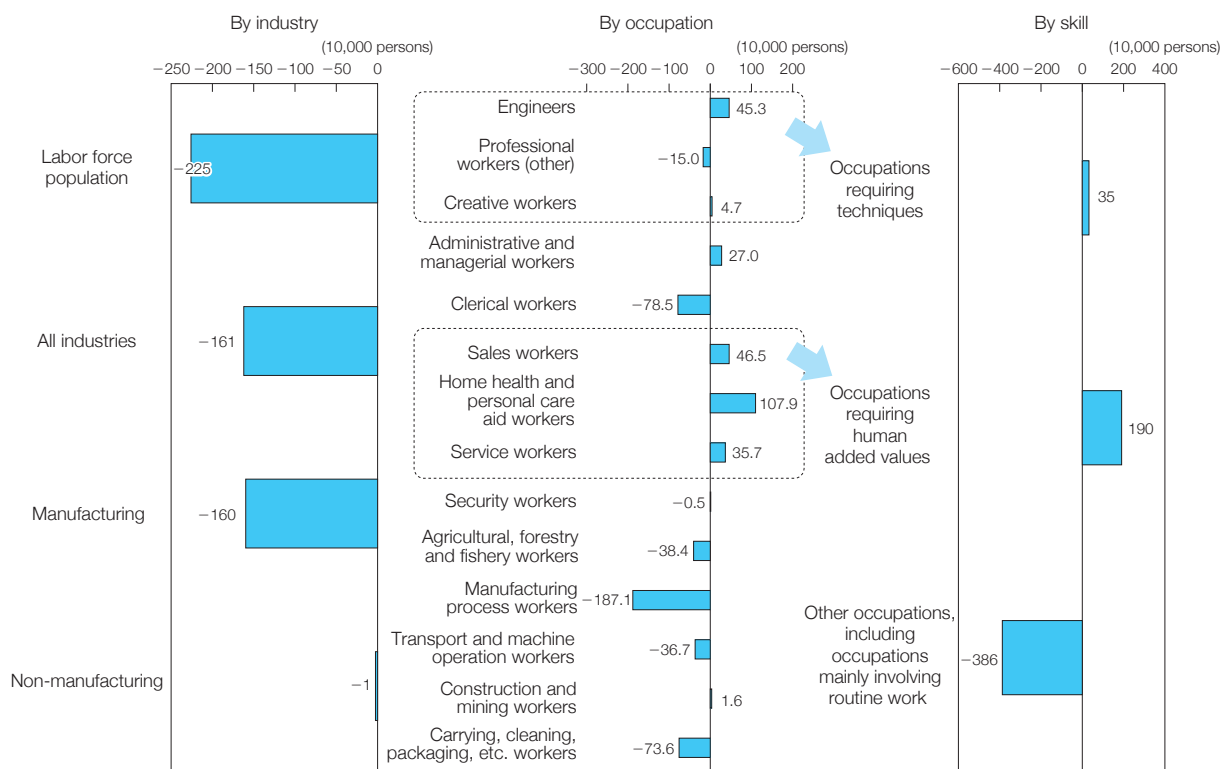
Alongside increases in the number of workers in categories (i) and (ii), the estimates indicate that the number of (ii) is anticipated to see an even higher increase than that for (i). On the other hand, the number of workers in category (iii) decreases significantly.

In future, workers should acquire the skills of adapting to occupations requiring techniques and to those requiring human added values since those occupation types are estimated to increase. In the demand of technical and specialized workers for the advancements in AI, the white paper also points out important challenges such as increasing the numbers of human resources capable of working in scientific and engineering fields, and enhancing communication skills that AI cannot substitute.

Pursuing initiatives that incorporates work-life balance

There are greater choices of new working styles free from restrictions regarding time or location as cloud computing services and wireless communication environments have progressed with the recent popularization of mobile communication devices. The white paper examines how technological innovation has expanded the options for working styles and what kind of challenges can be seen.

A growing number of companies are introducing teleworking, namely, using information and



Source: Prepared by Office of Counsellor for Labour Policy Planning of MHLW, on the basis of the “Interim Report on the New Industrial Structure Vision: Japan’s Strategy to lead the fourth industrial revolution” (2016) by Ministry of Economy, Trade and Industry (METI), and “Labour supply and demand estimates: Preliminary calculations by prefecture based on new national estimates (2015 edition),” JILPT research material series, no.166 (2016) by Japan Institute for Labour Policy and Training (JILPT).

Note: The value showing the change in labor force population on the left-hand side of the figure is an estimated value calculated by comparing values for 2014 and 2030 (JILPT 2016) and that the other figures showing changes in the numbers of people engaged in the different industry/occupation types are the estimated values calculated by comparing the values for 2015 and 2030 (METI 2016).

Figure 3. Estimated changes in numbers of workers due to the advancements in AI and other such developments (by industry, occupation, and skill) in Japan

communication technology to work from home or other locations outside the workplace (also known as telecommuting) in Japan. According to the white paper, the percentage of companies that responded that they have “introduced” teleworking had risen to 16.2% in 2015, from levels of around 10% from 2011 (9.7%) onward.

The white paper finds that companies are implementing teleworking with the aim of not only improving labor productivity but also assisting employees to achieve work-life balance. When surveyed on their aims for introducing teleworking, a significant percentage (43.9%) of companies selected the response “improving the efficiency/productivity of routine work.” Besides, they selected the responses related with work-life balance such as “adapting to

employees who are combining work with family life” (50.9%), “shortening and raising the efficiency of travelling time employees spend” (43.9%), and “ensuring that employees enjoy relaxing and healthy lifestyles” (31.6%).

The use of technological advances in areas such as AI and ICT generates flexible working styles and thereby contributes to achieving work-life balance. White paper concludes pointing out the necessity to pursue steady efforts toward the government’s Work-Style Reform in the form of initiatives combining the realization of innovation activities with the achievement of work-life balance as the “two halves of a whole” in order to boost Japan’s economic growth despite the restricted labor supply.