Gender Gaps in Skill Use: The Case of Japan

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1. Introduction

With the declining birth rate, an aging population, and globalization, the effective utilization of women’s skills has become a major policy issue in Japan, in order to secure the workforce and increase the utilization of diverse human resources. Since the enactment of the Equal Employment Opportunity Law in 1986, related laws and systems have been developed and expanded to encourage women to enter the workplace and to be able to balance work and family life. Over the past 35 years, the employment rate of women has significantly increased, and women’s human capital has risen due to the increase in the percentage of women entering college and the length of their average working years.

However, when comparing the current situation of Japanese women internationally, the Gender Gap Report by the World Economic Forum in 2022 ranked Japan 116 out of 146 countries, placing it at the bottom among advanced economies. In particular, gender disparity in the economic and political spheres contributed to the low overall ranking. Looking at the employment of Japanese women over time, while there have been improvements in the “quantity” of employment for Japanese women in the past 35 years, international comparisons indicate that issues remain in terms of “quality”.

In this context, the Act on Promotion of Women’s Participation and Advancement in the Workplace was enacted in 2015. From the perspective of “utilization of female capacities,” this legislation is highly important as it improves productivity and competitiveness. This paper focuses on the challenges in the “utilization” of women’s skills in the labor market by focusing on what is referred to as “tasks”. Here, “task” is the unit of work activity that produces output, and “skill” is the worker’s ability to perform various tasks (Acemoglu and Autor 2011).

This paper first provides an overview of changes in the working environment and the current situation of Japanese women based on national and OECD statistics. Next, this paper presents two empirical analyses: (1) changes in the task distribution of men and women from 2005 to 2015; and (2) an international comparative analysis of gender differences in use of literacy skills. Finally, we discuss the analytical results and policy implications from the two empirical analyses.
2. Overview of changes in the working environment of Japanese women and the current situation from a historical and international perspective

First, we will provide a brief overview of the legal reforms and changes in the economic and social environment in Japan from 1986 to the present. We will examine changes in the legal system in three periods: (1) 1986–1998, (2) 1999–2012, and (3) 2013–2023.

An important change in the first period from 1986 to 1998 was the enactment of the Equal Employment Opportunity Act and the Child Care Leave Act. The former was enacted in 1985 to ratify the United Nation’s Convention on Elimination of All forms of Discrimination Against Women, and came into force in 1986. Although it was a major step towards equal employment opportunities for men and women, the law only required employers to make efforts toward equal treatment in recruitment, hiring, placement, and promotion. Although this law opened up career-track positions to women, only a few of these women were able to continue working if they were married or raising children. During this period, the Child Care Leave Act was enacted in 1991 to help women balance work and family life. This was expanded into the Child Care and Family Care Leave Act in 1995 to cover the care of the elderly.

The second period, from 1999 to 2012, saw the revision of the above laws. The 1999 revision of the Equal Employment Opportunity Law, which prohibited discrimination in recruitment, hiring, placement, and promotion, increased the use of women in career track positions. On the other hand, it induced some companies to replace women in regular employment with “non-regular employees”—a category that includes part-time, dispatched, and other workers. Furthermore, during this period, the Law on Child Care and Family Care Leave was amended (1999, 2002, 2005, 2010) and other systems to support a good work-life balance were expanded.

During the third period, from 2013 to the present, there has been policy progress from “support for balancing work and family” to “utilizing women’s capacities”. In 2015, the Act on Promotion of Women’s Participation and Advancement in the Workplace was enacted, which obliged companies to create plans for the promotion of women. In 2018, laws related to working style reform were enacted with a aim of reducing long working hours, eliminating the gap between regular and non-regular workers, and promoting diverse working styles. Furthermore, during this period, the Law on Child Care and Family Care Leave was amended (2017, 2021, 2022, 2023). In this context, the rate of women continuing to work after the birth of their first child—which had hovered around 40% for decades—reached 58% between 2010 and 2014 and 70% between 2015 and 2019. However, there have been large disparities between regular and non-regular employees (National Fertility Survey).

The economic and social environment has also undergone significant changes over the past 35 years. On the labor demand (employer) side, there have been shifts in the industrial structure, with a decline in manufacturing employment and a rise in service sector employment, driven by globalization and an aging population. The expansion of the service sector, including the health and welfare industry that employs a high proportion of women, has resulted in a surge in the number of female employees. Meanwhile, Japanese employment practices altered during the recession and globalization of the 1990s, with a decrease in the hiring of regular employees and an increase in the number of non-regular employees with fewer entitlements. This period saw a rapid shift towards non-regular employment among women workers. While about 32% of female workers were non-regular employees in 1986, this figure rose to approximately 54% in 2020 (compared to 7% in 1986 to 22% in 2020 for men) (Figure 1).
There have also been changes in the (female) labor supply side, such as increase in higher education, later marriage and non-marriage, and a surge in dual-income households. According to the School Basic Survey, approximately 51% of women entered a four-year university after graduating from high school in 2020, up from approximately 13% in 1986 (compared to 34% in 1986 to 58% in 2020 for men). Meanwhile, the proportion of unmarried women aged 25-29 and 30-34 years has been on the rise, from approximately 31% and 10%, respectively, in 1986 to approximately 61% and 35% in 2015, indicating a trend towards delayed marriage and non-marriage. Moreover, over the same period, the number of full-time homemaker households declined while the number of dual-income households increased, with the latter accounting for 68% of all households in 2020 (Labor Force Survey).

Finally, we compare internationally the gender gap in the Japanese labor market using Organization for Economic Cooperation and Development (OECD) data. According to the 2011 OECD Programme for the International Assessment of Adult Competencies (PIAAC), Japanese women have the highest average scores in literacy and numeracy skills among OECD member countries. However, Figures 2 and 3 show that in terms of pay for full-time workers and the proportion of female managers, Japan (along with South Korea) has one of the largest gender gaps among OECD member states. This indicates that, although Japanese women have high cognitive skills in literacy and numeracy, these skills are not fully utilized in the Japanese labor market.

In summary, women’s participation in the labor market in Japan has increased in quantity over the past 35 years due to the establishment and expansion of legal systems and changes in the economic and social environment. However, the quality of their work remains an issue, as many women are in non-regular employment.
Among growing wage inequality due to the advances in IT and globalization, many studies have been conducted on the polarization of the labor market, focusing on the tasks in which workers are engaged in Europe and the United States (e.g., Autor et al. 2003, Spitz-Oener 2006, Goos and Manning 2007, Goos et al. 2009, Ikenaga 2009, Acemoglu and Autor 2011, Autor and Dorn 2013, Ikenaga and Kambayashi 2016). In their landmark study, Autor et al. (2003) classified the tasks of workers according to whether it is routine or non-routine, and whether it is intellectual or physical. There are five task categories: (1) non-routine analytical tasks that require problem solving using abstract thinking (e.g., research and design); (2) non-routine interactive tasks that create value through advanced interpersonal communication (e.g., management, consulting and education); (3) routine cognitive tasks, which are clerical tasks that follow explicit rules (e.g., clerical and accountancy work); (4) routine manual tasks, which are physical tasks that follow explicit rules.
(e.g., manufacturing and agriculture); and (5) non-routine manual tasks, which are physical tasks that require a flexible response to a particular situation without advanced expertise (e.g., services and hospitality) (Ikenaga and Kambayashi 2016). These studies indicate that the demand for routine tasks will decrease because they can be replaced by automation, while the demand for non-routine tasks will increase because they are complementary to automation.

Now, let’s examine changes in the distribution of tasks for men and women in the Japanese labor market from 2005 to 2015. Task scores were obtained by matching occupations in the Population Census with those listed in the Occupational Information Network of Japan (Japanese O-NET), which is similar to the O*NET in the United States. The Japanese O-NET allows for the comparison of skill levels and required tasks for approximately 500 occupational categories.¹ We used quantitative information from the Japanese O-NET to calculate the scores of the five types of tasks for each occupation. Table 1 presents the definitions and indicators used for each category. We constructed five task categories following the method of Acemoglu and Autor (2011), with some modifications.

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<tr>
<td>Nonroutine Analytical</td>
<td>Task involving advanced expertise and solving problems based on abstract thinking. Examples: Research, Surveys, Design.</td>
<td>Generalized Work Activities • Analyzing data/information • Thinking creatively • Interpreting information for others</td>
<td>Generalized Work Activities • Analyzing data/information • Thinking creatively • Interpreting information for others</td>
</tr>
<tr>
<td>Nonroutine Interactive</td>
<td>Tasks that create and deliver value through advanced interpersonal communication. Examples: Law, management and administration, Consulting, Education, Arts, Performing arts, Sales.</td>
<td>Generalized Work Activities • Establishing and maintaining personal relationships • Guiding, directing and motivating subordinates • Coaching/developing others</td>
<td>Generalized Work Activities • Establishing and maintaining personal relationships • Guiding, directing and motivating subordinates • Coaching/developing others</td>
</tr>
<tr>
<td>Routine Cognitive</td>
<td>Clerical tasks requiring precise fulfillment of predetermined standards. Examples: General clerical worker, Accounting clerk, Testing and observation.</td>
<td>Work Context • Importance of repeating the same tasks • Importance of being exact or accurate • Structured v. Unstructured work (reverse)</td>
<td>Work Context • Importance of repeating the same tasks • Importance of being exact or accurate • Structured v. Unstructured work (reverse)</td>
</tr>
<tr>
<td>Routine Manual</td>
<td>Physical work requiring precise fulfillment of predetermined standards. Examples: Agriculture, Manufacturing.</td>
<td>Work Context • Pace determined by speed of equipment • Spend time making repetitive motions Generalized Work Activities • Controlling machines and processes</td>
<td>Work Context • Pace determined by speed of equipment • Spend time making repetitive motions Generalized Work Activities • Controlling machines and processes</td>
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¹. The Japanese O-NET was developed with reference to O*NET in the United States. Information on jobs, tasks, skill and knowledge requirements, generalized work activities and so forth for about 500 occupations is provided online. They were collected between 2018 and 2021 through an online survey of workers conducted by JILPT and a supplementary paper-based survey. For more information on the details of the survey contents, see Kamakura et al. (2020).
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Nonroutine Manual | Physical work not requiring a high degree of specialized knowledge, but requiring flexible responses depending on the situation. Examples: Service, Hospitality, Security, Operation of transport equipment, Maintenance and repair | Generalized Work Activities • Operating vehicles, mechanized devices, or equipment Work Context • Spend time using hands to handle, control or feel objects, tools or controls Abilities • Manual dexterity • Spatial orientation | Generalized Work Activities • Performing general physical activities • Handling and moving objects • Assisting and caring for others • Performing for or working directly with the public

Source: Autor et al. (2003), Ikenaga and Kambayashi (2016), Acemoglu and Autor (2011) and Komatsu and Mugiyama (2022)

Figure 4 illustrates the changes in the task distribution of men and women in the Japanese labor market from 2005 to 2015, categorized by gender. It is important to note that we assume the task information obtained from the Japanese O-NET remains constant across the observation periods. Therefore, task index scores change only when there are changes in the occupational composition. For instance, an increase in non-routine analytical task scores at the aggregated level could indicate either a rise in the share of occupations that require more non-routine analytical tasks or a decrease in the share of occupations that require fewer non-routine analytical tasks.

When examining the distribution of the five task types, we observe that more men than women perform non-routine analytical and non-routine interactive tasks. On the other hand, more women than men perform non-routine manual tasks. With routine tasks, we find that women perform more cognitive tasks, while men perform more manual tasks. This suggests that fewer women are engaged in highly skilled and high-paying non-routine tasks.

Examining the changes since 2005, we observed a decrease in the proportion of routine manual tasks for both men and women. On the other hand, the share of non-routine manual tasks has increased for women, while it has remained unchanged for men. In addition, the increase in non-routine analytical and interactive tasks for women is more significant than that for men, indicating a narrowing of the gender gap.

Moving on to Figure 5, it illustrates the changes in the distribution of tasks by employment status from 2005 to 2015. There are notable shifts in the distribution of tasks assigned to female regular employees, indicated by the red solid lines. There has been a major increase in the share of women engaged in highly advanced, non-routine analytical and interactive tasks. However, the share of women performing low-skilled, non-routine manual tasks (with lower wages) has also increased, indicating that the tasks performed by women have become more polarized in recent years. While the narrowing gender gap for regular employees who perform highly advanced non-routine tasks is a positive development, it’s worth noting that non-regular employees, regardless of gender, are not involved in such tasks. Additionally, the gap between regular (full-time) and non-regular female employees has widened since 2005.
Source: Authors’ calculations using data from the Population Census (Ministry of Internal Affairs and Communications) and Occupational Information Network of Japan (Japan Institute for Labor Policy and Training)

Notes: The task scores on the vertical axis are based on the number of workers in each occupation in 2005, with a mean of 0 and a standard deviation of 1. The data show the extent to which each task score has increased or decreased compared to 2005. For more details, see Komatsu & Mugiyama (2022).

Figure 4. Trends in the distribution of the five types of tasks, by gender (2005-2015)

Source: Authors’ calculations using data from the Population Census (Ministry of Internal Affairs and Communications) and Occupational Information Network of Japan (Japan Institute for Labor Policy and Training)

Notes: Same as Figure 5. Excluding the self-employed. For more details, see Komatsu & Mugiyama (2022).

Figure 5. Trends in the distribution of the five types of tasks, by gender and employment status (2005-2015)
4. Gender gaps in skill use in Japan in comparison with South Korea, the UK and Norway

As mentioned in Section 2, Japan (along with South Korea) has a significant gender gap in its labor market among OECD member countries. In this section, we will discuss the current status and challenges of skill utilization by Japanese women through international comparison based on data from the 2011 OECD Programme for the International Assessment of Adult Competencies (PIAAC). The PIAAC measures three types of skills (literacy, numeracy, and problem-solving using IT) and the frequency of these skills used at work in OECD member economies.

To examine the actual situation and challenges of skill utilization by Japanese women, we will compare with countries that have different social and welfare systems. Specifically, we will compare with Norway, which is categorized as a social democratic regime, and the UK, which is categorized as a liberal regime, based on the “welfare regime” theory by Esping-Andersen (1990, 1999). We will also compare with another Asian country, South Korea, to see if there are any similarities. Esping-Andersen (1999) noted that strong family policies that support the employment of women in social democratic regimes enable women to achieve high employment rates. In contrast, the strength of familism in conservative regimes makes it difficult for women to balance their careers with their family life. Japan and South Korea, which can be described as a family-oriented conservative regime, have a high awareness of gender roles in the division of labor and low gender equality. On the other hand, Norway, which is a social democratic regime, has a good gender balance support system and high gender equality. In the UK, which is a liberal regime, gender equality is higher than in Japan and South Korea, but the gender balance support system is not as extensive as that in Norway.

Figures 6-1, 6-2, and 6-3 depict gender differences in (1) literacy skills and employment rates, (2) literacy skills and literacy skill use, and (3) literacy skill use and wages, respectively. The sample includes men and women aged 25–44 (excluding students) as the child-rearing cohort at the time of the survey and the targeted age range for which work-family balance support programs were being expanded in Japan. The data for women are divided into those with and without children.

Figure 6-1 shows that in Japan, for women without children, the employment rate increases as literacy skill levels increase. However, for women with children, the employment rate declines as literacy skill levels increase, a trend similar to that of South Korea. In contrast, in the UK and Norway, the employment rate for women with children increases as their skills increase. It is also worth noting that in Norway, which has a well-developed support system for balancing work and family life, there is no difference in employment rates between those with and without children.

Figure 6-2 shows that in Japan, women without children who are employed tend to use their literacy skills more as their literacy skill levels increase. However, employed women with children tend not to use their high literacy skills as their literacy skill levels increase. In contrast, in the UK, Norway, and South Korea, the skills of employed women with children are used more as their skill levels increase.

2. The difference in the amount of time men and women spend on housework is approximately 4 hours in Japan, 3 hours in South Korea, 2 hours in the UK, and 1 hour in Norway (OECD, 2015). According to the ISSP International Survey conducted in 2015, approximately 70% of respondents in Japan, 80% in South Korea, 50% in the UK, and 20% in Norway answered affirmatively to the question, “Doing housework as a homemaker is equally fulfilling as working for an income.” In Japan, South Korea, and the UK, tax benefits are offered for low-income spouses, whereas Norway does not offer such benefits. The parental leave system in Japan allows for up to 52 weeks of leave (extended up to 24 months if waiting to enter a nursery school), with 67% of the monthly salary paid for the first 6 months and 50% of the monthly salary paid for the next 6 months. This system is comparable to that in Norway, which allows for up to 42 weeks (at 100% benefit) or 52 weeks (at 80% benefit) of leave.
Finally, Figure 6-3 shows that women with children who make full use of their skills have a smaller wage gap with men in Japan. Although not shown in the figure, women in full-time and managerial or professional positions in Japan make better use of their literacy skills (Komatsu 2021).
Source: Author’s estimates based on PIAAC (OECD)

Notes: (1) Employment rate is controlled by years of education, age, age squared, and spouse’s type of employment; (2) literacy skill use score and (3) log hourly wage are controlled by years of education, literacy skill, age, and age squared (estimates produced using the Heckit model in order to adjust for selection bias in the sample of employed persons). The literacy skill score is standardized to have a mean 0 and a standard deviation 1, the literacy skill use score is standardized to have a mean 2 and a standard deviation 1. The vertical lines for all scores indicate the 95% confidence interval of the predicted values.

Figure 6-3. Literacy skills use and wage by gender

The analysis suggests that having children is a major obstacle for highly skilled women in Japan to take on challenging jobs. Despite the development and expansion of laws to support work and child-rearing, why is it difficult for these women to utilize their skills in the workplace? In addition to deep-rooted perceptions regarding gender roles, tax and social welfare systems that discourage women from full-time employment, another often-cited factor is Japan’s unique employment practices.

Regular employees in Japan, who have the possibility of promotion, have no restrictions on their work type or working hours. Moreover, they are expected to relocate whenever and to any location directed by their superiors. In this context, it is very challenging for women with housework and child-rearing responsibilities to meet the demands of such a position. Furthermore, unlike in the United States and Europe, the tasks and skills required for a job in Japan are not clear, making it difficult for women to find another full-time job of an equal or higher level that utilizes the skills developed in their previous job, once they quit. As a result, many women, upon re-entering the workforce after marriage or childbirth, have little choice but to take on non-regular (part-time) jobs, regardless of their skills.

Finally, Table 2 shows that, according to the OECD’s 2018 Programme for International Student Assessment, Japanese high school girls had significantly lower occupational aspirations compared to boys. When asked about their expected job at the age of 30, Japanese girls were unique among developed countries in that “homemaker” was one of the top 10 responses. This may be attributed to the lack of role models for women who hold high socioeconomic positions while also being mothers.
Table 2. Top 10 occupations high school students would like to have at age 30

<table>
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<tr>
<th>Japan</th>
<th>South Korea</th>
<th>UK</th>
<th>Norway</th>
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<tr>
<td></td>
<td>Girls ISEI Score</td>
<td>Share (%)</td>
<td>Boys ISEI Score</td>
</tr>
<tr>
<td>1 General office clerk</td>
<td>43 10.0</td>
<td>Office supervisor</td>
<td>62 12.9</td>
</tr>
<tr>
<td>2 Nursing professional</td>
<td>69 9.3</td>
<td>General office clerk</td>
<td>43 9.8</td>
</tr>
<tr>
<td>3 Child care worker</td>
<td>25 8.5</td>
<td>Teaching professional</td>
<td>76 5.6</td>
</tr>
<tr>
<td>4 Office supervisor</td>
<td>62 6.0</td>
<td>Building architect</td>
<td>80 3.1</td>
</tr>
<tr>
<td>5 Teaching professional</td>
<td>76 4.1</td>
<td>Software developer</td>
<td>75 3.0</td>
</tr>
<tr>
<td>6 Hairdresser</td>
<td>31 3.0</td>
<td>Medical doctor</td>
<td>89 2.3</td>
</tr>
<tr>
<td>7 Homemaker</td>
<td>17 2.7</td>
<td>Fire-fighter</td>
<td>51 2.3</td>
</tr>
<tr>
<td>8 Pharmacist</td>
<td>81 2.5</td>
<td>Sport and fitness worker</td>
<td>46 2.3</td>
</tr>
<tr>
<td>9 Dietician and nutritionist</td>
<td>65 2.5</td>
<td>Cook</td>
<td>25 2.2</td>
</tr>
<tr>
<td>10 Graphic and multimedia designer</td>
<td>80 2.0</td>
<td>Science and engineering professional</td>
<td>79 2.1</td>
</tr>
<tr>
<td><strong>Average ISEI Score</strong></td>
<td><strong>55 100.0</strong></td>
<td><strong>59 100.0</strong></td>
<td><strong>62 100.0</strong></td>
</tr>
</tbody>
</table>

Source: Author's calculation from PISA (2018)
Note: Responses exclude ‘don’t know’, ‘vague answers’, etc.
5. Conclusion

From a historical and international comparative perspective, this paper provides an overview of the changes and challenges faced by Japanese women, with a focus on skill utilization. Over the past 35 years, the legal, economic, and social environment in Japan has changed significantly, leading to more women participating in the labor market. However, women’s career challenges have become increasingly diverse. Empirical analyses indicate that although the proportion of women employed in full-time jobs for non-routine tasks is increasing, the underutilization of highly skilled women with children and women in part-time positions remains a problem. While the gender gap for skill utilization is gradually narrowing, divergence according to skill level is expanding between women with children and without children. The high proportion of women in non-regular (part-time) jobs also contributes to the gender pay gap in Japan.

Simply developing the laws and systems to support work-life balance is not enough to solve the problem of underutilization of women’s skills. What is needed is a change in the work culture, where companies shift away from the assumption that employees should work unlimited hours and offer different working styles, such as remote working and flexible arrangements. It is also important to clarify work responsibilities and create methods to evaluate employees based on tasks and skills. Regular and non-regular employees should be treated equally in terms of these criteria.

Moreover, to reduce the gender pay gap, it is not enough to simply encourage women’s participation in the workforce. It is necessary to increase opportunities for women to move or be hired into full-time positions where training is available and skills are utilized. This, in turn, requires the government to expand programs designed to assist women in re-entering the workforce, which should include education and training, as well as support for part-time employees who want to improve their skills.

The Covid-19 crisis has led to the expansion of remote work and provided an opportunity to rethink traditional working styles in Japan. At the same time, it has highlighted the challenges faced by women in informal employment and essential workers in difficult living and working environments. Furthermore, the importance of supporting these women was also widely recognized. In addition, digital transformation has been progressing rapidly since the Covid-19 pandemic, and technological innovations, including the introduction of AI and RPA (Robotic Process Automation), will continue to significantly change the working environment in this future. In the context, a new challenge for companies is to shift from uniform personnel management centered on male full-time employees to diverse management that takes into account the needs of diverse human resources, including women, foreign workers, elderly, disabled, and others. In particular, eliminating differentiated treatment based on gender and employment status has become an important policy issue. Creating a society in which everyone can fully utilize their skills in challenging jobs is an urgent task facing Japan.

References


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