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CONTENTS

Special Feature on Research Papers (III)

Japan Labor Issues is pleased to present its annual special feature on research papers. This time, six significant papers have been selected to present for three parts (I-III). In the following pages, you will find two of them as Part III followed by I and II in the last two issues.

The Editorial Office selects research papers every year from various relevant ones written in Japanese and published within a year or two, from the viewpoint of communicating the current state of labor research in Japan to the rest of the world.

We hereby sincerely thank authors for their kind effort arranging their original papers for the benefit of overseas readers.

Editorial Office, *Japan Labor Issues*

Position of Japan Regarding Changes in Work Environment Following Introduction of AI Technology in Workplace: International Comparison Focusing on Reponses by Corporate Organizations

IWATSUKI Shinya

This study aims to identify the position of Japanese cases in the cases of eight countries that are members of the OECD and clarify the similarities and differences in terms of changes in the work environment after the introduction of AI technology, and to explore what determines changes in the work environment, with a focus on how corporate organizations respond to the new technology. The study reconstructed cases in each country regarding changes in the work environment based on the data obtained in the joint research with the OECD. The results showed both improvements and deteriorations in those OECD countries in terms of work environment changes after AI implementation. In Japan, there were many improvements that were common to the counterparts, whereas almost no deteriorations were observed, which is a characteristic that differentiates Japan from others. The results also showed that such changes are associated with task reorganization, workload, work demands, and labor-management relations. These findings indicate that these post-AI changes cannot be explained by technological features alone, but they have a significant association with how corporate organizations respond to AI.

I. Introduction

In recent years, there has been much debate about AI technology. Frey and Osborne (2013) pointed out the possibility that AI may substitute for 47% of 702 occupations in the United States. In Japan as well, Nomura Research Institute (2015) calculated the probability that new technologies, such as AI technology, may substitute for 601 occupations and indicated an estimate that around 49% of the total labor population in Japan would be replaced by such technologies. Currently, there is growing concern about future job loss due to the widespread use of generative AI[1] such as Chat GPT. In addition, in connection with the utilization of AI, Fujimoto (2024) indicated the need to discuss ethical aspects, and Krämer and Cazes (2022) pointed out concerns about the risk of discrimination, excessive surveillance, and violations of human rights.

Earlier studies relating to the impact of AI technology on workers have focused primarily on tasks, skills, employment, and wages, while few of them dealt with the work environments (Lane and Saint-Martin 2021). Hence, they conclude that whether AI improves or deteriorates the work environment is an open question. Nevertheless, there are some, albeit limited, valuable studies.

Jaehrling (2018) conducted case studies on the manufacturing and banking sectors in France, Germany, Hungary, the Netherlands, Spain, Sweden, and the UK between 2015 and 2018. In cases of banking, the introduction of AI technology resulted in a decrease in the number of existing workers, increasing the average number of customers per customer advisor, and also increasing their workload. Furthermore, the study showed that the quality of work deteriorated. Customer advisors were expected to respond to customers immediately, which increased time pressure and also increased stress.

Yamamoto (2019) conducted a survey targeting Japanese workers. The results suggest that task reorganization that takes place along with the introduction of AI technology contributes to increased job satisfaction. Conversely, it contributes to increased stress as well.

The Trade Union Congress (TUC) of the UK conducted a questionnaire targeting workers and trade union representatives (TUC 2021). The results showed concern over the use of AI technology for the purpose of monitoring workers. Workers who experienced monitoring by AI reported increased stress.

Based on the case studies in those OECD countries—Austria, Canada, France, Germany, Ireland, Japan, the United Kingdom, and the United States—Milanez (2023) showed that improvements in the work environment after AI technology resulted in reduction in tedium and improved job satisfaction and physical safety,[2] while deteriorations in the work environment resulted in increased work intensity and stress. Milanez (2023) certainly presents new findings concerning the impact of AI on the work environment, while new research challenges have emerged. First, due to the lack of an international comparative perspective, it is unclear where the cases in Japan should be positioned in the context of the changes in the work environment observed in OECD cases. Second, it is not unclear what determines changes in the work environment after the introduction of AI.

The perspective for exploring what determines the changes in the work environment after the introduction of AI technology can actually be found in the debate in Japan on microelectronics (ME) technology, a technological innovation from the 1970s and 1980s. Okamuro (1999) stated that the introduction of production equipment incorporating ME (micro-electronification) technology was "the subject of active debate and research throughout the 1980s, as it was regarded as changing the quantity of employment and quality of labor and significantly affecting the scope and composition of jobs" (Okamuro 1999:206). Based on the research findings available at that time, Okamuro pointed out that even if the introduction of ME has progressed, its impact on workers would defer depending on the responses of corporate organizations ("flexible reorganization of jobs" and "labor management methods") and stated that "the actual division of work is largely dependent on labor management methods" (Okamuro 1999:210). Even today, it is thought that technological features do not unilaterally determine the work environment of workers but rather how corporate organizations respond to the technology also affects the work environment.

Through identifying the position of Japanese cases in OECD cases in terms of changes in the work environment after the introduction of AI technology, this study clarifies the similarities and differences between Japan and other countries, and explores what determines changes in the work environment from the perspective of how corporate organizations respond to AI.

II. Method

First, this study uses the cases published in Milanez (2023) in order to understand the changes in the work environment as observed in OECD cases. Second, to identify the position of Japanese cases in OECD cases in

terms of changes in the work environment, the study also uses those published in the Japan Institute for Labour Policy and Training (JILPT) (2022, 2023). In the following section, an outline of the OECD joint research, from which these cases are derived, an overview of each case, and data constraints are described.

1. Outline of the OECD joint research

The OECD joint research was conducted between 2021 and 2022. The following eight countries participated in the joint research: Austria, Canada, France, Germany, Japan, Ireland, the UK, and the US. The author was in charge of the Japan Survey. The questions were common to all participating countries and covered a wide range of topics, including basic information on the surveyed firms and interviewees; the functions of AI technology; changes in tasks, skills, employment, wages, and the work environment; responses of labor and management; and the impact of and demands for government policies and regulations. In this joint research, "AI technology" is defined as "a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments" based on the definition set forth by a group of AI experts at the OECD (OECD 2019:23).

The industrial sectors targeted in the survey were manufacturing and finance. These sectors were selected for the following reasons: these sectors were areas where AI technology has already been implemented in workplaces (McKinsey 2017, Bessen et al 2018, OECD 2019); narrowing by sector allows for comparison across countries; and the impacts on both white- and blue-collar workers can be captured.

Interviewees included personnel from a range of different job positions—workers using AI, managers, human resource personnel, AI developers or suppliers, AI implementation leads, and worker representatives (union or works council)—to capture the actual situation from different perspectives. It was recommended that six people from these diverse groups be interviewed per firm.

2. Overview of cases by countries

Let us look at the cases in those eight countries included in Milanez (2023). Table 1 shows the number of firm cases by country and by sector. In total, 96 cases were obtained. Note that in Austria, France, Germany, and Ireland, the energy and logistics sectors were added to the targets due to difficulties in securing a sufficient number of cases.

Table 2 shows the number of interviewees by sector, which was 147 (43%) in finance, 154 (45%) in manufacturing, 21 (6%) in energy, and 3 (1%) in logistics. Table 3 shows the number of interviewees by job position. Interviewees from the management side, such as managers, human resources personnel, and those in charge of AI implementation projects, accounted for an unexpectedly fair figure, at 60%. On the other hand, the number of interviewees from the worker side, such as workers and worker representatives (unions or works councils), proved to be rather weak, accounting for 26%.[3]

Next, let us review the major AI technologies implemented in those eight countries. In finance, they include fraud detection and legal compliance technology using anomaly detection to predict fraud; Algorithmic trading algorithms used to identify investment opportunities in financial markets; Financial forecasting tools that use predictive models incorporating a wide range of data; Underwriting software used to improve accuracy in consumer credit decisions; and Chatbots used for advising clients, routing client questions (Milanez 2023:23). In manufacturing, they include visual inspection tools using image recognition to identify objects along the assembly line; Manufacturing execution systems using real time data to identify areas of inefficiency; Real-time analysis of production lines to identify potential issues, prevent downtime; and Autonomous guided vehicles in the warehouse (Milanez 2023:23). Table 4 shows a list of occupations affected by AI technologies.[4] They are affecting a wide variety of occupations.

Table 1. Number of firm cases by sector (8 OECD countries)

(unit: case)

	Finance	Manufacturing	Energy	Logistics	Total
Austria	6	10	2	–	18
Canada	6	7	–	–	13
France	3	3	1	–	7
Germany	3	6	1	–	10
Ireland	4	8	3	1	16
Japan	4	5	–	–	9
UK	5	4	–	–	9
US	7	7	–	–	14
Total	38	50	7	1	96
% of total	40%	52%	7%	1%	100%

Source: Created by author based on Milanez (2023:26).
Note: Firms in Germany, Ireland, and the UK provided the study team with more than one example of using AI technology.

Table 2. Number of interviewees of firm and union cases by sector (8 OECD countries)

(unit: person)

	Finance	Manufacturing	Energy	Logistics	Other	Total
Austria	14	28	5	–	3	50
Canada	15	17	–	–	6	38
France	16	17	6	–	–	39
Germany	16	19	2	–	3	40
Ireland	8	11	8	3	3	33
Japan	24	26	–	–	–	50
UK	28	18	–	–	1	47
US	26	18	–	–	2	46
Total	147	154	21	3	18	343
% of total	43%	45%	6%	1%	5%	100%

Source: Created by author based on Milanez (2023:26).
Note: "Other" consists of union representatives and their AI developers who do not belong to targeted unions for this case study on the impact of AI technology.

Table 3. Number of interviewees of firm and union cases by job position (8 OECD countries)

(unit: person)

	Workers	Worker representatives	Management	HR	AI implementation	AI developers	Other	Total
Austria	7	5	17	4	10	3	4	50
Canada	4	3	18	–	4	4	5	38
France	8	–	13	3	15	–	–	39
Germany	12	7	7	1	9	4	–	40
Ireland	2	3	15	–	9	4	–	33
Japan	9	8	9	8	8	8	–	50
UK	8	4	9	5	14	7	–	47
US	7	2	14	1	13	9	–	46
Total	57	32	102	22	82	39	9	343
% of total	17%	9%	30%	6%	24%	11%	3%	100%

Source: Created by author based on Milanez (2023:27).
Note: "Other" consists of case study interviews conducted to IT personnel, IT managers, ethics researchers, purchasing assistants and data scientists.

Table 4. Occupations most affected by AI technologies (8 OECD countries)

Frequency	Occupation	Frequency	Occupation
14	Customer Service Representatives	1	Bookkeeping, Accounting, & Auditing Clerks
11	Maintenance & Repair Workers, General	1	Chemists
9	Electromechanical Equipment Assemblers	1	Credit Analysts
5	Fraud Examiners, Investigators & Analysts	1	Energy Auditors
4	Insurance Claims & Policy Processing Clerks	1	Financial Quantitative Analysts
3	Aircraft Mechanics & Service Technicians	1	Financial Risk Specialists
2	Cartographers & Photogrammetrists	1	Human Resources Specialists
2	Cutting & Slicing Machine Setters, Operators, & Tenders	1	Insurance Sales Agents
2	Data Entry Keyers	1	Lawyers
2	Insurance Underwriters	1	Loan Officers
2	Power Distributors & Dispatchers	1	Medical Appliance Technicians
2	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	1	Medical Equipment Repairers
2	Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products, Technical & Scientific Products	1	Model Makers, Metal and Plastic
2	Sheet Metal Workers	1	Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic
2	Wind Energy Engineers	1	New Accounts Clerks
2	Wind Turbine Service Technicians	1	Purchasing Agents, Except Wholesale, Retail, & Farm Products
1	Actuaries	1	Quality Control Analysts
1	Agricultural Technicians	1	Remote Sensing Technicians
1	Appraisers of Personal & Business Property	1	Securities, Commodities, & Financial Services Sales Agents
1	Aviation Inspectors	1	Stone Cutters & Carvers, Manufacturing
1	Bioengineers & Biomedical Engineers	1	Textile Cutting Machine Setters, Operators, & Tenders
1	Bioinformatics Scientists	1	Tool & Die Makers
1	Biological Technicians	1	Transportation Vehicle, Equipment & Systems Inspectors, Except Aviation

Source: Created by author based on Milanez (2023:29–30).
Note: "Frequency" refers to the number of occupations affected by AI technology, inquired in interviews in eight OECD countries.

3. Overview of cases in Japan Survey

With respect to the cases in Japan, JILPT (2022) and JILPT (2023) record in detail the cases of four Japanese finance firms and those of five Japanese manufacturing firms, respectively. Table 5 (JILPT 2024) provides an overview of the firms surveyed. These firms engage in a range of businesses, including banking; insurance; securities; manufacturing and sale of steel; provision of IT and network services; provision of control equipment; manufacturing of electrical machinery and appliances; and provision of measuring equipment. The number of workers in each firm ranges from about 600 (non-consolidated) to about 100,000 (consolidated). Eight of these firms, with the exception of Financial Company A, have labor unions.

Table 6 summarizes the functions of and occupations affected by AI technologies as observed in Japan. The occupations affected are diverse. This diversity is common to both cases in Japan and other countries.

Table 7 shows the outlines of interviewees in the Japan Survey. Three to seven persons per firm were interviewed. For the sake of anonymity, the division of each interviewee is given as a pseudonym or not stated in this article.

Table 5. Outlines of firm cases: Business description, firm size (number of workers), and with/without union (Japan Survey)

Firm	Business description	Number of workers (persons)	With/without union
Financial Company A	Banking	600 (non-consolidated)	Without union
Financial Company B	Insurance		With union
Financial Company C	Insurance	20,000 (non-consolidated)	With union
Financial Company D	Securities	26,000 (consolidated)	With union
Manufacturing Company E	Manufacturing and sale of steel	15,000 (non-consolidated)	With union
Manufacturing Company F	Provision of IT and network services	100,000 (consolidated)	With union
Manufacturing Company G	Provision of control equipment	More than 1,000 (non-consolidated)	With union
Manufacturing Company H	Manufacturing of electrical machinery and appliances	1,300 (non-consolidated)	With union
Manufacturing Company I	Provision of measuring equipment	6,000 (non-consolidated)	With union

Source: Created by author based on JILPT (2024:14).
Note: The number of workers in Financial Company B is not indicated above for the sake of anonymity.

Table 6. Functions of and occupations most affected by AI technologies (Japan Survey)

Firm	Functions of AI technology	Occupations affected by AI technology
Financial Company A	Partial automation of preliminary mortgage screening	Mortgage screening officers
Financial Company B	Estimate of repair costs using images of vehicles in accidents	Repair cost estimators for vehicles in accidents (called “adjuster”)
Financial Company C	(1) Indicating possible answers by phone (2) Automatically providing answers on simple cases online (3) Automatically providing answers on simple cases by phone	Customer service representatives (called “advisor”)
Financial Company D	Crossover search and recommendation	Securities salespersons
Manufacturing Company E	Proposing recovery measures for problems with manufacturing lines	Maintenance workers
Manufacturing Company F	Recommendation of job matching under the in-house recruitment system	Human resources personnel * In-house recruitment system users
Manufacturing Company G	Calculating the relevance between overseas websites and orders	Marketing personnel
Manufacturing Company H	Judging pass or fail in electronic component inspection	Visual inspectors
Manufacturing Company I	Judging pass or fail in sensor chip inspection	Visual inspectors

Source: Created by author based on JILPT (2024:30, 35).

Table 7. Outlines of interviewees: Job position, main questions, and date of survey (Japan Survey)

Firm	Interviewees	Main questions	Date
Financial Company A	A, Department Manager, Total Risk Management Department	Background for introduction	Aug 10, 2021
	B, Section Chief, 2nd Risk Management Section, Total Risk Management Department	Functions and development	Aug. 11, 2021
	C, Section Chief, Business Planning Section, Loan Planning Department	Development and operation	Aug. 12, 2021
	D, Section Chief, Screening Section, Loan Business Department	Operation in the workplace	Aug. 18, 2021
	E, Screening Section, Loan Business Department	Operation in the workplace	Aug. 18, 2021
	F, Department Manager, Personnel and General Affairs Department	Personnel system, labor-management relationship	Aug. 19, 2021
	G, Section Chief, Personnel Affairs Section, Personnel and General Affairs Department	Personnel system, labor-management relationship	Aug. 19, 2021
Financial Company B	A	Background for introduction	Aug. 23, 2021
	B	Background for introduction	Aug. 23, 2021
	C	Functions and development	Aug. 31, 2021
	D	Operation in the workplace	Sep. 1, 2021
	E	Wages, personnel system	Sep. 6, 2021
	F	Labor-management relations	Sep. 7, 2021
Financial Company C	A, Group Leader, Planning Group, Personnel Affairs Department	Personnel system, labor-management relationship	Sep. 15, 2021
	B, Leader, Planning Group, Personnel Affairs Department	Personnel system, labor-management relationship	Sep. 15, 2021
	C, Leader, Planning Group, Customer Communication Planning Department	Development and operation	Sep. 16, 2021
	D, Customer Center Office, Customer Communication Planning Department	Utilization in the workplace	Sep. 17, 2021
	E, Vice Chairperson, Labor Union	Initiatives by the labor union, labor-management relations	Sep. 22, 2021
	F, Vice Director of Secretariat, Labor Union	Initiatives by the labor union, labor-management relations	Sep. 22, 2021
Financial Company D	A, Analysis Section, Sales Planning Department	Development process	Nov. 17, 2021
	B, Analysis Section, Sales Planning Department	Development process	Nov. 18, 2021
	C, Digital Transformation Department	Management of development and operation	Nov. 22, 2021
	D, Strategy Section, Digital Transformation Department	Development and operation	Nov. 22, 2021
	E, Research Section, Digital Transformation Department	Development and operation	Nov. 24, 2021
	F, Sales Planning Department	Development management	Nov. 25, 2021
Manufacturing Company E	A, Director, Control Office, EA District	Utilization in the workplace	Oct. 25, 2021
	B, Group Leader, Technology Promotion Department	Functions and development process	Oct. 26, 2021
	C, Deputy Section Chief, Equipment Engineering Department	Functions and development process	Oct. 26, 2021
	D, Control Office, EB District	Operation in the workplace	Oct. 27, 2021
	E, Director, Personnel Affairs Department	Personnel system, labor-management relationship	Oct. 29, 2021
	F, Secretary General, Labor Union	Initiatives by the labor union, labor-management relations	Nov. 1, 2021
	G, Control Office, EA District	Operation in the workplace	Nov. 4, 2021
Manufacturing Company F	A, Manager, Personnel Affairs Department (system design division)	Background for introduction, outline of functions	Nov. 5, 2021
	B, Personnel Affairs Department (system design division)	Functions and operation	Nov. 10, 2021
	C, AI and Data Analysis Department	Functions and development process	Nov. 11, 2021
	D, Personnel Affairs Department (labor division)	Personnel system, labor-management relationship	Nov. 12, 2021
	E, Chairperson, Labor Union	Initiatives by the labor union, labor-management relations	Nov. 17, 2021
Manufacturing Company G	A, Manager, Communication Department, Marketing Headquarters	Background for introduction, impact on business	Apr. 18, 2022
	B, Innovation Department, Marketing Headquarters	Functions and development process	Apr. 19, 2022
	Y, R&D Department, Technology Headquarters, Company GA	Functions, and development and introduction process	Apr. 21, 2022
	D, Communication Department, Marketing Headquarters	Operation in the workplace	Apr. 26, 2022
	E, Manager, Headquarters Office, Personnel and General Affairs Headquarters	Human resource development, work conditions	Apr. 27, 2022
	F, Vice Chairperson, Labor Union	Initiatives by the labor union, labor-management relations	Apr. 28, 2022
Manufacturing Company H	A, Section Chief, Manufacturing Department A, Production Headquarters	Background for and purpose of introduction	May 11, 2022
	B, Manufacturing Department A, Production Headquarters	Operation in the workplace	May 11, 2022
	C, Manager, Technology Headquarters	Development and operation process	May 13, 2022
Manufacturing Company I	A, Department Manager, AI Promotion Department	Development history and process	Jul. 6, 2022
	B, Process Development Section, Process Department, Technology Development Headquarters	Functions and introduction process	Jul. 20, 2022
	C, Production Section, Process Department, Technology Development Headquarters	Operation in the workplace	Jul. 20, 2022
	D, Chairperson, Labor Union	Initiatives by the labor union, labor-management relations	Jul. 29, 2022
	E, Department Manager, General Affairs Department	Personnel system, labor-management relationship	Aug. 4, 2022

Source: Created by author based on JILPT (2024:26–27).
Note: For the sake of anonymity, the divisions of the interviewees of Financial Company B are not specified above. Interviewees in Manufacturing Company G include a counterpart person of the joint development from Company GA, an AI technology supplier to Company G.

4. Data constraints

There are some constraints in this study. First, since the OECD joint research does not present all cases in all those eight countries, country-by-country comparisons are limited to those in Japan and those in specific countries. Therefore, in this study, when it is stated that similarities are found between cases in Japan and those in the other countries, it means that similarities are found between specific cases in Japan and those in the other countries, and it does not mean that similarities are found between all cases in Japan and those in the other countries. On the other hand, when it is stated that differences are found between cases in Japan and those in the other countries, it means that a phenomenon observed in specific cases in other countries is not observed in all cases in Japan.

Second, this study does not cover generative AI tools, such as ChatGPT that have emerged in recent years. This is because the OECD joint research was conducted between 2021 and 2022, and generative AI became the focus of attention after that research period.

Third, even though this study covers 96 cases in those eight countries, it is not possible to generalize the findings obtained because it is based on case studies. Milanez recognized this limit of case studies and took the following measure. "….[T]his study has been conducted in parallel to OECD surveys of firms and workers regarding the impact of AI in the workplace. The survey questions and the case study interview guides were developed in close consultation, allowing for each set of results to shed light on the other" (Milanez 2023:13). The "OECD surveys" mentioned here refer to Lane, Williams, and Broecke (2023),[5] which targeted seven countries in the OECD joint research except for Japan, namely, Austria, Canada, France, Germany, Ireland, the UK, and the US.[6] Comparing the case studies targeting those eight countries with these questionnaires, Milanez stated as follows: "The overall, combined picture is surprisingly aligned, reflecting the same patterns through both quantitative and qualitative evidence" (Milanez 2023:13). The results of the case study are not far removed from the overall trends.

III. Analysis of data

This section examines how the working environment has changed since the introduction of AI technology. The changes in the working environment include both improvements and deteriorations. When Japanese cases are positioned in those eight countries, many similarities can be found for the improvements in the working environment. On the other hand, there is almost no evidence of deteriorations in the working environment in Japanese cases, which is different from cases of other countries. This suggests that these changes in the working environment are associated with the way in which corporate organizations respond to AI.

1. Improvements in the working environment

In OECD cases, improvements in the working environment resulted in reduction in tedium, increased job satisfaction, improved physical safety, reduction in workloads and fatigue, and improved well-being. In Japanese cases, there was no reduced tedium, but improvements were observed for the other factors mentioned above. The results also suggest that improvements in the working environment are associated with task reorganization and workload setting.

(1) Reduced tedium

Reduced tedium were often observed in the finance sector, of which the automation of simple tasks was a typical example (Milanez 2023:73). Let us look at the cases of a UK financial firm.

> … a UK financial firm implemented a robotic process automation (RPA) system to assist with a range of activities including mortgage underwriting, interest adjustments, commercial banking and brokerage. In each of these areas, the system's main purpose is to process customer data according to a set of rules. This led to the automation of many simple administrative tasks. For example, following the death of a customer, the firm sends information to the individuals that the deceased registered as informants. Whereas this information would have been gathered and sent by hand before the introduction of the RPA system, workers now input basic data onto a smart form. The system uses this information to automatically generate the package of information the informants require, including data such as account balances. The system also amends account information, as necessary. For example, if the deceased's account was joint, the account will be put into the surviving member's name, adjusting the roles. … One worker discussed how their work has become less administrative and saw greater value in more time spent supporting customers and colleagues across the firm: "Getting rid of tedious administrative work [allows us] to focus on the things we're actually in for – customer interaction and to support the departments in the company." The technology had helped her to enjoy her work to a greater extent on a more personal level as well: "It has improved things for me. [It was] tiresome and repetitive, reading through all the [customer information]. When you're doing things that can be more stimulating, you're enjoying your day more. I think that is true of others as well." (Milanez 2023:73–74)

Many simple administrative tasks have been automated since the introduction of AI technology, followed by the allocation and reorganization of attractive tasks. This suggests a link between reduction in tedium and task reorganization. In this case of a UK financial firm, job satisfaction increased, however, new tedious tasks were created, as described below. In Japanese cases, no reduced tedium was observed.

(2) Increased job satisfaction

Increased job satisfaction was observed in the cases in those eight countries, which is a similarity between Japan and other countries. In the cases of a UK financial services provider offering life insurance, pensions, retirement and investment services, tasks were reorganized and job satisfaction increased after the introduction of a chatbot. "The chatbot assists customers to serve themselves by directing them to the answers to frequently asked questions. As a result, customer service representatives handle a reduced volume of basic customer queries, which has helped diversify the range of topics they cover with customers. The representative interviewed as part of this case study explained: 'The work is more interesting, definitely. It adds variety because [with the removal of frequently asked questions] customers don't ask the same things every time'" (Milanez 2023:75).

The case of a UK financial firm, already mentioned above, also shows an increase in a worker's job satisfaction. "…one worker was actively involved in a six-month process to co-develop the technology with an external vendor and internal AI implementation workers. This involvement was rewarding for her: '[t]o be involved in [the development] and see it implemented, there was a lot of job satisfaction for me there'" (Milanez 2023:75–76). This suggests a link between task reorganization, which allowed the worker to be involved in the development task that was rewarding, and greater job satisfaction.

Among Japanese cases, job satisfaction improved at Financial Company C and Manufacturing Company G. In the case of Financial Company C, after the AI chatbot was introduced, the advisors working at the call center were assigned a wider range of tasks and involved in the development process, which may have increased their job satisfaction. A senior advisor at this company, who was also tasked with managing the AI chatbot, stated: "I was engaged in the work relating to training the AI chatbot, and I was happy to see that the accuracy of the AI chatbot improved" (Respondent D, Company C) (JILPT 2024:105). In the case of Manufacturing Company G, which introduced the AI technology to calculate the contribution of websites to orders, workers' job satisfaction increased through engagement in the new task of conducting deeper analysis. These two cases of Japanese

companies also suggest a link between task reorganization and increased job satisfaction.

(3) Improved physical safety

Improved physical safety of workers was observed both in the case studies in Japan and those in the other countries. An Austrian steel manufacturer, which implemented AI software that controls a straightening machine used to correct the concentricity of steel rods, saw improved physical safety. "Before the AI was introduced, workers would perform the straightening manually, which could lead to accidents if materials were mishandled. The introduction of the software allowed for the straightening to be automated. Workers now monitor the machine from behind a barrier, which has reduced accidents" (Milanez 2023:76).

Improvement in physical safety was observed in the cases of Japanese Manufacturing Company E. An AI developer at this company considers that safety in the workplace improved, explaining "(Using AI technology, [added by the author]) we became able to learn past knowledge by ourselves and use safety-related data, so we can perform work more safely" (Respondent B, Company E) (JILPT 2024:107). In addition, a maintenance worker also finds AI technology useful in locating safety-related data and believes that it is contributing to improving safety in the workplace to some extent. A maintenance manager recognizes that task reorganization has allowed them to focus on safety-related tasks, which has improved safety in the workplace. Again, this case study suggests a link between task reorganization and improved physical safety.

(4) Reduced workloads and fatigue

After the introduction of AI technology, reduction in workload and fatigue were observed. This is also common to the cases in Japan and those in the other countries. In the case of a US aerospace manufacturer, the inspection environment was improved. The company's AI automated the visual inspection of turbine blades for jet engines. "The project lead interviewed as part of the case study reported that the technology had a positive impact on the work environment of inspectors. Before the introduction of the AI technology, inspectors sat in a controlled light environment ("a darkened room") for long periods inspecting blades using a magnifying eye piece. He elaborated: 'The human factors of manual visual inspection were pretty horrible. It is done in a controlled light environment, so they sit in a darkened room [for eight hours] staring through a [three-times] magnifying eye piece or [a] big lens with a ring light. Obviously, they take breaks and what have you. But it is not a particularly pleasant working environment. The [inspection] cell that [replaces] that room is its own controlled light environment'" (Milanez 2023:77).

In Japanese cases, reduced physical burden was observed at Manufacturing Company E and Manufacturing Company H. The AI technology used by Manufacturing Company E was able to identify the cause of a problem on the production line at the production site. The factories are located in several districts, and in some districts, the sites are so large that the office where maintenance workers stand by is away from the site where the trouble occurred. If the maintenance workers were unable to resolve a problem immediately after arriving at the site, they would return to the office to look up past problem cases and then return to the site again. AI has made it possible to investigate the cause of a problem at the location where it occurred, eliminating the need to go back and forth in such manner and reducing the physical burden of workers. Furthermore, although it was not the initial goal to introduce AI, the introduction of the technology has reduced the overtime work of maintenance workers, for the following reasons. The company's production lines operate 24 hours a day, 365 days a year, in three shifts, and problems may occur at night or on holidays. In the past, when maintenance workers working at night or on a holiday were unable to handle a problem, they would call off-duty maintenance workers to handle the problem, thus causing overtime work. With the introduction of AI technology, maintenance workers are now able to respond more effectively than before by utilizing the technology. As a result, the frequency of calls to off-duty maintenance workers has decreased and their overtime work has also decreased. Here, AI has resulted

in reduced physical burden of workers.

Manufacturing Company H conducts visual inspections of electronic components through image recognition using AI technology. In the past, inspectors used only a microscope to perform visual inspections. However, after the introduction of AI, the technology displays the inspection results on a monitor, which has reduced inspectors' eye fatigue to a certain degree compared to when they were only using a microscope.

(5) Improved well-being

In many of OECD cases, workers' well-being improved after the introduction of AI technology. This is another similarity between Japan and the other countries. Improved well-being arises through reduction in work pressure and workload.

Let us first look at the case of a Canadian car manufacturer. The company "implemented an AI technology to monitor the stocks of materials along an assembly line and automatically order replenishments when stock is low. Previously, monitoring and ordering replenishments were done by workers themselves, and it sometimes happened that a worker would fail to replenish their stock of materials before running out. This would trigger a stop of the entire production line, which would be visible and embarrassing. An assembler described this as follows: 'It was uncomfortable, needing to stop the line because a part has run out in your station. A couple of hundred people would be waiting and not working because of you. You do not want to be the cause of a line stop.' As a result, assemblers were supportive of the implementation of this particular AI technology. It automated a small portion of their overall tasks, and 'made life easier' by taking away personal culpability for not replenishing stock levels in time." (Milanez 2023:77–78). In another case of an Austrian steel product manufacturer, mental burden was reduced through the introduction of AI software to automate the straightening of steel metal rods. "Workers were more at ease following the introduction of the AI technology because it absolved them of the responsibility of producing parts without faults" (Milanez 2023:78).

In this part, we look at cases of increased well-being through reduced workload, as reported by a member of an Austrian financial services company's works council. "'There has been a general transformation in the banking business of more regulations and, at the same time, more demands on customer advisors. [This has increased] pressure to do more work faster, which can be stressful.' To the extent that AI technologies can return workloads to more manageable levels by automating certain tasks, this interviewee believed that AI could increase well-being" (Milanez 2023:78). However, the level at which a workload is set varies from organization to organization. It is suggested that improving well-being is associated with the setting of the workload.

As we looked at Japanese cases, improved well-being was observed at Manufacturing Company H and Manufacturing Company I. In both cases, AI technologies were used in the process of visual inspection. This technology provides the inspectors with a judgment on whether the inspected parts are acceptable or unacceptable.

An inspector in the manufacturing department of Manufacturing Company H talks about the reduction of mental burden with the use of AI technology. "I have to make the same judgment with my own eyes, but sometimes I feel it is difficult depending on my conditions on the day of inspection, as sometimes I am not feeling well, or I have a headache, or something like that. In this aspect, although I am not saying that AI should be used for all inspections or that AI is 100% perfect, I feel that AI shifts out the subjects of inspection to a certain extent and reduces my mental burden. If we can operate AI well, man-hours will be greatly reduced, and we can do other things accordingly, which I think is good" (Respondent B, Company H) (JILPT 2024:110). Similarly, at Manufacturing Company I, the mental burden of inspectors has been reduced by AI.

2. Deteriorations in the working environment

While there have been improvements in the working environment since the introduction of AI technology, there have also been deteriorations, resulting in the created tedious tasks, increased work intensity, and increased

stress. Deteriorations in the working environment were rarely observed in Japanese cases, although they were observed in those in the other countries. In this respect, there are differences between Japan and the other countries.

(1) Created tedious tasks

The previous section showed reduction in tedium due to improvements in the working environment. The reduction in tedium occurred through the allocation and reorganization of attractive tasks following the automation of tedious tasks. On the other hand, in a country other than Japan, there was a case in which tedious tasks were created after AI technology automated tedious tasks.

That was a case of a UK financial firm. "…[A]nother worker interviewed as part of the case study claimed that the new version of the task is just as tedious as the previous version. Instead of inputting basic customer data into a database, workers input it onto smart forms so that the information on the smart forms can be used to automate other processes. To this worker, the AI system did not improve job content at all. She added that more concentration is required of workers to make sure that the correct information is input into the RPA system, as the workers typically do not see the end output of the RPA system" (Milanez 2023:79). In this case, as mentioned above, the firm introduced RPA to process customer data and this resulted in reduction in tedium through improvements in the working environment. While the AI system increased job satisfaction for one worker by reducing tedious tasks and giving more attractive tasks, the above-mentioned worker experienced reduced tedious tasks and was given different tasks that were also tedious. Whether tedium is reduced is determined by the way in which tasks are reorganized after the introduction of AI technology.

(2) Increased work intensity

Cases in countries other than Japan showed an increase in work intensity, such as the raised level of work demands. The UK financial firm A can be referred to as a past case, which introduced the RPA mentioned above and saw an increase in work intensity. "…[A] worker interviewed as part of the case study reported that workers were expected to leverage automation to 'get more done'" (Milanez 2023:79). In this case, the level of work demands was raised, which suggests a link between higher work demands and increased work intensity.

Increased work intensity was not observed in Japanese cases. However, Financial Company A experienced a temporary increase in workload (already resolved by the time of the survey). Following the introduction of AI technology, the company was able to achieve uniform screening and reduce the screening time per case. This also resulted in the improvement of customer services. However, a combination of multiple factors, including the introduction of AI and the negative interest rate policy,[7] caused a drastic increase in the number of mortgage applications. As a result, the number of cases to be screened by the screening officers also increased drastically, making them busier than before the introduction of AI. The chief of the screening section of the loan business department said, "since the introduction of AI, the number of mortgage applications has increased, partly due to market factors and the effect of other sales measures, which offset the effect of the introduction of AI" (Respondent D, Company A). This increase in workload was subsequently addressed through temporary dual assignments and organizational changes. This case study suggests a link between increased labor intensity and workload setting.

(3) Increased stress

Increased stress was observed following the implementation of AI technology, mainly due to greater monitoring of workers, the need to learn new systems, and higher work demands. Such increase in stress was observed in cases in the other countries and was rarely observed in Japan, with the only possibility of increased stress due to the need to learn new systems. Greater monitoring of workers was observed in the case of a UK financial firm that introduced a chatbot.

> The chatbot assists customers to serve themselves by directing them to the answers to frequently asked questions. It also monitors customer service representatives' calls in a range of ways, such as recording call or chat times, the number of chats a worker has open at a given time, the wait time to speak to a representative, and the files accessed during calls. The union representative interviewed as part of the case study stated that such monitoring increases workers' stress levels and has negative impacts on job satisfaction and worker engagement. In her opinion, as a general matter, while automation and AI have the potential to foster positive worker outcomes, in reality, their use often results in negative impacts for workers: "I have not seen much to disprove my scepticism around corporate motivations for introducing AI and automation. On the whole, automated systems are not liked by workers." … In this case study, the union representative explained that fears of greater monitoring were heightened by the possibility that the data can be used to inform performance reviews, bonus allocation and disciplinary proceedings. She called for greater transparency around worker-related, data-driven decision making, adding that the misuse of automated workflow and monitoring systems at the company must be addressed. (Milanez 2023:80)

It appears that monitoring by AI technology has led to increased stress among workers. However, it can also be said that labor and management did not fully discuss the use of AI, and that the lack of consensus between labor and management led to the increase in stress on workers. This is because the problem of monitoring by the chatbot would not have arisen if labor and management had reached a consensus on the functions and scope of use of the new technology prior to its introduction. As an example of a works council, let us introduce the case of a German energy provider. The company's works council was concerned about whether the technology could be used to monitor workers and whether it could lead to job cuts.

> An example of representative worker consultation involving a German works council followed the introduction by a German energy provider of an AI technology that provides sales agents with the likelihoods that customers will cancel their contracts. Two AI developers interviewed as part of the case study stated that any new software used in the firm must be approved by the IT Committee of the works council, which consists of five people: three works council members, a data protection officer, and one person from the office of the CIO. … The questions of the works council members were answered by the project manager of the AI solution. The main concerns of the works council related to whether the technology could be used to monitor workers on an individual basis. As the members were assured that this was not the case, the AI solution was approved. The IT Committee imposed an additional condition that, if the AI technology would have an impact on workers in the future, such as job cuts, the firm must report back to the works council. So far, this has not been the case. (Milanez 2023:90)

The works council requires the elimination of personal data monitoring and the reporting of job cuts. The IT Committee is composed of many worker representatives from the works council, and this committee has the authority to approve AI technology. The existence of this committee limits the functioning of AI to a certain extent. It is suggested that the increase in stress due to greater monitoring is actually associated with the nature of labor-management relations.

There were concerns related to the need to learn new systems. This was especially true for the older age groups. It was pointed out that "older workers were singled out as being particularly worried" (Milanez 2023:80). Older workers tended to have difficulties in adapting to new technologies in the case of an Austrian manufacturing company and in that of Financial Company B in Japan. However, as the details of both cases are unknown, the association between the need to learn new systems and increased stress is unclear.

There was also an increase in stress due to higher work demands. Although the nationality is unknown, a case

of a financial company is instructive. "The technology was implemented to improve customer service by suggesting courses of action to customer service representatives in real time. The AI's suggestions include product sales. Before the technology was introduced, workers generally responded to customer questions. While they were asked to cross-sell products before, there was less emphasis on this. The AI has increased the emphasis on product sales. As a customer service representative explained: 'My stress level [is] higher. Before, I didn't have to address an additional offering to the customer. Now, I have to at least try. This is because our group should discuss in at least 50 percent of all communications with the customers an additional offering, and if we don't reach this goal, my manager will ask us why. He cannot see these numbers on an individual basis, only for the complete group. Nevertheless, the stress is [greater]'" (Milanez 2023:80–81). Stress increased because the goals required of workers were raised and their progress was also managed. This suggests a link between increased stress and work demands.

IV. Discussion

In the introduction to this study, the author pointed out that earlier studies have not adequately examined what determines the changes in the working environment after the introduction of AI technology. First, this study reveals that the changes in the working environment can be divided into improvements or deteriorations depending on the responses of corporate organizations, namely, task reorganization, workload setting, changes in work demands, and labor-management relations. Second, the perspective of the corporate organization's response is important for identifying what determines the changes in the work environment after the introduction of AI. In this respect, let us look at the findings of this study in the context of earlier studies.

Yamamoto (2019) showed that task reorganization along with the introduction of AI technology in Japan contributes to increased job satisfaction. The same result was obtained in Japanese cases in which a link between task reorganization and increased job satisfaction is suggested. This result was also observed in the cases in the other countries, indicating similarities between Japan and the other countries.

Earlier studies mainly discussed what determines the increase in stress. Regarding the case of the banking sector, Jaehrling (2018) pointed out that the introduction of AI technology reduced the number of workers and increased their workload, and that it also increased time pressure as workers were expected to respond to customers immediately, which resulted in increased stress. This study, on the other hand, showed that even if the number of workers did not decrease as a result of the introduction of AI, stress increased due to higher work demands and progress management. Thus, although the result of increased stress is similar, the paths leading to that result are different. This study showed that the increase in stress after the introduction of the technology is also associated with changes in work demands.

Yamamoto (2019) suggested that task reorganization along with the introduction of AI technology in Japan also contributes to increased stress. In Japanese cases covered in this study, no increase in stress due to task reorganization was observed. However, it is necessary to continue observation of the cases because it is logically possible that stress increased due to task reorganization. On the other hand, the increase in stress observed in Japanese cases could have occurred among older workers due to the need to learn new systems created by AI.

TUC (2021) pointed out increased stress among workers who experienced monitoring by AI technology, suggesting a link between increased stress and such monitoring. The same result was found in this study. However, this study additionally found that a lack of consensus between labor and management on the implementation of AI was associated with increased stress. In this study, increased stress due to monitoring was observed in the cases in which there was no consensus between labor and management on monitoring by AI, while increased stress due to monitoring was not observed in the cases in which consensus was reached.

Regarding changes in the work environment after the introduction of AI technology, this study presented the

following five points of association that have not been explicitly presented by earlier studies: (1) reduced tedium and task reorganization, (2) improved physical safety and task reorganization, (3) improved well-being and workload setting, (4) created tedious tasks and task reorganization, and (5) increased work intensity and work demands and workload setting.

Finally, Milanez (2023) points out that the effects of AI technologies on tasks are not simply due to inherent technological features but are also determined by a set of decisions made by developers, policymakers, managers, and others. The author agrees with this view. Furthermore, in this study, the author would like to add the finding that changes in the work environment, as well as changes in tasks, are determined not only by technological features, but also by how corporate organizations respond to technologies, such as task reorganization, workload setting, changes in work demands, and labor-management relations. A focus on the responses of corporate organizations has the potential to provide a deeper understanding of what determines changes in wages and employment other than changes in tasks and the work environment.

It should be noted that, although this study showed changes in the work environment after the introduction of AI and the responses of corporate organizations that determine such changes, the AI covered by this study did not include generative AI, such as ChatGPT. Therefore, this study couldn't fully capture the impact of the latest AI technologies. The actual use of generative AI in the workplace and the resulting changes in the working environment are important research topics for the future.

V. Conclusion

The purpose of this study was to identify the position of Japanese cases in OECD cases and clarify the similarities and differences in terms of changes in the work environment after the introduction of AI technology, and to explore what determines changes in the work environment, from the perspective of how corporate organizations respond to AI. Accordingly, the study reconstructed cases regarding changes in the work environment based on the data obtained from Milanez (2023) and JILPT (2022, 2023). The results showed that changes in the working environment after the introduction of AI were observed as both improvements and exteriorizations in those eight countries. In Japan, there were many similarities to other countries in terms of improvements, whereas almost no deteriorations were observed, which is a difference between Japan and the other countries.

What this study reveals is an association in that the responses of corporate organizations with regard to AI technology, such as task reorganization, workload setting, changes in work demands, and labor-management relations, can determine improvements and deteriorations of the working environment. Earlier studies had shown that increased time pressure, task reorganization, and monitoring, which resulted from a decrease in the number of workers, were respectively associated with increased stress caused by deteriorations in the work environment after the introduction of AI. However, this study showed that changes in work demands and labor-management relations were also associated with increased or decreased stress, even where the number of workers did not decrease. The study also showed that not only changes in tasks but also changes in the work environment are affected by the responses of corporate organizations.

The findings of this study have implications for the future response of labor-management representatives with regard to AI technology. This is because the nature of labor-management relations can to some extent determine the impact on workers after the introduction of AI. The findings suggest that for future labor-management relations, it will be important to take an initiative-taking stance toward AI, from the perspective of how labor and management will work together to change jobs, rather than considering that the new technology will change jobs. Labor-management representatives are expected to consider the use of AI, focusing on how to reorganize tasks, how to set workloads, whether to change work demands, and how to build consensus for the

introduction of AI.

In conclusion, the findings of this study indicate that changes in the work environment after the introduction of AI technology could not be explained solely by technological features, but they are associated with how corporate organizations respond to AI. Additional study is needed to explore in detail the reality of generative AI and its impact. It is expected that the effects on workers can be better captured by focusing on the responses of corporate organizations.

This paper is based on Chapter 7 (written by IWATSUKI Shinya) of JILPT 2024, with additions and amendments in line with the gist of *Japan Labor Issues*.

Notes

1. According to the glossary provided by the Nomura Research Institute generative, AI refers to technologies that can generate a variety of content. While traditional AI aims to automate predetermined actions, generative AI aims to learn patterns and relationships in data and generate new contents, including texts, images, sounds, music, and videos (https://www.nri.com/jp/knowledge/glossary/lst/sa/generative_ai, last accessed November 12, 2024).
2. Physical safety refers mainly to safety when performing hazardous work in a factory.
3. I would like to frankly share my impressions from the interviews. To understand exactly how AI technology is being used in the workplace, it was most important to speak with employees who are directly using it. The next group was the project managers responsible for the implementation of AI technology. Of course, it was also essential to ask managers about the background of AI technology implementation, and to inquire with those in charge of AI technology development about its development process and functions. However, for our questions regarding the changes that have or have not occurred in specific tasks and skills or in their workplaces, as well as the reasons behind these changes, it was most valuable to listen to general employees who are actually using AI technology (JILPT 2024:13). In this context, for countries where only a relatively limited number of interviews with general employees were conducted, further case studies remain an important challenge for future consideration.
4. The table does not specify which type of occupation applies to the respective occupations from the cases in each country.
5. A total of 5,334 workers and 2,053 firms in the manufacturing and financial sectors in Austria, Canada, France, Germany, Ireland, the United Kingdom and the United States were surveyed by OECD.
6. A similar survey could be conducted in Japan to better understand the situation in the country. This will be a future research challenge.
7. For a comprehensive explanation of negative interest rates, see the Japanese Bankers Association' website (https://www.zenginkyo.or.jp/article/keywords/8898/, last accessed November 12, 2024). The Bank of Japan decided to introduce quantitative and qualitative monetary easing with a negative interest rate at its policy board and monetary policy meeting on January 29, 2016. The introduction of a negative interest rate means that the Bank would apply a negative interest rate of -0.1% to current accounts that financial institutions hold at the Bank. Subsequently, at the policy board and monetary policy meeting on March 19, 2024, the Bank decided to lift the negative interest rate, considering that the negative interest rate policy has fulfilled its roles.

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An International Comparison of Japanese Jobs

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This paper analyzes job characteristics of Japanese employees based on two international surveys, the Programme for the International Assessment of Adult Competencies (PIAAC) and the International Social Survey Programme (ISSP). Key findings about Japanese jobs compared to other high-income countries reveal: (i) Despite many opportunities to work with others, Japanese employees engage less in mutual learning through information sharing, learning from co-workers or supervisors, and teaching or advising others; they also have fewer active interactions with others such as planning others' activities and persuading or influencing others; their evaluation of interpersonal relationships in the workplace and prosocial meaning of their jobs is relatively low; (ii) While active in general information gathering and learning, they experience fewer opportunities for learning, growth, and effective skill utilization on the job; (iii) The frequency of paperwork such as filling in forms or report writing tasks is high. These job characteristics, also evident in recent surveys and statistics, likely contribute to Japan's internationally low levels of job interestingness and entrepreneurship rate. The analysis also shows significant gender-based differences in job characteristics among Japanese employees.

I. Introduction

This paper examines job characteristics of Japanese employees based on two cross-country surveys—PIAAC and ISSP—compared with those in other high-income countries (Sections II and III). Since job characteristics may be different between self-employed workers and employees, this analysis focuses exclusively on employee jobs. As employees account for 80–90% of total employment in Japan, US and Europe, my analysis covers most of the workforce in each region.[1] While cross-national surveys involve problems such as differences in the translation-related questionnaire nuances and survey methods, making precise numerical comparison difficult (Yoneda 2021), PIAAC and ISSP strive to minimize these issues. Section IV introduces my previous studies to

discuss the possibility that Japanese job characteristics found from PIAAC and ISSP may contribute to Japan's low levels of job interestingness and entrepreneurship rate. Section V summarizes the findings and reviews recent trends observed from other surveys and statistical data.

II. Comparison of tasks based on the PIAAC data

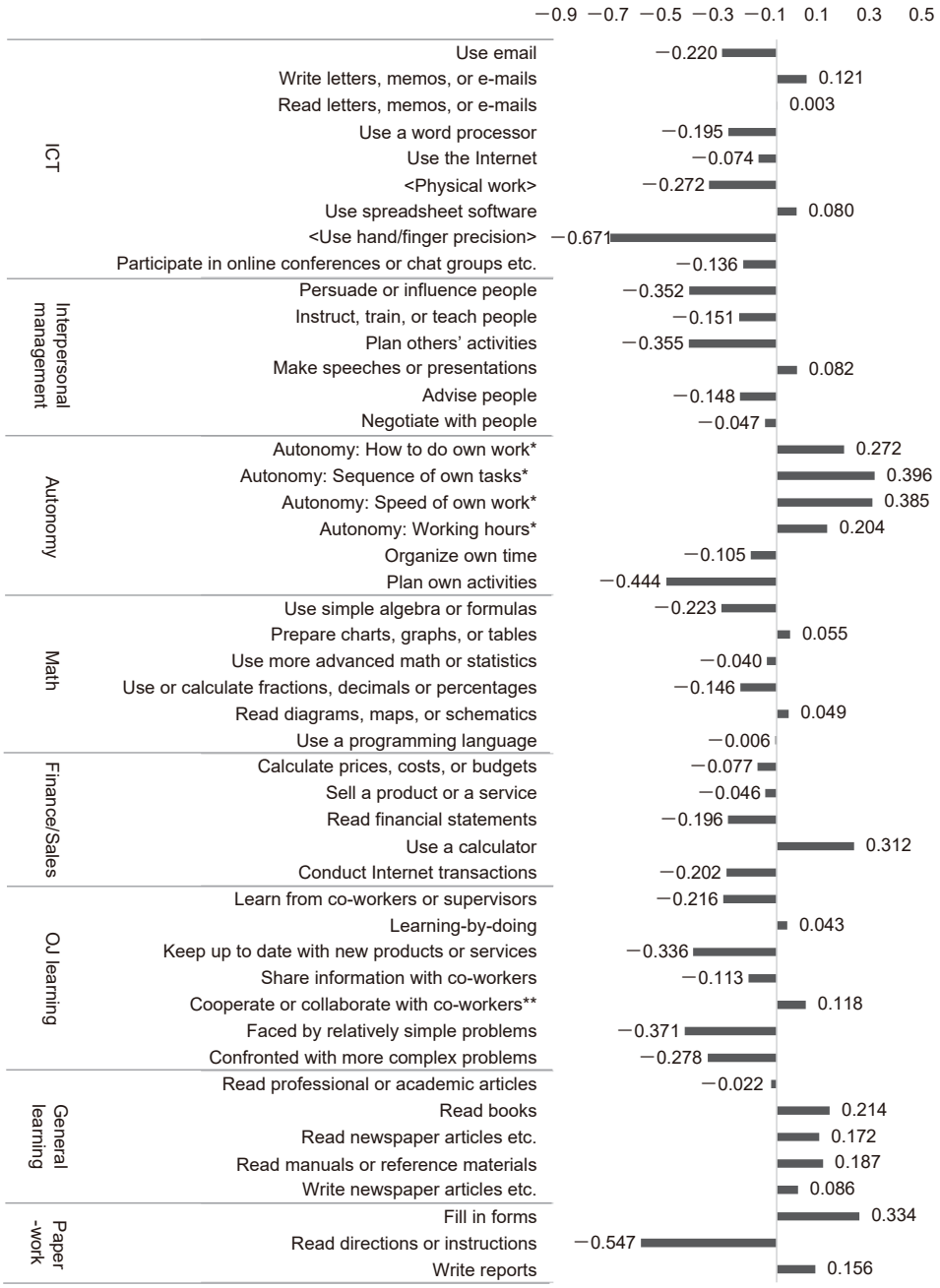
Each job comprises a bundle of various tasks. This section analyzes the characteristics of tasks performed by Japanese employees using PIAAC surveys. PIAAC is a cross-national survey conducted by the Organisation for Economic Co-operation and Development (OECD) for the purpose of measuring and comparing the skills of adults (aged 16–65) across countries. In addition to measuring adults' proficiency in literacy, numeracy, and the ability to solve problems in technology-rich environments through tests, PIAAC surveys respondents' characteristics and the various workplace task performance (Uzuki 2022; PIAAC website).

The analysis of this paper focuses on employees in 29 of 33 countries that participated in either Round 1 (conducted in 2011–2012) or Round 2 (2014–2015) of the first PIAAC survey cycle. These 29 countries are selected because individual-level data are available and they are classified as high-income at the time of the surveys.[2] The 2011–2012 survey participants include Austria, Belgium (Flanders only), Canada, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, South Korea, the Netherlands, Norway, Poland, Slovakia, Spain, Sweden, UK (England and Northern Ireland only), and US. The 2014–2015 participants include Chile, Greece, Israel, Lithuania, New Zealand, Singapore, and Slovenia.

The analysis covers 47 tasks listed in Figure 1. For 42 tasks, respondents rate frequency; for one task ("Cooperate or collaborate with co-workers"), they answer the share of time spent on the task in total working hours, and for four autonomy-related tasks, they rate discretion levels—all using 5-point scales. For tasks asking about frequency and time-share, I assign approximated values to the original 5-point scale to better reflect actual intensity. Figure 1 shows the standardized average scores for each task among Japanese employees (standardized so that the mean and standard deviation [SD] across 29 countries are zero and 1, respectively for each task). Note that it is impossible to compare absolute levels between tasks—such as the frequency of Task A is higher than that of Task B. In Figure 1, the 47 tasks are classified into eight clusters of similar tasks based on factor analysis (indicated in the far left of the figure)—"ICT (Information and Communication Technology)," "Interpersonal management," "Autonomy," "Math," "Finance/Sales," "OJ (On-the-Job) learning," "General learning," and "Paperwork."[3]

Figure 1 reveals several distinct characteristics of Japanese employees' tasks:[4] First, although Japanese employees frequently "Cooperate or collaborate with co-workers," they score low on "Share (work-related) information with co-workers," "Learn (new work-related things) from co-workers or supervisors," "Instruct, train, or teach people," and "Advise people," suggesting limited mutual learning opportunities. They also have fewer opportunities for active interactions with others such as "Plan others' activities" and "Persuade or influence people."

They also have fewer opportunities for tasks such as "Keep up to date with new products or services;" "Faced by relatively simple problems (that take no more than 5 minutes to find a good solution);" and "Confronted with more complex problems (that take at least 30 minutes to find a good solution)," suggesting limited on-the-job learning and growing opportunities. On the other hand, they frequently learn by gathering information from books, magazines, newspapers, and manuals or reference materials, or perform paperwork such as "Fill in forms" and "Write reports." Notably, 69.6% of Japanese employees answer "Yes" to the PIAAC question "Do you feel that you need further training in order to cope well with your present duties?" This figure is about double the 29-country average (35.1%) and the highest among the 29 countries, indicating that Japanese employees are aware of lack of learning directly related to their jobs.



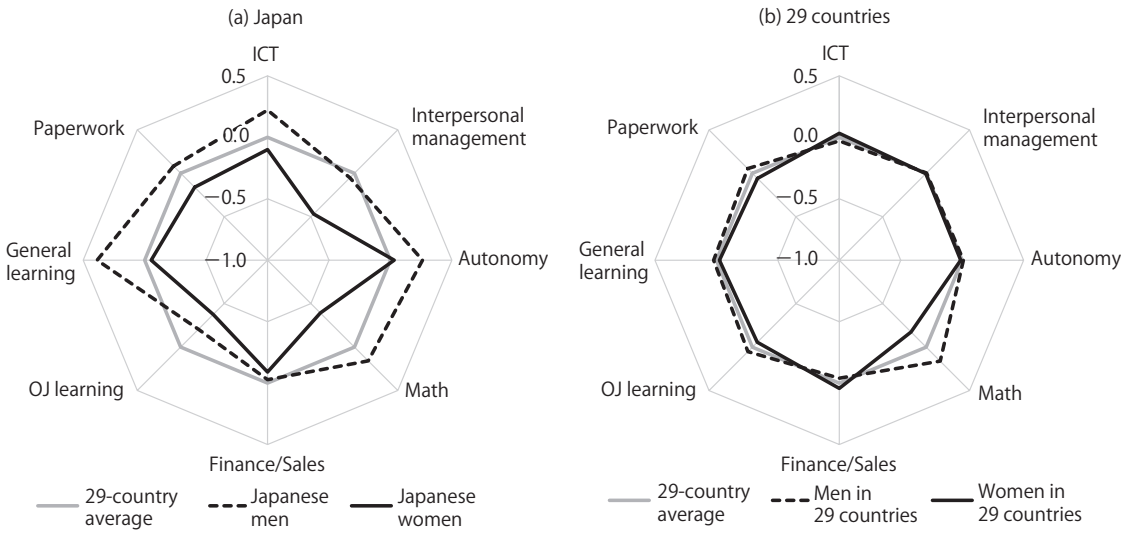
Note: Respondents answer on a 5-point scale: For four tasks marked with *, discretion level allowed ("1: Not at all, 2: Very little, 3: To some extent, 4: To a high extent, 5: To a very high extent"); for one task with **, the time share of total working hours; and for remaining 42 tasks, task frequency is asked. For tasks asking about frequency and time-share, approximated values are assigned to the original scale to better reflect the actual intensity. Frequency scale conversions: "1: Never" to 0; "2: Less than once a month" to 0.12; "3: Less than once a week but at least once a month" to 0.62; "4: At least once a week but not every day" to 3; and "5: Every day" to 5. Time-share conversions: "1: None of the time" to 0; "2: Up to a quarter of the time" to 0.125; "3: Up to half of the time" to 0.375; "4: More than half of the time" to 0.750; and "5: All the time" to 1. Figure 1 shows Japanese employees' average score for each task, calculated from these approximated scores that are standardized so that the mean and SD across 29 high-income countries are zero and 1, respectively for each task. PIAAC survey weights are applied (adjusted for equal country weights). More detailed task information is available in PIAAC background questionnaire sections D, F, G on PIAAC website. Task grouping is based on exploratory factor analysis (see Note 3). For "Physical work" and "Use hand/finger precision" tasks in angle brackets, lower scores indicate higher ICT-related task score. Sample size varies slightly by tasks: approximately 107,800 for the entire 29 countries, including approximately 3,450 for Japan.

Figure 1. Standardized average scores of 47 tasks for Japanese employees (PIAAC)

While Japanese employees have significant discretion over task methods, sequence, speed, and working hours, low scores in "Organize own time" and "Plan own activities" suggest imperfect and limited job autonomy. Although low scores in "Use hand/finger precision" and "Physical work (for a long period of time)" contribute to higher aggregate ICT score, the frequency of pure ICT use, including e-mail, word-processor, the Internet, and chat, is low. Note that while the task frequency typically increase with working hours, Japan's average weekly working hours are 40.8 hours, longer than the 29-country average (38.4 hours).

Analysis by individual characteristics, such as gender, age, educational attainment, or working hours, shows that the gender gap in Japan is particularly large.[5] Figure 2 shows (standardized) average of task scores included in each task cluster by gender for Japan and all 29 countries. In particular, the Japan's characteristics of having fewer "Interpersonal management" and "OJ learning" task opportunities, are remarkable for women.

The Japanese workplace also lags behind in effective skill utilization as well as on-the-job learning. Kawaguchi (2017), analyzing PIAAC data from Japan, US, and UK, finds that while workers in Japan, both men and women, have higher literacy and numeracy than those in US and UK, they utilize those skills less at work—particularly Japanese women.



Note: Scores represent standardized average of task scores (already standardized) included in each task cluster. They are standardized so that the mean and SD of each cluster across 29 countries are zero and 1, respectively. PIAAC survey weights are applied (adjusted for equal country weights). For ICT cluster, "Physical work" and "Use hand/finger precision" scores are multiplied by (-1) before averaging, as their lower scores indicate higher ICT-related task score.

Figure 2. Standardized average scores for eight task groups by gender: Japan and all 29 high-income countries (PIAAC)

III. Comparison of job characteristics based on the ISSP data

ISSP annually conducts cross-national surveys on topics such as "Work orientations," "Role of government," "Family and changing gender roles," and "Religion," with approximately 40 participating countries/regions (Murata 2020; ISSP website). The analysis in this section examines employees in 10 high-income countries (France, Germany, Great Britain, Israel, Japan, Norway, Spain, Sweden, Switzerland, and US) that participated in all ISSP "Work orientations" surveys conducted in 1997, 2005, and 2015. Results from these three years are pooled to increase sample sizes and minimize the effects of cross-country and cross-year methodological

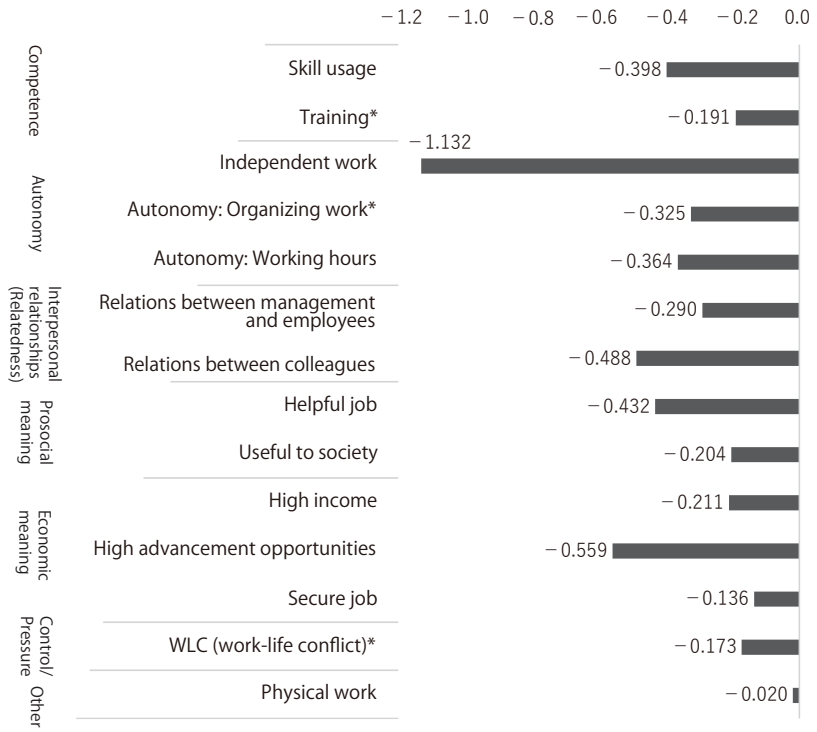
variations.[6] It should be noted, however, that Japan's job characteristics found in this section remain robust across years.

The analysis covers 14 job characteristics listed in the Appendix Table. These characteristics are classified into groups (indicated in the far-left column) following Asuyama (2021). Regarding the three characteristics marked with *, the sample is restricted to 2005 and 2015 data, as these are not asked in the 1997 survey.

Similarly to Figure 1, Figure 3 reports the standardized average scores for Japanese employees, with the scores standardized so that the mean and SD of each characteristic across 10 countries is zero and 1, respectively. Comparing absolute levels between tasks remains impossible.

Figure 3 shows that Japan's scores fall below the 10-country average (zero) for all characteristics. In particular, "Independent work" score is remarkably low in Japan. This is consistent with the PIAAC results, which show that Japanese employees frequently "Cooperate or collaborate with co-workers." ISSP surveys show less discretion in daily work organization and working hours, indicating less job autonomy than PIAAC suggest. Similar to PIAAC results, which show limited on-the-job learning and skill utilization in the Japanese workplace, ISSP surveys show that relatively few Japanese employees recognize the contributions of work experiences and job skills to their current jobs, or have received training to improve job skills.

Japanese employees have a low evaluation of "Relations between colleagues" and "Relations between management and employees." Furthermore, relatively few consider their jobs to be a "Helpful job" or "Useful to society," and find economic meaning in their jobs. Specifically, very few employees consider their jobs to offer



Note: Scores represent standardized average scores of Japanese employees (standardized so that the mean and SD across 10 high-income countries are zero and 1, respectively for each job characteristic). ISSP survey weights are applied (adjusted for equal country weights). The scores marked with * are calculated from 2005 and 2015 data only. See Appendix Table for characteristic details. Sample size over the three years, which varies slightly by characteristics, is between 20,000 and 21,000 for the entire 10 countries, including approximately 1,600 for Japan.

Figure 3. Standardized average scores of 14 job characteristics for Japanese employees (ISSP)

"High advancement opportunities." Similarly, few consider their jobs to be "High income" ones or "Secure jobs." On the other hand, the level of work-life-conflict (WLC) and the frequency of "Physical work" of Japanese employees are slightly lower than the 10-country average.

While PIAAC mainly asks on the objective task frequency, ISSP mostly asks respondents' subjective evaluation using 3- to 5-point scales. When asked to answer on such an ordered scale, East Asian people including Japanese, tend to avoid extreme responses, prefer moderate ones, and refrain from choosing positive answers, compared with US and European counterparts (Ikeda et al. 2019: Chapter 18; Iwata et al. 1995). To examine whether Japan's low scores in Figure 3 are driven by these response styles, Table 1 compares positive and negative response percentages between Japan and all 10 countries. If the response scale is "1: Strongly disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly agree" or "1: Very bad, 2: Quite bad, 3: Neither good nor bad, 4: Quite good, 5: Very good," for example, the options 4 and 5 are considered positive answers. The options 1 and 2, on the contrary, are considered negative answers. In either case, this comparison excludes the intermediate answer (which the Japanese tend to choose), and removes the impact of extreme answers. Moreover, comparing negative answer percentages helps control Japanese people's tendency to avoid positive answers. Table 1 confirms that Japan's job characteristics indicated in Figure 3 remain robust even after accounting for these response styles.

Unlike PIAAC data, ISSP surveys show less pronounced gender gaps in Japan's job characteristics, although the relevant figures or tables are omitted here. However, Japanese women score notably lower than the 10-country average in "High advancement opportunities," "Autonomy: Organizing work," "Skill usage," and "Training." PIAAC surveys reveal that Japanese women experience much fewer "Interpersonal management" tasks, such as teaching or advising others, negotiating with others, and planning others' activities. Because the frequency of these tasks is likely to increase with promotion, limited career advancement opportunities for Japanese women may explain their low "Interpersonal management" score.

Table 1. Job characteristics in Japan and 10 high-income countries: Percentages of positive and negative answers (ISSP)

(Unit: %)

		Positive answers		Negative answers	
		Japan	10 countries	Japan	10 countries
Competence	Skill usage	47.7	67.6	52.3	32.4
	Training*	42.0	51.5	58.0	48.5
Autonomy	Independent work	27.8	71.8	54.1	15.7
	Autonomy: Organizing work*	11.6	23.3	34.5	23.9
	Autonomy: Working hours	6.5	7.0	74.3	52.1
Interpersonal relationships (Relatedness)	Relations between management and employees	60.3	70.0	11.6	9.2
	Relations between colleagues	77.4	87.0	6.1	2.6
Prosocial meaning	Helpful job	49.2	69.8	23.7	13.2
	Useful to society	59.6	70.1	14.0	10.6
Economic meaning	High income	19.2	24.2	48.6	44.9
	High advancement opportunities	9.7	23.9	62.2	46.5
	Secure job	57.5	67.4	21.1	16.4
Other	Physical work	18.0	23.6	55.0	53.2

Note: WLC percentages excluded as WLC is an index. The PIAAC survey weights are applied (adjusted for equal country weights). See Appendix Table for characteristic details.

IV. Consequences of differences in job characteristics

This section takes up my two studies on the consequences of job characteristic differences identified in Sections II and III. The first study (Asuyama 2021) analyzes factors affecting job interestingness, using ISSP and other data. According to ISSP data used in Section III, only 50.8% of Japanese employees consider their jobs "interesting" (i.e., those who choose "Strongly agree," or "Agree" on a 5-point scale)—significantly below the 10-country average (74.0%) and lowest among the 10 countries.

Japan also shows markedly low job satisfaction, with 65.7% (ISSP) and 57.8% (PIAAC) of employees satisfied with their jobs, well below the high-income country averages of 80.8% (ISSP) and 79.2% (PIAAC). These figures rank lowest (ISSP) and second-lowest after South Korea (PIAAC).[7]

Job interestingness, along with good workplace interpersonal relationships, is among the most important factors of high job satisfaction (Asuyama 2021; Krekel et al. 2019). Employees who find their jobs interesting tend to work harder, less likely to quit, and have better mental health (Asuyama, 2021). Moreover, educational psychology literature suggests that job interestingness may encourage voluntary learning (O'Keefe et al. 2017). In short, interesting jobs benefit both workers and firms.

Based mainly on psychology literature, Asuyama (2021) focuses on the variables shown in the Appendix Table and Figure 3 (and the degree of match between the respondent's interests and actual work characteristics) and examines the relationships between those variables and job interestingness. Multiple regression analyses reveal positive correlations between 10 of the 14 characteristics in Figure 3—i.e., except for "Autonomy: Working hours," "Secure job," "WLC," and "Physical work"—and job interestingness, even after controlling for individual characteristics. As described in Section III, Japan scores low on these 10 characteristics, which is likely to contribute to lower job interestingness of Japanese employees.

When I estimate the explanatory power of these attributes for variations in job interestingness, I find that "Interest match" (the degree of match between the respondent's interests and actual work characteristics) and "Prosocial meaning" (the level of prosocial meaning that employees find in their jobs) have high explanatory power in both Japan and other nine high-income countries.[8] On the other hand, there exist some differences between Japan and other high-income countries: In the other high-income countries, the explanatory power of "Autonomy" (in particular whether the employee can perform the job independently) is high, but it is low in Japan. In contrast, the explanatory power of "Interpersonal relationships" in the workplace, which is low in the other high-income countries, is as high as that for "Prosocial meaning" in Japan.

As explained in Section II and III, opportunities to work independently are scarce in Japan, and employees frequently work with co-workers. Presumably, this is why interpersonal relationships have a significant impact on job interestingness. Psychological research shows that while Westerners tend to view themselves as independent from their environment, East Asians tend to consider themselves dependent on others in their interpersonal relationships (Ikeda et al. 2019: Chapter 18; Markus and Kitayama 1991). These cultural factors may also explain why "Interpersonal relationships" are considered more important than "Autonomy" in Japan.

Differences in job characteristics also affect entrepreneurship rate. Asuyama (2022) analyzes tasks performed by entrepreneurs (self-employed workers with employees) using PIAAC data and empirically shows that entrepreneurship probability is higher for workers in an environment where employees experience more entrepreneur-like tasks. Under the task classification in Figure 1, entrepreneurs perform more tasks classified under "Autonomy," "Finance/Sales," and "Interpersonal management," whereas fewer tasks classified under "Paperwork." As described in Section II, Japanese employees have fewer opportunities to experience "Interpersonal management" tasks in particular, whereas opportunities for some tasks classified under "Paperwork" are numerous. Given that most entrepreneurs start business based on employee experience, Japanese employees' limited exposure to tasks that are essential for entrepreneurs likely contributes to Japan's

persistently low entrepreneurship rate.[9]

V. Conclusion and recent developments

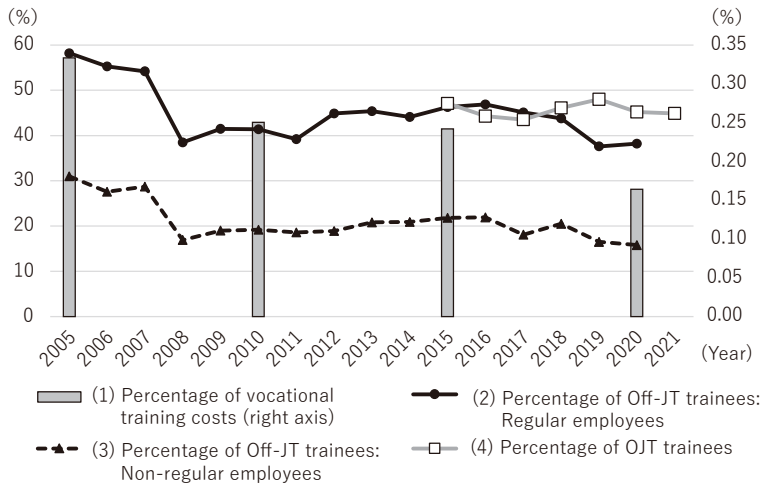
I have identified distinct job characteristics of Japanese employees compared to other high-income countries based on two cross-national surveys, PIAAC and ISSP. To summarize the findings, first, despite many opportunities to work with others, Japanese employees engage less in mutual learning through information sharing, learning from co-workers or supervisors, and teaching or advising others. They have fewer opportunities for active interactions, such as planning others' activities and persuading or influencing others. They also have a low evaluation of their interpersonal relationships in the workplace, and fewer employees feel that their jobs have useful value for society or for other people.

It is known that Japanese companies place emphasis on consensus among relevant departments in their decision-making (Meyer 2014), and spend considerable time on internal coordination and *nemawashi*.[10] (Kuroda and Yamamoto 2013; Numagami et al. 2007; Numagami et al. 2010; Yamamoto and Kuroda 2014). Such pervasive internal coordination and the consensus-based system likely increase opportunities to work with others and heighten the importance of interpersonal relationships for Japanese employees. According to surveys conducted by Persol Research and Consulting Co., Ltd. in 2019 and 2022 in major cities in Japan, Asia-Pacific, US, and Europe, the percentage of respondents who cite interpersonal relationships as a priority factor of job choice or job change is higher in Japan than other countries (Persol Research and Consulting Co., Ltd. 2019 and 2022). However, PIAAC and ISSP surveys have shown that the Japanese workplace provides fewer relationship-building opportunities, such as learning from co-workers or supervisors, and teaching or advising others, seemingly making interpersonal relationships in Japanese workplaces relatively worse internationally.

According to the same surveys by Persol Research and Consulting Co., Ltd., the percentage of respondents who choose "People who focus on harmony are more valued than those who work selfishly" and "The most important thing in the company is not to make waves" as characteristics of their workplace culture is high in East Asia, including Japan. This tendency, reflected in Japanese companies' focus on inward-looking coordination and excessive consensus-seeking (Numagami et al. 2007; Numagami et al. 2010) may further diminish the interpersonal relationships and prosocial meanings of jobs.

The ISSP surveys, from which interpersonal relationship assessment data is obtained, cover the period only until 2015. Have workplace interpersonal relationships in Japan improved since then? According to the Japanese Panel Study of Employment Dynamics (JPSED), conducted by the Recruit Works Institute, the percentage of workers who were satisfied with workplace interpersonal relationships (those who chose "Applicable" or "Somewhat applicable" when asked about whether they were "Satisfied" with their workplace interpersonal relationships), was 39% in 2015–2017, started to rise gradually thereafter and came to 44% in 2021. However, given that the JPSED is a panel survey, it is possible that dissatisfied workers may have exited from the labor force or moved to companies with better interpersonal relationships, increasing overall job satisfaction. According to the "Survey on Employment Trends," conducted by the Ministry of Health, Labour and Welfare (MHLW), the percentage of job changers who chose "Human relations in the workplace were not amicable" among the set of personal reasons for leaving previous jobs is on an uptrend in both men and women.[11] In sum, it is difficult to judge from these recent surveys as to how workplace interpersonal relationships in Japan have changed in recent years.

The second distinct feature of Japan's job characteristic found from PIAAC and ISSP is that while Japanese employees are active in general information gathering and learning, they have limited opportunities to learn and grow on the job. In the abovementioned surveys conducted by Persol Research and Consulting Co., Ltd. in 2019 and 2022, the percentage of workers feeling that they were growing through their jobs was remarkably low in



Sources: (1): MHLW, "General Survey on Working Conditions;" (2) and (3): MHLW, "Basic Survey of Human Resources Development;" (4): Recruit Works Institute, "Japanese Panel Study of Employment Dynamics (JPSED)."
Note: (1) represents the percentage of vocational training costs in total labor costs, on a monthly basis among regular employees. (2) and (3) represent the percentages of workers who received Off-JT training in each year. (4) is 100% minus the percentage of workers who had no opportunity to acquire new knowledge and skills on the jobs in each year.

Figure 4. Trends in Off-JT and OJT participation and training costs

Japan. Meanwhile, the "Basic Survey of Human Resources Development" conducted by the MHLW shows that the percentage of workers who received off-the-job training (Off-JT) plunged after the 2008 global financial crisis among both regular and non-regular employees, rebounded somewhat through 2016, but fell back again in 2019–2020 (Figure 4). A similar trend can be observed in terms of the percentage of workers who received on-the-job training (OJT) in 2015–2021 (calculated from the abovementioned JPSED) and the share of vocational training costs in total labor costs (in 2005, 2010, 2015 and 2020, based on the MHLW's "General Survey on Working Conditions"). Judging from the analysis in this paper, the conventional wisdom that Japanese companies' strengths lie in the development of organizational capabilities, knowledge, skills, and human resources (Fujimoto 2006) or that firms' OJT and Off-JT are the main vehicles for developing employees' skills (Busemeyer and Trampusch 2012) no longer applies, at least when it comes to the Japanese economy as a whole.

The third job characteristic in Japan is the higher frequency of paperwork tasks such as filling in forms and writing reports. In February 2020, the Institute of Management of SANNO University conducted a survey with 897 section heads (*kacho*) in their 30s through 50s who work for Japanese companies and have regular-employee subordinates. This survey reveals that although many section heads regard "Communicating with subordinates" and "Formulating strategies and policies" as tasks on which they should spend the largest amount of time, "Preparing documents for internal use" is the most cited task they actually spent a lot of time on (Institute of Management of SANNO University 2020). While the sample coverage is limited, this finding is consistent with the PIAAC results.

The analysis of PIAAC and ISSP also suggests the possibility that abovementioned job characteristics may contribute to the internationally low levels of job interestingness and entrepreneurship rate in Japan. I also have found that the gender gap in job characteristics is more pronounced in Japan than in other high-income countries.

While most of the job characteristics found are negative in nature, there are also signs of improvement. For example, as of April 2023, the Kishida administration promotes "investments in human resources" including support for reskilling (Prime Minister's Office of Japan website). In addition, back-office jobs are expected to become more efficient due to the increased use of digital technology following the COVID-19 pandemic. It is

interesting to see whether the second cycle of the PIAAC survey conducted in 2022–2023, and the ISSP "Work orientations" survey scheduled for 2025 will show any signs of change.

More in-depth analyses by individual attributes or econometric analyses of factors influencing job characteristics are left for future research. As described in Section IV, the impact of job characteristics on workers' welfare and productivity may vary with labor market structure and cultural traits of each country, it is also necessary to explore the optimal job attributes for Japan.

This is a translation of the author's paper "Kokusai hikaku kara mieru nihonno jobu no tokucho" [An International Comparison of Japanese Jobs] (Asuyama 2023) published in *Japanese Journal of Labour Studies*, No. 755 with additions and amendments in line with the gist of *Japan Labor Issues*. I am grateful for the translation offer from the Editorial Office of *Japan Labor Issues*. The research in this paper was supported by the JSPS KAKENHI [Grants-in-Aid for Scientific Research] Grant Number JP19J00295 and JP22K20179. The views, thoughts, and opinions expressed in the paper belong solely to the author, and do not necessarily reflect those of the organization with which she is affiliated.

Notes

1. In 2021, employees (non-self-employed workers) comprised 90% of total employment in Japan, 93% in the United States, and 86% in Europe (OECD.Stat, as accessed on January 6, 2023).
2. High-income country classification follows World Bank definition. The same classification applies to the ISSP analysis in Section III. The individual-level PIAAC data can be downloaded from the OECD's PIAAC website.
3. I conduct an exploratory factor analysis based on 47 task scores of all employees (106,002 persons) across 29 countries, using the principal factor method and the quartimin oblique rotation. The number of factors is set at eight in consideration of the scree plot and the ease of interpreting factors. Each task is classified into the eight factor groups and ordered in Figure 1 according to its absolute value of the highest factor loading. As the main purpose is classifying 47 tasks, low-loading and multi-loading task items are not dropped from the analysis.
4. In Figure 1, differences in employees' characteristics across countries are not controlled for. However, when I regress task scores on individuals' various characteristics and country dummies using employee-level data and plot the coefficient of Japan dummy for each task, I get a figure almost identical to Figure I. This is also true for the ISSP analysis in Section III.
5. In Japan as well as in other 29 countries, the scores for all task groups are lower among workers with short working hours. The majority of workers with short working hours are women (around 70% in the analysis sample). However, even when I restrict the sample to employees with 30 or longer working hours and analyze by gender, most of the gender differences observed in Figure 2 remain. This is also true for the ISSP analysis in Section III.
6. For example, in Japan, the survey was conducted through face-to-face interviews in 1997 and 2005 but through self-completion (with both questionnaire distribution and collection by visit) in 2015. It is known that when survey respondents are asked to answer questions face-to-face, they tend to give socially desirable answers (NHK Broadcasting Culture Research Institute 2010). Therefore, it is difficult to judge how much of the change in Japanese employees' perception of job characteristics from 2005 to 2015 reflects the actual perception change and how much is attributable to the changes in survey methods.
7. The percentage of those who are "Satisfied with their jobs" are the total percentages of those who choose the answers, "Completely satisfied," "Very satisfied" and "Fairly satisfied" on a 7-point scale in ISSP, and the total percentages of those who choose "Extremely satisfied" and "Satisfied" on a 5-point scale in PIAAC. Even when the levels of job interestingness or job satisfaction are measured in terms of the average score or the percentage of negative answers, Japan scores low on job satisfaction.
8. Unlike Section III of this paper, Asuyama (2021) analyzes Japan and other nine high-income countries separately. While the main analysis of Asuyama (2021) covers self-employed workers as well, the results for employees (excluding self-employed) are shown in Appendix Figure B5. Although results in Asuyama (2021) are not necessarily causal but correlational, steps are taken to minimize the endogeneity problem, for example by analyzing Japan's alternative panel data, or by conducting the GMM (generalized method of moments) estimation.
9. According to the Global Entrepreneurship Monitor data for 2012–2017 that are used by Asuyama (2022), the proportion of entrepreneurs who either are preparing to start business or have started business in the past five years in the total workers (excluding entrepreneurs operating more than five years) is 6.0% in Japan, around half the average level across the 23 countries under analysis and the lowest among them.
10. *Nemawashi* is a Japanese decision-making practice in which employees "spend a substantial amount of time for in-advance negotiations behind the scenes, talking to many colleagues or superiors to reach a consensus or obtain approvals" (Kuroda and Yamamoto 2013: 368).
11. In the case of men, the percentage continued to increase in most of the years between 2010 and 2019, rising from 14% to 27%, and came to 21% in 2021. In the case of women, the percentage remained on an uptrend from 2010 to 2021, rising from 13% to 20%. These percentages are calculated by setting total "Personal reasons" as 100%. Regarding the results for 2021, those who choose "Other

personal reasons," which was added as a new answer option in that year, are excluded from 100%.

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Appendix Table. 14 job characteristics analyzed based on the ISSP surveys

Group	Characteristic (variable)	Description
Competence	Skill usage	4-point scale variable measuring the extent to which the respondent's past work experience and/or job skills (s)he can make use of in his/her present job (1: Almost none, 2: A little, 3: A lot, 4: Almost all)
	Training*	0/1 variable, which is 1 if the respondent has had any training to improve his/her job skills, either at the workplace or somewhere else over the past 12 months, 0 otherwise.
Autonomy	Independent work	5-point scale variable measuring the extent to which the respondent agrees that "I can work independently" (1: Strongly disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly agree)
	Autonomy: Organizing work*	3-point scale variable representing which of the following statements best describes how the respondent's daily work is organized: "1: I am not free to decide how my daily work is organized," "2: I can decide how my daily work is organized, within certain limits," "3: I am free to decide how my daily work is organized."
	Autonomy: Working hours	3-point scale variable representing which of the following statements best describes how the respondent's working hours are decided: "1: Starting and finishing times are decided by my employer and I cannot change them on my own," "2: I can decide the time I start and finish work, within certain limits," "3: I can entirely free to decide when I start and finish work."
Interpersonal relationships (Relatedness)	Relations between management and employees	5-point scale variable measuring how the respondent assesses relations at his/her workplace between management and employees (1: Very bad, 2: Quite bad, 3: Neither good nor bad, 4: Quite good, 5: Very good)
	Relations between colleagues	5-point scale variable measuring how the respondent assesses relations at his/her workplace between workmates/colleagues. Same response scale as "Relations between management and employees."
Prosocial meaning	Helpful job	5-point scale variable measuring the extent to which the respondent agrees that "In my job I can help other people." Same response scale as "Independent work."
	Useful to society	5-point scale variable measuring the extent to which the respondent agrees that "My job is useful to society." Same response scale as "Independent work."
Economic meaning	High income	5-point scale variable measuring the extent to which the respondent agrees that "My income is high." Same response scale as "Independent work."
	High advancement opportunities	5-point scale variable measuring the extent to which the respondent agrees that "My opportunities for advancement are high." Same response scale as "Independent work."
	Secure job	5-point scale variable measuring the extent to which the respondent agrees that "My job is secure." Same response scale as "Independent work."
Control/Pressure	WLC*	Work-life-conflict index, which is the average standardized scores of the two 5-point scale variables, "How often the respondent feel that the demands of his/her job interfere with family life" and "How often the respondent feel that the demands of his/her family life interfere with job" (1: Never − 5: Always).
Other	Physical work	5-point scale variable measuring how often the respondent has to do hard physical work (1: Never, 2: Hardly ever, 3: Sometimes, 4: Often, 5: Always).

Source: Asuyama (2021), modified with some differences in wording (Original source: ISSP questionnaires).
Note: Some response scales are reverse-coded. For asterisked (*) variables, only 2005 and 2015 data are available.

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Key topic

Over 30% of Companies Secure Jobs for Employees until the Age of 70: MHLW's 2024 Report on the Employment Condition of Elderly Persons

I. Introdution

The Ministry of Health, Labour and Welfare (MHLW) published the aggregated results of the 2024 "Report on the Employment Condition of the Elderly Persons" (*Konenreisha koyo jyokyo to hokokusho*, hereinafter, the "Report"). The law obligates employers to make efforts to secure jobs for employees until the age of 70 through the amendment of the law in 2021. 31.9% of employers have implemented "measures for securing job opportunities" (*shugyo kakuho sochi*) until the age of 70, reaching the 30% mark for the first time. The percentage is higher among small and medium-sized enterprises (SMEs) with 21 to 300 employees (32.4%) than those with 301 or more employees (25.5%).

The Act on Employment Security of Elderly Persons obligates employers to implement one of the following three "measures to secure employment" (*koyo kakuho sochi*) for their employees until the age of 65: (i) raising the mandatory retirement age; (ii) introducing the continued (continuous) employment system; or (iii) abolishing the mandatory retirement age (Art. 9 Para. 1). The mandatory retirement age must not be set below 60 years of age in principle. The continued employment system (mentioned in (ii) above) refers to a system under which elderly persons currently employed by the employer continue to be employed after the mandatory retirement age if they wish. It has become applicable to, in principle, all employees who wish to be employed after the mandatory retirement age since April 2013, followed by the amendment of the law in the previous fiscal year.

The Report indicates companies' implementation status of those measures as of June 1, 2024, based on the reports submitted by 237,052 companies with 21 or more employees. The definition by company size for SMEs here is according to the Report, while it varies by industry according to the Small and Medium-sized Enterprise Basic Act.

MHLW announced that it would provide necessary guidance and advice to employers that have not adopted any of the three measures above through prefectural labor bureaus and public employment security offices, *Hello Work*. This initiative aims to promote a society in which all people can continue to work after the mandatory retirement age if they are willing and capable of working, regardless of their age.

II. Measures for securing employment for elderly persons

67.4% introduce continued employment system, 28.7% raise mandatory retirement age, and 3.9% abolish mandatory retirement age

According to the Report, the percentage of companies that have implemented *koyo kakuho sochi* for elderly persons until the age of 65 remained unchanged from the previous year, at 99.9%. The most frequently implemented measure was "introducing the continued employment system" (67.4%, down 1.8 percentage points from the previous year) followed by "raising the mandatory retirement age" (28.7%, up 1.8 percentage points), and "abolishing the mandatory retirement age"

(3.9%, unchanged from the previous year).

Let us focus on companies that have introduced the continued employment system for employees until the age of 65. Among such companies, 86.2% of the companies that submitted reports (up 1.6 percentage points from the previous year) apply the continued employment system to all of those who wish to be employed by the employer. The percentage was higher among SMEs (87.6%, up 1.5 percentage points) than among large companies (71.1%, up 3.0 percentage points).

How the scope of employees covered by each company's continued employment system relates to the prescribed age at which older adults become eligible for Employees' Old-age Pension (*rorei kosei nenkin*)? Upon reaching the age of 65, individuals eligible (with a certain period of time enrolled) for Employees' Old-age Pension can receive its benefit in addition to the benefit of Old-age Basic Pension (*rorei kiso nenkin)*.

Following the amendment to the Employees' Pension Insurance Act which came into effect in April 2002, the age of eligibility to receive the earnings-related component of Employees' Old-age Pension has been raised in phases from 60 to 65. The starting age of receiving benefits depends on the person's date of birth and gender. There was a prescribed transitional measure until March 31, 2025, for employees who had already passed the starting age, which allows employers to set their own standards to limit the scope of employees covered by the continued employment system. According to the Report, 13.8% (down 1.6 percentage points from the previous year) limit the scope to those who satisfy the standards. The percentage of such companies was 28.9% (down 3.0 percentage points) among large companies and 12.4% (down 1.5 percentage points) among SMEs.

30% set mandatory retirement age at 65 or older

Regarding the mandatory retirement system, 3.9% of the companies that submitted reports have abolished the system, a figure unchanged from the previous year, indicating that 96.1% continued to implement this system. Companies that set the mandatory retirement age at 65 or older—including companies that have abolished the mandatory retirement system—accounted for about 30% (32.6%, up 1.8 percentage points from the previous year).

The mandatory retirement age was "60 years of age" for 64.4% (down 2.0 percentage points), "61 to 64 years" for 2.9% (up 0.2 percentage points), "65 years" for 25.2% (up 1.7 percentage points), "66 to 69 years" for 1.1% (unchanged from the previous year), and "70 years or older" for 2.4% (up 0.1 percentage points).

III. Measures for securing job opportunities for elderly persons

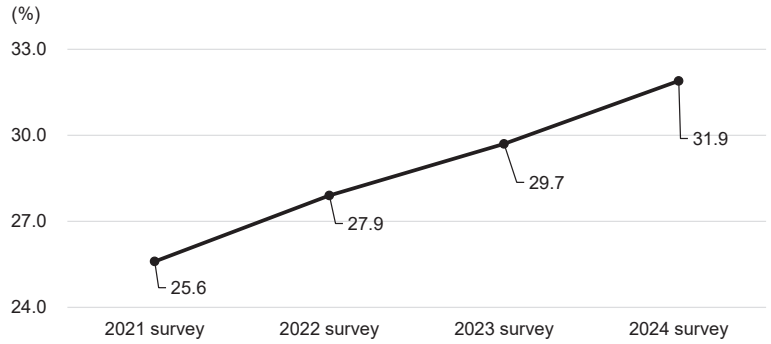
SMEs outpace large companies in implementing measures

The Act on Employment Security of Elderly Persons was amended and took effect in April 2021. It obligates employers to endeavor to secure stable employment for those aged 65 to 70, as prescribed in the basic principle (Art. 3 Para 1) that "(c)onsideration must be given to ensure that elderly persons and others have opportunities for employment and other various work opportunities in accordance with their wishes and abilities throughout their entire working lives while enriching their working lives." Employers that have set a mandatory retirement age between 65 and 70, or those that have introduced the continued employment system as *koyo kakuho sochi* (excluding system to continuously employed employees until the age of 70 or beyond) are required to implement *shugyo kakuho sochi* such as introducing "a system to conclude an entrustment contract with employees until the age of 70" and "a system to allow employees until the age of 70 to engage in the social contribution activities implemented or sponsored by the employer" (Art. 10 Para. 2). According to the Report, 31.9% (an increase of 2.2 percentage points from the previous year) had adopted *shugyo kakuho sochi* for employees until the age 70. The percentage was higher among SMEs (32.4%, up 2.1 percentage points) than among large companies (25.5%, up 2.7 percentage points).

Taking a look at the change since the 2021

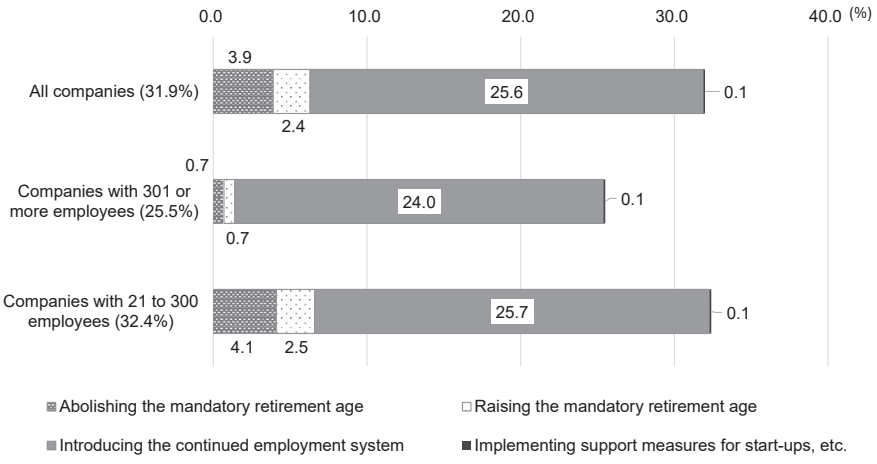
amendment of the law that made it an obligation for employers to implement *koyo kakuho sochi* until the age of 70, the percentage of employers adopting measures has steadily increased. The figure rose from 25.6% in 2021, reaching 27.9% in 2022, 29.7% in 2023, and 31.9% in 2024, surpassing the 30% threshold for the first time (Figure 1).

Among the measures actually implemented, the most common was "introducing the continued employment system," adopted by 25.6% of employers (up 2.1 percentage points from the previous year), followed by "abolishing the mandatory retirement age," at 3.9% (unchanged from the previous year), and "raising the mandatory retirement age," at 2.4% (up 0.1 percentage points). Employers that have chosen "introducing measures for start-up support such as introducing a system to conclude an entrustment contract with elderly employees or allowing them to engage in the employer's social contribution activities," accounted for 0.1% (unchanged from the previous year) (Figure 2).



Source: Based on MHLW's "Report on the Employment Condition of the Elderly Persons"; figures for 2024 survey are from Table 4-1 (https://www.mhlw.go.jp/content/11700000/001289408.pdf), for 2023 survey from Table 4-1 (https://www.mhlw.go.jp/content/11700000/001357195.pdf), for 2022 survey from Table 5-1 (https://www.mhlw.go.jp/content/11700000/001288533.pdf), for 2021 survey from Table 5-1 (https://www.mhlw.go.jp/content/11700000/001289410.pdf).

Figure 1. Companies that have implemented measures for securing job opportunities for employees until the age of 70 (yearly comparison)



Source: Based on MHLW's "Report on the Employment Condition of the Elderly Persons," Table 4-1 (https://www.mhlw.go.jp/content/11700000/001289408.pdf).

Figure 2. Breakdown of measures implemented for securing job opportunities for employees until the age of 70 by company size (2024)

Article

What Hurdles Are Young Female Regular Employees Facing in Japan? Recent Changes in the Young Generation's Career Attitudes

OGURO Megumi

I. Introduction

On April 1, the beginning of the fiscal year, university students and other people who will graduate in the spring of next year officially begin job hunting. In recent years, the young labor market has been a seller's market beyond the level seen during the bubble economy. Under such circumstances, young people's attitudes toward their careers have been changing. This article presents some of the findings that capture the changes in young people's experience in their first job[1] as the starting point of their career, from the results of Japan Institute for Labour Policy and Training (JILPT)'s "3rd Survey on Skills Development of Young People and Their Retention in the Workplace" conducted in November 2023 (hereinafter, the "3rd Survey").[2]

Job hunting depends on the business climate at the time. Particularly, the employment of Japanese young people tends to be influenced by the business conditions and prospects as many of them are hired under the employment practice called "simultaneous recruitment of new graduates" (*shinsotsu ikkatsu saiyo*) that has been in operation for more than 100 years through cooperation between companies and schools for mass recruitment of new students immediately after graduation, on the condition that they will be employed without a fixed-term. Schools and companies work together to help new school graduates find employment in Japan. As students undergo recruitment screening while they are in their final year of school, schools provide them with career counseling and job hunting support, while companies hold recruiting sessions targeted at their schools; Young people who are hired without work experience are expected to develop their capabilities through on-the-job training (OJT) and other in-house training, or job rotation. Due to this system, transition from school to work under regular employment is relatively easy in a booming economy. On the other hand, during a time of economic recession, the transition becomes unstable as the recruitment of new graduates is curtailed. This increases the number of young people who are unable to find jobs or workplaces of their choice as well as that of early job resignation. With this structural background, the employment issues of young people have been discussed mainly in terms of failure to make a transition to stable jobs and maladjustment to work since the 1990s when the economy rapidly cooled and remained stagnant.

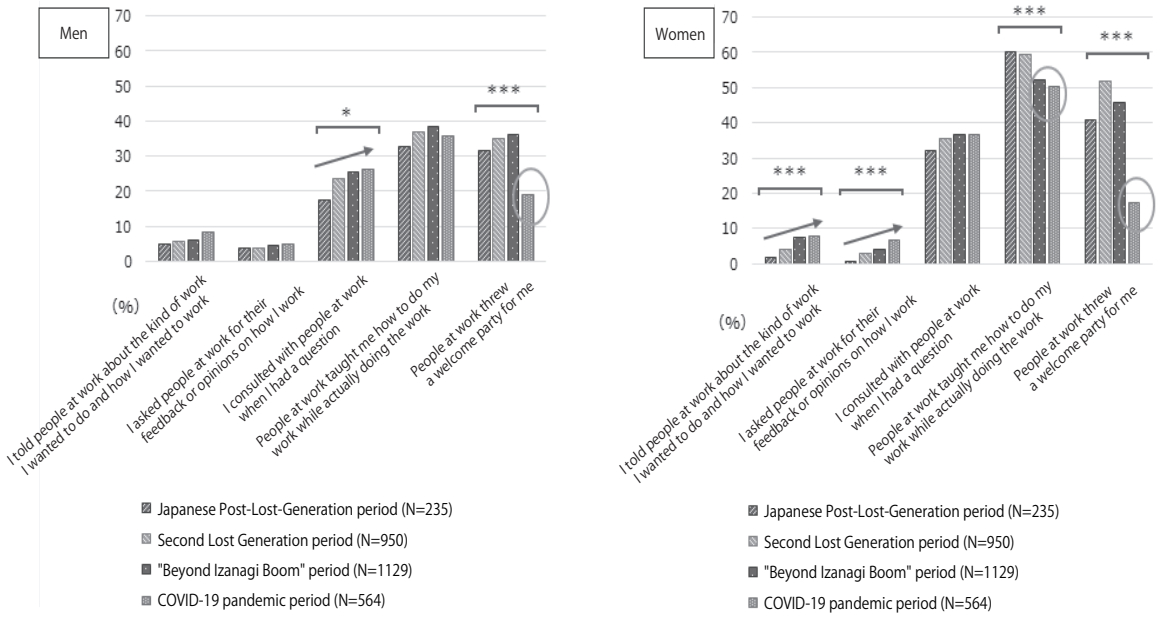
However, it is necessary to reevaluate the employment issues of young people from a different viewpoint as it has become easier, particularly in recent years, for young people to find jobs as regular employees when they graduate schools or change jobs due to the economic boom and the rapid decline in the youth population. For example, under favorable economic conditions, it would be easier for young people to find jobs or workplaces of their choice, and therefore fewer of them would quit their jobs in early stages. In reality, despite the long-term demand increase in the labor market, the early job resignation rate among university graduates has not declined since around 2010 (according to Ministry of Health, Labour and Welfare's annual survey "Status of Job Resignation of New Graduates" on the job turnover rate of new graduates within three years of employment). This suggests that young workers'

behavior in leaving jobs has been changing in nature (Furuya 2024). The "5th Survey on the Working Style of Young People" conducted by JILPT in 2021 (JILPT 2022) also shows that regular employees who continue to work for the same company are less likely to find their work rewarding than those who have changed jobs (JILPT 2022). Such clear change in young people's career attitudes indicates the necessity to reconsider the relationship between young people and work.

What would be the relationship between young people's career attitudes and the jobs they actually do in the future? Sections II to IV below discuss the signs of changes in attitudes among young regular employees, particularly female regular employees, and the current state of their workplace environment, which may not always be well accommodated to these changing attitudes.

II. Growing desire for career development and declining engagement in workplace

The results of the 3rd Survey indicated a tendency that younger generations are more motivated to develop their career proactively. At the same time, it was revealed that recent generations, or particularly people who graduated during the COVID-19 pandemic, lack experience of being accepted as co-workers or opportunities for on-the-job training (OJT). These trends are particularly obvious among young female regular employees. Figure 1 shows the percentage of respondents who answered "yes" to each of the options about communication in the workplace during the first three months after starting their first job, by time of graduation, among young men and women who were hired as regular employees upon graduation[3] (hereinafter, the "regular employees



***p<.001 **p<.01 *p<.05

Source: "3rd Survey on Skills Development of Young People and Their Retention in the Workplace" (conducted in November 2023) (JILPT 2025).
Notes: 1. The respondents were asked to respond to all options that apply regarding what happened to them during the three months after they started to work at their "first workplace" after graduation.
2. From around 1993 to 2004, Japan experienced a sharp decline in economic growth and the job opening-to-applicant ratio. The period is often referred to as the "employment ice age," and the generation with new graduates who entered the labor market during that period is known as the "Japanese lost generation."

Figure 1. Communication in the workplace during the first three months after starting their first jobs (regular employees hired upon graduation), by time of graduation (Multi Answer)

hired upon graduation").

The responses to this question show that among female regular employees, the percentage of those who approached their company or the leader at their workplace by "telling them what kind of work they wanted to do and how they wanted to work" or "asking for feedback or opinions on how they work" is significantly higher for younger generations in statistical terms, although the values are small. Among male regular employees, the percentage of those who consulted with people at work when they had a question is higher for younger generations. This is a sign of change in that younger generations are seeking proactive career development and feedback from the workplace.[4] There is a possibility that young people in the future will move away from workplaces where they are only given one-sided instructions. In particular, the changes observed among female regular employees are worth noting. While the percentage of women who started their first job as regular employees and continue in their first job has been on the rise (JILPT 2021; 2024), it is necessary to pay attention to changes in the career attitudes among women who continue to work as regular employees and their needs for the workplace.

Some results of the 3rd Survey are in contrast with the tendency of young people becoming more proactive in the workplace as described above. Focusing on the responses regarding the engagement in the workplace, such as "People at work taught me how to do my work while actually doing the work" (OJT opportunities) and "People at work threw a welcome party for me," the percentage is lower for younger generations among female regular employees who chose the option regarding OJT opportunities and among both male and female regular employees who chose the option regarding a welcome party. It seems that the generations newly hired, during the COVID-19 pandemic in particular, lacked opportunities to learn how to do their work while being taught face-to-face immediately after joining the workplace or opportunities to feel that they were accepted as co-workers in the workplace, due to the impact of the companies' voluntary ban on commuting and face-to-face activities. The 2nd Survey conducted in 2018 indicated that holding a welcome party for newly hired young employees would significantly contribute to their retention. Accordingly, such a decline in employee engagement in the workplace may have not a small influence on the job resignation among young regular employees in the future.

III. What has and has not changed in job resignation among young employees? Difference in resignation reasons by gender

Changes in young people's career attitudes are also reflected in changes in the reasons for leaving their jobs. Table 1 indicates, by gender, the options that were frequently chosen out of the 17 options regarding the reasons why regular employees hired upon graduation[5] left their first job.

Reasons for leaving a job can be roughly divided into positive and negative factors. The top five reasons commonly cited by men and women are negative factors related to working conditions or the workplace environment, including: "Because the terms and conditions for work hours, days off, and leave were not good", "Because the wage conditions were not good"; "Because my physical or mental health suffered"; and "Because personal relationships were not good." This trend is common to all three surveys conducted so far (JILPT 2017; 2019), showing that the development and improvement of working conditions and the workplace environment remain the most important issues for retaining young people in the workplace. However, as shown below, different trends are observed between men and women.

The most common reason for leaving a job cited by male regular employees was "To advance my career," which is a positive factor. Although an exact comparison cannot be made due to differences in the sampling and response tendency between the 3rd Survey and the previous surveys, this reason, "To advance my career," was the third common reason cited by male regular employees in the 2nd Survey in 2018. This suggests a trend of an increase in positive job resignation among male regular employees for

Table 1. Changes in the reasons why regular employees hired upon graduation left their first job (MA, top five out of 17 options)

	Men total		Women total
To advance my career	(1st, 27.3%)	Because my physical or mental health suffered	(1st, 31.8%)
Because personal relationships were not good	(2nd, 25.3%)	Because personal relationships were not good	(2nd, 31.2%)
Because the wage conditions were not good	(3rd, 22.4%)	Because the terms and conditions for working hours, days off, and leave were not good	(3rd, 27.0%)
Because the terms and conditions for working hours, days off, and leave were not good	(4th, 22.2%)	Because I couldn't do my job well and lost confidence	(4th, 20.9%)
Because my physical or mental health suffered	(5th, 21.8%)	Because the wage conditions were not good	(5th, 19.3%)
—	—	—	—
Because I couldn't do my job well and lost confidence	(8th, 17.5%)	Due to marriage or childbirth	(8th, 16.7%)
—	—	—	—
		To advance my career	(10th, 14.4%)

Source: Same as Figure 1.

the purpose of career development.

In contrast, the fourth most common reason for leaving a job cited by female regular employees was a negative factor, "Because I couldn't do my job well and lost confidence," which ranked higher than the eighth place among male regular employees. In addition, leaving a job "to advance my career" ranked only 10th for women, about 13 percentage points lower than for men. In other words, female regular employees are still more inclined to leave their jobs for negative reasons than male regular employees. However, there has been a change in the reasons for female regular employees leaving their jobs: "Due to marriage or childbirth," which was the top reason for female regular employees leaving their jobs in the 2nd Survey in 2018, is only in the eighth place in the 3rd survey. This indicates that more young female regular employees remain employed after marriage and childbirth without leaving their jobs.

IV. Hurdles to long-term employment of female regular employees: changing attitudes and workplace environment unable to catch up with the change

As reviewed above, in recent years, young female regular employees have become more willing to proactively develop their careers, and they are increasingly apt to continue working after marriage and childbirth. At the same time, however, it is suggested that the hurdles to career development are still higher for them than for male regular employees. The section below examines the background to this trend in further detail. The first point to identify is the differences in the reasons for job resignation among regular employees hired upon graduation, according to their length of service. For the classification of length of service, the categories shown in Table 2 are used.

Figure 2 shows the reasons for job resignation among regular employees hired upon graduation, by gender and length of service. Among male regular employees, positive reasons such as "To advance my career" and "Because I don't see any future for the company" were relatively common overall, and the percentage for these positive reasons increased significantly as the length of service increased. On the other hand, negative factors, such as "Because personal relationships were not good" and "Because my physical or mental health suffered," were typical among female regular employees. The percentage of women leaving their jobs due to marriage, childbirth,

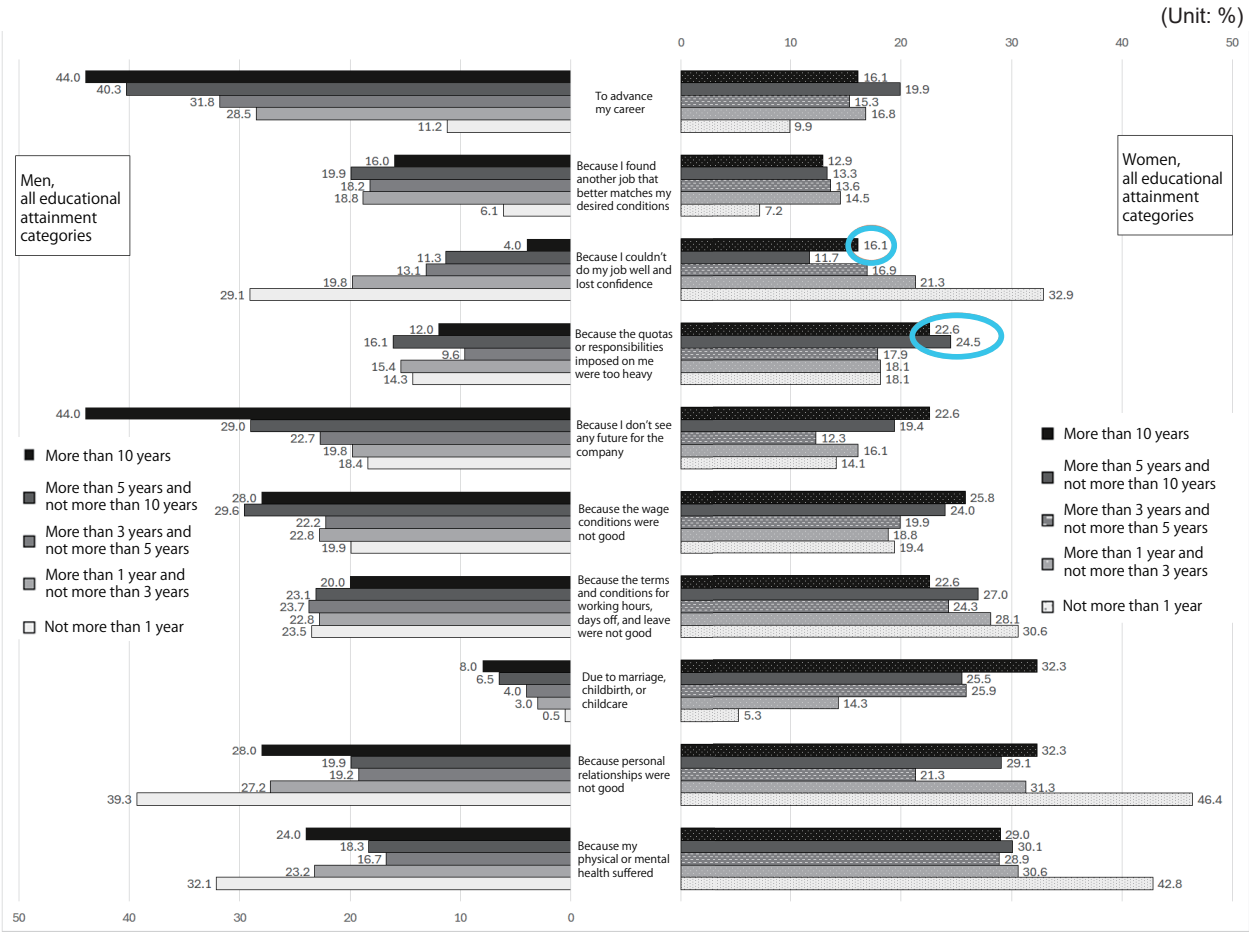
or childcare also remains significantly higher than that of men, although it has been decreasing over time.

It is worth noting, however, that there are signs of positive career-oriented job resignation among female regular employees in the 3rd Survey. For example, let us focus on women who chose the job resignation reasons of “To advance my career” or

Table 2. Length of service of regular employees hired upon graduation

	Men		Women	
	%	N	%	N
Not more than 1 year	11.3	316	16.4	449
More than 1 year and not more than 3 years	18.6	520	26.4	721
More than 3 years and not more than 5 years	18.0	504	21.2	579
More than 5 years and not more than 10 years	30.8	863	25.0	683
More than 10 years	21.3	597	11.0	300
Total	100.0	2,800	100.0	2,732

Source: Same as Figure 1.



Source: Same as Figure 1.

Figure 2. Reasons for job resignation among regular employees hired upon graduation, by length of service (extract, MA)

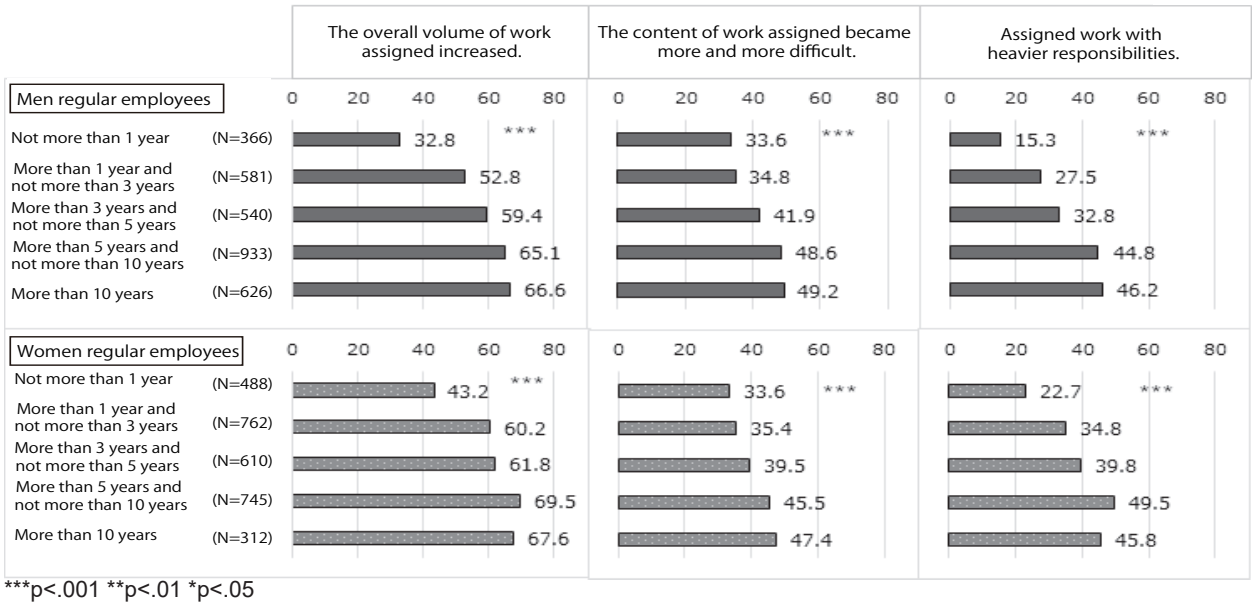
"Because I found another job that better matches my desired conditions." Those who had worked for the same company for more than one year left their jobs in search of more favorable conditions. Similarly, looking at those who chose "Because I don't see any future for the company" or "Because the wage conditions were not good," those with more than five years of service left their jobs in search of a better workplace and better treatment. This tendency was not seen in the 2nd Survey in 2018. It was only observed for men in the 1st and 2nd Surveys. These trends suggest that the choice of experienced young people to leave their jobs in search of a better workplace is spreading in recent years among female regular employees as well.

In general, it is considered that as a worker's length of service increases, the worker becomes more proficient at their job and more confident. In fact, such a trend was observed among male regular employees in the 3rd survey. However, it was found that not a few female regular employees lose confidence in their work and left their jobs after 10 years of service. The percentage of female regular employees with more than 10 years of service who left their jobs because they "couldn't do their job well and lost confidence" reached 16.1%, approximately 12 percentage points higher than the 4.0% of male regular employees with more than 10 years of service. In addition, among female regular employees who have been with the same company for more than five years and not more than 10 years; and those who have been with the same company for more than 10 years, the percentage of those who left the company "because the quotas or responsibilities imposed on them were too heavy" is about 8 to 10 percentage points higher than among male regular employees with the same length of service (the numbers marked with circles in the Figure 2).

This trend appears to align with another pattern observed among female regular employees: an increasing job turnover "Due to marriage, childbirth, or childcare" with increasing years of service. It suggests that the time work quotas and responsibilities become heavier coincides with the time when family responsibilities increase, and that balancing work and family responsibilities can be a major burden for female regular employees, to the extent that they are forced to leave their jobs. While female regular employees are becoming more motivated to develop their career and more conscious about career advancement, the workplace environment that allows them to fulfill their aspiration has not yet been developed.

In analyzing the data, it is necessary to take into account the fact that the availability of the opportunity to join a workplace with an environment suitable for continued working differs between men and women. Even with the same educational attainment, there are differences between men and women in the size of the company, the industry, and the occupation in which new graduates find employment. Most female new graduates find employment in medium and small-sized companies, retail or service industries, and clerical, sales (*eigyō / hanbai*), or service jobs. Compared to men, they are relatively less likely to find employment at large companies that offer a good work-life balance. In addition, the heavy work quotas are also specific to sales and service jobs, for which women are more likely to be employed (JILPT 2025). In other words, it must be understood that women, in the first place, are prone to find jobs in inadequate workplaces where job resignation could easily occur. Furthermore, it should be noted that there is a difference between regions. While large companies and knowledge-intensive industries that produce high added value are concentrated in metropolitan areas, good employment opportunities are limited in rural areas. Thus, not only do women tend to find jobs in industries with poor quality of employment, but they have poor job opportunities with favorable labor conditions in industries of their choice unless they move to metropolitan areas. They face double difficulties.

Now, having referred to job resignation due to increased work quotas and responsibilities in Figure 2, let us further examine the relationship between the length of service and the changes in workload. Figure 3 shows how young people who are first hired as regular employees after school graduation experience changes in the job content along with years of service,



***p<.001 **p<.01 *p<.05

Source: Same as Figure 1.

Figure 3. Change in work along with years of service among people who were hired as regular employees for their first job (MA)

broken down by gender.

Figure 3 shows an overall tendency that the volume, difficulty, and responsibilities of work assigned all increase with increasing years of service, for both men and women. However, it can be read that female regular employees feel burdened by workload and responsibilities from an earlier stage. The figure also shows that the percentage of female regular employees who were "assigned to work with heavier responsibilities" slightly decreased after 10 years of service.[6] Although further analysis of the detailed mechanism is needed, it is considered to be due to the burden of heavier work responsibilities with increasing years of service, and family responsibilities at the same time. Although the figures are omitted here, the developmental nature of work—such as increasing volume and growing difficulty of work—tends to contribute to the retention of young regular employees in the workplace. Regarding the increased responsibilities, on the contrary, tends to lead to job resignation especially among female regular employees. Taking into account the finding mentioned above that the percentage of female respondents who answered that their work responsibilities became heavier decreases after more than 10 years of service, it can be inferred that the number of women leaving their jobs after five years of service increases as they find it difficult to balance family and work responsibilities, and that there is a group of women who continue their career without leaving their jobs through such difficulties, which forms the group of "more than 10 years of service" in the survey.

In Japan, it is difficult for female regular employees to remain in the same company for a long period of time. This situation is reflected in the distribution of the length of service among regular employees hired upon graduation, as shown in Table 2. The length of service at the same company is, as a whole, longer among male regular employees and shorter among female regular employees. Furthermore, when focusing on the group of those who have been with the same company for more than 10 years, 21.3% of male employees fall within this group, while the percentage of female employees falling within this group is only about half of that, at 11.0%.

As reviewed so far, factors such as workload and

the burden of balancing work and family responsibilities are making it difficult for young female regular employees to stay with the same company for a long time despite the fact that they are becoming increasingly willing to continue their careers. One possible reason for this is that the workplace environment itself may contain conditions that are not as conducive to women. Table 3 compares the responses of men and women, by educational attainment, regarding the corporate culture of the company that they joined as regular employees for their first job and the workplace troubles they faced there.

According to the Table 3, there is no gender difference in the percentage of respondents who answered, "There is an atmosphere of the company as a whole taking a positive attitude about developing its employees," with female regular employees having the same perception as male regular employees. On the other hand, however, the percentage of those who answered "There was a situation where due to a labor shortage, the company would not be able to continue its operations even if one worker missed work" was higher among female regular employees in all categories of educational attainment. Female regular employees were also more likely than male regular employees to feel that "Many employees leave the company one after another in a short period of time," with the exception of those in the category of graduates of professional training colleges/junior colleges/colleges of technology (*kosen*).

These results indicate that even if there is no gender difference in the company's positive attitude toward developing its employees, female regular employees more keenly feel a sense of labor shortage and difficulty in working. It can be inferred that even companies with a positive attitude toward human resource development do not have in place sufficient environmental arrangements, such as work allocation and staffing, at the workplaces where female regular employees engage in work.

V. Toward a society where the seeds of change take root: what should be done to support the proactive career development and continued service of female regular employees?

As reviewed thus far, there is a growing willingness among young regular employees of the new generation in Japan to proactively build their careers. In recent years, signs of this trend can be seen not only among men, who maintain a superior status in the job market, but also among women. The percentage of female regular employees who leave their jobs after marriage or childbirth is also on a downward trend. More young women are becoming more conscious of the way they want to live their lives and their potential in career development, and are continuing to work as regular employees. This is a significant sign of change.

The result of the 3rd Survey indicates the situation that women have difficulty finding workplaces that offer good working conditions and work-life balance in the first place (JILPT 2025) and shows that the workplace environment has not caught up with the recent changes in their attitudes toward work. As a result, there are still many women who leave their jobs due to being deprived of the chance to develop their career while engaging in work. As the situation has improved in about 40 years since the enactment of the Equal Employment Opportunity Act, the society is gradually changing with more men taking paternity leave than before, for instance. However, there are still issues to be addressed in Japan. In order to support the career development of young women and their desire to continue working, it is necessary to create an environment where both men and women can naturally choose flexible work styles toward the fundamental reform of the structure that still persists and imposes the intensive demand of balancing family and work responsibilities on women.

This is a translation of the author's article, Oguro 2025, with additional updated analysis for *Japan Labor Issues*.

Notes

1. In this article, the first job a person takes after graduation is

defined as their "first job."

2. This 3rd Survey is an online survey conducted for men and women aged 20 to 34 nationwide, following the 1st Survey (conducted in 2016) and the 2nd Survey (conducted in 2018), with the aim of exploring the workplace and societal conditions that enable young people to build stable and fulfilling careers. The respondents comprised 7,994 individuals with last educational background of graduates from high schools, professional training colleges (*senmon gakko*), junior colleges, colleges of technology (*kosen*), universities, or master's programs of graduate schools, who are not enrolled in any educational institution at the time of the survey. For an overview of the 3rd Survey, collected data, and questionnaire, refer to JILPT (2025).
3. In this article, "regular employees hired upon graduation" refer to individuals who were hired by the end of the month following the month of their graduation. The analysis targets these employees in order to examine the effects of the time of graduation.
4. It is necessary to consider that the younger generation is more likely to have attained higher levels of education due to the rising university enrollment rate. When examined by educational attainment, the same trend was observed not only for women with university or graduate school degrees, but also for women with high school diplomas.
5. Table 1 includes a comparison with the 2nd Survey (although not in a strict sense). In order to ensure consistency with the attributes of the subjects in the 2nd Survey, the data was collected for regular employees hired upon graduation. For the same reason, Table 2 and Figure 2 also use data for regular employees hired upon graduation.
6. This trend is even more pronounced in large companies with 300 or more employees, where the scope of changes in work is broader. For the sake of simplicity, the analysis here is conducted without stratifying the data by company size, however, the JILPT 2025 analyzes the data by company size.

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Series: Japan's Employment System and Public Policy

This series systematically outlines the basis of labor situations and analysis in Japan.

Current Policies on Supporting Employee with Caring Responsibilities in the Most Aged Society: The 2024 Amendment of the Child Care and Family Care Leave Act and Related Policies

IKEDA Shingou

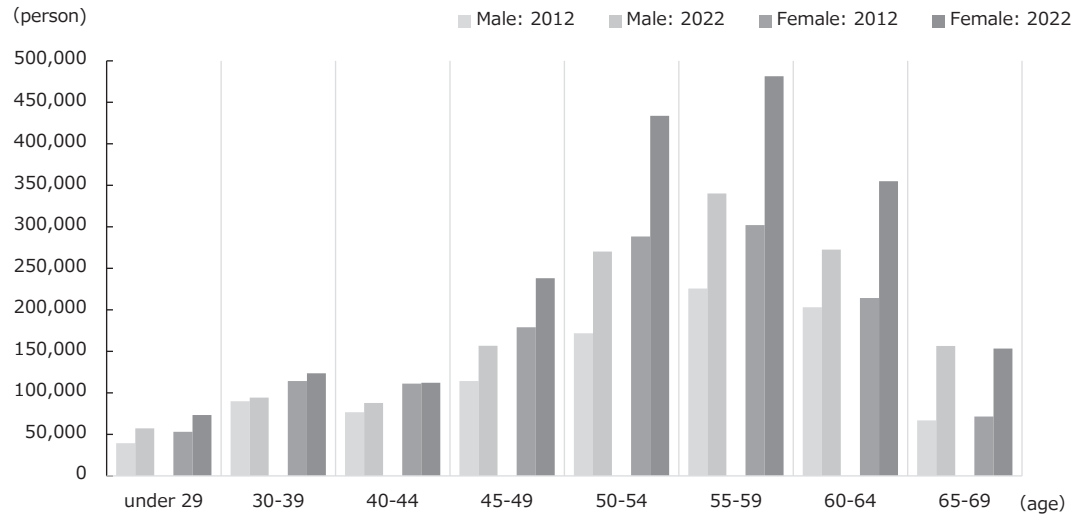
I. Introduction

From 2025 onward, Japan, recognized as the world's most aged society, is projected to experience a significant increase in the number of older individuals requiring long-term care. In the context of promoting work-family balance, supporting employees with caring responsibilities for older family members has become a significant challenge. *Employment Status Survey* by Statistics Bureau shows the number of employees providing care to family members have been rising among both men and women, with a notable concentration in the 45–49 age group and older, as illustrated in Figure 1.

The number of employees engaged in family care provision will be increasing in the future, reflecting demographic shift which coincides with the baby boomer generation born in the late 1940s reaching the age of 75 or older, entering what is called the "old-old" category in Japanese public health care insurance system. Consequently, there will be a significant increase in the demand for care among those over 75, particularly in comparison to the "young old" aged 65–74. Preparing for the coming age, the government has arranged care leave policies and other related support systems to prevent workers from leaving jobs due to caring responsibilities (Shingou Ikeda 2019; 2024).

In 2016, a substantial revision was made in the amendment of the Act on Childcare Leave, Caregiver Leave, and Other Measures for the Welfare of Workers Caring for Children or Other Family Members (Child Care and Family Care Leave Act, hereinafter, the "Care Leave Act") as a reform of support systems for balancing work and family care (Shingou Ikeda 2019; 2024). This reform was implemented against the backdrop of the government's declaration to eliminate job leaving due to caring responsibilities, framed as an economic mearsure, following a prior declaration in the context of social security in 2015 (Cabinet Office 2015). Notably, the 2016 amendments included a redesign of statutory leave and related support systems, such as flexible working arrangements for long-term care, in alignment with the framework of care services provided by the Long-term Care Insurance (LTCI) system for older adults. The presumption was that workers would be able to combine work and care with the use of LTCI services.

The Long-Term Care Insurance Act (hereinafter, the "LTCI Act") was enacted in 2000 with the aim of defamilializing—or "socialization"—of long-term care by social services to substitute the care that was being provided by family members (Ikeda 2021), following the enforcement of statutory care leave in 1999, while Japanese society emphasized the family's role in providing care for older adults traditionally. Had the LTCI services adequately replaced family care, there would have been less necessity for care leave and flexible working arrangements. In reality, due to the insufficient supply of LTCI services, working carers require additional support in the workplace to address family care needs. Although the LTCI system pursues the ideal of realizing "defamilialization of care," it actually relies on family care to sustain service supply amidst financial constraints. In this context, the major revision of the Care Leave Act in 2016 can be regarded as



Source: *Employment Status Survey* 2012, 2022 (Statistics Bureau).

Figure 1. Number of employees who provide family care

"refamilialization of care," the growing reliance on family-based care provision, despite the government's ideal of defamilialization.

It should also be noted that the increasing prevalence of single-person and nuclear families has made it challenging for families to continue providing care. Historically, it was common for both adult children and elderly parents to support each other by living together, even after marriage. However, this traditional arrangement is becoming less feasible. Consequently, both families and public services struggle to adequately manage care provision to older adults.

How can we navigate this dilemma? In this paper, I will elucidate the current governmental policies aimed at addressing this issue. I have previously introduced the Japanese care leave policy and related measures in Shingou Ikeda (2019; 2024). This paper addresses subsequent developments since the 2016 amendment on the Care Leave Act.

II. Declaration of eliminating job leaving due to caring responsibilities

In 2015, the Japanese government announced its goal of eliminating job leaving due to caring responsibilities as part of its social security measures. This initiative was subsequently reclassified in 2016 as an economic measure aimed at addressing the decline in the workforce population, through specific policies as follows (Cabinet Office 2015; 2016).

1) Ensuring a care service infrastructure that meets the needs of older adults
2) Ensuring a diverse workforce and enhancing productivity in order to provide care services needed
3) Strengthening counselling functions and support systems to address the concerns and anxieties of families providing care
4) Creating a workplace environment that allows families caring for older adults to take care leave with ease
5) Promotion of the Work Style Reform
6) Enhancing initiatives to extend healthy life expectancy, promoting a vibrant and fulfilling older age
7) Ensuring diverse employment opportunities for older adults
8) Supporting the active participation of people with disabilities, chronic diseases, and cancer
9) Realizing a community-based symbiosis society

The LTCI system is expected to play a crucial role in relation to the policy goal addressed in no. 1 above: "Ensuring a care service infrastructure that

meets the needs of older adults." On the other hand, there is another issue of the treatment of care workforce regarding no. 2: "Ensuring a diverse workforce and enhancing productivity in order to provide care services needed." These issues arise within the context of the financial constraints of the LTCI system.

With respect to legal regulations focused on workers with care provision responsibilities, the Care Leave Act has a pivotal role in realizing goal no. 4: "Creating a workplace environment that allows families caring for older adults to take caregiving and family care leave with ease." Labor policy's goal no. 5: "Promotion of the Work Style Reform" is equally significant. Since 2017, the Japanese government has prioritized reducing long working hours, which hinder work-life balance, as a key issue in the Work Style Reform. The Labor Standards Act was amended to tighten regulations on overtime work and to mandate five days of annual paid leave for workers. Furthermore, the Care Leave Act regulates the daily work style of working carers by providing exemption from overtime work by the end of the care provision.

The issues surrounding the support for combining work and care provision are diverse. The last four policies (no. 6 to 9 above) emphasize encouraging older adults to remain healthy and active as long as possible, rather than directly supporting family carers' commitment to work.

It should be noted that the LTCI system inherently aims to support care recipients rather than family carers within the context of welfare policies for older adults. In contrast, the Care Leave Act falls under labor policies designed to support employed workers, based on industrial relations. Labor policies seek to reconcile the interests of employers and employees, whereas industrial policies prioritize the interests of enterprises. The LTCI system utilizes private care service providers, thereby positioning Japanese work-care reconciliation policies within a market-driven framework. Furthermore, the Ministry of Economy, Trade and Industry (METI) has commenced supporting work-care reconciliation as part of industrial policy, aiming to bolster private businesses and introducing the new term "business carers" (METI 2024a). From this perspective, Japanese society can be seen as not solely a familialist welfare state but also as a market-driven welfare state.

The Japanese government has sought to achieve the defamilialization of care for older adults through the LTCI system. However, this goal faces a major challenge due to financial constraints, prompting the government to explore alternative approaches. Below are the outlines of the latest developments in Japanese work-care reconciliation policies.

III. Current Care Leave Act and related policies

1. Outline of the Care Leave Act

The Current Care Leave Act requires employers to support their employees' job continuation through the following measures.

1) Long-term care leave

Based on the worker's application, up to 93 days off in total can be taken per eligible family member as long-term care leave which can be divided into up to three periods. They are unpaid, but a family care leave benefit of 67% of the previous wage is provided out of employment insurance.

2) Short-term care leave

Based on the worker's request, up to 5 days off in total per year (10 days if there are two or more eligible family members) can be taken as leave, in hourly increments. They are unpaid.

3) Exemption from overtime work for providing care (Limitations on unscheduled work)

Workers can request as many times as possible for the period until the care provision ends.

4) Flexible working arrangement (Optional measures)

Up to twice within a three-year period from the start of use the following measures: a) Reducing scheduled working hours (short-time work), b) Flextime system, c) Shifting start and end times (staggered working hours), and d) Subsidizing the cost of care services used by the worker or other similar systems.

5) Limitation on overtime work for care provision
If requested by worker, employer must not allow overtime work exceeding 24 hours a month or 150 hours a year.
6) Limitation on late-night work for care provision
If requested by worker, employer must not allow late-night work (from 10 PM to 5 AM).
7) Telework (Duty to endeavor)

2. The 2024 amendment of the Care Leave Act

In 2024, the amended Care Leave Act requires employers to inform their employees about the work-care reconciliation system in advance. This change is due to the significant number of workers who are unaware of the workplace support systems despite employers providing adequate measures. The regulation is as follows (MHLW 2024).

1) Individual notification and confirmation of intent
When workers report that they are facing family care provision responsibilities, employers are required to individually notify and confirm the workers' intent regarding the support system.
2) Early information provision
Employers must provide timely information about the support system when employees turn 40 years old, at which point they become eligible for receiving benefit from LTCI.
3) Employment environment improvement
Employers should conduct seminars or establish consultation desks on work-care reconciliation to help employees avoid conflicts between work and care provision responsibilities.

It should be noted the support systems mentioned above have respective purposes as Table 1 shows. Long-term care leave supposes addressing emergencies such as procedures for admission and discharge at hospital, and preparation for providing care such as procedures for using care provision services. Short-term care leave is designed to support for spot care provision such as medical appointments. Exemption from overtime work is for continuous daily providing care such as daily care meals and dressing. Flexible working arrangements are supposed to regularly accommodate the need for daily care provision such as adjusting working hours with available hours of care service.

Additionally, the 2024 amendment addresses the needs of parents with disabled children or children requiring medical care. Employers are expected to consider these needs and extend the reduction of working hours for childcare as well as nursing leave for childcare.

3. Significance of Long-term Care Insurance

It is also noteworthy that the Care Leave Act is designed to align with the LTCI system. There is no need for workers to take long-term leave to prepare for in-home care if care recipients use the LTCI services. Short-term leave is regulated on an hourly basis rather than daily, as it is mainly for reviewing LTCI care plan with an assigned care manager which takes approximately one hour. Flexible working arrangements imply that workers may not necessarily have to reduce working hours to make up for the shortage of care services while overtime work might disrupt schedules for providing care.

Since its implementation in 2000, the LTCI system has expanded its care services with the aim of defamilializing care for older adults. However, the increasing number of care recipients and the growing demand for care services have exceeded the actual supply of LTCI care services due to financial constraints.

The LTCI care services are categorized into three types: in-home care, facility care, and community-based care services. In-home care services include home-help, daycare, and short-stay services. Facility care comprises welfare facilities (special nursing homes for older adults), health care facilities (health services facilities for the aged), and sanatorium-type medical care facilities. Community-based care services encompass nighttime home-visit care, commuting care for older individuals with dementia, and small-sized multifunctional in-home care services.

In order to access these services, older adults must be certified based on their level of care need. The certification determines the total amount of

Table 1. Stipulation and supposition of care leave and working time management

	Stipulation	Supposition
Long-term Care Leave	3 times up to total 93 days	Addressing emergencies such asprocedures for admission and dischargeat the hospital, and preparation for providing care such as procedures forusing caregiving services, etc.
Short-term Care Leave	5 days per year on an hourly basis	Support for spot caregiving, such as accompanying to medical appointments,etc.
Exemption from Overtime Work for Providing Care	By ends of providing care	Continuous daily providing care such asdaily caremeals and dressing.
Flexible Working Arrangement	Up to twice within a three-year period from the start of use: a) Reducing scheduled working hours b) Flextime system c) Staggered working hours d) Subsidizing the cost of caregiving services	Regularly addressing daily caregivingneeds such as adjusting working hourswith available hours of care service.

Source: Compiled by the author.

insured services available with the out-of-pocket expenditure of approximately 10%. Additional services can be used at one's own expense.

It is common for older individuals in need of care to start with in-home care services, and most of them move into institutional care later if their health condition deteriorates. The divisible long-term care leave supposes these transitions of care services. The Care Leave Act allows working carers to take the first leave to use in-home care at commencement of care provision, and the second leave to enter care facilities. Finally, if care recipients move to hospices or hospitals to receive terminal care as their heath condition worsens more to pass away, working carers can take the third long-term care leave for that.

The expansion of facility-based care services has been limited compared to that of in-home care services. To address the growing demand for care, the government has prioritized the extension of in-home care, rather than expanding facility-based care which requires significant financial expenditure. In terms of in-home care services, however, the government has restricted the range of insured services. This restriction of LTCI care services is known as the refamilialization of care, where the burden of care provision is shifted back to family carers. In this context, the 2016 amendment of Care Leave Act, which has expanded support systems for work-care reconciliation, can be regarded as an effort to address the refamilialization of the LTCI by supporting prolonged care provision by family carers.

4. Considering an alternative solution

The coexistence of the Care Leave Act and the LTCI system is indispensable for balancing work and caring responsibilities. Nonetheless, LTCI is facing substantial financial strains in adapting to the rising number of care recipients. For employers contending with workforce shortages amid an overall workforce reduction, broadening care leave and reducing working hours are challenging endeavors.

To reinforce these restrictions on care leave and services, the Japanese government has introduced support measures targeted specifically at care service providers. In 2023, an initiative was launched to foster work-care reconciliation within economic measures, introducing the term "business carers" to

describe individuals juggling work with family caring responsibilities (Cabinet Office 2023). Despite the prevalence of the term "working carers" in English, the rationale behind the Japanese government's preference to "business carers" remains unclear. It is puzzling why the government has adopted the unconventional term that academic researchers and civil activists who support carers do not use. However, this strange terminology—coined by a private consultant in context of commercialism—highlights the private sector's business interests over carers welfare, as it is promoted by METI within industrial policy frameworks (METI 2024b). Consequently, support for "business carers" mainly benefits executives striving to manage employees with caring responsibilities, rather than directly supporting working carers, due to its economic interest. Specifically, METI released and has issued guidelines for business executive to support employees' work-care reconciliation (METI 2024a), while the Ministry of Health, Labour and Welfare (MHLW) previously released a guide for employers in 2017 (MHLW 2025a, 2025b). These METI's guidelines underscore the need for executive commitment to implement support measures effectively. METI also underscores the significance of out-of-pocket expense care services, alongside LTCI services, to incentivize care service providers striving to ensure adequate service provision. (METI 2024b). In this context, the Japanese government views the growing number of care recipients as a business opportunity.

LTCI policy focuses on preventing the deterioration of care needs to support the autonomy of older adults. The preventive care program has expanded rehabilitation and training initiatives to maintain physical and cognitive functions. Today, frailty and dementia are prominent causes of care needs, although the LTCI Act and the Care Leave Act initially targeted cerebrovascular diseases. Both physical frailty and cognitive dementia are considered preventable with appropriate programs for older adults.

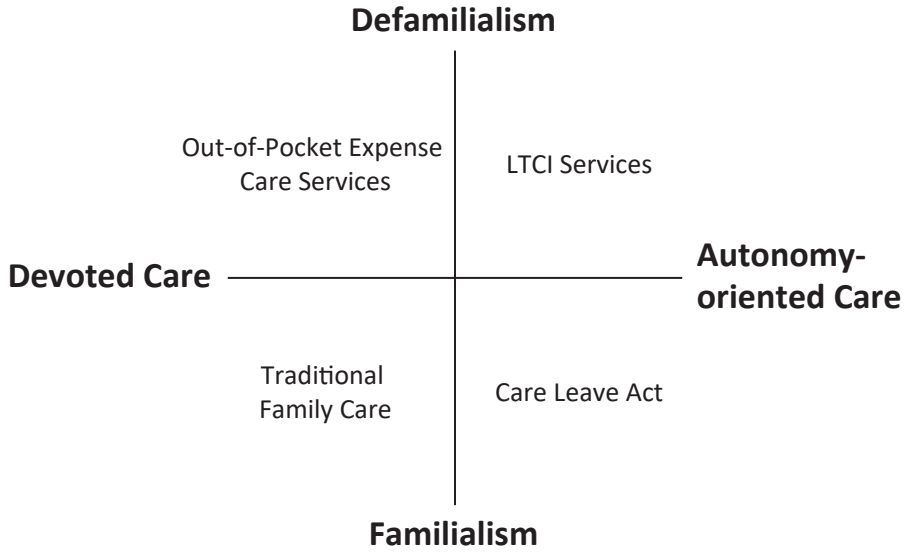
IV. Diversity of support systems on combining work and family care

Emphasis on supporting the autonomy of older adults by the LTCI system suggests that it is important to discuss both how care should be provided and who should provide it.

The question of 'who provides care' is a traditional issue. Gender studies focus on the role of women in care provision, while welfare state studies examine whether families should undertake the primary role in providing care. However, there is diversity in how women and families provide care. Traditionally, care provision was regarded as an act of devotion, with women expected to dedicate themselves to providing care, much like a mother's care for her children (Kasuga 2001). In contrast, the current LTCI system prioritizes autonomy-oriented care which is different from the traditional model that emphasized family devotion.

The Care Leave Act, which encourages commitment to work as much as possible, aligns with autonomy-oriented care, although it assumes that family carers manage daily care provision while working. However, some working carers still emphasize devoted care provision, even if it requires longer hours. To replace devoted family care, some working carers use out-of-pocket expense care services in addition to the LTCI services. Care-related industrial policies by METI will address such care needs that exceed the limitations of LTCI.

Figure 2 summarizes the diversity of support systems for reconciliation between work and care for older family members. The vertical axis shows who provides care, while the horizontal axis shows how care is provided. The LTCI system aims at autonomy-oriented defamilialism which replaces family care through supporting autonomy of older adults (Shozo Ikeda 2000; 2002), in contrast to traditional family care which emphasizes devoted care by family members (Kasuga 2001, Kröger and Yeandle 2013; Shinkawa 2014). The current Care Leave Act aligns with the refamilialization of care, which posits that families directly provide care within their daily lives. However, this approach is more compatible with



Source: Compiled by the author.

Figure 2. Four aspects of support systems on work-care reconciliation

autonomy-oriented care rather than devoted care, as it prioritizes maximizing workforce participation over familial commitment to care provision. If working carers seek defamilialization to replace devoted family care, they are likely to purchase out-of-pocket expense care services from a commercialist approach.

It should be noted that the Japanese government has investigated methods to address diverse needs to family care for older adults through market-oriented policies. The LTCI system integrates private companies to provide care services, although their service fees are subsidized by public insurance. Currently, the government seeks to broaden this market-driven strategy by promoting out-of-pocket expense care services. Care leave and workplace policies are also market-driven, reflecting the interests of employers, although they are underpinned by industrial relations that seek to balance the interests of both employers and employees. Under such market-driven policies, eligible working carers who align with market demands may receive adequate support, whereas those deemed unsuitable may be excluded from these support systems.

Therefore, it can be argued that the Japanese government seeks to navigate the increasing number of care recipients—an issue that poses a threat to the labor market—through a mixed approach aimed at facilitating the reconciliation between work and care for older family members. Japan has traditionally been characterized as a familialist welfare society in international comparative discussions (Kröger and Yeandle, 2013; Shinkawa, 2014). However, the introduction of the LTCI system has partially defamilialized care provision for older adults, resembling the approach taken by Scandinavian countries such as Sweden and Denmark. At the same time, its market-driven framework shares some characteristics with Anglo-Saxon welfare models as seen in the United Kingdom and Australia. Given the potential inequalities associated with a market-driven approach, it is understandable that such disparities would be deemed unacceptable by the Japanese government. As a result, Japanese society continues to tackle the complexities of welfare provisions amid demographic aging.

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Main Labor Economic Indicators

1. Economy

The Japanese economy is recovering at a moderate pace, while the uncertainty arising from the U.S. trade policies and so on exists. Concerning short-term prospects, the improvement in the employment and income situation and the effects of the policies are expected to support a moderate recovery, while downturn risks of the Japanese economy due to the impact of the U.S. trade policies are increasing. In addition, the effects of continued price increases on private consumption through a downturn in consumer sentiment are also downside risks to the Japanese economy. Also, further attention should be given to the effects of fluctuations in the financial and capital markets. (April 2025)[1]

2. Employment and unemployment

The number of employees in March increased by 580 thousand over the previous year. The unemployment rate, seasonally adjusted, was 2.5%.[2] Active job openings-to-applicants ratio in March, seasonally adjusted, was 1.26.[3] (Figure 1)

3. Wages and working hours

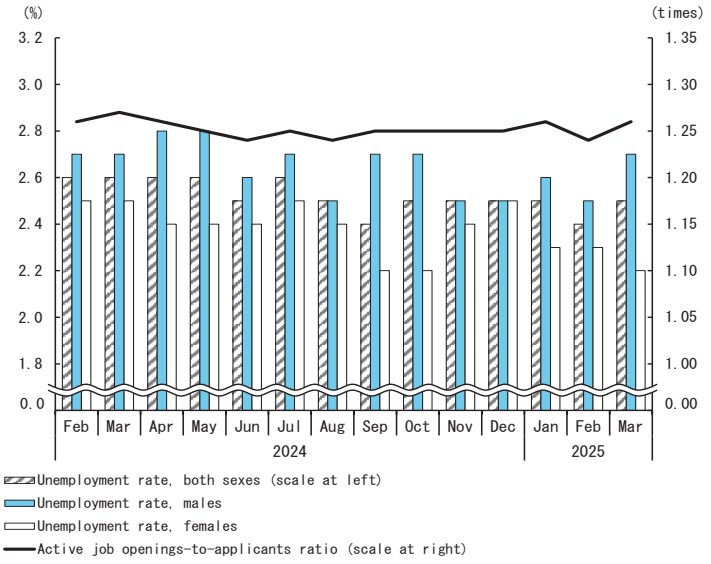
In March, total cash earnings increased by 2.3% year-on-year, while real wages (total cash earnings deflated by CPI for all items less imputed rent) decreased 1.8%, and real wages (total cash earnings deflated by CPI for all items) decreased 1.2%. Total hours worked decreased by 2.7% year-on-year, while scheduled hours worked decreased by 2.6%.[4] (Figure 2)

4. Consumer price index (CPI)

In March, CPI for all items increased by 3.6% year-on-year, the consumer price index for all items less fresh food increased by 3.2%, and CPI for all items less fresh food and energy increased by 2.9%.[5]

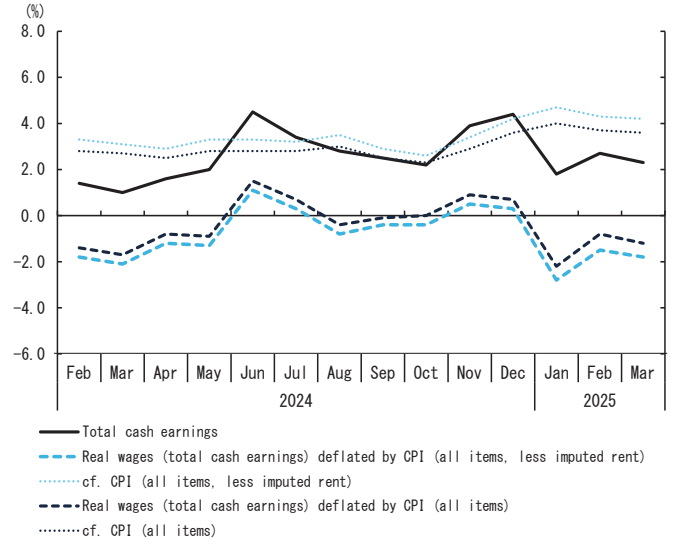
5. Workers' household economy

In March, consumption expenditures by workers' households increased by 8.2% year-on-year nominally and increased by 3.8% in real terms.[6]



Source: Ministry of Internal Affairs and Communications (MIC), *Labour Force Survey*; Ministry of Health, Labour and Welfare (MHLW), *Employment Referrals for General Workers*.
Note: Active job openings-to-applicants ratio indicates the number of job openings per job applicant at public employment security. It shows the tightness of labor supply and demand.

Figure 1. Unemployment rate and active job openings-to-applicants ratio (seasonally adjusted)



Source: MHLW, *Monthly Labour Survey*; MIC, *Consumer Price Index*.

Figure 2. Total cash earnings / real wages annual percent change

For details for the above, see JILPT, *Main Labor Economic Indicators*. https://www.jil.go.jp/english/estatis/eshuyo/index.html
Notes: 1. Cabinet Office, *Monthly Economic Report*, which analyzes trends in the Japanese and world economies and indicates the assessment by the government. https://www5.cao.go.jp/keizai3/getsurei-e/index-e.html
2. https://www.stat.go.jp/english/data/roudou/results/month/index.html
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