# **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
- II. Comparison of tasks based on the PIAAC data
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## **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.<sup>1</sup> 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.<sup>2</sup> 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."<sup>3</sup>

Figure 1 reveals several distinct characteristics of Japanese employees' tasks:<sup>4</sup> 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.

	-	-0.9 -0.7 -0.5 -0.3 -0.1 0.1 0.3 0.5
	Use email	-0.220
	Write letters, memos, or e-mails	0.121
	Read letters, memos, or e-mails	0.003
	Use a word processor	-0.195
ICT	Use the Internet	-0.074
-	<physical work=""></physical>	-0.272
	Use spreadsheet software	0.080
	•	-0.671
	Participate in online conferences or chat groups etc.	-0.136
	Persuade or influence people	-0.352
	Instruct, train, or teach people	-0.151
Interpersonal management	Plan others' activities	-0.355
igei	Make speeches or presentations	0.082
ner	Advise people	-0.148
nt al	Negotiate with people	-0.047
	Autonomy: How to do own work*	0.272
	Autonomy: Sequence of own tasks*	0.396
Aut	Autonomy: Speed of own work*	0.385
Autonomy	Autonomy: Working hours*	0.204
omy	Organize own time	-0.105
	Plan own activities	-0.444
	Use simple algebra or formulas	-0.223
	Prepare charts, graphs, or tables	• 0.055
Σ	Use more advanced math or statistics	-0.040
Math	Use or calculate fractions, decimals or percentages	-0.146
	Read diagrams, maps, or schematics	0.049
	Use a programming language	-0.006
	Calculate prices, costs, or budgets	-0.077
ina	Sell a product or a service	-0.046
nce	Read financial statements	-0.196
%S	Use a calculator	0.312
Finance/Sales	Conduct Internet transactions	-0.202
	Learn from co-workers or supervisors	-0.216
	Learning-by-doing	0.043
OJ learning	Keep up to date with new products or services	-0.336
lea	Share information with co-workers	-0.113
mir	Cooperate or collaborate with co-workers**	0.118
ÐГ	Faced by relatively simple problems	-0.371
	Confronted with more complex problems	-0.278
	Read professional or academic articles	-0.022
General learning	Read books	0.214
	Read newspaper articles etc.	0.172
	Read manuals or reference materials	0.187
	Write newspaper articles etc.	0.086
	Fill in forms	0.334
Paper -work	Read directions or instructions	-0.547
żά	Write reports	0.156

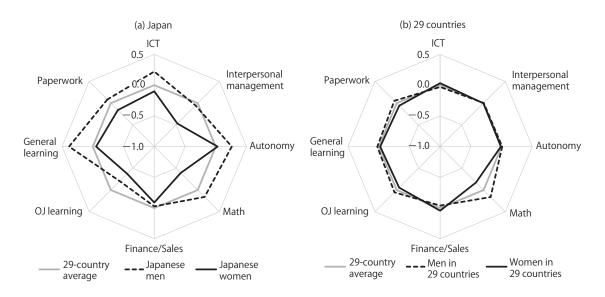
*Note*: Respondents answer on a 5-point scale: For four tasks marked with \*, discretion level allowed ("1: Not at all, 2: Very little, 3: To some extent, 4: To a high extent, 5: To a very high extent"); for one task with \*\*, the time share of total working hours; and for remaining 42 tasks, task frequency 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.<sup>5</sup> 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

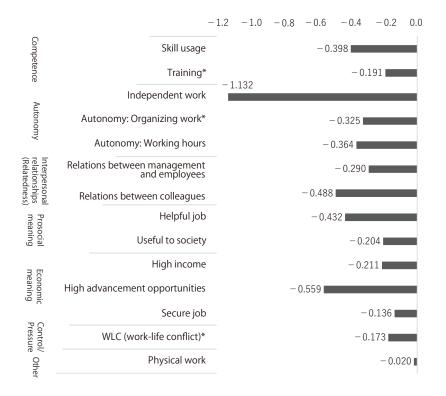
variations.<sup>6</sup> It should be noted, however, that Japan's job characteristics found in this section remain robust across years.

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.

					(Unit: %
		Positive answers		Negative answers	
		Japan	10 countries	Japan	10 countries
Competence	Skill usage	47.7	67.6	52.3	32.4
Competence	Training*	42.0	51.5	58.0	48.5
	Independent work	27.8	71.8	54.1	15.7
Autonomy	Autonomy: Organizing work*	11.6	23.3	34.5	23.9
	Autonomy: Working hours	6.5	7.0	74.3	52.1
Interpersonal relationships	Relations between management and employees	60.3	70.0	11.6	9.2
(Relatedness)	Relations between colleagues	77.4	87.0	6.1	2.6
<b>D</b>	Helpful job	49.2	69.8	23.7	13.2
Prosocial meaning	Useful to society	59.6	70.1	14.0	10.6
	High income	19.2	24.2	48.6	44.9
Economic meaning	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

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

*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).<sup>7</sup>

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.<sup>8</sup> 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 "Interpresonal management," whereas fewer tasks classified under "Paperwork." As described in Section II, Japanese employees have fewer opportunities to experience "Interpresonal 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

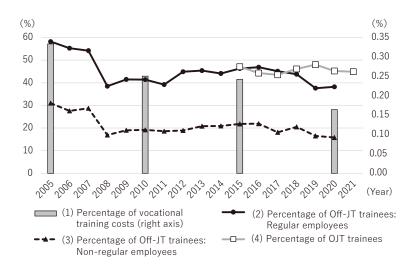
I have identified distinct job characteristics of Japanese employees compared to other high-income countries based on two cross-national surveys, PIAAC and ISSP. To summarize the findings, first, despite many opportunities to work with others, Japanese employees engage less in mutual learning through 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*.<sup>10</sup> (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.<sup>11</sup> 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 onthe-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.

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#### 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.
- 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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Group	Characteristic (variable)	Description		
Competence	Skill usage	4-point scale variable measuring the extent to which the respondent's work experience and/or job skills (s)he can make use of in his/her prese (1: Almost none, 2: A little, 3: A lot, 4: Almost all)		
Competence	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.		
	Independent work	5-point scale variable measuring the extent to which the respondent agree that "I can work independently" (1: Strongly disagree, 2: Disagree, 3: Neithe agree nor disagree, 4: Agree, 5: Strongly agree)		
Autonomy	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	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)		
relationships (Relatedness)	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."		
Deservicies	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."		
Prosocial meaning	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."		
	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."		
Economic meaning	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).		

Appendix Table. 1	14 job characteristics a	analyzed based on th	e ISSP surveys
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*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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