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CONTENTS

Column

How Women Bear the Brunt of COVID-19's Damages on Work (Continued): The Gender Gap in Employment Recovery

ZHOU Yanfei

I. Introduction

My previous column "How Women Bear the Brunt of COVID-19's Damages on Work,"[1] reports that women are experiencing larger reductions in work hours and more temporary leave ("furlough") than males as a result of the COVID-19 pandemic. As of late September, the time I wrote it, nursery schools, elementary schools, and junior high schools have reopened throughout the country and restrictions on economic activity have been relaxed. We were even beginning to gradually see signs of a recovery in the employment market as a whole.[2] Even so, the recovery in female employment has been sluggish. While the number of male employees already increased in July, the number of female employees continued to decline. A continuing high rate of furlough and sluggishness in the recovery of working hours are particularly conspicuous for child-rearing females.

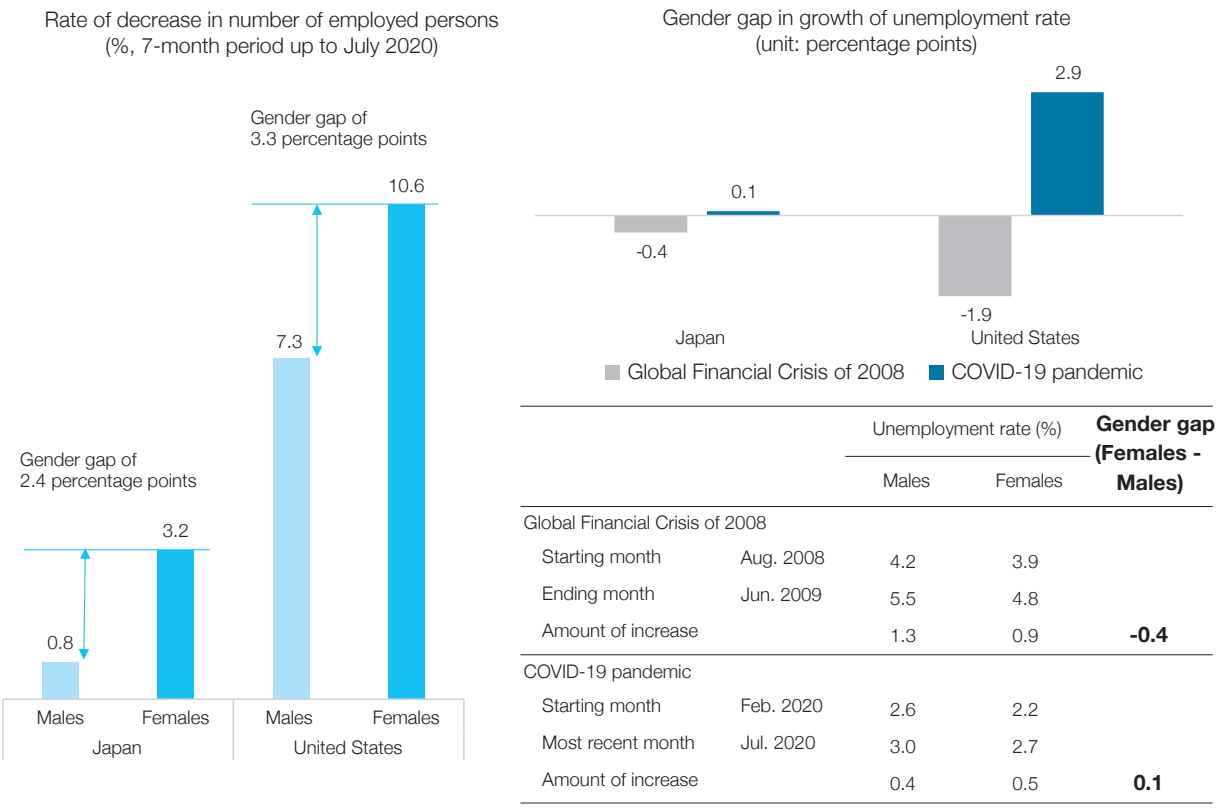
II. "She-cession," The female employment crisis

Some economists call the current stagnant economy and sudden loss of employment that were sparked by the novel coronavirus infectious disease (COVID-19) a "she-cession." "She-cession" is a word coined to describe a phenomenon in which employment losses associated with a recession tend to be concentrated among women rather than men.

In a typical recession, it is often the case that employment losses appear mainly among men.[3] For example, when the Global Financial Crisis of 2008–2009 struck, external demand plummeted as a result of the global recession, and employment adjustments were mainly made in the manufacturing sector, which employs many men. In the case of the current COVID-19 pandemic, however, it is mainly the service industries—which include accommodations/eating and drinking establishments as well as daily living and entertainment—that are suffering catastrophic damage. These are industries that employ many women.[4] Consequently, decreases in female employment are more conspicuous than they are during ordinary recessions.

Moreover, unlike ordinary recessions, this one is characteristic in that many women are refraining from working on their own. More women than men were being forced to "choose between job and family" as their housework load increases amid fewer opportunities to eat out and as nursery, elementary, and junior high schools temporarily close. Because constraints on employment are occurring in the form of such increased housework and child-rearing duties, the "added worker effect"—in other words, the phenomenon whereby women increase their employment to compensate for losses in their husbands' income—that is typically observed during ordinary male-centered recessions, is less likely to appear.

Looking at employment statistics published by international organizations,[5] it is apparent that the "she-cession" is not limited to Japan, as it is an internationally-shared phenomenon that is progressing in countries around the world (Figure



		Unemployment rate (%)		Gender gap (Females - Males)
		Males	Females	
Global Financial Crisis of 2008				
Starting month	Aug. 2008	4.2	3.9	
Ending month	Jun. 2009	5.5	4.8	
Amount of increase		1.3	0.9	**-0.4**
COVID-19 pandemic				
Starting month	Feb. 2020	2.6	2.2	
Most recent month	Jul. 2020	3.0	2.7	
Amount of increase		0.4	0.5	**0.1**

Source: Prepared based on *Labour Force Survey* for Japan and ILO databases for the United States (raw data are published values of the U.S. Bureau of Labor Statistics). U.S. unemployment rate values are the results of aggregation based on Alon, et al. (2020).

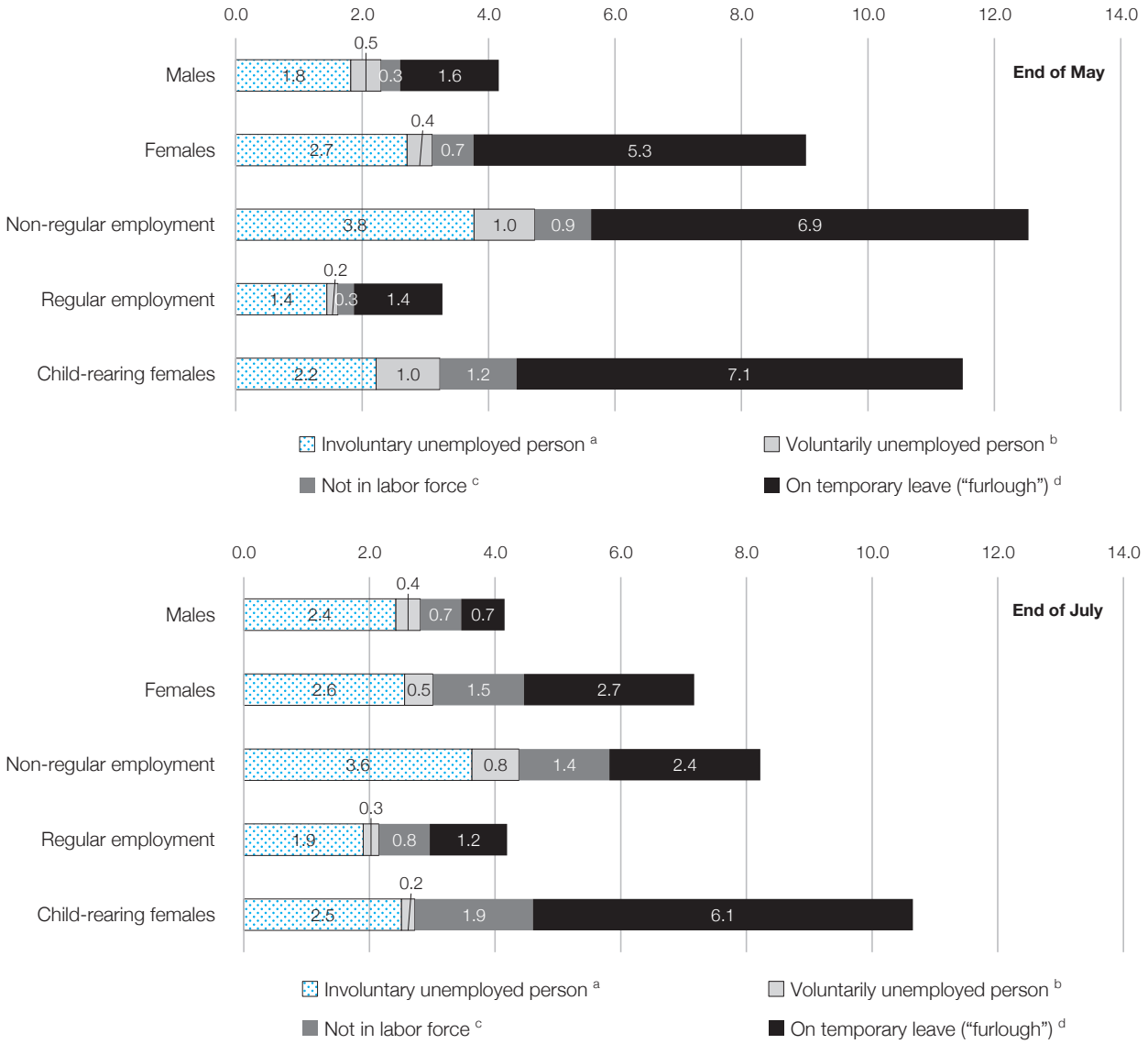
Figure 1. Changes in the number of employed persons and the unemployment rate before and after the COVID-19 pandemic by sex

1). In the case of Japan, the number of female employees fell by 3.2% (870,000 persons) in the seven months between the end of 2019 until July 2020. This rate of decrease was 2.4 percentage points higher than that for male employees (0.8% decrease during the same period). Even if we look at changes in the unemployment rate before and after the COVID-19 pandemic, the rate rose 0.4 percentage points for males but 0.5 percentage points for women, meaning that the female employment rate rose +0.1 percentage points higher. The male-female difference at the time of the Global Financial Crisis was −0.4 percentage points, with the degree of unemployment rate deterioration being smaller for women.

A country experiencing an even more conspicuous "she-cession" than Japan is the United States. In the U.S., the rate of employment decrease and rate of unemployment increase are 3.3 percentage points and 2.9 percentage points larger, respectively, for women than men. Thus, female employment is worsening more seriously than in Japan.[6] Possible reasons for why Japan's "she-cession" has been milder than the U.S.'s are smaller numbers of new COVID-19 cases and COVID-19 fatalities as well as the relatively speedy full reopening of nursery, elementary, and junior high schools in early June, 2020.

III. The high furlough rate and advancing labor force withdrawal among women

At the end of May 2020, JILPT conducted a survey that targeted 4,307 employees of private enterprises (aged between 20 and 64 years) who were employed as of April 1, 2020. JILPT then conducted a follow-up survey in early August that year.[7] According to these surveys, a distinct gender gap remained in terms of the percentages of people



Source: Aggregated by the author from JILPT, "Survey on the Impact that Spreading Novel Coronavirus Infection has on Work and Daily Life" (conducted at the end of May and the first week of August 2020).
Notes: 1. At both time points, the aggregated respondents are 4,307 employees who worked at private enterprises on April 1, 2020. Of them, 3,753 are respondents to both the May and August surveys.
2. a=Dismissed, had employment terminated, or became unemployed due to bankruptcy. b=Not working but engaged in job-hunting activity (excluding a). c=Not working and not engaged in job-hunting activity. d=Employed but worked zero hours.
3. A "child-rearing woman" is a woman who is rearing a child under the age of 18.

Figure 2. Percentages of persons employed by private enterprises who became unemployed or went on temporary leave ("furlough") (%, end of May 2020 vs. end of July 2020)

unemployed or on furlough even at the end of July, when the pandemic situation began settling down somewhat. The surveys also found that the recovery in employment among female employees who are raising children under the age of eighteen is sluggish (Figure 2, Appendix 1).

Specifically, the percentages of people on furlough are decreasing for both males and females and both regular and non-regular employees (from 1.6% to 0.7% for men, 5.3% to 2.7% for women), reflecting the restarting of economic activities. Nonetheless, conspicuous gaps remain between

males and females and between regular and non-regular employees. The rate of persons on furlough for females is 3.9 times higher than that of males at the end of July, and no improvement in the gender gap is seen in comparison with the end of May 2020 (3.3 times). The percentage of child-rearing females on furlough also remains high at 6.1%, although it has improved slightly since the end of May 2020.

Additionally, trends moving toward unemployment (people who were not working but were looking for a job) and withdrawal from the labor force (people who were not even looking for a job) are conspicuous in comparison with May. The percentage of unemployed people rose from 2.3% to 2.8% for males and remains at 3.1% for women. The percentage of "withdrawing from the labor force" rises from 0.3% to 0.7% for males and from 0.7% to 1.5% for women. In the case of child-rearing females, a decrease in the percentage on furlough (1.0-point decrease) is offset by an increase in the percentage withdrawing from the labor force (0.7-point increase).

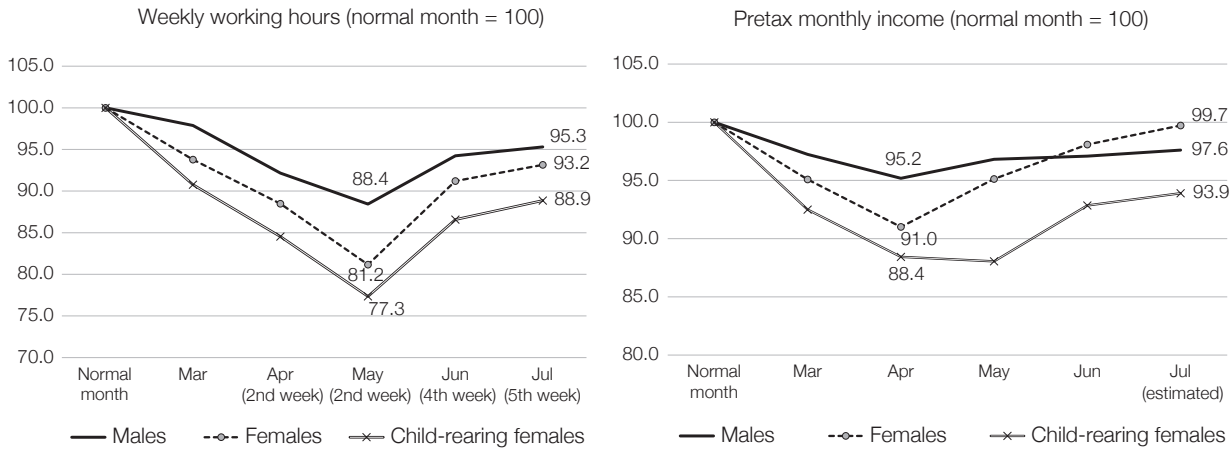
IV. Sluggish recovery in hours worked and wages among child-rearing females

The surveys also reveal conspicuous slowness in terms of recovery in hours worked and wages for child-rearing females. Figure 3 and Table 1 show changes in the hours worked and income of people who continued working between March and the end of July, 2020. For men, the weekly average hours worked fall to 88.4% of the normal month in the second week of May but recovers to 95.3% in the last week of July. For women, on the other hand, the average is just 93.2% of the normal month in the last week of July, in part because April-May fall was much larger for women than for men.

It is clear that pretax monthly income recovered for both males and females beginning in June, 2020. Looking at average monthly income for July (estimated amount), income is recovering to roughly the same level as the normal month for all females as a whole. Monthly income for males is also recovering to a 2.4% decrease in comparison with the normal month (July estimate).

On the other hand, an area where a conspicuously sluggish recovery is seen is the employment situation of child-rearing females. In comparison with the normal month, the June-July hours worked of child-rearing females decrease by 12.3% and their monthly income decreases by 6.6%. At the end of July, the hours worked of child-rearing females stand at just 88.9% of the normal month and wages stand at 93.9%. It is apparent that recovery in the employment situation of child-rearing females is poor in comparison with males, of course, but also with females as a whole.

The remarkable deterioration in the employment



Source: Same as Figure 2. Prepared based on the aggregated results of Table 1.

Figure 3. Changes in hours worked and monthly income (March to July 2020; normal month = 100)

Table 1. Changes in weekly hours worked and pretax monthly income (March to July 2020; average values)

	Total		Males		Females		Non-regular employment		Regular employment		Child-rearing females	
	Hours worked	Monthly income (10,000 yen)	Hours worked	Monthly income (10,000 yen	Hours worked	Monthly income (10,000 yen)	Hours worked	Monthly income (10,000 yen)	Hours worked	Monthly income (10,000 yen)	Hours worked	Monthly income (10,000 yen)
Normal month	39.2	24.4	43.3	30.6	34.3	17.0	29.4	13.4	44.0	29.9	30.8	15.0
March	37.8	23.5	42.3	29.8	32.1	16.1	27.4	12.4	42.8	29.2	28.0	13.8
April	35.6	22.9	39.9	29.2	30.3	15.4	25.2	11.6	40.6	28.6	26.1	13.2
May	33.5	23.5	38.3	29.7	27.8	16.1	22.7	12.3	38.9	29.0	23.8	13.2
June	36.4	23.7	40.8	29.8	31.2	16.6	26.4	12.9	41.4	29.2	26.7	13.9
July	37.0	24.0	41.2	29.9	31.9	16.9	27.3	13.2	41.8	29.3	27.4	14.1
Rate of change (Apr-May average against normal month, %)	**–9.1**	**–4.5**	**–7.2**	**–3.6**	**–12.2**	**–6.3**	**–14.6**	**–9.5**	**–7.4**	**–3.4**	**–15.8**	**–10.3**
Rate of change (Jun-Jul average against normal month, %)	**–6.4**	**–2.2**	**–5.2**	**–2.6**	**–7.8**	**–1.1**	**–8.5**	**–2.4**	**–5.6**	**–2.3**	**–12.3**	**–6.6**
n	4,179	3,791	2,262	2,054	1,917	1,737	1,388	1,262	2,791	2,529	459	417

Source: Same as Figure 2.

Notes: 1. The aggregated respondents are 4,179 people (including persons on temporary leave ["furlough"]) who keeps working at private enterprises between March 1 and the end of July, 2020. However, the number of hours worked provided for March pertains to 3,128 people who were "respondents to the April, May, and August surveys," and the numbers of hours worked provided for the normal month and April-May and for monthly income for the normal month and "March-May" pertain to 3,639 "respondents to both the May and August surveys."

2. The numbers of hours worked provided for each month refer to the average hours worked for the entirety of March, second week of April, second week of May, fourth week of June, and last week of July, respectively. Monthly incomes for July are estimated amounts.

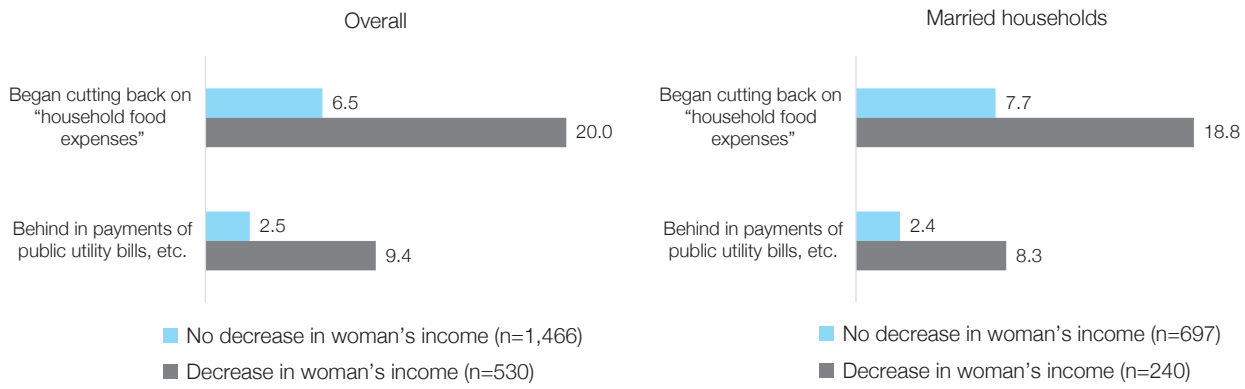
3. Hours worked and pretax monthly income are roughly calculated based on 12 classes. However, hours worked of 60 or more hours are considered to be 60 hours and pretax monthly income of 500,000 yen or more is considered to be 500,000 yen; the median of each class is used for the others.

situation of women, and particularly child-rearing females, remains the same even when such factors as the type of employment, industrial category, and size of enterprise are taken into account (Appendix 2). Incidentally, the degree to which the furlough rate and hours worked worsen in the case of "having a minor child" is apparent in the statistical analysis provided in Appendix 2. What is striking, however, is that the effects of "having a minor child" do not appear in the employment situation of men but only in that of women. From the analysis's results, it can be seen that the increased burden of housework and child-rearing that was brought by the pandemic are concentrated on the female side.

V. 20% of households with lower female income are cutting back on food expenses

In many Japanese households, males (husbands) are the breadwinner and the females (wives) provide a supplementary labor force. Accordingly, there is a tendency to see the impact of reduced female labor on households as being limited so long as male employment is maintained. However, if we take a new look at the makeup of current household income, we see that this view is greatly mistaken.

According to a nationwide survey that was conducted by the Yu-Cho Foundation in 2018, wives' income accounts for about 40% of total household income when the wife is a regular employee and about 20% when the wife is a non-regular employee. In the case of households headed by women, such as those headed by those unmarried or divorced, the woman's income from labor accounts for more than 70% of total household income. Thus, when those women experience a decrease in income, their household finances naturally take a major hit.[8]



Source: Same as Figure 2.
Notes: 1. The aggregated respondents are 1,996 female company employees who worked at private enterprises on April 1, 2020.
2. "Decrease in income" indicates a decrease in monthly income of at least 10% in the most recent month compared to the normal month.
3. "Began cutting back" refers to a situation in which the household did not cut back in the normal month but did cut back in the most recent month.
4. "Public utility bills, etc." includes gas, water, electricity, and telephone charges as well as rent, housing loan, and other such obligations.

Figure 4. Degree of pressure on household finances by the occurrence/non-occurrence of decrease in woman's income (%, August Survey)

Additionally, the percentage of households that can cover household expenses for no more than three months because they have no or few financial assets reaches 24%. In other words, roughly one in four working households will run out of living money within six months in the event of unemployment or reduced income. Indeed, decreases in a woman's income could wipe out her household's finances.[9]

In fact, that lower income by women puts pressure on household finances becomes evident from the August survey (Figure 4). Among households in which the woman's income fell by at least 10%, one in five are cutting back on food expenses and just under 10% are behind in paying their public utility bills, etc. The percentages of such households that are cutting back on food expenses or delinquent in paying bills are two to four times higher than the same percentages of households in which the woman's income was not greatly reduced.

From April to June 2020, compensation of employees fell 3.7% compared to the previous term (a decrease of about 2.6 trillion yen in terms of monetary amount). This was the largest drop ever recorded. There is a high possibility that, as household consumption slows, decreasing female employment is helping to worsen the situation. It can be said that restoring female employment holds the key to Japan's economic recovery, both in terms of saving the households of people in need and breaking the negative spiral of decreased income and consumption.

VI. Challenges in restoring female employment

The problem is that restoring women's employment is not easy to achieve with respect to policy. I initially believed that the employment situation of child-rearing females would improve rapidly when nursery, elementary, and junior high schools were reopened. However, the facts went against my prediction.

One possible reason is that the increased child-rearing burden brought by the pandemic has not returned to its previous level but instead continues even now. Specifically, nursery, elementary, and junior high schools shortened their hours for some time after reopening as a means of preventing cluster infections. Another possible reason is that mothers could not return to their original work hours due to delays in the start of after-school childcare and extracurricular activities.

Another challenge revealed by the August survey is that teleworking (including various forms of work from home) has not firmly taken root (Table 2). The

Table 2. Percentage of people working from home/teleworking at least one day per week (%)

	Normal month before the pandemic			2nd week of May (before lifting of the state of emergency declaration)			5th week of July		
	Work from home	Working in usual workplace	Stopped working (zero work hours)	**Work from home**	Working in usual workplace	Stopped working (zero work hours)	**Work from home**	Working in usual workplace	Stopped working (zero work hours)
Total	**9.3**	90.5	0.1	**27.6**	67.9	4.5	**11.5**	85.0	3.6
Males	**11.7**	88.3	0.0	**33.9**	63.8	2.3	**14.9**	83.0	2.1
Females	**6.6**	93.1	0.3	**20.3**	72.7	7.0	**7.5**	87.3	5.2
Non-regular employees	**5.2**	94.5	0.3	**13.4**	76.8	9.8	**4.9**	89.7	5.4
Regular employees	**11.5**	88.5	0.1	**34.9**	63.4	1.7	**14.8**	82.6	2.6
Child-rearing females (For reference)	**6.7**	92.7	0.6	**16.5**	75.0	8.5	**6.5**	85.2	8.4
Low-income earners	**4.4**	95.2	0.4	**8.7**	81.1	10.2	**2.4**	90.8	6.9
High-income earners	**21.4**	78.6	0.0	**64.1**	35.3	0.6	**29.0**	69.9	1.1

Source: Same as Figure 2.
Notes: 1. Results for the normal month and May are from the May survey. Results for July are from the August Survey.
2. Low-income earner: Person whose personal annual labor income in the year prior to the survey was in the bottom 25% bracket. High-income earner: Person whose personal annual labor income in the year prior to the survey was in the top 25% bracket.

teleworking rate, which approached nearly 30% in the second week of May (during the government's state of emergency declaration), suddenly fell to just over 10% in the last week of July. The teleworking ratios of men, regular employees, and high-income earners stayed between 3 and 8 percentage points higher than their pre-pandemic levels. However, the teleworking ratios of women, non-regular employees, and low-income workers returned to near their pre-pandemic levels. Although some see teleworking as a means of improving women's work styles and employment, it appears that firmly establishing teleworking by women in Japanese society will be no simple task.[10]

VII. Seizing the opportunity to rectify the gender gap

The restoration of female employment will be largely influenced by the "vaccine" that is expected to be the key to bringing the COVID-19 pandemic and the difficulties it brought to an end. If, as the government wants, a vaccine is secured for all Japanese citizens by the middle of the year 2021, it is highly likely that the employment crisis for women will also come to an end within a year. This is because utilizing women is a long-term strategy for industries that are facing structural labor shortages arising from Japan's aging society. This strategy's orientation will not change even amid the pandemic. In this sense, the crisis will eventually end if we are patient enough. Therefore, the steps that should be taken now are the elimination of employment mismatches, measures to address income disparities, and relief measures targeting people in need. Specifically, they should involve support for changes in employment from structurally weak industrial categories that will not survive in the post-COVID-19 world to structurally sound industrial categories, reinforcement of vocational training that makes use of the job-hunting period, and enhancement of livelihood support measures for people in need.

Looking at the medium and long term, the pandemic could provide a good opportunity for rectifying the employment gap between males and females. Given that males are spending more time at home due to the pandemic, it is probable that, to a greater or lesser extent, husbands have more

opportunities to handle housework and child-rearing. If this can be firmly established as a new way of living, the traditional Japanese social norm of "men go to work, women stay home" may change.

As for teleworking, one after another, we are seeing companies take steps toward adopting performance-based pay systems and fully introducing "job description" systems that specify job content and required skills with the aim of establishing work from home/teleworking. Prominent examples include Calbee, Inc., Fujitsu Ltd., and Hitachi, Ltd. And as demands for higher productivity and competition for human resources intensify, it is very likely that SMEs will also have sufficient incentive to pursue teleworking.

The establishment of internal company systems that support teleworking—a way of working that gained momentum amid the pandemic—will be essential to ensuring that it does not end as a transient phenomenon. And the government must provide broad support that includes the provision of funds and know-how as well as the drafting of legal systems to companies that introduce teleworking.

This column is originally released in Japanese on September 25, 2020, at https://www.jil.go.jp/researcheye/bn/047_200925.html, and edited for this journal. The survey data used in the analyses were provided by Ms. Yuko Watanabe of JILPT, who compiled the first aggregation result. The author hereby expresses her gratitude. The views and recommendations presented in this paper are the author's and do not represent her organization.

1. Zhou, Yanfei, "How Women Bear the Brunt of COVID-19's Damages on Work," *Japan Labor Issues*, vol. 5, no. 28, https://www.jil.go.jp/english/jli/documents/2021/028-01.pdf.

2. Nakai, Masayuki, "Keizai Katsudo no Saikai ga Susumu naka de no Koyo Doko: Shingata Koronauirusu no Eikyo ni yoru Josei Hiseiki no Koyo no Gensho ga Kencho" [Employment trends as economic activity resumes: A conspicuous decrease in female non-regular employment attributable to the novel coronavirus, released on September 2, 2020, https://www.jil.go.jp/tokusyu/covid-19/column/020.html (in Japanese).

3. Alon, Titan, Matthias Doepke, Jane Olmstead-Rumsey, and Michele Tertilt, "This Time It's Different: The Role of Women's Employment in a Pandemic Recession," IZA Discussion Paper no. 13562, 2020.

4. *Nihon Keizai Shimbun*, "Josei Koyo Korona no Gyakufu Shokushu Tenkan e Shien Kyumu" [Female employment COVID-19 headwinds urgent need to support changes in occupation], (September 6, 2020).

5. For details, see OECD, *OECD Employment Outlook 2020: Worker Security and the COVID-19 Crisis* (Paris: OECD, 2020) and ILO Statistics and databases (ILOSTAT), https://www.ilo.org/global/statistics-and-databases/lang–en/index.htm.

6. Alon, Titan, Matthias Doepke, Jane Olmstead-Rumsey, and Michele Tertilt, "This Time It's Different: The Role of Women's Employment in a Pandemic Recession," IZA Discussion Paper No. 13562, 2020.

7. A total of 3,212 respondents to the May Survey also participated in RENGO-RIAL's 39th Short-Term Survey of Workers in Japan (April 1 to 3, 2020). For details of the May Survey, see the summary of the first aggregation in English, https://www.jil.go.jp/english/special/covid-19/survey/documents/20200610.pdf (or full document released in Japanese, https://www.jil.go.jp/press/documents/20200610.pdf). For details of the August Survey, see the summary of the first aggregation in English, https://www.jil.go.jp/english/special/covid-19/survey/documents/20200826.pdf (or full document released in Japanese, https://www.jil.go.jp/press/documents/20200826.pdf).

8. Zhou, Yanfei (2020), "Koronashokku de Kawaru Josei no Hataraki-kata: Danjo no Koyo Kakusa Kaisho e no Keiki ni" [How the ways women work are changing amid the coronavirus crisis: Using the crisis as an opportunity to eliminate the gender employment gap], *The Toshi Mondai*, vol. 111, no. 07, 34–39.

9. Zhou, Yanfei, "A Look at Japanese Households Facing Risk of Livelihood Collapse Due to COVID-19" (April 17, 2020), *Japan Labor Issues*, vol. 4, no. 24, July 2020, https://www.jil.go.jp/english/jli/documents/2020/024-02.pdf.

10. See Takami, Tomohiro, "Zaitaku Kinmu ha Dare ni Teichaku shiteiru no ka: 'Kinkyuji' o Heta Henka o Yomu" [For whom has working from home taken root?: Reading changes that occurred through the 'emergency'" (September 16, 2020, available only in Japanese) for the results of a detailed analysis of teleworking.

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https://www.jil.go.jp/english/profile/zhou.html

Appendix 1. Percentages of persons employed by private enterprises who became unemployed or went on temporary leave ("furlough") (%, end of May vs. end of July, 2020)

(As of the end of May 2020: May Survey)

	Total	Males	Females	Non-regular employees	Regular employees	Male without minor child	Male with minor child	Female without minor child	Female with minor child	Single mothers	Females of non-regular employment
Involuntary unemployed person[a]	2.2	1.8	2.7	3.8	1.4	1.9	1.7	2.9	2.2	3.9	3.7
Voluntarily unemployed person[b]	0.4	0.5	0.4	1.0	0.2	0.7	0.0	0.2	1.0	1.0	0.7
Not in labor force[c]	0.5	0.3	0.7	0.9	0.3	0.4	0.1	0.5	1.2	0.0	0.7
Temporary leave ("furlough")[d]	3.3	1.6	5.3	6.9	1.4	1.8	1.0	4.7	7.1	8.7	7.5
Total	6.4	4.2	9.0	12.5	3.3	4.8	2.8	8.2	11.5	13.6	12.6
n	4,307	2,311	1,996	1,459	2,848	1,594	717	1,500	496	103	1,076

(As of the end of July 2020: August Survey)

	Total	Males	Females	Non-regular employees	Regular employees	Male without minor child	Male with minor child	Female without minor child	Female with minor child	Single mothers	Females of non-regular employment
Involuntary unemployed person[a]	2.5	2.4	2.6	3.6	1.9	2.2	2.9	2.6	2.5	1.9	3.4
Voluntarily unemployed person[b]	0.4	0.4	0.5	0.8	0.3	0.4	0.3	0.5	0.2	0.0	0.6
Not in labor force[c]	1.0	0.7	1.5	1.4	0.8	0.6	0.8	1.3	1.9	1.0	1.8
Temporary leave ("furlough")[d]	1.6	0.7	2.7	2.4	1.2	0.9	0.3	1.7	6.1	2.9	2.7
Total	5.6	4.2	7.2	8.2	4.2	4.1	4.3	6.1	10.7	5.7	8.4
n	4,307	2,311	1,996	1,459	2,848	1,597	714	1,517	479	105	1,076

Source: Same as Figure 2.
Note: a=Dismissed, had employment terminated, or became unemployed due to bankruptcy. b=Not working but engaged in job-hunting activity (excluding a). c=Not working and not engaged in job-hunting activity. d=Employed but worked zero hours.

Appendix 2. Effects that sex and child-rearing have on the labor supply

	Percentage who go on temporary leave ("furlough")—probit model			Change in weekly working hours —OLS model		
	Total	Males	Females	Total	Males	Females
Females	0.0122***			−0.600		
	(0.005)			(0.435)		
With minor child	0.0182***	−0.0054	0.0314***	−1.079**	−1.003	−1.440**
	(0.005)	(0.005)	(0.009)	(0.479)	(0.649)	(0.724)
Other explanatory variables	YES	YES	YES	YES	YES	YES
n	4,307	2,311	1,996	3,753	2,038	1,715

Source: Same as Figure 2.
Notes: 1. Marginal effects (probit model) and coefficient estimates (OLS model) are reported. The figures in parentheses are the standard error.
2. Included in the explanatory variables are size of enterprise, industrial category, type of employment, academic background, marital status, and residence with or near a parent.
3. "Change in weekly working hours" = "average working hours in June-July" minus "working hours in the normal month"
4. *p<0.1, **p<0.05, ***p<0.01.

Does the Conclusion of a Fixed-term Part-time Contract when Returning to Work after Childcare Leave Constitute the Cancellation of the Regular Employment Contract?

The *Japan Business Lab* Case
Tokyo High Court (Nov. 28, 2019) 1215 *Rodo Hanrei* 5

TAKIHARA Hiromitsu

I. Facts

Y is a stock company with around 22 employees. Its main lines of business are the operations and other tasks related to B, a school providing career development courses, and C, a school providing coaching for the improvement in English language skills and other languages. On July 9, 2008, X signed a regular employment contract (the regular employment contract) with Company Y and subsequently worked as a coach at C. As of November 2012, X's main terms and conditions of employment under the regular employment contract included scheduled working hours of seven hours a day and salary and related payments of 480,000 yen per month.

In January 2013, X took prenatal maternity leave because she was expecting a child. She gave birth to her first daughter in March that year, after which she took postnatal maternity leave and childcare leave (until March 1, 2014). On February 26, 2014, X informed Company Y of her wish to extend her childcare leave by six months because she was unable to find a childcare facility, upon which her childcare leave was extended.

On September 1, 2014, following a consultation with the Company Y president, the manager responsible for her job (the male supervisor D), and labor and social security attorney as an advisor, X signed and exchanged with Company Y a document entitled "employment contract" (the fixed-term part-time contract), under which her form of employment was cited as contract employee and her other terms and conditions of employment included a contract term of one year, working times and hours of "generally Wednesdays, Saturdays and Sundays; four hours a day," and a monthly salary of 106,000 yen (the agreement).

X officially returned to work on September 2, 2014, and the following day began her role as a contract employee working three days a week. X claimed to have found a childcare facility to look after her daughter and for this and other reasons requested Company Y to reinstate her as a regular employee working five days a week. Although X made several attempts at negotiation, her request was rejected by Company Y. Company Y ordered X to stand by at home from July 12, 2015 onward, on such grounds as the fact that X had recorded conversations in the office without consent and had used the email address and computer assigned to her for work to send personal emails. In a document dispatched via registered mail with certification of contents on July 31, 2015, Company Y then informed X that the fixed-term part-time contract would expire at the end of its term on September 1 that year (the non-renewal of the fixed-term part-time contract). On August 3, 2015, Company Y filed a suit with the Tokyo District Court seeking confirmation that X was no longer

entitled to the rights assigned under an employment contract (case *β*).

On October 22, 2015, X filed a suit with the Tokyo District Court against Company Y ("case *α* original action"). Her principal claim was for (i) the confirmation of her entitlement to the rights set out in the regular employment contract and the payment of unpaid salary and other payments. As a secondary claim for the event that said claim was dismissed, she sought (ii) confirmation of her entitlement to the rights set out in the fixed-term part-time contract and the payment of unpaid salary and other payments. She also demanded (iii) solatium (*isharyō*) and other such payments on the grounds that Company Y had committed torts, namely, refusing to reinstate her as a regular employee after making her a contract employee and a series of other related acts. Company Y, on the other hand, demanded solatium and other such payments from X (case *α* counterclaim), on the grounds that X had committed a tort in making false statements at a October 2015 press conference (detailed below) and thereby defaming the good reputation of Company Y.

On the day that she filed the case α original action (October 22, 2015), X and her legal counsel held a press conference at the reporters' club room (*kisha kurabu*) in the Ministry of Health, Labour and Welfare, where copies of the complaint were distributed as reference material; Company Y's name was made public, and an explanation was provided, detailing the fact that the case *α* original action had been filed and setting out the particulars of the complaint. As part of this explanation, X made the following statements ("Statements"): that when finishing childcare leave in September 2014 she had applied for leave of absence because she had been unable to find a childcare facility for her daughter, but her request had been denied, upon which Company Y had forced her to choose between becoming a contract employee working three days a week or voluntary resignation (Statement (1)); that after she had reluctantly signed an employment contract as a contract employee the contract had not been renewed after the initial one year term (Statement (2)); that when she had returned to work after giving birth, she had faced fundamental criticism of her character (Statement (3)); that a male supervisor D had said " I would make sure that I'm prepared to earn enough to support the whole family, and then, I would make my wife pregnant" (Statement (4)), and that when she had joined a labor union the Company Y president had referred to her as a "loose cannon" (Statement (5)).

On the day of said press conference, the case was covered in newspapers (online) and on a news program (of three reports, two clearly stated Company Y's name). The following day, October 23, 2015, Company Y received some criticism in the form of two emails. On the same day, Company Y posted an article on its official website denying the claims that X had made at the press conference.

The Tokyo District Court dismissed case *β*. In response to X's demands in the case *α* original action, the court concluded that the regular employment contract had been canceled as a result of the agreement, but declared the non-renewal of the fixed-term part-time contract null and void and accepted the claim for confirmation of X's entitlement to the rights set out in the fixed-term part-time contract, as well as partially recognizing her demands regarding the torts committed by Company Y. The Tokyo District Court also dismissed the demands put forward by Company Y in the case *α* counterclaim. Company Y responded to the District Court decision by posting an article on its official website denying claims from certain media outlets regarding the decision.

On the grounds of objections and other issues regarding the District Court rulings against them, both X and Company Y respectively filed appeals to the High Court. The four main points in dispute were: (1) the interpretation and validity of the agreement, (2) whether the fixed-term part-time contract should have been renewed, (3) whether Company Y had committed torts, and (4) whether X had committed a tort.

II. Judgment

(1) The interpretation and validity of the agreement

(a) Whether the agreement included an agreement that the regular employment contract had been canceled

"As X selected contract employment rather than regular employment from the forms of employment offered to her, signed the document entitled "employment contract" with Company Y, and entered, as a contract employee, into a fixed-term employment contract to be renewed annually (the agreement), it is reasonable to conclude that the regular employment contract had been canceled."

(b) Whether the agreement was in violation of the Equal Employment Opportunity Act (EEOA) and the Child Care and Family Care Leave Act (CFCLA) prior to its amendment in 2016

A comparison of the terms and conditions of employment set out in the contracts for regular employment and contract employment reveals undeniable disadvantages to contract employment, such as no fixed premium wages for overtime included in the salary, a specified term of employment, and periods of work as a contract employee not counting toward the calculation of severance pay. At the same time, for these to be deemed as disadvantages for X, she needs to have been able to work five days a week.

"At the time of the agreement, X was only able to work four hours a day, three days a week, rather than a five-day week, because she was unable to find a childcare facility for her daughter and did not receive sufficient assistance from her family. Therefore, if X had returned to work as a regularly-employed coach with a five-day working week despite still having no prospect of securing a childcare facility for her daughter, even with the support of measures to shorten working hours, she would have struggled to fulfil her role as a coach responsible for a class. Moreover, even if she had been able to take responsibility for a class, she would have been considerably hindered in her capacity to run said class, or would have been repeatedly absent, such that she would have faced such risks as being forced to resign due to personal circumstances, being dismissed on the grounds that she was unsuitable for employment due to poor work performance (Article 34, Paragraph 1, Item 2, of the work rules), or being subject to disciplinary discharge on the grounds that she was not regularly attending work and showed no prospect of improvement (Article 31, Item 2, of the work rules)."

"Company Y has established various forms of employment to accommodate employees returning from childcare leave and their capacity to work in relation to their childcare commitments and other such obligations. The company revised its work rules and other such provisions and introduced a contract employee system to allow such employees to choose between the options of "regular employee (five days a week)," "regular employee (five days a week with reduced working hours)" or "contract employee (four or three days a week)." X, who was on childcare leave at the time, had these changes explained to her individually, and had sufficient opportunity, within the around six months that remained of her childcare leave, to consider which employment type would be best suited to her when she returned to work. On the day before the end of her childcare leave, X received an explanation of aspects such as the particulars of the contract, the working styles of contract employees, and the method used to calculate salary. She signed the fixed-term part-time contract after going through such details."

"Given the explanations provided by Company Y regarding the forms of employment and the content of the explanations provided and circumstances at the time the fixed-term part-time contract was signed, X's situation at the time her childcare leave ended, and the fact that X had changed her mind and requested to return to work as a contract employee despite having declared her intention to resign, there are objectively reasonable grounds to deem the agreement to have been concluded on the basis of X's free will (see Supreme Court (October 23, 2014) 68–8 *Minshu* 1270)."

"The agreement does therefore *not* constitute

"unfavorable treatment" as prohibited under Article 9, Paragraph 3, of the EEOA, and Article 10 of the CFCLA."

(c) Other points regarding the agreement

The agreement was concluded on the free will of the parties involved, and did not involve any mistake, the conclusion of an open-ended employment contract subject to a condition precedent, or an agreement that X would return to work as a regular employee.

(2) Whether the fixed-term part-time contract should have been renewed or not

The fixed-term part-time contract constitutes "a fixed-term contract for which there are deemed to have been reasonable grounds for the worker to expect the contract period to be renewed when the contract expired." However, X, "in violation of orders from the Company Y president and her own pledge, repeatedly made recordings in the office. Furthermore, in violation of her obligation to give undivided attention to duty, she also used the email address assigned to her for work to exchange personal emails on multiple occasions during her working hours. She also knowingly provided false information to news reporters and other persons outside of the company with the aim of creating the impression that Company Y had a culture of "maternity harassment," and consistently engaged in behavior that risked damaging the reputation of and public confidence in Company Y and behavior that damaged her trust relationship with Company Y, and, given that she also shows no sign of remorse, it can be concluded that there are sufficient grounds for her not to expect her employment to be continued."

"The non-renewal of the fixed-term part-time contract is therefore based on objectively reasonable grounds and is appropriate according to social norm."

(3) Whether Company Y committed torts

The fact that Company Y sent an email to a third party outside of the company stating that X had been put on standby at home because she had violated the work rules and leaked information was a violation of X's privacy, and therefore constitutes a tort. However, the other actions by members of Company Y—including D's words and behavior as described by X in Statement (4)—do not constitute torts.

(4) Whether X committed a tort

"Unlike a civil suit, where a judgment must be based on facts asserted and evidence submitted by parties to the litigation (the principle known as *benron shugi*), a press conference is a one-sided provision of information to news media representatives and guarantees no opportunity for the other party to offer a counterargument. Therefore, where the facts alleged in statements at a press conference diminish the reputation of the other party to the suit, these may be deemed to constitute the torts of defamation and damage to credibility. Furthermore, "judging on the basis of how the public would typically take note of and interpret" Statements (1), (3), (4) and (5), said Statements create a negative impression of Company Y and "can be deemed to diminish reputation of Company Y."

"In the case of defamation where facts are alleged, where the alleged facts are matters of public interest and the objective of alleging those facts is solely to ensure public welfare, if there is proof that the key parts of the alleged facts are true, said act is not unlawful. Moreover, even if there is no such proof, if there are sufficient grounds for the person who committed the act to have believed the key parts of said facts to be true, that person will not be found to have intentionally or negligently committed defamation." While the facts alleged in Statement (4) can be deemed to be true, the facts alleged in Statements (1), (3) and (5) can neither be deemed true nor be recognized to have been proved as such, and there cannot be deemed to have been sufficient grounds for X to have believed them to be true.

Statements (1), (3) and (5) therefore constitute torts.

III. Commentary

(1) Differences, etc. between the Tokyo District Court judgment and this Tokyo High Court judgment

The District Court judgment has already been the subject of an article in Japan Labor Issues Volume 3, Number 15 (Hosokawa 2019),[1] but we revisit it again here given the major changes made to it by this High Court judgment. The District Court judgment (i) did not recognize the confirmation of X's status as a regular employee, but (ii) declared the non-renewal of X's employment null and void, (iii) recognized that Company Y had committed a tort by violating its obligation of good faith in the process of preparing to revert X to regular employment (insincere attitude to negotiations) and (iv) rejected the claim that X's statements at the press conference constituted a tort. While reaching the same conclusion as the District Court on point (i), the High Court passed different judgments on the other points. Namely, the High Court declared (ii) the non-renewal of X's employment to be valid, (iii) recognized only the violation of X's privacy as a tort by Company Y, and (4) concluded that X's statements at the press conference constituted a tort (Statements (1), (3), and (5)).

Starting from the points upon which the judgments differed, let us firstly make an overview of the issue of (ii) whether the non-renewal of X's employment contract was declared null and void (District Court judgment) or valid (High Court judgment). In addressing whether the non-renewal of the contract is invalid or valid, considerable weight was placed on two points: the fact that X made recordings without consent and the fact that X used her work email address for sending and receiving personal emails (these two points were clearly specified on the written order issued to X by Company Y instructing X to remain at home on standby from July 12, 2015 onward). With regard to the recordings, the District Court judgment states that "it was clearly necessary for X to record the conversations in order to be able to use them as evidence at a later date, given that it is obviously social norm that recordings of such conversations between labor and management regarding points of contention typically serve as important evidence in a labor-management dispute." The District Court also acknowledged the fact that X's recording of the conversations without consent did not in fact result in any damages for Company Y, such as the leaking of information to a third party. With regard to the receiving and sending of personal emails, the District Court judgment declared that while "the sending and receiving of non-work-related emails during working hours using a computer assigned for work purposes may be in violation of the obligation to give undivided attention to duty as set out in the employment contract," there is no evidence that sending and receiving private emails is prohibited at Company Y, and, even if X had been sending and receiving private emails, it is unclear to what extent this would have impeded her performance of duties, such that it is not possible "to suggest that X's said actions destroyed her trust relationship with Company Y." As a result, the District Court declared the non-renewal of X's fixed-term part-time contract null and void on the grounds that "the non-renewal of the fixed-term part-time contract lacks objectively reasonable grounds and cannot be deemed appropriate according to social norm" This judgment contrasts with that of the High Court (Judgment (2)).

Secondly, let us now look at the question of (iii) whether the claims that Company Y committed torts were upheld (Tokyo District Court judgment) or mostly rejected (Tokyo High Court judgment). The District Court judgment stated that "in response to X's request to revert to regular employment from contract employment on the basis of Company Y's stance that it was 'assumed' that X would change contract again to return to regular employment, Company Y consistently responded insincerely in the negotiations regarding the conclusion of an employment contract to return X to regular employment, and did not provide any concrete or reasonable explanation regarding matters such as the timing or terms for X's return to regular employment, such that it can be concluded that Company Y was in

violation of the duty of good faith of parties involved in negotiating in the process of preparing a contract" and that "Company Y is obliged to compensate X for the damage suffered as a result of the torts against X." Here, we see another contrast, as, unlike the District Court's comprehensive judgment, the High Court decision (Judgment (3)) recognized only the invasion of privacy as a tort on Company Y's part.

Thirdly, let us summarize the issue of (iv) whether the claim that the press conference by X constituted defamation was rejected (Tokyo District Court judgment) or upheld (High Court judgment). The District Court judgment stated that it "can be deemed that X and X's legal counsel held the press conference in order to widely inform the media that X had filed the case α original action," and that "other than the Statements specified in the case, it is not deemed that concrete statements were made that deliberately sought to criticize Company Y, nor that it was stated that behavior amounting to what is known as maternity harassment occurred at Company Y, nor that statements were made that gave such an impression." With regard to Statement (3), the District Court judgment declared that "it can be deemed that X described the impressions that she had received from the course of events and cannot be concluded that she alleged any facts." And, with regard to Statements (1), (2), (4) and (5), the District Court stated that "given the actual content of the Statements and context in which they were made, these statements would typically be understood as X's descriptions of the claims she was making in the case α original action, and not the alleging that the Company Y president and others committed the aforementioned acts." In contrast, the High Court decision, Judgment (4), declared that Statements (1), (3) and (5) constitute torts.

While the District Court and High Court judgments differed on such points, they are consistent in that (i) neither confirmed X's status as a regular employee. On this point, the District Court judgment stated that firstly, "the regular employment contract and the fixed-term part-time contract differ on all of the following aspects: the defining of a contract period, the number of working days, the scheduled working hours, and the wage structure" and that "regular employment and contract employment at Company Y differ in terms of how the work rules are applied with regard to the scheduled working hours, and, in terms of work content, there are considerable differences in the duties covered by each form of employment; regular employees have a defined minimum number of classes that they need to cover in their role as a coach and take on leader roles in each project, while contract employees have no such defined number of classes and do not take on such leader roles." Thus, "it is difficult to interpret the regular employment contract and the fixed-term part-time contract as the same employment contract." The Tokyo District Court judgment then goes on to note that "when making the agreement, X and Company Y created a document entitled 'employment contract,' despite the fact that, according to social norm, it is not common for cases in which a contract is being extended and changes are merely being made to the employment terms and conditions to also involve creating and exchanging a document entitled 'contract' between labor and management." On this basis, the District Court determined that "it is reasonable to interpret the agreement as the consent that the regular employment contract would be canceled and a separate contract—namely, a fixed-term part-time contract—would be concluded" such that "it can be recognized that under the agreement the regular employment contract was canceled on the mutual consent of X and Company Y." The High Court reached a similar conclusion, as set out in Judgment (1) (a) above. The District Court and High Court (Judgment (1) (b)) likewise both determined that the agreement was not in violation of the EEOA or the CFCLA. The District Court and the High Court (Judgment (1) (c)) also shared the judgment that the agreement was concluded at her own free will of the parties involved, and did not involve a mistake or the conclusion of an open-ended employment contract subject to a condition precedent. (Note, the claims regarding the agreement to return to regular employment were put forward as additional claims at these High Court proceedings.)

(2) The cancellation of the regular employment contract

As explained above, the Tokyo High Court and the Tokyo District Court judgments were consistent with each other in that neither recognized the confirmation of X's status as a regular employee. That is, both courts determined that the regular employment contract and the fixed-term part-time contract are discrete, and the agreement resulted in the cancellation of the regular employment contract and the new establishment of the fixed-term part-time contract. At the same time, there is a commentary on the District Court precedent that casts doubt on such a judgment. Namely, it suggests that based on the logic of the judgment alone the regular employment contract cannot be said to have been terminated in the first place, and there is an undeniable possibility that the two contracts between X and Company Y —the regular employment contract and the fixed-term part-time contract—exist concurrently.[2] Such a suggestion has received support in other judicial precedent commentaries and similar criticism may apply to the High Court judgment, which reached almost the same decision as the District Court.

(3) Violations of the EEOA and CFCLA

The Tokyo High Court judgment on X's claims based on the EEOA and CFCLA is as summarized in Judgment (1) (b). Before investigating this point, let us look at the provisions of the EEOA and CFCLA that are relevant to this case, and, in particular, a Supreme Court judgment related to the EEOA.

Firstly, Article 9, Paragraph 3, of the EEOA prohibits the dismissal and unfavorable treatment of women workers on the grounds of pregnancy, childbirth, or other such factors,[3] and Article 10 of the CFCLA prohibits dismissal or unfavorable treatment of workers on the grounds of their application for or use of childcare leave.[4] The High Court responded to X's claim that the conduct of Company Y fell under these provisions with the decision noted in Judgment (1) (b).

Precedents of cases disputing violations of Article 9, Paragraph 3, of the EEOA include the *Hiroshima Chuo Hoken Seikatsu Kyodo Kumiai* case (the *Hiroshima Central Health Care Cooperative* case) Supreme Court, (Oct. 23, 2014) 1100 *Rohan* 5. In said case, the plaintiff, a physical therapist employed in the role of deputy chief (*fuku-shunin*) by the defendant, a consumer cooperative operating multiple medical facilities, was relieved of her post as deputy chief when reassigned to light activities during pregnancy on the basis of Article 65, Paragraph 3, of the Labor Standards Act ("LSA"), and was not appointed deputy chief after the end of her childcare leave. She therefore sought the payment of the managerial (deputy chief) allowance and damages from the defendant on the basis of default or tort, claiming that relieving her of her position as deputy chief as described was in violation of Article 9, Paragraph 3 of the EEOA and therefore null and void. The Supreme Court declared that firstly, Article 9, Paragraph 3, of the EEOA is a mandatory provision, and, the "dismissal or other unfavorable treatment of a woman worker on the grounds of pregnancy, childbirth, application for prenatal leave, use of pre- or postnatal leave, or reassignment to light activities, is a violation of said paragraph and therefore unlawful and null and void," and, on that basis, "that the employer's use of a woman worker's reassignment to light activities during pregnancy as an opportunity to demote said worker can generally be deemed to fall under the treatment prohibited under said paragraph," while at the same time noting that in exceptional cases—such as where "there are objectively reasonable grounds to deem that the worker in question consented to the demotion at her free will," or, where there are special circumstances based on operational necessity—the demotion is not deemed to be in violation of Article 9, Paragraph 3, of the EEOA. The Supreme Court reversed the lower court decision and remanded the case for the court to determine whether such exceptional circumstances existed. In the remanded case, (Hiroshima High Court (Nov. 17, 2015) 1127 *Rohan* 5) the Hiroshima High Court did not acknowledge such circumstances, and largely upheld the plaintiff's claims.

The aforementioned Supreme Court judgment in the *Hiroshima Chuo Hoken Seikatsu Kyodo Kumiai*

case was cited in this Tokyo High Court decision, Judgment (1) (b). However, it is not entirely clear whether the scope of the judgment in the *Hiroshima Chuo Hoken Seikatsu Kyodo Kumiai* case, which was concerned with a demotion, could be extended to cases such as this one involving a change of status from regular employee to contract employee. This is due to the differing nature of the two issues (cases)—namely, the *Hiroshima Chuo Hoken Seikatsu Kyodo Kumiai* case involved the exercising of authority over personnel matters (demotion under the same contract) while this case addresses the issue of the change from a regular employment contract to a non-regular employment contract (cancellation of the regular employment contract and conclusion of a fixed-term part-time contract). Moreover, even if the scope of the *Hiroshima Chuo Hoken Seikatsu Kyodo Kumiai* precedent can be extended to this case, there are further questions to be addressed, such as the matter that it is difficult to conclude that X was acting on her own free will.[5] The government guidelines[6] also provide examples of "dismissal and other unfavorable treatment" as defined in Article 9, Paragraph 3, of the EEOA and Article 10 of the CFCLA, and while these include the example of employees being forced to accept changes to the content of their employment contract, such as being forced to switch from regular to contract employment, there are inevitably questions regarding how consistent this case is with such an example.[7] It is, however, also important to note that government guidelines are not legally binding.

(4) Defamation

In Japan, there are cases in which workers who have filed suits against their employer hold press conferences with their legal counsel. This case also involved the issue of a press conference by X and her legal counsel and whether it constituted defamation of Company Y. However, there appears to be few other precedents for cases in which an employer suffered defamation due to a press conference by a worker and their representatives.

The standard used by the High Court for judging the statements in this case—namely "judging on the basis of how the public would typically interpret and respond to" the statements—is based on a Supreme Court precedent.[8] Company Y did not file a libel suit against the newspaper publishers and a television station that actually reported the incident. Given that the process of creating articles and other such reports using the materials provided at X's press conference involves the intervention of reporters and others editing said information ("exercising editorial rights"), simple logic should lead us to question Company Y's choice to pursue a suit that seeks to place the ultimate responsibility for the articles and other such reports solely upon X. Moreover, as noted in the Tokyo District Court judgment, it is quite possible to conclude that the Statements are X's "impressions" and "would typically be understood as X's descriptions of the claims she was making in the case α original action." And yet, as noted in Judgment (4), the High Court judgment deemed Statements (1), (3) and (5) to constitute torts. This High Court judgment may to some extent indirectly restrain workers in their approach to publishing information.

Supreme Court issued a ruling on this case on December 8, 2020.

1. Ryo Hosokawa, "Employers' Obligation to Consider the Needs of Employees Returning from Childcare Leave: The *Japan Business Lab* Case," *Japan Labor Issues* 3, no. 15 (June 2019): 13, https://www.jil.go.jp/english/jli/documents/2019/015-03.pdf.

2. Yukiko Ishizaki, "*Ikuji shūryō go ni teiketsu shita keiyakushain keiyaku no yatoidome: Japan Bijinesu Rabo jiken*" [The non-renewal of a fixed-term part-time contract concluded at the end of childcare leave: The *Japan Business Lab* case], *Monthly Jurist*, no. 1532 (May 2019): 107.

3. Women who are pregnant or have recently given birth ("expectant or nursing mothers") may not be able to deliver their typical standards of work due to certain changes in their physical condition or other such symptoms, such as morning sickness during pregnancy, decreased physical strength after birth, or postnatal depression. Such issues are addressed in laws or by certain regulations that have been prescribed by law to address expectant or nursing mothers' medical or physical need for protection, such as the provision of prenatal or postnatal leave under the Labor Standards Act (LSA), and the prohibition of unfavorable treatment on the grounds of a worker having used such leave or other measures. More specifically, there are provisions for leave before and after childbirth (LSA, Article 65, Items 1 and 2), for prohibiting dismissal during said leave or within the 30 days thereafter (LSA, Article 19, Paragraph 1), for limitations on belowground work and dangerous and

injurious work for expectant or nursing mothers (LSA, Article 64-2, Item 1 and Article 64-3, Paragraph 1), for reassignment of pregnant women to light activities (LSA, Article 65, Item 3), for limitations on overtime work, etc. (LSA, Article 66), for health care measures (EEOA, Articles 12 and 13), which specifically include measures to alleviate commuting and to provide breaks, etc. (EEOA, Article 13, Paragraph 2 Guidelines), and for time for nursing mothers to care for their children (LSA, Article 67). Moreover, as also noted in this article, Article 9, Paragraph 3, of the EEOA prohibits dismissals or other such unfavorable treatment on the grounds of pregnancy, childbirth, a worker requesting or taking prenatal or postnatal leave or using other measures or restrictions such as the above example of reassignment to light activities, or decline in working ability, etc. Seemingly emphasizing the point, Article 9, Item 4, of the EEOA prohibits the dismissal of expectant and nursing mothers as a general rule and also shifts the burden of proof to the employer. This could be deemed to constitute a legal framework that could be described as "a legal system for the protection of expectant and nursing mothers." It can be seen as a legal system that not only seeks to maintain the health of expectant and nursing mothers and thereby support childbirth, but also to strongly protect the employment of such women in a period where working ability and other such aspects of professional performance tends to decline. The legal provisions on harassment related to pregnancy and childbirth, etc., which were enforced on January 1, 2017 (EEOA, Article 11-3), are also included in this legal system.

4. Legal provisions regarding harassment concerning childcare leave, etc. (CFCLA, Article 25) were enforced at the same time as the provisions on harassment related to pregnancy and childbirth, etc. touched on in note 3.

5. The *Yamanashi-kenmin Shinyō Kumiai* case (*Yamanashi Prefectural Credit Association* case), Supreme Court (Feb. 19, 2016), 70–2 *Minshu* 123 demonstrates strict judgment criteria regarding a worker's consent to unfavorable changes to employment terms.

6. The guidelines related to the EEOA which are relevant to this case are the "Guidelines for appropriate measures for employers regarding items determined in provisions concerning the prohibition of discrimination on the grounds of a worker's sex, etc." (Ministry of Health, Labour and Welfare Notification 614, 2006). The guidelines related to the CFCLA are the "Guidelines regarding measures that employers need to implement to support workers who take or will take care of children or other family members to combine their professional lives with their family lives" (Ministry of Health, Labour and Welfare Notification 509, 2009). The applicable clauses are Article 4-3 (2) (iv) for the EEOA guidelines and Article 2-11 (2) (iv) for the CFCLA guidelines.

7. Shozo Yamada, "*Japan Bijinesu Rabo jiken ni okeru ikuji kaigo kyūgyōhō 10 jō tou ihan ni tsuite*" [The violation of Article 10, etc. of the Child Care and Family Care Leave Act in the *Japan Business Lab* case], (2019) 1942 *Rodo Horitsu Junpo* 27 draws on the text of each law and each guideline to elucidate the nature of the agreement as a violation of the mandatory provision.

8. Case seeking compensatory award and restoration of good reputation. Supreme Court (July 20, 1956), 10–8 *Minshu* 1059). https://www.courts.go.jp/app/hanrei_jp/detail2?id=57514 (in Japanese), accessed 1 October, 2020.

The *Japan Business Lab* case, *Rodo Hanrei* (*Rohan*, Sanro Research Institute) 1215, pp. 5–45. See also *Jurist* (Yuhikaku) 1550, pp. 128–131 and *Journal of Labor Cases* (Rodo Kaihatsu Kenkyukai) 94, pp. 1–50.

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Special Feature on Research Papers (II)

Here is a special feature for three (I-III) including six significant papers selected by the Editorial Office of Japan Labor Issues from various relevant papers published in 2019–2020. Each author has arranged the original papers written in Japanese for the benefit of overseas readers. We sincerely thank authors for their effort. These papers address the latest subjects as well as conventional themes on labor in Japan and surely will offer useful information and deeper insights into the state of labor in Japan.

Editorial Office, *Japan Labor Issues*

How Human Coexistence with ICT in the Era of Telework Enabled Should Be: From the Viewpoint of Now and the Future of Telework in Japan

YANAGIHARA Sachiko

Telework is sufficiently possible in terms of the technical environment. However, neither the organizational culture nor the legal system that supports it is adequately aligned with use of telework in the sense of "flexibility in choosing location of work." How should human beings view their work location within a society of developing technology? In this paper, I consider telework from the perspective of information systems and human values by attempting to address two questions. First, how should telework be positioned in a society where AI and robots equipped with it will replace human labor? Second, what value does telework have in terms of flexibility of work location and working hours for it? To begin, I review changes in the definition and classification of "telework" and show that the single word "telework" covers a wide range of telework patterns. I then confirm that the location choices for telework include "home," "satellite office," and "mobile" settings. Next, I argue that the present dissemination of telework is somewhat limited, even when it is used outside of existing systems. Based on this, I consider the future of human beings and positioning of AI and robots from the standpoint of labor in future society, examine the significance and value of humans' teleworking to obtain discretion in their location of work from the standpoint of modern society in which technology and humans are entangled, and point out that humans must acquire "locational flexibility for the purpose of being particular about place."

I. Introduction

Many years have already passed since telework first received attention in Japan as an "option for a new style of working using ICT" in the 1980s. In the 1990s, when studies on telework were undertaken individually in a diverse range of fields, such as management, law, and engineering, and recognition of "telework" in itself was low, recognition and discussion of it within the contexts of existing research fields did not gain much steam. It was in June 1999 when researchers from various fields gathered to establish the Japan Telework Society. For more than twenty years that continued up through 2019, telework has been studied as an "option for a *new* style of working." Technology has made great strides forward during these two decades,

and information technology (IT) has become indispensable to modern society as information technology that facilitates communication as well (ICT). A new era has come in Japan with the enthronement of new Emperor in 2019, and with 2020, a year in which COVID-19 changed the world's values and behavior substantially.

As a result of technical progress, 21st-century human beings have obtained new "magical devices" in the forms of not only laptop computers but also smartphones. Twenty years ago, what would we have thought if we had seen everyone on the street freely obtaining various kinds of content with such "magical devices" in their hands, people with open laptops lining the windows of coffee shops, and other commonplace scenes of today's society? These may represent aspects of the "society in which people can work anywhere at their convenience" and "society in which working people can freely choose their work location" that many telework researchers have desired. However, in reality, we have not yet achieved the society that was originally envisioned, one which involves sufficient locational flexibility and the associated flexibility of working hours.

Telework is already practicable from the standpoint of technical development, and its technologies are sufficiently spread throughout society (Yanagihara 2014; 2017; 2019). However, awareness of "discretion in their location of work" has not sufficiently penetrated the values of the people who comprise society, and neither the organizational culture nor the legal system that supports it is adequately aligned with the sense of telework as working people's "flexibility of work style." Today, with the technical environment already in place, what are the obstacles preventing value changes in thinking on work location? And how should human beings view work styles within a society of continually developing technology?

In this paper, I will consider the issue of positioning people who do telework in a society in which artificial intelligence (AI) and robots will replace human labor, paying attention to the choice of work location and the associated choice of working hours. Stated another way, this paper will consider the value that telework has in human labor and the value that human labor has in a highly sophisticated information society. I begin by reviewing changes in the definition and classification of "telework" and examine the direction that telework has taken thus far. Next, I will study the state of and issues associated with telework today. Based on the above, I will consider the future of human beings and positioning of AI and robots in labor within modern society and also study the value of teleworking to obtain "discretion in their location of work" in future society from the perspective of a modern social structure in which technology, organizations, and people are integrated.

II. Definition and classifications of telework and its changes in Japan

1. The history of telework and changes in its purpose

The history of telework in Japan began together with the popularization of personal computers (PC) that arrived with computer miniaturization technologies. With greater efficiency in white-collar work brought by PCs (called "office automation, OA"), people began thinking that the preparation of documents and work ancillary to it could be done outside of fixed offices. One factor behind this was commuter rush hours. Compared to today, when operations are managed by computer and trains run on congested schedules, railway transport capacity in those days allowed for fewer trains and therefore crowding was high. Trains in the Tokyo metropolitan area were running at over 200% capacity, and thus commuting on jam-packed trains came to be seen as a problem (MLIT 2007). In light of this, experiments involving suburban "satellite offices" and "resort offices" in summer resort areas (Matsuoka, Sato, and Miyazaki 2016) were conducted primarily to alleviate the burden of commuting. These developments were called the "first telework boom." However, they lost momentum with the collapse of Japan's "bubble economy" in the early 1990s. Later, work styles involving the use of mobile PCs out of the office and a business venture using IT called "small office/home office" (SOHO) arrived in the late 1990s as companies looked to improve productivity and telecommunications environments became more developed (the "second telework boom"). However, limited communications speed and other technical problems restricted their application. Nonetheless, telework, which had progressed through the first and second booms and under the leadership of private companies, became positioned as national policy with a

Table 1. Advantages of telework

Advantages for companies	Advantages for employees
·Personnel recruitment and training ·Innovation of work processes ·Lower business operation costs ·Maintenance of business continuity in emergencies (BCP) ·Better business competitiveness through stronger internal/external collaboration ·Personnel recruitment and training, controlling job separations and support in employment continuation ·Stronger corporate brand and corporate image	·Better work-life balance ·Better productivity ·Autonomous/self-managed work styles ·Stronger collaboration with the workplace ·Better overall job satisfaction and work motivation

Source: MIC (2018a), translated by the author.

national strategy[1] that began in 2001 to drive the aforementioned developments and the diffusion of broadband service. This was the "third telework boom" (Kinezaki 2007). During this time, telework came to be studied from a variety of angles. They included not only cost reduction and better productivity, which are benefits for company managers, but also better balance with home life and compatibility with diverse lifestyles, which are benefits for workers. Telework was also studied as a way of revitalizing local communities and addressing issues associated with women, the elderly, and the disabled, which were government concerns.

However, the third telework boom, which had been promoted as a part of the nation's policy for using ICT, died out with the 2008 financial crisis. What sparked the current upswell that is considered to be the "fourth telework boom" is the so-called "work-style reform" that began in 2017 (Shimozaki 2018). Unlike the past booms that ended on an empty note, the current telework boom is not only taking place based on sufficient ICT technologies but is also coupled with the need to improve work-life balance (WLB) to cope with child-rearing and nursing care demands associated with the low birthrate and aging population (a problem that became conspicuous at the beginning of the 21st century, when the third telework boom was taking place) and thus linked to the introduction of work-from-home schemes by major companies. It can be said that telework has finally gained widespread recognition as a result.

The purpose of telework has also wavered together with the historical backdrop that supported this boom. In the first boom, the purpose was declared to be to alleviate the burden on workers by eliminating their difficult commutes. However, later, when the bubble economy collapsed, it was shifted to productivity improvement and organizational reform as an extension of it as seen from the perspective of business managers. Incorporation of telework into business continuity plans (BCP) as a way of coping with disasters and crises following the emergence of a new strain of influenza in 2009 (Yoshizawa 2010) and the Great East Japan Earthquake of 2011 also received attention (Sahori et al. 2013; Yanagihara and Yoshizawa 2013; Yanagihara 2018). As for the purpose of the current introduction of telework, discussion has come to be based on numerous advantages for both management and workers. This is occurring amid calls for a "society that promotes women's active participation" and renewed attention on child-rearing and nursing-care assistance with the intent of "regional revitalization" and expanding the working population to cope with a society marked by population decline in which falling birthrates and aging continue (see Table 1).

2. Current definition and classifications of telework

(1) Changes in the initial definition and classifications

The government defines telework as a "flexible work style using ICT that is not restricted by place" (MIC 2017) and a "flexible work style that uses ICT and effectively uses time and place" (MIC 2019; METI 2018); MHLW 2018; MLIT 2018a). However, today, when ICT has developed to an advanced level and has become

indispensable as social infrastructure, there are few operations that are not "operations that use ICT." Our society is one in which various ICT tools are used. Indeed, this phenomenon has developed to the extent that even email, which is known as a general means for work communication, is seen by young people as a "legacy tool" for non-synchronous communication with text only. In other words, the focus of telework is not on the first half of the definition ("work style that uses ICT") but rather the second half ("flexible work style that effectively uses time and place"). Put another way, the time is coming when we must reconsider not "what to use when working" but rather "where to work," "when to work," "how much to work," and "how to work" when looking at telework.

Telework has been categorized in various ways, and the core nature of that categorization has come under discussion. W.A. Spinks, who is a pioneer in Japan's telework research, classified telework from five perspectives: "employment relationship," "location," "frequency," "telecommunication technology," and "facility" (Spinks 1998). However, in the 21st century, a society has taken shape in which ICT has been incorporated into work and social living and become one with them.[2] Consequently, the classification of "telecommunications technology" has become irrelevant. Furthermore, the use of "facility" was integrated into the perspective of "location" because it is the same as changing location. Under Spinks' pattern, "urban/suburban/rural" are included in the "facility" classification. However, as is shown by the example of "Furusato Telework" that the government supported under the name of regional revitalization (Tazawa 2015; 2018; Tokozakura 2017; 2018) and the example of "Resort Office," which has been implemented at Karuizawa and other resort areas (Matsuoka 2018), this concept of "urban or regional" continues as a reason for selecting location. The above telework classifications shows strong influence of the working side's perspective. In addition to them are classifications that concern the introduction of telework—in other words, classifications seen from the business managers' perspective. Regional revitalization is often mentioned as a benefit of telework. It can be classified into (1) attraction of large enterprises, (2) localization, and (3) virtual revitalization (Kano et al. 2017). This is not "urban or regional," but rather a classification of the method for introducing telework when seen from the regional level, and it is a necessary classification axis for considering which introduction method is best for a particular region.

(2) Current general classifications: Form of employment and workspace

As a result of the changes mentioned above, a method that takes Sato's "form of employment" and "workspace (location)" (Sato 2012) as classification axes has recently become the basic method. It is even used in the government's classifications. In the most recent "2018 White Paper on Information and Communications in Japan" (MIC 2018c), telework was first classified into "self-employed type"[3] and "employment-type" based on form of employment, and then classified just employment-type telework with two stages using two classification axes into "work from home," "mobile work," and "satellite office work" depending on the work location. There are also instances, like Sato (2012), when self-employed type telework is further classified based on the main location. Even the Ministry of Land, Infrastructure, Transport and Tourism (hereinafter MLIT) first classified telework into "at-home-type," "satellite-type," and "mobile-type" when defining teleworkers for the "2017 Population Survey on Teleworkers" (MLIT 2018b) and then further classified those categories into employment-type and self-employed type. In other words, it can be said that using the two characteristics of "form of employment" and "workspace (location)" as axes for classification is the standard classification method at the present time. In this paper, I will classify employment-type and self-employed-type into three patterns each by adding the government's location classification method to the classifications presented by Sato (2012) (see Table 2). Generally speaking, only employment-type telework is classified by "location" and work from home and satellite office work, in particular, are often presented as telework.

Self-employed type telework contains the extremely diverse items classified within it precisely because it is self-employed. Only one point determines whether telework is self-employed or employment, and that

Table 2. Patterns derived by the two telework axes

		Workspace (location)		
		Home	Nearby office	Moving
Form of employment	Employment-type	Work from home	Satellite office work	Mobile work
	Self-employed type	At-home working	Shared office work	Self-employed mobile work

Source: Sato (2012), modified and translated by the author.

is whether an employment contract has been concluded or whether work orders are received based on a service contract. As mentioned before, in today's society, doing work without using any ICT whatever is close to impossible. Furthermore, when starting a business, using email and simple teleconferencing tools are essential to business execution, and location is up to the individual. In this modern society, engaging in discussion of self-employed type telework, which has a high degree of flexibility in terms of work execution, using the workspace axis in the same manner as employment-type telework has little meaning within research on telework. I will therefore proceed with my study in this paper by focusing on employment-type telework.

(3) Patterns based on other classification axes: Frequency and system

While location is an important factor in employment-type telework, other classifications cannot be ignored. In much telework research conducted thus far, discussion has proceeded based on definitions that are extremely vague and open to broad interpretation, qualities that can be seen in the government's definition, as the true nature of telework has not been discussed sufficiently (Sato 2012). In research, there must be discussion on the true nature of telework as something unlike traditional "ordinary ways of working", and the ways of working that should be recognized as telework must be clarified. For this reason, there is a need to add necessary classification axes while also using the two axes of form of employment and workspace (location) as a basic foundation.

First, frequency should be studied. Under this axis, it is possible to separate telework into "complete telework" in which all work is done by telework without commuting and "partial telework" in which commuting to an office is premised but some working hours are done via telework. For example, working that mainly takes place at the home or a nearby satellite office when a person has difficulty going to an office as usual (e.g., because of pregnancy, injury, or physical disability) but can still work indicates complete telework. On the other hand, cases in which a person works from home or at a satellite office during part of a day or just one or two days a week, cases in which a person commutes to an office but does work on a mobile device while outside the office during the day, and cases when a person does work locally during a business trip also involve traditional office work and are therefore called partial telework. In particular, partial telework performed as mobile work is presently done by many employees without regard for telework systems. That the place where this mobile work-based partial telework is done has become the home is likely the mental image of "work from home" held when telework is recognized as part of the recent "work-style reform" movement.

The classification of "partial/complete" is important in the employment of persons with disabilities, a topic that has been receiving attention in recent years. In complete telework by persons with severe physical disabilities, because the person does not have a desk in an office, there are instances when ways of providing work management are tried using information systems (Y's Staff 2017) and when operations are executed as a separate company in order to alleviate problems caused by differences in treatment and work environment among employees (Takeuchi et al. 2007). Partial telework is not thought to be greatly different from business travel or work outside the office in terms of its operation. However, in the case of complete telework, it is difficult to make physical places equal, and thus there are significant differences with partial telework in terms

Table 3. Telework classifications by Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

At-home-type teleworker	Person who does telework at home
Satellite-type teleworker	Person who does telework at another office of his/her company or at a shared-use office used by multiple companies or individuals
Mobile-type teleworker	Person who does telework at a customer premises or other remote place visited during work, coffee shop/library/hotel on business trip, etc. or while moving
Employed-type teleworker	Employed person who does telework
System-based teleworker	Employed-type teleworker who does telework with the introduction of a telework system by his/her employer (including cases where no system exists but telework is approved by the company, supervisor, etc.)
System-less teleworker	Employment-type teleworker who does telework without the introduction of a telework system by his/her employer or without knowing whether or not a system has been introduced by his/her employer
Self-employed type teleworker	Self-employed person who does telework

Source: MLIT (2019), translated by the author.

of concept and methods of operation. Although discussion of differences in frequency is therefore necessary, in this paper, I will stop at simply mentioning that classification based on "frequency" is required.

There is also classification with respect to whether or not systems exist. Although the government's definitions and classifications of telework appear to be roughly uniform in terms of interpretation, the MLIT made a major change beginning with a 2016 survey (MLIT 2017) by establishing the classification "whether or not telework is based on a system (including 'do not know')" in employment-type telework (see Table 3). In the absence of a telework system, it is generally most likely that telework will not be recognized as working hours (except for temporary time outside the office) without the application of an off-site work system or highly professional work system.[4] That MLIT went so far as to present this as an item indicates that a good number of workers are teleworking voluntarily outside the scheduled working hours even without a telework system. The fact that people do telework without compensation has traditionally been called "*mochikaeri zangyo*" (take-home overtime). It is also suggested in recent surveys (Nakai et al. 2019). The Ministry of Health, Labour and Welfare is demanding the strict ascertainment of working hours with a revision of the Industrial Safety and Health Act in 2019, and makes no mention of this point because working hours must be managed similarly even if they are done as telework. In other words, unsystematized telework is important as a classification for research, particularly in the study of business administration; for example, in human resources management and organizational behavior theory. However, it is inherently impermissible and does not appear in public awareness activities.

(4) Classifications adding working time management as a new axis

I would also like to give attention in this paper to the perspective of managing working hours that influences "discretion in working in terms of how and how much" based on the above-described changes in classifications and current practice of strictly managing working hours.[5] One factor that hinders the introduction of employment-type telework is concern arising from the fact that, because people cannot see each other, it is unknown whether they are actually working. In such cases, the establishment of performance-based evaluation systems and the application of discretionary labor systems arise in discussions of telework. However, a discretionary labor system has conditions with respect to "time zones," time management is conducted with discretion in "number of hours" assessed in terms of "deemed working hours," and the management of working hours is currently becoming even stricter. Complete discretion of time is feasible only with a way of working that does not have restriction on working hours. This is another way of working

Table 4. Telework classified by the axes of form of employment, time, location, and management

Classification by existence/non-existence of an employment contract with a company	
Employment-type telework	Self-employed type telework
18 types from the following combinations	
Classifications based on the time that telework is done	
Complete telework	
Partial telework	
Classifications based on work location	
Work from home	
Mobile work	
Satellite office work	
Classifications based on working time management	
Work managed based on a number of hours established in employment regulations	
Work managed based on "deemed time"	
Work without working hours regulations and not managed for time	

Source: Prepared by the author (Translation of Table 4 in Yanagihara (2019c)).

that approaches the self-employed type and has different working time management conditions, and therefore it requires different classification (Yanagihara 2019a).

Here I will examine telework classifications that take frequency and working time management into account after adding this new classification axis as a research axis. Classifying telework by four axes—form of employment, time (frequency), location (workspace), and method of time management—shows that combining them produces eighteen different work styles for the employment-type (See Table 4). Of course, location is the most important element of telework, and therefore various information systems have been developed for it. In other words, although employment-type telework appears to be a work style that actively uses ICT in remote locations, in the current situation where few people can employ work styles that do not have regulations on working hours, it is a work style in which people are managed and supported by ICT (information systems) in remote locations. Nevertheless, employment-type telework is a work style with a certain degree of flexibility if compared with conventional work styles that come with a completely standardized commute.

III. Current state and issues of employment-type telework

1. The situation before COVID-19

So then, how far has employment-type telework penetrated into society? There is a great difference between the time up to 2019 and 2020, when the threat of COVID-19 arose and people around the world were called on to stay home. I will first look at the situation before COVID-19.

According to the Population Survey on Teleworkers (MLIT 2019), a continuing survey conducted by the MLIT targeting 40,000 workers, the percentage of teleworkers in 2018 was 17.4%. The number of teleworkers as a whole had been growing by about 3% since 2016 and could be described as being in an upward trend

these three years.[6] Looking at the breakdown by type, Self-employed type teleworkers accounted for 24.0% of 4,377 self-employed persons, and employment-type teleworkers accounted for 16.6% of 31,249 employed persons. This shows that there has been less employment-type teleworkers than self-employment-type although in many surveys no distinction is made between the two types. Considering that, in this survey, people who do work remotely from their ordinary business location or workplace using ICT, even if only a little, are considered to be engaged in telework, the figure of 16.6% for employment-type teleworkers is by no means high in modern society in which outside work by salespeople and mobile work during business trips take place routinely.

In the Ministry of Internal Affairs and Communication's "Communications Usage Trend Survey" (MIC 2018b), the percentage of people who had experience teleworking within the past year stood at 6.4% (N=2,040). Among individuals of the 20.4% who desired to do telework but had no experience doing so, 74.8% gave the lack of a system in their workplaces as the reason for it. This shows how the presence or absence of such a system influences the practice of telework. As was stated above, the MLIT ascertains teleworkers regardless of the presence (or absence) of such a system and states that there is a certain number of people who do telework even without a system. Thus, when "low-frequency teleworkers" (MLIT 2017) who do telework for short hours primarily in the form of mobile work and people who work outside the office during routine operations and are not aware that they are teleworkers are included, it is unmistakable that there are people who do telework even without a system. Additionally, there is also the figure of 20.8% in a small-scale preliminary study from the private sector that did not ask about business categories or age. From this, it is thought that around 20% are aware that they are teleworkers (Nakai et al. 2019).

Bias exists when looking at a breakdown of results from the MLIT (2019). Although bias in age groups is unavoidable, a tendency of bias in gender is conspicuous. In employment-type telework, the number of men roughly doubles that of women, but in self-employed type telework, there are many men in their teens and twenties while many women in their thirties. This demonstrates the fact of women's "shift to self-employed type telework out of necessity in order to continue work" that is due primarily to child-rearing or relocation associated with their spouses' job transfer. The fact that there are no major differences in gender or age group for self-employed type telework for age groups at and above 40 years and that the number of men in employment-type telework is consistently more than twice that of women may not be only because employment-type telework is not used as a work style that fits with women's lifestyles but also because men do "telework on their own" even without a system. Moreover, while it cannot be said that teleworkers with a system invite long working hours, it is known that the percentage of long working hours of people who are not covered by a system is high (Hagiwara and Kume 2017). In other words, this MLIT survey (2019) indicates the possibility that telework is still being practiced as part of take-home overtime without a system. Aside from the problem of time management, the lack of "locational flexibility" is a cause behind increasing employment-type telework that is outside of a system. In the present age, when managing working hours in an information system has become easy, guaranteeing discretion whereby people can work by choosing their location in line with their individual circumstances and attitude, so long as time management is possible, is telework as it should be; i.e., a way of working that can help solve diverse problems. However, it is difficult to claim that this is being realized.

It has been pointed out that there are three factor groups that impede telework: means-related factors (underdeveloped IT environment, differences in office environments, and delays in computerization), organizational factors (work processes, communication, bothering of others, and methods for personnel evaluations), and subject-related factors (psychological stress and information literacy) (Shinada 2020). As a way with dealing with those, a specific measure was presented as follows: "It is necessary to establish circumstances that permit the application of telework through, for example, an attitude of tackling true issues—namely, 'management,' 'evaluation,' 'communication,' 'type of occupation,' 'IT infrastructure,' 'IT security,' 'legislation,' 'facilities,' and 'Japanese corporate customs'—that are impediments creating

conditions that impede telework" (Spinks 1998). However, these issues and measures, which have been talked about for twenty years, have not changed much except for those concerning ICT environments. Even now, "working time management," "progress management," "communication," and "information security" are mentioned as main challenges, and, in companies that do not use telework, the problems of "no suitable jobs" and "difficulty making evaluations" are also mentioned (Ikezoe 2019). Thus, it is a fact that Japanese people's awareness covering "office perspectives" and "work perspectives" (Koga and Yanagihara 1999) still cannot keep up with the telework enabled social environment.

2. The impacts of COVID-19

Since March 2020, work from home has been practiced for emergency evacuation and as a mandatory measure due to the impacts of COVID-19. Particularly in April, telework was implemented in many companies regardless of whether or not they were prepared for it, as workers were forced to refrain from commuting due to a state of emergency declaration. Among companies that were not ready, there were instances in which not only was the work environment not fully developed but employees had trouble keeping up with work from home in terms of their awareness or skills. Consequently, ordinary commuting returned when the restriction on going outside was lifted.

Some companies were continuing work from home when another spread of infections thought to be the "second wave" came in July; however, the government needed to strongly urge many other companies to use telework again. But even with such urging, most companies did not continue work from home as much as they did in April in response to the first state of emergency declaration. (It was in such a situation that a third, even larger wave arrived in December 2020.)

The trend toward more work from home that was sparked by COVID-19 will likely continue for the time being. However, even if workers become aware of the effects of telework and desire to continue it, companies will likely remain timid about telework and return to their original practices as soon as compelling force is relaxed. Most Japanese companies cannot proactively advance telework without a strong request—or, put differently, pressure—from the government, as they are still typical "work first" organizations and unwilling to adopt a new measure or working style that (they think) may prevent their employees from doing their best in their work.

A fundamental reason for this is the fact that the above-mentioned obstacles to telework that presupposes work in a real office have not yet been resolved. One reason for the emphasis on real offices, i.e. "face-to-face environments" and "collective environments," exists in Japan's organizational culture. In Japanese organizations, there is a sense of values that assumes that the organizational context, which is "something like a common frame of reference that is shared by parties engaged in communication," is in a high state (Ueda 2018), and it is known that organizational citizenship behavior (OCB) is what makes this high context (Ueda 2019b). OCB is behavior that contributes voluntarily to the organization without seeking a direct reward. It plays an important role in mutual evaluation within a high-context organization.[7] In work from home caused by COVID-19, in which long-term complete telework was necessitated urgently, the only work results that are confirmable by others are those of tasks for which the person responsible is clear. In Japanese society, where a certain element exists whereby work performance is evaluated with the assumption that OCB will be visible in a real office, anxiety is felt on both the evaluating side and evaluated side because the effects that a person's existence itself has on the organization cannot be confirmed.

IV. The future of employment-type telework that coexists with ICT

1. The positioning of AI and robots in work

As I mentioned above, the issue of telework remains unresolved and its spread is being impeded by problems associated with the culture and constitution of Japanese companies (Ikezoe 2019). However, ICT's

development continues to gradually change how people work. Today, AI and robots equipped with it are used in a variety of operations. Similar to the Electronic Data Processing Systems (EDPS) at the dawn of the age of information systems in the 1960s, with which standardized operations (typified by salary calculations) were replaced with computers, people are being replaced with computers as a result of labor shortages brought by the low birthrate and aging society. Many factory operations are already being entrusted to industrial robots that continue to make high-quality products surely and without breaks. The number of industrial robots installed in Japan peaked in the year 2000 and their installation in manufacturing settings has settled down substantially since then. In the years ahead, society will become one in which operational tasks that were typically done by humans, such as those involving communication and memory, will be taken over by technology one after another (Ema 2019). Recent advancements in Robot Process Automation (RPA; a process of automating tasks that humans had typically performed using application software with AI or digital labor) have been remarkable. Forty-seven percent of jobs will be lost with automation of 70% or higher in the next decade or two (Frey and Osborne 2017), and RPA will replace white-collar work (van der Aalst, Bichler, and Heinzl 2018). It has also been specifically stated that the occupations of 49% of all employed persons in Japan will become technologically automated within the next few decades (Nomura Research Institute 2015).

This means that half of all work that can be done through telework will be lost as jobs as a result of advancements in RPA. In fact, personnel reductions are progressing from RPA's introduction. However, unlike a sentiment resisting IT called the "neo-Luddite movement" that occurred in the late 1990s amid progressing EDPS, replacement by RPA is viewed positively. In other words, modern society has already become a world in which human beings and information systems are completely mixed, and humans recognize its existence. "Human labor" has come to encompass "labor entrusted to ICT." As this progresses, telework will move toward new concepts that take into account the characteristics and relationships of humans and ICT.

2. The relationship between technology and humans from the standpoint of the location of work

COVID-19 has demonstrated that the use of telework presents no problems in terms of technology. Almost all security concerns can be eliminated by using solutions for telework and preparing operational guidelines. Information leaks caused by phishing websites and poor document management are often mentioned. While preventing them completely is difficult, many leaks occur from problems in human operation. Presently, incidents involving improper access using systems themselves without human intervention or that invite such access account for less than 20% of leaks (Japan Network Security Association 2018). In other words, people cause security problems in telework, not machines. The robots that will replace humans (where the danger exists) and the AI that controls them do not choose work location. They can be installed wherever is best for business managers and be made to work as instructed by remote control, anytime and anywhere. And, of course, there is no danger that they will be infected with COVID-19.

The government has been pursuing a "society in which anyone can connect to the internet anytime and anywhere." As this has become a reality, a "society in which anyone can work using ICT anytime and anywhere" is being realized. With "anytime," degree of flexibility increases as discretion with upper limits on hours set with consideration for humane ways of working becomes accepted (flextime and discretionary work), and "anyone" is seeing progress with the advancement of extended mandatory retirement ages and elderly employment as Japan's society ages. However, regarding "anywhere," the only choice available for people who have entered into an employment contract and work in an organization is telework. If humans cannot cope when machines become able to work "anywhere," humans in a society that is built on advanced ICT will lose their significance. That may be the future if "awareness of telework" does not spread even as telework itself does.

3. Significance of telework and positioning of human beings in the AI age

So then, will humans (who cannot work "anywhere") be incapable of keeping pace with the coming age of AI? Traditionally, candidates for executive positions in major companies were required to accept job transfers that involved relocation, and thus companies assigned personnel capable of working anywhere to important posts. It was a matter of course that companies did not consider families' convenience, but rather that families changed themselves to fit the company's convenience. This is not an exceptional practice even now. It is still commonplace to see many university-graduated career-track workers be presented with a career plan that presumes job relocations and thus end up choosing between a job transfer without their family due to their spouse's work or child's schooling or, when putting priority on moving as a family, a job transfer or occupational change that forces the worker's spouse to abandon his or her career or compels the worker to take a local job with lower pay and benefits. Against this backdrop, there are cases of telework emerging even among the employment-type that come from "being particular about location of work" from the standpoint of workers who want to continue their careers at their new locations or who "want to continue working *here*" (Yanagihara 2017). There is also a job-transfer undertaking called a "regional bank human resources bank" that makes use of careers in association with spouses' job transfers (Nihon Keizai Shimbun 2018), through which a mechanism for promoting spouses' career continuation in a manner compatible with Japan's employment custom of the job transfer is being tried. In other words, for companies to maintain their human resources, it will be important to have a mechanism that not only has people work "without being particular about place" and "without being limited to place" but also work "at a specific place when circumstances make them particular about that place." In fact, work styles in our highly diverse society continue to change into working "with particular focus on time and place" as "people are liberated from the constraints of time and place" by ICT (Koga 2018).[8] Human movement has become difficult with COVID-19, and awareness of this is rising even in Japan. Some companies are even changing course toward applying methods for dealing with unaccompanied job relocations and job transfers with telework. I would like to point out that, in such an age, the traditional way of working—in which the "employer" controls time and place by strictly managing working hours with uniform standards and not using telework—may lead to lower productivity and morale within environmental changes that include society's rapid aging with low fertility.

As for time, in order to eliminate inconvenience for employed-type teleworkers who lack discretion in their working hours, there is the view that people who do highly specialized work should enter into service contracts as self-employed type teleworkers (Ouchi 2019). Self-employed type has high discretion in locational flexibility. However, there is meaning in continuously doing work based on organizational culture as a member of that organization, and there are times when great results are achieved precisely because they came from an organization. Above all, economic stability is an important factor for cultural living, and it is natural to desire stable employment rather than self-employment, which tends to have ups and downs in terms of income. In a modern society that is more strongly influenced by economic conditions than ever before, it is natural for people to be highly desirous of economic stability to lead an ordinary life—occasionally facing life's turning points through child-rearing or nursing care, with the family living life, and getting through life, together—in the hope of leading a "healthy and culturally rich life" tied to family and the community. Additionally, people in self-employment do not just engage in the specialized work for which they have skills. They must possess the sales skills needed to get jobs, and they must deal with a broad range of tasks. Sometimes they must decide to hire employees and manage them. Considering this, it may be difficult to conclude that, with self-employed type telework, highly specialized people gain great satisfaction by freely doing the work they want to do.

If we take it that having emotions is proof of being human, then machines literally operate "mechanically" by making correct judgments without human involvement or emotion and do highly reliable work regardless of time or place. However, humans can engage in tasks involving decision-making with emotions that only humans do by purposely "choosing location," or, put another way, based on "bounded rationality" (Simon

1997). It is precisely because of those emotions that organizational citizenship behavior is generated and "sharing the same place" becomes necessary at times. In the age of emerging AI, human potential exists in areas related to human sociality—in other words, at the intersection of "finding the next problem to solve" and "persuading many people to address those problems and cooperate with solutions obtained" (Brynjolfsson and McAfee 2017). If the work left for humans in the future aggregates in areas related to human sociality, then the availability of telework, which recognizes the "flexibility to be particular about where one works" for living a highly satisfying life capable of enriching the "emotion" that nurtures human sociality, will become a model for work styles in a society where people coexist with AI. This is not a denial of human work done with face-to-face communication. Instead, with the sharing of places as necessary, it becomes an opportunity to re-acknowledge human value in the sense that it can lead to work execution and new ideas with behaviors and emotions that differ from AI.

V. Conclusion

Awareness of telework has risen as a result of work-style reform. On the other hand, the management of working hours has come to receive thorough attention from society shifting toward one in which people truly want to live their lives while working comfortably and humanely. Aside from clearly long working hours, if people are in a position that permits them to determine how they will work and the content of their work to a certain extent, then discretion in terms of location and time should raise their motivation and have a good impact on the organization.[9] However, under the currently applied strict working time management methods, there is no flexibility in time regarding "when and how much to work"—for example, there is no flexibility of how to work such as "putting a child to bed early at night and then preparing documents at home" or "first getting sleep after returning home and then doing work at home early in the morning"—and the benefit obtained from telework goes no further than limited flexibility of location.[10]

Being able to select "comfortable working hours" that match individual lifestyles is intrinsically important in telework. Returning home early is important for people who live with someone having child-rearing or nursing care needs, and particularly when living with someone whose age or circumstances require transportation or being with him or her at night. For such people, there are times when doing remaining work at home, even if after 10:00 p.m., can be helpful and lead to career continuation. While in some cases temporary problems can be resolved by taking paid time off, responding to constant problems (such as involving child-rearing, nursing care, or reduced commuting) may require conditionally removing restrictions on late-night work and systematizing telework. However, this is not to affirm the ridiculed "unlimited work with flat-rate pay" style of working that seeks to reduce costs from a business manager's standpoint. Rather, it is to stress that workers should be particular about working time and place if an environment for working autonomously and humanely exists.

As is shown by the various study results and actual circumstances I presented above, some workers do telework at their individual discretion. Some activities do not appear in the studies' results, such as voluntary training outside of working hours. In a society of emerging technology that permits work without having to choose time and place, simply clamoring for "flexibility in choosing work location and time" will likely lead toward more entrusting of work to AI and robots, and some people will lose their working skills as a result. Human beings, who make up society by having emotions and relationships with others, are different from AI and robots. Choosing to "work here" and to "work at this time" based on our own volition and then doing it is a way of working that allows us to not only perform the tasks assigned to us but also fulfill our roles as members of whole society, including our relationships with others. Carrying out work with awareness of relationships with others will be the role of human beings in an ICT-based society built on coexistence with AI and robots, and it will lead to a society in which telework is accepted and the value of humane work permeates throughout.

While this paper was being proofread, a 31-day state of emergency was declared in four prefectures of the Tokyo metropolitan area on January 7, 2021, and then it extended one more month in ten prefectures including Tokyo and Osaka on February 2. Accordingly, companies were again asked to use telework as a means of achieving a "70% reduction in the number of people commuting to work." However, unlike the first declaration in April 2020, we are seeing few news reports of companies being forced to employ telework. A probable reason for this is that telework has become established in the companies that continued to use it up to the recent declaration. On the other hand, it is likely that some companies that felt inconvenienced by the previous mandatory and urgent demand to employ telework are having second thoughts about using it this time around. Additionally, the current declaration is not generating the same sense of "abnormality" in daily life that was felt last time, in part because schools are not being closed. As a result, companies have a weaker sense of crisis this time. It may well be that many companies have not yet found any real advantages to implementing telework in the face of an uncertain future. Thus, the recent demand for telework again asks us: In a society defined by coexistence with ICT including AI, how should workers live sound and healthy lives, and what kinds of business activity should companies aim for?

This paper has been revised from the original one (Yanagihara 2019c), which was commissioned by the editorial committee of *The Japanese Journal of Labour Studies* for inclusion in the special feature "Changing Workplaces, Changing Work Styles" in its August 2019 issue (vol.61, no.709), considering the situation under COVID-19 crisis and other aspects in line with the gist of *Japan Labor Issues*.

Notes

1. For details on the e-Japan Strategy, u-Japan Policy, and the various government IT policies that encompass them, see the website of the Cabinet Office's IT Strategic Headquarters (http://japan.kantei.go.jp/policy/it/index_e.html).
2. The concept that such technologies and human society have become one and are indivisible is based on an analytical perspective for information systems called "sociomateriality." For details on sociomateriality, see Orlikowski and Scott (2008) and Koga (2017), and for details on its relationship with telework, see Koga and Yanagihara (2014).
3. In this paper, self-employed workers working with ICTs are classified as "self-employed type" teleworkers, distinguished from employment-type teleworkers. In most of other countries self-employed persons who perform their work with ICTs are not considered as teleworkers but typically a part of the so-called 'gig economy.' In Japan, many women with family responsibilities tend to choose working self-employed utilizing ICTs under service contracts. Also, there is a unique background regarding the origins of teleworker. Sato (2019) explains that "home-based self-employed workers working with ICT equipment were considered to be the first 'teleworkers' in the Japanese workforce. They have since made up the majority of formal Japanese teleworkers, as most Japanese companies' labour practices and evaluation systems forbid their employees from teleworking." See Sato (2019) for more details of Japanese telework.
4. Because consideration of legal problems and issues in systems for managing working time is outside of my specialty, I simply present the problem that "hours done in telework may not be considered working hours if telework is not systematized" in this paper.
5. See also Yanagihara (2019a) for more on telework as seen from the aspect of working time management.
6. It is difficult to state that sufficient consistency has been maintained in the results of the MLIT survey (which has been conducted continuously since 2002), as the definition of "telework" was changed slightly beginning with the 2016 survey (MLIT 2017). For this reason, I only considered the results of the 2018 survey, which are the latest results available, for this paper.
7. Although this paper does not go into OCB in detail, OCB refers to engaging in behavior as an organization member in the same office that brings good effects to the organization as well as its members voluntarily and without seeking reward. Examples include "helping a nearby colleague who is having difficulty with a task even though the task is outside one's own job" and "voluntarily picking up trash in the office and discarding it without being told to do so." The definition of and thinking behind OCB are discussed in various literature, including writing by Organ (1988), who is an advocate of the OCB concept, and Organ et al. (2006). See Ueda (2019a) for the latest trends in OCB studies.
8. Being particular about location of work actually has a deeper relevance with work-life balance (WLB) than regional revitalization. There is also a proposal for "telework leave" that seeks to improve WLB by allowing "leave" based on the assumption that only minimal communication-related tasks will be conducted by telework for temporary focus on work location (Yanagihara 2005). However, Japan's current direction, which presupposes working time management, remains unchanged from thinking on ways of working in the factory labor era, and it stresses only working and resting in hourly units. As is shown with "telework leave," working and resting can actually be done at the same time. This is the recent trend of "workation" (work + vacation).
9. Generally speaking, this is often mentioned as the principle behind discretionary labor and advanced highly professional work systems. However, there are also examples in which it is deemed effective even in terms of the methods and content of jobs that lack discretion, such as factory work. See Muto (2017) for a detailed discussion.
10. There is an example of improving WLB through work in combination with telework that makes use of finely segmented time by pursuing strict working time management. See Yanagihara (2017) for a detailed discussion.

References

van der Aalst, Wil.M.P., Martin Bichler and Armin Heinzl. 2018. "Robotic Process Automation." *Business & Information Systems Engineering*, Springer, 60(4): 269–272.

Bryjolfsson, Erik and Andrew MacAfee. 2017. “What's Driving the Machine Learning Explosion?” *Harvard Business Review* 18 July 2017. https://hbr.org/2017/07/whats-driving-the-machine-learning-explosion (Japanese translation: “Jinko chino ga hanyo gijutsu ni naru hi.” *Diamond Harvard Business Review* January 2018: 48–63.)

Ema, Arisa. 2019. *AI shakai no arukikata—Jinko chino to do tsukiau ka* [How to walk the AI society: How to coexist with artificial intelligence]. Kyoto: Kagaku-Dojin Publishing Company, INC.

Frey, Carl B. and Michael A. Osborne. 2017. “The Future of Employment: How Susceptible Are Jobs to Computerisation?” *Technological Forecasting and Social Change* 114: 254–280.

Hagiwara, Makiko and Koichi Kume. 2017. “Terewaku wa chojikan rodo wo maneku no ka—Koyo-gata terewaku no jittai to koka” [Does teleworking induce long working hours?: A situation and effect of employment-type teleworkers in Japan]. *Works Review* 12: 58–67.

Ikezoe, Hirokuni. 2019. “Terewaku saiko—Koyo-gata terewaku no jittai to kadai no rikai ni mukete” [Telework reconsidered: Toward understanding of the actual conditions and issues of employment-type telework]. *Quarterly Labor Law*, 264: 47–59.

Japan Network Security Association. 2018. “[Sokuho-ban] 2017-nen joho sekyuritei inshidento ni kan-suru chosa hokokusho” [Preliminary version: 2017 Survey Report of Information Security Incidents]. https://www.jnsa.org/result/incident/data/2017incident_survey_sokuhou_ver1.1.pdf (visited on May 16, 2019).

Kano, Ikuya, Sachiko Yanagihara and Hiroshi Koga. 2017. “Terewaku jidai no chiiki no aidenteitei—Mo hitotsu no soshiki no kyokai wo kangaeru*”* [On the regional identity crisis of the telework era: Rethinking of boundary of organizations]. *Proceedings of the 19th Japan Telework Society Conference*: 53–58.

Kinezaki, Noriko. 2007. “Dai san-ji terewaku bumu no torai” [Arrival of the third telework boom]. Chap. 1 in *Shoshika jidai no tayo de junan-na hataraki-kata no soshutsu—Waku raifu baransu jitsugen no terewaku* [Creating diverse and flexible work styles in the age of declining birthrates: Telework to realize work-life balance], edited by Chisako Shimozaki and Toshihiro Kojima. Tokyo: Gakubunsha.

Koga, Hiroshi. 2015. “Saiho—Kansai ni okeru terewaku no hokokan” [The Direction of Telework in KANSAI Revisited]. *Journal of the Japan Telework Society* 13 (1): 31–38. https://doi.org/10.24505/jats.13.1_31.

———. 2017. “Ningen wo chushin to suru joho shisutemu ni okeru shakaibusshitsu-sei no shiza” [The sociomateriality perspective in information systems centered on human beings]. *Journal of Information Systems Society of Japan* 12 (2): 47–58. https://doi.org/10.19014/jissj.12.2_47.

———. 2018. *Joho shisutemu kenkyu toshite no terewaku no kadai* [The issues of telework as information systems research]. Chap. 7 in *Chiiki to hito wo ikasu terewaku* [Telework that utilizes regions and people] edited by Hiroshi Koga, Sachiko Yanagihara, Ikuya Kano and Chiyoko Shimozaki. Tokyo: Doyukan.

Koga, Hiroshi and Sachiko Yanagihara. 1999. “Terewaku no manejimento—Shigoto-kan to ofisu-kan wo kakushin-suru atarashi wakusutairu no tankyu” [Telework management: Exploring new work styles to revolutionize how people view work and offices]. *Annual Review of Kobe University of Commerce* No. 29: 65–82.

———. 2014. “Terewaku kenkyu saiho: Soshiki shimin kodo to shakai busshitsusei no shiten kara” [Acritical reflection on the state of the Study on the Telework]. *Proceedings of the 16th Japan Telework Society Conference 16*: 113–118. https://doi.org/10.24505/jatsp.16.0_113.

Matsuoka, Atsuhiko. 2018. “Chiho sosei ni okeru rizoto ofisu no yakuwari—Rizoto ofisu no shiso” [The roles of resort offices in regional revitalization: The resort office concept]. Chap. 3 in *Chiiki to hito wo ikasu terewaku* [Telework that utilizes regions and people], edited by Hiroshi Koga, Sachiko Yanagihara, Ikuya Kano and Chiyoko Shimozaki. Tokyo: Doyukan.

Matsuoka, Atsuhiko, Michihiko Sato, and Yasuo Miyazaki. 2016. “Rizoto ofisu no kenkyu” [The study of resort office]. *Journal of the Japan Telework Society* 14 (1): 5–8. https://doi.org/10.24505/jats.14.1_5.

Ministry of Economy, Trade and Industry. 2018. “2020-nen ni muketa terewaku kokumin undo purojekuto—Terewaku dei ni oite keizaisangyosho shokuin ga terewku wo jisshi shimashita” [Nationwide Teleworking Campaign Project in light of 2020: METI officials engaged in telework on Telework Day]. Press release, July 7, 2019. https://www.meti.go.jp/press/2017/07/20170724004/20170724004.html.

Ministry of Health, Labour and Welfare. 2018. “Terewaku wo katsuyo-shitemimasen ka” [Why not try telework?]. https://www.mhlw.go.jp/content/11911500/000503864.pdf.

Ministry of Internal Affairs and Communications. 2017. “Telewaku joho saito” [Telework information website]. https://www.meti.go.jp/english/press/2017/0724_002.html.

———. 2018a. “ICT ni yoru inkurujon no jitsugen ni kan-suru chosa kenkyū hokokusho” [Research study report on the achievement of inclusion with ICT]. http://www.soumu.go.jp/johotsusintokei/linkdata/h30_03_houkoku.pdf.

———. 2018b. “Heisei 29-nen tsushin riyo doko chosa pointo” [Points of the FY2017 Communications Usage Trend Survey]. http://www.soumu.go.jp/main_content/000558952.pdf.

———. 2018c. *Heisei 30-nen ban joho tsushin hakusho* [2018 White Paper on Information and Communications in Japan].

———. 2019. “Telewaku no suishin” [Promoting telework]. http://www.soumu.go.jp/main_sosiki/joho_tsusin/telework/ (visited on April 30, 2019).

Ministry of Land, Infrastructure, Transport and Tourism. 2007. “Wagakuni no tetsudo no genjo ni tsuite (Dai 2-kai Tetsudo bukai shiryo)” [The current status of Japan’s railways (material of the second railway subcommittee]). https://www.mlit.go.jp

/common/000048856.pdf.
———. 2009. “2008-nendo terewaku jinko jittai chosa no kekka ni tsuite” [Regarding the results of the FY 2008 population survey on teleworkers]. http://www.mlit.go.jp/report/press/city03_hh_000002.html.
———. 2017. “Heisei 28-nendo terewaku jinko jittai chosa: Chosa kekka no gaiyo” [The FY2016 population survey on teleworkers: Overview of survey results]. https://www.mlit.go.jp/common/001187592.pdf.
———. 2018a. “Terewaku jinko jittai chosa” [Population survey on teleworkers]. http://www.mlit.go.jp/crd/daisei/telework/p2.html.
———. 2018b. “Heisei 29-nendo terewaku jinko jittai chosa—Chosa kekka no gaiyo” [The FY2017 population survey on teleworkers: Overview of survey results]. http://www.mlit.go.jp/common/001267251.pdf.
———. 2019. “Heisei 30-nendo terewaku jinko jittai chosa—Chosa kekka no gaiyo” [The FY2018 population survey on teleworkers: Overview of survey results]. https://www.mlit.go.jp/common/001282117.pdf.
Muto, Hokuto. 2017. *Ikiru shokuba—Chisa-na ebi kojo no hito wo shibaranai hataraki-kata* [Living workplace: Constraint-free style of working at a small shrimp factory]. Tokyo: Eastpress.
Nakai, Hideki, Shuichi Takagi, Ikuya Kano, Sachiko Yanagihara, Hiroshi Koga and Akio Sato. 2019. “Koyo gata terewaku no jittai chosa: Yobiteki kenkyu” [The survey of employment-type telework: Preliminary research]. *Proceedings of the 21st Japan Telework Society Conference*: 27–28.
Nihon Keizai Shimbun. 2018. “Chigin jinzai banku 3-nen, seido hirogaru tagyokai de donyu no ugoki” [The regional bank human resources bank program expands over three years, movement toward introduction into other industries]. April 10, 2018. https://www.nikkei.com/article/DGXMZO29171540Z00C18A4940M00/.
Nomura Research Institute. 2015. “Nihon no rodo jinko no 49-pasento ga jinko chino ya robotto-to de daitai kano ni—601-shu no shokugyo goto ni, konpyuta gijutsu ni yoru daitai kakuritsu wo shisan” [Forty-nine percent of Japan’s workforce will be replaceable with artificial intelligence and robots: A calculation of the probability of replacement by computer technology in 601 occupations]. https://www.nri.com/-/media/Corporate/jp/Files/PDF/news/newsrelease/cc/2015/151202_1.pdf?la=ja-JP&hash=9D43263D78FC193F3DD8CDEDA602A902F9B67F0B.
Organ, Dennis. W., Phillip M. Podsakoff and Scott B. MacKenzie. 2006. *Organizational Citizenship Behavior: Its Nature*, *Antecedents*, *and Consequences*. California: SAGE Publications.
Orlikowski, Wanda. J. and Suzan V. Scott. 2008. “Sociomateriality: Challenging the Separation of Technology, Work and Organization” *The Academy of Management Annals* 2 (1): 433–474.
Ouchi, Shinya. 2019. “Kaishain ga kieru—Hataraki-kata no mirai-zu” [The disappearing company employee: A look at the future of working]. Tokyo: Bungei Shunju.
Sahori, Daisuke, Akihiko Masaki, Mitsugu Otake, Shigenori Torido and Kenichi Akama. 2013. “Ofisu heisagata terewaku no denryoku sakugen koka ni kansuru kenkyu” [A study on the power reduction effects of teleworking with office shutdown]. *Journal of the Japan Telework Society* 11 (2): 4–18. https://doi.org/10.24505/jats.11.2_4.
Sato, Akio. 2012. “Terewaku to shokuba no henyo” [Telework and Changing Workplaces]. *Japanese Journal of Labour Studies* No. 627: 58–66.
———. 2019. “Telework and its effects in Japan”. In Telework in the 21st Century. Cheltenham, UK: Edward Elgar Publishing. doi: https://doi.org/10.4337/9781789903751.00008.
Shimozaki, Chiyoko. 2018. “Shakai-teki kadai kaiketsu no tame no terewaku” [Telework for resolving social issues]. Preface in *Chiiki to Hito wo Ikasu Terewaku* [Telework that utilizes regions and people], edited by Koga, Hiroshi, Sachiko Yanagihara, Ikuya Kano, and Chiyoko Shimozaki. Tokyo: Doyukan.
Shinada, Fusako. 2002. “Nihon kigyo ni okeru terewaku teichaku sogai yoin no kosatsu” [A Research of Impeding Elements on Taking Root of Telework into Japanese Enterprises]. *Journal of the Japan Telework Society* 1 (1): 41–58. https://doi.org/10.24505/jats.1.1_41.
Simon, Herbert A. 1997. *Administrative Behavior*, 4th edition. New York: THE FREE PRESS. (Japanese translation: Toshio Futamura, et al. *[Shinpan] Keiei Kodo.* 2019. Tokyo: Diamond. 2009).
Spinks, Wendy. A. 1998. “Terewaku seiki—Hatarakikata-kakumei” [The century of telework: Work-style revolution]. The Japan Institute for Labour Policy and Training (JILPT).
Takeuchi, Koichi, Takashi Tsuda, Naotsune Hosono, Yusuke Suzuki and Hiroyuki Fukushima. 2007. “Shogaisha no zaitaku terewaku ni okeru komyunikeshon shien sisutemu” [A communication support system for teleworkers with disabilities]. *IEICE Technical Report 107–61(WIT2007 1–15):* 39–44.
Tazawa, Yuri. 2015. “Chiho sosei ni okeru terewaku no kadai to kanosei” [Challenges and possibilities of telework in regional revitalization]. *Proceedings of Japan Telework Society Conference* 17: 52–53.
———. 2018. “Furusato terewaku ga hiraku chiho no kanosei” [Regional possibilities to be opened by “furusato telework”]. Chap. 1 in *Chiiki to hito wo ikasu terewaku* [Telework that utilizes regions and people], edited by Hiroshi, Koga, Sachiko Yanagihara, Ikuyo Kano, and Chiyoko Shimozaki. Tokyo: Doyukan.
Tokozakura, Eiji. 2017. “Terewaku ni yoru kaso chiiki no saisei-kasseika ni tsuite no kosatsu—Tokushima Sateraito Ofisu Purojekuto kara” [A consideration of regeneration and revitalization of underpopulated areas with telework: From the Tokushima Satellite Office Project]. *Proceedings of the 19th Japan Telework Society Conference*: 47–52.
———. 2018. “Tokushima Sateraito Ofisu Purojekuto no igi” [The significance of the Tokushima Satellite Office Project]. Chap. 2 in

Chiiki to hito wo ikasu terewaku [Telework that utilizes regions and people], edited by Hiroshi Koga, Sachiko Yanagihara, Ikuya Kano, and Chiyoko Shimozaki. Tokyo: Doyukan.

Ueda, Yutaka. 2018. "The Spread of OCB in the Organization: A study of the process involved." *Review of Asian and Pacific Studies*, 43: 223–241. http://repository.seikei.ac.jp/dspace/bitstream/10928/1140/1/asia-43_223-241.pdf.

———. 2019a. "Recent trends in research on organizational citizenship behavior: From January 2016 to December 2019." *The Journal of the Faculty of Economics*, *Seikei University*, vol. 50 (2):19–43.

———. 2019b. "The Mediating Effect of Work Value Sharing on Interactive Relationship between OCBs in an Organization." *Journal of Information and Management*, vol. 39 (1): 93–101. https://doi.org/10.20627/jsim.39.1_93.

Yanagihara, Sachiko. 2005. "Kyuka tono renkei ni yoru terewaku donyu hosaku" [A Telework Introduction Policy Linked to Paid Leave: A Proposal for 'Leave with Telework']. *Journal of the Japan Telework Society* 4 (1): 15–26. https://doi.org/10.24505/jats.4.1_15.

———. 2014. "Mobairu debaisu no shikenteki donyu ga BYOD ni ataeru eikyo" [An impact on the BYOD by means of trying mobile devices out]. *Information Management*, *Proceedings of the Japan Society for Information & Management's 69th National Convention (Autumn)*, 2014: 55–58.

———. 2017. "Zaitaku kinmusha no jiritsusei ni sisutemu kanri ga ataeru eikyo" [The Effect of Managing with Information Systems in Regard to Autonomy of Teleworker who Work at Home]. *Journal of the Japan Telework Society* 15 (1):13–20.

———. 2018. "Goingu konsan no aratana hoto—Kiki kanri wo ishiki-shita terewaku" [A new way for going concerns: Telework that is mindful of crisis management]. Chap. 9 in *Chiiki to hito wo ikasu terewaku* [Telework that utilizes regions and people], edited by Hiroshi, Koga, Sachiko Yanagihara, Ikuya Kano and Chiyoko Shimozaki. Tokyo: Doyukan.

———. 2019a. "Rodo jikan wo genkaku ni kanri sareta zaitaku kinmusha no soshiki shimin kodo" [Organizational Citizenship Behaviors of Home-Based Teleworkers Who Are Strictly Managed Working Time]. *Journal of the Japan Society for Information and Management* 39 (1): 57–68. https://doi.org/10.20627/jsim.39.1_57.

———. 2019b. "BYOD no kankyo no kochiku ga hatarakikata no ishiki ni ataeru eikyo: Terewaku no tame no jyoho sisutemu to ningen no kankei" [Impact of Building BYOD Environment on Consciousness of Workers: Relationship between Information Systems and Human Beings for Telework]. *Journal of the Japan Society for Information and Management* 39 (3): 28–39. https://doi.org/10.20627/jsim.39.3_28.

———. 2019c. "Nihon ni okeru terewaku no genjo to kongo: Ningen to ICT tono kyozon wa do aru beki ka" [The Now and the Future of Telework in Japan: How Human Coexistence with ICT Should Be]. *Japanese Journal of Labour Studies* vol.61, no.709: 16–27.

Yanagihara, Sachiko and Yasuyo Yoshizawa. 2013. "BCP gata terewaku donyu hosaku to sono igi—setsuden wo mokuteki to suru terewaku no jitsurei bunseki" [A Strategy for BCP−Telework Adoption and its Significance: A Comparative Analysis of Telework implementation for the Power Saving]. *Journal of the Japan Telework Society* 11 (1): 80–91. https://doi.org/10.24505/jats.11.1_80.

Yoshizawa, Yasuyo. 2010. "BCP to shite no terewaku—*Shingata infuruenza taisaku no terewaku jirei"* [Cases of Telework as a Super-Flu Response of Business Continuity Plan]. *Journal of the Japan Telework Society* 8 (2): 17–23. https://doi.org/10.24505/jats.8.2_17.

Y's STAFF. 2017. *Shogaisha no zaitaku koyo donyu gaidobukku* [Guidebook for introducing at-home employment for people with disabilities]. https://www.mhlw.go.jp/file/06-Seisakujouhou-11600000-Shokugyouanteikyoku/0000167968.pdf.

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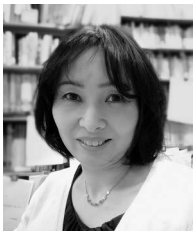

Panel Data Analysis of the Generational Replacement Effect on Employment in Japanese Companies

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In Japan population aging has been particularly drastic, and since the 1990s there has been a growing body of studies on the so-called "generational replacement effect," which relates to the substitutability of elderly workers for younger ones. For this paper, panel data was constructed for fiscal 2007 to fiscal 2013 from the Survey on Corporate Social Responsibility conducted by Toyo Keizai, and the status of the generational replacement effect in recent years was re-examined. In estimations using "employees aged 50–59 as a percentage of employees aged 30 or above (%)" as an aging index, both a pooled OLS estimation and a fixed-effects estimation that controls for the effects of specific companies, we observed a generational replacement effect, with firms with a higher proportion of older workers hiring fewer new graduates. In terms of factors underlying the generational replacement effect, effects of the burden of labor costs due to aging and effects on corporate performance, which have been indicated in previous studies, were found to be limited. Although these are limited findings based on data primarily from large companies, it was shown that in recent years as well a higher percentage of employees aged 50–59 is negatively correlated with the percentage of new graduates.

I. Introduction

The objective of this study is to examine, using corporate panel data particularly from major companies, trends in recent years in the "generational replacement effect," defined as a "situation in which middle-age and older workers continue to occupy positions they received in the past, thereby stealing jobs that by right young workers ought to be doing" (Genda 2006, 35).

In Japan, where society is aging drastically even compared to other developed countries,[1] the social safety net for elderly persons has become a significant policy concern. Under these circumstances, the Act on Stabilization of Employment of Elderly Persons[2] was amended and put into effect on April 1, 2013 as a part of efforts to promote employment among the elderly. As a result, the scope of companies employing

elderly persons who are subject to a continuous employment system was expanded to include corporate groups, and the law includes a provision to make public the names of companies that do not comply with recommendations regarding measures for securing elderly persons' employment. Furthermore, policies are taking the direction of promoting employment until the age of 70, including a policy going into effect on April 1, 2021 that makes it mandatory for companies to take steps to guarantee employment for elderly persons between the ages of 65 and 70.

The introduction of such systemic changes is highly likely to facilitate elderly persons' employment.[3] However, it is possible that in the Japanese labor market, where the "generational replacement effect" has repeatedly been observed and verified since the 1990s, maintenance and promotion of employment among the elderly has a dampening effect on employment of young persons, including new graduates.

With this in mind, this study will re-examine recent trends relating to the generational replacement effect using micro-panel data for individual companies over the seven years from 2007 to 2013. In particular, as Japanese society rapidly ages there have been a number of studies in recent years that observed a phenomenon opposite to the generational replacement effect (i.e. a complementary relationship between elderly persons' employment and youth employment) as Section II discusses in detail. As of September 2020, the spread of COVID-19 has severely affected the youth labor market, and the number of unemployed young people aged 15–24 has increased significantly.[4] In Japan, curtailment or total stoppage of hiring of new graduates are among the employment adjustment measures companies take under harsh economic conditions, and in general the youth labor market can be seen as an unstable one, easily affected by changes in demographic makeup and economic trends. For this reason, verifying the current state of the generational replacement effect and examining its relationship to companies' specific characteristics appears to be a highly meaningful approach to discussion of appropriate complementarity between elderly persons' employment which is set to expand in the future, and youth employment which will surely play a central role in the Japanese economy in the long run.

This paper is structured as follows: the next section (II) contains an outline of previous studies and clarifies the objectives of this paper. Section III presents data used for analysis, and Section IV explains variables used for estimation. After summarizing the estimate's outcomes in Section V, the conclusions obtained in this paper are described in the final Section VI.

II. Literature review and objectives of this paper

This section contains an overview of previous studies on the generational replacement effect and clarifies the objectives of this paper. A summary of previous studies is shown in Table 1.

Genda (2000) can be called the pioneering study on the generational replacement effect. Using data from the 1996 Ministry of Health, Labour and Welfare (MHLW) *Survey on Employment Trends*,[5] Genda (2000) employed a tobit model to estimate factors determining the number of job openings available to those scheduled to graduate in March 1997 (with scope of analysis limited to private business establishments with more than 5,000 employees). The study found that a high share for "employees aged 45 or above as a percentage of all employees at a business location" was correlated with significant negative impact on the number of job openings available to high school graduates, vocational school graduates, technical college or junior college graduates, and university and graduate school graduates (both humanities and sciences) alike, and the higher the percentage of employees aged 45 or above, the greater the curtailment of hiring of new graduates at the business location. In terms of underlying factors, the study indicates the possible effect of significant increases in labor costs due to aging under a seniority-based wage system.

Genda (2004) discusses criticism that was directed at Genda (2000). The first critique regarding the generational replacement effect is that the causal relationship is reversed, i.e. it is actually the curtailment of hiring of youth that leads to aging in the company, and the second critique is that badly performing companies

Table 1. Summary of previous studies

Study	Data used	Dependent variable(s)	Aging index	Results
Genda (2000)	*Survey on Employment Trends*, 1996	Number of hires among those scheduled to graduate in March 1997 compared to number of existing employees	Percentage of employees aged 45 or above	The higher the share for "employees aged 45 or above as a percentage of all employees at business establishments, " the greater the curtailment of hiring of new high school, vocational school, technical college or junior college, and university or graduate school graduates (both humanities and sciences).
Genda (2004), Chapter 4	*Survey on Employment Trends*, 1997	Percentage of workers entering company, percentage of workers leaving company	Percentage of employees aged 45 or above	At business establishments with a high percentage of employees aged 45 or above, there is a significant negative impact on both of labor inflow rate and labor outflow, regardless of full-time hiring (turnover), part-time hiring (turnover), transfer or relocation.
Genda (2004), Chapter 5	*The Survey on Employment Trends*, 2000	Rate of employment change	Percentage of employees aged 45 or above, dummy for employees aged 45 or above accounting for more than 40% of all employees, employees aged 45 or above as a percentage of regular employees aged 30 or above	A significant negative effect on rate of employment change was confirmed with all three aging indexes.
Hara (2005)	"Survey on the Current State of Recruitment/ Employment Management for Young People," 2004	New graduates to be hired in fiscal 2004 as a percentage of all regular employees at the end of fiscal 2003	Percentage of regular employees aged 50 or above	A higher percentage of regular employees aged 50 or above at a company is correlated with significantly lower numbers of new graduates hired.
Kawaguchi (2006)	"Survey on Company Recruitment, Retirement, and Capacity Development," 2005	Percentage of new graduates hired over the past two years, percentage of employees hired mid-career over the past two years	Perceived excess of employees aged 45–59	Companies with a perceived excess of employees aged 45–59 were more likely to curtail new graduates hire.
Ohta (2009)	*The Survey on Employment Trends*,1994–2003	Youth hiring rate, youth employment growth rate	(1) Workers aged 30 or above as a percentage of all workers, (2) Workers aged 45 or above as a percentage of all workers, (3) Workers aged 55 or above as a percentage of all workers, (4) Average age	In industries with a high-age structure, the rate of youth hiring is low. Regarding the youth employment growth rate, the effect of the age structure variable was positive (though not significant).
	Basic Survey on Wage Structure, 1991–2003	Youth employment growth rate		In industries with a high-age structure, the youth employment growth rate is significantly higher.
	JIP Database, 1991–2006	Youth employment growth rate		In industries with a high-age structure, the youth employment growth rate is higher.
Ohta and Yasuda (2010)	Fact-Finding Survey on Young People's Career Formation, 2003	Number of new graduates among all regular employees (logarithm), number of employees hired mid-career among all regular employees (logarithm)	Average age of regular employees	The average age of regular employees had a significant negative impact on hiring of both new graduates and mid-career employees.
Ohta (2012)	*The Survey on Employment Trends*, 2004–2008	Youth hiring rate	Employees aged 60 or above as a percentage of regular employees aged 55 or above	Since 2006, an increasing male aging index has had a negative impact on youth hiring. The effect on female part-time workers is particularly significant.

are in a less favorable position for hiring young workers, thus exhibiting a higher share of middle-aged and elderly employees, and are more likely to go bankrupt. Because companies included in the data tend to be in better financial shape than those that aren't, there is a sample selection bias, and the observed relationship between aging within the company and the employment of new graduates may be spurious.

Genda (2004) conducted an analysis that addressed the above two problems. First, to address the first critique regarding the purported reverse causal relationship, "employees aged 45 or above as a percentage of all employees aged 30 or above" was used as the aging index, rather than "employees aged 45 or above as a percentage of all employees." Using this index makes it possible to eliminate the influence of trends relating to April hires at the time of the survey (as of June), and indeed, the existence of generational replacement effect is also verified when estimation is carried out with "employees aged 45 or above as a percentage of all employees aged 30 or above" as an independent variable.

Second, to address the second critique regarding sample selection bias, Genda conducted an analysis using Heckman's two-step estimator. Specifically, after performing a probit estimation as to whether or not it belongs to the employment loss (creation) category, the inverse Mills Ratio was added to the independent variable and the employment loss (creation) rate was estimated. The aging index used was "employees aged 45 or above as a percentage of all employees aged 30 or above." As a result, even after controlling for sample selection bias, "employees aged 45 or above as a percentage of all employees aged 30 or above" had a significant effect on employment loss and a negative effect on employment creation, confirming the robustness of the generational replacement effect.

Both Genda (2000) and Genda (2004) used data from the 1990s, but the existence of the generational replacement effect has been confirmed since 2000 as well, in studies using microdata. First, Hara (2005) used the "Survey on the Current State of Recruitment/Employment Management for Young People" conducted by the Japan Institute for Labour Policy and Training (JILPT) in 2004 to analyze factors that determine hiring of new graduates as a percentage of all employees. The findings were that a higher percentage of regular employees aged 50 or above has a significant negative influence on percentage of new graduates.

Second, Kawaguchi (2006) utilized data from the "Survey on Company Recruitment, Retirement, and Capacity Development," conducted by the Research Institute for Advancement of Living Standards in 2005, to perform a tobit estimation of a more direct causal relationship in which a "perceived excess of" middle-aged and elderly workers affects the percentage of regular new graduates. It was found that a "perceived excess of employees aged 45–59 years" had a significant negative effect on the percentage of regular new graduates. Specifically, the percentage of regular new graduates was about 2.3 percentage points lower at companies with an "excessive" proportion of regular employees aged 45 to 59 years than at companies where the latter proportion was considered "appropriate." Similar results were also obtained using median regression analysis and SCLS (Symmetrically Censoring Least Squares) estimation.

Third, Ohta and Yasuda (2010) analyzed the factors determining numbers of new graduates and employees hired mid-career using data from the Fact-Finding Survey on Young People's Career Formation, 2003, conducted by Mitsubishi UFJ Research and Consulting in 2003. The result was that a higher "average age of regular employees" was found to have a significant negative impact on hiring both of new graduates and mid-career workers.

In addition, Ohta (2012) used pool data from the *Survey on Employment Trends*, 2004 to 2008, to analyze the effects on youth hiring of "workers aged 60 and above as a percentage of workers aged 55 and above" (referred to as the "60/55 ratio.") The results showed that from 2006 onward, a higher 60/55 ratio among men was correlated with curtailment of hiring of younger workers, and there was shown to be a clear negative effect on hiring of part-time workers (including new graduates), especially women.

Existing studies confirmed the existence of a generational replacement effect in Japan in the 1990s to the 2000s as the above shows, but in some studies different results were obtained. Ohta (2009) performed an analysis by industry using pool data from *Survey on Employment Trends* from 1994 to 2003, and in an

estimation with "youth employment growth rate" as an dependent variable, found that "workers aged 30 or above as a percentage of all workers" was a positively significant factor, and industries with few young people had a high youth employment growth rate (sample size: 31 industries × 10 years = 310). Similar tendencies have also been observed in estimations utilizing the *Basic Survey on Wage Structure* (MHLW) and JIP Database 2009 (Japan Industrial Productivity Database by Research Institute of Economy, Trade and Industry, RIETI).

Thus, there is evidence that in part appears to disrupt the presence of the generational replacement effect, which has been consistently confirmed in recent years.[6] It appears that underlying the disparities in results obtained in previous studies are differences in the time-frames of analysis, data used for analysis, and variables used for the analysis, as summarized in Table 1.

In this paper, we will re-examine whether the generational replacement effect can be observed in the recent labor market in Japan, where aging has advanced yet further. The following three points can be cited as contributing to differentiation of this study from previous studies. First, data used for this study dates from 2007 to 2013, meaning it is newer than that utilized in previous studies and includes the global financial crisis of 2008 and the period before and after the 2011 Great East Japan Earthquake. This makes it possible to analyze the substitutability of elderly employees and youth hiring during the periods after these economic shocks.

Second, data used for analysis in this study includes data on company characteristics, such as labor costs and financial indicators for each company, that have not been adequately controlled for in previous studies due to data constraints. Therefore, estimation was performed with controls for corporate factors that could affect the generational replacement effect, such as the rising labor costs pointed out in Genda (2000) and the impact of corporate performance indicated in Ohta and Yasuda (2010), and it is possible to examine the relationship between the generational replacement effect and company characteristics.

Finally, data used for analysis in this study is from large companies. In light of the observation that the proportion of elderly persons has a stronger effect at large companies (Ohta 2010), it is likely that an analysis using data from large companies can make a not insignificant contribution to the body of research on the generational replacement effect.

III. Data

The data used for analysis in this paper is from the Toyo Keizai Corporate Social Responsibility (CSR) Survey conducted by Toyo Keizai (referred to below as "the CSR Survey").[7] The CSR Survey is conducted in or around June every year, administered to all listed companies and major unlisted companies. This paper employs data from CSR Surveys covering the seven years from 2007 to 2013 (the 2009 through 2015 editions), which is converted into panel form and used for analysis. In the 2013 survey (2015 edition), questionnaires were sent to all listed companies and major unlisted companies, a total of 3,606 companies, with 1,063 responses received (response rate 29.5%). In addition to these 1,063 companies, an additional survey was performed on 147 companies based on data held by Toyo Keizai, making a total of 1,210 companies (1,157 listed companies, 53 unlisted companies).

The survey form addresses three areas: [1] Hiring and Human Resource Utilization, [2] General CSR, Social Contribution, Internal Governance, etc., and [3] Environment. For this paper estimation was carried out with data from [1] related to the employment status of each company, such as the number of new graduates, number of employees in each age group, length of service, turnover rate, number of administrative workers, number of temporary employees, etc.

Since the CSR Survey does not address items related to companies' financial status, the Corporate Financial Charts, which like the CSR Survey was released by Toyo Keizai, was linked to CSR data. The Corporate Financial Charts are based on annual securities reports from April 2001 onward for all listed companies

excluding the securities and insurance sectors, and contains the main items from financial statements and approximately 170 items covering various indicators necessary for fiscal and business analysis.

IV. Definitions of variables and methods of estimation

This paper analyzes relationships between company characteristics and the current status of the "generational replacement effect" in the Japanese labor market in recent years. This section explains definition of variables and the methodology.

The dependent variable used is "new graduates hired for the next fiscal year as a percentage of all employees (%)." Specifically, it is the value (%) obtained by dividing the number of new graduates in the April following the survey year by the total number of employees in the survey year.[8]

Variables introduced into the estimation as independent variables are as follows.

First of all, two indexes are used as companies' aging indexes, which are the most noteworthy point in this paper. One, "employees aged 50–59 as a percentage of all employees aged 30 or above (%)" (referred to below as the "percentage of employees aged 50–59")[9] follows Genda (2004) in considering the possibility that elderly persons are being utilized because it is not possible to hire young workers, and the possibility of reverse causality in which the curtailment of youth hiring is causing aging in the company. The second index is "employees aged 50 or above as a percentage of all employees aged 30 or above (%)" (referred to below as the "percentage of employees aged 50 or above"). Estimations were performed by introducing these two aging indexes into the set of independent variables, and the two estimations were compared.

The reason for using two different aging indexes is to take into account the diversity of employment systems of employees aged 60 and over. Employees aged 60 and over may include both employees who have not yet retired and employees rehired after reaching retirement age. In particular, the period analyzed in this study was one in which the age at which payment of the fixed-amount part of employees' pensions was raised and measures for securing employment for elderly persons were being implemented, and as a result systems of employment for people over 60 years old became more diversified than in previous studies and it is thought that the influence on youth hiring is more complex.

Actually, when percentages at business locations are examined according to system of employment for continuously employed workers, based on the 2008 Ministry of Health, Labour and Welfare Survey on Employment Conditions of Elderly Persons, among rehired workers, "short-term contract workers and contract workers" accounted for 60.0%, "regular employees and regular staff" for 32.9%, and "part-time workers" for 15.0%, and employees rehired after reaching retirement age are often counted as temporary employees, meaning they would not be included in the number of employees (in this paper's data). On the other hand, in some companies, many of the rehired elderly persons may be included in the number of employees as regular employees. Therefore it is possible that the employees percentage, including those over the age of 60, does not necessarily show an accurate value as an indicator of the size of the elderly contingent at each company. Therefore, estimation was performed using two aging indexes, one with a variable including employees aged 60 and over, and one with a variable not including them.

Secondly, this analysis controls for various factors expected to affect decisions regarding new graduates. At first, variables related to company size and wages were introduced. "Dummy variable for companies with 1,000 or more employees" was used for the variable related to company size, and "labor costs per employee (logarithmic value)" as a variable for wages.[10] As noted in Genda (2000), at large companies that often adopt seniority-based wage systems, aging is equated with increases in labor cost burden, and can have the effect of curtailing the number of new hires. On the other hand, a company with high labor costs is likely to be one that emphasizes firm-specific skills, and may be proactive in hiring new graduates.

Next, a "dummy variable for companies with negative profit the previous fiscal year" and a "dummy variable for companies with negative profit two fiscal years prior" were introduced as variables relating to

the financial status of companies. There is a significant body of studies suggesting that companies make major employment adjustments when the company falls into the red, which is known as the "negative profit adjustment model." Muramatsu (1995) finds that dismissals are likely to occur when a company is in the red for the second consecutive fiscal year, while on the other hand, adjustments are slow to be made in industries that emphasize firm specific skills. Furthermore, it is thought that business performance in the two preceding fiscal years has a direct effect on decisions on employment adjustment relating to new graduates. For example, the dependent variable numerator "new graduates" for the 2013 sample consists of persons who entered the company April 2014, that is, who graduated university or completed a master's program in March 2014. The hiring process for this contingent begins in the middle of the 2012 academic year (although there may be some differences depending on the fiscal year due to employment agreements, etc.), when they are in the third year of university (or in the first year of a master's program), and continues until the middle of the 2013 academic year. In other words, financial indicators that may affect judgments on hiring new graduates in April 2014 are considered to be the figures for fiscal 2011 and 2012. This is why a "dummy variable for companies with negative ordinary profit the previous fiscal year" and a "dummy variable for companies with negative ordinary profit two fiscal years prior" were introduced into the estimation in this paper. These are dummy variables assigned a value of 1 if the fiscal year in question had negative profit, and 0 otherwise.[11]

Added next to the estimation were "turnover rate (%: average for previous two fiscal years)" and "Temporary employees as a percentage of all employees[12] (%)." In previous studies only Ohta and Yasuda (2010) introduced turnover rate as an independent variable, and here, more specifically, "turnover rate within one year of regular employees hired the previous fiscal year" was used. A high turnover rate may generate new hiring so as to secure the labor force. On the other hand, a high turnover rate makes it difficult to recoup training costs, and this may negatively affect new hiring. The value for turnover rate used in this paper is defined as "employee turnover as a percentage of all employees," and the average value for the last fiscal year and the fiscal year before that is used. This is because turnover rates vary greatly from year to year, and also because the turnover rate thought to affect hiring is not the turnover rate for the year of hiring, but rather the turnover rate at the stage of hiring plan formulation, that is, one or two fiscal years prior.

Also, "percentage of temporary employees (%)" means the value for "temporary employees as a percentage of all employees (%)." It is possible that temporary employees and newly hired graduates may be mutually substitutable, as none of them are highly skilled and experienced workers, thus the estimation controlled for the influence of this factor. For the "percentage of temporary employees" variable, the value for the current fiscal year was used instead of the last two fiscal years, but this is because it is assumed that employment of temporary employees is relatively easily adjustable.[13]

In addition, "percentage of administrative workers" and "percentage of female employees" were introduced as independent variables. "Percentage of administrative workers" signifies "administrative workers as a percentage of all employees." Genda (2004) introduced "percentage of clerical, administrative workers" as a value for percentage of white collar workers, and found that in companies with many white collar workers, there is proactive hiring of new graduates from university or graduate school as future human resources.[14] Since a value for percentage of clerical or administrative workers could not be obtained for this study, "percentage of managerial personnel" was introduced.In terms of "percentage of female employees," as noted by Yamamoto (2014), a higher percentage of women is directly correlated with higher profitability, and percentage of female employees is likely to be an indicator of the efficiency and rationality of corporate management. Therefore, the estimation controlled for this effect.

In order to address the endogeneity of the aging index "percentage of employees aged 50–59," "capital investment expenses (unit: million yen, average for previous two fiscal years)" and "R&D expenses (unit: million yen, average for previous two fiscal years)" were introduced as variables. Here the term "endogeneity" refers to the possibility that aging within a company may progress as a result of companies with low future growth prospects refraining from hiring new employees (especially young employees), as observed in Genda

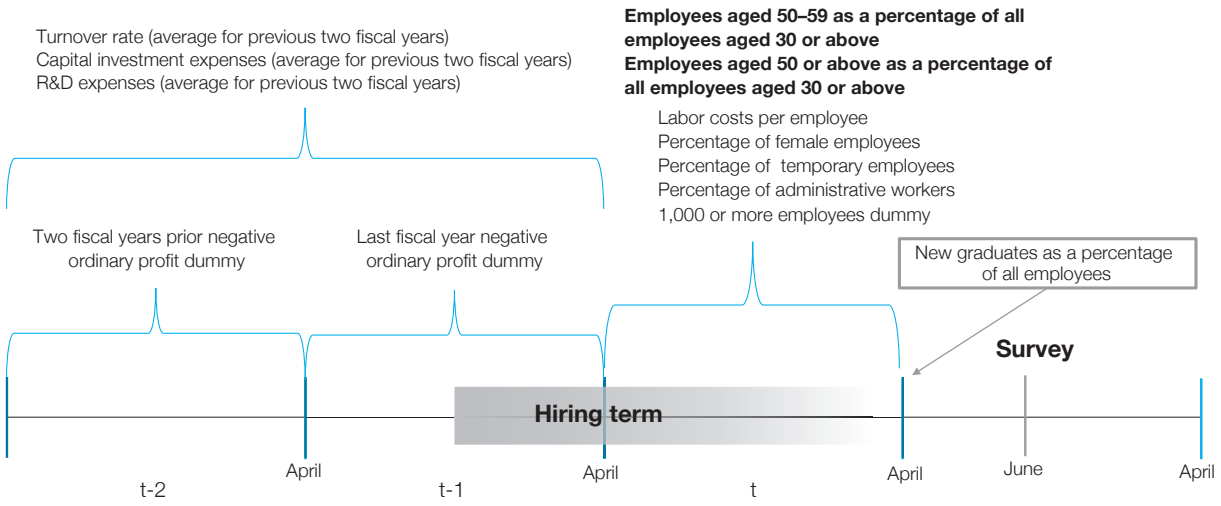

Figure 1. Summary of variables used

Table 2. Descriptive statistics

Variables	Mean	Standard deviation	Min.	Max.
New graduates as a percentage of all employees (%)	2.63	4.49	0.00	145.45
Employees aged 50–59 as a percentage of all employees aged 30 or above (%)	21.71	8.88	0.00	56.12
Employees aged 50 or above as a percentage of all employees aged 30 or above (%)	24.17	10.04	0.00	65.91
1,000 or more employees dummy	0.51	0.50	0.00	1.00
Temporary employees as a percentage of all employees (%)	40.56	147.86	0.00	4,500.00
Percentage of administrative workers (%)	24.73	14.13	0.00	100.00
Turnover rate (average for previous two fiscal years, %)	5.07	6.24	0.00	91.67
Percentage of female employees (%)	18.93	12.44	0.00	93.70
Negative ordinary profit dummy (last fiscal year)	0.15	0.36	0.00	1.00
Negative ordinary profit dummy (two fiscal years prior)	0.16	0.36	0.00	1.00
Labor costs per person (logarithm)	9.09	0.37	5.14	11.27
Capital investment expenses (Average for previous two fiscal years, million yen units)	12.92	44.73	0.00	507.73
R&D expenses (Average for previous two fiscal years, million yen units)	8.47	40.19	0.00	794.18
Employees aged 50–59 as a percentage of all employees aged 30 or above (%) ×Capital investment expenses (Average for previous two fiscal years, million yen units)	0.29	1.03	0.00	12.84
Employees aged 50–59 as a percentage of all employees aged 30 or above (%) ×R&D expenses (Average for previous two fiscal years, million yen units)	0.20	0.98	0.00	19.06
Employees aged 50 or above as a percentage of all employees aged 30 or above (%) ×Capital investment expenses (Average for previous two fiscal years, million yen units)	0.32	1.11	0.00	13.87
Employees aged 50 or above as a percentage of all employees aged 30 or above (%) ×R&D expenses (Average for previous two fiscal years, million yen units)	0.22	1.06	0.00	19.71
Number of observations		4,017		

(2004). To deal with such endogeneity, this study introduced into the estimation "capital investment expenses" as an index showing physical capital investment tendencies in accordance with companies' medium- to long-term business plans, and "R&D expenses" as an indicator of medium- to long-term productivity.[15] Due to the nature of accounting for both capital investment expenses and R&D expenses, these expenses for the year may not accurately indicate the company's future investment situation. For this reason an average-value

variable, which is the average for previous two fiscal years for both variables, was created and introduced into the independent variables along with the interaction term with the aging index.[16]

Other control variables include dummy variable for year, dummy variable for industry,[17] and interaction term of dummy variable for industry and dummy variable for year. Figure 1 summarizes the time period of each of the independent variable data points used for the estimation.

Table 2 shows the descriptive statistics of the main variables used in the analysis. Using these variables, we create an unbalanced panel dataset of companies to perform OLS estimation controlling for firm-level fixed effects to account for company-specific heterogeneity.

V. Outcomes of estimation

Table 3 shows the effects of "employees aged 50–59 as a percentage of all employees aged 30 or above" (percentage of employees aged 50–59) and "percentage of employees aged 50 or above as a percentage of all employees aged 30 or above" (percentage of employees aged 50 or above) on "new graduates, as a percentage of all employees (%)" as the result of pooled OLS estimation, and Table 4 shows the results of estimation using the fixed effects model which controls for the effects of specific companies' practices. Standard errors clustered at the industry level are reported.[18]

Firstly, the effects of two aging indexes, "percentage of employees aged 50–59" and "percentage of employees aged 50 or above," on new graduates were verified. In the estimation using "percentage of employees aged 50–59" as the aging index, in both Table 3 employing OLS estimation and Table 4 which controlled for company-specific fixed effects, all estimations in columns (1)–(6) showed a negative impact with a significance level of 10% or less, with a generational replacement effect observed as new graduates decreased as the percentage of employees aged 50–59 increased. In estimations of (1), which introduced into the independent variables "ordinary profit," not sufficiently taken into account in previous studies, and (2), which introduced "labor costs per person," no change in significance of the coefficient of the aging index was observed, thus it can be inferred that in terms of factors underlying the generational replacement effect, the effects of corporate performance and labor costs on the generational replacement effect are limited. A generational replacement effect was also observed for (3)–(6) which introduced the variables "capital investment expenses" and "R&D expenses," considered to be indicators of companies' medium- to long-term business conditions, and introduced an interaction term with the aging index, suggesting that aging within a company and new graduates are in a substitutional relationship even when controlling for the medium- to long-term business outlook.

Meanwhile, "percentage of employees aged 50 or above" (columns (7)–(12)) shows the same tendency as "percentage of employees aged 50–59" in the OLS estimation in Table 3, and was significantly negative in all estimations except (7), but was not significant in the fixed-effects estimation in Table 4. It is thought that the reason the results differ from those of "percentage of employees aged 50–59" is that employees aged 60 or above include a certain number of rehired workers whose wages were lower than before they were rehired,[19] and it is likely that the aging index reflects a situation in which companies' employment adjustments such as wages and employment numbers have advanced to some extent. However, as shown in Section IV, this "percentage of employees aged 50 or above" does not include many employees rehired after reaching retirement age, who are non-regular employees, and it should be noted that the index may not accurately reflect the size of the contingent of people in their 60s or older, and caution should be exercised in interpreting the results.

In the OLS estimation (Table 3), "percentage of administrative workers" had a significant positive effect on the percentage of new graduates, mainly in the estimation using "percentage of employees aged 50–59" as the aging index (columns (2)–(6) and column (12)). Also, in the fixed-effects estimation utilized for the employment exam (Table 4), there is a significant positive effect in all estimations employing "percentage of

Table 3. Effects of employee age composition on number of new graduates (OLS estimation)

	Aging index (1): Employees aged 50–59 as a percentage of all employees aged 30 or above (%) Aging index (2): Employees aged 50 or above as a percentage of all employees aged 30 or above (%)											
Dependent variable: New graduates as a percentage of all employees (%)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Aging index	−0.116*	−0.084**	−0.084**	−0.085**	−0.087**	−0.087**	−0.097	−0.052***	−0.052***	−0.052***	−0.053***	−0.053***
	(0.062)	(0.037)	(0.037)	(0.037)	(0.039)	(0.039)	(0.061)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
1,000 or more employees dummy	−0.708	−0.405*	−0.423*	−0.398	−0.429*	−0.390	−0.818	−0.490*	−0.509*	−0.483*	−0.515*	−0.479*
	(0.459)	(0.234)	(0.241)	(0.238)	(0.244)	(0.235)	(0.515)	(0.267)	(0.277)	(0.272)	(0.279)	(0.272)
Temporary employees as a percentage of all employees (%)	−0.001*	−0.001*	−0.001*	−0.001*	−0.001*	−0.001*	−0.001**	−0.001**	−0.001**	−0.001**	−0.001**	−0.001**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Percentage of administrative workers (%)	0.044	0.012*	0.011*	0.012*	0.012*	0.012**	0.043	0.010	0.010	0.011	0.010	0.011*
	(0.035)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.035)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Turnover rate (average for previous two fiscal years, %)	0.049	0.054**	0.054**	0.053**	0.053**	0.052**	0.051	0.062*	0.062*	0.062*	0.061*	0.061*
	(0.045)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.051)	(0.032)	(0.032)	(0.032)	(0.031)	(0.031)
Percentage of female employees (%)	0.018	0.032**	0.032**	0.032**	0.032**	0.032**	0.020	0.035**	0.035**	0.035**	0.035**	0.035**
	(0.024)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.025)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Negative ordinary profit dummy (last fiscal year)	−0.221	−0.060	−0.057	−0.061	−0.057	−0.062	−0.202	−0.051	−0.048	−0.053	−0.047	−0.053
	(0.162)	(0.153)	(0.152)	(0.153)	(0.152)	(0.153)	(0.156)	(0.148)	(0.148)	(0.148)	(0.147)	(0.148)
Negative ordinary profit dummy (two fiscal years prior)	0.051	−0.201	−0.198	−0.202	−0.199	−0.204	0.053	−0.204	−0.202	−0.205*	−0.201	−0.206*
	(0.191)	(0.121)	(0.121)	(0.120)	(0.122)	(0.121)	(0.194)	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)
Labor costs per person (logarithm)		0.579***	0.575***	0.579***	0.572***	0.557***		0.472***	0.469***	0.473***	0.468***	0.460***
		(0.145)	(0.144)	(0.144)	(0.143)	(0.140)		(0.128)	(0.129)	(0.128)	(0.129)	(0.128)
Capital investment expenses			0.001		−0.006				0.001		−0.003	
(Average for previous two fiscal years, million yen units)			(0.001)		(0.006)				(0.001)		(0.003)	
R&D expenses				−0.001		−0.014				−0.001		−0.009
(Average for previous two fiscal years, million yen units)				(0.001)		(0.010)				(0.001)		(0.006)
Aging index × capital investment expenses					0.338						0.200	
(Average for previous two fiscal years, million yen units)					(0.283)						(0.129)	
Aging index × R&D expenses						0.570						0.320
(Average for previous two fiscal years, million yen units)						(0.435)						(0.238)
Constant term	3.220**	−2.468*	−2.429*	−2.483*	−2.323	−2.221	2.874*	−2.260	−2.219	−2.275*	−2.163	−2.129
	(1.551)	(1.400)	(1.412)	(1.401)	(1.455)	(1.457)	(1.525)	(1.334)	(1.350)	(1.336)	(1.371)	(1.356)
Number of observations	4756	4017	4017	4017	4017	4017	4756	4017	4017	4017	4017	4017
Coefficient of determination	0.222	0.124	0.125	0.125	0.125	0.125	0.221	0.115	0.116	0.115	0.116	0.116

Note: *** indicates 1%, ** indicates 5%, and * indicates 10% level of statistically significance. Figures in parentheses indicate robust standard errors clustered at the industry level. Independent variables include fiscal year dummy and interaction term for industry and fiscal year dummy.

Table 4. Effects of employee age composition on number of new graduates (fixed-effects estimation)

	Aging index (1): Employees aged 50–59 as a percentage of all employees aged 30 or above (%) Aging index (2): Employees aged 50 or above as a percentage of all employees aged 30 or above (%)											
Dependent variable: New graduates as a percentage of all employees (%)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Aging index	−0.033**	−0.038**	−0.038**	−0.038**	−0.036*	−0.039**	−0.021	−0.021	−0.020	−0.021	−0.017	−0.020
	(0.015)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.015)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Temporary employees as a percentage of all employees (%)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Percentage of administrative workers (%)	0.059***	0.069***	0.069***	0.069***	0.069***	0.069***	0.059***	0.069***	0.069***	0.069***	0.069***	0.069***
	(0.008)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.008)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Turnover rate (average for previous two fiscal years, %)	−0.093***	−0.115***	−0.114***	−0.115***	−0.114***	−0.115***	−0.093***	−0.115***	−0.115***	−0.115***	−0.115***	−0.115***
	(0.013)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.013)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Percentage of female employees (%)	−0.086***	−0.106***	−0.107***	−0.106***	−0.108***	−0.106***	−0.085***	−0.104***	−0.105***	−0.104***	−0.106***	−0.104***
	(0.023)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.023)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
Negative ordinary profit dummy (last fiscal year)	−0.100	−0.062	−0.062	−0.062	−0.062	−0.061	−0.096	−0.059	−0.059	−0.059	−0.061	−0.059
	(0.135)	(0.155)	(0.155)	(0.155)	(0.155)	(0.155)	(0.135)	(0.155)	(0.155)	(0.155)	(0.155)	(0.155)
Negative ordinary profit dummy (two fiscal years prior)	−0.125	−0.143	−0.146	−0.143	−0.147	−0.144	−0.122	−0.137	−0.139	−0.137	−0.143	−0.136
	(0.136)	(0.153)	(0.153)	(0.153)	(0.153)	(0.153)	(0.136)	(0.153)	(0.153)	(0.153)	(0.153)	(0.153)
Labor costs per person (logarithm)		0.237	0.252	0.231	0.243	0.234		0.225	0.238	0.217	0.223	0.210
		(0.389)	(0.389)	(0.392)	(0.389)	(0.392)		(0.389)	(0.389)	(0.393)	(0.390)	(0.394)
Capital investment expenses (Average for previous two fiscal years, million yen units)			0.006		0.011				0.006		0.012	
			(0.005)		(0.010)				(0.005)		(0.010)	
R&D expenses (Average for previous two fiscal years, million yen units)				−0.001		−0.004				−0.001		0.000
				(0.010)		(0.015)				(0.010)		(0.013)
Aging index × capital investment expenses (Average for previous two fiscal years, million yen units)					−0.250						−0.300	
					(0.463)						(0.409)	
Aging index × R&D expenses (Average for previous two fiscal years, million yen units)						0.138						−0.104
						(0.545)						(0.497)
Constant term	4.195	3.679	3.487	3.746	3.548	3.737	3.888	3.324	3.126	3.398	3.221	3.444
	(3.885)	(5.330)	(5.331)	(5.356)	(5.333)	(5.357)	(3.885)	(5.330)	(5.332)	(5.356)	(5.334)	(5.362)
Number of observations	4756	4017	4017	4017	4017	4017	4756	4017	4017	4017	4017	4017
Coefficient of determination	0.117	0.106	0.106	0.106	0.107	0.106	0.116	0.105	0.106	0.105	0.106	0.105

Note: *** indicates 1%, ** indicates 5%, and * indicates 10% level of statistically significance. Estimation controlling for company-specific fixed effects. Figures in parentheses indicate robust standard errors clustered at the industry level. Independent variables include fiscal year dummy and interaction term for industry and fiscal year dummy.

employees aged 50–59" and "percentage of employees aged 50 or above," and it is evident that companies with a high percentage of administrative workers have a high percentage of new graduates.

As in Genda (2004), it is possible that companies with many administrative workers tend to proactively hire new graduates from university or master's programs, who are expected to be key future human resources. Alternatively, a high percentage of administrative workers can be regarded as an indicator of a personnel shortage at a company. Oi (2005) showed that the percentage of executives in Japan rose between the 1970s to the 2000s, and in particular, the number of other positions other than foreman, subsection manager, section manager, and department manager has increased significantly, which may be the result of the introduction of professional/specialist systems that affect division of tasks within the organization. Traditionally, Japanese administrative workers have tended to be cultivated more as generalists than in Western countries,[20] but in recent years, companies with a high percentage of administrative workers may be seen as requiring these workers to develop duties and skills that enable them to be player-manager in the company, due to lack of personnel and aging and thus more actively hiring new graduates. Thorough verification and examination of these interpretations remains as a future task.

Secondly, as for "turnover rate," it had a significantly positive effect in all estimations except columns (1) and (7) in the OLS estimation in Table 3, while in the fixed-effects estimation in Table 4, all estimations in columns (1)–(12) showed a negative effect at the 1% significance level. Underlying these results may be the fact that some companies hire a large number of new graduates on the assumption that there will be early, large-scale turnover. If the fixed-effects estimation controls for such company-specific characteristics, the high turnover rate becomes a variable that indicates low employee retention, and companies with high turnover rates are those that may hire large numbers but also expect to lose them quickly, and one interpretation is that this leads to unwillingness to hire new graduates.

Similarly, for "percentage of female employees," the OLS estimation showed a positive effect at the 5% significance level in all estimations except columns (1) and (7), while in the fixed-effects estimation in Table 4, all estimations in columns (1)–(12) showed a negative effect at the 1% significance level, showing that companies with a high percentage of female employees tend to have a low percentage of new graduates. If the degree of innovation in corporate management is absorbed into fixed effects, female employees and new graduates can be interpreted as being in a substitutable relationship in the fixed-effects estimation, unlike the results of the OLS estimation.

Regarding "percentage of temporary employees," "negative ordinary profit dummy variable," "labor costs per person," "capital investment expenses," and "R&D expenses," no significant results were found in the fixed-effects estimation.

Finally, it should be noted that as shown in Section II, this paper's estimation period includes events such as the global financial crisis (2008) and the Great East Japan Earthquake (2011), which are seen as having a major impact on employment. Thus, in order to observe varying degrees of change in the generational replacement effect for each period (2007–2008, 2009–2010, 2011–2013), Table 5 shows the results of fixed-effects estimations performed for three separate periods.

The results of fixed-effects estimations conducted for each period were that "percentage of employees aged 50–59" in columns (1)–(6) was significantly negative at the 5% level during the 2009–2010 period, and a generational replacement effect was observed. Also, in the 2011–2013 period, "percentage of employees aged 50 or above" in columns (7)–(12) was significantly negative at the 1% level. A possible underlying factor is that if a certain number of workers included in "percentage of employees aged 50–59" in 2009–2010 were still working,[21] their inclusion in "percentage of employees aged 50 or above" in the 2011–2013 estimation several years later may have an effect. For example, a company that reduced hiring of new graduates in 2009 due to a large number of employees in their 50s may later have reduced new graduates in 2013 due to a large number of employees in their 60s. In this case, it can be inferred that the effect of "percentage of employees aged 50–59," which was significant in 2009–2010, may be reflected in the coefficient of "percentage of employees

Table 5. Fixed-effects estimations by term

Aging index (1): Coefficient of "employees aged 50–59 as a percentage of all employees aged 30 or above"

Term	(1)	(2)	(3)	(4)	(5)	(6)
2007–2008	0.009	0.014	0.014	0.014	0.020	0.014
	(0.019)	(0.019)	(0.019)	(0.019)	(0.020)	(0.020)
2009–2010	−0.285**	−0.292**	−0.293**	−0.292**	−0.294**	−0.293**
	(0.118)	(0.121)	(0.121)	(0.121)	(0.122)	(0.123)
2011–2013	−0.045*	−0.030	−0.030	−0.030	−0.028	−0.031
	(0.027)	(0.040)	(0.040)	(0.040)	(0.041)	(0.041)

Aging index (2): Coefficient of "employees aged 50 or above as a percentage of all employees aged 30 or above"

Term	(7)	(8)	(9)	(10)	(11)	(12)
2007–2008	−0.014	−0.010	−0.010	−0.010	0.005	−0.011
	(0.017)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
2009–2010	0.068	0.046	0.045	0.046	0.051	0.058
	(0.117)	(0.119)	(0.120)	(0.120)	(0.122)	(0.121)
2011–2013	−0.076***	−0.119***	−0.119***	−0.119***	−0.121***	−0.124***
	(0.024)	(0.037)	(0.037)	(0.037)	(0.038)	(0.038)

Note: 1. The dependent variable is "new graduates as a percentage of all employees (%)."
2. *** indicates 1%, ** indicates 5%, and * indicates 10% level of statistically significance.
3. Estimation controlling for company-specific fixed effects. Independent variables introduced in each column are based on those in Table 3.

aged 50 or above" in 2011–2013.

As Hamermesh (1992) points out, employment adjustments by companies is the result of a dynamic optimization process. Thus companies' employment adjustments are seen as taking a certain amount of time, and this may be the reason the results shown in Table 5 were obtained. It is evidently necessary to continue paying close attention to future trends regarding the relationship between aging index and youth hiring.

Although other studies have found evidence of the generational replacement effect in Japan since the 1990s, we could not find evidence of such effect for the 2007–2008 period. Factors underlying the failure to observe a generational replacement effect during this period may include hiring policy decisions in 2007–2008, influenced by the long-term economic recovery called the "14th cycle"[22] which started under the Koizumi administration, that stimulated demand for new graduates regardless of aging.

VI. Conclusion

This paper describes the relationship between "generational replacement effect" (the effect of aging within companies on curtailment of youth hiring) and company characteristics in the labor market in Japan, which was re-examined using micro-panel data for individual companies from fiscal 2007 through fiscal 2013.

This paper's estimations indicate that the number of new graduates decreases when the percentage of employees aged 50–59 increases, and this was observed in both pooled OLS estimation and fixed-effects estimation that controls for the effects of specific companies' practices. The generational replacement effect was also observed in estimations that incorporate labor costs, corporate performance, capital investment expenses and R&D expenses as variables. As to factors contributing to observation of a generational replacement effect, it was demonstrated that the burden of labor costs due to aging, the effects of corporate performance, and companies' future business outlook, which have been cited in previous studies, were limited in effect.

In estimations using "percentage of employees aged 50 or above," i.e. including employees aged 60 and above in the aging index, no generational replacement effect was observed in the fixed-effects estimation,

and there were no results indicating a significant relationship of substitutability between youth and elderly persons. Furthermore, we observed a significant generational replacement effect for the periods 2009–2010 and 2011–2013, although evidence of such effect could not be observed for the period of 2007–2008.

Furthermore, the limitations of this paper's analysis and future challenges should be touched upon. First, companies with 1,000 or more employees account for nearly 50% of the sample used for analysis in this paper (with companies with 5,000 or more employees accounting for 14.8%), and therefore the sample is not representative of the Japanese labor market as a whole. This is a significant issue that must be taken into account when interpreting the results in this study.

Lastly, our estimates of the intergenerational replacement effect may not strictly be interpreted as showing evidence of a causal relationship between the size of the elderly contingent and reduction in new graduates. For example, it is possible that companies that are not popular with young people (and thus cannot hire them) have no choice but to employ elderly persons. However, as shown in Table 3 and Table 4, the effect of percentage of aged employees on percentage of new graduates is greater in the coefficient estimation values of the OLS estimation than those of the fixed-effects estimation. If company-specific features such as popularity among youth and corporate brand are controlled for by fixed-effects, the OLS estimates are overestimated due to missing variable bias, and the fixed-effects estimates are closer to the true parameter.

Although many issues remain unanswered, we believe that studies on the generational replacement effect become more important for Japan as population aging continues. Understanding the effect of demographic shifts on the employment opportunities of the youth and decision making of firms is indispensable for effective labor policy making.

This paper is based on a study in *The Japanese Journal of Labour Studies* (July 2019, no.708) with additions and amendments in line with the gist of *Japan Labor Issues*.

Notes

1. According to the Cabinet Office (2020) Annual Report on the Aging Society, Japan's aging rate (percentage of the population aged 65 and over) reached a record high of 28.4% as of October 1, 2019. This is even higher than other countries with high aging rates such as Germany (21.2%), Sweden (19.6%), and France (18.9%) (figures in parentheses indicate 2015 aging rate), and is among the highest in the world. Increase in the aging rate is expected to continue, reaching 38.4% by 2065.
2. For details of this law, refer to the following webpage: http://www.japaneselawtranslation.go.jp/law/detail/?id=2621&vm=04&re=01.
3. In fact, according to Yamamoto (2008) and Kondo (2014) who analyzed the impact of the Act on Stabilization of Employment of Elderly Persons which went into effect in April 2006, the amendment to the law has been shown to contribute to promoting employment of workers in their early 60s. Other studies have verified the influence of aging on youth employment in other countries, such as a study showing that the number of highly skilled younger workers hired drops in areas of the United States where fewer elderly workers retire (Mohnen 2019), and studies showing that older workers are retiring later as a result of public pension plan reform in Italy, and this has a negative impact on youth employment (Bovini and Paradisi 2019, Bertoni and Brunello 2017, Boeri et al. 2016).
4. According to the *Labour Force Survey*, when total unemployment by age group is examined in January 2020 before the impact of COVID-19 and the in September, the most recent data available, the youngest age group of 15–24 showed the most remarkable increase. The number of unemployed people increased between January and September by a factor of 1.50 for people aged 15–24 (180,000 to 270,000 persons), of 1.24 for those aged 25–34 (410,000 to 510,000 persons), of 1.21 for those aged 35–44 (290,000 to 350,000 persons), of 1.40 for those aged 45–54 (300,000 to 420,000 persons), of 1.37 for those aged 55–64 (270,000 to 370,000 persons), and of 1.38 for those aged 65 or above (130,000 to 180,000 persons). For details of the impact of COVID-19 on the Japanese labor market, refer to Kikuchi et al. (2020).
5. For details of the survey, refer to the following webpage: https: //www.mhlw.go.jp/english/database/db-l/employment_trends.html.
6. Oshio, Shimizutani and Oishi (2010) also did not find evidence of the substitutability of elderly and youth employment.
7. The results of the CSR Survey are published not only in print media but also as a database, and the database was referenced for this study.
8. New graduates refer to those graduated from four-year undergraduate programs and graduate school programs. "Number of employees" does not include executives and temporary employees (including executives who are not directors under commercial law).
9. Genda (2004) uses "employees aged 45 or above as a percentage of all employees aged 30 or above," but because the CSR Survey divides age groups by 10-year units, "employees aged 50–59 as a percentage of all employees aged 30 or above" was used as the aging index for this study.
10. "Labor costs" refers to costs that companies listed as such in their responses, and can be considered to include the employer's share

of social insurance premiums and various allowances in addition to wages. It also refers to a company's overall labor costs, including those relating to temporary employees.

11. The value for ordinary profit value is the non-consolidated rather than the consolidated value.

12. The "number of temporary employees" is the average number of temporary employees per year, and indicates the total of dispatched employees, part-time workers, fixed-term contract employees, etc.

13. See Figure 1 for details of relationships between variables used and time of hiring.

14. As shown in Table 2, among the sample for analysis there was a company for which the percentage of administrative workers was 100% (hereinafter referred to as Company A), but it was included in the scope of analysis for the following reasons. Company A is a holding company that carries out real estate guarantee and debt collection services, and at all times there were only a few regular employees, with only two regular employees in the year when the percentage of administrative workers was 100%. Since Company A is a holding company, it is possible that all of these regular employees are in the positions of executives of affiliated companies, and there is no evidence for judging the figure of 100% administrative workers to be incorrect, thus Company A was not excluded from analysis.

15. Nagaoka (2006) showed that companies with more proactive R&D have higher market value, and Ito and Tanaka (2016) showed that export companies engaged in R&D activities have higher productivity than both non-export and export companies that do not conduct R&D. Thus R&D expenses are considered to be an indicator of a company's market value and productivity.

16. For capital investment expenses and R&D expenses, the averages of the last two fiscal years were used. One reason for this is that the figures for a single fiscal year for these variables fluctuate widely from one fiscal year to another in the same manner as the turnover rate.

17. Industries were classified according to the following 11 categories: 1. Agriculture and forestry 2. Mining and quarrying of stone and gravel 3. Construction 4. Manufacture 5. Electricity, gas, heat supply and water 6. Information and communications 7. Transport and postal services 8. Wholesale and retail trade 9. Finance and insurance 10. Real estate 11. Miscellaneous services N.E.C.

18. The "dummy variable for companies with 1,000 or more employees" was not used for the fixed-effects estimation in Table 4 because there was very little change throughout the year. When the employment exam was examined with regard to individual effects, the null hypothesis that individual effect was zero in all estimations was found to be invalid, and the test result was obtained that it is desirable to employ fixed-effects estimation.

19. According to the JILPTs "2014 Survey on the Work and Lives of People Aged 60–69," 81.0% responded that "wages had decreased" after continuing employment post-retirement age. In terms of amount of decrease, rehired workers saw wages drop significantly, with 24.0% reporting a decrease of 41–50%, 18.3% a decrease of 21–30%, and 14.1% a decrease of 31–40%.

20. A characteristic of Japanese administrative workers, observed by the Japan Institute for Labor Policy and Training (1998), is a strong generalist tendency, as shown by the rates of agreement with the statement "for section managers' career development, it is desirable to experience not only functions relevant to their duties but also other functions": 56.9% in Japan, 30.7% in Germany, and 13.5% in the United States.

21. Turnover rates for those in their late 50s (aged 55–59) in 2009 and 2010, as shown in the *Survey on Employment Trends*, were 9.7% and 9.1% respectively for men and 11.7% and 11.6% respectively for women. Overall the turnover rate for employees in their 50s is low compared to other age groups.

22. January-March 2008 was the peak of the economy during the longest economic recovery period since World War II, during which the economy expanded for 73 months from January 2002 to February 2008. For further details on the economic cycle, please refer to the Cabinet Office website: https://www.esri.cao.go.jp/jp/stat/di/hiduke.html (in Japanese).

References

Bertoni, M. and Giorgio Brunello (2017) "Does Delayed Retirement Affect Youth Employment? Evidence from Italian Local Labour Markets," IZA DP No. 10733.

Boeri,T, Pietro Garibaldi, and Espen Moen (2016) "A Clash of Generations? Increase in Retirement Age and Labor Demand for Youth," workINPS paper.

Bovini, G. and Matteo Paradisi (2019) "Labor Substitutability and the Impact of Raising the Retirement Age," https://scholar.harvard.edu/files/paradisi/files/paradisi_jmp.pdf.

Cabinet Office (2020) *Annual Report of the Aging Society FY 2020* (in Japanese).

Genda, Yuji (2000) "Are 'Parasite Singles' a Real Phenomenon?" in *Economics*, Spring 2000, pp. 86–94 (in Japanese).

———— (2004) *Job Creation*, Nikkei Inc. (in Japanese).

———— (2006) *A Nagging Sense of Job Insecurity: The New Reality Facing Japanese Youth*, I-House Press.

Hamermesh, Daniel (1992) "A General Model of Dynamic Labor Demand," *Review of Economics and Statistics*, Vol. 74, No. 4, pp. 733–737.

Hara, Hiromi (2005) "Labor Market for New Graduates in Japan: From Corporate Hiring Practice," *The Japanese Journal of Labour Studies,* No. 542, pp. 4–17 (in Japanese).

Ito, Banri and Ayumu Tanaka (2016) "External R&D, Productivity, and Export: Evidence from Japanese Firms," *Review of World Economics*, Vol. 152, No. 3, pp. 577–596.

Japan Institute for Labour Policy and Training (1998) "International Comparison: University-Graduate White Collar Workers' Human

Resource Development and Employment Systems at Large Japanese, US and German Companies," Survey Report, No. 101 (in Japanese).
Kawaguchi, Daiji (2006) "Aging of the Workforce and Hiring of New Employees," *Hitotsubashi Economics*, Vol. 1, No. 1, pp. 35–60 (in Japanese).
Kikuchi, Shinnosuke, Sagiri Kitao, and Minamo Mikoshiba (2020) "Who Suffers from the COVID-19 Shocks? Labor Market Heterogeneity and Welfare Consequences in Japan," RIETI Discussion Paper Series 20-E-064.
Kondo, Ayako (2014) "Analysis of Influence of the Act on Stabilization of Employment of Elderly Persons," in Yasushi Iwamoto, Michihiro Kandori, Etsuro Shioji, and Teruyama Hiroshi (eds.), *Trends in Contemporary Economics 2014*, Chapter 5, Toyo Keizai (in Japanese).
Mohnen, Paul (2019) "The Impact of the Retirement Slowdown on the U.S. Youth Labor Market," https://www.aeaweb.org /conference/2020/preliminary/paper/zG2HGB2K.
Muramatsu, Kuramitsu (1995) "Employment Adjustment in Japan: Observations Based on Previous Studies," in Takenori Inoki, Yoshio Higuchi (eds.), *Japan's Employment Systems and Labor Market*, Chapter 2, Nikkei Inc. (in Japanese).
Nagaoka, Sadao (2006) "R&D and Market Value of Japanese Firms in the 1990s," *Journal of the Japanese and International Economies*, Vol. 20, No. 2, pp. 155–176.
Ohta, Souichi (2009) "Aging of the Population and Employment Among the Young: A Reconsideration of the Relationship," in *NIRA Research Report: Is the Aging of Society a Threat to Japan? Increasing Productivity in the Next Decade is the Key,* Chapter 5 (in Japanese).
———— (2010) *Economics of Youth Employment*, Nikkei Business Publications, Inc. (in Japanese).
———— (2012) "Young and Old in the Labor Market: Are They Competing for Jobs?" *The Japanese Journal of Labour Studies,* No. 626, pp. 60–74 (in Japanese).
Ohta, Souichi, Hiroki Yasuda (2010) "The Internal Labor Market and Hiring of New Graduates: Comparison with Employees Hired Mid-career," Keio Economic Society Discussion Paper Series, KESDP No. 10–14 (in Japanese).
Oi, Masako (2005) "Quantitative Changes in Managerial Positions: Based on Their Number, Promotion Speed and Relative Wage with Respect to Non-Managerial Employees," *The Japanese Journal of Labour Studies*, No. 545, pp. 4–17 (in Japanese).
Oshio, Takashi, Satoshi Shimizutani, and Akiko Sato Oishi (2010) "Does Social Security Induce Withdrawal of the Old from the Labor Force and Create Jobs? The Case of Japan," in Jonathan Gruber, and David A. Wise (eds.) *Social Security Programs and Retirement around the World: The Relationship to Youth Employment*, University of Chicago Press, pp. 217–241.
Yamamoto, Isamu (2008) "Analysis of Effects of Amendment of the Act on Stabilization of Employment of Elderly Persons," in Yoshio Higuchi, and Miki Seko (eds.), *Dynamism of Japanese Household Consumption IV: Systemic Policy Changes and Employment Practices*, Chapter 7, Keio University Press Inc. (in Japanese).
———— (2014) "Relationship Between Hiring of Women at Listed Companies and Corporate Performance: Verification Using Corporate Panel Data," RIETI Discussion Paper Series 14-J-016 (in Japanese).

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I. Main Labor Economic Indicators

1. Economy

The Japanese economy is still in a severe situation due to the Novel Coronavirus, but it is showing movements of picking up. Concerning short-term prospects, the economy is expected to show movements of picking up, supported by the effects of the policies and improvement in overseas economies while taking measures to prevent the spread of infectious diseases. However, full attention should be given to the further downside risks to the domestic and foreign economy which are affected by the contraction in the socio-economic activities due to the spread of the infectious disease. Also attention should be given to the effects of fluctuations in the financial and capital markets. (*Monthly Economic Report*,[1] December 2020).

2. Employment and unemployment

The number of employees in November decreased by 290 thousand over the previous year. The unemployment rate, seasonally adjusted, was 2.9%.[2] Active job openings-to-applicants ratio in November, seasonally adjusted, was 1.06.[3] (Figure 1)

3. Wages and working hours

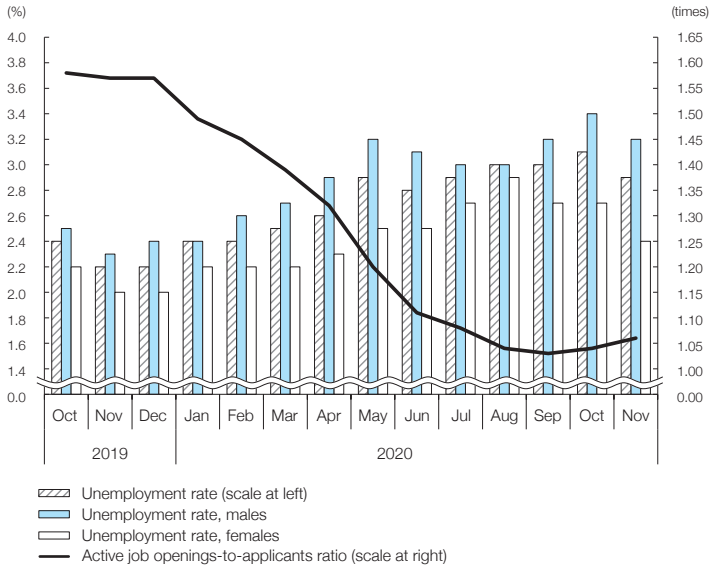
In November, total cash earnings decreased by 1.8% year-on-year and real wages (total cash earnings) decreased by 0.7%. Total hours worked decreased by 2.7% year-on-year, while scheduled hours worked decreased by 2.1%.[4] (Figure 2)

4. Consumer price index

In November, the consumer price index for all items declined by 0.9% year-on-year, the consumer price index for all items less fresh food declined by 0.9%, and the consumer price index for all items less fresh food and energy declined by 0.3%.[5]

5. Workers' household economy

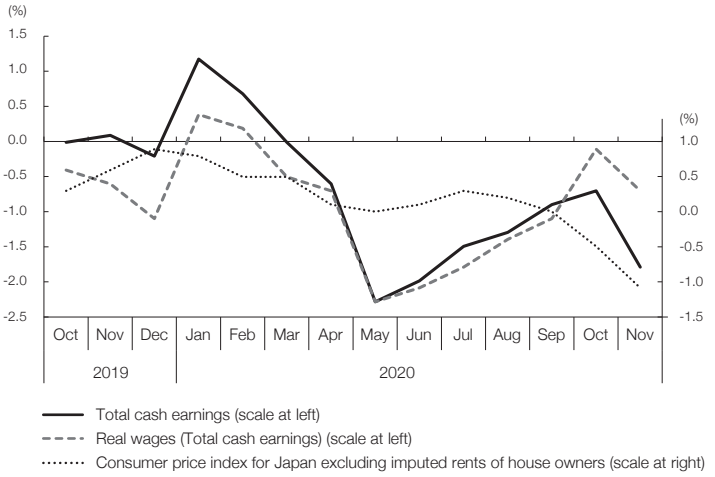
In November, consumption expenditures by workers' households increased by 0.5% year-on-year nominally and increased by 1.6% in real terms.[6]



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* at https://www.jil.go.jp/english/estatis/eshuyo/index.html

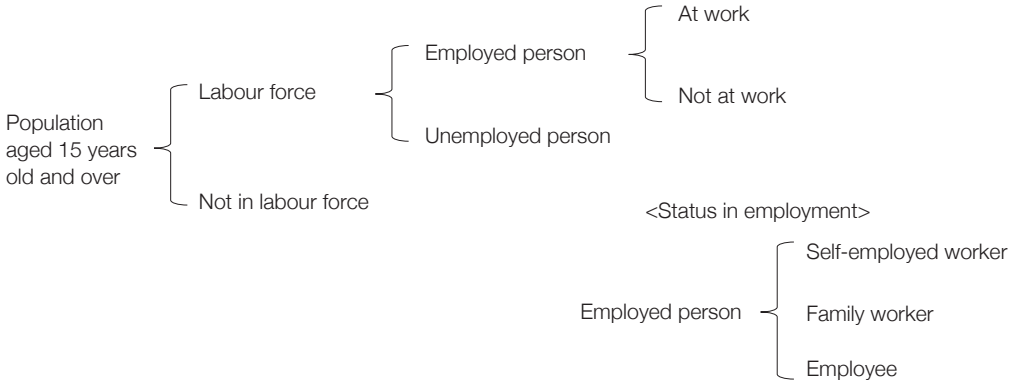
1. Cabinet Office, *Monthly Economic Report* analyzes trends in the Japanese and world economies and indicates the assessment by the Japanese government. Published once a month. https://www5.cao.go.jp/keizai3/getsurei-e/index-e.html
2. https://www.stat.go.jp/english/data/roudou/results/month/index.html
3. https://www.mhlw.go.jp/english/database/db-l/general_workers.html
4. For establishments with 5 or more employees. https://www.mhlw.go.jp/english/database/db-l/monthly-labour.html
5. https://www.stat.go.jp/english/data/cpi/index.html
6. MIC, *Family Income and Expenditure Survey*. https://www.stat.go.jp/english/data/kakei/index.html

II. Impacts of the COVID-19 pandemic on employment and unemployment

There are growing concerns that COVID-19's spread will have a significant impact on employment by retarding economic activity in Japan. The following outlines the recent trends shown in statistical indicators relating to employment. See JILPT website *Novel Coronavirus* (*COVID-19*) for the latest information (https://www.jil.go.jp/english/special/covid-19/index.html).

1. Employment and unemployment

(1) Definitions of *Labour Force Survey*



Source: Ministry of Internal Affairs and Communications (MIC), *Labour Force Survey*, Concepts and Definitions.
https://www.stat.go.jp/english/data/roudou/pdf/definite.pdf

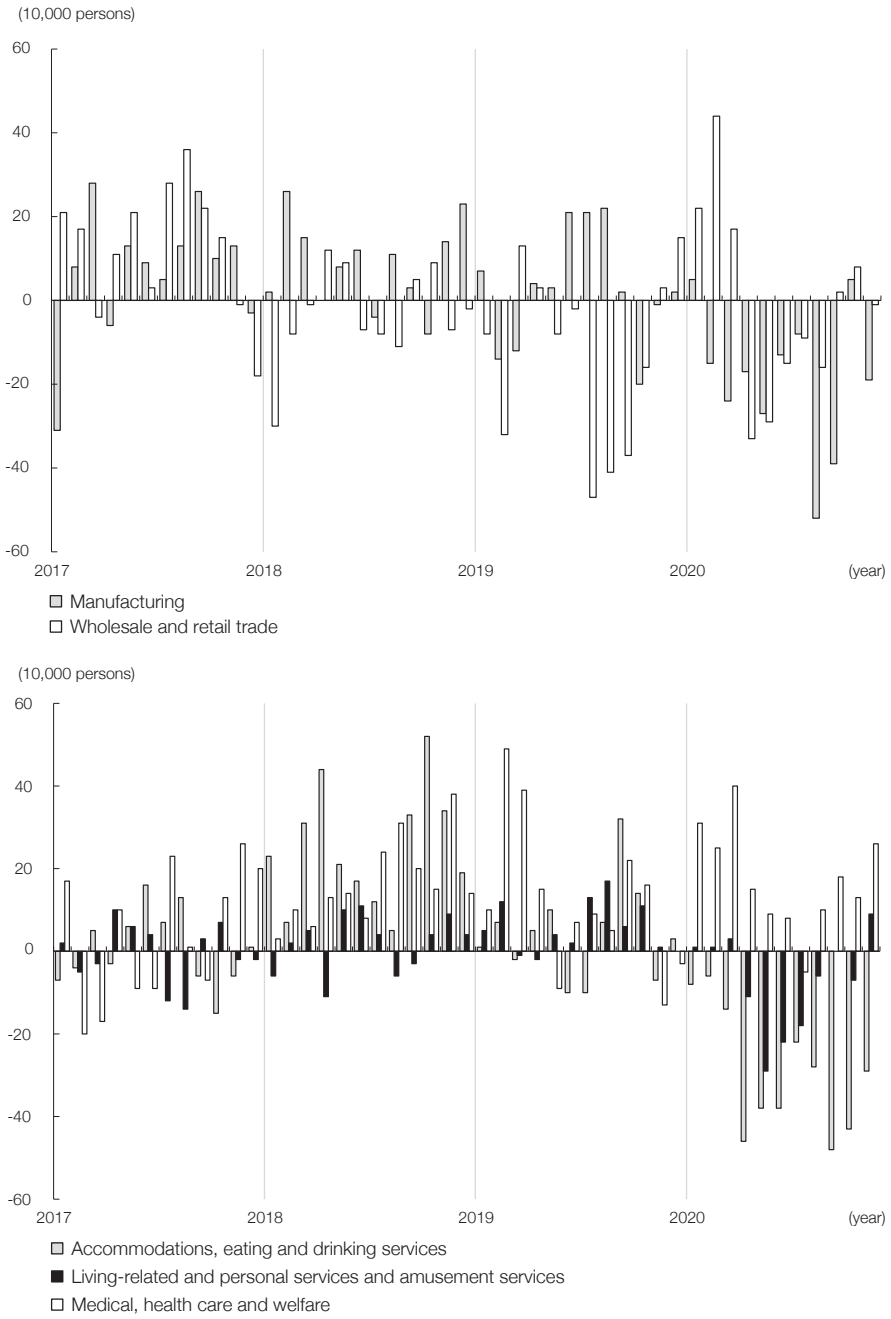
(2) Labor force

Table 1. Labor force

(10,000 persons)

		Labor force			
		Total	Employed person		Unemployed person
				Not at work	
2017		6,720	6,530	151	190
2018		6,830	6,664	169	166
2019		6,886	6,724	176	162
2020	January	6,846	6,687	194	159
	February	6,850	6,691	196	159
	March	6,876	6,700	249	176
	April	6,817	6,628	597	189
	May	6,854	6,656	423	198
	June	6,865	6,670	236	195
	July	6,852	6,655	220	197
	August	6,882	6,676	216	206
	September	6,899	6,689	197	210
	October	6,910	6,694	170	215
	November	6,902	6,707	176	195

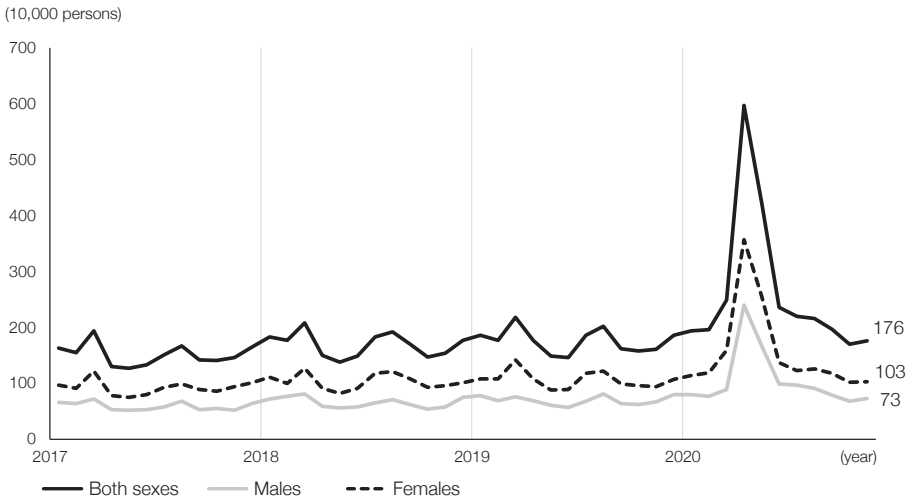
Source: Compiled by JILPT based on Ministry of Internal Affairs and Communications (MIC), *Labour Force Survey* (Basic Tabulation)(unadjusted values).



Source: Ministry of Internal Affairs and Communications (MIC), *Labour Force Survey* (Basic Tabulation).[7]

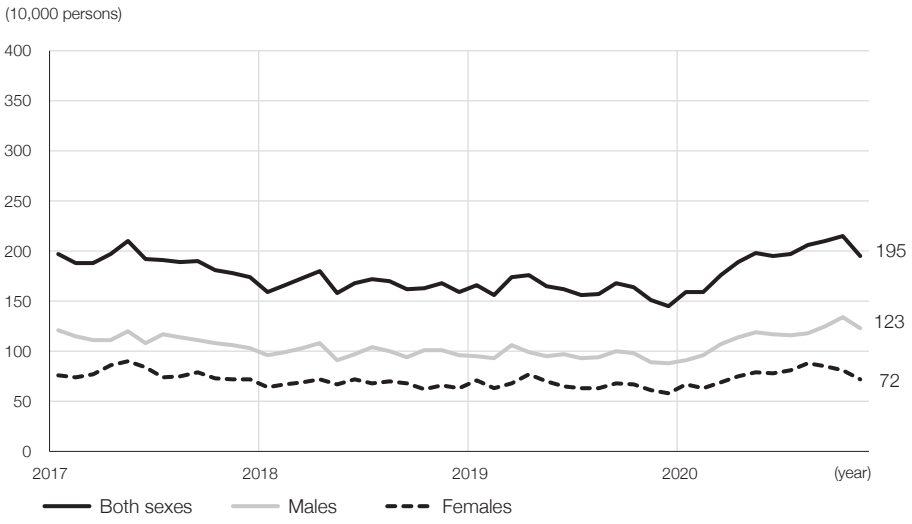
Figure 3. Number of employed persons by main industry (unadjusted values, year-on-year change) (January 2017 to November 2020)

7. For up-to-date information and further details, see https://www.jil.go.jp/kokunai/statistics/covid-19/c01.html#c01-1 (in Japanese).



Source: MIC, *Labour Force Survey* (Basic Tabulation).[8]

Figure 4. Number of employed persons not at work (unadjusted values, by sex) (January 2017 to November 2020)



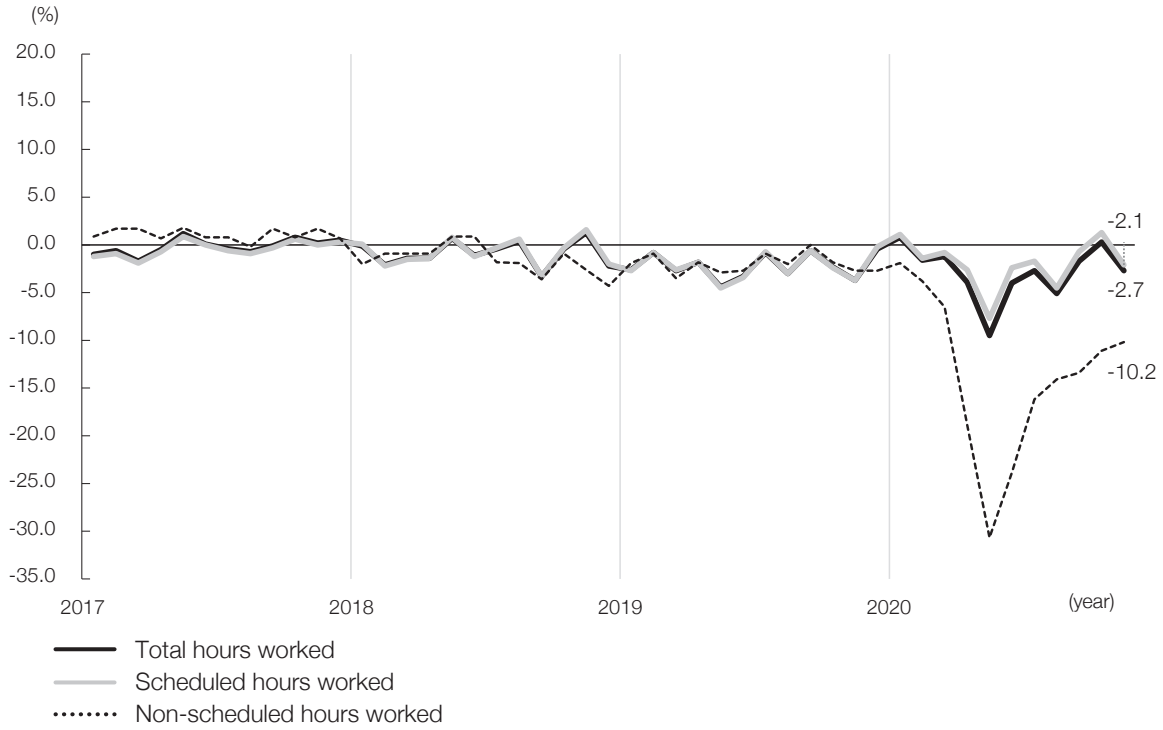
Source: MIC, *Labour Force Survey* (Basic Tabulation).[9]

Figure 5. Number of unemployed persons (unadjusted values, by sex) (January 2017 to November 2020)

8. For up-to-date information and further details, see https://www.jil.go.jp/kokunai/statistics/covid-19/c23.html (in Japanese).

9. For up-to-date information and further details, see https://www.jil.go.jp/kokunai/statistics/covid-19/c03.html#c03-1 (in Japanese).

2. Working hours



Source: Compiled by JILPT based on MHLW, "Monthly Labour Survey."[10]
Notes: 1. Beginning in June 2019, values are based on a complete survey of "business establishments with 500 or more employees."
2. "Business establishments with 500 or more employees" for the Tokyo metropolitan area are re-aggregated beginning in 2012.

Figure 6. Total hours worked, scheduled hours worked, and non-scheduled hours worked (year-on-year change, total of full-time employees and part-time workers) (January 2017 to November 2020)

For the up-to-date information, see JILPT *Main Labor Economic Indicators* at https://www.jil.go.jp/english/estatis/eshuyo/index.html

10. MHLW, *Monthly Labour Survey.* https://www.mhlw.go.jp/english/database/db-l/monthly-labour.html. For up-to-date information and further details, see https://www.jil.go.jp/kokunai/statistics/covid-19/c11.html#c11-1 (in Japanese).

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