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Abstract

This study proposes a new approach of measuring the compliance costs of rules and regulations by focusing on labor input and estimating compliance costs based on a survey of workers in Japan. According to the results, the working hours required to comply with the rules and regulations account for over 20% of the total labor input. This cost is higher in the finance and insurance industry, followed by health and welfare; moreover, it is higher in large firms. A large proportion of the working hours of high-wage workers are devoted to compliance tasks. If these costs were halved, overall economic productivity would increase by approximately 8%. This suggests the importance of reducing costs through deregulation and digitalization.

Keywords: regulation, rule, compliance cost, productivity, labor input
JEL Classifications: D24, J22, L51, O47

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Compliance Costs of Regulations and Productivity

1. Introduction

Improving productivity growth is a major policy issue in advanced economies. Many studies have shown that government regulation of businesses, such as entry restrictions and price control, negatively impacts productivity, whereas deregulation increases it. In line with such studies, deregulation has been promoted in advanced countries since the 1970s. However, in the United States, it has been indicated that economic deregulation in sectors such as telecommunications, transportation, and energy, has been more than offset in areas such as the environment and occupational safety, with the total amount of regulations increasing at an average rate of 3.5% annually (Dawson and Seater, 2013).

Similarly, in Japan, industry-specific economic regulations, such as those applied to telecommunications, electricity and gas, and retail trade have been gradually eased for more than 30 years, since the 1980s. Conversely, labor market, environmental, and consumer protection regulations (hereinafter referred to as "social regulations") have been on the rise. According to the Current Status of Licenses and Permits (Ministry of Internal Affairs and Communications), the number of licenses and permits increased by 47% (2.5% per year) between 2002 and 2017, with ministries such as the Financial Services Agency, Ministry of Health, Labour and Welfare, and Ministry of the Environment contributing significantly to this trend (see **Table 1**).

Table 1. The number of licenses and permits by ministries in Japan

	2002	2017	Annal rate	Contribution
Cabinet Office	219	294	2.0%	1.5%
Financial Services Agency	1,421	2,353	3.4%	19.2%
Ministry of Internal Affairs and Communications	575	718	1.5%	2.9%
Ministry of Justice	237	360	2.8%	2.5%
Ministry of Foreign Affairs	47	43	-0.6%	-0.1%
Ministry of Finance	727	842	1.0%	2.4%
Ministry of Education, Culture, Sports, Science and Technology	566	473	-1.2%	-1.9%
Ministry of Health, Labour and Welfare	1,543	2,451	3.1%	18.7%
Ministry of Agriculture, Forestry and Fisheries	1,114	1,770	3.1%	13.5%
Ministry of Economy, Trade and Industry	1,866	2,261	1.3%	8.1%
Ministry of Land, Infrastructure, Transport and Tourism	2,042	2,805	2.1%	15.7%
Ministry of the Environment	229	1,075	10.9%	17.4%
Ministry of Defence	35	30	-1.0%	-0.1%
計	10,621	15,475	2.5%	

Notes: Calculated from the Current Status of Licenses and Permits (Ministry of Internal Affairs and Communications). The figures of the Cabinet Office include those of the Cabinet Secretariat, Fair Trade Commission, and National Public Safety Commission.

However, the number of legal licenses and permits does not necessarily indicate the strength of regulations or their impact. To cope with regulations, firms are forced to perform many complicated tasks, such as preparing legal documents, creating and storing inspection data, and negotiating with government agencies. The quantity of tasks varies significantly depending on the specific regulations.

In addition to legal rules and regulations, various types of compliance are required by administrative guidance, voluntary rules within the industry, and firms' internal rules. During the COVID-19 pandemic, for example, various administrative guidance was provided to business activities by central and local governments. Legal regulations, guidance, and rules have a negative impact on productivity through increased compliance costs that do not directly contribute to production. Moreover, they may suppress productivity growth in the medium- to long-term through their negative impact on firms' risk-taking and innovation.

According to a survey of Japanese firms (Morikawa, 2019), social regulations applied to all industries, such as labor market regulations (66.6%) and environmental regulations (33.7%), were cited by many firms as policies with the largest compliance costs, far exceeding industry-specific business licensing and approval (16.7%). However, it is difficult to obtain a comprehensive and accurate picture of the number and strength of regulations, including those that do not target specific industries.

The OECD developed and published indicators of product market regulation (PMR) based on questions posed to national governments regarding regulation-related laws, and, more recently, indicators of the impact of regulation on downstream industries (REGIMPACT). However, the indicators were created from the perspective of barriers to new entry and competition, which do not capture the overall compliance costs. Furthermore, industry-specific indicators in the non-manufacturing sector are limited to energy, transportation, telecommunications, and professional services.

In the United States, there have been new attempts to quantify federal government regulations, such as a page count of the Code of Federal Regulations (CFR; Dawson and Seater, 2013), and industry-specific regulatory indicators (RegData) based on textual analysis of the CFR (Al-Ubaydli and McLaughlin, 2017; McLaughlin and Sherouse, 2019).[1] However, it is highly debatable whether the quantity of regulation itself captures impacts and costs to industries and firms. To overcome this limitation, Calomiris *et al*. (2020) applied natural language processing to

[1] The detailed explanation of RegData is documented in Al-Ubaydli and McLaughlin (2017) and McLaughlin and Sherouse (2019).

data from the corporate earnings calls of listed firms in the United States to create a firm-level cost of regulation index and demonstrate that regulation increases the cost of capital for firms. This is a unique approach to measuring the cost of regulation for individual firms; however, due to the nature of the data, it does not cover non-listed firms.

This study proposes a novel approach that focuses on the amount of labor input required to comply with rules and regulations, and provides an estimate of the actual compliance costs in Japan using data collected through an original survey of workers. According to the results, the working hours required to comply with rules and regulations account for more than 20% of total labor input. By industry, this cost is greater in the finance and insurance industry followed by the health and welfare industry, and by firm size, it is greater in large firms. A large portion of working hours of high-wage earners is devoted to these tasks, and if these labor costs could be halved, it would increase the productivity of the economy by about 8%.

The remainder of this study is structured as follows. Section 2 provides a brief overview of the related literature. Section 3 explains the survey data and tabulation method. Section 4 reports the results. Section 5 concludes the paper and discusses future directions for research.

2. Literature Review

Previous studies have shown that economic regulations that restrict competition, including entry and price regulations, negatively impact productivity and economic growth, and eliminating or relaxing these regulations positively impact productivity (see, for example, Winston, 1993; Crafts, 2006; Holmes and Schmitz, 2010, for surveys). Nicoletti and Scarpetta (2003) and Haidar (2012) are examples of studies using cross-country data to indicate that regulatory reforms that promote competition positively affect economic growth. OECD regulatory indicators (PMR and REGIMPACT) are frequently used in empirical analyses using cross-country data. Andrews and Cingano (2014) combined firm data from several countries with OECD regulatory indicators and found that regulation impedes resource allocation efficiency and negatively impacts productivity. This study is unique because it covers product market regulations and labor market regulations.

Studies that comprehensively cover economic and social regulations in the United States include Dawson and Seater (2013) and Coffey *et al*. (2020). Dawson and Seater (2013) conducted a unique study that used the number of CFR pages as a measure of regulation quantity. They demonstrated that the total amount of federal government regulation had been trending upward, mainly through an increase in environmental and safety regulations. They estimated that the increase in regulation had significantly reduced output and total factor productivity (TFP), with a magnitude that would reduce the postwar U.S. economic growth rate by two percentage points

per year. Coffey *et al*. (2020) estimated the impact on GDP using RegData developed based on a textual analysis of the CFR. They estimated that regulation reduced the US economic growth rate by approximately 0.8 percentage points per year since 1980. McLaughlin and Mulligan (2020) summarized the current state of regulation in the United States based on RegData and stated that the costs of regulation were extremely large.

Many studies have addressed the impact of social regulations that are not specific to an industry. In the following, we focus on studies dealing with the effects of such regulations on productivity and innovation. Empirical studies on labor market regulations showing negative impacts on productivity include Cingano *et al*. (2010), Andrews and Cingano (2014), Cette *et al*. (2016), Égert (2016), and Amoroso and Martino (2020). In the area of labor market regulations, several countries adopt "size-dependent regulations" that impose strict labor market regulations on publicly listed or large firms, while exempting or reducing the regulations on unlisted or small firms. Studies on French policy, where stringent labor regulations are imposed on firms with over 50 employees, have found that the policy negatively impacts productivity at the aggregate level (Gourio and Roys, 2014; Garicano *et al*., 2016). Aghion *et al*. (2021) reported that this size-dependent regulation reduces innovation.[2]

Regarding land-use regulations, Cheshire *et al*. (2014) in the United Kingdom and Herkenhoff *et al*. (2018) in the United States indicated that land-use regulations result in reduced productivity. Studies on environmental regulations include Greenstone *et al*. (2012), Albrizio *et al*. (2017), and Feng *et al*. (2021), although conclusions about the impacts of environmental regulations on productivity are mixed. A recent study analyzing privacy regulations is that of Janßen *et al*. (2022) on the EU General Data Protection Regulation (GDPR), and demonstrated its negative impacts on innovation.

To summarize, many studies have analyzed the impact of rules and regulations on productivity, and each has its own strengths and weaknesses. In particular, the lack of quantitative data on compliance costs, covering all rules and regulations, has been an important limitation. This study attempts to capture, quantitatively, compliance costs in Japan by employing a novel approach that measures the labor input needed to comply with rules and regulations through a survey of workers.[3] Although it is a straightforward method, this study is unique because it presents broad compliance costs by industry and worker characteristics, covering all rules and regulations, including cross-industry social regulations.

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[2] Although not targeting labor market regulation, Hosono *et al*. (2017) and Hosono *et al*. (2019) in Japan show that size-dependent policies, which treat large and small firms differently, may have a negative impact on firm growth and productivity.

[3] Ishizaki (2019), Morikawa (2019), and Takagi and Nakajima (2021) are examples to measure compliance costs of regulations based on surveys of Japanese firms.

3. Outline of the Survey

The survey data used in this study were retrieved from the "Survey of Life and Consumption under the Changing Economic Structure" designed by the author and conducted by Rakuten Insight, Inc. The survey was implemented in July 2021 on monitors aged 20 years or older, registered with Rakuten Insight, Inc. The total number of respondents was 8,909; however, only data from 5,707 of those who worked were used in this study.[4] The composition of the sample by gender and age is shown in **Appendix Table A1**.

The key question used in this study was "How much share of your total working hours is spent to comply with rules and regulations, including voluntary rules formulated at the industry or firm level?" The seven response choices were "100%," "50-99%," "25-49%," "10-24%," "5-9%," "1-4%," and "I do not perform such work." While we would prefer specific figures, it is difficult for individual workers to provide exact percentages. For this reason, we set up multiple choices that would allow respondents to answer in rough categories, such as whether it is all, more than half, or less than half but more than a quarter of their working hours. In surveys for individual participants, wordings such as "most," "quite a bit," or "somewhat" are often used; however, in such a design the answer is affected by respondents' subjective senses/interpretations of the wordings.

The ratio of working hours devoted to compliance (hereinafter referred to as "compliance-related working hours") was tabulated based on worker characteristics. Specifically, we calculate the means and standard deviations by gender, age (10-year intervals), educational background, type of work, industry, occupation, firm size, weekly working hours, and wage level (annual income from work). In doing so, the median value for each choice was used, and the choice "I do not perform such work" was treated as zero. However, as part-time workers, for example, work fewer hours per week, we also measure the absolute amount of labor input rather than just the share of hours worked. As the survey asks about weekly working hours, the compliance-related working hours per week can be calculated as the weekly working hours for each worker multiplied by the ratio of compliance-related working hours.[5]

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[4] The number of monitors registered with the Rakuten Insight, Inc. was more than two million. The survey was conducted to obtain more than 8,000 responses, including approximately 4,985 who responded to the 2020 survey, plus additional respondents. The survey was designed to ensure that the composition of respondents by gender and age was consistent with the composition of Japan as a whole.

[5] In the survey, weekly working hours are categorized into twelve choices (from "less than 15 hours" to "75 hours or more"), which are the same with the categories in the Employment Status

Furthermore, when discussing the impact of compliance costs on productivity, it is preferable to consider workers' wage levels. As the survey examines annual earnings from work, figures weighted by each worker's hourly wages can also be calculated.[6] These are then aggregated to calculate the share of compliance-related working hours to the total labor input, weighted by wages, for the whole economy, as well as by industry and firm size.

4. Results

Table 2 presents the results of tabulating the share of time spent complying with rules and regulations of the total hours worked. Nearly half of the respondents (46.1%) reported that they did not perform such tasks (expressed as "0%"). Excluding these responses, a large number of respondents chose "10-24%," "25-49%," and "50-99%."

Table 2. The share of compliance-related working hours

Share of compliance-related hours	Percentages
100%	3.5%
50～99%	12.2%
25～49%	13.6%
10～24%	14.8%
5～9%	6.4%
1～4%	3.3%
0%	46.1%

Notes: N=5,707. The choice "I do not perform such work" was treated as 0%.

The detailed results of compliance-related working hours by worker characteristics are presented in **Appendix Table A2**, where means and standard deviations are reported. For all workers, the average share of compliance-related working hours is 20.7% and the average number of hours per week is 7.93. This means that, on average, approximately one working day per week is devoted to such work. However, the standard deviations are large, at 28.9% and 11.98 hours, respectively, indicating that there is large dispersion of regulatory burden among workers.

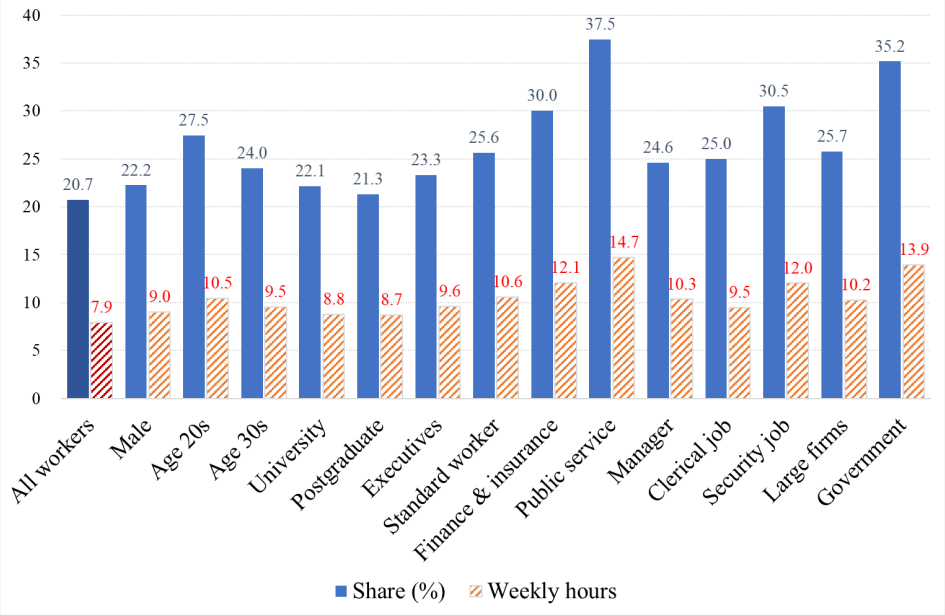
Survey (Ministry of Internal Affairs and Communications). The central values of each category are used in the analysis, where working hours of "75 hours or more" is treated as 80.5 hours.

[6] In the survey, annual income from work is classified into 18 categories (from "less than 0.5 million" to "20 million or more"), which is finer than the 16 categories in the Employment Status Survey. The central values of each category are used in the analysis, where annual earnings of "20 million yen or more" is treated as 21.25 million yen.

When weighted by wages, the mean share of compliance-related working hours is somewhat larger at 23.3% because low-wage workers tend to spend less time complying with rules and regulations. To assess the impact on productivity, it is appropriate to examine this weighted figure. As total employee compensation out of GDP is about 289 trillion yen (FY2021) in Japan, a mechanical calculation of macroeconomic compliance costs yields a huge figure of about 67 trillion yen (289 × 0.233).

Worker characteristics related to relatively high compliance-related working hours are males, young adults, highly educated, executives, standard (full-time regular) employees, the finance and insurance industry, public service, management, clerical jobs, security jobs, and large firms (see **Figure 1**). The relationship with wages (annual earnings) is an inverted U-shaped relationship, increasing until around JPY 8 million, and then decreasing gradually. The relationship with working hours increased until approximately 45 hours per week, after which the relationship remained almost unchanged. However, there is a large variation (standard deviation) even within the same category (see **Appendix Table 2**).

Figure 1. The means of compliance-related working hours by worker characteristics



Note: The categories with high compliance-related working hours are extracted from **Appendix Table A2** and are depicted in the figure. Large firms are those with 1,000 or more employees.

Table 3 presents the results of ordinary least squares (OLS) estimations that explain compliance-related working hours (share in column (1) and absolute hours in column (2)) by worker characteristics. Most of the coefficients confirm the simple cross-tabulation results

explained above. Age, industry, occupation, and firm size are significantly associated with compliance-related working hours. However, unlike the cross-tabulations for education, the coefficients for university and graduate degrees are significantly negative. In other words, the cross-tabulation results are affected by the fact that employment status, industry, and occupation differ substantially according to educational background. The coefficient for female is marginally significant (at the 10% level) but quantitatively small for the share of compliance-related working hours, and is not significantly related to the absolute amount of compliance-related hours. As with education, gender differences in the composition of employment status, industry, and occupation affect simple cross-tabulations. Annual earnings (expressed in log) are positively related to the share of compliance-related working hours (Column (1)), but not significantly related to the absolute amount of compliance-related hours (Column (2)).

Table 3. Worker characteristics and compliance-related working hours

	(1) Share		(2) Absolute hours	
Female	-1.836	(0.943) *	-0.600	(0.374)
Age 20s	6.475	(1.485) ***	2.409	(0.606) ***
Age 30s	2.633	(1.206) **	1.020	(0.498) **
Age 50s	-1.050	(1.068)	-0.332	(0.441)
Age 60s	-2.201	(1.144) *	-0.886	(0.432) **
Age 70 or higher	-2.645	(1.602) *	-0.473	(0.538)
Vocational school	-2.912	(1.357) *	-1.082	(0.543) **
Junior (2-year) college	-1.080	(1.466)	-0.454	(0.522)
4-year university	-2.847	(1.012) ***	-0.991	(0.398) **
Graduate school	-5.874	(1.678) ***	-2.388	(0.715) ***
Non-standard worker	-4.997	(1.053) ***	-1.659	(0.379) ***
Finance & insurance industry	5.612	(2.427) **	2.533	(1.000) **
Health & welfare industry	4.779	(1.621) ***	2.214	(0.659) ***
Education industry	2.734	(1.966)	2.133	(0.832) **
Public services	14.273	(2.736) ***	5.833	(1.108) ***
Professional & engineering occupation	-3.634	(1.320) ***	-1.285	(0.534) **
Services occupation	-4.575	(1.523) ***	-1.902	(0.571) ***
Agricultural occupation	-14.982	(6.530) **	-6.348	(2.836) **
Production occupation	-5.974	(2.259) ***	-2.045	(0.935) **
Construction occupation	-10.576	(3.364) ***	-4.026	(1.353) ***
Cleaning, packaging, etc.	-9.600	(2.395) ***	-2.992	(0.970) ***
Other occupations	-4.463	(1.463) ***	-1.598	(0.532) ***
100-299 employees	2.818	(1.191) **	1.119	(0.480) **
300-499 employees	4.555	(1.661) ***	2.054	(0.676) ***
500-999 employees	4.463	(1.599) ***	1.806	(0.652) ***
1,000 or more employees	7.004	(1.082) ***	2.747	(0.432) ***
Government	4.738	(2.985)	1.618	(1.270)
ln working hours	-0.157	(0.923)	5.920	(0.335) ***
ln annual earnings	1.216	(0.517) **	0.165	(0.196)
Nobs.	5,700		5,700	
R-squared	0.0797		0.1505	

Notes: OLS estimations with robust standard errors are in parentheses. ***: p<0.01, **: p<0.05, *: p<0.10. The reference categories for age, education, industry, occupation, and firm size are age 40s, high school, manufacturing, clerical occupation, and less than 100 employees, respectively. To reduce the size of the table, only statistically significant categories are presented for industries and occupations.

Table 4 presents the mean share of total compliance-related working hours to total hours by industry and firm size. By industry, as might be expected, public service is particularly large. Additionally, finance and insurance, followed by medical care and welfare, have large percentages, probably reflecting the large number of industry-specific regulations. Conversely, the percentages for agriculture, forestry, and fisheries, wholesale and retail trade, restaurants and accommodations, and other services are relatively small. The differences by firm size are clear, suggesting the influence of size-dependent regulations, or that larger firms tend to have stricter internal rules. Whether weights are used does not substantially affect the relative ranking by industry and firm size.

Table 4. The percentages of compliance-related working hours by industry and firm size

	(1) Unweighted	(2) Weighted	N
Agriculture	10.1%	10.8%	59
Construction	20.6%	23.6%	324
Manufacturing	22.2%	23.1%	938
Information & communictions	20.3%	21.0%	255
Transport	22.8%	25.4%	233
Wholesale & retail	17.7%	19.2%	592
Finnce & insurance	31.4%	30.0%	219
Real estate	19.6%	18.7%	163
Restaurants and accommodations	17.1%	20.5%	162
Health & welfare	25.3%	25.7%	639
Education	22.4%	22.4%	322
Other services	17.5%	19.0%	915
Public services	38.4%	38.9%	346
Other industries	15.4%	17.7%	540
99 employees or less	16.9%	18.2%	2,807
100-299 employees	22.3%	23.2%	686
300-499 employees	24.7%	24.7%	329
500-999 employees	25.0%	25.1%	394
1,000 or more employees	26.2%	27.0%	1,233
Government	35.5%	36.4%	258
All	21.7%	23.3%	5,707

Note: Column (2) shows the percentages weighted by each worker's hourly wage.

Finally, we discuss the productivity implications of our results. As presented in the last row of **Table 4**, the mean share of compliance-related working hours, weighted by wages, was 23.3%. As we are measuring labor input, the relationship with TFP depends on labor share (contribution) in production. Assuming a macroeconomic labor share of 2/3, if the working hours for compliance with rules and regulations were halved, which would lead to a reduction in labor input, the impact would be an increase in TFP of approximately 7.8% (23.3% × 0.5 × 2/3).[7] As Japan's current TFP growth rate is approximately 0.4-0.5% per year, the impact is very large: equivalent to 15-20 years of cumulative TFP growth. This is only a mechanical estimate, but it suggests the potential importance of deregulation and increased efficiency of enforcement of regulations as growth policies.

This estimate deals only with the effect of labor cost reduction. Some firms may invest in equipment and software to comply with rules and regulations, which cannot be captured by labor input. In addition, the possibility that rules and regulations may inhibit firms' risk-taking and innovation, and their negative impact on productivity through misallocation of resources, are outside the scope of this calculation. If such pathways are included, the impact on productivity is likely to be far greater.

5. Conclusion

This study proposes a novel approach to measure compliance costs of regulations by focusing on working hours devoted to comply with rules and regulations. It quantitatively estimates compliance costs in Japan based on survey data of workers.

According to the results, the cost of compliance with rules and regulations, including social regulations covering all sectors of the economy, is very high. A large proportion of the working hours of high-wage earners are devoted to these tasks, and it is estimated that productivity would increase by approximately 8% if these costs could be halved. This result suggests the importance of reducing compliance costs using strategies such as streamlining social regulations and digitization. Many social regulations intend to ensure safety, security, and other values that differ from economic efficiency. Therefore, we cannot generally state that they should be reduced or eliminated. However, it is necessary to consider the desirable level of regulations under trade-offs, considering the quantitative magnitude of compliance costs.

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[7] This estimate is almost perfectly consistent with the productivity effect of halving compliance costs (about 8%) based on a survey of Japanese firms (Morikawa, 2019).

The analysis in this study depends on a multiple-choice survey, which has limitations in terms of measurement accuracy. In addition, the industries and occupations of workers were categorized only at a one-digit classification level. A large-scale survey that collects more disaggregated information may enable a more detailed analysis of the relationship with productivity. Furthermore, the survey is limited to a cross-sectional design. It would be beneficial to conduct such a survey periodically to observe regulatory changes over time. Finally, similar surveys could be conducted in other countries to assess the extent of the compliance costs of Japanese rules and regulations from an international comparative perspective.

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Appendix Tables

Table A1. Gender and age composition of the sample

	N	Percentages
Male	3,496	61.3%
Female	2,211	38.7%
Age 20s	568	10.0%
Age 30s	951	16.7%
Age 40s	1,420	24.9%
Age 50s	1,359	23.8%
Age 60s	1,060	18.6%
Age 70 or older	349	6.1%
Total	5,707	100.0%

Note: The figures are the worker subsamples of the respondents to the "Survey of Life and Consumption under the Changing Economic Structure" conducted in July 2021.

Table A2. Compliance-related working hours by worker characteristics

		(1) Share (%)		(2) Absolute hours		N
		Mean	Std. Dev.	Mean	Std. Dev.	
All workers		20.7	28.9	7.93	11.98	5,707
Gender	Male	22.2	28.9	9.04	12.55	3,496
	Femle	18.3	28.8	6.18	10.79	2,211
Age	20s	27.5	31.2	10.46	13.41	568
	30s	24.0	30.0	9.53	12.89	951
	40s	21.0	28.9	8.32	12.16	1,420
	50s	20.5	28.7	8.24	12.37	1,359
	60s	16.4	26.9	5.63	9.87	1,060
	70 or older	13.5	24.3	3.70	7.62	349
Education	High school	19.6	30.1	7.25	12.07	1,461
	Vocational school	18.8	28.3	7.18	11.87	658
	Junior (2-year) college	18.8	29.1	6.27	10.58	579
	4-year university	22.1	28.6	8.77	12.18	2,582
	Graduate school	21.3	26.4	8.72	12.04	420
Type of work	Executives	23.3	26.3	9.60	12.38	333
	Self-employed	13.8	25.5	5.21	11.27	590
	Family workers	12.5	24.5	3.93	7.93	87
	Standard employee	25.6	30.0	10.56	13.11	2,964
	Part-time workers	12.9	26.0	3.24	7.26	918
	Temporary workers	13.8	26.3	3.71	8.04	288
	Dispatched workers	16.1	28.6	5.42	10.42	136
	Contract employees	20.2	29.7	7.34	11.30	298
	Entrusted employees	14.1	23.5	4.04	6.54	93
Industry	Agriculture	9.1	21.3	3.69	8.45	59
	Construction	21.0	26.0	8.17	10.87	324
	Manufacturing	21.9	27.9	8.96	11.94	938
	Information & communications	20.5	25.5	8.14	10.16	255
	Transport	22.8	31.2	9.14	14.13	233
	Wholesale & retail	16.8	26.7	6.33	10.74	592
	Finance & insurance	30.0	32.9	12.05	14.20	219
	Real estate	19.3	28.3	6.15	9.91	163
	Accommodations & restaurants	16.5	27.4	5.64	10.49	162
	Health care & welfare	23.2	29.9	8.77	12.75	639
	Education	19.1	28.9	7.38	13.40	322
	Other services	17.3	26.8	6.26	10.27	915
	Public services	37.5	36.0	14.68	15.18	346
	Other industries	14.3	26.0	5.01	10.08	540

(Continued)		(1) Share (%)		(2) Absolute hours		N
		Mean	Std. Dev.	Mean	Std. Dev.	
Occupation	Managerial	24.6	26.8	10.35	12.13	638
	Professional & engineering	21.7	28.2	8.74	12.51	1,176
	Clerical	25.0	31.5	9.49	12.89	1,188
	Sales	16.5	28.1	5.71	10.52	290
	Trade-related	24.2	27.9	9.98	12.22	361
	Service	16.5	26.9	5.38	9.65	682
	Safety	30.5	34.2	12.03	15.25	78
	Agricultural	7.5	18.5	2.88	6.36	54
	Production	17.6	29.0	7.46	12.52	227
	Transportation & Machinery operation	24.2	32.6	9.75	14.74	80
	Construction	14.2	24.0	5.81	9.80	61
	Cleaning, packaging, etc.	11.3	25.0	4.37	11.16	140
	Others	15.6	28.2	4.99	10.00	732
Firm size	99 or smaller	16.3	26.7	5.85	10.66	2,807
	100-299	21.2	28.5	8.33	12.00	686
	300-499	23.0	28.7	9.24	12.32	329
	500-999	24.3	29.3	9.85	12.29	394
	1,000 or larger	25.7	29.9	10.24	12.71	1,233
	Government	35.2	36.6	13.92	15.64	258
Working hours (weekly)	Shorter than 15 hours	17.1	28.8	2.23	3.74	769
	15-19	15.2	27.9	2.59	4.74	325
	20-21	13.5	24.3	2.77	4.98	223
	22-29	14.9	26.7	3.80	6.82	354
	30-34	19.4	28.3	6.20	9.05	323
	35-42	23.3	29.8	8.96	11.45	1,732
	43-45	23.8	29.6	10.46	13.02	628
	46-48	23.6	29.4	11.09	13.81	489
	49-59	22.1	27.8	11.94	14.99	521
	60-64	23.1	28.5	14.32	17.67	161
	65-74	15.4	24.4	10.72	16.99	78
	75 hours or longer	22.3	28.2	17.95	22.67	104
Annual earnings	Less than 0.5 million	12.4	26.3	2.96	7.27	396
	0.5-0.99	13.4	26.6	3.20	7.13	539
	1-1.49	14.0	26.1	4.04	8.50	469
	1.5-1.99	18.7	28.2	6.20	10.32	308
	200-2.49	19.0	29.5	7.18	11.95	418
	2.5-2.99	20.1	29.0	7.76	11.93	374
	3-3.99	23.6	30.6	9.32	13.03	737
	4-4.99	24.7	29.6	10.45	13.55	675
	5-5.99	24.2	29.7	9.80	12.80	504
	6-6.99	26.5	30.1	11.61	13.85	352
	7-7.99	25.4	28.4	10.87	12.93	287
	8-8.99	27.7	30.3	11.50	12.64	208
	9-9.99	19.7	25.3	9.02	11.96	122
	10-10.249	23.1	23.8	9.94	11.27	180
	12.5-14.99	22.8	25.3	8.37	10.42	54
	15-17.49	22.4	28.4	8.22	9.39	21
	17.5-19.99	25.6	20.7	9.80	9.13	15
	20 million or more	22.1	27.3	11.39	17.45	48