RIETI Policy Discussion Paper Series 25-P-016

Compliance Costs of Government Rules and Regulations

MORIKAWA, Masayuki
RIETI

The Research Institute of Economy, Trade and Industry
https://www.rieti.go.jp/en/

RIETI Policy Discussion Papers Series, 25-P-016
November 2025

Compliance Costs of Government Rules and Regulations*

Masayuki MORIKAWA (RIETI)

Abstract

This study estimates the compliance costs of government rules and regulations based on a survey of Japanese workers. The results reveal the following key findings. First, nearly half of all workers engage in tasks related to regulatory compliance. Second, nearly 20% of total labor input is devoted to compliance tasks, implying a significant negative impact on macroeconomic productivity. Third, engaging in compliance tasks is associated with perceptions of workplace understaffing and frequency of sudden overtime. These findings suggest that reducing and streamlining such work has the potential to enhance both productivity and the well-being of workers.

Keywords: regulation, compliance cost, productivity, labor shortage
JEL Classification: D24, J22, L51, O47

* I would like to thank Haruhiko Ando, Kyoji Fukao, Seiichiro Inoue, Daiji Kawaguchi, Eiichi Tomiura and the seminar participants at RIETI for their valuable comments and suggestions. This research is supported by the JSPS Grants-in-Aid for Scientific Research (21H00720, 23K17548).

Compliance Costs of Government Rules and Regulations

1. Introduction

Governments' rules and regulations have been increasing in major economies. Although economic deregulation has progressed since the 1980s, "social regulations"—such as those concerning labor standards, environmental protection, and consumer safety—have continued to expand (e.g., Dawson and Seater, 2013; Morikawa, 2023). In Japan, the total number of regulations has risen at an annual rate of approximately 2.5% since the 2000s, with social regulations administered by ministries such as the Financial Services Agency, the Ministry of Health, Labour and Welfare, and the Ministry of the Environment contributing substantially to this growth.

These social regulations are designed to safeguard values such as safety and security, which are distinct from those of economic growth and productivity. Accordingly, it is inappropriate to assess their impacts solely from the standpoint of economic efficiency. Nevertheless, such regulations may generate unintended side effects that impede efficiency. Specifically, the potential adverse effects include: (1) increased direct compliance costs, including document preparation, inspection expenses, and the deployment of qualified personnel; (2) the suppression of market mechanisms such as firm entry and exit, and the redistribution of market share; and (3) negative impacts on risk-taking and innovation.

Under these circumstances, a substantial body of research has sought to quantitatively capture the impact of government regulations. The OECD has developed and published several indicators, including the Product Market Regulation (PMR) index—based on surveys of national governments regarding laws and regulations affecting markets—and the REGIMPACT index, which measures the impact of regulation for upstream industries on downstream industries. Numerous studies have employed these indicators to analyze the impact of regulation (e.g., Nicoletti and Scarpetta, 2003; Andrews and Cingano, 2014).

In the United States, various measures have been proposed, such as the page count of the Code of Federal Regulations (CFR) (Dawson and Seater, 2013), RegData—constructed through text analysis of the CFR (Al-Ubaydli and McLaughlin, 2017; McLaughlin and Sherouse, 2019)—and the RegIn metric (Kalmenovitz, 2023), which applies machine learning to estimate corporate compliance costs of paperwork associated with federal regulations.[1]

[1] Bombardini *et al*. (2025) provide a comprehensive survey of methodologies for measuring the cost-effectiveness of government regulations and analyzing their economic impacts, offering valuable insights into recent research developments and remaining challenges.

In Japan, several studies have utilized industry-specific regulatory indicators derived from the Current Status of Licensing and Permits compiled by the Ministry of Internal Affairs and Communications (Nakanishi and Inui, 2008; Miyakawa *et al*., 2025). Nakanishi and Inui (2008) find that regulations negatively affect productivity growth rates, while Miyakawa *et al*. (2025) report that deregulation contributes positively to productivity growth.

A large body of research has examined the effects of specific social regulations, such as those governing labor markets, land use, and environmental protection. Some of these regulations adopt size-dependent designs, imposing stricter rules on large or publicly listed firms while applying more lenient requirements to small and medium-sized enterprises. Numerous studies have found that such regulations exert negative effects on productivity and innovation (e.g., Gourio and Roys, 2014; Garicano *et al*., 2016; Aghion *et al*., 2023; Ewens *et al*., 2024).

Several studies have also sought to estimate the macroeconomic impacts of government regulation. For instance, Coffey *et al*. (2020) analyzed the macroeconomic consequences of regulation using RegData and estimated that regulatory burdens have reduced the U.S. economic growth rate by approximately 0.8 percentage points per year. Pellegrino and Zheng (2024), employing firm survey data within a macroeconomic framework, estimated that the average compliance costs associated with regulations (i.e., red tape) in major European countries amount to roughly 0.8% of GDP.

An example of study employing a labor input approach is Trebbi and Zhang (2022). They estimate the wage share devoted to compliance with U.S. government regulations (RegIndex) and report that it accounts for approximately 1.3% to 3.3% of total establishment wages, increasing at an annual rate of about 1%. In Japan, Morikawa (2023) provides a rough estimate of compliance costs based on a survey of workers. In his study, "compliance" encompasses not only government rules and regulations but also industry-level voluntary rules and firms' internal rules. Compliance-related working hours are estimated to constitute more than 20% of total labor input. He argues that if this share were reduced by half, overall productivity in the Japanese economy could increase by approximately 8%.

As potential growth rates in major economies remain sluggish—and particularly in Japan, where labor shortages are becoming increasingly severe—quantifying the economic impact of regulation is crucial from a macroeconomic policy perspective. This paper builds upon Morikawa (2023) in several respects, based on a newly conducted worker survey. First, it focuses on estimating compliance costs by restricting the scope to government rules and regulations, excluding industry-level voluntary rules and firms' internal rules. Second, it seeks to enhance accuracy by subdividing the response choices for the question concerning the proportion of compliance-related working hours. Third, it incorporates additional questions on workplace labor shortages and overtime conditions to examine their relationship with compliance tasks.

The main findings are as follows. First, nearly half of all workers engage in tasks related to compliance with government rules and regulations, with highly educated regular employees, high-wage earners, and those working long hours tending to perform such tasks more intensively. Second, nearly 20% of total labor input is devoted to compliance-related tasks, suggesting that reducing or streamlining these tasks could generate substantial macroeconomic benefits. Third, engaging compliance tasks are positively associated with perceptions of workplace understaffing and frequency of sudden overtime. Thus, reducing or simplifying these activities may enhance not only productivity but also workers' well-being.

The remainder of this paper is organized as follows. Section 2 outlines the worker survey used in this study. Section 3 presents the results, and Section 4 concludes with a summary of the main findings and their policy implications.

2. Outline of the survey

This study uses data from the Survey of Life and Consumption under the Changing Economic Structure. The author designed the questionnaire and commissioned Rakuten Insight Inc. to conduct the survey. Rakuten Insight Inc., a subsidiary of Rakuten, Inc.—Japan's largest online retailer—is one of the country's leading internet research firms. The target population comprised working individuals aged 20 and older, drawn from the approximately 2.3 million individuals registered with Rakuten Insight Inc. The survey was conducted in October 2024, with respondents sampled to match the gender and age composition of the 2022 Employment Status Survey (Ministry of Internal Affairs and Communications). A total of 8,269 workers participated in the survey.

The survey questions cover a wide range of topics, including worker characteristics (e.g., gender, age, educational background, industry of employment, occupation, employment type, tenure, weekly working hours, and annual income), the proportion of working hours devoted to complying with government rules and regulations, perceptions of labor shortages in the workplace, and overtime work situations. Most questions are in a multiple-choice format: industries are classified into 44 groups, occupations into 13 groups, and employment types into 10 groups. Tenure is reported in actual years and months. While the industry classification is very detailed, this study aggregates it into 14 broad categories. Weekly working hours are divided into 12 groups (ranging from less than 15 hours to 75 hours or more), consistent with the Employment Status Survey. Annual income from work is categorized into 18 groups (from less than ¥500,000 to ¥20

million or more), subdividing the top category of the Employment Status Survey.[2] In this study, when cross-tabulating data by annual income, we group it into three broad categories: under ¥5 million, ¥5 million to under ¥10 million, and ¥10 million or more. However, for regression analysis, we use the log-transformed median of each bracket for both weekly working hours and annual income from work.[3]

The key question regarding government regulations addressed in this paper is as follows: "To comply with regulations and rules (including tax and social security systems) and administrative guidance issued by the government and local authorities, tasks such as creating and storing documents and data, responding to inspections, and conducting internal coordination and approval procedures are necessary. What percentage of your total working hours is spent on tasks related to complying with these regulations, rules, and administrative guidance?" The response options are divided into 11 categories: "90% or more," "approximately 80%," "approximately 70%," "approximately 60%," "approximately 50%," "approximately 40%," "approximately 30%," "approximately 20%," "approximately 10%," "less than 10%," and "We do not perform such work." For the analysis, "90% or more" is treated as 95%, "less than 10%" as 5%, and "We do not perform such work" as 0% (hereafter abbreviated as the "proportion of regulatory compliance work hours"). We estimate the aggregate level of compliance-related labor input and examine the relationship between worker characteristics and regulatory compliance work through cross-tabulation and regression analysis.

The question regarding perceived labor shortages in the workplace is: "Do you feel your workplace is understaffed?" with four response options: "I feel there is a severe labor shortage," "I feel there is a labor shortage," "I do not feel there is a labor shortage," and "I feel there is a surplus of staff." The question regarding overtime is: "Do you ever have to work overtime that was not originally scheduled?" The response options are: "Frequently," "Sometimes," "Rarely," "Never," and "Can't say/Don't know." These questions are used to examine their relationship with regulatory compliance work.

3. Results

Individuals engaged in compliance-related tasks (hereinafter referred to as "regulatory

[2] Specifically, the top bracket of ¥15 million or more in the Employment Status Survey are subdivided into ¥15 million to ¥17.49 million, ¥17.5 million to ¥19.99 million, and ¥20 million or more.

[3] The lowest bracket for weekly working hours (less than 15 hours) is treated as 13 hours, and the highest bracket (75 hours or more) is treated as 80.5 hours. The highest bracket for annual income (¥20 million or more) is treated as ¥21.25 million.

compliance practitioners") account for 46.3% of respondents. This survey was originally sampled based on the gender and age composition of the Employment Status Survey but did not account for industry composition. When weighted by the industry composition of the Employment Status Survey, the figure becomes 45.7%, which is nearly identical to the simple aggregation.

According to a 2021 survey covering industries' voluntary rules and firms' internal rules, 53.9% of employees were engaged in compliance-related tasks (Morikawa, 2023). While direct comparison is difficult due to differences in the samples, the result focusing solely on government rules and regulations is about 8 percentage points lower.

The results by worker characteristics are presented in Appendix **Tables A1**–**A5**, with **Table 1** highlighting categories with high proportion of regulatory compliance practitioners. The proportion is particularly high among males, college graduates or higher, full-time regular employees, and firm executives, showing little variation by age. By industry, the highest rates are public administration (60.1%), followed by electricity, gas, water, and heat supply (58.8%), finance and insurance (53.0%), and wholesale trade (52.9%). By occupation, managers (69.8%), sales occupations (56.3%), and professional and technical occupations (50.3%) show high proportions. The proportion rises with higher annual income and is large among those working moderately long weekly hours (43–64 hours).

Table 1. The categories of high proportion of regulatory compliance practitioners.

Characteristics of workers		Percentages
All respondents		46.3%
Gender	Male	54.2%
Education	University	53.3%
	Graduate school	66.3%
Employment type	Firm executives	62.4%
	Full-time regular employees	54.8%
Industry	Manufacturing (machinary)	54.8%
	Electricity, gas, water, and heat supply	58.8%
	Wholesale	52.9%
	Finance and insurance	53.0%
	Public administration	60.1%
Occupation	Managerial	69.8%
	Sales	56.3%
Annual income	5,000-10,000 thousand yen	61.7%
	10,000 thousand yen or higher	65.0%
Weekly working hours	43-45 hours	53.7%
	46-48 hours	57.6%
	49-59 hours	59.2%
	60-64 hours	60.9%

Note: The categories indicated in this table are extracted from appendix **Table A1**-**A5**.

The results of the probit estimation explaining whether an individual is a regulatory compliance practitioner based on observable worker characteristics are reported in Appendix **Table A6**. The reference category is male, age 40s, high school graduate, full-time regular employee, working in manufacturing (non-machinery), and in a clerical occupation. Overall, even after controlling for various individual characteristics, the results confirm the patterns observed in the simple tabulations. The coefficients for log annual income and log weekly working hours are both positive and statistically significant at the 1% level, indicating that workers with higher wages and longer working hours are more likely to engage in tasks related to complying with government rules and regulations. While the coefficients for industry and occupation depend on the choice of reference category, those for finance and insurance and for sales occupations are not statistically significant.

Table 2. Proportion of hours devoted to compliance tasks.

Characteristics of workers		Percentages
All respondents		37.2%
Age	20s	48.7%
	30s	42.5%
	40s	37.1%
	50s	34.5%
	60s	31.1%
	70 or older	23.0%
Industry	Electricity, gas, water, and heat supply	48.7%
	Finance and insurance	40.5%
	Public administration	53.8%
Occupation	Clerical occupation	43.9%
	security occupation	46.8%
	Construction occupation	43.4%

Notes: The categories indicated in this table are extracted from appendix **Table A1-A5**. The percentages are the simple average of regulatory compliance practitioners (N=3,830).

Excluding respondents who reported not performing regulatory compliance tasks, the simple average of regulatory compliance work hours is 37.2% (median is 30%). Appendix **Tables A1**–**A5** report mean values by worker characteristics. **Table 2** highlights figures by age group and categories with a high proportion of regulatory compliance work hours. Differences based on individual characteristics (i.e., intensive margin) are relatively small, with minor variations by gender, educational background, and annual income. A systematic pattern is observed by age: the percentage is higher among younger workers (48.7% in their 20s, 42.5% in their 30s) and decreases with age. By industry, public administration (53.8%) and electricity, gas, water, and

heat supply (48.7%) show high proportions. By occupation, clerical (43.9%), security (48.7%), and construction (43.4%) occupations have a high proportion of regulatory compliance work hours. A relatively large portion of working hours is devoted to regulatory compliance tasks in these groups.

The results of the OLS estimation explaining the proportion of working hours devoted to compliance tasks by worker characteristics are reported in column (1) of Appendix **Table A7**. The explanatory variables and reference categories are the same as in the probit estimation described earlier. The pattern of younger workers exhibiting a higher proportion of compliance-related working hours persists even after controlling for other individual characteristics. Industry patterns are also largely consistent with the simple tabulation results. Since the coefficients for gender, annual income, and weekly working hours are not statistically significant, no differences in compliance-related working hours (i.e., intensive margin) are observed for these characteristics among workers performing compliance-related tasks.

When calculating the simple average across all respondents, with those not engaged in regulatory compliance work treated as 0%, the figure is 17.2%. Weighted by industry composition using data from the Employment Status Survey, the result is 16.7%, indicating only a minimal difference. While direct comparison is difficult due to differences in samples and response options, a 2021 survey—including firms' internal rules and industries' voluntary rules—reported the simple average as 20.7% (Morikawa, 2023). [4] The figure from this study, which focuses solely on government rules and regulations, is therefore not substantially different.

The results reported here are substantially higher than the compliance cost estimates for Europe (Pellegrino and Zheng, 2024) and the United States (Trebbi and Zhang, 2022) mentioned in the introduction. While direct comparison is difficult due to differences in estimation methods, this may reflect Japanese workers' tendency to spend more time complying with government regulations. However, a possible bias cannot be ruled out, as workers may overstate their compliance-related work hours in questionnaire surveys.

The differences in regulatory compliance work hours by worker characteristics are generally small, suggesting that the variation is largely driven by whether workers engage in regulatory compliance tasks (i.e., extensive margin). Nevertheless, higher figures are observed among males, younger workers, those with higher education, employees in the electricity, gas, water, and heat supply industries, public sector workers, managers, and clerical staff. These patterns are consistent with the findings of Morikawa (2023), which included industries' voluntary rules and firms' internal rules. The results of the OLS estimation using individual characteristics as explanatory

[4] The choices for the percentage of working hours spent on compliance activities in the 2021 survey were seven categories: "100%," "50–99%," "25–49%," "10–24%," "5–9%," "1–4%," and "We do not perform such work."

variables are shown in column (2) of Appendix **Table A7**. The coefficient for annual income is positive and statistically significant, while the coefficient for weekly working hours is positive but insignificant.

As reported earlier, individuals with relatively long weekly working hours and higher annual incomes are more likely to be engaged in regulatory compliance tasks. Consequently, the weighted average based on working hours is 18.4%, and the weighted average based on annual income is 19.8%, both higher than the simple average.[5] When comparing to GDP, it is appropriate to consider figures weighted by annual income. Accordingly, compliance-related labor input as a proportion of total labor input—which accounts for workforce quality and working hours—is nearly 20%. Assuming a labor share of two-thirds, if time spent on compliance with rules and regulations could be halved, total factor productivity (TFP) in the macroeconomy would increase by 6.6%. Given that Japan's TFP growth rate is currently around 0.5% per year, the potential impact of deregulation would be equivalent to more than a decade of productivity growth.[6]

Table 3 presents the cross-tabulation of whether workers engage in compliance-related tasks and their perception of workplace staffing shortages. Regulatory compliance practitioners tend to report stronger perceptions of staffing shortages. This relationship persists even in an ordered probit estimation that controls for gender, age, educational attainment, employment status, industry, occupation, annual income, and weekly working hours (Appendix **Table A8**).[7] When the proportion of regulatory compliance work hours is used as an explanatory variable, the coefficient remains positive and statistically significant at the 1% level.

Table 3. Compliance-related tasks and perception of labor shortage.

	Regulatory compliance practitioners	Non-practioners
Severe labor shortage	15.9%	12.1%
Labor shortage	53.3%	46.7%
No labor shortage	28.2%	37.1%
Surplus of staff	2.6%	4.1%

Table 4 presents the cross-tabulation of whether workers engage in regulatory compliance tasks and the frequency of sudden overtime work. Workers performing compliance tasks report higher

[5] In a 2021 survey covering industries' voluntary rules and firms' internal rules, the weighted average based on working hours was 21.7%, while that based on annual income was 23.3% (Morikawa, 2023).
[6] According to Cabinet Office estimates, the TFP growth rate for the April-June 2025 quarter is 0.5% per annum. According to Bank of Japan estimates, the recent TFP growth rate is 0.65% per annum.
[7] In the estimations, the dependent variable is as follows: "Severe labor shortage" = 4, "Labor shortage" = 3, "No labor shortage" = 2, "Surplus of staff" = 1.

percentages of "frequent" and "occasional" sudden overtime. This relationship is also confirmed in an ordered probit estimation that controls for worker characteristics (Appendix **Table A9**).[8]

These results suggest that compliance tasks related to government rules and regulations affect not only productivity but also workers' well-being.

Table 4. Regulatory compliance tasks and sudden overtime work.

	Regulatory compliance practitioners	Non-practioners
Frequently	13.2%	7.7%
Occasionally	43.5%	31.1%
Rarely	29.2%	32.8%
Never	12.2%	22.8%

Notes: This cross-tabulation exclude samples that answered "I can't say/I don't know" to the question about the frequency of sudden overtime work.

4. Conclusion

This study analyzes the compliance costs associated with government rules and regulations based on a unique survey of Japanese workers, building on Morikawa (2023), which examined compliance costs including industries' voluntary rules and firms' internal rules.

The key findings are as follows. First, nearly half of all workers engage in tasks related to complying with government rules and regulations. This proportion is higher among males, highly educated individuals, regular employees and company executives, and high-income earners. By industry, it is higher in electricity, gas, water, and heat supply, finance and insurance, and public administration. By occupation, it is higher among managers, sales personnel, and professional and technical workers.

Second, 17.2% of total working hours at the macro level—or 19.8% of total labor input weighted by annual income—is allocated to regulatory compliance tasks. If labor input into these tasks could be halved, macroeconomic TFP would increase by 6.6%. Given that Japan's TFP growth rate is around 0.5%, reducing compliance costs through measures such as rationalizing social regulations and digitizing regulatory enforcement could have quantitatively significant effects. While these figures are slightly smaller than those estimated by Morikawa (2023), which included industries' voluntary rules and firms' internal rules, the difference is not substantial.

[8] The dependent variable is as follows: "frequently" = 4, "occasionally" = 3, "rarely" = 2, 'never' = 1. Estimates exclude samples responding "can't say/don't know."

Third, workers engaged in regulatory compliance tasks tend to perceive significant workplace staffing shortages and frequently undertake sudden overtime work. In other words, reducing and streamlining compliance-related tasks has the potential not only to improve productivity but also to enhance workers' well-being.

It should be noted that the economic costs of government rules and regulations could extend beyond the direct compliance costs discussed in this paper, potentially affecting economic performance by their negative impacts on the reallocation of resources and innovation.

References

Aghion, Philippe, Antonin Bergeaud, and John Van Reenen (2023). "The Impact of Regulation on Innovation." *American Economic Review*, Vol. 113, No. 11, pp. 2894–2936.

Al-Ubaydli, Omar and Patrick A. McLaughlin (2017). "Regdata: A Numerical Database on Industry-Specific Regulations for All United States Industries and Federal Regulations, 1997–2012." *Regulation and Governance*, Vol. 11, No. 1, pp. 109–123.

Andrews, Dan and Federico Cingano (2014). "Public Policy and Resource Allocation: Evidence from Firms in OECD Countries." *Economic Policy*, Vol. 78, April, pp. 255–296.

Bombardini, Matilde, Francesco Trebbi, and Miao Ben Zhang (2025). "Measuring the Costs and Benefits of Regulation." *Annual Review of Economics*, Vol. 17, pp. 345–365.

Coffey, Bentley, Patrick A. McLaughlin, and Pietro Peretto (2020). "The Cumulative Cost of Regulations." *Review of Economic Dynamics*, Vol. 38, October, pp. 1–21.

Dawson, John W. and John J. Seater (2013). "Federal Regulation and Aggregate Economic Growth." *Journal of Economic Growth*, Vol. 18, No. 2, pp. 137–177.

Ewens, Michael, Kairong Xiao, and Ting Xu (2024). "Regulatory Costs of Being Public: Evidence from Bunching Estimation." *Journal of Financial Economics*, Vol. 153, March, 103775.

Garicano, Luis, Claire LeLarge, and John Van Reenen (2016). "Firm Size Distortions and the Productivity Distribution: Evidence from France." *American Economic Review*, Vol. 106, No. 11, pp. 3439–3479.

Gourio, Francois and Nicolas Roys (2014). "Size-Dependent Regulations, Firm Size Distribution, and Reallocation." *Quantitative Economics*, Vol. 5, No. 2, pp. 377–416.

Inui, Tomohiko and Yasuo Nakanishi (2008). "Deregulation and Industry Performance." in Fukao Kyoji and Miyagawa Tsutomu Eds. *Productivity and Japan's Economic Growth: Industry-Level and Firm-Level Studies Based on the JIP Database*, University of Tokyo Press, pp. 203–220.

Kalmenovitz, Joseph (2023). "Regulatory Intensity and Firm-Specific Exposure." *Review of Financial Studies*, Vol. 36, No. 8, pp. 3311–3347.

McLaughlin, Patrick A. and Oliver Sherouse (2019). "RegData 2.2: A Panel Dataset on US Federal Regulations." *Public Choice*, Vol. 180, pp. 43–55.

Miyakawa, Daisuke, Miho Takizawa, and Yutaro Shimamura (2025). "Industry Regulation Indexes." RIETI Discussion Paper, 25-J-013. (in Japanese)

Morikawa, Masayuki (2023). "Compliance Costs and Productivity: An Approach from Working Hours." *Journal of Regulatory Economics*, Vol. 63, No. 3, pp. 117–137.

Nicoletti, Giuseppe and Stefano Scarpetta (2003). "Regulation, Productivity and Growth: OECD

Evidence.” *Economic Policy*, Vol. 18, No. 1, pp. 9–72.

Pellegrino, Bruno and Geoffery Zheng (2024). “Quantifying the Impact of Red Tape on Investment: A Survey Data Approach.” *Journal of Financial Economics*, Vol. 152, February, 103763.

Trebbi, Francesco and Miao Ben Zhang (2022). “The Cost of Regulatory Compliance in the United States.” NBER Working Paper, No. 30691

Appendix Tables

Table A1. Cross-tabulation results by gender, age, and education.

		(1) Regulatory compliance practitioners	(2) Proportion of hours devoted to compliance tasks	(3) Mean hours including non-practioners	N
All respondents		46.3%	37.2%	17.2%	8,269
Gender	Male	54.2%	36.6%	19.8%	4,855
	Female	35.1%	38.5%	13.5%	3,414
Age	20s	45.7%	48.7%	22.2%	922
	30s	47.5%	42.5%	20.2%	1,365
	40s	46.8%	37.1%	17.4%	2,053
	50s	47.2%	34.5%	16.3%	2,194
	60s	44.3%	31.1%	13.7%	1,514
	70 or older	43.0%	23.0%	9.9%	221
Education	Highschool or less	35.6%	39.2%	13.9%	2,026
	Vocational school	37.7%	36.2%	13.7%	1,029
	Junior college	38.0%	35.7%	13.6%	860
	4-year university	53.3%	37.3%	19.9%	3,782
	Graduate school	66.3%	35.1%	23.2%	566

Notes: Column (2) shows the mean percentages for regulatory compliance practitioners, and column (3) shows the mean percentages with non-compliance personnel set to zero (same for **Tables A2**–**A5**).

Table A2. Cross-tabulation results by employment type.

		(1) Regulatory compliance practitioners	(2) Proportion of hours devoted to compliance tasks	(3) Mean hours including non-practioners	N
Employment type	Executives	62.4%	33.6%	21.0%	391
	Self-employed	46.0%	27.4%	12.6%	696
	Family workers	37.5%	29.0%	10.9%	80
	Standard employee	54.8%	39.2%	21.4%	4,423
	Part-time workers	27.3%	36.7%	10.0%	1,418
	Temporary workers	20.6%	35.9%	7.4%	330
	Dispatched workers	26.9%	43.3%	11.6%	227
	Contract employees	41.6%	34.8%	14.5%	514
	Entrusted employees	45.5%	33.0%	15.0%	134
	Others	41.1%	40.4%	16.6%	56

Table A3. Cross-tabulation results by industry.

		(1) Regulatory compliance practitioners	(2) Proportion of hours devoted to compliance tasks	(3) Mean hours including non-practioners	N
Industry	Construction	50.8%	38.6%	19.6%	396
	Manufacturing (machinery)	54.8%	29.9%	16.3%	504
	Manufacturing (other)	49.0%	34.8%	17.1%	857
	Electricity, gas, water, and heat supply	58.8%	48.7%	28.6%	102
	Information and communications	47.6%	33.3%	15.8%	506
	Transport	45.3%	38.8%	17.6%	373
	Wholesale	52.9%	32.5%	17.2%	278
	Retail	34.9%	34.7%	12.1%	665
	Finance and insurance	53.0%	40.5%	21.5%	355
	Services	38.9%	34.3%	13.3%	1,658
	Education	48.3%	35.2%	17.0%	503
	Healthcare and welfare	44.3%	38.8%	17.2%	998
	Public administration	60.1%	53.8%	32.4%	547
	Other industries	45.0%	35.1%	15.8%	527

Table A4. Cross-tabulation results by occupation.

		(1) Regulatory compliance practitioners	(2) Proportion of hours devoted to compliance tasks	(3) Mean hours including non-practioners	N
Occupation	Managerial	69.8%	34.1%	23.8%	1,001
	Professional and engineering	50.3%	33.4%	16.8%	1,723
	Clerical	48.7%	43.9%	21.4%	1,898
	Sales	32.0%	35.9%	11.5%	435
	Trade-related	56.3%	36.1%	20.3%	656
	Service	31.2%	39.3%	12.3%	1,117
	Safety	44.4%	46.8%	20.8%	108
	Agricultural	38.1%	29.2%	11.1%	63
	Production	30.8%	35.2%	10.9%	357
	Transportation and Machinery Operation	41.1%	39.8%	16.4%	107
	Construction	38.8%	43.4%	16.8%	80
	Cleaning, packaging, etc.	22.4%	28.6%	6.4%	214
	Other occupations	34.9%	31.8%	11.1%	510

Table A5. Cross tabulation result by earnings and working hours.

		(1) Regulatory compliance practitioners	(2) Proportion of hours devoted to compliance tasks	(3) Mean hours including non-practioners	N
Annual earnings	Less than 0.5 million yen	37.3%	37.7%	14.1%	5,295
	5-10 million yen	61.7%	37.4%	23.1%	2,440
	10 million yen or higher	65.0%	33.1%	21.5%	534
Weekly working hours	Shorter than 15 hours	32.8%	37.3%	12.2%	892
	15-19	29.3%	36.9%	10.8%	495
	20-21	37.9%	39.6%	15.0%	330
	22-29	37.2%	35.2%	13.1%	470
	30-34	42.4%	39.0%	16.5%	517
	35-42	46.7%	38.2%	17.8%	2,680
	43-45	53.7%	34.8%	18.7%	1,070
	46-48	57.6%	37.3%	21.4%	648
	49-59	59.2%	36.1%	21.4%	701
	60-64	60.9%	38.1%	23.2%	235
	65-74	49.4%	30.5%	15.1%	77
	75 hours or longer	50.6%	40.3%	20.4%	154

Table A6. Probability to engage in regulatory compliance tasks by worker characteristics.

	dF/dx	Robust SE	
Female	-0.084	(0.015)	***
20s	-0.008	(0.021)	
30s	-0.001	(0.018)	
50s	0.005	(0.016)	
60s	0.025	(0.019)	
70 or older	0.060	(0.039)	
Vocational school	0.008	(0.021)	
Junior college	0.061	(0.022)	***
4-year university	0.088	(0.015)	***
Graduate school	0.182	(0.025)	***
Executives	0.005	(0.029)	
Self-employed	0.000	(0.024)	
Family workers	0.006	(0.061)	
Part-time workers	-0.060	(0.022)	***
Temporary workers	-0.147	(0.032)	***
Dispatched workers	-0.152	(0.034)	***
Contract employees	-0.053	(0.025)	**
Entrusted employees	-0.050	(0.045)	
Others	-0.023	(0.067)	
Construction	0.024	(0.034)	
Manufacturing (machinery)	0.006	(0.029)	
Electricity, gas, etc.	0.113	(0.055)	**
Information and communications	-0.047	(0.030)	
Transport	0.029	(0.036)	
Wholesale	0.023	(0.037)	
Retail	-0.017	(0.033)	
Finance and insurance	0.013	(0.034)	
Services	0.007	(0.025)	
Education	0.053	(0.031)	*
Healthcare and welfare	0.041	(0.027)	
Public administration	0.087	(0.030)	***
Other industries	0.006	(0.031)	
Managerial	0.082	(0.023)	***
Professional and engineering	-0.059	(0.019)	***
Sales	-0.064	(0.034)	*
Trade-related	-0.011	(0.024)	
Service	-0.125	(0.021)	***
Safety	-0.099	(0.048)	**
Agricultural	-0.105	(0.067)	
Production	-0.171	(0.029)	***
Transportation and Machinery Operation	-0.126	(0.051)	**
Construction	-0.156	(0.056)	**
Cleaning, packaging, etc.	-0.207	(0.035)	***
Other occupations	-0.119	(0.026)	***
ln Annual earnings	0.066	(0.009)	***
ln Weekly working hours	0.041	(0.015)	***
Nobs.	8,263		
Pseudo R^2	0.0910		

Notes: Probit estimation results with robust standard errors reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Reference categories are male, age 40s, high school graduate, full-time regular employee, manufacturing (non-machinery), and clerical occupation.

Table A7. Proportion of working hours devoted to compliance tasks by worker characteristics.

	(1)			(2)		
	Coef.	Robust SE		Coef.	Robust SE	
Female	-1.369	(1.146)		-3.752	(0.719)	***
20s	9.588	(1.501)	***	4.362	(1.098)	***
30s	4.085	(1.338)	***	2.051	(0.920)	**
50s	-2.626	(1.162)	**	-1.094	(0.760)	
60s	-6.157	(1.373)	***	-1.896	(0.838)	**
70 or older	-11.459	(2.516)	***	-3.412	(1.398)	**
Vocational school	-2.367	(1.680)		-1.117	(0.943)	
Junior college	-3.450	(1.799)	*	0.645	(0.994)	
4-year university	-3.360	(1.205)	***	1.541	(0.735)	**
Graduate school	-3.152	(1.732)	*	4.670	(1.310)	***
Executives	-0.930	(1.705)		-0.593	(1.450)	
Self-employed	-5.455	(1.732)	***	-3.181	(1.066)	***
Family workers	-7.348	(4.373)	*	-3.251	(2.399)	
Part-time workers	-1.310	(1.875)		-2.877	(1.033)	***
Temporary workers	-1.032	(3.921)		-5.998	(1.398)	***
Dispatched workers	2.160	(3.617)		-5.212	(1.664)	***
Contract employees	-0.861	(1.940)		-2.804	(1.196)	**
Entrusted employees	-2.359	(3.680)		-4.096	(2.234)	*
Others	3.066	(6.740)		0.467	(3.480)	
Construction	4.367	(2.220)	**	2.763	(1.692)	
Manufacturing (machinery)	-3.633	(1.820)	**	-2.239	(1.298)	*
Electricity, gas, etc.	11.028	(3.824)	***	10.774	(3.322)	***
Information and communications	-1.458	(2.006)		-2.480	(1.411)	*
Transport	2.430	(2.685)		2.163	(1.733)	
Wholesale	-2.714	(2.393)		-1.072	(1.720)	
Retail	-0.188	(2.342)		-0.548	(1.491)	
Finance and insurance	4.133	(2.272)	*	2.870	(1.719)	*
Services	0.511	(1.693)		0.796	(1.158)	
Education	2.581	(2.058)		3.087	(1.468)	**
Healthcare and welfare	4.163	(1.850)	**	3.555	(1.290)	***
Public administration	16.104	(2.107)	***	13.167	(1.739)	***
Other industries	2.890	(2.160)		1.718	(1.480)	
Managerial	-3.747	(1.496)	**	0.426	(1.196)	
Professional and engineering	-7.320	(1.382)	***	-5.572	(0.977)	***
Sales	-2.185	(2.793)		-3.369	(1.602)	**
Trade-related	-4.417	(1.647)	***	-2.384	(1.244)	*
Service	-1.648	(1.800)		-5.485	(1.071)	***
Safety	-4.114	(4.478)		-4.556	(2.862)	
Agricultural	-9.557	(5.204)	*	-7.669	(2.933)	***
Production	-6.216	(2.572)	**	-7.932	(1.414)	***
Transportation and Machinery Operation	-2.315	(4.464)		-5.478	(2.769)	**
Construction	-2.938	(4.595)		-6.890	(3.131)	**
Cleaning, packaging, etc.	-11.704	(3.814)	***	-10.762	(1.439)	***
Other occupations	-5.417	(2.353)	**	-6.532	(1.261)	***
ln Annual earnings	-0.933	(0.713)		1.697	(0.417)	***
ln Weekly working hours	-1.122	(1.159)		0.591	(0.742)	
Cons.	52.174	(5.809)	***	8.866	(3.396)	***
Nobs.	3,827			8,263		
R^2	0.1046			0.0892		

Notes: OLS estimation results with robust standard errors reported in parentheses. ***: p<0.01, **: p<0.05, *: p<0.10. The reference categories are male, age 40s, high school graduates, full-time regular employee, manufacturing (non-machinery), and clerical occupation. Column (2) includes samples with zero regulatory compliance working hours.

Table A8. Regulatory compliance tasks and perception of labor shortage.

	(1)		(2)	
	Coef.	Robust SE	Coef.	Robust SE
Regulatory compliance practitioners	0.202	(0.026) ***		
Hours devoted to compliance tasks			0.004	(0.001) ***
Nobs.	8,263		8,263	
Pseudo R^2	0.0537		0.0540	

Notes: Ordered-probit estimation results with robust standard errors reported in parentheses. ***: p<0.01. Positive coefficient means stronger perception of labor shortage. Gender, age, education, employment type, industry, occupation, annual earnings (log), and weekly working hours (log) are used as control variables.

Table A9. Regulatory compliance tasks and frequency of sudden overtime.

	(1)		(2)	
	Coef.	Robust SE	Coef.	Robust SE
Regulatory compliance practitioners	0.277	(0.026) ***		
Hours devoted to compliance tasks			0.005	(0.000) ***
Nobs.	7,948		7,948	
Pseudo R^2	0.0707		0.0713	

Notes: Ordered-probit estimation results with robust standard errors reported in parentheses. ***: p<0.01. Positive coefficient means higher frequency of sudden overtime. Gender, age, education, employment type, industry, occupation, annual earnings (log), and weekly working hours (log) are used as control variables. Samples that answered “I can’t say/I don't know” are excluded from the estimations.