

Regular/Non-regular Wage Gap Between and Within Japanese Firms

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1. Regular/Non-regular Wage Gap in Japan

(1) Overview

This paper examines where the regular/non-regular wage gap is generated in the Japanese labor market, based on analyses of employer-employee matching data, in order to identify an effective way to reduce the gap in Japan.

The volume of non-regular employment is expanding in Japan¹. According to “Labor Force Survey,” the ratio of non-regular employees among employed workers is increasing, from 20.2% in 1990, to 26.0% in 2000, 33.7% in 2010, and 35.2% in 2012². Although an increase in the number of non-regular employees is a common phenomenon in many industrialized countries, the pace of increase is far faster in Japan than in other countries.

According to the official report of the “Comprehensive Survey on Diversification of Employment”

¹ Non-regular employment here is defined as either fixed-term employment, part-time employment, or indirect employment.

² Although the definition of “non-regular employees” in this survey is “those who are not called regular employees in their workplaces,” most of them are included in either fixed-term employment, part-time employment, or indirect employment.

(2010)³, conducted by the Ministry of Health, Labour and Welfare, the most common reason for hiring non-regular employees is “to reduce wages” (43.8%), followed by “to cope with fluctuations of work volume within a day or week” (33.9%) and “to reduce non-wage labor costs” (27.4%). Although the order of these reasons differs among the categories of non-regular employees, there is no doubt that strong pressure to reduce labor costs is the driving force of the expanding use of non-regular employment by Japanese firms.

Along with the increase in non-regular employees, many surveys and articles have highlighted the inferiority of their working conditions compared with those of regular employees. As in many countries, they are generally more likely to face job instability, low wages and fewer opportunities for training than regular employees. To borrow the words of Kalleberg (2011), non-regular employees are more likely to engage in “bad jobs” compared to regular employees.

Among them, the regular/non-regular wage gap is the most serious problem. For example, the average hourly wage of non-regular employees was only 1,197 yen (approximately \$12) in 2012, according to the “Basic Survey on Wage Structure,” which is about 40% lower than that of regular employees⁴. One of the most important political issues in Japan is how to reduce this large wage gap between regular and non-regular employees.

³ A well-known statistical survey conducted by the Ministry of Health, Labour and Welfare. This paper analyzes the individual dataset of this survey.

⁴ The average hourly wage of regular employees is 1,921 yen (approximately \$19) according to “Basic Survey on Wage Structure” (2012).

(2) Dissatisfaction of Non-regular Employees

Why is this gap considered to be a serious problem? Of course, there are some data and documents which argue that the regular/non-regular wage gap in Japan is not a problem. For example, according to the official report of the “Comprehensive Survey on Diversification of Employment” (2010), 17.3% of firms which use non-regular employees state that they use them “to have regular employees engage in more important and specialized tasks.” In addition, the Japan Business Federation (2010) argues that the responsibilities and skills are different between regular and non-regular employees, even in the workplace where regular employees and non-regular employees engage in the same tasks. Overall, they argue that it is not wrong to pay regular employees and non-regular employees differently.

In spite of these arguments, however, there are substantial reasons to consider that the regular/non-regular wage gap is a serious problem. Firstly, as mentioned above, the average wage of non-regular employees is very low. Even if they work 1,800 hours per year, the annual income will be only \$21,600, which is below the average poverty threshold for a family of four in the U.S.⁵ Secondly, many of them are “involuntary non-regular employees,” and are working but dissatisfied with their wages. For example, according to the official reports of the “Comprehensive Survey on Diversification of Employment,” approximately 20% to 30% of non-regular employees state that they have become non-regular employees “because of the lack of opportunity to work as a regular employee,” and they are more likely to feel dissatisfied with their current wages compared to regular employees. Finally, once a person has become a non-regular employee, it is difficult to become a

⁵ According to the United States Census Bureau (2013), it is \$23,681.

regular employee. For example, as Shikata (2011) shows, those who have become non-regular employees in Japan are less likely to switch to regular employees than workers in European countries.

To summarize, a considerable number or proportion of non-regular employees are dissatisfied with their occupational career and current wages, and are facing poverty. This is why the regular/non-regular wage gap is a serious problem in Japan.

(3) Individual-level Approach and Firm-level Approach

One of the most popular measures to reduce the regular/non-regular wage gap is to provide support for non-regular employees to receive occupational training, as well as job-search services. In any case, I would like to categorize such measures as individual-level approaches. This kind of approach is expected to help improve the productivity of each non-regular employee, in other words, enrich their human capital, and reduce the inequality in the labor market as a result.

In Japan, however, it is important to consider another kind of approach to reduce the inequality in the labor market. Since the fluidity of the labor market is low and many workers spend many years working for a particular employer, it is possible that occupational training and job-search services will not increase wages instantly. In this case, providing assistance to and enforcing regulations on each firm will be more effective to reduce the inequality in the labor market than individual-level approaches. I would like to categorize such measures as firm-level approaches.

(4) Two Types of Firm-level Approach

In general, the firm-level approach consists of two types of measures. The first is to assist firms with disadvantages to reduce inequality, such as providing financial aid to improve the productivity of medium and small sized firms. The second is to regulate the organizational processes like personnel management and wage determination within firms to reduce inequality, such as prohibiting wage discrimination by gender or other social attributes.

But which type of measure is more effective to reduce the regular/non-regular wage gap in Japan? The answer depends on the nature of the gap. If firms with low wage levels, which have low productivity or other competitive disadvantages, use non-regular employees more frequently, the regular/non-regular wage gap in the labor market will reflect the firm-level wage gap. In other words, the gap has an aspect as an “inter-firm wage gap.” In this case, revitalizing low-wage firms will help to reduce the regular/non-regular wage gap in the labor market.

On the other hand, if every firm uses non-regular employment alike, the regular/non-regular wage gap in the labor market will be explained solely by the gap within each firm. In other words, it is a genuine “intra-firm wage gap.” In this case, equalization within each firm will be the only way to solve the problem.

2. Inter-firm Wage Gap and Intra-firm Wage Gap

What is the relation between the wage level of the firm and the frequency of non-regular

employment? As mentioned above, there are two types of hypotheses, namely the “inter-firm wage gap hypothesis” and the “intra-firm wage gap hypothesis.”

Historically speaking, productivity of the firm was supposed to be the most important determinant of working conditions for individual employees in Japan including job stability, wage level and opportunity for receiving training. Arisawa, a prominent Japanese labor economist, argued that the economic structure of post-World War 2 Japan was characterized by its “duality.” Workers in the pre-modern sector such as medium or small sized firms, according to Arisawa (1957), were at risk of losing their jobs and earning lower wages and fewer opportunities for receiving training, in comparison with those in the modernized sector such as large firms⁶. At about that time, Ujihara (1951), who conducted comprehensive surveys in the industrial belt near Tokyo, verified Arisawa’s theory empirically. If we extend his theory, it is natural to think that many non-regular employees are hired by firms with low wage levels, which are filled with “bad jobs” because of their low productivity. I call this the “inter-firm wage gap hypothesis,” because the regular/non-regular wage gap reflects the firm-level wage gap.

On the contrary, when we look at contemporary Japan, we find that the relation between being a low-productivity firm and hiring non-regular employees is weak. For example, the formation of the

⁶ Arisawa’s theory is similar to that of Doeringer & Piore (1971), but there is a difference that Arisawa emphasized the centrality of productivity of the firm as the determinant of working conditions of individual employees. In this respect, his theory is closer to historical facts stated in Jacoby (1985). It points out the progress of productivity led by mechanization as the background factor which has generated “employing bureaucracy.”

“employment portfolio,” which is recognized as the main force behind the increase in non-regular employees, was put forward by large firms in main industries⁷. In fact, the ratio of non-regular employees is approximately the same among firms of all sizes today⁸. Sato & Imai (2011), based on these data, call the situation “a new duality in the Japanese labor market.” These data and their idea suggest that non-regular employment is independent of the productivity or wage level of the firm. I call this the “intra-firm wage gap hypothesis,” because the regular/non-regular wage gap in the labor market has no relation to the inter-firm wage gap, and can be explained solely by the regular/non-regular wage gap within each firm.

In this context, I examine whether the regular/non-regular wage gap is an “inter-firm wage gap” or an “intra-firm wage gap,” based on analyses of reliable survey data.

3. Framework of the Analysis

To clarify the relationship between the wage level of the firm and the frequency of hiring

⁷ The Japan Federation of Employers’ Association (1995) recommended Japanese firms to construct the best “employment portfolio,” consisting of the “long-term employment group,” “advanced specialist group” and “flexible employment group.” The increase in the number of non-regular employees in the 1990s and 2000s is considered to be closely related to the expansion of the “flexible employment group” within firms.

⁸ The ratio of non-regular employees is 43.7% in firms with fewer than 30 employees, 39.5% in firms with 30 to 99 employees, 39.0% in firms with 100 to 299 employees, 36.3% in firms with 300 to 999 employees and 35.8% in firms with 1,000 or more employees (“Employment Status Survey” in 2012).

non-regular employees, I refer to the framework proposed by Takahashi (2013). He recommended using employer-employee matching data and applying multilevel analyses in a broad sense.

According to this framework, comparing the coefficients of the wage function estimated by the fixed-effect model (β_{FE}) with those estimated by the pooled OLS model (β_{Pooled}), we can determine the correlation between the wage level of the firm and personal variable X, such as gender, age, education, occupation, experience and type of employment⁹.

Consider **Figure 1** and **Figure 2**. The horizontal axis shows the X score of each individual employee, and the vertical axis shows the wage of each individual employee. On the left side of both figures, the non-bold lines represent the wage gap by X within each firm, and on the right side of both figures, the bold lines represent the wage gap by X in the labor market. In both figures, it is assumed that employees with higher X score receive higher wages than others within each firm, although the intercept of the wage function, in other words, the wage level of the firm, differs between firms.

However, there also exists a difference between the two figures. **Figure 1** illustrates the situation where firms with a higher wage level are more likely to choose employees with higher X scores. We find that β_{FE} is smaller than β_{Pooled} . This is because the wage gap by personal variable X in the labor market (β_{Pooled}) reflects the X-wage correlation within each firm (β_{FE}) and the correlation between the wage level of the firm and personal variable X. This means that wage gaps both “within” and

⁹ We assume that the coefficient of X is common among all firms, therefore we do not use varying slope models. (In fact, we can not use varying slope models because the number of individual employees within each firm is too small.)

“between” firms are included in β_{pooled} . On the contrary, **Figure 2** illustrates the situation where every firm chooses employees regardless of personal variable X. We find that β_{FE} is as large as β_{Pooled} . This means that wage gap by X in the labor market is generated only within each firm, and the wage gap between firms has nothing to do with it.

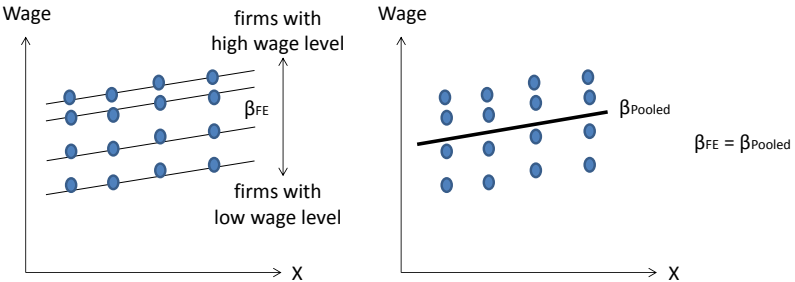


Figure 1. The Case where Firms with Higher Wage Level Choose Employees with Higher X

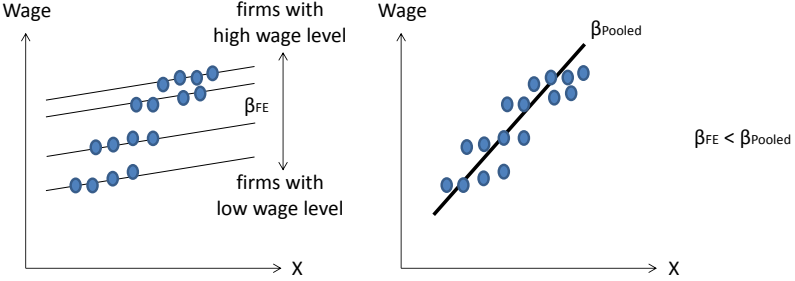


Figure 2. The Case where Every Firm Chooses Employees Regardless of X

If X means to be a regular employee, **Figure 1** illustrates the situation where firms with low wage level use non-regular employees more frequently, and **Figure 2** illustrates the situation where every firm uses non-regular employees alike.

We estimate β_{Pooled} by equation Model (1) [Pooled] using OLS, β_{FE} by equation Model (3) [FE]

using OLS, and for reference, β_{Medium} by equation Model (2) [Medium] using OLS. The extent to which the wage level of the firm is considered is the weakest in Model (1), medium in Model (2) and the strongest in Model (3).

$$Y_{ij} = \alpha + \beta_{\text{Pooled}}X_{ij} + e_{ij} \quad \text{--- Model (1) [Pooled]}$$

$$Y_{ij} = \alpha + \beta_{\text{Medium}}X_{ij} + \gamma W_j + e_{ij} \quad \text{--- Model (2) [Medium]}$$

$$Y_{ij} = \alpha + \beta_{\text{FE}}X_{ij} + \delta_j + e_{ij} \quad \text{--- Model (3) [FE]}$$

Notation:

- Subscript j is the ID of a firm
- Subscript i is the ID of an individual employee working for firm j
- Y_{ij} is the wage of individual employee i working for firm j
- X_{ij} is the individual-level variable(s) of individual employee i working for firm j
- W_j is the firm-level variable(s) of firm j , such as industry and firm size
- α is the constant (intercept) for all individual employees
- β is the slope for individual-level variables X
- γ is the slope for firm-level variables W
- δ_j is a unique constant (intercept) for individual employees working for firm j
- e_{ij} is the error factor for all individual employees

4. Data and Variables

(1) Data

We use the original data of the “Comprehensive Survey on Diversification of Employment” (2010). This is a well-known statistical survey which provides employer-employee matching data, and is conducted approximately once every four years by the Ministry of Health, Labour and Welfare. In the 2010 survey, a questionnaire for firms was distributed to 17,000 randomly chosen private firms with five or more employees, engaged in industries other than agriculture, forestry and fisheries, and 10,414 of them (61.7%) responded. A questionnaire for individuals was distributed to 50,000 randomly chosen employees within those firms, of which 33,087 (64.7%) responded. The answers of employees can be linked to the answers of the firm (employer) for which they were working.

We analyze the wages of individual employees younger than 60 years old who responded to all of the independent variables explained later, except those working less than 20 hours a week¹⁰. The sample size is 23,407. Among them, 8,018 are regular employees and 15,389 are non-regular employees. They are nested in 7,118 firms and the number of employees within each firm is 3.3 on average (Min 1, Max 26). When we estimate the results, we can weight them back to all employees working for all firms in the population.

Note that these analyses were undertaken as a part of a research project of the Japan Institute for Labour Policy and Training with special permission from the Ministry of Health, Labour and Welfare,

¹⁰ This is because large errors may happen in the process of making variables.

and all tables presented in this paper are based on Takahashi & Li (2013).

(2) Variables

The dependent variable is Ln (Wage), that is, logarithm of hourly wage (10 thousand yen) of individual employees¹¹.

Independent variables are as follows:

- Non-regular: dummy variable which indicates being a non-regular employee
- Male: dummy variable which indicates being male
- Age¹²
- Square of age
- Higher education: dummy variable which indicates having finished at least 16 years of education
- White collar: dummy variable which indicates being managers, professionals, engineers or clerical workers, in other words, non-manual workers
- Experience¹³: service years for the present employer

In Model (2) [Medium], we add the following control variables:

- Dummy variables which indicate the industry of the firm (17 categories)
- Dummy variables which indicate the size of the firm (7 categories)

¹¹ Hourly wage was calculated by dividing monthly wage (19 levels of class marks) by 4 times the weekly working hours (8 levels of class marks).

¹² 11 levels of class marks were used.

¹³ 9 levels of class marks were used.

Table 1 shows the descriptive statistics.

Table 1. Descriptive Statistics

	N	Mean	S.D	Minimum	Maximum
Ln (Wage)	33,828,736	-1.947	0.442	-4.094345	-0.5877867
Non-regular	33,828,736	0.300	0.458	0	1
Male	33,828,736	0.597	0.490	0	1
Age	33,828,736	40.801	10.325	17.5	57.5
Square of age	33,828,736	1771.326	848.110	306.25	3306.25
Higher education	33,828,736	0.361	0.480	0	1
White collar	33,828,736	0.653	0.476	0	1
Experience	33,828,736	9.957	6.813	0.25	20

5. Results

(1) Basic Analyses of Regular/Non-regular Wage Gap

First, we estimate the normal wage function by Model (1). **Table 2** shows the results. Model (1)-(a) is a wage function not related to type of employment, but the main basic variables are considered. It tells us that male employees, older employees, employees with higher education, employees engaging in white-collar work and employees working for many years for their present employer, receive higher wages than others. **Figure 3** shows the rates of change of wages¹⁴.

Model (1)-(b) is a wage function in which only the type of employment is considered. Model (1)-(c)

¹⁴ For example, if we are given “0.3228431” as the coefficient β for dummy variable “Male,” we know that male employees receive $e^{0.3228431}$ times as high wages as female employees. Thus, we can calculate that male employees receive 38.1% higher wages than female employees.

and Model (1)-(d) are wage functions in which both the type of employment and the main basic variables are considered. **Figure 4** shows the rates of change of wages for regular employees compared to non-regular employees. It reveals that regular employees receive 64.0% higher wages than non-regular employees¹⁵, but the advantage reduces to 42.1% if gender, age and education are considered, and further reduces to 25.3% if occupation and experience are considered.

Table 2. Normal Wage Functions Estimated by Model (1)

Dependent Variable = Ln (Wage)	Model (1) - (a)		Model (1) - (b)		Model (1) - (c)		Model (1) - (d)	
	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Non-regular			-0.4945126	0.0001426	-0.3513673	0.0001344	-0.2256892	0.0001442
Male	0.3228431	0.0001236			0.2464865	0.0001282	0.2631937	0.0001253
Age	0.0241527	0.0000443			0.0436999	0.0000438	0.0270378	0.0000428
Square of age	-0.0002375	0.0000005			-0.0003918	0.0000005	-0.0002503	0.0000005
High Education	0.1647169	0.0001276			0.1661845	0.0001264	0.1483387	0.0001236
White Collar	0.2040695	0.0001230					0.1503976	0.0001236
Experience	0.0199864	0.0000100					0.0142412	0.0000103
Constant	-3.0957290	0.0008686	-1.7983520	0.0000781	-3.1375080	0.0008712	-2.9893720	0.0008415
N	33,828,736		33,828,736		33,828,736		33,828,736	
Adjusted R Square	0.4625		0.2622		0.4460		0.4988	

Note: Model (1) - (d) in Table 2 is identical to Model (1) [Pooled] in Table 3.

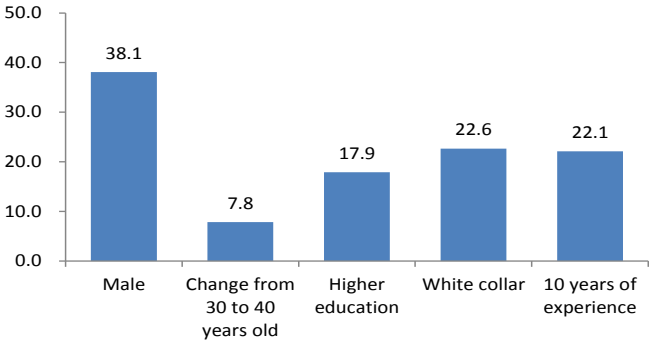


Figure 3. Rates of Change of Wages (%) (Model (1)-(a))

¹⁵ According to the “Basic Survey on Wage Structure” (2012) referred to in Section 1, the average hourly wage of regular employees is 60.5% (= 100×1,921÷1,197) higher than that of non-regular employees. The result of Model (1)-(b) closely agrees with this.

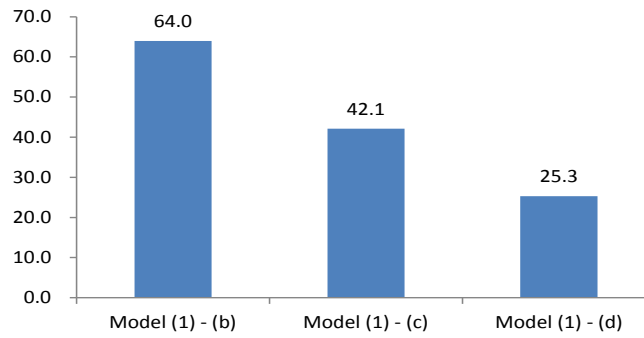


Figure 4. Rates of Change of Wages (%) of Regular Employees Compared to Non-regular Employees (Model (1)-(b), (1)-(c) and (1)-(d))

(2) Where Does the Regular/Non-regular Wage Gap Arise?

Regarding the main topic of this paper, **Table 3** compares the wage functions estimated by Model (1), (2) and (3). Note that Model (1) [Pooled] in **Table 3** is identical to Model (1)-(d) in **Table 2**.

Figure 5 shows the rates of change of wages. We find that β_{FE} (25.7%) is almost as large as β_{Pooled} (25.3%), as to the regular/non-regular wage gap. We also find that β_{FE} (28.8%) is almost as large as β_{Pooled} (30.1%), as to the wage gap by gender.

On the other hand, **Figure 5** shows that β_{FE} (7.0%) is smaller than β_{Pooled} (16.0%), as to the wage gap by education; β_{FE} (6.0%) is smaller than β_{Pooled} (16.2%), as to the wage gap by occupation; and β_{FE} (12.6%) is smaller than β_{Pooled} (15.3%), as to the wage gap by experience.

In addition, it also reveals that β_{FE} (11.6%) is larger than β_{Pooled} (10.0%), as to the wage gap between 30-years-old employees and 40-years-old employees.

Table 3. Comparison of Wage Functions Estimated by Model (1), (2) and (3)

Dependent Variable = Ln (Wage)	Model (1) [Pooled]		Model (2) [Medium]		Model (3) [FE]	
	B	S.E.	B	S.E.	B	S.E.
Non-regular	-0.2256892	0.0001442	-0.2208924	0.0001472	-0.2284578	0.0001283
Male	0.2631937	0.0001253	0.2627013	0.0001293	0.2531227	0.0001184
Age	0.0270378	0.0000428	0.0267918	0.0000420	0.0323976	0.0000374
Square of age	-0.0002503	0.0000005	-0.0002394	0.0000005	-0.0003061	0.0000005
High Education	0.1483387	0.0001236	0.1290640	0.0001253	0.0673428	0.0001231
White Collar	0.1503976	0.0001236	0.1120962	0.0001274	0.0585366	0.0001302
Experience	0.0142412	0.0000103	0.0133879	0.0000103	0.0118811	0.0000101
Constant	-2.9893720	0.0008415	-2.8754380	0.0008360	—	—
N	33,828,736		33,828,736		33,828,736	
Adjusted R Square	0.4988		0.5217		0.8398	

Notes:

- 1) Model (2) includes dummy variables indicating industry (17 categories) and firm size (7 categories) in addition to independent variables shown in the table.
- 2) Model (3) includes dummy variables indicating the firm in addition to independent variables shown in the table.

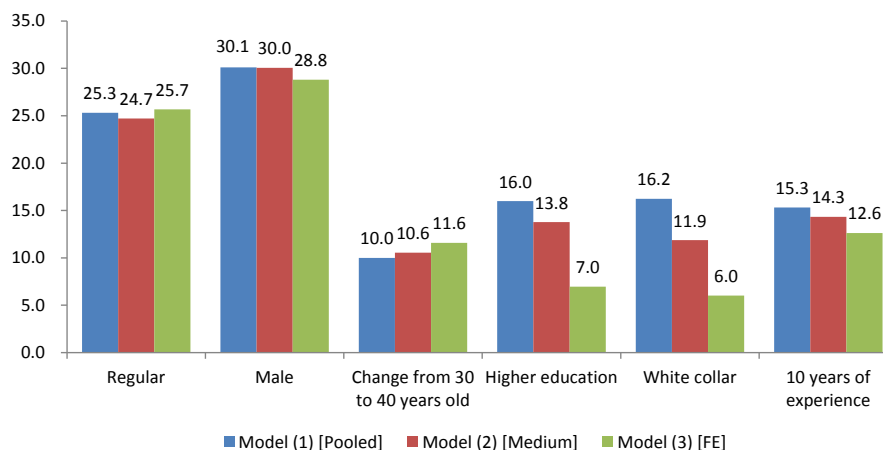


Figure 5. Rates of Change of Wages (%) Estimated by Model (1), (2) and (3)

6. Discussion

As mentioned above, **Figure 3** shows that male employees, older employees, employees with higher education, employees engaging in non-manual work and employees working for many years for their present employer, receive higher wages than others. These results coincide with those in Tachibanaki

(1996), a well-known study of the wage distribution in Japan¹⁶. This means that the dataset analyzed here is sufficiently reliable.

As for the wage gap by type of employment, **Figure 4** shows that regular workers receive 64.0% higher wages than non-regular workers. But it also shows that the advantage reduces to 42.1% if gender, age and education are considered, and reduces further to 25.3% if occupation and experience are considered. This is because the type of employment and the main basic variables are correlated. Fujimoto (2013) stated that, using the same dataset, the ratio of non-regular employees is higher among female employees, employees with lower education, and employees engaging in manual work. In addition, according to the official report of this survey, duration of service is shorter among non-regular employees than regular employees.

Next, we discuss the main topic of this paper. Firstly, regarding wage gaps by education and occupation, **Figure 5** shows that those estimated by pooled OLS (β_{Pooled}) are larger than those estimated by the fixed-effect model (β_{FE}). This means that firms with lower wage levels use more employees with lower education, and more manual workers. These findings fit our intuition. It is possible that firms with low wage levels hire employees with less human capital such as those with lower education. And it is also possible that labor-intensive firms which hire more manual workers tend to be less productive than knowledge-intensive firms which hire more white-collar workers, and

¹⁶ Tachibanaki (1996) uses individual data of the “Basic Survey of Wage Structure,” conducted by the Ministry of Labour, but does not use employer-employee matching data. In this sense, Model (1) in this paper and the model used in Tachibanaki (1996) are almost identical.

their wage level remains low as a result¹⁷. In any case, it is safe to say that the “inter-firm wage gap hypothesis” supports the actual wage gaps by education and occupation.

Secondly, regarding wage gap by gender, **Figure 5** shows that the wage gap estimated by pooled OLS (β_{Pooled}) does not differ from that estimated by the fixed-effect model (β_{FE}). This means that females are not necessarily hired by firms with low wage levels more frequently, but they are hired by every firm alike. In other words, the gender wage gap in the labor market is explained solely by the gender wage gap within each firm. In this sense, the gender wage gap is generated within each firm and can be called an “intra-firm wage gap.”

Finally, as for the regular/non-regular wage gap, **Figure 5** shows that the wage gap estimated by pooled OLS (β_{Pooled}) does not differ from that estimated by the fixed-effect model (β_{FE}). This means that, similar to the case of the gender wage gap, firms with low wage levels do not necessarily use non-regular employees more frequently, but every firm uses non-regular employees alike. In other words, they are not unevenly distributed in the secondary labor market in Japan, but they are distributed throughout the Japanese labor market. Therefore, the wage gap between regular and non-regular employees is generated just within each firm, and the “intra-firm wage gap hypothesis” is supported.

This raises a further question. What is the essence of non-regular employment in Japan? Although

¹⁷ Although it is not the focus of this paper, both education and occupation are key variables in studies of social stratification, and wage gaps by them are strongly related to the productivity or wage level of the firm.

their working conditions are inferior to those of regular employees on average, the above analyses have revealed that this gap has nothing to do with the wage level or productivity of the firm. The use of non-regular employment prevails among all Japanese firms regardless of their wage level. According to Inagami & Whittaker (2005), who conceptualized Japanese firms as “community firms,” non-regular employees are quasi-members of them¹⁸. In other words, the regular/non-regular distinction is inherent in the Japanese employment system and it is similar to a “caste” system in the firm.

7. Conclusions

We found that every firm uses non-regular employees alike, regardless of their wage level. This means that the regular/non-regular wage gap in the labor market reflects only the gap within each firm. Therefore, to reduce it, equalization within each firm is the only solution. More specifically, under the “Part-time Work Law” rules, equal and balanced treatment within each firm is essential to solve the problem. Another prerequisite is to relax the ceiling on the careers of non-regular employees within firms and to enable them to be promoted within firms.

In addition, we found that the gender wage gap in the labor market is generated solely within each

¹⁸ To be exact, according to them, managers are the pre-eminent members, regular male employees are full members, most regular female employees are quasi-members and non-regular employees are either quasi-members or non-members.

firm, in other words, it is purely an intra-firm wage gap. Therefore, to reduce the gender wage gap in the labor market, it is necessary to prohibit wage discrimination by gender and to provide equal opportunities for female employees to be promoted within each firm. On the contrary, wage gaps by education and occupation in the labor market reflect the firm-level wage gap, in other words, they have aspects of an inter-firm wage gap. Therefore, if these wage gaps are recognized as a serious problem, measures to assist firms with disadvantages will be necessary and effective.

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