Why Part-time Workers Do Not Accept a Wage Gap with Regular Workers

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1. Introduction

The aim of this paper is to explain why some part-time workers do not accept a wage gap between them and regular full-time workers when they are aware of it.[1]

As the proportion of part-time workers increases, various issues related to their treatment are being identified and debated.[2] One issue is the difference in wages between part-time and regular full-time workers. Recent research into the disparity in income in Japan reveals that since the 1980s there has been a widening of the wage gap between part-time and regular workers.[3] The wage gap in Japan is on a par with that in Britain or the United States.[4]

Some people think that a wage gap between part-timers and regular full-time workers is unreasonable when part-timers and regular workers generally engage in the same work. Others, on the other hand, feel that part-time workers have fewer restrictions on their working hours and bear less on-the-job responsibility. Thus, even if it may appear they are doing the same work as regular workers, their work is qualitatively different and consequently a difference in wages is natural.

There are also two opposing opinions on the value of part-time work in general. The negative view is that part-time labor is not a good employment opportunity because it lacks stability and the working conditions, including wages, are poor. Furthermore, part-time workers cannot have opportunities to acquire high skill, because part-time jobs do not require highly skilled workers.[5] This position is supported by many studies which point out that workers are forced to work part-time because they have no other option. These studies indicate that many part-time workers are both willing and able to work as regular workers, but are

unable to find such employment due to the employment system. They are then left with no choice but to work part-time. The studies say this trend is lowering the efficiency of resource allocation.

The positive view is that part-time work expands the range of employment opportunities and provides employment that is more flexible than traditional employment. According to Sato (1998), few part-time workers took part-time work because they could not find regular employment. The majority are happy with the freedom they have in setting work hours, which many part-timers stress when evaluating employment choices. In this view, the increase in part-time employment is the result of a voluntary choice on the side of job-seekers, and doesn't generate inefficiencies in resource allocation.[6]

As part of an investigation into the wage disparity between part-time and regular workers, this paper focuses on the issue of voluntary choice of work and acceptance of a wage gap after being hired. According to the theory of compensating wage differentials (or the theory of equalizing differences), a jobseeker compares the utility of regular, full-time work with that of part-time work before he/she is hired. Jobseekers do not merely compare wages, but instead look at the total picture by comparing the utility of wages with the disutility of on-the-job restrictions.[7] The jobseeker then decides whether to choose regular employment with its high wages and many restrictions or part-time employment with low wages and few restrictions.[8] If the overall utility of part-time employment is greater, then the worker will voluntarily choose part-time employment. In this case, even if there is a wage gap between regular and part-time employment, all part-time workers would accept the disparity since they voluntarily chose that type of employment.

However, some part-time workers do not think the wage gap is legitimate. The details will follow, but based on the data used in this paper, approximately one-third of the part-time workers who voluntarily chose this kind of job are discontented with a wage gap with regular workers. On the other hand, one-third of those who took part-time work involuntarily do accept the wage gap. This suggests that the perceived utility of part-time and regular employment is not necessarily the same

before and after being hired.

Therefore, it is important to consider part-timers' acceptance of a wage disparity based on post-hiring perceived utility. In short, whereas the question of voluntary choice of work is based on the worker's evaluation of expected utility before accepting the job, that of acceptance of wage disparity is based on his/her evaluation of the utility after actually starting work. Part-timers who highly evaluate the utility of their current work after having spent some time on the job and comparing themselves to regular workers in the same workplace should agree with the legitimacy of the wage disparity.

In this paper, econometric analysis will be used to clearly elucidate the reasons why some part-time workers do not accept as legitimate a wage gap between themselves and their regular worker counterparts.

The main conclusion is that the part-time workers who feel they are just as responsible, if not more so, than regular workers, are overwhelmingly discontented with the lower wages.

The rest of the paper is organized as follows: a simple model on part-timers' acceptance of a wage gap is considered in Section 2, data and empirical methods used in the analysis are explained in Section 3, the empirical results are presented in detail in Section 4, and conclusions in Section 5.

2. The Model

2.1. Definition of Acceptance of Wage Differentials

First, we must examine the concept of acceptance of a wage gap from the perspective of the theory of compensating wage differentials. The function of the worker can be defined as U (w,e,j;i) when "w" stands for wages, "e" for non-monetary factors related to work, "j" for the type of company and job, and "i" for characteristics of the individual worker. After beginning work, we assume that part-timers have a grasp of their own wages and non-monetary factors (w,e) and the wages and non-monetary factors of regular workers in their workplace (w',e') and can, therefore, plug these factors into their own utility function U to

compare the results. We assume that regular workers receive higher wages than part-time workers (w'>w).

Under these conditions, if the combination of wages and non-monetary factors gives the part-time worker a utility that is higher than the utility derived from regular workers' wages and non-monetary factors, it is to be expected that the part-time worker will accept a gap in wages. Even if a part-timer's wages are lower than those of regular workers, the part-time worker may accept the current situation as long as he/she is highly satisfied with the non-monetary factors. On the other hand, when the utility of part-time workers for their current work — as represented by the combination of wages and non-monetary factors — is considerably lower than the utility derived from regular workers' wages and non-monetary factors, part-timers feel they cannot accept the disparity in wages.

In concrete terms, workers currently involved in part-time work feel they can accept a wage gap when:

$$U (w, e, j; i) > U (w', e', j; i) \quad (1)$$

but cannot accept it when:

$$U (w, e, j; i) < U (w', e', j; i) \quad (2)$$

If we convert this to the equation

$$V_i = U (w', e', j; i) - U (w, e, j; i),$$

part-timers will accept a wage disparity when $V_i<0$, but will not when $V_i>0$.

Pre-hiring conditions must be taken into consideration to understand the relationship between acceptance of a wage gap and voluntary choice of work. The jobseeker anticipates his/her total utility from wages and non-monetary factors based on the information that is available before choosing a job. Then he/she chooses the type of work with the greatest expected utility. Therefore, a worker who chooses part-time work because he/she believes the utility is greater than regular employment based on prior information is considered to have chosen this work voluntarily. In other words, denote the utility expected by these workers before starting work is EU (w, e, j; i) and if their estimate of the expected utility for regular workers is EU (w', e', j; i), then:

$$EU (w, e, j; i) > EU (w', e', j; i) \quad (3)$$

Conversely, people who expected to reap a greater utility if they had found regular employment are considered to have started part-time work involuntarily. Their expected utility, therefore, would be:

$$EU (w, e, j; i) < EU (w', e', j; i). \quad (4)$$

Thus, whether or not a worker voluntarily takes part-time work depends on their expectations regarding the wage gap and the difference in non-monetary factors between regular and part-time workers.

What happens in a case where expectations before starting work coincide exactly with the reality experienced once work has begun? Individual i's expectations E (w,e) before starting work at job j are exactly the same as the actual conditions of the work (w,e) and E (w'e') is also the same as (w',e'). In this case, based on equations (1) and (3), a part-time worker who voluntarily sought part-time work will necessarily accept a wage gap even after starting work since he/she chose this type of work and it provides the greatest utility.

On the other hand, based on equations (2) and (4), it is possible that some part-time workers who involuntarily took part-time employment will accept the wage gap after beginning work and others will not. Involuntary part-time workers may have had low expectations of the utility involved if they compared themselves to regular workers in other workplace, but after comparing themselves to regular workers in the same workplace they may find that their utility is greater (the difference between j and j'). Or the part-time worker may feel that although the utility from wages and non-monetary factors is higher for regular workers, the difference falls within an acceptable range.

2.2. Reasons Why Part-time Workers Do Not Accept a Wage Gap

When are part-time workers discontented with a wage gap? The following are possible explanations.

The first explanation is when a wage gap that cannot be explained by the theory of compensating wage differentials arises after the part-timer has begun work. For example, when first hired, the wages may have been appropriate when compared to the restrictions placed on the worker, but as

time passes, the part-timer's job gradually becomes more complex and job responsibility grows. In other words, wages do not keep pace with the changing job responsibilities.

The second case is when the restrictions cannot be accurately evaluated. The theory of compensating wage differentials is based on the assumption that workers can infer their overall utility based on an accurate evaluation of wages and restrictions.[9] However, if the range of the work, employee accountability and on-the-job responsibility are not clearly prescribed for part-time workers, or between part-time and regular workers, it is difficult for them to accurately evaluate the utility from the combination of wages and restrictions even after beginning work.

The third case is when the information acquired before being hired concerning wages and non-monetary factors is inadequate and differs from reality. In this situation, a worker would voluntarily choose part-time work based on pre-hiring information only to find that the actual situation doesn't provide a higher utility than regular employment.

The fourth explanation is when some constraints prevent workers from making employment choices freely and jobseekers are unable to maximize their utility when seeking jobs. These constraints can be divided into two: those that come from an individual characteristics and those that don't. An example of the former could be the need to take care of the home or care for children. Under these kinds of constraints, a worker cannot choose regular employment with a higher utility even if he/she wants to and is stuck with part-time work (although it is unclear whether this should be regarded as a voluntary decision or not).[10] An example of the latter is the tightening of the regular employment market during a recession. In this case, not all workers who want to work as a regular worker are able to do so. Those excluded from the regular employment market are forced to work part-time even though they know that regular employment provides them with more utility. This is an example of an involuntary part-time worker as described in the foregoing section.

Under the case 1 through 3, the worker would be expected to quit at the point when the utility from the combination of wages and non-monetary factors diverges from the worker's expectations before

being hired. However, there are costs involved in changing employment, such as expenses incurred when searching for a new job and the possibility of ending up with a job with even lower wages. If the part-time worker estimates that these costs will be large, he/she will not willingly leave his/her present place of employment.

3. Data and Analysis Methods

3.1. Data

The following analysis is based on data from the "Survey of Diverse Forms of Employment in the Workplace" conducted by the Japan Institute of Labour in January 1999. The purpose of the survey was to get a better picture of the workplace in light of the increased use of part-time workers, contract workers and other non-traditional employment models. The data include many questions that are useful in understanding the conditions in which non-regular workers are placed and their attitudes toward their work.

Data from the report was collected from both individual workers and the companies which they are working for. This analysis mainly uses data from the individual workers.

We first explain the variable which expresses part-time workers' nonacceptance of the wage gap with regular workers. The questionnaire asked, "How do your wages compare to hourly wages of regular workers?" Those who answered, "I think mine are lower" were then asked, "How do you feel about that difference?"[11] The respondents could choose, "I accept," "I do not accept," or "I do not know." We use this question as the variable for nonacceptance, with the answer "I do not accept" having the value of 1 and "I accept" and "I don't know" the value 0.[12]

Next, let's look at the variable for the size of the wage gap. We have the annual salary of the part-time workers from the Data, whereas we cannot obtain the wages of regular workers which part-time workers compare their own wage with. The wage of regular workers we have in the data is the starting salary for high school graduates. Therefore, we create the variable for the wage of regular workers at each company by using the starting salary for high school graduates in the data and the

average annual incomes of regular workers by sex, corporate scale, educational background, age and length of work experience, obtained from Table 2 of the *1998 Basic Survey on Wage Structure* Volume 1.[13] The wage gap is converted into logarithm.

One problem remained in defining the wage gap variable in this manner. Although in this paper we have computed the wages of regular workers based on the characteristics of the part-timers and the workplace, the data doesn't show what the part-time worker is using for comparison purposes to decide the adequacy or inadequacy of his/her own pay. For example, the part-time worker may be comparing himself/herself to full-time workers in the same company with the same individual characteristics. Or he/she could be comparing himself/herself to a regular worker involved in the same kind of work but having none of the same individual characteristics. Consequently, the regular worker used by the part-time worker for comparison purposes is not necessarily the same as the regular worker we use in the analysis.

This discrepancy generates observational errors. When the wages of regular workers used for comparison are higher (or lower) than the average wages we create from "Wage Structure Survey," there may be a lower (higher) bias to the coefficient of the wage gap variable.[14]

The variables expressing the gap in non-monetary factors between part-time and regular workers are as follows. Part-time workers are asked to compare their work conditions with those of regular workers regarding: 1) length of weekly fixed working hours, 2) overtime hours, 3) on-the-job responsibility, 4) freedom to set working hours, 5) flexibility to take time off work, 6) job security, 7) job satisfaction, 8) whether the regular workers are often engaged in the same work as themselves and 9) the level of required skill.

The individual characteristics considered are age, educational background, marital status, children living at home, work experience and whether to limit working hours due to avoiding tax payment. The voluntary engagement in part-time work is added to explanatory variables as discussed in Section 2. Also, estimates are controlled with dummies for type of work, corporate scale and industry.

The sample is restricted to females younger than 60 years old. Temporary workers are also excluded, since their wages are paid differently. Other non-traditional workers such as short-term workers and contract workers are included. Since only part-timers who thought their wages were lower than full-timers were asked about the acceptance of wage gap, we restrict the sample to those part-timers who think their wages are lower than the average regular worker. Such workers account for more than three-quarters of the total sample of part-time workers.[15]

Table 1 shows the average characteristics of the data used. Part-time workers who don't accept the wage differential have higher annual salaries than the part-timers who accept the difference, have more work experience, longer work hours per week and their job requires more skill. Part-time workers who accept the wage gap tend to be married, tend to limit working hours due to avoiding tax payment and voluntarily decided on part-time work.

Table 1. Average Characteristics of Sample Used in Analysis

	Do not accept	Accept or don't know
Annual salary (¥1,000)	1650	1270
Fixed weekly hours	33.1	28.6
Percentage whose work is similar to regular workers	63.7	45.0
Percentage with more than 5 years experience	51.0	19.6
Number of years at company	6.5	4.5
Percentage who limit working hours due to avoiding tax payments	22.7	40.8
Percentage who voluntarily work part-time	61.1	32.5
Age (years)	42.0	41.0
Percentage who have a spouse	64.5	72.2
Sample size	876	674

Source: *Survey of Diverse forms of Workers in the Workplace,* Japan Institute of Labour, 1999.

Table 2 shows the relationship between voluntary choice of part-time work and acceptance of wage gap. Approximately one-third of those who have chosen part-time employment voluntarily do not accept the wage gap. One-third of those who have chosen part-time work involuntarily accept the wage gap.

Table 2. Voluntary Choice of part-time work and Acceptance of Wage Gap

			Acceptance of Wage Gap		
			Do not Accept	Accept	Total
Voluntary Choice of Part-time Work	Involuntary part-timer	No. of people	624	313	937
		(%)	66.60	33.40	100.00
	Voluntary or don't care	No. of people	398	724	1122
		(%)	35.47	64.53	100.00
	Total	No. of people	1022	1037	2059
		(%)	49.64	50.36	100.00

Source: *Survey of Diverse forms of Workers in the Workplace*, Japan Institute of Labour, 1999.

3.2. Analysis Method

Based on the equation (1) and (2) in Section 2, we can write,

$$V_I = \alpha + \beta (w'-w)_I + \gamma (e'-e)_I + \delta j_I + \phi i_I + \varepsilon_I \qquad (5)$$

where ε_I is the error term. If the situation in which part-timers do not accept a wage gap is represented by $y_I=1$ and that where a wage gap is accepted is represented as $y_I=0$, then:

$$y_I=1 \quad \text{iff } V_I>0$$
$$y_I=0 \quad \text{otherwise}$$

As this equations show, the probability that the part-time workers will not accept the wage gap is determined by the wage difference between them and regular workers in the same workplace (w'-w), the difference in non-monetary factors (e'-e), type of job (j) and the individual characteristics (i).

We use the probit analysis with the nonacceptance of wage gap as the dependent variable in order to estimate the model.[16] The differences in non-monetary factors were considered by generating two types of dummy variables: a dummy variable which expresses more work burden and another dummy variable which expresses less work burden. Using the example of overtime, for the dummy variable on more overtime, more overtime than regular workers is assigned 1 and equal or less overtime is assigned 0. For the less overtime dummy, less overtime than regular workers is assigned 1 and equal or more overtime is assigned 0. The definitions of dependent and independent variables are laid out in Table 3.

Table 3. Variables Used in Probit Analysis

Dependent variable Nonacceptance of wage gap with regular workers	
1 = do not accept 0 = accept or don't know	
Explanatory variable	
Wage Gap	ln (average annual salary of regular worker with the same individual characteristics in the same company/part-timer's total wages of the previous year)
Gaps in Non-monetary factors related to work	fixed weekly working hours fixed weekly working hours x working hours dummy-more fixed weekly working hours x 0 = less or same: x 1 = more fixed weekly working hours x working hours dummy-less fixed weekly working hours x 0 = more or same: x 1 = less overtime hours dummy-more 0 = less or same: 1 = more overtime hours dummy-less 0 = more or same: 1 = less on-the-job responsibility dummy-more 0 = less or same: 1 = more on-the-job responsibility dummy-less 0 = more or same: 1 = less freedom to set working hours dummy-more 0 = less or same: 1 = more freedom to set working hours dummy-less 0 = more or same: 1 = less freedom to take time off work dummy-more 0 = less or same: 1 = more freedom to take time off work dummy-less 0 = more or same: 1 = less job security dummy-more 0 = less or same: 1 = more job security dummy-less 0 = more or same: 1 = less job satisfaction dummy-more 0 = less or same: 1 = more job satisfaction dummy-less 0 = more or same: 1 = less
Gaps in Non-monetary factors related to work	whether to be engaged in the same work as regular workers 0 = sometimes or seldom or never do same work as regular workers 1 = often do same work as regular worker level of required skills 0 = same level as 1st - 4th year of regular workers 1 = same level as 5th year or more regular workers or group leader or higher

Work conditions	number of years at company whether to limit working hours due to avoiding tax payments 0 = no; 1= yes voluntary choice of part-time work 0 = involuntary part-timer 1 = voluntary part-timer or don't care
Individual characteristics	age, age squared spouse 0 = no; 1 = yes children living at home 0 = no; 1 = yes
Dummies	educational background reference: high school graduate junior high school graduate, junior college/vocational school graduate, university/graduate school graduate work type reference: service work office work, specialized/technical work, sales/business work, technician/factory work, transport/labor, other work corporate scale reference: 1,000 employees or more 500-999 employees, 300-499 employees, 100-299 employees, 30-99 employees, less than 30 employees industry reference: service industry manufacturing industry, electric/gas heat/water industries, transportation/communication industry, wholesale/retail/food service industry, finances/insurance industry, real estate industry

Based on equation (5), one would expect the broadening of the wage gap to have a positive influence on the probability of nonacceptance (i.e., the larger the wage gap the less acceptance by part-time workers). Regarding the variables of non-monetary factors, it can be predicted that the dummy variables of more work burden would have a positive influence on nonacceptance while the dummy variables of less work burden would have a negative influence.

4. Empirical Results

4.1. From Overall Sample

The left column of table 4 shows the results of probit estimation for whole sample.

Although the table shows that the effect of a wage gap is positive, this is not statistically significant. In other words, the size of a wage gap in

itself does not influence the probability of nonacceptance. However, these results must be interpreted with care, since they may be influenced by the biases mentioned in the previous section.

The significant variables are more on-the-job responsibility, less job satisfaction, the same work which regular workers are often engaged in and the level of required skills. These variables increase the probability that part-time workers will not accept the wage gap. On the other hand, as expected in the previous section, variables such as less overtime, less job responsibility, more freedom to set working hours and less working hours reduces the probability of nonacceptance. The variables of on-the-job responsibility have significant effects, with both more and less dummies having a large marginal effect. Thus, we can see that on-the-job responsibility strongly influence the probability of nonacceptance.

Voluntary choice of part-time employment strongly influences the probability of part-time workers' nonacceptance of a wage gap with regular workers once they have begun work. The right column of the table 4 shows the results of estimation in case that voluntary choice of part-time work is excluded from the explanatory variables. The absence of the voluntary choice of part-time work bring about large differences in the coefficients of less overtime and more freedom to set working hours, which shows these variables closely relate to voluntary entry into part-time employment.

Table 4 confirms that, regardless of the effect of voluntary choice of part-time work, non-monetary factors such as part-timers' on-the-job responsibility and the same work which regular workers are often engaged in greatly influence the probability that part-time workers will not accept a wage gap with regular workers. This shows that the absence of a clear distinction between part-time and regular workers in terms of on-the-job responsibility and job description generates part-time workers' nonacceptance of wage gap with regular workers.

Table 4. Empirical Results of Probit Analysis for Nonacceptance

		Dependent variable: Nonacceptance of wage gap with regular workers 1 = cannot accept 0 = accept or don't know					
		Including voluntary choice			Excluding voluntary choice		
Explanatory	variables	coefficient	asymptotic t value	marginal ettect	coefficient	asymptotic t value	marginal ettect
Wage gap	wage gap	0.032	0.30	0.012	0.017	0.17	0.007
	fixed weekly working hours	0.011	1.81 *	0.004	0.012	2.11 **	0.005
	x working hours - more	0.004	0.51	0.002	-0.001	-0.11	0.000
	x working hours - less	-0.007	-2.04 **	-0.003	-0.007	-2.22 **	-0.003
	overtime hours - more	-0.009	-0.04	-0.004	0.061	0.27	0.024
	overtime hours - less	-0.244	-1.87 *	-0.096	-0.339	-2.68 ***	-0.134
	on-the-job responsibility - more	0.360	2.14 **	0.143	0.386	2.37 **	0.153
	on-the-job responsibility - less	-0.811	-7.52 ***	-0.305	-0.809	-7.67 ***	-0.305
Gap in non-monetary work factors	freedom to set working hours - more	-0.320	-2.49 **	-0.124	-0.386	-3.06 ***	-0.149
	freedom to set working hours - less	-0.149	-1.25	-0.058	-0.193	-1.65 *	-0.075
	freedom to take time off work - more	-0.186	-1.59	-0.073	-0.178	-1.55	-0.070
	freedom to take time off work - less	-0.030	-0.24	-0.012	0.019	0.15	0.007
	job security - more	0.063	0.47	0.025	-0.023	-0.17	-0.009
	job security - less	0.177	1.52	0.069	0.214	1.88 *	0.084
	job satisfaction - more	-0.089	-0.67	-0.035	-0.064	-0.50	-0.025
	job satisfaction - less	0.311	2.87 ***	0.122	0.339	3.19 ***	0.133
	whether to be engaged in the same work as regular workers	0.285	3.01 ***	0.111	0.274	2.97 ***	0.107
	level of required skills	0.594	5.57 ***	0.232	0.602	5.80 ***	0.236
Work conditions	work experience	0.013	1.11	0.005	0.009	0.82	0.004
	whether to limit working hours due to avoiding tax payments	0.139	1.16	0.055	0.038	0.33	0.015
	voluntary choice of part-time work	-0.556	-5.64 ***	-0.216			
Individual attributes	age	0.004	0.09	0.001	0.005	0.13	0.002
	age squared	0.000	-0.13	0.000	0.000	-0.16	0.000
	spouse	-0.050	-0.40	-0.020	-0.085	-0.70	-0.034
	live-at-home children	-0.025	-0.20	-0.010	-0.005	-0.05	-0.002
Educational background dummies	junior high school	-0.320	-1.57	-0.120	-0.260	-1.32	-0.099
	junior college/vocational school graduate	0.088	0.73	0.035	0.103	0.88	0.041
	university/graduate school graduate	0.058	0.29	0.023	0.071	0.37	0.028
Type of work dummies	office work	0.061	0.40	0.024	0.098	0.66	0.039
	specialized/technical work	0.540	2.21 **	0.213	0.593	2.48 **	0.232
	sales/business work	-0.312	-1.42	-0.118	-0.271	-1.26	-0.103
	technician/factory work	0.031	0.15	0.012	0.050	0.25	0.020
	transport/labor	0.275	0.82	0.109	0.311	0.93	0.124
	other work	-0.025	-0.12	-0.010	-0.055	-0.27	-0.021
Constant	constant	-0.244	-0.30		-0.484	-0.61	
	Goodness of fit (Prob>chi2)			0.000			0.000
	Pseudo R squared			0.288			0.275
	Log likelihood			-552.053			-579.655
	Sample size			1129			1162

Source: *Survey of Diverse forms of Workers in the Workplace* , Japan Institute of Labour, 1999.

Notes: 1. ***,** and * stand for statistical significance of 1%, 5% and 10%, respectively.
2. Refer to Table 2 for definitions of the explanatory variables.
3. Estimates are controlled for the corporate scale dummy and the type of industry dummy. Both dummies had almost no significant variables so they were not included in the table.
4. Marginal probabilities of explanatory variables in the case of dummy variables express the discontinuous change when the concerned variable changes from 0 to 1.

4.2. Voluntary Choice of Part-time Work and Probability of Nonacceptance of a Wage Gap

It was shown above that voluntary choice of part-time work strongly impacts the probability of nonacceptance. In light of the discussion in Section 2, a separate analysis of the probability of nonacceptance by workers who involuntarily chose part-time work and those who did so voluntarily should help clarify under what circumstances a part-timer would accept a wage gap and under what circumstances he/she would not.[17] Below we divided the sample into involuntary part-time workers and voluntary part-time workers and analyze each separately using probit analysis.

The left column of Table 5 shows that when voluntary part-time workers have the freedom to choose their own working hours, they are more apt to accept a wage gap, while less job satisfaction makes it less likely they will accept. Although voluntary part-time workers choose part-time work because they wanted to be able to set their working hours, Table 5 suggests that these workers did not have accurate expectations regarding job satisfaction prior to starting work.

As discussed in section 2, one reason why voluntary part-time workers — assumed to have accepted wage gap before job entry — become dissatisfied with the wage gap after starting work is because the information they received about non-monetary factors before they started work is different from reality. For example, voluntary part-time workers enter employment assuming that they will have the freedom to choose their own working hours. Our data, however, shows that when asked about this freedom after starting work, only around 50 percent responded that they have more freedom than regular workers. Twenty-five percent believe they have the same amount of freedom as regular workers and another 25 percent actually feel they have less freedom in deciding their working hours than regular workers. It is possible that these last two categories of workers will not accept a wage gap despite having voluntarily chosen part-time work since work restrictions ended up being greater than they expected before entering the job.

Table 5. Results of Probit Analysis for Nonacceptance Based on Voluntary or Involuntary Choice of Part-time Work

		Dependent variable: Nonacceptance of wage gap with regular workers 1 = cannot accept 0 = accept or don't know					
		Voluntary part-timers			Involuntary part-timers		
Explanatory variables		coefficient	asymptotic t value	marginal ettect	coefficient	asymptotic t value	marginal ettect
Wage gap	wage gap	0.165	0.98	0.052	−0.083	−0.58	−0.031
	fixed weekly working hours	0.010	1.10	0.003	0.010	1.21	0.004
	x working hours - more	0.008	0.66	0.003	0.002	0.18	0.001
	x working hours - less	−0.004	−0.78	−0.001	−0.009	−1.85 *	−0.003
	overtime hours - more	−0.276	−0.68	−0.079	0.276	0.86	0.097
	overtime hours - less	−0.311	−1.52	−0.105	−0.156	−0.85	−0.057
	on-the-job responsibility - more	0.304	1.18	0.103	0.364	1.50	0.126
	on-the-job responsibility - less	−0.870	−5.65 ***	−0.268	−0.944	−5.48 ***	−0.355
Gap in non-monetary work factors	freedom to set working hours - more	−0.687	−3.82 ***	−0.215	0.169	0.80	0.061
	freedom to set working hours - less	−0.229	−1.26	−0.069	−0.067	−0.39	−0.025
	freedom to take time off work - more	0.027	0.16	0.008	−0.450	−2.39 **	−0.171
	freedom to take time off work - less	0.304	1.55	0.102	−0.313	−1.74 *	−0.118
	job security - more	0.190	1.02	0.060	−0.130	−0.60	−0.049
	job security - less	0.149	0.86	0.047	0.198	1.16	0.074
	job satisfaction - more	−0.089	−0.47	−0.027	−0.128	−0.65	−0.048
	job satisfaction - less	0.467	3.01 ***	0.152	0.211	1.28	0.077
	whether to be engaged in the same work as regular workers	0.220	1.62	0.069	0.343	2.40 **	0.127
	level of required skills	0.537	3.67 ***	0.179	0.729	4.22 ***	0.257
Work conditions	work experience	0.022	1.41	0.007	−0.004	−0.24	−0.002
	whether to limit working hours due to avoiding tax payments	0.133	0.88	0.042	0.122	0.54	0.044
Individual attributes	age	0.019	0.31	0.006	−0.012	−0.18	−0.004
	age squared	0.000	−0.36	0.000	0.000	0.05	0.000
	spouse	−0.210	−1.10	−0.069	0.133	0.74	0.049
	live-at-home children	0.022	0.13	0.007	−0.021	−0.11	−0.008
Educational background dummies	junior high school	−0.355	−1.22	−0.099	−0.303	−0.97	−0.116
	junior college/vocational school graduate	−0.014	−0.08	−0.004	0.154	0.86	0.056
	university/graduate school graduate	−0.101	−0.33	−0.031	0.080	0.29	0.029
Type of work dummies	office work	0.004	0.02	0.001	0.174	0.69	0.064
	specialized/technical work	0.516	1.43	0.185	0.611	1.63	0.195
	sales/business work	−0.440	−1.41	−0.119	−0.193	−0.55	−0.073
	technician/factory work	−0.117	−0.42	−0.036	0.216	0.66	0.077
	transport/labor	0.401	0.87	0.141	−0.060	−0.11	−0.022
	other work	−0.346	−1.23	−0.098	0.346	1.00	0.119
Constant	constant	−0.823	−0.67		−0.022	−0.02	
	Goodness of fit (Prob>chi2)			0.000			0.000
	Pseudo R squared			0.255			0.272
	Log likelihood			−281.062			−249.278
	Sample size			616			513

Source: *Survey of Diverse forms of Workers in the Workplace* , Japan Institute of Labour, 1999.

Notes:

1. ***,** and * stand for statistical significance of 1%, 5% and 10%, respectively.
2. Refer to Table 2 for definitions of the explanatory variables.
3. Estimates are controlled for the corporate scale dummy and the type of industry dummy. Both dummies had almost no significant variables so they were not included in the table.
4. Marginal probabilities of explanatory variables in the case of dummy variables express the discontinuous change when the concerned variable changes from 0 to 1.

Now let's examine involuntary part-time workers. These workers are less likely to accept a wage gap than voluntary part-time workers. The right column of Table 5 shows that the variables of short working hours, and freedom to take time off work have a effect in pushing these workers to accept a wage gap, which was proven statistically significant. On the other hand, the same work which regular workers are often engaged in drives them not to accept a wage gap, and this was also found to be statistically significant.

For both voluntary and involuntary part-time workers, less on-the-job responsibility results in acceptance and a high level of required skills tends toward rejection with statistic significance.

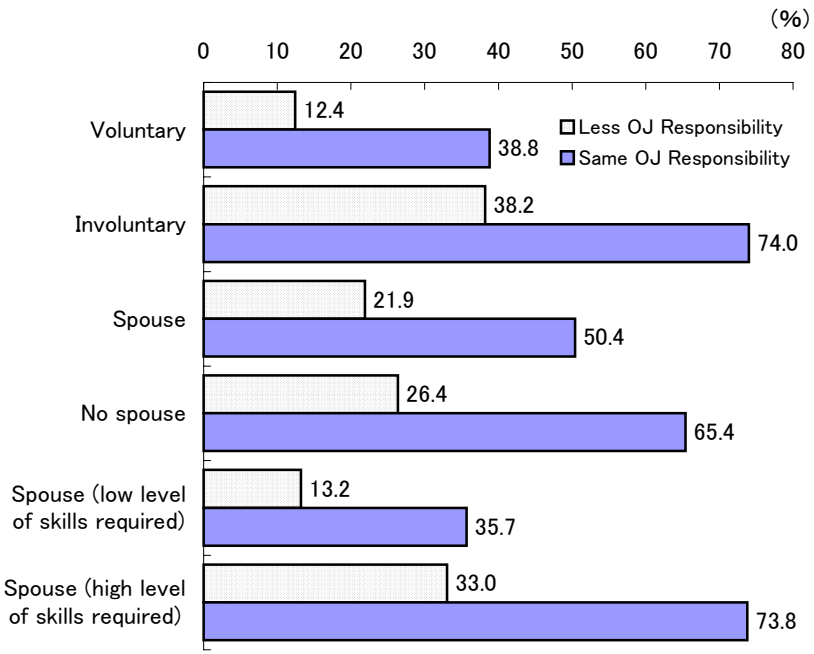
4.3. Influence of On-the-Job Responsibility on Nonacceptance of a Wage Gap

It has become clear from the previous sections that less on-the-job responsibility reduces the probability that the part-time workers will not accept the wage gap with regular workers, through looking at the entire sample and looking at voluntary and involuntary part-timers separately. However, we cannot see how much on-the-job responsibility affects unacceptability.

In this section simulations were conducted to ascertain how much on-the-job responsibility affects nonacceptance of the wage gap. All other explanatory variables were given average values in order to calculate the extent to which the probability of nonacceptance would change depending on whether on-the-job responsibility was less for part-time workers than for regular workers, or if it was the same. The results are shown in Figure 1.

Only 12 percent of voluntary part-time workers who have less on-the-job responsibility find the wage gap unacceptable whereas 40 percent of those who chose part-time work involuntarily do not accept a wage gap even when they have less on-the-job responsibility. When on-the-job responsibility is identical for part-time and regular workers, three out of four involuntary part-timers do not accept the wage gap.

Figure 1. Changes in Probability of Nonacceptance of Wage Gap



In addition to simulations relating to voluntary and involuntary workers, Figure 1 also shows the results for married and unmarried part-time workers, and for married part-time workers whose job requires high skills and those whose job does not require any high skill. The influence of on-the-job responsibility on nonacceptance of a wage gap may differ depending on marital status, since they evaluate non-monetary factors, such as working hours, differently. Besides, we saw that part-time workers whose job required more skills were less likely to accept a wage gap in the previous section.

Regarding marital status, the results show that unmarried part-timers were less likely to accept a wage gap. Among married part-timers, however, those whose job required a high level of skill were less likely to accept a wage gap than unmarried workers in both case that their on-the-job responsibility was less than and equal to regular workers. One out of three highly skilled married part-time workers did not accept a

wage gap even if they had less on-the-job responsibility. When their on-the-job responsibility was equivalent to regular workers, over 70 percent were discontented with a wage disparity. Some case studies have indicated that the balance between on-the-job responsibility and compensation is important.[18] According to these calculations on-the-job responsibility greatly influences whether or not a part-timer accept a wage gap regardless of their situation.

5. Conclusion

When part-time workers discover that there is a wage disparity between themselves and regular workers, under what conditions will they agree that the wage gap is fair and legitimate? Among the many different types of part-time workers, some regard the wage gap as legitimate while others do not. Why the difference? In this paper, we explained reasons why part-timers do not accept a wage gap with regular workers after starting work using the survey of individual workers.

Whether or not part-time workers accept a wage gap with regular workers depends first of all on whether the particulars of their work and their work conditions are clearly distinguished from those of regular workers. If a part-timer's on-the-job responsibility is equal to that of a regular workers and the part-timer's wages are lower, the probability that the part-timers will not accept the wage gap rises substantially.

Those who voluntarily choose part-time work are more likely than involuntary part-timers to accept a wage gap after being hired. However, even voluntary part-time workers are more likely to be discontented with a wage gap if they discover that their working conditions are no different than regular workers.

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Footnotes:

[1] The phrase "part-time worker" originally implies those who worked few hours, but many companies now refer to all workers who are not regular workers as part-timers regardless of how many hours they work. Thus, there are many "part-time" workers who actually work full-time. In this paper, we use the broader definition of "part-time worker" which includes non-regular workers who work as many hours as full-timers. The definition of "regular worker" is also vague, but for the purposes of this paper a regular worker is a full-time worker with all the rights and responsibilities of a formal employee.

[2] Equal Employment, Children and Families Bureau, Ministry of Health, Labour and Welfare (2002).

[3] Otake (2000) and Shinozaki (2002).

[4] Equal Employment, Children and Families Bureau, Ministry of Health, Labour and Welfare (2002).

[5] Nagase (1995).

[6] Sato (1998) evaluates non-traditional labor as represented by contract workers, temporary workers and part-time workers.

[7] In this paper the term "restrictions" includes non-monetary factors such as restrictions on working hours, on-the-job responsibility and the level of required skill.

[8] Nakamura and Chuuma (1994) investigated the combination of wages and restrictions of part-time workers and show that this kind of selective behavior occurs.

[9] See Ehrenberg and Smith (1985, Ch. 8) for details of compensating wage differential theory.

[10] Wakisaka (1995) indicates that to define part-time workers who can not work in regular employment due to domestic commitments such as chores and childcare as "voluntary part-time workers" poses a problem for the concept of voluntary choice of work.

[11] The question prior to this is, "Which of the following best describes your skills compared to a general employee? Please check the answer that best applies." The question asks the part-timer to compare their skills to the skills of a non-managerial regular worker at the same company with a certain number of years experience. The "regular worker" in the text is defined as the "a non-managerial regular worker" in this question.

[12] In the equations in Section 2 concerning acceptance, the probability that part-time workers accept wage differences is hypothesized to be dependent upon the wage gap and gap in non-monetary factors, the characteristics of the work and the individual workers. The survey asks whether part-time workers can accept a wage difference with regular employees. However, it is difficult to imagine that when part-timers consider whether or not they agree with a wage gap they only think about the wage gap and ignore other factors, such as differences in non-monetary factors as considered in Section 2.

[13] As for the detail of generating the variable of the wage gap, refer to Shinozaki, Ishihara, Shiokawa and Genda (2003).

[14] High wage-earning part-time workers with high abilities can be compared to regular workers with wages that are higher than the "Wage Structure Survey" average, so there is a high probability that there will be a downward bias to the estimate values.

[15] The rest of the breakdown is "I don't think there is a difference" at nearly 5%, "I think my wages are higher" at 1.5%, "I don't know" at 15%, and "unknown" (value missing).

[16] Ordered probit analysis was also considered, but probit analysis of "unacceptability" was decided upon since the reasons that one "cannot accept" were deemed more important than reasons for "accept" or "don't know.

[17] "As put forth in Section 1, quite a lot of research has been done on voluntary participation in part-time employment, but the concept of what is voluntary and what is not is actually an extremely nebulous concept. A well-known example describes a welder fired from his job in Chicago and remains jobless in Chicago even while knowing he could find work as a farm worker in California. Should this man be considered involuntarily or voluntarily unemployed (Stiglitz, 1993)? Another argument says that since the determination of whether part-time work is a voluntary or involuntary choice rests ultimately with the worker himself/herself, it cannot be said to be an objective decision. Will a person with children at home who works part-time because he/she can't find a suitable day-care facility, for example, say that he/she wanted to work part-time or say that he/she was forced to work part-time?

[18] For example, Mitsuyama (1991) and Honda (1993).