

The Effect of Fringe Benefits on the Paid Overtime Hours in Japan

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In this paper, we adapt Bell and Hart's model (1999) to examine paid overtime work by using Japanese Survey of Company Fringe Benefits data which includes information on the employer's provision of fringe benefits as well as paid overtime hours for individuals. By including a crucial labor demand variable- the quasi-fixed cost which is omitted from Bell and Hart's (1999) report, the present study provides more complete documentation of the structure of labor costs with paid overtime work.

INTRODUCTION

In this paper, we argue that higher fringe benefit costs may have an effect on paid overtime hours. This result occurs because a fringe benefit is a quasi-fixed employment cost that rises with the number of workers rather than hours worked. As the fringe benefit becomes more expensive to provide, firms have an incentive to substitute hours per workers for employment.

Employer-provided fringe benefits represent a large and growing share of compensation paid to Japanese workers. According to fringe benefit costs data for 2006 from the Japan Business Federation (Nippon Keidanren), fringe benefits represented 15.1% of the average Japanese worker's total compensation (See Appendix-Table A1). Over the past 40 years, employer expenditures on fringe benefits have grown over 30% (See Appendix-Figure A1). Given these figures, one is not surprised that the role of fringe benefits in the labor market has attracted a great deal of attention from academic economists and policy-makers.

Figure A2-1 reveals the declining trend in hours worked per month for those who worked at least 40 weeks in the previous year in Japan. Average hours worked per month fell by over 15 hours from 1981 to 2007. The declining trend is the net consequence of declining scheduled working hours more than compensating for the relative constancy of overtime hours (Figure A2-2). At the same time, as shown in Figure A1, employer expenditures on fringe benefits have drifted upward over time. The increasing costs of fringe benefits would make employers less willing to reduce the working hours of workers. Shorter working hours will increase these fixed costs per worker hour and the overall hourly cost. This explanation might partly explain the relative constancy of the overtime working hours.

Bell and Hart (1999) used the UK Labour Force Survey to examine paid and unpaid overtime work for both males and females. However, their study contained no information on a key component of the labor demand model: the employer's quasi-fixed employment costs, including statutory and non-statutory fringe benefits that do not depend on hours worked.

In this paper, we adapt Bell and Hart's model (1999) to analyze the Survey of Company Fringe Benefits data in Japan. These data include information on the employer's provision of fringe benefit as well as paid overtime hours for individuals. By including a crucial labor demand variable - the quasi-fixed

cost which is omitted from Bell and Hart's (1999) report, the present study provides more complete documentation of the structure of labor costs with paid overtime work.

The structure of the paper is as follow. In the next section, we outline theory and findings from the international literature on the quasi-fixed employment cost and overtime work. In section 3, we introduce the data set and the model used in this study. In section 4, we present the key results of the empirical analysis. In the conclusion we briefly review the findings of our study.

THEORY AND LITERATURE REVIEW

Oi (1962) proposed a short-run theory of employment that rests on the premise that labor is a quasi-fixed factor. Employers can change their labor input by changing the number of employees, the hours per employee, or both. The way in which they adjust will depend on the relative costs of the different options. Quasi-fixed costs that they do not increase proportionately with hours worked drives a wedge between the marginal cost of hiring an additional worker and working an existing worker more hours. This generates an important distinction between the number of workers and hours worked per worker in yielding a given labor input. Some of these quasi-fixed costs will bias firms toward working their existing employees more intensively instead of hiring additional employees. Increasing the number of employees would be more costly given the quasi-fixed costs.

Ehrenberg and Schumann (1983) provided evidence that quasi-fixed employment costs influence employer overtime choices. Their study used establishment-level data from various years of the Employer Expenditure for Employee Compensation surveys. The basic empirical methodology was to regress annual overtime hours per employee on control variables and the ratio of quasi-fixed labor costs to the overtime wage. Typical findings indicated a statistically significant positive association across establishments between this ratio and the use of overtime.

A few studies have applied the quasi-fixed costs theory to working hours. For example, the quasi-fixed costs theory has been applied to show that an increase in the cost of providing health insurance has a significant effect on work hours. Cutler and Madrian (1998), using data from the Current Population Survey (CPS) and the Survey of Income and Program Participation (SIPP), showed that rising health insurance costs during the 1980s increased the hours worked by those with health insurance by up to 3%. Kates and Simon (2002) also examined data from the 1989–1998 March Current Population Surveys and found that the number and type of state-mandated health insurance benefits were unrelated to weeks of work, wages, and the prevalence of private insurance coverage, but positively associated with weekly work hours. Dolfin (2006) used the 1982 Employer Opportunity Pilot Project (EOPP) cross-sectional firm-level US data to examine the size of firms' quasi-fixed employment costs and their importance in affecting hours of work. The measures of quasi-fixed employment costs used relate to recruiting, search, hiring, training, and firing. The results show that higher costs are associated with longer hours.

Regarding the study of overtime hours, Bell and Hunt (1999) used the UK Labour Force Survey for 1993/94 to examine the determinants of paid and unpaid overtime work for both males and females. In their study, working paid hours were associated with manager status, age, being married, high standard hourly wages, and union coverage.

Our analysis differs from previous studies in some other important ways. First, we use cross-sectional data on individuals, whereas most previous studies used only firm- or industry-level data. The use of data at the level of individuals allows us to control for a variety of supply-side factors affecting individual work decisions that cannot be accounted for with firm-level data. Second, most studies have focused on the health insurance, which is only part of total nonwage compensation, as a quasi-fixed cost effect. The quasi-fixed costs considered in our study included fringe benefits such as health insurance, a pension, and employment insurance as a quasi-fixed cost effect. Third, although Dolfin (2006) examined recruiting and training costs as quasi-fixed costs, they used the total hours worked per week as a dependent variable and did not distinguish among standard working hours, unpaid overtime hours, and paid overtime hours, although the overtime premium wage rate is usually larger and different from the straight-time hourly wage. Finally, we adapted Bell and Hart's (1999) model to analyze the Survey of Company Fringe

Benefits data for Japan, which include information on an employer's provision of fringe benefits as well as paid overtime hours for individuals. With this framework, we can document more completely the structure of labor costs with paid overtime work.

RESEARCH METHOD

Data

The data used in our analysis were taken from the Survey of Company Fringe Benefits in 2006, collected during December 2006. This survey is a triennial survey of company fringe benefits at the establishment level in Japan and has been conducted by the Life Insurance Culture Centre from 1980 to 2006. Companies were selected according to a stratified sampling method by industry and by firm size. An interview-administered questionnaire was completed at the respondents' workplaces. The final response rate was usually between 45% and 52%, which is comparable to other company surveys in Japan. This study analyzed only the 2006 survey, for which both an employer survey and an employee survey were conducted. The survey region includes the Tokyo Metropolitan District and 12 ordinance-designated cities, and the survey targets were private companies in Japan with five or more regular employees. The samples consisted of 1504 companies in the employer data set and 2972 workers in the employee data set (including 2052 full-time employees and 920 part-time employees). Respondents reporting that they were part-time workers were excluded.

Although the employer data set and employee data set could not be matched in this survey, use of the employee data set was sufficient for our analysis because it contained detailed information on fringe benefits and paid overtime hours. The survey listed the types of fringe benefits within a company including housing, health care, living expenses, bereavement benefits, and leisure benefits and asked whether the respondent was offered each of these fringe benefits. Descriptions of these fringe benefits are given in Table A2. In addition, the survey asked the following about the respondent's overtime hours: How many paid overtime hours were worked per week on average last month?

Further information was collected on the employee's age, gender, marital status, presence of children, job tenure, union coverage, and occupation, along with the employing establishment's industrial classification and regional location.

Estimation Methods

Approximately 50% of the full-time workers in our sample did not engage in paid overtime work, as measured weekly. If we use ordinary least-squares to estimate a regression to censored observations, the estimates are inconsistent. Therefore, the Tobit model is necessary. For the Tobit model, the structure equation is:

$$y_i^* = X_i\beta + \epsilon_i$$

where $\epsilon_i \sim N(0, \sigma^2)$. y^* is a latent variable that is observed for values greater than τ and censored otherwise. The observed y is defined by the following measurement equation:

$$\begin{aligned} y_i &= y^* & \text{if } y^* > \tau \\ y_i &= \tau_y & \text{if } y^* \leq \tau \end{aligned}$$

y here denotes the overtime hours a week by one full-time worker. We assume that $\tau = 0$ because the data are censored at 0 in our sample. Thus, we have

$$\begin{aligned} y^i &= y^* & \text{if } y^* > 0 \\ y^i &= 0 & \text{if } y^* \leq 0 \end{aligned}$$

The likelihood function for the censored normal distribution is:

$$L = \prod_i^N \left[\frac{1}{\sigma} \phi \left(\frac{y_i - \mu}{\sigma} \right) \right]^{d_i} \left[1 - \Phi \left(\frac{\mu - \tau}{\sigma} \right) \right]^{1-d_i}$$

where τ is the censoring point. In our tobit model, we set $\tau = 0$ and parameterize μ as $X_i\beta$. This gives us the likelihood function for the tobit model:

$$L = \prod_i^N \left[\frac{1}{\sigma} \phi \left(\frac{y_i - X_i\beta}{\sigma} \right) \right]^{d_i} \left[1 - \Phi \left(\frac{X_i\beta}{\sigma} \right) \right]^{1-d_i}$$

The log-likelihood function for the tobit model is:

$$\ln L = \sum_{i=1}^N \left\{ d_i \left(-\ln \sigma + \ln \phi \left(\frac{y_i - X_i\beta}{\sigma} \right) \right) + (1 - d_i) \ln \left(1 - \Phi \left(\frac{X_i\beta}{\sigma} \right) \right) \right\}$$

The first part of the overall log-likelihood corresponds to the classical regression for the uncensored observations, while the second part corresponds to the relevant probabilities that an observation is censored.

Measures

The variables used in our study followed those of Bell and Hart (1999). The difference was that we added fringe benefit cost as the main independent variable. The means and standard deviations of the variables used in the analysis are presented in Table 1.

TABLE 1
SAMPLE MEANS AND STANDARD DEVIATIONS

Variable	Whole sample		Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
paid overtime	3.19	5.31	3.89	5.96	2.42	4.37
statutory fringe benefits	49612.00	11651.68	50468.81	11280.13	48659.97	11985.23
non-statutory fringe benefits	3633.82	4096.22	4031.90	4272.20	3248.59	3882.46
total fringe benefits	52258.80	14028.21	53442.33	14057.04	51113.44	13913.68
male =1	0.53	0.50				
age	38.66	10.28	39.83	10.41	37.36	9.99
married =1	0.53	0.50	0.65	0.48	0.39	0.49
child =1	0.48	0.50	0.34	0.47	0.19	0.39
union =1	0.33	0.47	0.40	0.49	0.26	0.44
income	455.24	222.75	548.58	233.36	349.18	151.67
tenure	121.10	107.57	141.34	120.25	98.63	86.11
experience	18.26	10.72	19.07	10.77	17.36	10.60
Sample size	2052		1080		972	

*total fringe benefit is calculated as statutory plus non-statutory fringe benefits.

Dependent Variable

To analyze the effect of fringe benefit costs, we used paid overtime working hours for the dependent variables.

Independent Variables

The main independent variable was fringe benefit costs including statutory fringe benefit cost and non-statutory fringe benefit cost. The employee data set in the Survey of Company Fringe Benefits in 2006 provided information on the types of fringe benefits within a company and whether the employees could use each fringe benefit. However, the survey had no information on firms' expenditures for each fringe benefit. The best source of data on the employer cost for various fringe benefits is the General Survey on Working Conditions.

The General Survey on Working Conditions, an annual survey of the wage and working hours system at the industry level and firm-size level, has been conducted by the Ministry of Health, Labour and Welfare in Japan since 1984. In the 2006 survey, approximately 5341 enterprises were selected according to a random sampling method from among private enterprises that employed more than 30 regular employees.

The final response rate was 82.7%, making the final sample 4416. An advantage of using this survey is the rich information on the mean labor cost for statutory fringe benefit costs such as health insurance, pensions, and employment insurance, and for non-statutory fringe benefit costs such as for housing, health care, living expenses, bereavement allowance, and leisure benefits. To create a new variable of benefit costs, the information on the mean employer cost for certain fringe benefits by industry and by firm size make the combination of two different data sets possible.

To construct a measure of benefit costs, we followed Montgomery and Cosgrove (1993) and Buchmueller (1999) in combining the fringe benefit dummy variables obtained from the Survey of Company Fringe Benefits in 2006, with cost-based weights, which are the mean costs for various fringe benefits taken from the General Survey on Working Conditions in 2006 to create the new benefit costs variable.

Control Variables

The control variables are based on those used in Bell and Hart's (1999) study on Tobit estimates of paid overtime hours. They include worker characteristic variables such as annual income, age, marital status, child, tenure, experience, education, occupation, and manager and firm characteristic variables such as union, firm size, and area. However, Bell and Hart's (1999) analysis contained no information on fringe benefit costs. The present study added the variable of fringe benefit costs to investigate how it affects overtime work.

RESULTS

The main analysis purpose was to examine if fringe benefit cost as a quasi-fixed employment cost has an effect on paid overtime hours. If fringe benefit cost is statistically significant in our model, this might suggest a problem with omitted variables in Bell and Hart's (1999) study.

Findings for predicting the effect of fringe benefit costs on paid overtime hours by total workers are reported in Table 2. We estimated the effect of statutory fringe benefits on paid overtime hours in model 1 and non-statutory fringe benefits in model 2. We also accounted for statutory fringe benefits and non-statutory fringe benefits in the total fringe benefits in models 3. In Table 2, the coefficient for fringe benefits showed strong statistical significance at the 1% level in models 1 through 3. This indicated that accepting more fringe benefits from firms meant that workers worked longer paid overtime hours. In addition, non-statutory employer-provided fringe benefits have more effect than statutory ones on the paid overtime hours.

TABLE 2
TOBIT ESTIMATES OF PAID OVERTIME HOURS

Variables	Total workers			Non-manager		
	(1)	(2)	(3)	(4)	(5)	(6)
statutory fringe benefits	0.676*** (0.203)			0.750*** (0.208)		
non-statutory fringe benefits		2.434*** (0.620)			2.397*** (0.634)	
total fringe benefits			0.691*** (0.175)			0.740*** (0.178)
male	1.637*** (0.532)	1.710*** (0.532)	1.656*** (0.532)			
manager	-9.259*** (0.941)	-9.243*** (0.942)	-9.243*** (0.940)			
age	-0.460** (0.207)	-0.471** (0.207)	-0.459** (0.206)	-0.539** (0.213)	-0.550*** (0.213)	-0.539** (0.213)
age square	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)
married	-0.299 (0.548)	-0.312 (0.548)	-0.297 (0.547)	-0.041 (0.555)	-0.036 (0.556)	-0.034 (0.554)
youngest child under 11	-0.862 (0.586)	-0.758 (0.585)	-0.854 (0.585)	-0.903 (0.600)	-0.794 (0.601)	-0.886 (0.599)
union	2.066*** (0.596)	1.816*** (0.606)	1.902*** (0.600)	2.082*** (0.615)	1.883*** (0.625)	1.918*** (0.619)
log of income	4.335*** (0.762)	3.942*** (0.773)	4.182*** (0.763)	5.343*** (0.711)	5.002*** (0.722)	5.199*** (0.712)
firm size 100-500	3.010*** (0.692)	2.642*** (0.690)	2.957*** (0.689)	3.406*** (0.714)	3.019*** (0.712)	3.343*** (0.711)
firm size 500-1000	2.629*** (0.747)	1.753** (0.774)	2.397*** (0.747)	3.007*** (0.767)	2.134*** (0.796)	2.752*** (0.767)
firm size 1000-	1.627** (0.738)	-0.294 (0.887)	1.082 (0.749)	1.717** (0.752)	-0.174 (0.904)	1.136 (0.763)
area control	yes	yes	yes	yes	yes	yes
constant	-18.823*** (5.001)	-13.457*** (4.975)	-18.112*** (4.952)	-22.732*** (5.035)	-17.279*** (5.002)	-21.924*** (4.985)
Sample size	1903	1903	1903	1603	1603	1603

Robust standard errors are in parentheses. ***indicates significance at 1% level; **indicates significance at 5% level; *indicates significance at 10% level.

Altogether, control variables such as male, income, and union were positively associated with paid overtime hours. Control variables such as manager and age were negatively related to paid overtime hours. Males worked more paid overtime hours than females. Considering that sex may have different effects on overtime hours, we later conducted another regression by sex.

We also calculated the same equation excluding managers because this group worked little paid overtime. In our sample (as Table 3 shows), 82.23% of male managers and 87.80% of female managers reported working unpaid overtime; therefore, we excluded the variable of manager in the next estimate by sex.

TABLE 3
PAID WEEKLY OVERTIME BY OCCUPATION

Occupation	Weekly paid overtime hours (%)					obs
	0	1–6	7–12	13–20	21–40	
male						
manager	82.23%	10.15%	6.09%	1.52%		197
sales	62.50%	20.45%	13.64%	3.41%		176
technician	38.42%	26.43%	22.62%	8.99%	3.54%	367
laborer	38.19%	31.25%	20.83%	9.72%		144
clerical	44.37%	35.76%	11.92%	5.30%	2.65%	151
female						
manager	87.80%	7.32%	2.44%	2.44%		41
sales	56.10%	26.83%	10.98%	4.88%	1.22%	82
technician	47.92%	36.81%	11.11%	3.47%	2.63%	144
laborer	57.89%	23.68%	15.79%	2.63%		38
clerical	55.11%	32.74%	8.10%	3.57%	0.49%	617

As shown in Table 4, fringe benefits variables were very significant by sex. A non- statutory fringe benefit had more of an effect on overtime paid hours than a statutory fringe benefit in the male model. Age was statistically significant for women but not men. Married status was not statistically significant for both men and women. Having a child aged less than 11 years was associated with low paid overtime hours for women. Union membership meant long paid overtime hours for men. Bell and Hart (1999) argued that hours agreements are based on work scheduling over specific tasks, they would expect that unpaid hours would be linked to an absence of union collective bargaining agreements. For union workers, collective bargaining arrangements covering working time would supersede individual task assignments. Therefore, they expect unpaid overtime work to be negatively associated with union coverage. In contrast, they also expect paid overtime work to be positively associated with union coverage. Log income was statistically significant and positively related to the paid overtime work for both men and women in our model. This outcome contrasts with findings of Bell and Hart (1999) using UK Labour Force Survey but corroborates other findings of Trejo (1991) using the Current Population Surveys (CPS) data.

Is there a relationship between paid overtime work and job tenure? To explore the issue further, we recalculated the equations using two human capital-related Mincer variables, job tenure (length of stay in the current job) and work experience (length of labor market experience since completing full-time education). Table 5 shows the results. Because age had no effect on paid overtime hours in the male equation, we used job tenure and work experience (including quadratics in tenure and experience) instead of age. We found that the probability of paid overtime rose in job tenure in the male equation although it declined in work experience. Hart and Ma (2010) also provided evidence of a relationship between paid overtime hours and job tenure that emphasized the role of specific human capital investment. They also found that paid overtime was related positively to job tenure and negatively to work experience.

TABLE 4
TOBIT ESTIMATES OF PAID OVERTIME HOURS
-By Sex (Without Manager Sample)

Variables	Male		Bell and Hunt (1999)	Female		Bell and Hunt (1999)
	(1)	(2)		(3)	(4)	
statutory fringe benefits	0.716** (0.322)			0.795*** (0.255)		
non-statutory fringe benefits		2.563*** (0.931)			2.068** (0.825)	
age	-0.148 (0.348)	-0.197 (0.347)	0.890*** (5.170)	-0.719*** (0.251)	-0.688*** (0.252)	0.425** (2.500)
age square	-0.002 (0.004)	-0.001 (0.004)	-0.011*** (-5.45)	0.007** (0.003)	0.007** (0.003)	-0.007*** (-3.03)
married	-0.297 (0.903)	-0.300 (0.903)	-1.902 *** (-2.75)	0.049 (0.654)	0.019 (0.657)	0.452 (0.680)
youngest child under 11	-0.625 (0.875)	-0.524 (0.874)	-0.568 (-0.54)	-1.988** (0.826)	-1.908** (0.829)	-1.368 (-1.28)
union	3.351*** (0.905)	3.031*** (0.922)	6.705*** (11.390)	1.033 (0.796)	1.005 (0.808)	3.624 *** (5.400)
log of income	3.691*** (1.269)	3.433*** (1.279)	-1.519*** (-11.55)	4.924*** (0.921)	4.399*** (0.930)	-0.370*** (-2.61)
firm size 100-500	3.640*** (1.112)	3.243*** (1.112)		3.055*** (0.868)	2.645*** (0.868)	
firm size 500-1000	3.262*** (1.128)	2.279* (1.186)		2.457** (0.996)	1.667 (1.024)	
firm size 1000-	1.605 (1.144)	-0.564 (1.384)		1.859** (0.944)	0.355 (1.132)	
firm size control	yes	yes	yes	yes	yes	yes
area control	yes	yes	yes	yes	yes	yes
constant	-19.949** (8.261)	-14.457* (8.315)	-14.347 (-3.49)	-17.529*** (6.157)	-11.562* (6.029)	-21.382 (-4.38)
Sample size	804	804	6144	827	827	6045

Robust standard errors are in parentheses. ***indicates significance at 1% level; **indicates significance at 5% level; *indicates significance at 10% level.

In Bell and Hunt's model, they used t-value in parentheses. In addition, they used hourly wage instead of income.

TABLE 5
TOBIT ESTIMATES OF PAID OVERTIME HOURS
-Male, Tenure and Experience Instead of Age

Variables	(1)	(2)	(3)
statutory fringe benefits	0.687** (0.323)		
non-statutory fringe benefits		2.540*** (0.937)	
total fringe benefits			0.715*** (0.275)
tenure	0.024* (0.013)	0.023* (0.013)	0.023* (0.013)
tenure square	-0.0001** 0.000	-0.0001* 0.000	-0.0001* 0.000
experience	-0.582*** (0.175)	-0.569*** (0.175)	-0.569*** (0.175)
experience square	0.009** (0.004)	0.009** (0.004)	0.009** (0.004)
married	-0.516 (0.899)	-0.529 (0.899)	-0.499 (0.898)
youngest child under 11	0.025 (0.874)	0.103 (0.872)	0.004 (0.872)
union	3.339*** (0.908)	3.014*** (0.924)	3.171*** (0.912)
log of income	3.594*** (1.298)	3.329** (1.308)	3.423*** (1.301)
firm size 100-500	3.191*** (1.118)	2.839** (1.116)	3.139*** (1.114)
firm size 500-1000	2.768** (1.146)	1.836 (1.194)	2.505** (1.148)
firm size 1000-	0.885 (1.163)	-1.216 (1.386)	0.316 (1.177)
area control	yes	yes	yes
constant	-22.134*** (7.388)	-17.565** (7.418)	-21.380*** (7.343)
Sample size	799	799	799

Robust standard errors are in parentheses. ***indicates significance at 1% level; **indicates significance at 5% level; *indicates significance at 10% level.

CONCLUSION

The purpose of this study was to obtain more insight into the effect of fringe benefits on paid overtime hours. To investigate the relationship, hypotheses were derived from quasi-fixed employment cost theory. Higher quasi-fixed employment costs such as fringe benefits were expected to have a positive impact on the paid overtime hours. In section 2, we discussed the motive for paid overtime work on the basis of quasi-fixed cost theory. No generally accepted theory exists with regard to paid overtime hours, and thus our empirical analysis of Japanese micro-data from the Fringe Benefits Survey provides useful and meaningful results.

Based on our analysis, it is believed that this article contributes to the quasi-fixed employment cost and overtime work literature in several ways. First, we use cross-sectional data on individuals, whereas most previous studies used only firm- or industry-level data. The use of data at the level of individuals allows us to control for a variety of supply-side factors affecting individual work decisions that cannot be accounted for with firm-level data. Second, most studies have focused on the health insurance, which is only part of total nonwage compensation, as a quasi-fixed cost effect. The quasi-fixed costs considered in our study included fringe benefits such as health insurance, a pension, employment insurance, housing, health care, living expenses, bereavement benefits, and leisure benefits as a quasi-fixed cost effect. Finally, we adapted Bell and Hart's (1999) model to analyze the Survey of Company Fringe Benefits data for Japan, which include information on an employer's provision of fringe benefits as well as paid overtime hours for individuals. With this framework, we can document more completely the structure of labor costs with paid overtime work.

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APPENDIX

TABLE A1
FRINGE BENEFITS AS A PROPORTION OF TOTAL COMPENSATION IN 2006

Total compensation	Wages and salaries			587658	84.87%
	Nonwage benefits	Statutory fringe benefits	total	76437	11.04%
			<i>health insurance</i>	26031	
			<i>pension</i>	40657	
			<i>employment insurance</i>	9208	
			others	534	
Nonwage benefits	Non-statutory fringe benefits	total	28350	4.09%	
		<i>housing</i>	13496		
		<i>health care</i>	3296		
		<i>living expense</i>	6301		
		<i>bereavement allowance</i>	924		
		<i>leisure</i>	2240		
		others	2098		

Data source: The Survey of Company Fringe Benefits from Japan Business Federation in 2006

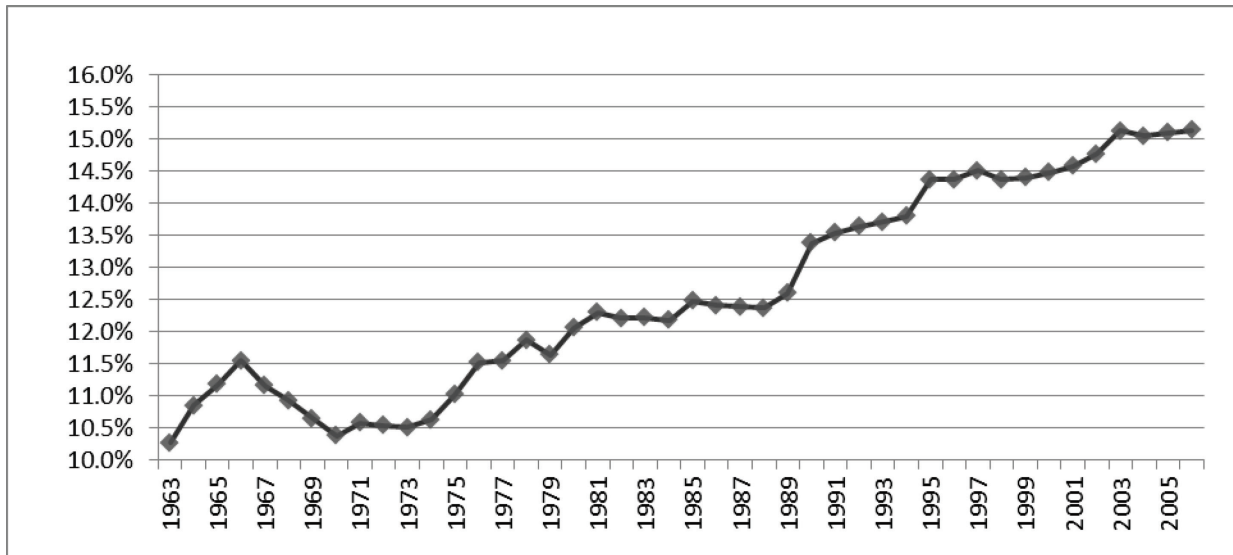
TABLE A2
QUESTIONS ON FRINGE BENEFITS IN THE 2006 SURVEY

What kind of fringe benefits does your company have?	Mean
1 company housing	23.88%
2 bachelors' dormitory	24.90%
3 housing allowance	41.28%
4 loan for purchasing your own house	15.59%
5 medical care subsidy in addition to health insurance	7.99%
6 subsidy for complete medical checkup	30.56%
7 disease screenings	26.61%
8 mental health (stress) consultation	21.00%
9 long-term disability benefits	10.19%
10 subsidy for childcare/babysitter (including night childcare center)	3.51%
11 day-care center	2.68%
12 childcare leave/short-time work	28.07%
13 support for nursing care helper (including subsidy)	1.41%
14 special payment for disaster/death	62.33%
15 retirement allowance if death occurs	31.43%
16 bereaved family pension	13.40%
17 asset-building savings/in-house savings deposits	43.03%
18 stock ownership	28.65%
19 stock option	5.51%
20 subsidy for club activities	13.84%
21 subsidy for or usage of resort house/fitness facilities	24.81%
22 life planning course	7.65%
23 asset management course	5.56%
24 retirement preparation education	8.72%
25 study abroad (or in domestic university)	5.60%
26 support for public qualification/subsidy for distance learning	18.27%
27 long leave for self-betterment	14.67%
28 company cafeteria	23.10%

**TABLE A3
VARIABLE DEFINITIONS**

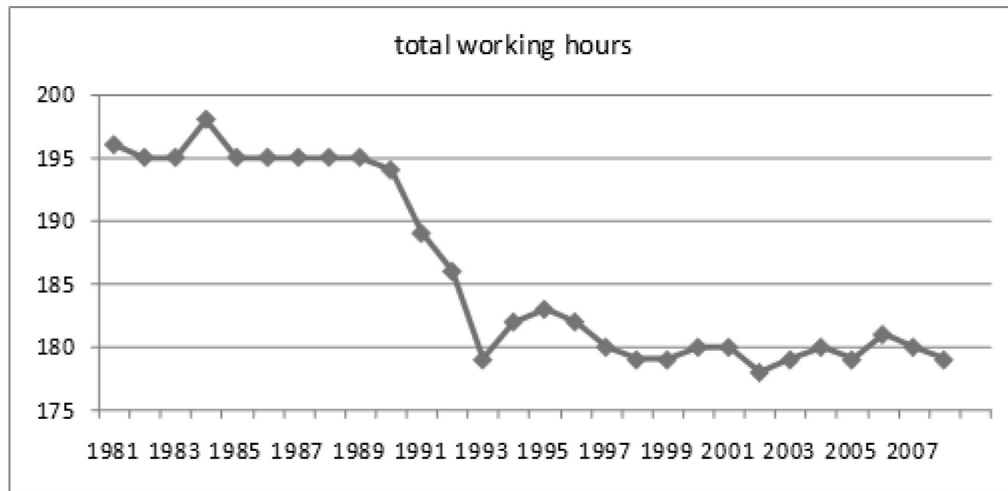
Variable	Description
paid overtime	number of paid overtime hours
statutory fringe benefits	cost of statutory fringe benefits (unit- Japanese Yen)
non-statutory fringe benefits	cost of non-statutory fringe benefits (unit- Japanese Yen)
total fringe benefits	cost of statutory fringe benefits and non-statutory fringe benefits (unit-Yen)
male	1 if male, 0 if female
union	1 if the company has a union, 0 otherwise
income	annual income (tax included,unit-10000Yen)
age	age
married	1 if married, 0 otherwise
child	1 if one has a child under 11 years old, 0 otherwise
tenure	months with current employer
experience	age of individual minus age when completed full-time education
occupation	1=manager, 2=clerical, 3=sales, 4=laborer, 5=technical

**FIGURE A1
GROWTH OF FRINGE BENEFITS**



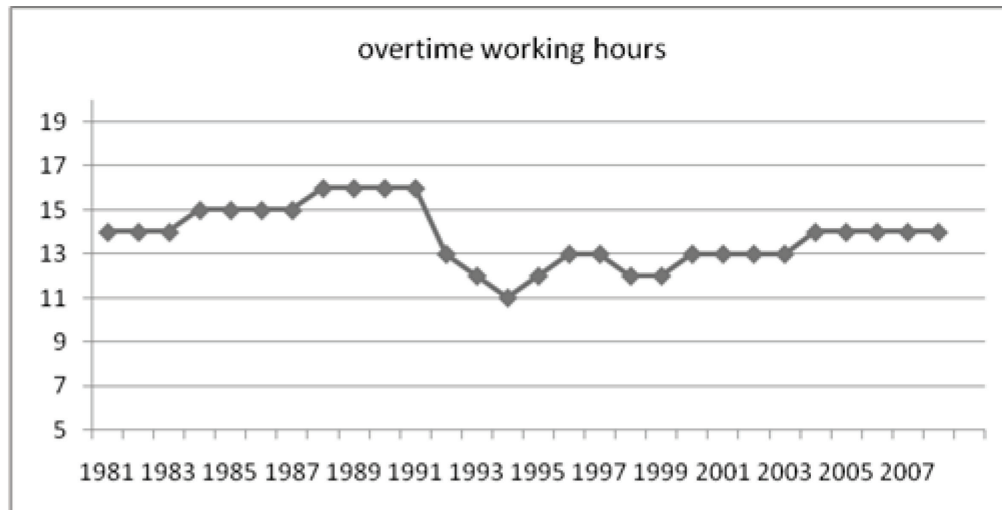
Data source: The Survey of Company Fringe Benefits in 2006

FIGURE A2-1
TOTAL WORKING HOURS IN JAPAN
(Average per Month)



Data source: Basic Survey of Wage Structure

FIGURE A2-2
OVERTIME HOURS WORKED IN JAPAN
(Average per Month)



Data source: Basic Survey of Wage Structure