



## Effects of ‘Family-friendly’ Fringe Benefits on Wages in Japan

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## **Abstract**

This paper analyses the effect of family-friendly policies on wages. Using the full treatment effect model, the survey on Company Fringe Benefits 2002 was analysed. While the gender wage gap was confirmed, the effect of family-friendly policies on wages was found to differ from males to females. For instance, childcare and elder care related policies tended to be used mostly by females. As a result, these policies only had a negative impact on female wages. In turn, results of probit estimates indicated that productive workers tend to use more childcare and elder care related policies. It is suggested, therefore, that rewards and retention strategies should be provided to ensure productive workers.

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## 1 Introduction

It has been about a decade since the Basic Law for a Gender-Equal Society came into force. During that time, the percentage of dual-career households has overtaken the percentage of male breadwinner households; as a result, the situations of working males and females have gradually started to change. On the other hand, the roles of males and females are still fixed; the culture of mainstream males working long hours is deeply rooted in this society, thus family-friendly policy benefits tend to be seen as available only to females. For instance, the percentage of maternity/paternity leave takers is 88.5% female and 0.57% male.<sup>1</sup> Moreover, although the proportion of all childbearing women who were in work and who took maternity leave increased from 5.1% during 1985-1989 to 13.8% during 2000-2004, the proportion of working women who did not take maternity leave decreased from 19.9% during 1985-1989 to 11.5% during 2000-2004. This means that the increase in take-up of maternity leave came entirely from within the constant 25% or so of women in work from the mid-1980s to today, and thus that there was no consequent rise in regular employment.<sup>2</sup>

Certainly, the law has effectively protected the right of females to be able to continue working; however, practically it is difficult for female workers to maintain their work-life balance without governmental and/or organisational support. And it is important to clarify who actually pays for family-friendly service. Taking the above situation as a starting point, the aim of this study is to focus on family-friendly policy within the fringe benefits that companies provide, then analyse the effects of individual family-friendly policies on workers' wages. In order to address the problem, it refers to the work of Heywood *et al.* (2007), which analysed the effect of family-friendly policies on wages by using cross-sectional data from the UK Workplace Employment Relations Survey 1998. This study considers the case of Japan. Family-friendly policy measures are a part of the fringe

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<sup>1</sup> Source: Basic Survey on the Female Employment 2006, Ministry of Health, Labour and Welfare.

<sup>2</sup> Source: The 13th Report for Fertility Trends 2006, National Institute of Population and Social Security Research.

benefits provided by an organisation; therefore, the components differ from organisation to organisation.<sup>3</sup> Figure 1 shows the data set being used for this study as one focusing on the number of respondents by gender to the statement ‘the organisation which I belong to has adopted a family-friendly policy’. Figure 1 tells us that there is not much difference between males and females on this issue. On the other hand, Figure 2 shows that there are obvious differences among males and females in the actual take-up of family-friendly policy benefits. Therefore, this study estimates the effect on wages, first for both genders resulting from the adoption of family-friendly policies, and then for males and females separately as a result of actual take-up.

To analyse the effects of family-friendly policy on wages, Section 2 reviews previous studies on the provision of family-friendly practices. Section 3 introduces the methodology and data. The fourth section presents estimates of empirical analysis and considers the results. Finally, the fifth section discusses the findings and concludes the study by suggesting a few implications.

## **2 Literature Review**

The labour force participation rate of females in Japan has been described as the ‘M’ curve because they leave the workplace for reasons of marriage and/or childbirth, and then return to the labour market part-time after their children reach a certain age. This phenomenon has led research that examines the problems of family-friendly related issues. Certainly, family-friendly policies do not single out one gender. However, most related studies focus on females because most of the users are female. For example, Tomita (1994) emphasised the relatively high needs of females for flexible working hour policies. The findings indicate that organisations which provide such leave show not only a high proportion of female workers, but also high stability in their workforce. In turn, Shigeno and Ohkusa (1998) clarify that although maternity leave does not affect the individual's decision on

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<sup>3</sup> For instance, over a one-year period of statutory maternity leave and over a three-month period of statutory elder care leave.

whether or not to marry, it does promote stability. The results tally with many studies supporting the view that maternity leave fosters stability in female workers' circumstances (see also, Morita and Kaneko, 1998; Waldfogel *et al.*, 1999). Apart from maternity leave, a large number of studies focus on flexible working arrangements which help workers to balance their work and life. These policies have been called family-friendly policies, and/or work-life balance policies. For instance, Wakisaka (2002) points out that the approaches towards family-friendly and equal opportunity policy vary according to size of organisation and industry. Kawaguchi (2002) further clarifies that family-friendly and equal opportunity policy are complementary to each other. Sakazume (2002) also confirms that policies influence such factors as employee motivation and the female leaving rate. In turn, Takeuchi and Matsushige (2008) found that improving family-friendly policies does not impact reward and/or wages of the female worker directly, but does so indirectly as these policies help them to work longer, thus increasing wages. However, on analysing whether family-friendly policy raises the retention rate of females, Matsushige (2008) concludes that neither policy adoption nor actual take-up have much effect when focusing on organisations that hired female university graduates in their early 20s.

In turn, there are an enormous number of studies in this field of family-friendly practices outside Japan. For example, the work of Shepherd *et al.* (1996) in analysing U.S. manufacture panel data shows that a flexible working schedule has effects on productivity. Meanwhile, Lanoie *et al.* (2001) analyse the impact of work-sharing on labour productivity in Canadian companies, then show that there is a significant negative effect. While Arthur and Cook (2004) emphasise that organisations which provide family-friendly policies gain significant returns, there is no one viewpoint about policies in terms of a cost and/or benefit relationship. On the other hand, Gariety and Shaffer (2001) analyse the U.S. Current Population Survey by examining industry, occupation, human capital, and needs of labour for family-friendly policies, then showing a correlation between flexible working

and higher wages. Heywood *et al.* (2007) analyse the Workplace Employment Relations Survey 1998 using the full treatment effect model, and show that adopting family-friendly policies could have implications for wage costs.

It is recognised that, overseas, family-friendly policy reduces the turnover rate and helps employees' families. In particular, selected employees whose skills are high are offered more flexibility (Johnson and Provan, 1995; Barringer and Milkovich, 1998; Dex and Scheibl, 2002; Hashiguchi, 2008). For the above reasons, this study focuses on family-friendly policy and whether it is provided as a retention tool for productive employees by determining the effects of adoption of family-friendly policies and actual take-up of benefits on wages. At the same time, Heywood *et al.* (2007) point out that family-friendly policy related studies have not corrected for endogeneity attributed to the policy. In the case of Japan, on the other hand, Kawaguchi (2007) analyses through ordinary least squares (OLS) how equality policies and family-friendly policies affect wage and turnover behaviour, and shows that family-friendly policies have positive impacts on wages.<sup>4</sup> Consequently, the current study corrects endogeneity by using the full treatment effect model.

### 3 The Methodology and Data

#### 3.1 The Methodology

To test the effect of individual family-friendly policies on workers' wages, first, we shall apply the wage equation which includes a family-friendly dummy through OLS (1).

$$\ln(y_i) = \beta_0 + \beta_1 X_i + \beta_2 f_i + \varepsilon_i \quad (1)$$

$y$  = log monthly pay,  $X$  =controls,  $f$  =family-friendly dummy, and  $\varepsilon$  =error term

$$f_i^* = \gamma_0 + \gamma_1 \text{retired}_i + \gamma_2 \text{skilled}_i + u_i \quad (2)$$

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<sup>4</sup> Ohta (2007) considers the level of fringe benefits on wages, then points out that based on theory, OLS estimates should be negative; however, they tend to be positive in many cases.

where  $f_i = 1$  if  $f_i^* > 0$ ,  $f_i = 0$  otherwise.

The treatment effect model (2) concerns the effect of two selected endogenous variables as treatment (retirement policy dummy=*retired* and self-learning dummy=*skilled*) to dependent variables. The wage equation and the determinants of the family-friendly dummy are jointly estimated through maximum likelihood.

$\varepsilon_i$  and  $u_i$  have a bivariate normal distribution with covariance matrix. The input specifies the continuous dependent variable of the logarithm of the monthly wage as a linear function of the independent variables.<sup>5</sup> The treatment is not included in the first variable list, but *retired* and *skilled* are specified as the exogenous variables in the treatment equation. These variables do not impact the estimation of earnings. Endogenous treatment estimates the family-friendly dummy for the values 0 and 1 in order to lead to an unobserved latent variable.

Independent variables include: age; age square; tenure; tenure square; occupation; education; living with either partner, child(ren) or parent(s); savings and investments in the last year; commute time (one-way, minimum); type of housing; number of paid holidays; and trade union membership. Latent variables are: (1) More than one year childcare leave policy; (2) More than a three-month elder care leave policy; (3) Family care leave policy; (4) Sick leave policy (other than paid holidays); (5) Per hour and a half-day paid leave policy; (6) Shifting start time and finish time policy; (7) Short-time work for childcare and elder care leave policy; and (8) Flexi-time and/or discretionary working hours policy. Table 1 shows a summary of Policies 1-8, classified by the adoption and take-up of family-friendly policies by gender. For policy adoption, males and females were taken together, but for benefit take-up, samples of male and female workers were taken separately. The individual policies 1-8 go into Equation (1) as independent variables.

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<sup>5</sup> Logarithm of monthly pay, calculated by dividing the respondents' stated annual wage by 12.

Regarding policy adoption, Heywood *et al.* (2007) explain that either workers often do not know about adopted policies, or benefits are provided informally, or both. Apart from this, there is a sample selection problem because the data set uses samples drawn only from regular employees (ie workers in regular employment). Therefore, policies are endogenous and so OLS regression analysis contains risk, as the estimates could be biased. For example, although policies do not affect wages, the estimates may be misleading if they fail to consider disturbance correlation. In order to exclude this possibility, it is necessary to estimate wage function and the determinants of a family-friendly dummy, while at the same time considering a correlation of disturbance. The treatment effect model corrects for the endogeneity of family-friendly policies. It uses treatment consisting of a 'retirement policy dummy' and a 'self-learning dummy'. The former is a worker who is eligible to make use of a retirement benefit,<sup>6</sup> and the latter is a worker who gives one or more of the following reasons for undertaking self-learning: because it is 'employer requested'; 'it helps my current job'; 'for promotion'; or because 'education and training benefits are available'. The retirement policy dummy and self-learning dummy are chosen for treatment for the following reason. While the self-learning dummy is a proxy of education and/or training cost for worker productivity, housing-related policy and retirement policy have assumed a symbolic role as major retention tools in Japan, and are subsequently being used as treatments.<sup>7</sup> However, because the housing related policy dummy correlates to wages; only the retirement policy dummy has been selected for use as a treatment with a self-learning dummy.<sup>8</sup>

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<sup>6</sup> Applying the retirement policy correlates to wages. Therefore, the calculation used interaction dummy of the retirement policy  $\times$  junior high school and high school diploma.

<sup>7</sup> See Inoki (1995) and Tachibanaki (2005) for details.

<sup>8</sup> Heywood *et al.* (2007) used two variables for the treatment: one is the manager's response to the statement that it is the worker's responsibility to balance the competing demands of work and family, and the worker's own views. The other is the worker's view of whether or not management cares about their family responsibilities.



### **3.2 The Data**

The data set used in the current study is the Survey of Company Fringe Benefits provided by the Life Insurance Culture Centre in 2002 (Social Science Japan data archive). These surveys have been conducted since 1980; this is the eighth. The samples are chosen from an area within Tokyo Metropolitan District and in cities with a population of 500,000 or more, and designated five or more regular employees of private companies (a worker who is in charge of fringe benefits or personnel). The samples consist of 2,014 companies, 1,802 regular employees and 300 non-regular employees. In this chapter, the data set of 1,802 regular employees is used. Since more than one worker may be associated with a single workplace; all estimates are calculated with the Huber/White adjusted standard errors to account for workplace-specific heteroscedasticity. An advantage of using this data set is the richness of fringe benefits and family-friendly policies-related data, as these made it possible to create dummies to be used for treatment. However, the sample number is limited. Moreover, it cannot match company and worker data, nor can it be used as panel data. Taking into account these data limitations, the current study analyses the effects of family-friendly policy on wages through a treatment that considers worker productivity.

## **4 Results**

### **4.1 Data description**

Table 2 presents a summary of the data. As described above, it shows a basic analysis of male and female workers, dependent variables of a natural logarithm of monthly wages, independent variables and eight kinds of family-friendly policies, as well as treatment dummies. The average age of respondents is 38.9 years, average tenure is 13.57 years, and clerical work is the most common among the classified occupations.

It also shows that university graduates are the most numerous, followed by high school graduates,

as well as showing an average of the respondents living with a spouse, unmarried child(ren), and/or parent(s). The summary also includes the following factors: number of paid holidays; savings and investments in the last year; type of housing; and membership of trade union. In addition, company data which cannot be matched to the data for workers provides information on where the respondents work with fewer than 100 employees in small businesses, manufacturing, commercial, industrial and service sectors.<sup>9</sup>

#### 4.2 Regression Results

Tables 3 to 5 present results of OLS and the full treatment effect estimation. The results of the full treatment effect model are partially supported as they show that the endogeneity has been corrected. First, Table 3 presents the result of policy adoption estimated by OLS (upper part) and the treatment effect model (lower part).<sup>10</sup> From the top, the results of OLS show significant difference at the 1% level for all except Policy 6, but all have a positive effect on wages. Regarding the results of full treatment effect estimation, the likelihood ratio (LR) test is significant only for Policy 1. The coefficients of policies are all larger than the OLS, and Policy 8 has changed from a positive to a negative impact. Female dummies emerge with the most significant and negative coefficient of all. Age also takes a significant and negative coefficient. Age squared as well as tenure take significant and positive coefficients. Occupation dummies show negative coefficients, and for education dummies all emerge with significant and positive effects on wages except high school graduates. Although coefficients are not significant, living with a spouse shows a positive effect on wages, whereas unmarried child(ren) and parent(s) have a negative effect. The number of paid holidays,

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<sup>9</sup> According to the company data, the breakdown of company size is: 5-20 employees = 742, 39-49 employees = 887, 100-299 employees = 270, and more than 300 employees = 115. In turn, the industry breakdown is: construction = 277, manufacturing = 587, commercial = 465, transportation and electric power = 145, service sector = 505, and other = 35.

<sup>10</sup> This is also confirmed by the estimation results for policy adoption for males and females separately. The results show that the impacts are positive on wages in OLS for both genders (data not shown).

amount of savings and investments in the last year, and commuting time are statistically significant and positive. As regards housing, living together in the parents' house emerges with a significant and negative coefficient. Working for a company without a trade union takes a negative coefficient, but not a significant one.

Table 4 presents the effects of policy take-up on male wages. The results of OLS present only Policy 4 and Policy 5 as significant effects on wages. On the other hand, full treatment effect estimation shows results of the Wald test as it is statistically significant on Policy 3 and Policy 5 only. Policy 4 and Policy 5 stand out clearly among all the individual policies as having a significant effect on wages. Policy 1, Policy 2 and Policy 7 did not even converge. The reason for non-convergence may have been the small sample size. Table 1 indicates that only 4, 0, 2, and 4 respondents respectively took up Policy 1, Policy 2, Policy 3, and Policy 7. These low take-up policies are policies which relate to childcare and elder care. For a description of other variables, the tenure and tenure square effect is 0. Age and age-square have significant negative and positive coefficients respectively. Occupations take a significant and negative coefficient; on the other hand, education shows a positive but insignificant effect on wages except university graduates on .Policy 6. Living with a spouse takes a significant and positive coefficient, while child(ren) and parent(s) take a positive, but insignificant coefficient. The number of paid holidays, amount of savings and investments in the last year, and commute time take a significant and positive coefficient. On the other hand, housing in general shows a negative impact on wages, with living in the parents' house taking a particularly significant negative coefficient. In turn, trade unions emerge as insignificant.

Table 5 presents the effect of policy take-up on female wages. The result of OLS shows a negative impact on Policy 1, Policy 2 and Policy 7. These are not significant except in the case of Policy 2. Policy 3 to Policy 6 show significant positive coefficients. In turn, the results emerging from the full treatment effect model show that none of the Wald test results is significant. In addition, Policy 2,

Policy 3 and Policy 4 did not converge. There are a sufficient number of responses for estimation, as Table 1 shows. This means that, in contrast to the case of the males, not the number of respondents, but the treatment may fail to fully affect the determinants of the family-friendly dummy. And the take-up of family-friendly policies by females shows different tendencies from males in comparison with OLS and the full treatment effect model. The results of full treatment effect model estimation present a positive effect for Policies 1, 5, and 6. Both Policy 7 and Policy 8 show a negative effect on female wages, although they are not statistically significant. The results for other independent variables are as follows: Tenure shows almost no impact, but is positive at a 10% level of significance. Tenure square is 0. Occupations, except professionals, take a significant and negative coefficient. Education determines a significant and positive coefficient. Other than occupations and education, the coefficients are relatively low; however, living with a spouse, child(ren) and/or parent(s) has a negative impact on wages of relatively high significance. Savings in investments in the last year has a positive coefficient at the 1% significant level. Paid holidays and commuting time have a positive coefficient, but while the former partially take significant coefficients, the latter is insignificant. Neither housing dummies nor trade union dummies are statistically significant.

It has been confirmed so far that the results of a full treatment effect model estimation show that childcare and elder care-related policies either do not converge or take a negative coefficient, while the treatment could not fully compensate for endogeneities in family-friendly policy.<sup>11</sup> It is therefore important to examine how the treatment works to determine the family-friendly policy dummy, so that it adds to an analysis of probit model estimation within this model.

Table 6 presents the probit estimates classified by policy adoption, policy take-up by males, and policy take-up by females. First, the effects of the retirement policy dummy for Policies 1, 2 and 3

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<sup>11</sup> Since Policy 1 is negative for male wages in both OLS and full treatment effect estimation, a positive effect on female wages under Policy 1 in the results of the full treatment effect model should be considered together with the negative effect in OLS estimation, although the coefficient is statistically insignificant.

take a significant and positive coefficient at the 5% or 10% significance level. However, the results of the self-learning dummy emerge as statistically insignificant. Policy 8 is not statistically significant, and has a negative effect on wages. In turn, considering policy take-up for males, a self-learning dummy takes a positive and 1% significant coefficient on Policy 3. Looking at policy take-up for females, a self-learning dummy takes a positive and 1% significant coefficient on Policies 1 and 7. These policies are family-related policies; however, while estimates of wage function reveal that Policy 3 has a positive effect on male wages, Policy 7 takes a negative coefficient for female wages. Hence, just as females first experience the disadvantages of the gender wage gap, they may then experience wage costs when they use childcare and elder care policies no matter how productive they are as workers.

To explain it differently, while Policy 8 and Policy 7 are both related to flexibility for working hours, who uses which policy varies as Policy 8 is taken up by both single and married workers, while Policy 7 is mostly taken up by married females. Therefore, the characteristics of Policy 7 and Policy 8 are different in terms of users' attributes. For instance, results of probit estimates indicate that productive workers who contribute more to the organisation use Policy 7.

## **5 Discussion and Conclusion**

Let us consider that results of probit estimates show that the retirement policy dummy and self-learning dummy have different influences in terms of policy adoption and actual take-up by males and females. For example, for policy adoption, the effects of the retirement policy dummy are positive and statistically 10% significant for Policies 1, 2 and 3 for adoption for both genders. The self-learning dummy, on the other hand, shows no influence on any policies, but provides the highest positive coefficients at the 1% significance level for Policy 1 (female), Policy 3 (male), and Policy 7 (female).

To confirm this point, the retirement and housing related policy dummies are estimated through OLS and the full treatment effect model (data not shown). The results show that unlike childcare and elder care related policies, which become costs when workers use them, retirement and housing-related policy show a positive impact on wages. In other words, family-friendly policy has different characteristics from traditional fringe benefits which are known as retention tools. The difference could be explained by working hour co-ordination.

According to Inoki (1995), there is a correlation between working hours and fringe benefits in Japan and France, but in opposite directions. For instance, in France, increasing fringe benefits' costs and reducing working hours can be explained by an income effect. However, in Japan, the costs of fringe benefits are semi-fixed and co-ordinated with the amount of overtime worked, and when organisations face hardship, they reduce labour costs through reductions both in working hours and fringe benefits. In other words, companies and/or industries that provide more fringe benefits set a longer average overtime. If this is the case, then indeed family-friendly policy cannot be seen as the same as retirement and/or housing related policy. On the other hand, a generally-held view of fringe benefits in Japan currently is that organisations are tending to reduce housing related benefits (for example, Tachibanaki, 2005). This is consistent with the phenomenon of non-regular employment expansion in the Japanese labour market. It assumes that since organisations face an economic recession, reduced working hours and fringe benefits may not be enough and/or smaller sized organisations do not have the working hours and fringe benefits options available to much larger sized organisations. Under these circumstances, family-friendly policy could be in the interest of employers because of the user characteristic: productive workers.

In conclusion, the study aims to analyse the effect of family-friendly policies on wages by using the full treatment effect model. The results show that adopting policy is not a wage cost except in Policy 8. In turn, policy take-up differs between males and females. To put it concretely, by adding

the results of the probit model, it was found that family-related benefits tend to be taken up by productive male and female workers. However, the take-up of Policy 7 has a negative impact on female wages, as does Policy 8. These results, however, include limitations of sample use, and of endogeneity as this has not been fully controlled. Therefore, the use of a larger data set and/or panel data as well as full control of endogeneity are left for further analysis.

Based on concepts, Policy 8 should be categorised as a work-life balance policy. In turn, Policy 1 and Policy 7 should be categorised as family-friendly policies. However, the self-learning dummy in Policy 8 as a proxy of productivity emerges as a negative coefficient; at the same time, Policy 8 has a positive impact on male wages and a negative impact on female wages. Although both Policy 1 (OLS) and Policy 7 have a negative impact on female wages, the self-learning dummy in Policy 1 and Policy 7 has a significant and positive impact. These results should be of concern when the importance of providing family-friendly support services is recognised under circumstances of a declining birth-rate in an ageing society.

Japanese organisations have covered social security largely on behalf of the government, and have developed fringe benefits including the symbolic policies of housing-related policy and retirement policy. However, housing related benefits have been reduced recently. This tendency is confirmed from company data available elsewhere. Therefore, this suggests that it is meaningful to enhance a family-friendly policy not only to be used as a fringe benefit, but also as a strategy of human resource management including as a retention tool and reward for productive workers. Implicit wage costs for productive workers should be avoided by a comprehensive policy designed to achieve a gender-equal society.

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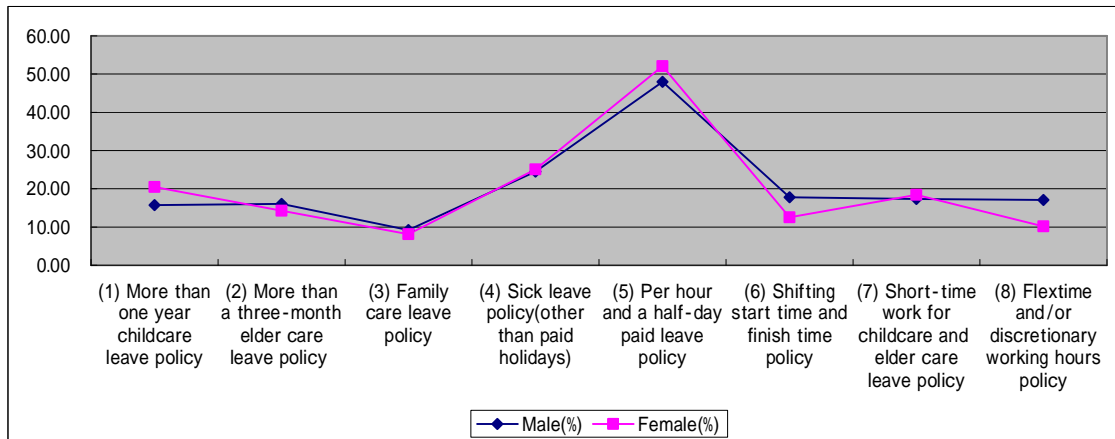
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“Basic Survey on the Female Employment”, Ministry of Health, Labour and Welfare,

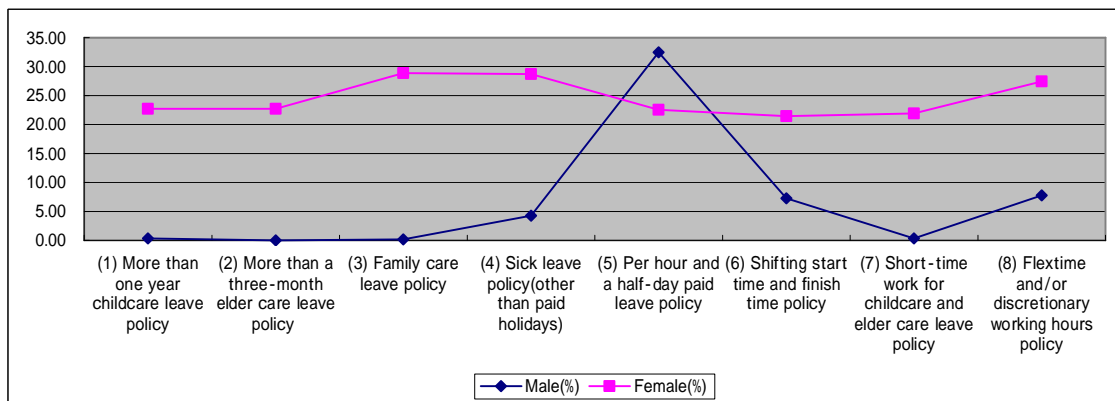
<http://www.mhlw.go.jp/houdou/2007/08/h0809-1/03-26.html>

(Last access: 01/09/2009).

**Figure 1 The Adoption of Family-Friendly Policies by Gender(%)**



**Figure 2 The Use of Family-Friendly Policies by Gender(%)**



**Table 1 The Adoption and Use of Family-Friendly Policies by Gender**

The adoption of family-friendly policies		Male(%)	Female(%)	Male(Number)	Female(Number)
(1) More than one year childcare leave policy		15.71	20.48	184	129
(2) More than a three-month elder care leave policy		16.05	14.29	188	90
(3) Family care leave policy		9.22	8.10	108	51
(4) Sick leave policy (other than paid holidays)		24.51	25.08	287	158
(5) Per hour and a half-day paid leave policy		47.99	52.06	562	328
(6) Shifting start time and finish time policy		17.76	12.54	208	79
(7) Short-time work for childcare and elder care leave policy		17.34	18.41	203	116
(8) Flextime and/or discretionary working hours policy		17.08	10.16	200	64
The use of family-friendly policies		Male(%)	Female(%)	Male(Number)	Female(Number)
(1) More than one year childcare leave policy		0.34	22.70	4	143
(2) More than a three-month elder care leave policy		0.00	22.70	0	143
(3) Family care leave policy		0.17	28.89	2	182
(4) Sick leave policy (other than paid holidays)		4.27	28.73	50	181
(5) Per hour and a half-day paid leave policy		32.45	22.54	380	142
(6) Shifting start time and finish time policy		7.26	21.43	85	135
(7) Short-time work for childcare and elder care leave policy		0.34	21.90	4	138
(8) Flextime and/or discretionary working hours policy		7.77	27.46	91	173

**Table 2 Descriptive Statistics**

Variables	Mean	Std. Dev.	Min	Max
Male(N=1,171)	0.6498	0.4772	0	1
Female(N=630)	0.3496	0.4770	0	1
Monthly Wages	389666	193470	0	3175000
Natural Logarithm of Monthly Wages	12.78	0.46	9.4335	14.9708
Age	38.93	10.91	18	70
Age Squared	1634.61	898.97	324	4900
Tenure	13.57	10.80	1	543
Tenure Squared	300.63	431.75	1	294849
Managerial	0.1822	0.3861	0	1
Clerical	0.5385	0.4987	0	1
Sales	0.1388	0.3458	0	1
Skilled	0.0760	0.2650	0	1
Professional	0.0645	0.2458	0	1
Junior High School Diploma	0.0198	0.1392	0	1
High School Diploma	0.3239	0.4681	0	1
Junior College Degree	0.1112	0.3144	0	1
Bachelor's and Master's Degree	0.4345	0.4958	0	1
Vocational College Diploma	0.1106	0.3137	0	1
Living with Spouse	0.5433	0.4983	0	1
Living with Unmarried Child(ren)	0.3013	0.4590	0	1
Living with Parent(s)	0.2913	0.4545	0	1
Number of Paid Holidays	19.2489	11.4320	0	75
Saving and Investment in Last Year	102.6163	122.1916	5	1500
Commute Time(One-way)	49.1670	26.6550	0	180
Owner of Residence(in Mortgage Payments)	0.3012	0.4589	0	1
Owner of Residence(without Mortgage Payments)	0.1049	0.3065	0	1
Live Together in the Name of Your Parent Residence	0.2249	0.4176	0	1
Rent Housing	0.3146	0.4645	0	1
Company Housing/Dormitory	0.0544	0.2269	0	1
A Member of Trade Union	0.1667	0.3728	0	1
Not a Member of Trade Union	0.1259	0.3318	0	1
Company with no Trade Union	0.7075	0.4551	0	1
(1) More than one year childcare leave policy	0.1737	0.3790	0	1
(2) More than a three-month elder care leave policy	0.1543	0.3613	0	1
(3) Family care leave policy	0.0882	0.2837	0	1
(4) Sick leave policy(other than paid holidays)	0.2469	0.4314	0	1
(5) Per hour and a half-day paid leave policy	0.4939	0.5001	0	1
(6) Shifting start time and finish time policy	0.1593	0.3660	0	1
(7) Short-time work for childcare and elder care leave policy	0.1770	0.3818	0	1
(8) Flextime and/or discretionary working hours policy	0.1465	0.3537	0	1
Retirement Policy Dummy	0.2172	0.4124	0	1
Self-learning Dummy	0.8957	0.3058	0	1

Benchmark group = Managerial(occupation), Junior High School Diploma(education), Owner of Residence(housing), A member of Trade Union(TU).

Notes: Retirement Policy Dummy: Worker who is eligible to use a retirement policy  $\times$  (Junior High School + High School Diploma)

Notes: Self-learning Dummy: Worker who agrees with one or more reasons of self-learning either because it is employer requested, it helps my job, for promotion, or because education and training benefits are available.

**Table 3 The Adoption of Family-Friendly Policies - OLS, Full Treatment Effect Earning Estimates**

OLS Estimates

	1	2	3	4	5	6	7	8
log(monthly wages)								
(1) More than one year childcare leave policy	0.0680 *** (2.26)							
(2) More than a three-month elder care leave policy		0.0985 *** (4.14)						
(3) Family care leave policy			0.1065 *** (3.65)					
(4) Sick leave policy(other than paid holidays)				0.0567 *** (2.68)				
(5) Per hour and a half-day paid leave policy					0.0652 *** (3.47)			
(6) Shifting start time and finish time policy						0.0345 (1.25)		
(7) Short-time work for childcare and elder care leave policy							0.0801 *** (3.71)	
(8) Flextime and/or discretionary working hours policy								0.0818 *** (3.08)
N	865	865	865	865	865	865	865	865
R <sup>2</sup>	0.6272	0.6300	0.6284	0.6270	0.6289	0.6248	0.6286	0.6280

Notes: Control variables include a Constant, Age, Age Squared, Tenure, Tenure Squared, Clerical, Sales, Skilled, Professional, High School Diploma, Junior College Degree, Bachelor's and Master's Degree, Vocational College Diploma, Living with Spouse, Living with Unmarried Child(ren), Living with Parent(s), Number of Paid Holidays, Saving and Investment in Last Year, Commute Time(One-way), Owner of Residence(without Mortgage Payments), Live Together in the Name of Your Parent Residence, Rent Housing, Company Housing/Dormitory, Not a Member of Trade Union, Company without Trade Union. (T-statistics in parentheses), are constructed from robust standard errors. Significantly different at the \*\*\*=1%, \*\*=5%, \*=10% level.

Full Treatment Effect Estimates

	1	2	3	4	5	6	7	8
log(monthly wages)								
(1) More than one year childcare leave policy	0.4344 *** (4.19)							
(2) More than a three-month elder care leave policy		0.2359 * (1.92)						
(3) Family care leave policy			0.2151 *** (2.49)					
(4) Sick leave policy(other than paid holidays)				0.1054 (1.03)				
(5) Per hour and a half-day paid leave policy					0.2326 (0.32)			
(6) Shifting start time and finish time policy						0.0814 (1.56)		
(7) Short-time work for childcare and elder care leave policy							0.1887 (0.84)	
(8) Flextime and/or discretionary working hours policy								-0.1963 (-1.05)
Female	-0.2375 ***	-0.2295 ***	-0.2292 ***	-0.2325 ***	-0.2311 ***	-0.2267 ***	-0.2296 ***	-0.2216 ***
Age	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0007 ***
Age Squared	0.0721 ***	0.0708 ***	0.0713 ***	0.0719 ***	0.0716 ***	0.0712 ***	0.0722 ***	0.0703 ***
Tenure	0.0008 **	0.0009 **	0.0009 **	0.0009 **	0.0009 ***	0.0009 **	0.0008 **	0.0009 **
Tenure Squared	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Clerical	-0.2058 ***	-0.2064 ***	-0.2070 ***	-0.2015 ***	-0.2031 ***	-0.2060 ***	-0.2024 ***	-0.2028 ***
Sales	-0.1744 ***	-0.1653 ***	-0.1794 ***	-0.1762 ***	-0.1783 ***	-0.1801 ***	-0.1673 ***	-0.1814 ***
Skilled	-0.1991 ***	-0.2031 ***	-0.2088 ***	-0.2129 ***	-0.2100 ***	-0.2169 ***	-0.2001 ***	-0.2074 ***
Professional	-0.0662 *	-0.0625	-0.0750 *	-0.0702 *	-0.0717 *	-0.0747 *	-0.0659	-0.0768 *
High School Diploma	0.1440	0.1346	0.1358	0.1456	0.1405	0.1524	0.1414	0.1541
Junior College Degree	0.2289 **	0.2142 *	0.2104 *	0.2106 *	0.2135 *	0.2205 **	0.2076 *	0.2302 **
Bachelor's and Master's Degree	0.2687 ***	0.2479 **	0.2507 **	0.2500 **	0.2535 **	0.2597 **	0.2483 **	0.2599 **
Vocational College Diploma	0.2027 *	0.1832 *	0.1844 *	0.1857	0.1864	0.1918 *	0.1849 *	0.1947 *
Living with Spouse	0.0199	0.0276	0.0214	0.0220	0.0239	0.0225	0.0221	0.0247
Living with Unmarried Child(ren)	-0.0090	-0.0101	-0.0056	-0.0057	-0.0074	-0.0047	-0.0089	-0.0041
Living with Parent(s)	-0.0173	-0.0075	-0.0075	-0.0135	-0.0162	-0.0101	-0.0127	-0.0109
Number of Paid Holidays	0.0042 ***	0.0039 ***	0.0039 ***	0.0041 ***	0.0039 ***	0.0043 ***	0.0040 ***	0.0039 ***
Saving and Investment in Last Year	0.0004 ***	0.0004 ***	0.0004 ***	0.0004 ***	0.0003 ***	0.0004 ***	0.0003 ***	0.0004 ***
Commute Time(One-way)	0.0012 ***	0.0012 ***	0.0012 ***	0.0012 ***	0.0012 ***	0.0012 ***	0.0013 ***	0.0011 ***
Owner of Residence(without Mortgage Payments)	0.0147	0.0126	0.0084	0.0109	0.0087	0.0116	0.0119	0.0144
Live Together in the Name of Your Parent Residence	-0.0653 *	-0.0714 **	-0.0774 **	-0.0716 **	-0.0765 **	-0.0748 **	-0.0768 **	-0.0784 **
Rent Housing	-0.0228	-0.0228	-0.0281	-0.0299	-0.0322	-0.0291	-0.0342	-0.0264
Company Housing/Dormitory	-0.0368	-0.0295	-0.0298	-0.0385	-0.0488	-0.0424	-0.0438	-0.0376
Not a Member of Trade Union	0.0239	0.0280	0.0228	0.0217	0.0279	0.0203	0.0177	0.0293
Company with no Trade Union	-0.0113	-0.0024	-0.0124	-0.0143	-0.0127	-0.0214	-0.0106	-0.0072
_cons	10.9338 ***	10.9960 ***	11.0239 ***	10.9976 ***	10.9181 ***	11.0218 ***	10.9800 ***	11.0747 ***
Chi2(26)	1820.69 ***	1716.11 ***	1798.51 ***	1773.71 ***	1833.24 ***	1760.72 ***	1749.97 ***	1805.82
LR test	9.45 ***	1.17	1.67	0.19	0.05	0.89	0.22	1.91
Number of objects	851	851	851	851	851	851	851	851

Benchmark group = Managerial(occupation), Junior High School Diploma(education), Owner of Residence(housing), A member of Trade Union(TU).

(T-statistics in parentheses), Significantly different at the \*\*\*=1%, \*\*=5%, \*=10% level.

**Table 4 The Use of Family-Friendly Policies (Male) - OLS, Full Treatment Effect Earning Estimates**

**OLS Estimates**

	1	2	3	4	5	6	7	8
log(monthly wages)								
(1) More than one year childcare leave policy	-1.1385 (-1.16)							
(2) More than a three-month elder care leave policy		(dropped)						
(3) Family care leave policy			0.1340 (0.98)					
(4) Sick leave policy(other than paid holidays)				0.1402 ** (1.91)				
(5) Per hour and a half-day paid leave policy					0.0769 *** (3.61)			
(6) Shifting start time and finish time policy						0.0590 (1.49)		
(7) Short-time work for childcare and elder care leave policy							-0.1153 (-0.41)	
(8) Flextime and/or discretionary working hours policy								0.0597 (1.44)
N	551	551	551	551	551	551	551	551
R <sup>2</sup>	0.6273	0.6012	0.6016	0.6058	0.6092	0.6027	0.6016	0.6030

Notes: Control variables include a Constant, Age, Age Squared, Tenure, Tenure Squared, Clerical, Sales, Skilled, Professional, High School Diploma, Junior College Degree, Bachelor's and Master's Degree, Vocational College Diploma, Living with Spouse, Living with Unmarried Child(ren), Living with Parent(s), Number of Paid Holidays, Saving and Investment in Last Year, Commute Time(One-way), Owner of Residence(without Mortgage Payments), Live Together in the Name of Your Parent Residence, Rent Housing, Company Housing/Dormitory, Not a Member of Trade Union, Company without Trade Union. (T-statistics in parentheses), are constructed from robust standard errors. Significantly different at the \*\*\*=1%, \*\*=5%, \*=10% level.

**Full Treatment Effect Estimates**

	3	4	5	6	8
log(monthly wages)					
(1) More than one year childcare leave policy	-				
(2) More than a three-month elder care leave policy	-				
(3) Family care leave policy	0.2155 (1.25)				
(4) Sick leave policy(other than paid holidays)		0.1477 ** (2.04)			
(5) Per hour and a half-day paid leave policy			0.1479 *** (4.41)		
(6) Shifting start time and finish time policy				0.0948 (1.55)	
(7) Short-time work for childcare and elder care leave policy	-				
(8) Flextime and/or discretionary working hours policy					0.0780 (1.58)
Age	-0.0011 ***	-0.0011 ***	-0.0011 ***	-0.0011 ***	-0.0011 ***
Age Squared	0.1014 ***	0.1005 ***	0.0994 ***	0.1006 ***	0.1004 ***
Tenure	0.0007	0.0007	0.0007	0.0007	0.0007
Tenure Squared	0.0000	0.0000	0.0000	0.0000	0.0000
Clerical	-0.1882 ***	-0.1781 ***	-0.1930 ***	-0.1854 ***	-0.1872 ***
Sales	-0.1527 ***	-0.1434 ***	-0.1519 ***	-0.1500 ***	-0.1519 ***
Skilled	-0.2122 ***	-0.2110 ***	-0.2090 ***	-0.2087 ***	-0.2078 ***
Professional	-0.0943 *	-0.0860 *	-0.0998 **	-0.0931 *	-0.0977 **
High School Diploma	0.1328	0.1385	0.1308	0.1411	0.1315
Junior College Degree	0.1660	0.1685	0.1794	0.1773	0.1671
Bachelor's and Master's Degree	0.1996	0.2036	0.2100	0.2106 *	0.1993
Vocational College Diploma	0.1438	0.1493	0.1517	0.1554	0.1461
Living with Spouse	0.0941 ***	0.0929 ***	0.0964 ***	0.0929 ***	0.0924 ***
Living with Unmarried Child(ren)	0.0021	0.0068	0.0010	0.0013	0.0022
Living with Parent(s)	0.0191	0.0233	0.0154	0.0203	0.0181
Number of Paid Holidays	0.0038 ***	0.0038 ***	0.0035 ***	0.0038 ***	0.0037 ***
Saving and Investment in Last Year	0.0003 **	0.0003 ***	0.0003 **	0.0003 ***	0.0003 **
Commute Time(One-way)	0.0010 ***	0.0011 ***	0.0009 **	0.0011 ***	0.0010 ***
Owner of Residence(without Mortgage Payments)	-0.0334	-0.0377	-0.0242	-0.0343	-0.0326
Live Together in the Name of Your Parent Residence	-0.0851 **	-0.0846 **	-0.0842 **	-0.0826 **	-0.0863 **
Rent Housing	-0.0643 **	-0.0629 **	-0.0636 **	-0.0641 **	-0.0622 **
Company Housing/Dormitory	-0.0206	-0.0149	-0.0347	-0.0214	-0.0181
Not a Member of Trade Union	0.0059	0.0037	0.0107	0.0053	0.0141
Company with no Trade Union	-0.0382	-0.0384	-0.0326	-0.0352	-0.0272
_cons	10.4289 ***	10.4245 ***	10.4234 ***	10.4163 ***	10.4351 ***
Chi2(25)	655.17 ***	665.66 ***	670.64 ***	659.66 ***	655.7 ***
Wald test	2.88 *	0.13	8.18 ***	0.78	0.20
Number of objects	545	545	545	545	545

Benchmark group = Managerial(occupation), Junior High School Diploma(education), Owner of Residence(housing), A member of Trade Union(TU). (T-statistics in parentheses), Significantly different at the \*\*\*=1%, \*\*=5%, \*=10% level.

**Table 5 The Use of Family-Friendly Policies (Female) - OLS, Full Treatment Effect Earning Estimates**

**OLS Estimates**

log(monthly wages)	1	2	3	4	5	6	7	8
(1) More than one year childcare leave policy	-0.1471 (-0.76)							
(2) More than a three-month elder care leave policy		-0.3525 *** (-2.82)						
(3) Family care leave policy			0.6445 *** (3.95)					
(4) Sick leave policy(other than paid holidays)				0.1106 *** (1.58)				
(5) Per hour and a half-day paid leave policy					0.0870 ** (2.42)			
(6) Shifting start time and finish time policy						0.1802 ** (2.35)		
(7) Short-time work for childcare and elder care leave policy							-0.1992 (-0.83)	
(8) Flextime and/or discretionary working hours policy								0.0199 (0.21)
<i>N</i>	314	314	314	314	314	314	314	314
<i>R</i> <sup>2</sup>	0.4577	0.4589	0.4639	0.4595	0.4671	0.4634	0.4601	0.4566

*Notes:* Control variables include a Constant, Age, Age Squared, Tenure, Tenure Squared, Clerical, Sales, Skilled, Professional, High School Diploma, Junior College Degree, Bachelor's and Master's Degree, Vocational College Diploma, Living with Spouse, Living with Unmarried Child(ren), Living with Parent(s), Number of Paid Holidays, Saving and Investment in Last Year, Commute Time(One-way), Owner of Residence(without Mortgage Payments), Live Together in the Name of Your Parent Residence, Rent Housing, Company Housing/Dormitory, Not a Member of Trade Union, Company without Trade Union. (T-statistics in parentheses), are constructed from robust standard errors. Significantly different at the \*\*\*=1%, \*\*=5%, \*=10% level.

**Full Treatment Effect Estimates**

log(monthly wages)	1	5	6	7	8
(1) More than one year childcare leave policy	0.1854 (0.52)				
(2) More than a three-month elder care leave policy	-				
(3) Family care leave policy	-				
(4) Sick leave policy(other than paid holidays)	-				
(5) Per hour and a half-day paid leave policy		0.0375 (0.37)			
(6) Shifting start time and finish time policy			0.1326 (1.26)		
(7) Short-time work for childcare and elder care leave policy				-0.1655 (-0.66)	
(8) Flextime and/or discretionary working hours policy					-0.0069 (-0.05)
Age	-0.0006 ***	-0.0006 ***	-0.0005 ***	-0.0006 ***	-0.0006 ***
Age Squared	0.0513 ***	0.0503 ***	0.0491 ***	0.0510 ***	0.0510 ***
Tenure	0.0015 *	0.0015 *	0.0014 *	0.0015 *	0.0015 *
Tenure Squared	0.0000	0.0000	0.0000	-0.0001	0.0000
Clerical	-0.1749 *	-0.1615 *	-0.1719 *	-0.1617 *	-0.1639 *
Sales	-0.2689 **	-0.2832 **	-0.2916 ***	-0.2571 **	-0.2586 **
Skilled	-0.2573 **	-0.2208 *	-0.2525 **	-0.2412 *	-0.2480 *
Professional	0.0773	0.1007	0.0979	0.0855	0.0898
High School Diploma	0.2407 **	0.2431 *	0.2199 *	0.2427 **	0.2355 **
Junior College Degree	0.3383 ***	0.3382 **	0.3139 **	0.3364 ***	0.3319 ***
Bachelor's and Master's Degree	0.3908 ***	0.3824 ***	0.3703 ***	0.3859 ***	0.3839 ***
Vocational College Diploma	0.3597 ***	0.3649 ***	0.3444 ***	0.3552 ***	0.3565 ***
Living with Spouse	-0.1470 ***	-0.1541 ***	-0.1592 ***	-0.1428 ***	-0.1464 ***
Living with Unmarried Child(ren)	-0.1462 **	-0.1695 ***	-0.1602 **	-0.1388 **	-0.1576 **
Living with Parent(s)	-0.1351 **	-0.1438 **	-0.1374 **	-0.1389 **	-0.1320 **
Number of Paid Holidays	0.0041 *	0.0037	0.0046 **	0.0038	0.0041 *
Saving and Investment in Last Year	0.0006 ***	0.0006 ***	0.0006 ***	0.0006 ***	0.0006 ***
Commute Time(One-way)	0.0009	0.0010	0.0010	0.0008	0.0008
Owner of Residence(without Mortgage Payments)	0.1114	0.0927	0.1161	0.1088	0.1072
Live Together in the Name of Your Parent Residence	-0.0255	-0.0295	-0.0352	-0.0173	-0.0242
Rent Housing	0.0372	0.0289	0.0391	0.0412	0.0416
Company Housing/Dormitory	-0.0647	-0.0336	-0.0555	-0.0635	-0.0621
Not a Member of Trade Union	0.0634	0.0734	0.0786	0.0501	0.0655
Company with no Trade Union	0.0132	0.0379	0.0209	0.0029	0.0143
_cons	11.0909 ***	11.0809 ***	11.1380 ***	11.1009 ***	11.0934 ***
Chi2(25)	369.22 ***	373.92 ***	386.74 ***		374.79 ***
Wald test	1.22	0.24	0.45	0.65	0.08
Number of objects	306	306	306	306	306

Benchmark group = Managerial(occupation), Junior High School Diploma(education), Owner of Residence(housing), A member of Trade Union(TU). (T-statistics in parentheses), Significantly different at the \*\*\*=1%, \*\*=5%, \*=10% level.

**Table 6 Full Treatment Effect Model - Treatment Effect(Probit) Estimates**

The adoption of family-friendly policies(both sex)	1	2	3	4	5	6	7	8
Retirement Policy Dummy	0.1959 *	0.2112 *	0.2760 **	-0.0166	0.0884	0.0396	0.0346	-0.0278
	(1.77)	(1.77)	(2.04)	(-0.14)	(0.51)	(0.32)	(0.28)	(-0.23)
Self-learning Dummy	-0.0569	-0.0525	0.2306	0.1404	0.0638	0.2242	0.1530	-0.0513
	(-0.46)	(-0.34)	(1.10)	(0.94)	(0.49)	(1.27)	(0.98)	(-0.36)
The use of family-friendly policies(Male)	1	2	3	4	5	6	7	8
Retirement Policy Dummy	-	-	0.5167	0.0935	0.2602 *	0.2467	-	0.1143
			((1.01)	(0.39)	(1.82)	(1.32)		(0.63)
Self-learning Dummy			2.9947 ***	0.0346	-0.0752	0.3709		-0.3603
			(12.27)	(0.10)	(-0.41)	(1.12)		(-1.63)
The use of family-friendly policies(Female)	1	2	3	4	5	6	7	8
Retirement Policy Dummy	0.0440	-	-	-	0.0396	-0.5786	-0.1555	-0.2122
	(0.09)				(0.24)	(-1.41)	(-0.35)	(-0.64)
Self-learning Dummy	3.9809 ***				-0.0563	-0.1267	3.8566 ***	-0.1856
	(8.43)				(-0.22)	(-0.32)	(20.36)	(-0.48)

Retirement Policy Dummy: Worker who is eligible to use a retirement policy × (Junior High School+High School Diploma)

Self-learning Dummy: Worker who agrees with one or more reasons of self-learning either because it is employer requested, it helps my job, for promotion, or because education and training benefits are available .

Significantly different at the \*\*\*=1%, \*\*=5%, \*=10% level.