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Who values the family-friendly aspects of a job? Evidence from the Japanese labor market

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Who values the family-friendly aspects of a job? Evidence from the Japanese labor market[*]

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Abstract

Women with family responsibilities such as child-rearing generally prefer jobs with flexible working conditions. According to the theory of compensating wage differentials, women working at such family-friendly jobs are paid less than those working at so-called family-unfriendly jobs. Of these two groups of women, this paper aims to investigate whose wages are more greatly affected by the family-(un)friendly aspects of their jobs. We adopted the estimation strategy developed by Villanueva (2007), which is based on individuals who voluntarily changed jobs, to measure the upper and lower bounds of wage premiums. Our estimation is based on 14 years of data from a longitudinal survey on Japanese women, which was initiated in 1993. We found that family-friendly aspects of jobs—such as company-specific leave plans for parental care—have no impact on wages, with the exception of short commuting times. However, most of the premiums in compensation for commuting time are the result of job changes made by part-time workers.

JEL Classifications: J22, J31, J32

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1. Introduction

Although the labor force participation rate of Japanese women continues to be at the lowest level worldwide, it has gradually increased in the last quarter-century[1]. However, statistics indicate that in Japan, household duties are not shared equally by men and women: the time spent by husbands on housework and child care is less than one-fifth that spent by wives on the same activities, even when they have a child younger than six years of age (Kuroda, 2010). This fact implies that most of the household responsibilities are borne by women, probably on account of longstanding societal gender-role attitudes. Owing to these disproportionate allocations of household duties, Japanese women who have family responsibilities such as child-rearing are facing serious work–family conflicts, and are thus expected to prefer so-called family-friendly jobs.

According to the theory of compensating wage differentials, holding all other relevant factors constant, people working in good conditions are paid less than those working in poor conditions. It seems self-evident, then, that women working at family-unfriendly jobs would be paid a wage premium. However, in Japan, not much evidence has been found to support the view that the family-unfriendly aspects of a job lead to a wage premium. There may be also the case where some family-friendly attributes of a job affect the resulting wage, even as other (seemingly) family-friendly attributes do not. Even the same person may face a different wage premium for the same amenity, if her personal circumstances change. For example, the likelihood of single women accepting lower wages in exchange for flexible working conditions is lower than that of married women with a child or children; however, those women may change their preferences regarding the flexibility of working hours, once they become mothers. In such a segmented labor market where many women are averse to inflexible, family-unfriendly working hours, a higher wage premium per unit of disamenity may be observed.

Understanding what kind of amenity requires a wage premium to be paid, and in what kind of

[1] The employment rate (i.e., the ratio of those employed versus the total population) for Japanese women aged between 25 and 54 years has increased from 59% in 1980 to approximately 68% in 2009.

labor market, is essential in the policymaking process. Such an understanding is expected to bear the following two implications.

1) If it is found that family-unfriendly jobs require a wage premium, then it permits us to ascertain the extent to which we are required to increase the wage in order to encourage women with household duties to undertake such family-unfriendly jobs. In addition, if certain job attributes require higher wage premiums, then policymakers (or employers) can select a more cost-effective option for remunerating workers, between in-kind benefits and cash. For example, if people perceive an in-kind benefit as being equivalent to a certain amount of cash, and it is technically easier to provide the in-kind benefit, then it may be more financially viable for the government (or the employer) to select the in-kind benefit over cash.
2) By realizing in what kind of labor market greater value is placed on certain job attributes, policymakers can target a group of people for the redistribution of income, by providing non-pecuniary benefits.

Understandings of the associations between the family-(un)friendly aspects of a job and wage premiums all lead to the efficient distribution of income. This paper aims to investigate the effects of job amenities on wages and examine whether or not the impact is different between groups with and without family responsibilities, by employing longitudinal data on Japanese women. The job attributes on which this paper focuses include commuting time; company-specific parental and care leave; and firm size, as a proxy for either the flexibility of working hours or the probability of occupational injury.

Since unobservable heterogeneity dilutes the relationship between job amenities and wages, previous studies have devoted considerable effort to the control of unobservable factors. Our estimation is based on the method developed by Villanueva (2007), who uses information on voluntary job-movers—although his strategy is not a direct solution to the problem of unobservable heterogeneity. The bottom line of the strategy is that if there is an increase in wage with a decline in job amenities after a woman voluntarily changes her job, the average increase is the upper bound of

the wage premium received. This is because she changes her job and, hence, the change in wages is observable only when the increase in wages is large enough to compensate for the deterioration in job amenities.

We found only the findings vis-à-vis commuting time to be consistent with the theory of compensating wage differentials. An increase in wages for a longer commuting time, however, largely associated with job changes by homeowners and married part-time workers. This finding implies that the constraint on mobility is a necessary condition of a wage premium for commuting time, and that the equalization of differences holds true only for those who have family responsibilities.

This paper is organized as follows. Section 2 surveys the previous literature, and section 3 describes the estimation methodology. Section 4 explains the data characteristics, section 5 presents the estimation results, and section 6 discusses those results. Finally, section 7 provides concluding remarks.

2. Previous Literature

Following Rosen (1974)—who presents a framework for a hedonic price methodology and indicates the empirical implications for hedonic price regressions—numerous studies have focused on the risk of injury at work sites as a disamenity of jobs, with the aim of empirically investigating compensation for wage differentials. Thaler and Rosen (1975) estimated the hedonic wage function of the risk of death caused by industrial accidents and found that workers employed in dangerous jobs receive higher wages than workers employed in safer jobs; this finding implies that workers require wage premiums for undertaking dangerous jobs. Following this finding, Thaler and Rosen's analytical method has been employed in a number of other countries. For example, Kniesner and Leeth (1991) estimated the hedonic wage function by using data from Australia, Japan, and the U.S., while Cousineau, Lacroix, and Girar (1992) used data from Canada. These studies found for most countries—except Japan—positive relationships between wage and whether or not a job is

life-threatening. Brown (1980) indicates that if the workers who are more competent, but whose abilities are unobserved, tend to select jobs that are safer, then simple hedonic wage estimation by ordinary least squares (OLS) may cause a bias in the estimation results. In order to deal with this type of endogeneity of job risk, Garen (1988) used a two-step method, wherein the risk equation estimated in the first stage was used to estimate the wage equation in the second stage. Based on the estimation results, he claimed that the endogeneity of job risk causes substantial bias in the estimation of the wage premium required to offset the risks of fatality and injury. Another approach (Duncan and Holmlund, 1983) employs a fixed-effect model in order to deal with the endogeneity of job risk; they employed Swedish panel data that contained workers' reports of their own job characteristics, and found that they required that positive wage premiums be paid for dangerous work.

Not many studies have focused on other factors pertaining to job attributes. Simon (2001) examined the effect of health insurance plans on wages; the estimation results thereof indicated a positive correlation between wages and health insurance, even after controlling for individual time-invariant unobserved productivity. Olson (2002) also viewed health insurance plans as a job amenity. He used the spouse's health insurance status as an instrument variable for resolving bias caused by unobserved productivity, and he found a statistically significant negative trade-off between wages and health insurance plans. This result suggests that the average woman accepts a wage reduction of approximately 20%, in exchange for health insurance. Lanfranchi, Ohlsson, and Skalli (2002) employed the switching regression model and found that the wage rate for shift workers is 16% higher than that for day workers. As a family-friendly aspect of a job, Leigh (1986) focused on commuting time, which is also analyzed in this paper; based on the Panel Study of Income Dynamics (PSID), he found that although whites tend to receive compensating wages for commuting time, nonwhites do not.

The number of studies whose analyses are based on Japanese data has increased in recent years. Ueshima and Funaba (1993), after examining wage differentials by industry, argue that the theory of

compensating wage differentials is not supported in Japan; this finding accords with that of Kniesner and Leeth (1991). In order to deal with identification problems, Nakamura and Chuma (1994) considered the hedonic wage function expressed by a cubic function of job attribute. Their analysis was based on Japanese micro-level data on part-time female workers, and it indicates that wage premiums are demanded in cases of married women and to compensate for commuting time. A study conducted by Kume (2010) employed a two-step estimation method developed by Garen (1988) in order to estimate the wage premium for physical risk and mental stress inherent in a job. He found there to be a positive wage premium for compensating mental fatigue and a negative wage premium for compensating physical fatigue. Takaku (2009) used a switching regression model in order to investigate wage premiums for the night shifts of nursing care workers, using data pertaining to nursing care workers in Japan. Their results indicated that the wage premium for night shifts was 19%; however, there was little evidence to indicate whether wage premiums influenced participation in night shifts. Morikawa (2010) analyzed wage premiums in compensation for the instability of part-time employment and the inflexibility of regular full-time employment, and found a subjective wage premium of between 10% and 20% for each of those job attributes. Although Iwata and Tamada (2008) did not conduct an empirical investigation of the theory concerning compensation for wage differentials, they investigated whether or not married women change their commuting time in response to wage changes, by using the same Japanese longitudinal survey data employed in our study. They found that the time taken by married women to commute from home to the workplace follows a backward-bending pattern.

Regardless of the country on which these studies focus in terms of labor markets, only a limited number of studies have investigated which group or groups of people require a wage premium in compensation for certain job attributes. The findings of a few studies have implied that the marginal safety values of job-related accidents differ according to the category of workers (Dickens, 1984; Gegax, Gerking, and Schulze; 1991). Heywood, Siebert, and Wei (2007) report differences in wage premiums for firms' family-friendly practices, by gender.

In this paper, we focus on the family-(un)friendly attributes of jobs in order to investigate theory concerning equalizing differences, especially for examining what kind of family-friendly aspects of a job require wage premiums, and whether or not there is a difference in the size of the wage premium between women who have family responsibilities and women who do not.

3. Empirical Strategy

The estimation strategy used in this paper is based on a simple model developed by Villanueva (2007); the approach of this model differs from those of the models used in the studies reviewed in the previous section. By considering the utilities of voluntary job changers, Villanueva (2007) theoretically indicates that the wage growth for those who have voluntarily switched to jobs with fewer amenities is the upper bound of the premium, whereas the change in wage for those who switched to jobs with better amenities is the lower bound of the premium. The model presumes that those who voluntarily change their jobs choose jobs that provide a higher utility than that provided by their previous jobs[2]. The following postulation represents the spirit of the model: workers do not switch to jobs with fewer amenities unless the compensation for the decrease in amenities is sufficiently large. This signifies that the distribution of the change in the offered wages for a decrease in amenities is censored from the left, and therefore, the observed average change in wages for those who change to jobs with fewer amenities must be biased upward. Meanwhile, workers switch to jobs with more amenities when the decrease in wages in exchange for more amenities is not large. This signifies that the distribution of (the absolute value of) change in the offered wages for those who changed to jobs with greater amenities is censored from the right, and therefore, the observed average change in wages must be biased downward.

Villanueva (2007) selected the following “disamenities of jobs” for assessing the validity of equalizing differences: “heavy workload, job insecurity, poor hour regulation, and a mismatch between skills possessed and skills required” (p.544). His analysis was based on the German

[2] This assumption is based on the existence of search friction in the labor market.

Socioeconomic Panel, and his results were found to support the hypothesis of compensation for wage differentials.

In accordance with Villanueva's study, we used in our estimation a sample consisting of voluntary job-changers. The (dis)amenities of jobs on which this paper focuses include commuting time; whether or not there is a company-specific parental or care leave policy[3]; and firm size, as a proxy for flexibility of working conditions[4]. Firm size was also considered a proxy for the probability of injuries, because the average probability of occupational injuries in large firms is low.

The specification of our estimation can be expressed in the following manner:

$$\ln(w_{it}) - \ln(w_{it-1}) = \alpha + \beta_0 d_{c,it}^{inc} \mid c_{it} - c_{it-1} \mid + \beta_1 d_{c,it}^{dec} \mid c_{it} - c_{it-1} \mid + \sum_{k=1}^{3} \gamma_k^{inc} d_{k,it}^{inc} + \sum_{k=1}^{3} \gamma_k^{dec} d_{k,it}^{dec} + X_{it}\eta + \varepsilon_{it}.$$

where w_{it} is the wage rate for individual i in year t, c_{it} is the commuting time for individual i in year t, and X_{it} is a vector of attributes of individuals such as age, education, size of city, and marital status. $d_{c,it}^{inc}$ equals 1 if $c_{it}>c_{it-1}$, and 0 otherwise; $d_{c,it}^{dec}$ equals 1 if $c_{it}<c_{it-1}$, and 0 otherwise. $d_{k,it}^{inc}$ equals 1 if another amenity k in year t is more than that in year $t-1$, and 0 otherwise, whereas $d_{k,it}^{inc}$ equals 1 if another amenity k in year t is less than that in year $t-1$, and 0 otherwise.

4. Data

We used the first 14 waves of the Japan Panel Survey on Consumers (JPSC), a nationwide longitudinal survey of young Japanese women, conducted by the Institute for Research on Household Economics. The JPSC was initiated in 1993 with 1,500 respondents aged between 24 and 34 (cohort A). Two new groups of respondents, cohorts B and C, were added to the JPSC in 1997 (the fifth year of the survey) and 2003 (the 11th year of the survey), respectively. Initially, cohort B consisted of approximately 500 respondents aged between 24 and 27 years, whereas cohort C

[3] In Japan, since 1992, most employees have been granted the right to take parental and care leave. In this paper, "parental or care leave" refers to company-specific plans for parental or care leave.

[4] The flexibility of working conditions is expected to increase in accordance with the size of the organization, because in a large company, the redeployment of employees when someone takes a leave is relatively easier to execute. Briscoe (2007) provides an example of this in the physician labor market.

consisted of approximately 840 respondents aged between 24 and 29 years. As of 2006, there remained in the JPSC approximately 1,770 respondents aged between 27 and 47. The study of Edwards and Pasquale (2003) is a useful reference, as an example of how the data from the JPSC can be used for estimation.

Our analysis required information on both wages and amenities, before and after a job change; the reason for the job change was also necessary. The JPSC provides us with this information, as well as information on individual characteristics. The respondents who switched jobs during the previous year were asked for their reasons for doing so; the respondents who had quit their jobs for reasons other than "personnel reduction, company dissolution, or bankruptcy" or "dismissal" were defined as voluntary job-changers. Approximately 84% of all job changes in the JPSC were such voluntary job-changes. Table 1 indicates the number of voluntary job-changes for each year, by marital status. We excluded from our sample the respondents whose other information necessary for estimation—e.g., wage or firm size—was missing. Except in the case of robustness checks and when variables for parental and care leave were included[5], our estimations throughout the paper are based on the 628 observations presented in Table 1.

We calculated the hourly wage by dividing the monthly or weekly salary by the total number of working hours, for those respondents who answered that they were not paid on an hourly basis—something that is typically the case with full-time regular employees in Japan. Summary statistics, both for the entire sample and by marital status, are indicated in Table 2. As expected, the average age was higher for married job-changers than unmarried ones; the finding that wage growth associated with job change was larger for unmarried women than for married ones was especially noteworthy.

5. Results

Table 3 presents the regression results of the wage-growth estimation for all voluntary job-changers.

[5] This is because variables for both parental and care leave are available only for the years after 1998.

Although we found that additional commuting time consistently required wage premiums, there was no relationship between the other job attributes, such as firm size, parental or care leave, and increases in wages. Both columns (1) and (2) in Table 3 indicate that an increase in commuting time had a significant positive effect on the wage changes of voluntary job-changers; this finding was consistent with the theory of compensating wage differentials. However, the magnitude of the impact is not large. The coefficients indicated that a 1-min increase in commuting time led to a maximum wage increase of 0.1% (= exp(0.001) = 1.001). A decrease in commuting time, on the other hand, did not have a significant impact on wage growth for voluntary job-changers. The coefficients of age, education, and size of city were not statistically significant.

To assess whether family responsibility related to the wage premium required for certain disamenities of jobs, we included interactions with the changes in the commuting time and marital statuses (column (3)). In the case of an increase in commuting time, the coefficient of the interaction term was significantly positive, indicating that wage premiums for compensating long commuting times were higher in the labor market for married women than for unmarried women. Furthermore, the size of the impact was slightly larger for married women in this sorted case than in the unsorted case (columns (1) and (2)). If married women move to a new job for which the commuting time is 15 min longer—i.e., the average increase in commuting time, in our sample—the wage needs to be raised by, at most, 5%. This result seems to be consistent with our hypothesis that women with family responsibilities dislike inflexible working conditions and require higher premiums to compensate for such family-unfriendly conditions. However, even after sorting the sample by marital status, the decrease in commuting time remained unrelated to wage premium. Figures 1-a and 1-b depict this situation. In Figure 1-a, it is evident that the slope of the fitted line is steeper for married women than for unmarried women; in Figure 1-b, however, the difference between married and unmarried women is not clear.

If there is a change in a woman's marital status before and after a job switch, it may affect the worker's reservation utility by altering her unearned income, leading to some bias in the results of

our estimation above. Indeed, 7.6% of our sample had changed their marital status before or after their job change (Appendix Table 2). However, the result that a wage premium for commuting time was observed in the labor market of married women was stable, even after excluding the respondents whose marital status changed before or after job switches (column (4) in Table 3).

We also included interactions between child-bearing and changes in commuting time. We created three types of dummy variables for "child bearing": whether or not she had a child, whether or not her eldest child was younger than six years, and whether or not her youngest child was younger than six years old. However, in any case, the coefficient of the interaction was not statistically significant at the 10% level (not shown in Table 3). In Japan, it is marriage, rather than child-bearing, that increases a woman's family responsibilities (e.g., household duties). Therefore, we henceforth focused only on marital status as an indicator of family responsibility.

Since a question in the JPSC asks respondents their reasons for choosing their current company, we were also able to control tastes for occupations more directly by including them as explanatory variables. Respondents who answered that they chose their current company "because of fewer and more flexible working hours" or "because the company or organization was closer to home or located within a short commuting distance" seemed to have a stronger preference for family-friendly jobs. All the coefficients of the dummy variables indicating those reasons were, however, insignificant, and adding those variables did not bring any change to the results.

Thus far, we have not distinguished the respondents' employment types. In Japan, full-time regular workers are usually paid by the month, whereas part-time workers are paid by the hour. These different payment intervals are reflected in the calculation of the wage rate used in our estimations. Thus, changes in wages caused by job changes between different employment types may include large measurement errors. Furthermore, since it is frequently indicated that labor markets in Japan are segmented by employment type, factors that affect workers' job-changing choices are likely to differ between full-timers' and part-timers' labor markets. This signifies that it is inappropriate to view wage rates in different labor markets as being homogeneous. In fact, as

indicated in Appendix Table 1, job changes between different types of employment account for approximately 30% of all voluntary job changes every year[6].

One solution to this possible heterogeneity was to restrict the sample to include only those job-changers who had changed jobs within the same types of employment. Table 4 shows the results of estimations based on information about respondents who moved from one job to another, within the same type of employment. The estimation indicated in column (1) considers women who have moved either from full-time to full-time employment or from part-time to part-time employment. Meanwhile, column (2) considers only women who are moving from part-time to part-time employment. In column (1), the coefficient of interaction of commuting time with marital status is not significant; on the other hand, the interaction term in column (2) provides a significant positive coefficient. Evidently, the slope of the fitted line for married women in Figure 2-a is steeper than that in Figure 1-a. From these two estimation results, it can be inferred that only in the labor market for married part-time women were wage premiums paid to compensate for an increase in commuting time. Women who have family responsibilities often choose to work as part-timers, because part-time jobs offer more flexibility vis-à-vis working hours. Moreover, part-time jobs may be more desirable not only owing to their flexible schedules, but also for the lower number of work-hours involved. In such a labor market, it is intuitive that a long commuting time would require a wage premium, although this argument presumes that the labor markets of full-time married women and of part-time-working married women are somewhat distinct.

6. Discussion

If a long commuting time is a significant issue for women with family responsibilities, then a possible solution for them may be to live in a place close to their work site. The movement of workers must attenuate the effect of commuting time. In other words, our research question,

[6] Appendix Table 2 also reveals that a significant proportion of the women who have moved from full-time to part-time jobs consists of those who had married within the previous year.

examined above, implicitly excludes such worker mobility. In order to explicitly exclude any possible bias, we conducted separate estimations by separating homeowners and their families from non-homeowners and theirs. In general, compared to non-homeowners, homeowners and their families were less likely to change homes. Table 5 compares the estimation results based on the sample of homeowners (and their families) with those based on the non-homeowner sample. Significant effects of increases in commuting time were observed only in estimations for homeowners; this finding is consistent with our hypothesis[7]. Thus, a constraint on mobility is considered a necessary condition of the wage premium required to compensate for commuting time.

Another concern is the possibility that these results—which are apparently consistent with the "compensating differential" hypothesis—derive from an institutional factor typical of Japanese firms. Since most Japanese firms pay their employees a commuting allowance, if the "wage rate" used in our analysis implicitly included such an allowance, then the results indicated above are not owing to "pure" premiums for equalizing the difference, but simply to a subsidy that underwrites the pecuniary cost of commuting. If the wage rate used in our analysis includes a commuting allowance, it does not reject the theory of compensating wage differentials in a broad sense. Nevertheless, what we mean by discussion here is that our primary goal is to investigate the existence of a wage premium for compensating the commuting time, over and above any commuting allowance.

In the JPSC, the question pertaining to wage does not ask about whether or not a commuting allowance is included. This, the source of the apparent correlation between wage and commuting time, however, is improbable in our case, because including the commuting allowance in the salary offers no advantage to firms in terms of the tax code. In addition, if a respondent answers that she is paid on an hourly basis, her hourly wage probably does not include a commuting allowance, because few firms are believed to pay a commuting allowance on an hourly basis[8]. On the basis of this fact,

[7] Column (5) of Table 5 indicates that married non-homeowners who have changed jobs from one part-time job to another require statistically significant wage premiums to offset commuting time. The level of significance, however, is lower for non-homeowners than for homeowners.

[8] Japanese firms pay for their employees' (i.e., usually full-time regular workers) pecuniary commuting expenses, with no limit on the allowance. According to statistics provided by the Ministry of Health,

we estimated the same wage-growth equation, restricting the sample to part-timers who answered that they received wages on an hourly basis in both the previous and current periods. Column (3) of Table 4 indicates that the result remained unchanged, even after the sample was restricted to recipients of hourly wages; this finding confirmed the robustness of the wage premium for commuting time. This finding may imply that the pecuniary compensation for commuting time that is included in wages is crucial for part-time-working married women who are typically ineligible for commuting allowances.

7. Conclusion

Simple estimations in this study revealed that among several family-(un)friendly attributes of a job, only commuting time requires a wage premium. We found no (negative) premium for other seemingly family-friendly attributes of a job, such as company-specific parental leave. Moreover, most of the premiums were associated with job changes made by part-time-working married women.

Gaining an understanding of what kind of family-friendly aspect of a job would require a wage premium—and the extent to which family responsibility would change the magnitude of the premiums for certain disamenities of a job—is critical for policymakers who are attempting to redistribute income. However, the fact remains that most of the family-friendly aspects of jobs do not require high wage premiums, even within the labor market comprising women with family responsibilities; this fact, indeed, seems to make the above argument meaningless. The observed tenuous link between wage premium and individual characteristics could be due to self-sorting by workers. Nevertheless, there existed in the data a consistently significant, albeit not high, premium to compensate for long commuting times, and this may imply that commuting time causes a barrier that makes it difficult to balance one's career and family responsibilities. From the perspective of financial resources, a more efficient way of redistributing income would be to prioritize the

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Labour, and Welfare, however, approximately 70% of part-time workers also receive a commuting allowance, and this fact may disturb our assumptions.

reduction of commuting times for women with family responsibilities, rather than providing other seemingly family-friendly fringe benefits.

Another important implication arises from the fact that the effect of commuting time has been observed only for married part-time workers. In other words, commuting time is not an important consideration for full-time regular employees. This implies the importance of heterogeneity—particularly vis-à-vis the type of employment—in the wage premium required to compensate for certain job disamenities. How people evaluate reductions in certain job disamenities differs by employment type—a characteristic that is easily observable; policy must target people on the basis of such observable heterogeneous factors.

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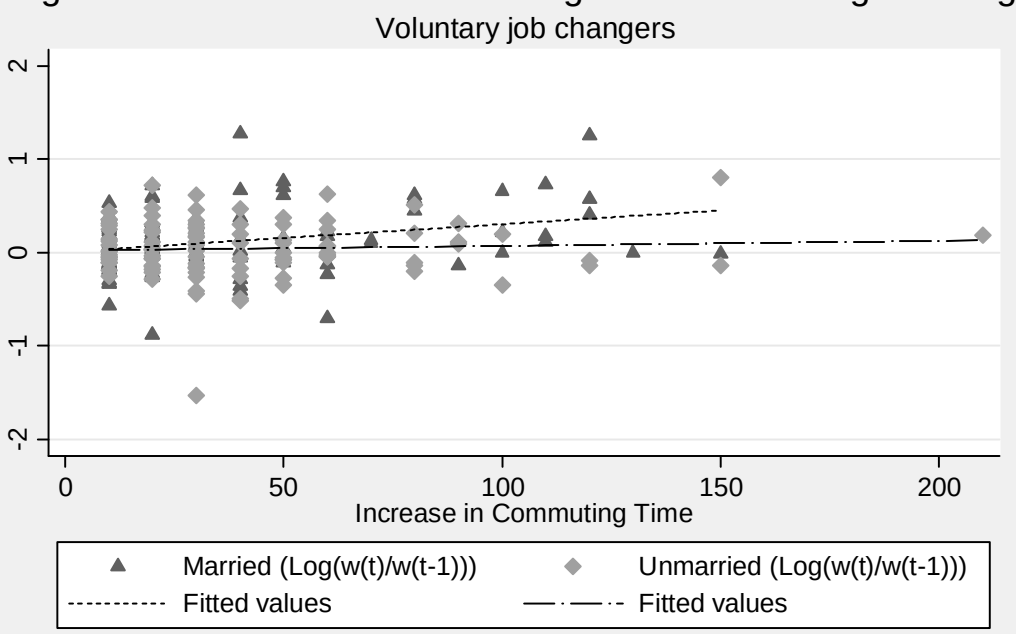
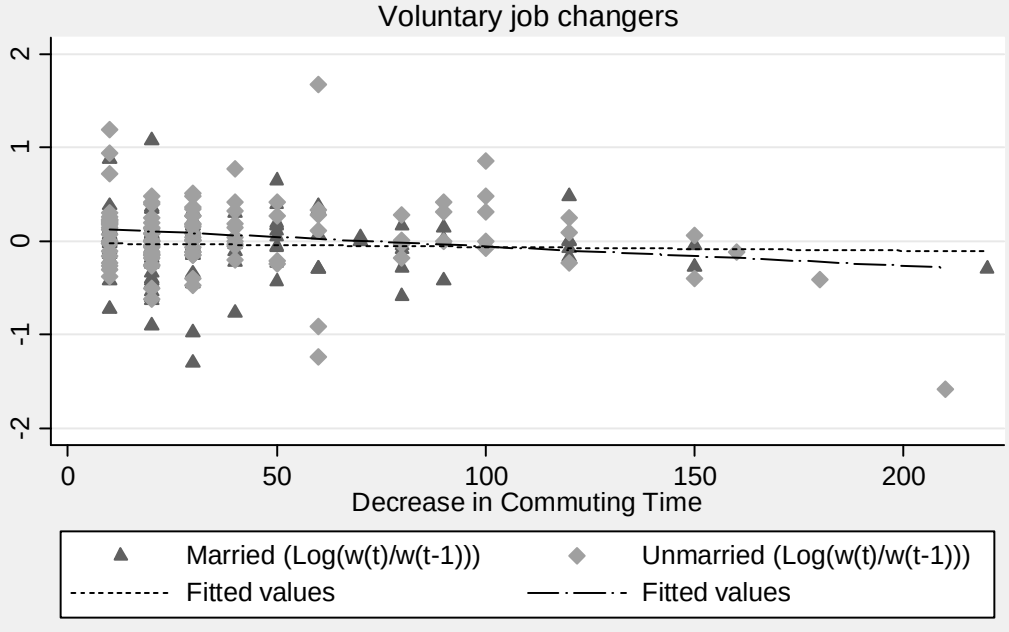
Figure 1-a Increase in Commuting Time and Change in Wage



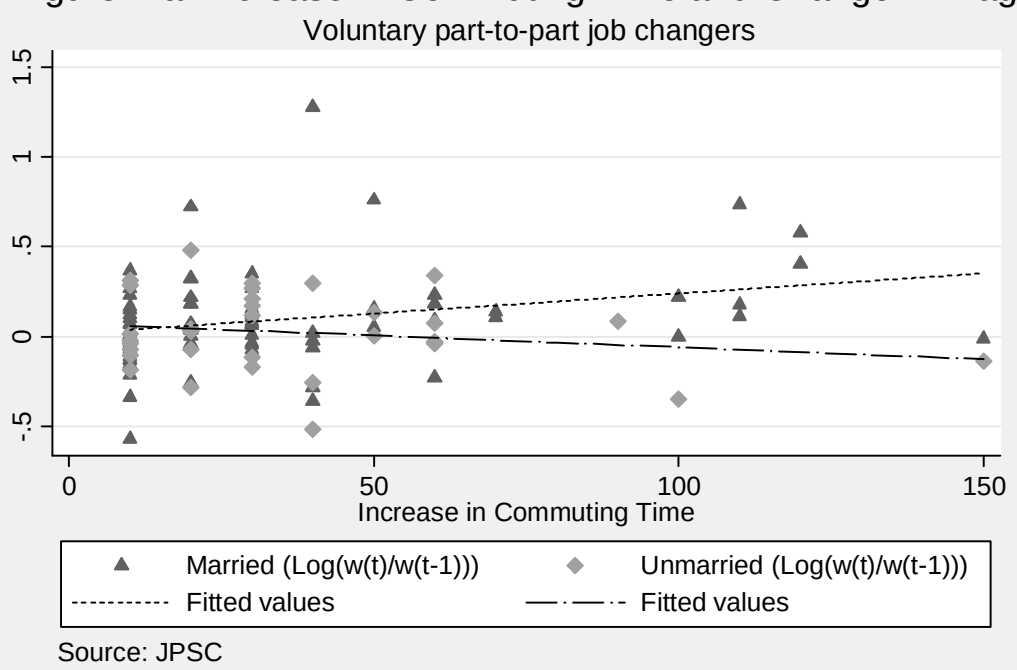
Source: JPSC

Figure 1-b Decrease in Commuting Time and Change in Wage



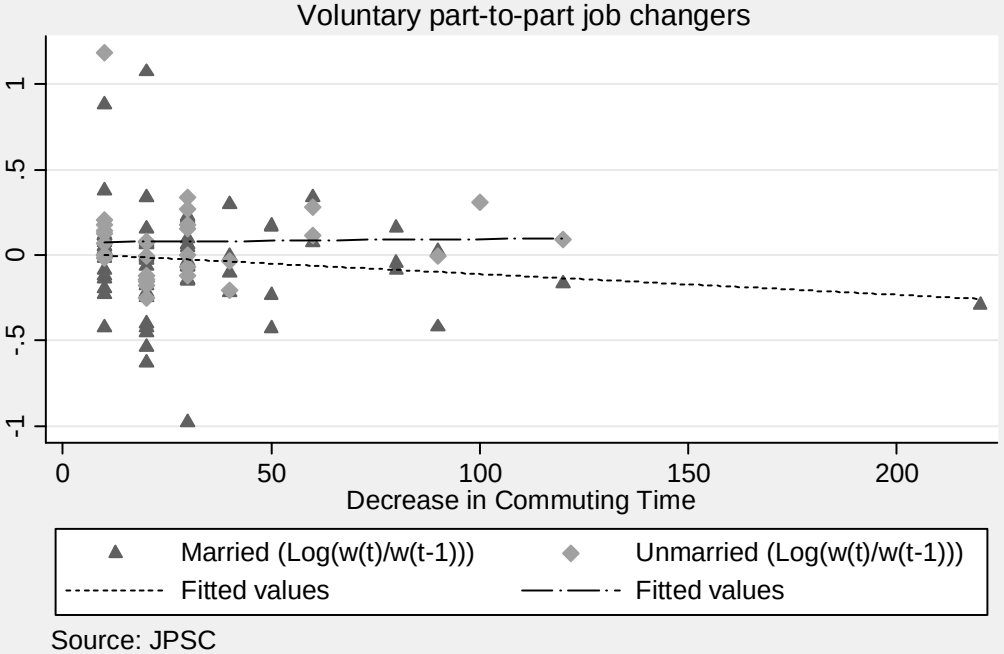
Source: JPSC

Figure 2-a Increase in Commuting Time and Change in Wage



Source: JPSC

Figure 2-b Decrease in Commuting Time and Change in Wage



Source: JPSC

Table 1. The Number of Voluntary Job Changers by Marital Status

Year	Unmarried	Married	Total
1994	25	20	45
1995	20	24	44
1996	16	25	41
1997	16	30	46
1998	34	36	70
1999	18	39	57
2000	15	22	37
2001	23	26	49
2002	17	29	46
2003	14	25	39
2004	23	30	53
2005	19	29	48
2006	24	29	53
Total	264	364	628

Source: JPSC

Table 2. Summary Statistics

Variable		Obs.	Mean	Std. Dev.	Min	Max
(Total)						
Logarithm of Change in Wage		628	0.042	0.334	-1.581	1.936
Commuting Time	Increase	628	14.172	26.887	0	210
	Decrease	628	15.207	29.946	0	220
Firm Size	Increase	628	0.315	0.465	0	1
	Decrease	628	0.342	0.475	0	1
Parental Leave	Increase	450	0.069	0.254	0	1
	Decrease	450	0.076	0.265	0	1
Care Leave	Increase	446	0.029	0.168	0	1
	Decrease	446	0.022	0.148	0	1
Age		628	32.830	5.051	25	47
Education	Junior College	628	0.177	0.382	0	1
	University	628	0.111	0.315	0	1
Size of City	Large	628	0.295	0.456	0	1
	Middle	628	0.541	0.499	0	1
Married		628	0.580	0.494	0	1
Having a Child		628	0.537	0.499	0	1
(Unmarried)						
Logarithm of Change in Wage		264	0.049	0.343	-1.581	1.668
Commuting Time	Increase	264	16.742	29.636	0	210
	Decrease	264	17.917	33.443	0	210
Firm Size	Increase	264	0.318	0.467	0	1
	Decrease	264	0.345	0.476	0	1
Parental Leave	Increase	186	0.086	0.281	0	1
	Decrease	186	0.086	0.281	0	1
Care Leave	Increase	185	0.038	0.191	0	1
	Decrease	185	0.022	0.146	0	1
Age		264	30.981	4.672	25	45
Education	Junior College	264	0.208	0.407	0	1
	University	264	0.178	0.383	0	1
Size of City	Large	264	0.356	0.480	0	1
	Middle	264	0.508	0.501	0	1
Having a Child		264	0.231	0.422	0	1
(Married)						
Logarithm of Change in Wage		364	0.037	0.328	-1.304	1.936
Commuting Time	Increase	364	12.308	24.577	0	150
	Decrease	364	13.242	27.008	0	220
Firm Size	Increase	364	0.313	0.464	0	1
	Decrease	364	0.341	0.475	0	1
Parental Leave	Increase	264	0.057	0.232	0	1
	Decrease	264	0.068	0.253	0	1
Care Leave	Increase	261	0.023	0.150	0	1
	Decrease	261	0.023	0.150	0	1
Age		364	34.170	4.896	25	47
Education	Junior College	364	0.154	0.361	0	1
	University	364	0.063	0.244	0	1
Size of City	Large	364	0.250	0.434	0	1
	Middle	364	0.566	0.496	0	1
Having a Child		364	0.758	0.429	0	1

Source: JPSC

Table 3. The Effect of Family-(Un)friendly Attributes on Hourly Wages
(Dependent Variable: Change in Logarithm of the Hourly Wage)

		(1)	(2)	(3)	(4)
Commuting Time	Increase	0.0014 **	0.0010 *	-0.0001	-0.0001
		(0.0006)	(0.0006)	(0.0007)	(0.0007)
	Decrease	-0.0006	-0.0003	-0.0009	-0.0010
		(0.0007)	(0.0005)	(0.0011)	(0.0007)
Increase in Com. Time * Married				0.0029 ***	0.0030 ***
				(0.0011)	(0.0011)
Decrease in Com. Time * Married				0.0006	0.0010
				(0.0012)	(0.0010)
Firm Size	Increase	0.0277	0.0523	0.0229	0.0279
		(0.0315)	(0.0380)	(0.0318)	(0.0346)
	Decrease	-0.0503	-0.0387	-0.0485	-0.0542
		(0.0321)	(0.0368)	(0.0319)	(0.0340)
Parental Leave	Increase		0.0092		
			(0.0921)		
Parental Leave	Decrease		0.0607		
			(0.0487)		
Care Leave	Increase		0.1321		
			(0.1327)		
	Decrease		0.0339		
			(0.0842)		
Age		0.0037	0.0040	0.0037	0.0036
		(0.0033)	(0.0037)	(0.0033)	(0.0034)
Education	Junior College	-0.0330	0.0128	-0.0244	-0.0245
		(0.0323)	(0.0385)	(0.0315)	(0.0372)
	University	-0.0409	-0.0021	-0.0326	-0.0407
		(0.0505)	(0.0471)	(0.0506)	(0.0493)
City Size	Large	-0.0181	-0.0785	-0.0214	-0.0219
		(0.0422)	(0.0493)	(0.0425)	(0.0430)
	Middle	-0.0443	-0.1311 ***	-0.0469	-0.0334
		(0.0400)	(0.0467)	(0.0396)	(0.0391)
Married		-0.0447	-0.0415	-0.0971 **	-0.0845 *
		(0.0322)	(0.0342)	(0.0405)	(0.0437)
Having a Child		0.0421	0.0362	0.0429	0.0268
		(0.0396)	(0.0397)	(0.0394)	(0.0414)
Constant		0.0754	0.0938	0.0997	-0.0503
		(0.1326)	(0.1461)	(0.1322)	(0.1343)
N. of Obs.		628	446	628	580
R-squared		0.0765	0.0978	0.089	0.084

Notes: Standard errors (in parentheses) are all robust standard errors. Year dummies are included in all models.

* Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table 4. The Effect of Family-(Un)friendly Attributes on Hourly Wages:
The Same Employment Type Stayers
(Dependent Variable: Change in Logarithm of the Hourly Wage)

		(1)	(2)	(3)
Commuting Time	Increase	0.000	-0.001	-0.002
		(0.0011)	(0.0010)	(0.0014)
	Decrease	0.000	0.000	-0.001
		(0.0009)	(0.0010)	(0.0008)
Increase in Com. Time * Married		0.002	0.004 ***	0.003 **
		(0.0013)	(0.0012)	(0.0016)
Decrease in Com. Time * Married		0.000	-0.002	-0.001
		(0.0010)	(0.0012)	(0.0009)
Firm Size	Increase	0.023	0.026	-0.013
		(0.0352)	(0.0388)	(0.0350)
	Decrease	-0.038	-0.008	-0.054
		(0.0383)	(0.0394)	(0.0376)
Age		0.004	0.008 *	-0.002
		(0.0040)	(0.0043)	(0.0036)
Education	Junior College	-0.029	-0.044	-0.028
		(0.0332)	(0.0354)	(0.0364)
	University	-0.011	0.095 *	0.123 **
		(0.0577)	(0.0542)	(0.0602)
City Size	Large	-0.062	-0.027	-0.019
		(0.0502)	(0.0483)	(0.0536)
	Middle	-0.057	-0.005	-0.026
		(0.0488)	(0.0452)	(0.0541)
Married		-0.074 *	-0.084 *	-0.039
		(0.0433)	(0.0506)	(0.0387)
Having a Child		0.003	-0.017	0.014
		(0.0446)	(0.0394)	(0.0413)
Constant		-0.023	-0.264	0.211
		(0.1526)	(0.1740)	(0.1381)
N. of Obs.		420	302	204
R-squared		0.0876	0.1252	0.1701

Notes: Standard errors (in parentheses) are all robust standard errors. Year dummies are included in all models.
Column (1) is based on the sample who have moved either from full-time to full-time employment.
Column (2) is based on the sample who have moved from part-time to part-time employment.
Column (3) is based on part-time workers who answered that they received their wages on an hourly basis.
* Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table 5. Comparison of the Effects of Commuting Times on Wages between Homeowners and Non-Homeowners

(Dependent Variable: Change in Logarithm of the Hourly Wage)

		All Types of Employment				Part-timer to Part-timer	
		(1) Non-Homeowner	(2) Homeowner	(3) Non-Homeowner	(4) Homeowner	(5) Non-Homeowner	(6) Homeowner
Commuting Time	Increase	0.0010	0.0012 *	0.0007	-0.0007	-0.0019	-0.0014
		(0.0010)	(0.0007)	(0.0015)	(0.0006)	(0.0023)	(0.0009)
	Decrease	0.0008	-0.0015 *	0.0021	-0.0023 *	0.0023	-0.0010
		(0.0008)	(0.0009)	(0.0016)	(0.0012)	(0.0020)	(0.0012)
Increase in Com. Time * Married				0.0010	0.0039 ***	0.0049 *	0.0039 ***
				(0.0019)	(0.0013)	(0.0026)	(0.0013)
Decrease in Com. Time * Married				-0.0023	0.0017	-0.0025	-0.0004
				(0.0018)	(0.0014)	(0.0031)	(0.0013)
Firm Size	Increase	0.0421	0.0249	0.0345	0.0190	0.1010	0.0004
		(0.0569)	(0.0390)	(0.0565)	(0.0394)	(0.0666)	(0.0499)
	Decrease	-0.0289	-0.0646	-0.0342	-0.0645	0.0056	-0.0245
		(0.0498)	(0.0428)	(0.0496)	(0.0424)	(0.0667)	(0.0545)
Age		0.0085	-0.0002	0.0094	-0.0010	0.0209 **	0.0039
		(0.0067)	(0.0037)	(0.0068)	(0.0037)	(0.0097)	(0.0046)
Education	Junior College	0.0244	-0.0426	0.0194	-0.0305	-0.1610 *	-0.0276
		(0.0709)	(0.0394)	(0.0691)	(0.0382)	(0.0845)	(0.0449)
	University	0.0517	-0.1124	0.0556	-0.0923	-0.1107	0.1425 **
		(0.0678)	(0.0717)	(0.0684)	(0.0731)	(0.1381)	(0.0675)
City Size	Large	-0.1056	0.0309	-0.1093	0.0239	-0.1015	-0.0173
		(0.1220)	(0.0512)	(0.1236)	(0.0506)	(0.1033)	(0.0565)
	Middle	-0.1630	0.0059	-0.1653	-0.0023	-0.1198	0.0204
		(0.1278)	(0.0418)	(0.1290)	(0.0404)	(0.0813)	(0.0532)
Married		-0.0757	0.0063	-0.0443	-0.0788	-0.0435	-0.0865
		(0.0534)	(0.0485)	(0.0740)	(0.0549)	(0.0978)	(0.0673)
Having a Child		0.0829	-0.0195	0.0693	-0.0108	-0.0762	-0.0014
		(0.0612)	(0.0541)	(0.0606)	(0.0530)	(0.0762)	(0.0542)
Constant		-0.2488	0.1105	-0.2857	-0.0129	-0.6525 **	-0.1881
		(0.2642)	(0.1435)	(0.2627)	(0.1471)	(0.3076)	(0.1973)
N. of Obs.		245	383	245	383	114	188
R-squared		0.1177	0.1152	0.1279	0.1439	0.2313	0.1622

Notes: Standard errors (in parentheses) are all robust standard errors. Year dummies are included in all models.

* Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Appendix Table 1. Change in Type of Employment

Year	Full-time to full-time	Part-time to full-time	Full-time to part-time	Part-time to part-time	Total
1994	11	9	8	17	45
	(24.44)	(20.00)	(17.78)	(37.78)	(100)
1995	9	5	8	22	44
	(20.45)	(11.36)	(18.18)	(50.00)	(100)
1996	11	5	5	20	41
	(26.83)	(12.20)	(12.20)	(48.78)	(100)
1997	3	7	2	34	46
	(6.52)	(15.22)	(4.35)	(73.91)	(100)
1998	15	12	9	34	70
	(21.43)	(17.14)	(12.86)	(48.57)	(100)
1999	11	11	7	28	57
	(19.30)	(19.30)	(12.28)	(49.12)	(100)
2000	8	2	7	20	37
	(21.62)	(5.41)	(18.92)	(54.05)	(100)
2001	8	12	6	23	49
	(16.33)	(24.49)	(12.24)	(46.94)	(100)
2002	7	6	9	24	46
	(15.22)	(13.04)	(19.57)	(52.17)	(100)
2003	3	13	4	19	39
	(7.69)	(33.33)	(10.26)	(48.72)	(100)
2004	8	17	6	22	53
	(15.09)	(32.08)	(11.32)	(41.51)	(100)
2005	12	13	5	18	48
	(25.00)	(27.08)	(10.42)	(37.50)	(100)
2006	12	12	8	21	53
	(22.64)	(22.64)	(15.09)	(39.62)	(100)
Total	118	124	84	302	628
	(18.79)	(19.75)	(13.38)	(48.09)	(100)

Notes: Percentages are in parentheses.

Appendix Table 2. Change in Employment Type and Marital Status

	Full-time to full-time	Part-time to full-time	Full-time to part-time	Part-time to part-time	Total
Unmarried (t-1) to unmarried (t)	71 (60.17)	58 (46.77)	40 (47.62)	76 (25.17)	245 (39.01)
Unmarried (t-1) to married (t)	8 (6.78)	1 (0.81)	10 (11.9)	10 (3.31)	29 (4.62)
Married (t-1) to married (t)	33 (27.97)	61 (49.19)	33 (39.29)	208 (68.87)	335 (53.34)
Married (t-1) to unmarried (t)	6 (5.08)	4 (3.23)	1 (1.19)	8 (2.65)	19 (3.03)
Total	118 (100)	124 (100)	84 (100)	302 (100)	628 (100)

Notes: Percentages are in parentheses.

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