

The Effects of Workplace Norms on Female Labor Supply and Childbirth in Japan

(企業内の職場規範が女性の就業・出産に与える影響)

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1 Introduction

- This study investigates the effects of “workplace norms” on female labor supply and childbirth in Japan.

- The maternity and parental leave system in Japan provides full-time Japanese employees with a longer period of leave compared to some industrialized countries.

Table 1 Childcare Leave Schemes

| | Japan | U.S.A | UK | Germany | France |
|-------------------------|--------|----------|----------|---------|---------|
| Child Care Leave Period | 1 year | 12 weeks | 13 weeks | 3 years | 3 years |

Source: JILPT (2012) "Databook of International Labour Statistics"

Notes: If a child cannot enroll at a nursery school, the mother can take childcare leave of one year and six months in Japan.

- Why are Japanese female workers unable to continue working after marriage and childbirth in spite of the introduction of various WLB systems ?
- Work-Life Balance (WLB) systems are still targeted at full-time workers only.

- I examined the correlation between access to various WLB systems, and female labor supply and childbirth.
- This is based on the concept of “Social Norms” defined by *Akerlof and Kranton*(2010).

Originality of This Research

1. Based on the concept of “Social Norms,” I attempt to employ various social institutional factors that function as proxy variables of “Identity Utilities” to analyze Japanese women’s work and childbirth situations.
2. The effect of not only the presence or absence of WLB systems in their firms, but also the accessibility of WLB systems is examined.

2 Previous Research

- Recent Research → Focuses on the “availability” of support systems to balance work and family in the fields of economics and sociology.



- Discusses the potential difficulty in using WLB systems in Japanese firms.

Identity Utility

- Usually, traditional labor supply analysis uses variables such as labor hours, wages, and human capital. We therefore do not use these as social variables (*Killingworth and Heckman (1986)*).



- How do we include these social factors in individual utility function?
- “Identity Utility” and “Social Norms “ are defined by *Akerlof and Kranton(2010)*.

- This idea is inspired by sociology.
- *Identity utility, which is the gain when actions conform to norms and ideals, and the loss insofar as they do not.*
- *For example, Some tasks are labeled appropriate for men for men's job. Other tasks are labeled women's job.*
- *Women lose (identity) utility from working in a man's job. And men lose utility from working in a woman's job (Akerlof and Kranton(2010)).*

- This gender segregation of work is based on “social norms”.
- We add our utility model to ” social norms”.
- The evaluation of this model depends on social norms, but not individual preference and availability.

- *Fortin(2005), Clark(2003),Tolciu and Zierahn(2010),and Contreras and Plaza(2010)*

- Two dominant previous research studies in Japan were conducted by *The ministry of Health, labour and welfare(2013)* *Noguchi(2013)*

- Others
E.g., *Yasuda(2013),Toda(2011),Wakisaka(2011),Ikeda(2013)*
Sakamoto(2011)

3 Data

“Longitudinal Survey of Adults in 21st Century”

- Conducted by the Ministry of Health, Labour and Welfare
- Panel data was collected between 2002 to 2010, WLB systems were collected between 2003 to 2010
- Targeted at males and females (and their spouses) aged between 20 to 34 years at the end of October 2002.
- Our sample only included females.

4 Descriptive Analysis

- Focused on two questions regarding the presence or absence of WLB systems.
- Examples of WLB systems include Childcare leave, Leave for nursing care, and Short hour option.



- These questionnaires indicate the following about Japanese firms: “Workplace Norms = Social Norms “

We focus on the questionnaire below,

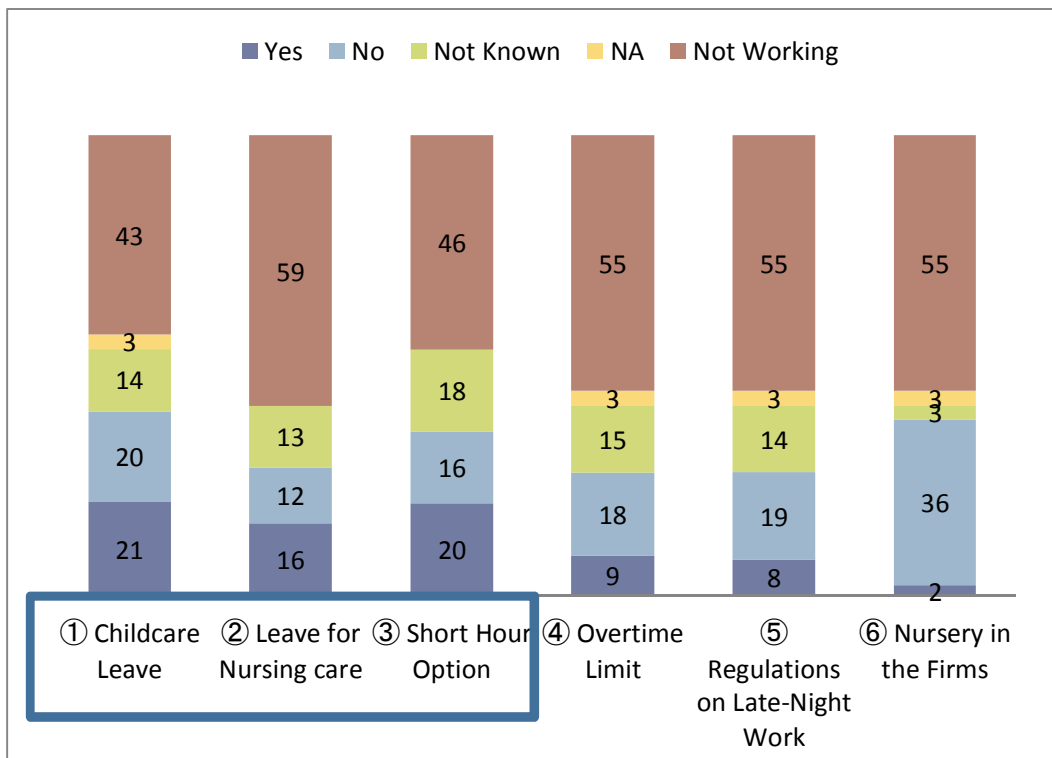
Q1: “In your company, is the WLB system available for use for your employment status? ”

⇒ “ Yes” , “No” , and “Not Known”

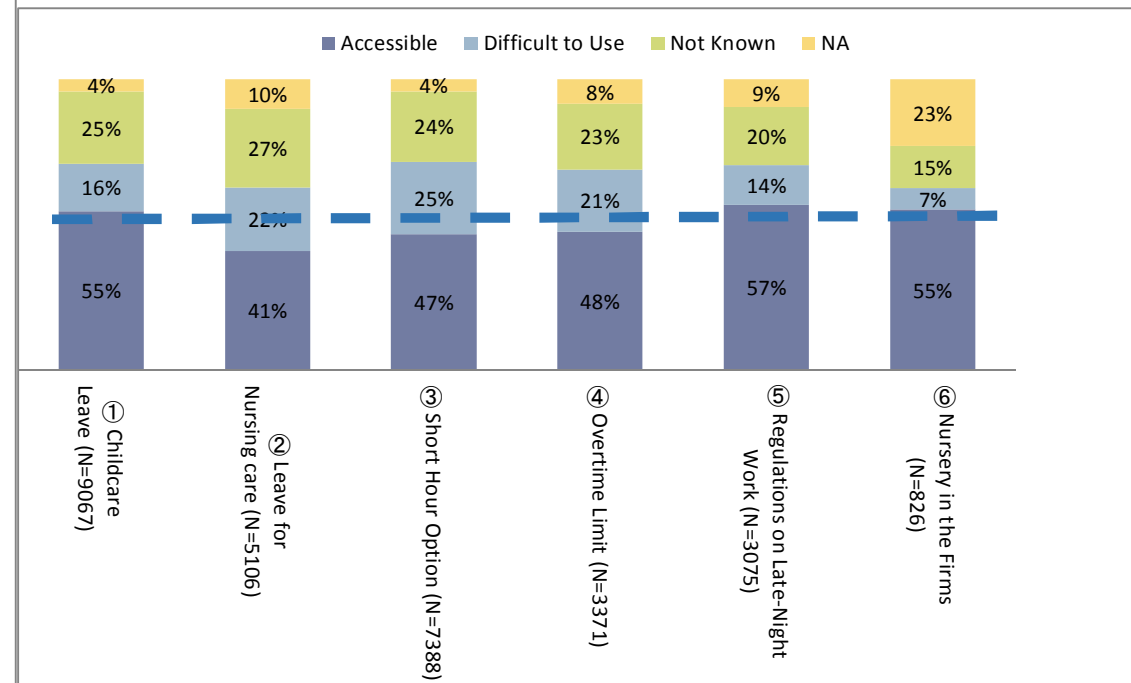
SQ1: “In your company, is the WLB system accessible for use for your employment status?”

⇒ “Accessible” , “Difficult to Use” , and “Not Known”

Fig.1 Response percentage for each WLB System and accessibility (Fig.1.1 WLB System , Fig.1.2 accessibility (pooled))



N=40,160 After 2009, the questionnaire for ②,④,⑤ and ⑥ are not available.



Only respond if you answered "Yes" to Q1, unless you are not working 15

Fig.2 Response percentage for Childcare Leave and accessibility

(Fig.2.1 Presence or Absence , Fig.2.2 Accessibility)
(Responses according to employment status (pooled))

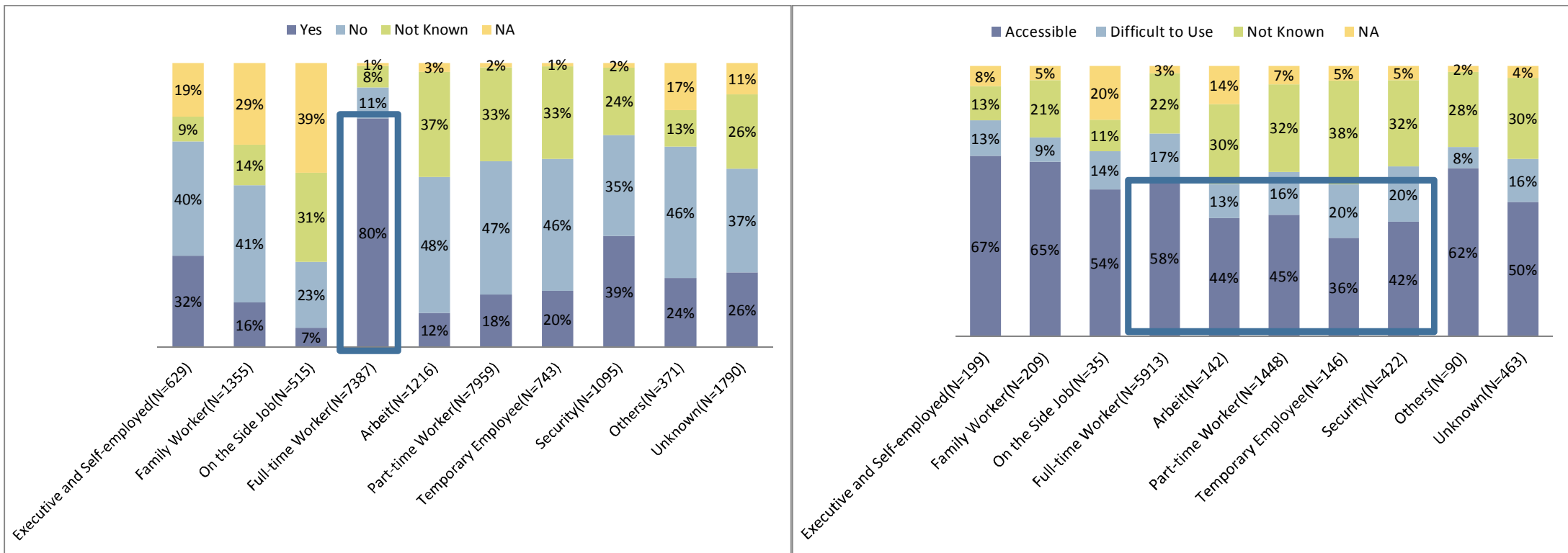
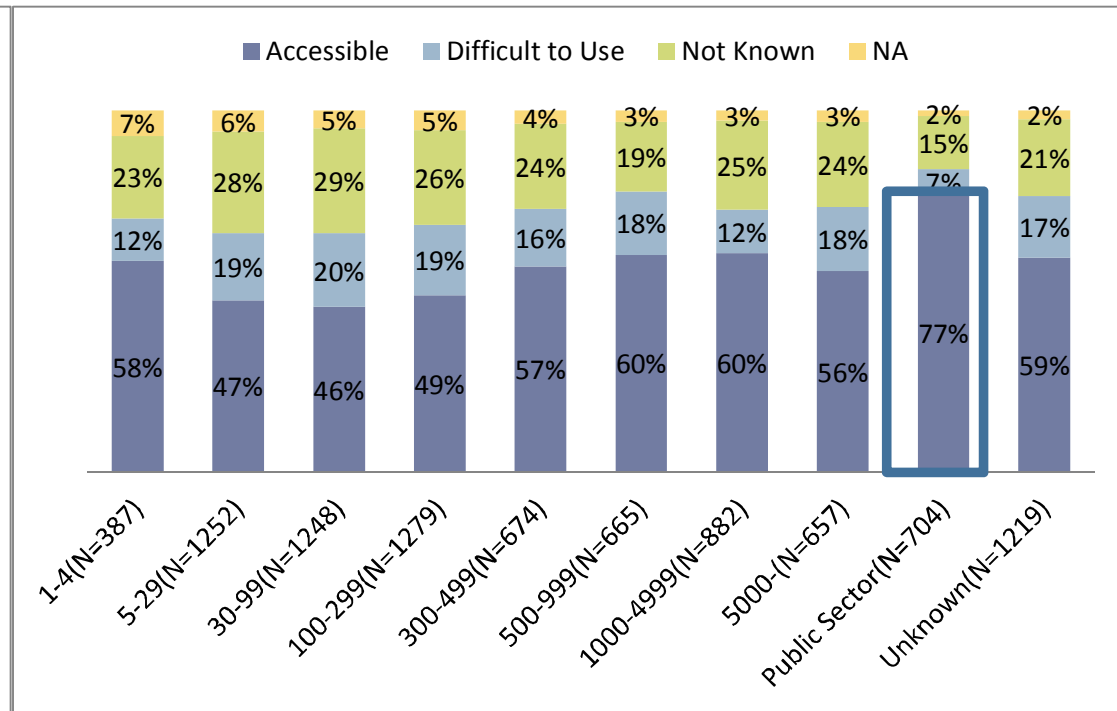
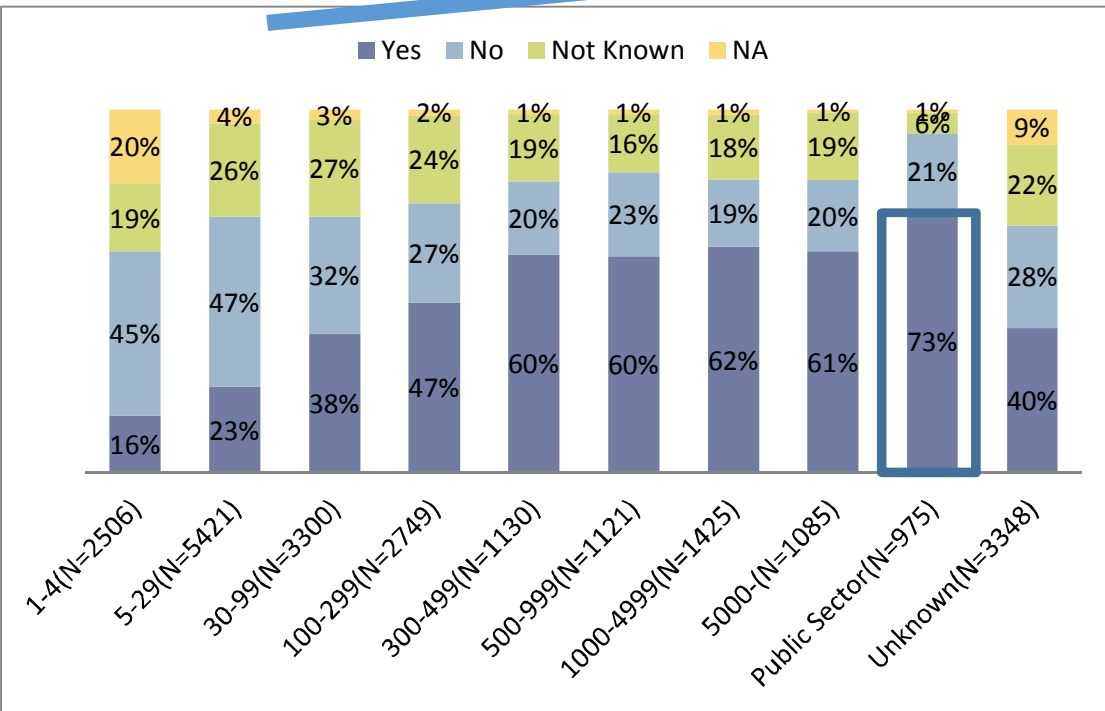


Fig.3 Response percentage for Childcare Leave and accessibility (Fig.3.1 Presence or Absence , Fig.3.2 Accessibility) (Responses according to firm size (pooled))



Descriptive Analysis Findings

1. Is the WLB system still applied to only full-time workers in a large company?
2. Do we really need to expand the scope of the WLB system to include part-time workers?
3. While WLB systems are being introduced into society, many people still do not have access to them.

5 Empirical Analysis

- I perceive Dr.Akerlof's Social Norms as the accessibility of WLB systems in the various labor categories.
- If we work in an environment where we can easily access the WLB system, individual identity of workers and their behavior can be in harmony. As a result, Identity Utility can be increased.
- WLB systems can be **easily obtained** → **Childbirth +**
difficult to obtain → **Childbirth -**

Definition of Explained Variable

- Explained Variable = Childbirth to next year $\rightarrow t+1$
Childbirth to year after next $\rightarrow t+2$
- Childbirth of first child dummy = “1” , others are “0”
- Our sample included only married people.
- Model 1 : sample included married working women
- Model 2 : sample included only those who do not have a child

Table 2 Data size

| Year | Married | | Do not have a child | | Have a child | | |
|-------|---------|---------|---------------------|---------|--------------|---------|-------------|
| | Total | Working | Not working | Working | Not working | Working | Not working |
| 2003 | 5,365 | 2,539 | 2,826 | 713 | 429 | 1,826 | 2,397 |
| 2004 | 5,134 | 2,558 | 2,576 | 671 | 375 | 1,887 | 2,201 |
| 2005 | 5,096 | 2,779 | 2,317 | 662 | 303 | 2,117 | 2,014 |
| 2006 | 5,016 | 2,898 | 2,118 | 677 | 271 | 2,221 | 1,847 |
| 2007 | 4,942 | 3,144 | 1,798 | 726 | 168 | 2,418 | 1,630 |
| 2008 | 4,942 | 3,218 | 1,724 | 734 | 146 | 2,484 | 1,578 |
| 2009 | 4,962 | 3,256 | 1,706 | 711 | 132 | 2,545 | 1,574 |
| 2010 | 4,703 | 3,105 | 1,598 | 701 | 118 | 2,404 | 1,480 |
| Total | 40,160 | 23,497 | 16,663 | 5,595 | 1,942 | 17,902 | 14,721 |

Model 1

Model 2

Model and Results

$$U=U_c+U_i \quad U_c= \text{Traditional Utility}$$

$$U_i= \text{Identity Utility}$$

$$U_c=C(\text{Commodity Consumption})+I(\text{Leisure})$$

Model 1 : Effects of workplace norms on

Accessibility to WLB system

Model 2 : Effects of workplace norms on **childbirth**

Variables

| | Model 1 | Model 2 |
|--------------------------------|---|---|
| Explained variables | Accessible =3 No opinion=2 Difficult to use=1 | t+1 and t+2 dummy Childbirth=1, others =0 (Table 4 Labor Supply=1,Others=0) |
| Focus on explanatory variables | | WLB Systems (3 types) Accessible =3 No opinion=2 Difficult to use=1 |
| Others | Age, Age ² , Level of education, Firm size (9 types), Dummy: living with parents, Husband's income(log) , Working hours per weeks(devided by 5), Housework time (hours per weekday), Year dummy | |

Expected Sign of Estimation

| | Model 1 | Model 2 |
|----------|---|---------|
| Positive | WLB Systems (3 types) Accessibility Husband's income(log) | |
| Negative | Working hours per weeks(devided by 5), Housework time (hours per weekday) | |

Table 3 Estimation Results: Model 1 Childcare Leave (Ordered Probit Model (Pooled))

| Ordered Probit Model | Coef. | Std. | z |
|------------------------------|--------------|-------------|----------|
| Employment Status<Executive> | | | |
| Self-employed Helper | -0.245 | 0.353 | -0.69 |
| On-the Side Job | -1.321 | 0.742 * | -1.78 |
| Full-time Worker | -0.595 | 0.284 ** | -2.09 |
| Arbeit | -0.642 | 0.395 | -1.62 |
| Part-time Worker | -1.100 | 0.289 *** | -3.81 |
| Security | -1.741 | 0.395 *** | -4.41 |
| Temporary Employee | -1.452 | 0.320 *** | -4.54 |
| Others | -0.865 | 0.418 ** | -2.07 |
| Working Hours | -0.096 | 0.017 *** | -5.60 |
| Housework Time | 0.076 | 0.012 *** | 6.36 |
| Age | -0.042 | 0.070 | -0.60 |
| Age ² | 0.001 | 0.001 | 0.69 |
| Living with Parents | -0.062 | 0.077 | -0.81 |
| Husband's Income (log) | -0.086 | 0.080 | -1.08 |
| /cut1 | -3.573 | 1.374 | -6.27 |
| /cut2 | -2.197 | 1.373 | -4.89 |
| N | | 3228 | |

Table 4 Estimation Results: Model 2 Childcare Leave (Random Effect Model(Panel/Pooled))

| | t+1Dummy | | | t+2Dummy | | |
|---------------------------------|----------|-----------|-------|----------|---------|-------|
| | Coef. | Std. | z | Coef. | Std. | z |
| Childcare Leave System(Absence) | | | | | | |
| System: Not Known | 0.165 | 0.097 * | 1.69 | 0.125 | 0.117 | 1.07 |
| System: NA | 0.522 | 0.205 ** | 2.54 | -0.833 | 0.474 * | -1.76 |
| Presence: Difficult to Use | 0.096 | 0.131 | 0.73 | 0.061 | 0.155 | 0.39 |
| Presence: Not Known | 0.220 | 0.125 * | 1.76 | 0.189 | 0.149 | 1.27 |
| Presence: Accessible | 0.264 | 0.108 ** | 2.44 | -0.131 | 0.140 | -0.94 |
| Presence: NA | -0.131 | 0.292 | -0.45 | -0.053 | 0.320 | -0.17 |
| Working Hours | -0.003 | 0.014 | -0.24 | 0.013 | 0.018 | 0.74 |
| Housework Time | -0.028 | 0.019 | -1.5 | 0.006 | 0.023 | 0.26 |
| Age | 0.047 | 0.133 | 0.35 | 0.206 | 0.179 | 1.15 |
| Age ² | -0.002 | 0.002 | -0.91 | -0.004 | 0.003 | -1.48 |
| Living with Parents | -0.199 | 0.096 | -2.08 | -0.214 | 0.118 * | -1.81 |
| Husband's Income (log) | 0.206 | 0.079 *** | 2.61 | -0.131 | 0.088 | -1.49 |
| _cons | -2.294 | 2.123 | -1.08 | -2.936 | 2.783 | -1.05 |
| N | 2364 | | | 1975 | | |

Notes : Sample included only those who do not have a child. Year dummy and Firm size were included as control variables.

*:10% **:5% ***:1%

Table 5 Estimation Results: Model2 Childcare Leave (Bivariate Probit Model(Pooled))

| | t+1Dummy | | | | | | t+2 Dummy | | | | | |
|---------------------------------|--------------|-----------|-------|------------|-----------|-------|--------------|-----------|-------|------------|---------|-------|
| | Labor Supply | | | Childbirth | | | Labor Supply | | | Childbirth | | |
| | Coef. | Std. | z | Coef. | Std. | z | Coef. | Std. | z | Coef. | Std. | z |
| Childcare Leave System(Absence) | | | | | | | | | | | | |
| System: Not Known | -0.063 | 0.081 | -0.78 | 0.155 | 0.096 | 1.61 | -0.158 | 0.084 * | -1.87 | 0.134 | 0.116 | 1.16 |
| System: NA | 0.074 | 0.184 | 0.40 | 0.419 | 0.194 ** | 2.16 | 0.062 | 0.193 | 0.32 | -0.740 | 0.458 | -1.62 |
| Presence: Difficult to Use | 0.172 | 0.120 | 1.44 | 0.089 | 0.130 | 0.69 | 0.104 | 0.119 | 0.87 | 0.069 | 0.152 | 0.45 |
| Presence: Not Known | 0.175 | 0.116 | 1.50 | 0.216 | 0.123 * | 1.76 | 0.167 | 0.117 | 1.43 | 0.173 | 0.147 | 1.17 |
| Presence: Accessible | 0.492 | 0.106 *** | 4.63 | 0.241 | 0.107 ** | 2.26 | 0.551 | 0.108 *** | 5.08 | -0.115 | 0.138 | -0.84 |
| Presence: NA | -0.252 | 0.215 | -1.17 | -0.066 | 0.281 | -0.23 | -0.168 | 0.225 | -0.74 | -0.057 | 0.318 | -0.18 |
| Working Hours | 0.047 | 0.013 *** | 3.63 | -0.002 | 0.014 | -0.15 | 0.037 | 0.013 *** | 2.88 | 0.014 | 0.018 | 0.77 |
| Housework Time | -0.003 | 0.015 | -0.19 | -0.035 | 0.018 * | -1.91 | -0.013 | 0.016 | -0.81 | 0.006 | 0.022 | 0.25 |
| Age | 0.043 | 0.122 | 0.35 | 0.000 | 0.132 | 0.00 | 0.112 | 0.130 | 0.86 | 0.197 | 0.176 | 1.12 |
| Age ² | 0.001 | 0.002 | 0.32 | -0.001 | 0.002 | -0.54 | -0.001 | 0.002 | -0.25 | -0.004 | 0.003 | -1.44 |
| Living with Parents | 0.040 | 0.082 | 0.49 | -0.223 | 0.094 ** | -2.38 | 0.113 | 0.083 | 1.37 | -0.223 | 0.116 * | -1.92 |
| Husband's Income (log) | -0.099 | 0.069 | -1.43 | 0.205 | 0.078 *** | 2.61 | -0.066 | 0.069 | -0.95 | -0.133 | 0.087 | -1.54 |
| _cons | -0.932 | 1.924 | -0.48 | -1.233 | 2.078 | -0.59 | -2.289 | 2.032 | -1.13 | -2.852 | 2.716 | -1.05 |
| N | 2364 | | | | | | 1975 | | | | | |
| /athrho | -0.187*** | | | | | | -0.006 | | | | | |

Notes : Sample included only those who do not have a child. Year dummy and Firm size were included as control variables.

* :10% ** :5% ***:1%

Table 6 Estimation Results: Model 2 Leave for Nursing Care (Random Effect Model(Panel/Pooled))

| | t+1Dummy | | | t+2Dummy | | |
|---------------------------------|----------|-----------|-------|----------|----------|-------|
| | Coef. | Std. | z | Coef. | Std. | z |
| Childcare Leave System(Absence) | | | | | | |
| System: Not Known | -0.090 | 0.080 | -1.13 | -0.117 | 0.097 | -1.21 |
| System: NA | 0.145 | 0.151 | 0.96 | -0.133 | 0.192 | -0.69 |
| Presence: Difficult to Use | -0.009 | 0.132 | -0.07 | -0.029 | 0.158 | -0.18 |
| Presence: Not Known | 0.178 | 0.120 | 1.49 | -0.199 | 0.164 | -1.21 |
| Presence: Accessible | -0.088 | 0.297 | -0.3 | -0.445 | 0.460 | -0.97 |
| Presence: NA | 0.310 | 0.204 | 1.52 | -0.963 | 0.468 ** | -2.06 |
| Working Hours | -0.002 | 0.014 | -0.12 | 0.013 | 0.018 | 0.72 |
| Housework Time | -0.029 | 0.019 | -1.54 | 0.005 | 0.023 | 0.21 |
| Age | 0.062 | 0.133 | 0.46 | 0.192 | 0.178 | 1.08 |
| Age ² | -0.002 | 0.002 | -1.01 | -0.004 | 0.003 | -1.4 |
| Living with Parents | -0.194 | 0.096 ** | -2.03 | -0.197 | 0.118 * | -1.68 |
| Husband's Income (log) | 0.208 | 0.079 *** | 2.63 | -0.129 | 0.087 | -1.48 |
| _cons | -2.383 | 2.126 | -1.12 | -2.599 | 2.780 | -0.93 |
| N | 2364 | | | 1975 | | |

Notes: Sample included only those who do not have a child. Year dummy and Firm size were included as control variables.

*:10% **:5% ***:1%

Table 7 Estimation Results: Model 2 Short Hour Option (Random Effect Model(Panel/Pooled))

| | t+1Dummy | | | t+2Dummy | | |
|---------------------------------|----------|-----------|-------|----------|-----------|-------|
| | Coef. | Std. | z | Coef. | Std. | z |
| Childcare Leave System(Absence) | | | | | | |
| System: Not Known | -0.052 | 0.084 | -0.62 | -0.229 | 0.102 ** | -2.25 |
| System: NA | 0.071 | 0.132 | 0.54 | -0.109 | 0.162 | -0.67 |
| Presence: Difficult to Use | 0.021 | 0.124 | 0.17 | 0.025 | 0.145 | 0.17 |
| Presence: Not Known | -0.010 | 0.110 | -0.09 | -0.418 | 0.152 *** | -2.75 |
| Presence: Accessible | 0.800 | 0.442 * | 1.81 | 0.145 | 0.644 | 0.23 |
| Presence: NA | 0.284 | 0.202 | 1.41 | -1.052 | 0.467 ** | -2.25 |
| Working Hours | 0.000 | 0.014 | 0.03 | 0.012 | 0.018 | 0.67 |
| Housework Time | -0.028 | 0.019 | -1.53 | 0.007 | 0.023 | 0.29 |
| Age | 0.039 | 0.133 | 0.29 | 0.189 | 0.179 | 1.05 |
| Age ² | -0.002 | 0.002 | -0.85 | -0.004 | 0.003 | -1.38 |
| Living with Parents | -0.192 | 0.095 ** | -2.02 | -0.202 | 0.118 * | -1.71 |
| Husband's Income (log) | 0.217 | 0.079 *** | 2.74 | -0.133 | 0.088 | -1.51 |
| _cons | -2.102 | 2.115 | -0.99 | -2.450 | 2.794 | -0.88 |
| N | | 2364 | | | 1975 | |

Notes : Sample included only those who do not have a child. Year dummy and Firm size were included as control variables.

*:10% **:5% ***:1%

6 Conclusions

- Employees tends to have less access to the childcare leave system than self-employed workers, especially non-regular workers.
- Housework time has a positive effect on access to the childcare leave system, while working hours has a negative effect.
- Employment status and working hours are the primary determinants of access to WLB systems.

- The positive correlation between accessibility to WLB systems and childbirth rate indicates that a clear relationship exists between the two.
- In terms of the “Bivariate Probit Model”, I found that accessibility to WLB systems has the greatest effect on continuation of work.

Future Research

- Sample selection bias
- Theoretical framework and empirical analysis
- An elaborate analysis
(E.g., Propensity score matching methods)

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WORK-FAM

Achieving Work and Family Life Balance in Japan:
Importance of Interdisciplinary Approach

References (in Japanese)

- 池田心豪 (2012) 「女性の継続就業 出産退職の要因」『ワーク・ライフ・バランスの焦点 女性の労働参加と男性の働き方』 独立行政法人労働政策研究・研修機構 (第2章、P49-83)
- 釜野さおり (2011) 「21世紀成年者縦断調査 (第1回～第6回) における女性票および男性票の脱落者・継続回答者の特性に関する分析」『パネル調査 (縦断調査) に関する総合的分析システムの応用研究』 厚生労働科学研究費補助金 行政政策研究分野・政策科学総合研究報告書、第2部第3章、P37-81
- 厚生労働省 (2013) 『21世紀出生児縦断調査及び21世紀成年者縦断調査特別報告書』 厚生労働省大臣官房統計情報部
- 酒井正・高畑純一郎 (2011) 「働き方と家族形成の関係」樋口美雄・府川哲夫編『ワーク・ライフ・バランスと家族形成 少子社会を変える働き方』 第2章、P31-61
- 坂本和靖 (2011) 「両立支援制度が男性の生活時間配分に与える影響」樋口美雄・府川哲夫編『ワーク・ライフ・バランスと家族形成 少子社会を変える働き方』 第10章、P217-237
- 滋野由紀子・大日康史 (1999) 「育児休業制度の女性の結婚と就業継続への影響」『日本労働研究雑誌』 459号
- 滋野由紀子・松浦克己 (2003) 「出産・育児と就業の両立を目指して 結婚・就業選択と既婚・就業女性に対する育児休業制度の効果を中心に」『季刊社会保障研究』 Vol. 39, No. 1, P43-54
- 駿河輝和・張建華 (2003) 「育児休業制度が女性の出産と継続就業に与える影響について パネルデータによる計量分析」『季刊家計経済研究』 No. 59, P56-63.
- 相馬直子 (2004) 「育児休業取得をめぐる女性内部の「格差」: 「利用意向格差」と「取得格差」を手がかりに」『女性の就業と親子関係 母親たちの階層戦略』 勁草書房 (第4章、P59-79)
- 武石恵美子 (2011) 「働き方と両立支援策の利用」『ワーク・ライフ・バランスと家族形成 少子社会を変える働き方』 東京大学出版会、第8章、P173-194
- 戸田淳仁 (2011) 「両立支援策の普及実態と両立支援策が出生行動に与える影響」『IPSS Discussion Paper Series』 国立社会保障・人口問題研究所、No. 2011-J06
- 戸田淳仁・樋口美雄 (2011) 「労働時間や家事時間の長い夫婦ほど出生率は低いか」樋口美雄・府川哲夫編『ワーク・ライフ・バランスと家族形成 少子社会を変える働き方』 第11章、P249-266
- 永瀬伸子 (1999) 「少子化の要因: 就業環境か価値観の変化か 既婚者の就業形態選択と出産時期の選択」『人口問題研究』 55-2, P1-18
- 野口晴子 (2007) 「企業による多様な「家庭と仕事の両立支援策」が夫婦の出生行動に与える影響 労働組合を対象とした調査の結果から」『季刊社会保障研究』 Vol. 43, No. 3, P244-260
- 樋口美雄・阿部正浩, et al. (1997) 「日米英における育児休業・出産休業制度と女性就業」『人口問題研究』 53-4, P49-66
- 脇坂明 (2002) 「育児休業制度が職場で利用されるための条件と課題」『日本労働研究機構』 503号
- 脇坂明 (2011) 「均等法後の企業における女性の雇用管理の変遷」『日本労働研究雑誌』 No. 615, P38-51
- 山口一男 (2008) 『ダイバーシティ 生きる力を学ぶ物語』 東洋経済新報社
- Akerlof, G. A. (1980). "A Theory of Social Custom, of Which Unemployment May be One Consequence." *The Quarterly Journal of Economics* No.4, P749-75
- Akerlof, G.A., Kranton, R.E. (2010) "Identity Economics: How our Identities Shape Our Work, Wages, and Well-Being." Princeton University Press
- Badgett, M. L., Folbre, N (1999) "Assigning care: Gender norms and economic outcomes." *International Labour Review* Vol.138, No.3, P311-326
- Clark, E. A. (2003) "Unemployment as a Social Norm: Psychological Evidence from Panel Data." *Journal of Labor Economics* Vol.21, No.2, P323-351
- Contreras, D., Plaza, G (2010) "Cultural Factors in Women's Labor Force Participation in Chile." *Feminist Economics* 16(2), P27-46
- M. Fortin, N. (2005) "Gender Role Attitudes and the Labour-Market outcomes of Women Across OECD Countries." *Oxford Review of Economic Policy* Vol.21, No.3, P416-438
- Hazan, M. and Y. D. Moaz (2002) "Women's labor force participation and the dynamics of tradition." *Economic Letters* No.75, P193-198
- Killingworth, R.M., Heckman, J.J (1986) "Female Labor Supply: A Survey." *Handbook of Labor Economics Volume 1* Chapter2, P103-204
- Tolciu, A., Zierahn, U. (2010) "Women and Work: What Role Do Social Norms Play?" *Joint Discussion Paper Series In Economics* No.9