

Changes in mothers' timing of work and their effects on time with children

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1. Background

What are nonstandard work hours (NSWH) and why should we care about those of mothers?

- Standard work hours: 8 a.m. to 6 p.m.
(Kimmel and Connelly 2010)
- Two types of NSWH
 - Morning (0 a.m. to 8 a.m.)
 - Night (6 p.m. to 0 a.m.)

Why should we care about mothers' NSWH?

*Mothers'
NSWH*



**Children's behavioral problems
(Joshi and Bogen 2007, Strazdins et al.
2004, 2006, Li et al. 2014)**



**Children's low academic achievement
(Han 2005, Han and Fox 2011)**



**Children's poor mental & physical health
(Dockery et al. 2009, Han and Miller 2009)**

Effects are stronger for children of single-parent families (Dockery et al. 2009; Han 2008)

Existing researches on NSW in Japan

- Kuroda and Yamamoto (2014) analyze changes in work timing of male non-regular employees between 1996 and 2006.
- Oishi (2017) analyzes mothers' NSW and their effect on caregiving hours and frequency of family dinner using a cross-section survey.
- Few studies have focused on mothers' timing of work.

Aim of this study

- 1) Overview changes in mothers' work timing since 1996
- 2) Investigate factors behind the change by separating the effects of changes in endowments from changes in behavior
- 3) Examine if mothers' NSWHL lead to reduced time with children

Major findings

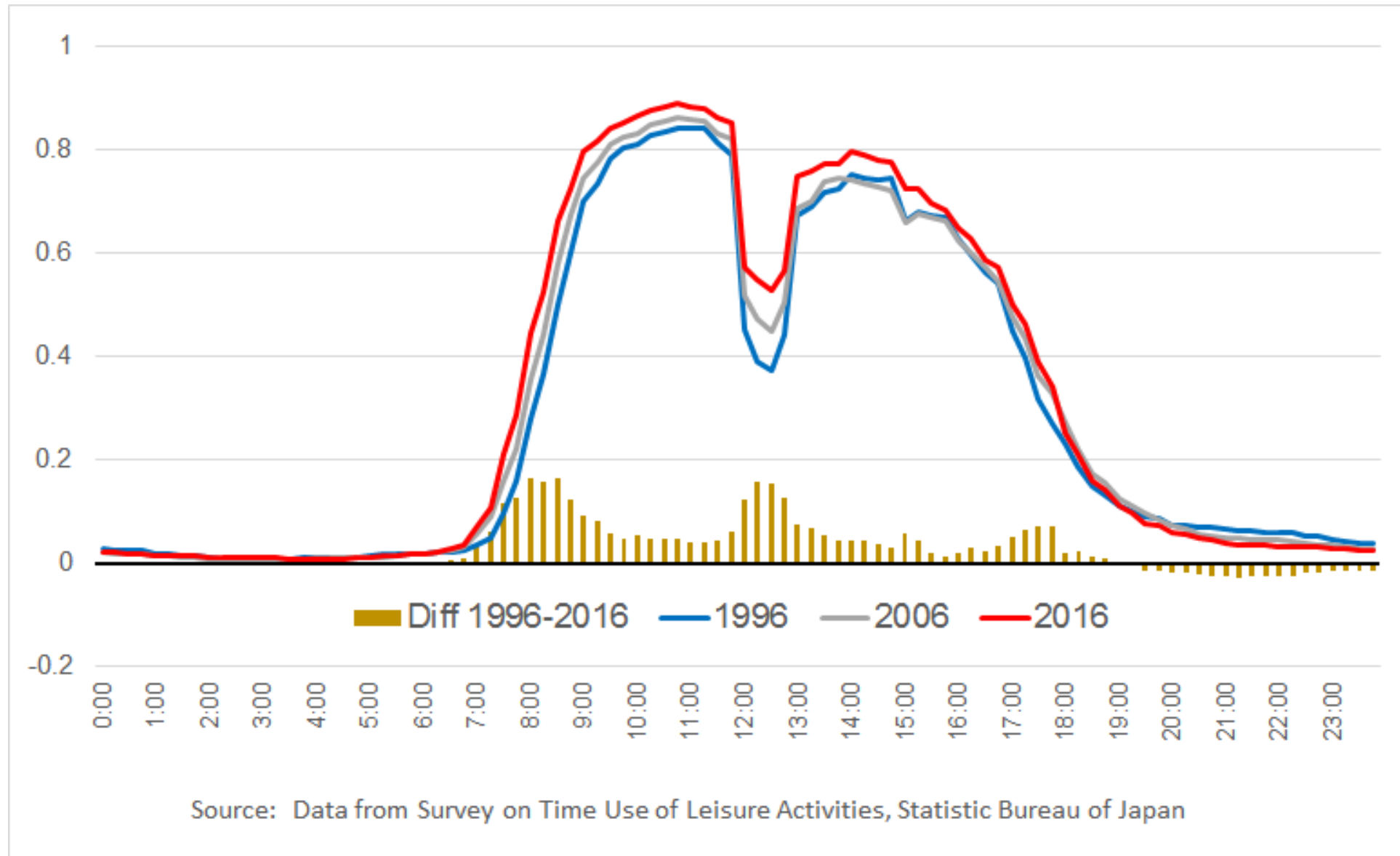
- While the proportion of mothers working night hours declined, that of mothers working early morning hours increased since 1996.
- Decomposition analysis reveals that changes in personal characteristics explain less than half of the decrease in the proportion of mothers working NS hours.
- Mothers' NSWH reduce time with children.

2. Overview of the data

Data

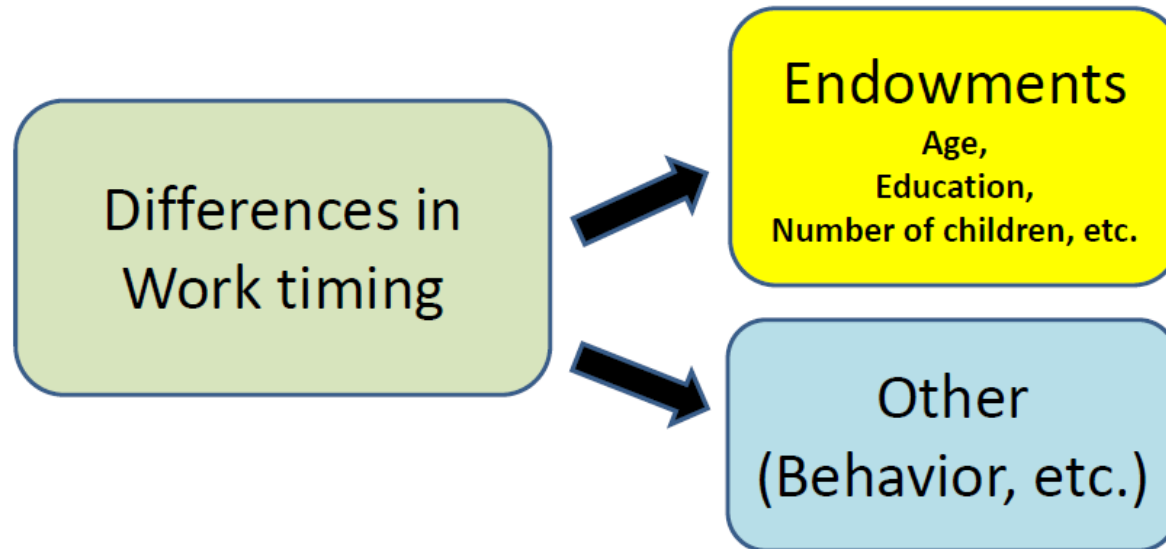
- Survey on Time Use of Leisure Activities (STULA) 1996 and 2016
Nationally representative time diary data
- Mothers (<55 years old) with cohabitating children (<20 years old + unmarried), with no cohabitating adults except their spouses.
- Those who reported positive work hours in their weekday diary day
Sample size: 8,137(1996) 5,361(2016)

Changes in mothers' timing of work on a weekday 1996-2016 (Mothers with positive work hours)



Why the change? Analytical framework

- Oaxaca-Blinder decomposition



- Examine changes in descriptive statistics
- Estimate Probit regressions to estimate coefficients for 1996 and 2016

Variable definitions

- ***Regular*** =1 if employed on a non fixed-term basis
- ***Poor*** =1 if equivalized* gross income of the household is smaller than 60% of the median equivalized disposable income (adjusted by CPI)
- ***Relative daytime wage*** = prevailing hourly daytime wage in the prefecture/minimum wage
 - Daytime wages are calculated according to age, firm size, and prefecture using Basic Survey on Wage Structure (Ministry of Health, Labour and Welfare)

3. Results

Descriptive statistics

	1996	2016
NS work (morning+night)	0.293	0.265
NS morning	0.090	0.115
NS night	0.239	0.185
Single mother	0.098	0.096
Regular worker	0.304	0.314
Age	39.809 (0.106)	41.186 (0.114)
University educated	0.085	0.212
Has child(ren)<10 yrs old	0.438	0.532
Poor	0.196	0.088

Descriptive statistics (cont.)

Occupation: professional and technical	0.147	0.215
Occupation: service	0.128	0.245
Occupation: sales	0.130	0.097
Firm size: 100-999	0.166	0.384
Firm size: 1000-	0.206	0.177
Large city	0.202	0.204
Effective vacancy ratio	0.711	0.724
	(0.003)	(0.003)
Relative daytime wage	2.181	1.851
	(0.007)	(0.004)

Who work nonstandard hours?

(Probit, marginal effects)

Determinants of Working Any Nonstandard Hours on weekdays for Mothers with Positive Work Hours

	1996 (N=8137)		2016 (N=5361)	
	Morning	Night	Morning	Night
Proportion of mothers with positive NS hours	0.090	0.239	0.115	0.185
Single mother	0.032 *	0.047 *	0.055 **	0.062 **
Regular employee	-0.008	0.056 ***	0.094 ***	0.145 ***
Age	0.003 ***	0.000	0.001	0.002
University educated	0.033 *	0.117 ***	0.011	0.076 ***
Has child(ren) < 10 years old	0.018	-0.042 **	-0.034 **	-0.040 **
Poor	0.035 ***	0.075 ***	-0.017	0.046

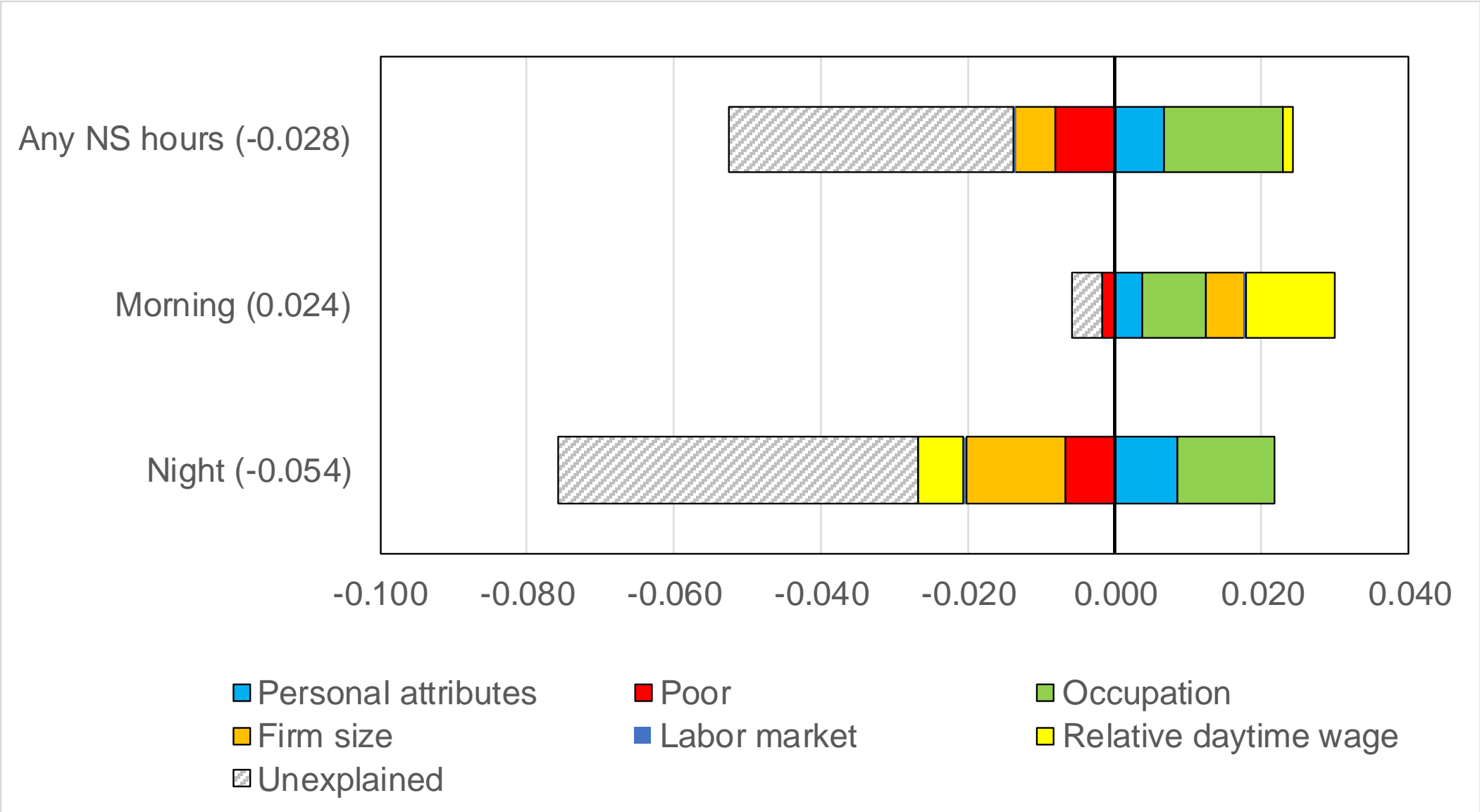
* p<0.1, ** p<0.05, *** p<0.01

Who work nonstandard hours? (cont.)

	1996 (N=8137)		2016 (N=5361)	
	Morning	Night	Morning	Night
Occupation: professional and technical	0.040 ***	0.099 ***	0.028 **	0.149 ***
Occupation: service	0.076 ***	0.133 ***	0.040 ***	0.055 ***
Occupation: sales	-0.010	0.156 ***	-0.018	0.101 ***
Firm size: 100-999	0.023 *	-0.100 ***	0.039 ***	-0.023
Firm size: 1000-	0.017	-0.109 ***	0.047 *	0.040
Large city	-0.011	-0.003	-0.039 **	0.002
Effective vacancy ratio	0.006	-0.037	0.021	-0.021
Relative daytime wage	-0.029	0.071 ***	-0.080 *	-0.099 *

* p<0.1, ** p<0.05, *** p<0.01

Decomposition of changes in proportion of mothers with any positive NS hours on weekdays from 1996 to 2016



Do mothers' NSWH reduce time with children?

- Two measures of time with children
 - Minutes spent for caring children
 - Minutes spent with family
- Possible endogeneity
 - Time with children (Tobit) = f (personal characteristics,
whether or not do NSWH)

Effects of NSWH on minutes spent for child care in 2016

Minutes spent for caring child	All mothers (N=5361)		With children <10 yrs (N=2796)	
	Coef.	Std. Err.	Coef.	Std. Err.
Single mother	-25.7	18.0	-35.5	23.7
Age	-6.3 ***	0.7	-5.1 ***	0.8
Number of children <10 years old	82.7 ***	4.8	37.9 ***	6.8
University educated	66.2 ***	9.1	57.5 ***	10.1
Poor	-39.3 *	21.2	-19.1	25.5
Relative daytime wage	-9.0	16.8	-11.5	19.2
Any NS (morning+night)	-107.6 ***	19.8	-111.1 ***	24.7
Any NS (morning)	-133.3 ***	21.6	-137.8 ***	35.4
Any NS (night)	-135.6 ***	25.3	-137.8 ***	35.4

Notes: NS work includes commuting time. *p<0.1, **p<0.05, ***p<0.01.

Effects of NS work on time with family in 2016

	All mothers (N=5361)		With children<10 yrs (N=2796)	
	Coef.	Std. Err.	Coef.	Std. Err.
Minutes spent with family				
Single mother	-76.2 ***	13.9	-53.8 **	23.4
Age	-0.2	0.8	1.2	1.1
Number of children <10 years old	39.2 ***	5.5	38.1 ***	8.7
University educated	18.4	11.3	27.5 *	14.7
Poor	65.1 ***	14.8	58.6 **	25.7
Relative daytime wage	-48.9 **	19.1	-87.7 ***	26.7
Any NS (morning+night)	-245.6 ***	20.7	-270.3 ***	27.3
Any NS (morning)	-287.9 ***	14.6	-316.0 ***	18.3
Any NS (night)	-311.9 ***	19.7	-331.1 ***	22.7

Notes: NS work includes commuting time. *p<0.1, **p<0.05, ***p<0.01.

Conclusion

- More mothers work early morning hours in 2016.
- While change in occupations and decline in wages explain much of the increase in the proportion of mothers working early morning hours, much of the decrease in the proportion of mothers working night hours are unexplained by the change in endowments.
- Mothers' working NS hours reduces time with children.

Thank you for your attention.