Trends in Women's Employment Pattern around First Childbirth in Japan:

Limited Impact of Supply-side Change

Ryota MUGIYAMA

JSPS Post-Doctoral Research Fellow
Institute of Economic Research, Hitotsubashi University
mugiyama@ier.hit-u.ac.jp

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Outline

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Introduction and Background

What drives change in mothers' employment pattern?

Mothers' employment and gender inequality

Investigating what determines mothers' employment behavior is important to improve socio-economic gender inequality in labor market.

Increasing employment rate — due to supply-side change?

The employment rate for women and mothers has increased over the decades accompanied the women's attributional changes in many industrial societies (England and Farkas, 1986; Goldin, 1990; van der Lippe and van Dijk, 2002).

Japan as a case for rethinking the impact

Slow change in gender inequality and mothers' employment

- Although potentially important social changes have also occurred in Japan, most women still exit at childbirth (National Institute of Population and Social Security Research, 2017).
- Empirical studies showed inverse or weak association between education and labor force attachment for married women (Brinton, 1993; Waldfogel et al., 1999; Brinton and Lee, 2001; Yu, 2006; Raymo and Lim, 2011).

However, little is known about the impact of the supply-side changes on the mother's employment in Japan.

Purpose and research question

Purpose

We argue that **the supply-side changes, represented by changes in the attributes of mother, do not necessarily promote mother's labor market attachment**.

Specific Questions

1. How did Japanese mother's employment patterns around first childbirth change for those who gave birth in 1966–2005?
2. To what extent do changes in women's attributes explain the shifts in the composition of the employment pattern over the cohorts?

Rationale of the questions

Why study around first childbirth?

Transition to parenthood is the critical period to diverge men and women's roles on paid and domestic work and generates inequality.

Why study employment pattern?

Employment pattern (not event) has an advantage to take overall pictures of what kind of career women have followed and of how the distribution has changed (Sørensen, 1983; Han and Moen, 1999; Williams and Han, 2003; Hynes and Clarkberg, 2005; García-Manglano, 2015; Damaske and Frech, 2016; Sun and Chen, 2017; Lu et al., 2017; Killewald and Zhuo, 2019).

Theory on the role of supply-side changes

New home economics (Becker, 1993) assumes that increasing investment on women and decreasing burden for childcare promote mothers' employment. For example;

1. **Educational upgrading**
2. **Delayed childbirth**
3. **Decreasing fertility among couples**
4. **Specialization by marriage**

These changes have contributed to the increasing mother's or women's labor market attachment (Rexroat, 1992; Joshi and Hinde, 1993; Leibowitz and Klerman, 1995; Blossfeld and Hakim, 1997; Smeaton, 2006; Fouarge et al., 2010). How about in Japan?

Methods

Data and sample

Data

Social Stratification and Mobility survey in Japan, 1985, 1995, 2005, and 2015, with the retrospective job histories of respondents from first job to present.

Sample

5,009 female respondents who gave birth to her first child at the age of 18–39 between 1966 and 2005, and who have passed 9 years after the birth.

Cases with some missing values are list-wise deleted.

Dependent variable: Employment pattern

Construct five patterns from the employment states at five time points; at the timing at three years before first childbirth (T-3), at first childbirth (T), three (T+3), six (T+6), and nine (T+9) years after then.

1. **Consistently attached**: keep on working during almost all period.
2. **Low attached**: does not work during the childbirth period.
3. **Detached at childbirth**: leave the job at childbirth period and stay as not-working after then.
4. **Early returned**: quit the job at the timing of first childbirth, but return when the child becomes three years old.
5. **Late returned**: also quit the job and return, but the return is later than the group of early returned.

Classification of employment patterns

T-3	T	T+3	T+6	T+9	(%)	T-3	T	T+3	T+6	T+9	(%)
Consistently attached						0	0	1	1	1	(1.8)
1	1	1	1	1	(24.8)	1	0	1	1	0	(0.5)
0	1	1	1	1	(3.0)	1	0	1	0	1	(0.4)
1	1	1	1	0	(0.8)	0	0	1	0	1	(0.2)
1	1	1	0	1	(0.4)	0	0	1	0	0	(0.2)
0	1	1	1	0	(0.2)	0	0	1	1	0	(0.2)
Low attached						**Late returned**					
0	0	0	0	0	(14.3)	1	0	0	0	1	(7.2)
0	0	0	0	1	(2.7)	1	0	0	1	1	(6.0)
Detached at childbirth						0	0	0	1	1	(2.0)
1	0	0	0	0	(24.6)	1	1	0	1	1	(1.0)
1	1	0	0	0	(2.2)	1	1	0	0	1	(0.7)
1	1	1	0	0	(0.9)	1	0	0	1	0	(0.4)
1	0	1	0	0	(0.2)	0	0	0	1	0	(0.2)
0	1	1	0	0	(0.2)	0	1	1	0	1	(0.1)
0	1	0	0	0	(0.2)	0	1	0	0	1	(0.1)
Early returned						0	1	0	1	1	(0.1)
1	0	1	1	1	(4.4)	1	1	0	1	0	(0.1)

Notes: 1 indicates working, 0 indicates not working. Maternity leave is included in working.

Independent variables

Childbirth cohort: 1966–1975, 1976–1985, 1986–1995, and 1996–2005.

Educational attainment: Middle school, high school, vocational school, junior college, and university or more.

Age at first childbirth: 18–23, 24–26, 27–29, 30–34, 35–39 years old.

Number of children: Number of children born for nine years since the first childbirth.

Marital status before first childbirth: Whether a respondent had been married or not at three years before childbirth (T-3).

Results

Changing distribution in employment pattern

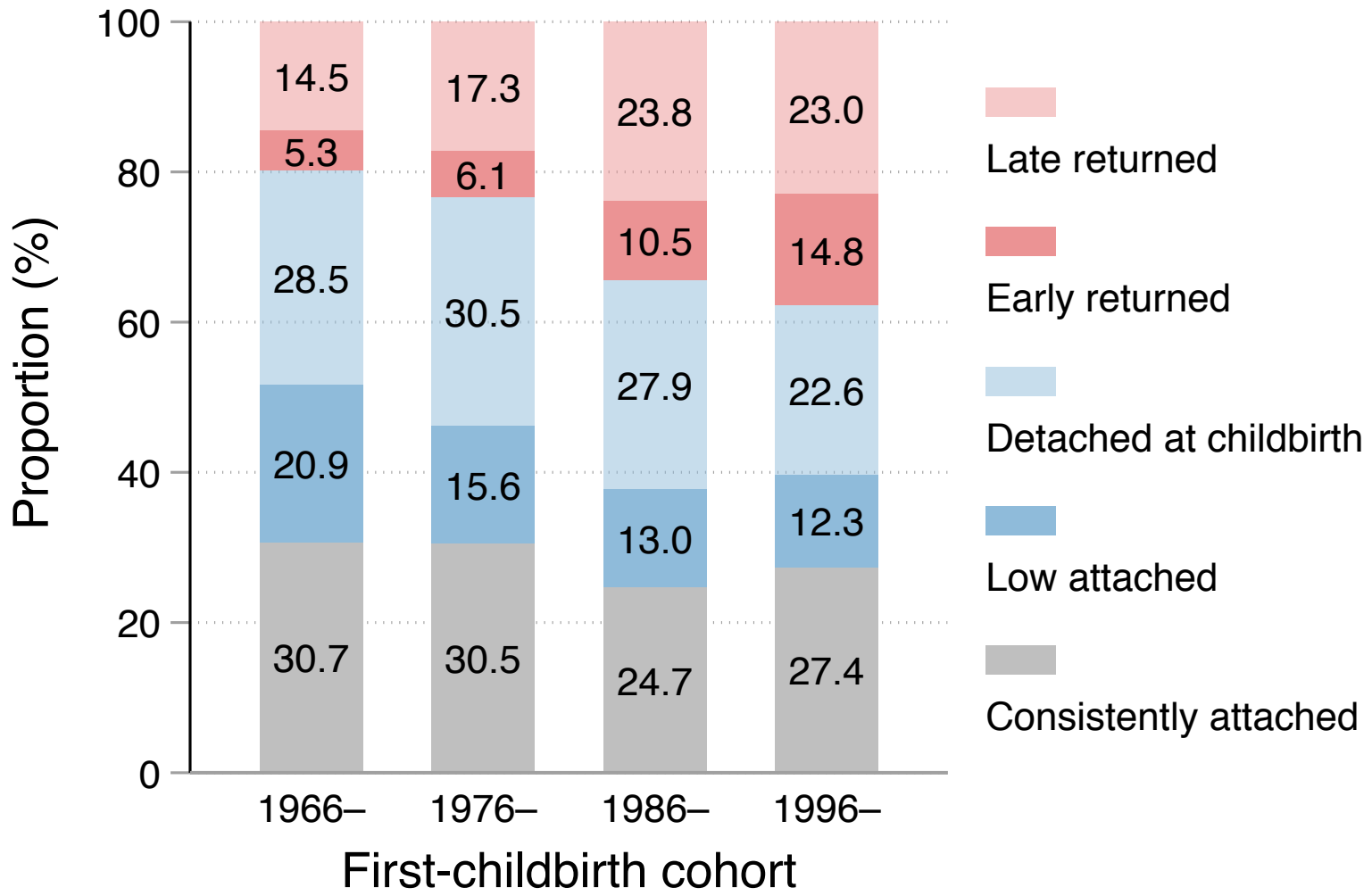

Figure 1: Distribution in employment patterns over cohorts

Compositional change over childbirth cohort

	First-childbirth cohort				
	1966–1975	1976–1985	1986–1995	1996–2005	Total
Educational attainment					
Middle school	.284	.096	.024	.032	.154
High school	.534	.543	.488	.411	.514
Vocational school	.090	.130	.164	.180	.125
Junior college	.057	.143	.191	.198	.122
University or more	.035	.087	.133	.180	.084
Age at first childbirth					
18–23	.263	.184	.150	.158	.208
24–26	.448	.412	.305	.194	.383
27–29	.203	.263	.321	.306	.253
30–34	.078	.116	.186	.272	.130
35–39	.008	.024	.038	.069	.025
Number of children					
One child	.129	.126	.207	.235	.155
Two children	.597	.581	.483	.544	.566
Three or more children	.273	.292	.311	.221	.280
Had been married at T-3	.208	.239	.263	.308	.238
N	2096	1431	920	562	5009

LPM predicting employment patterns

	Consistently attached	Low attached	Detached at childbirth	Early returned	Late returned
First-childbirth cohort (Ref: 1966–1975)					
1976–1985	.002	−.072***	.008	.021*	.041**
1986–1995	−.065***	−.111***	−.016	.070***	.122***
1996–2005	−.044	−.140***	−.055*	.116***	.123***
Educational attainment (Ref: Middle school)					
High school	−.076***	.004	.062***	−.005	.015
Vocational school	−.010	.027	−.005	.005	−.017
Junior college	−.078**	.073***	.072**	−.041**	−.027
University or more	.008	.056*	.046	−.034*	−.076***
Age at first childbirth (Ref: 18–23)					
24–26	.008	−.044**	.071***	−.031**	−.005
27–29	.045*	−.021	.077***	−.060***	−.041*
30–34	.030	.018	.082***	−.074***	−.057**
35–39	.016	.007	.095*	−.093***	−.025
Number of children (Ref: one child)					
Two children	−.044*	.034*	.047**	−.073***	.036*
Three or more children	−.034	.019	.099***	−.085***	.002
Married at T-3	−.011	.224***	−.173***	−.013	−.027*
Constant	.375***	.149***	.173***	.161***	.142***
R-sq	.012	.084	.040	.037	.022
N	5009	5009	5009	5009	5009

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$ (Two-tailed test). Robust standard errors are omitted.

Changes in attributes did not promote LM attachment

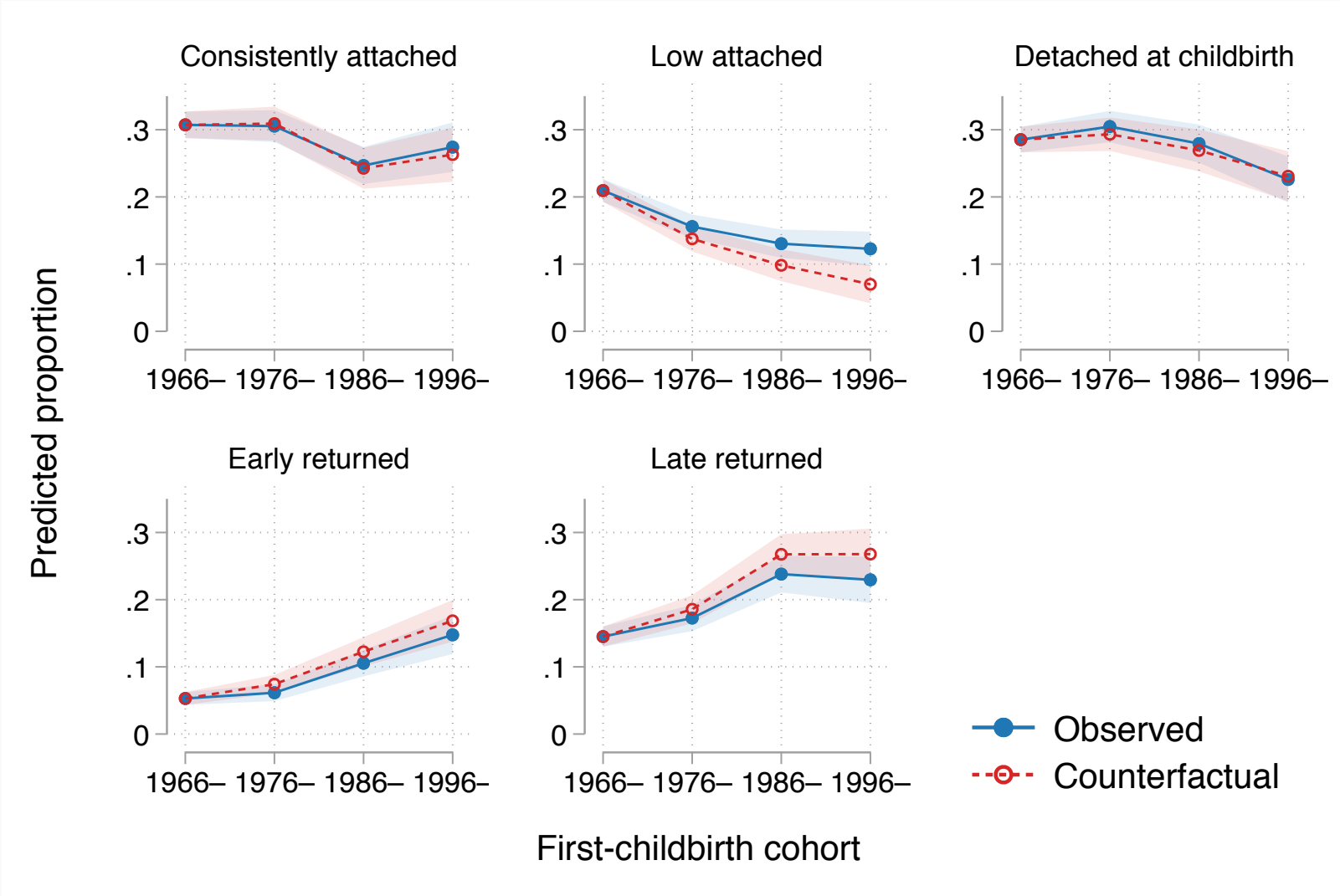

Figure 2: Counterfactual trends and the 95% CIs with attributes fixed at 1966–1975

Suppressing role of educational upgrading and delayed birth

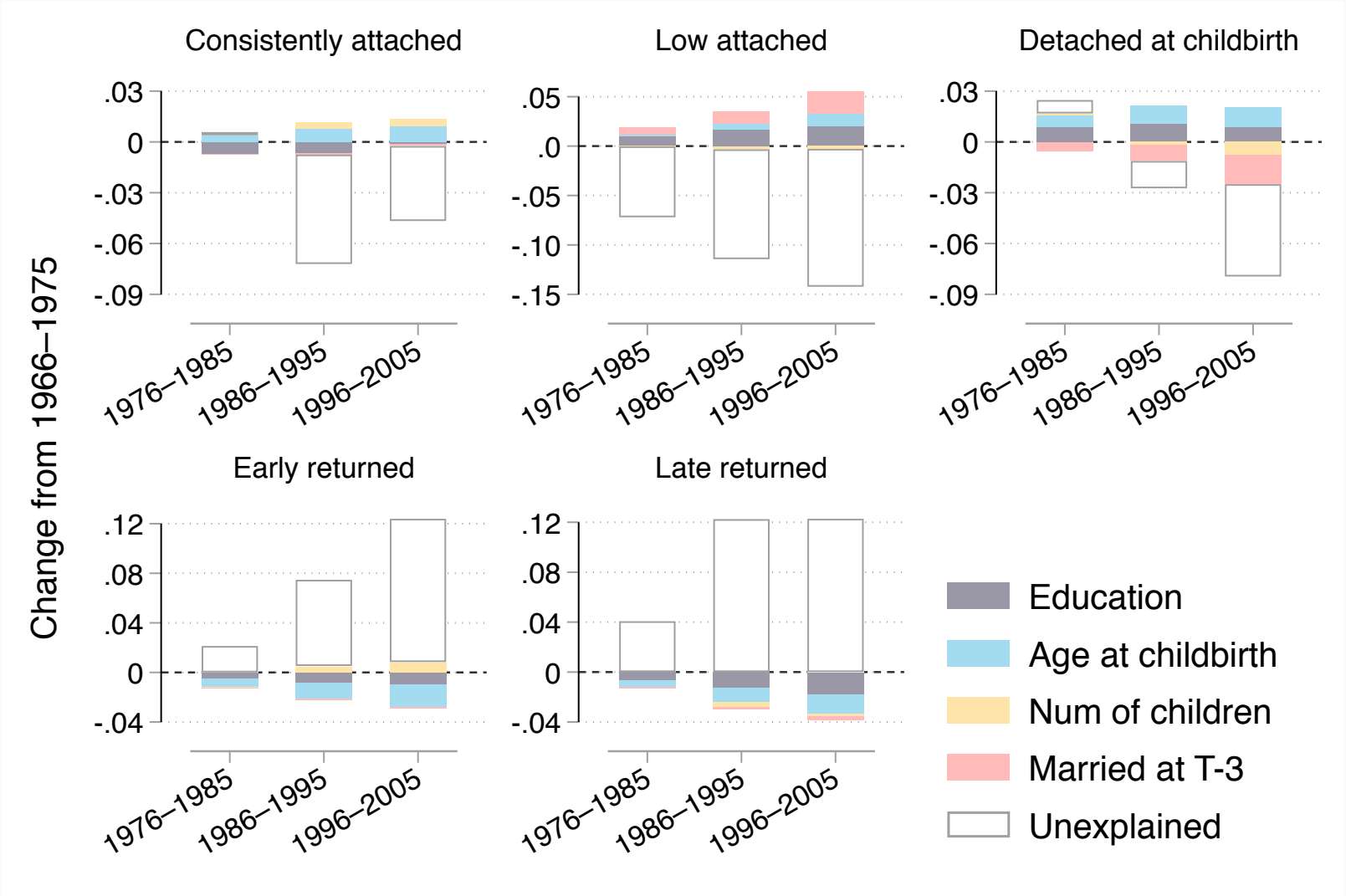

Figure 3: Detailed decomposition of contribution to changes in employment pattern

Conclusion

Summary of results

Main findings

1. Proportion of those who keep on working has not increased but who return to work has increased across cohort in Japan over the four decades.
2. These trends are partly linked by the supply-side changes, however, **the opposite trend to the previous studies is confirmed**.
   Educational upgrading and delayed childbirth contribute to suppress the mothers' labor force attachment.

Discussion

Supply-side shift might be necessary, but is not sufficient

(Unchanged) Demand-side structure (unsupportive organizational climate (Mun and Brinton, 2015), long working hours (Brinton and Oh, 2019), limited opportunity in re-entry (Yu, 2002; Lim and Raymo, 2014)) or gender division within household (Fuwa, 2004) channel how supply-side changes are reflected to employment behavior.

Future steps

- Deal with sample selection into motherhood.
- Update the analysis including the latest cohort.
- Explore what suppress the impact of supply-side change.

Appendix

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M-shape curve of employment rate in Japan

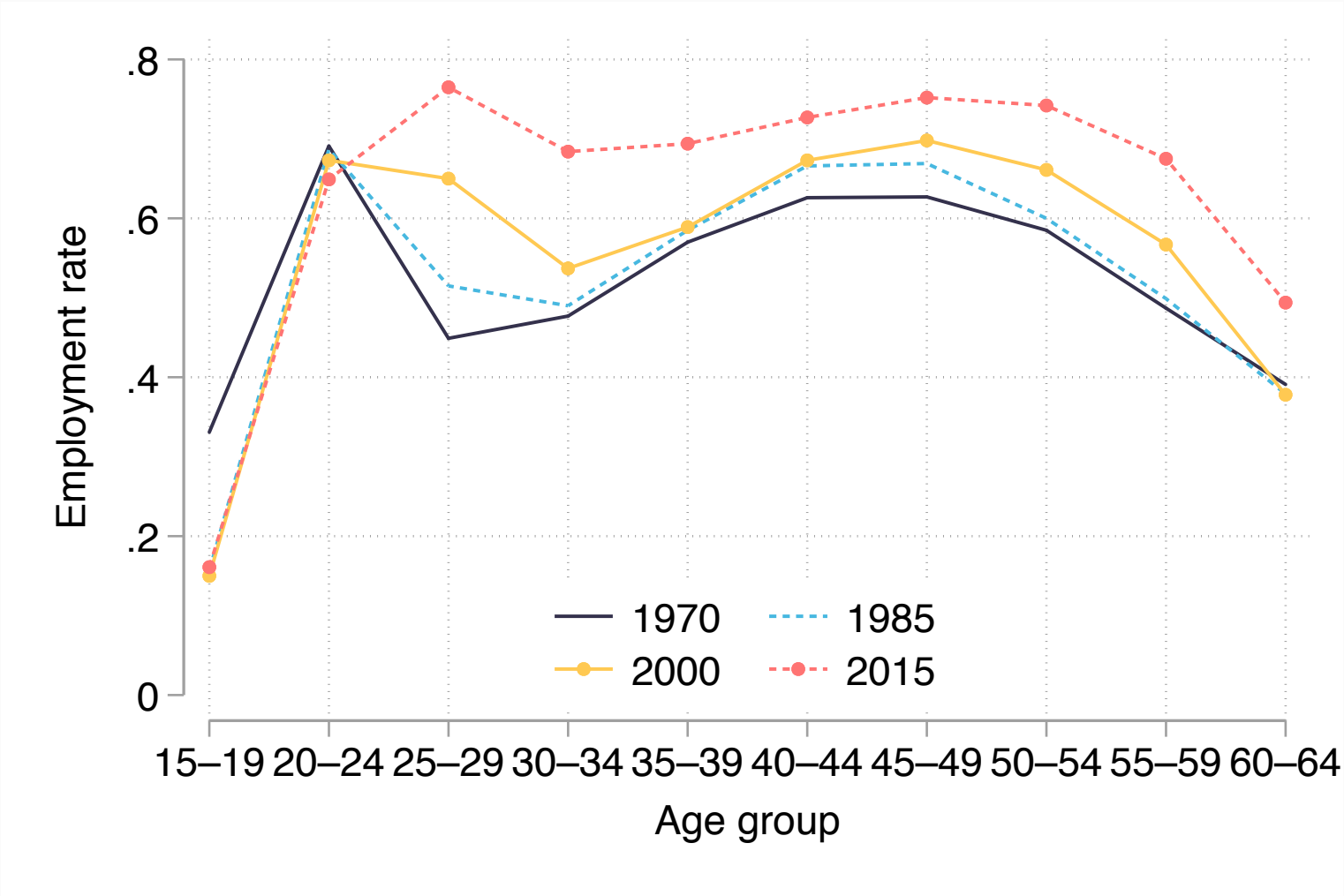

Figure 4: Increasing women's employment rate in Japan

Source: Labor Force Survey (Census Bureau).

Trend in mother's employment at first childbirth

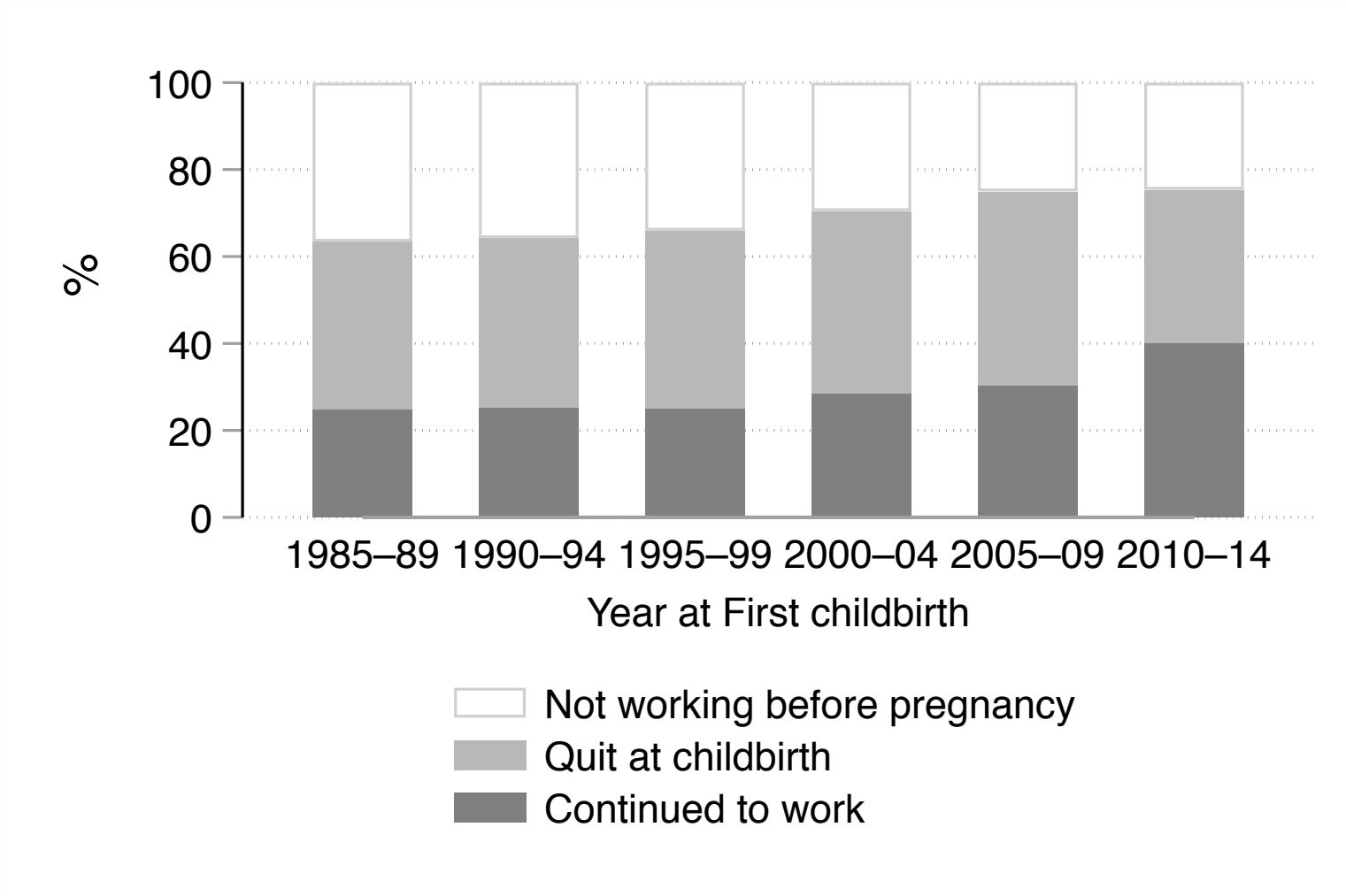

Figure 5: Stable trend in mother's employment at first childbirth

Source: National Fertility Survey (National Institute of Population and Social Security Research, 2017).
Note: Those who did not answer their employment status in either when they got pregnant or when they have a 1-year-old child (about 2–4 % in each year of birth) is excluded from the calculation.

Sample selection issue due to timing of childbirth

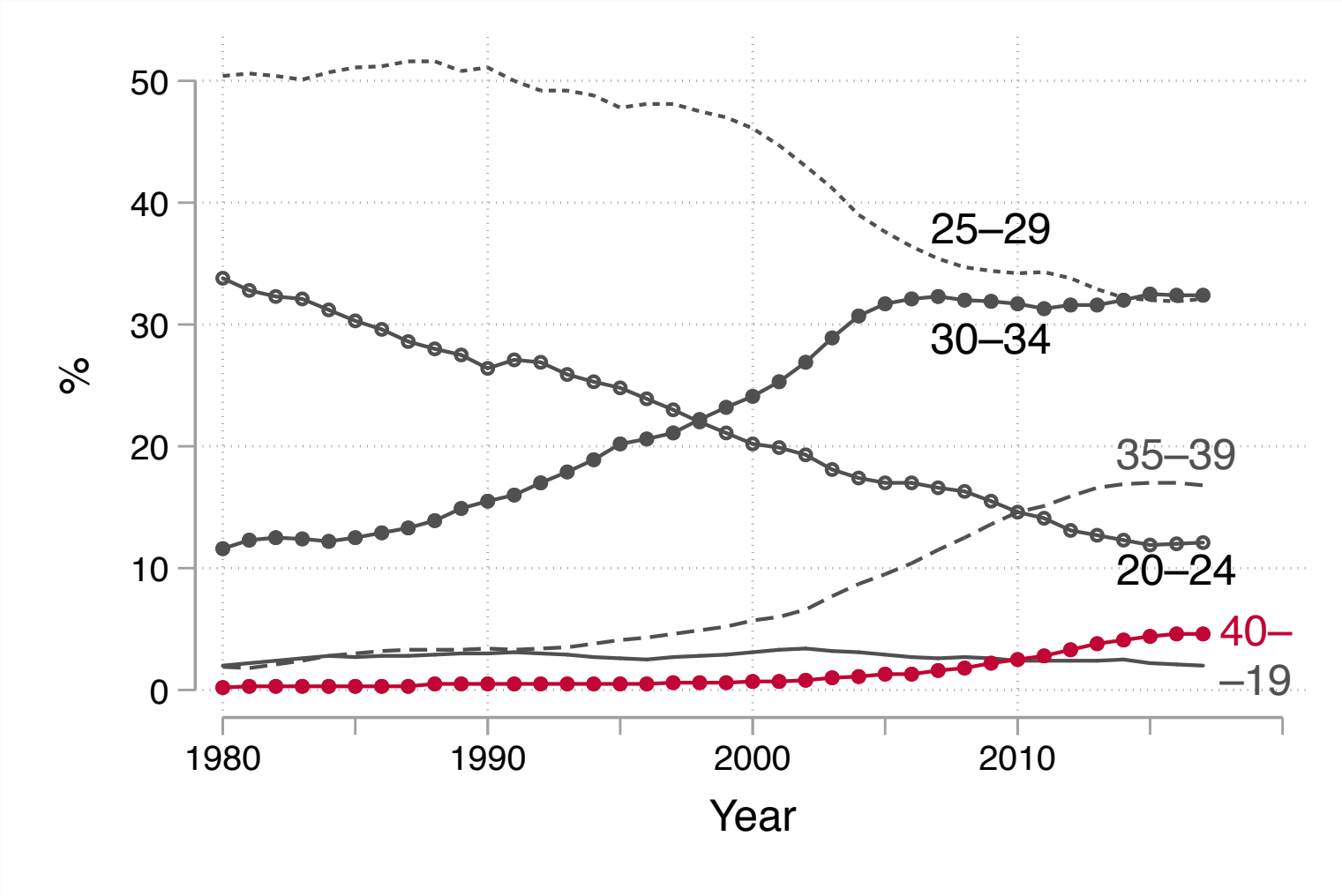

Figure 6: Trends in age distribution of mothers at first childbirth

Source: Vital Statistics (Ministry of Health, Labour and Welfare).

Limited opportunity for returned groups

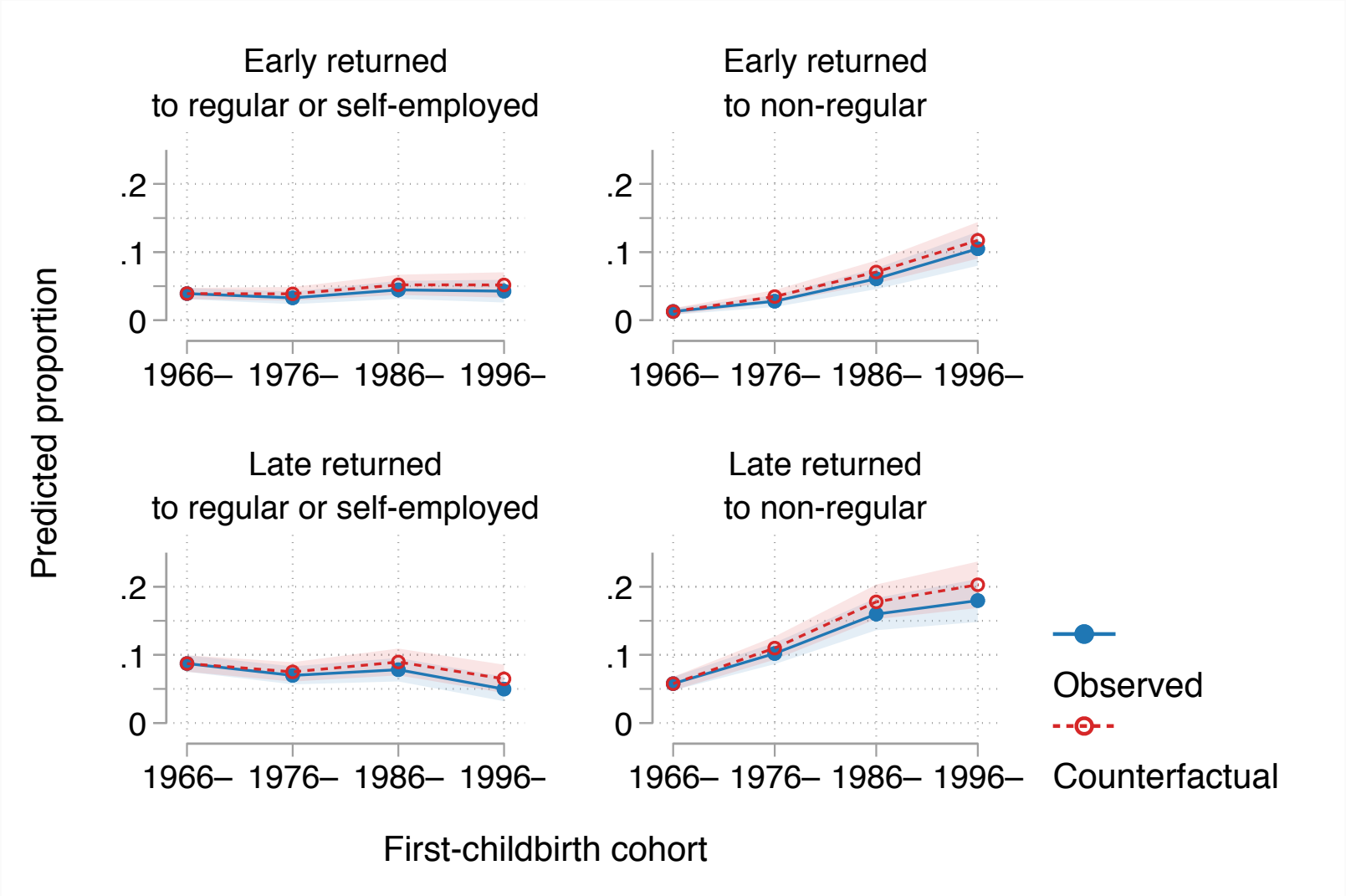

Figure 7: Observed and counterfactual trends for detailed returned groups if attributes are fixed at 1966–1975

References i

Becker, Gary S. 1993. *A Treatise on the Family: Enlarged Edition*. Cambridge, MA: Harvard University Press.

Blossfeld, Hans-Peter and Catherine Hakim. 1997. *Between Equalization and Marginalization: Women Working Part-time in Europe and the United States of America*. Oxford University Press.

Brinton, Mary C. 1993. *Women and the Economic Miracle: Gender and Work in Postwar Japan*. Berkeley: University of California Press.

Brinton, Mary C. and Sunhwa Lee. 2001. "Women's Education and the Labor Market in Japan and South Korea." In *Women's Working Lives in East Asia*, edited by Mary C. Brinton, pp. 125–150. Stanford University Press.

Brinton, Mary C. and Eunsil Oh. 2019. "Babies, Work, or Both? Highly Educated Women's Employment and Fertility." *American Journal of Sociology* 125:105–140.

Damaske, Sarah and Adrianne Frech. 2016. "Women's Work Pathways Across the Life Course." *Demography* 53:365–391.

England, Paula and George Farkas. 1986. *Households, Employment, and Gender: A Social, Economic, and Demographic View*. Aldine Transaction.

Fouarge, Didier, Anna Manzoni, Ruud Muffels, and Ruud Luijkx. 2010. "Childbirth and Cohort Effects on Mothers' Labour Supply: A Comparative Study Using Life History Data for Germany, the Netherlands and Great Britain." *Work, Employment and Society* 24:487–507.

Fuwa, Makiko. 2004. "Macro-level Gender Inequality in 22 Countries Division of Household Labor." *American Sociological Review* 69:751–767.

García-Manglano, Javier. 2015. "Opting Out and Leaning In: The Life Course Employment Profiles of Early Baby Boom Women in the United States." *Demography* 52:1961–1993.

Goldin, Claudia. 1990. *Understanding the Gender Gap: An Economic History of American Women*. New York: Oxford University Press.

Han, Shin-Kap and Phyllis Moen. 1999. "Clocking Out: Temporal Patterning of Retirement." *American Journal of Sociology* 105:191–236.

Hynes, Kathryn and Marin Clarkberg. 2005. "Women's Employment Patterns during Early Parenthood: A Group-Based Trajectory Analysis." *Journal of Marriage and Family* 67:222–239.

Joshi, Heather and P. R. Andrew Hinde. 1993. "Employment after Childbearing in Post-War Britain: Cohort-Study Evidence on Contrasts within and across Generations." *European Sociological Review* 9:203–227.

References ii

Killewald, Alexandra and Xiaolin Zhuo. 2019. "U.S. Mothers' Long-Term Employment Patterns." *Demography* 56:285–320.

Leibowitz, Arleen and Jacob Alex Klerman. 1995. "Explaining Changes in Married Mothers' Employment over Time." *Demography* 32:365–78.

Lim, So-Jung and James M. Raymo. 2014. "Nonstandard Work and Educational Differentials in Married Women's Employment in Japan." *International Journal of Sociology* 44:84–107.

Lu, Yao, Julia Shu Huah Wang, and Wen Jui Han. 2017. "Women's Short-Term Employment Trajectories Following Birth: Patterns, Determinants, and Variations by Race/Ethnicity and Nativity." *Demography* 54:93–118.

Mun, Eunmi and Mary C. Brinton. 2015. "Workplace Matters: The Use of Parental Leave Policy in Japan." *Work and Occupations* 42:335–369.

National Institute of Population and Social Security Research. 2017. *Marriage and Childbirth in Japan Today: The Fifteenth Japanese National Fertility Survey, 2015*.

Raymo, James M. and So-jung Lim. 2011. "A New Look at Married Women's Labor Force Transitions in Japan." *Social Science Research* 40:460–472.

Rexroat, Cynthia. 1992. "Changes in the Employment Continuity of Succeeding Cohorts of Young Women." *Work and Occupations* 19:18–34.

Smeaton, Deborah. 2006. "Work return rates after childbirth in the UK - Trends, determinants and implications: A comparison of cohorts born in 1958 and 1970." *Work, Employment and Society* 20:5–25.

Sørensen, Annemette. 1983. "Women's Employment Patterns After Marriage." *Journal of Marriage and Family* 45:311–321.

Sun, Shengwei and Feinian Chen. 2017. "Women's Employment Trajectories during Early Adulthood in Urban China: A Cohort Comparison." *Social Science Research* 68:43–58.

van der Lippe, Tanja and Liset van Dijk. 2002. "Comparative Research on Women's Employment." *Annual Review of Sociology* 28:221–241.

Waldfogel, Jane, Yoshio Higuchi, and Masahiro Abe. 1999. "Family Leave Policies and Women's Retention after Childbirth: Evidence from the United States, Britain, and Japan." *Journal of Population Economics* 12:523–545.

Williams, Sonya and Shin-Kap Han. 2003. "Career Clocks: Forked Roads." In *It's about Time: Couples and Careers*, edited by Phyllis Moen, pp. 80–97. Cornell University Press.

Yu, Wei Hsin. 2002. "Jobs for mothers: Married women's labor force reentry and part-time, temporary employment in Japan." *Sociological Forum* 17:493–523.

Yu, Wei Hsin. 2006. "National contexts and dynamics of married women's employment reentry: The cases of Japan and Taiwan." *Sociological Quarterly* 47:215–243.