

Long-term Trends in Employment Trajectories among Women around First Childbirth in Japan: Limited Role of Supply-side Change

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Introduction and Background

Although motherhood is still associated with the decline in women's employment, the employment rate for mothers has increased for several decades in most industrial societies (Rexroat 1992, Joshi 1993, Leibowitz 1995, Van de Lippe 2001, Percheski 2008, Fourage 2010).

The employment rate in Japan has also increased (Leveling M-shape curve), while there are strict gender inequality in the labor market

To solve seemingly conflicting trends, **it is necessary to identify mothers' employment patterns during childbearing and childrearing period and investigate the cause of its changes.**

Social and economic changes and women's employment pattern

Supply-side change: Educational upgrading, delayed childbirth, and decreasing number of children, which are known as the promoting factor on women's labor market attachment in Western societies (Rexroat 1992, Joshi 1993, Leibowitz 1995, Drobnic 2000, Smeaton 2006, Fourage 2010, Begall 2015).

Demand-side change: Enforcing Equal Employment Opportunity Law in 1986, economic stagnation since the later 1990.

Research Question

Analyzing employment patterns and its changes of distribution, we examine **how women's employment behavior has changed by supply-side changes over cohorts** under the gender-asymmetric society of Japan.

1. How are the employment trajectories of women around first childbirth in Japan summarized?
2. How did the distributions of the employment patterns change among women who gave birth in 1966–2005?
3. Do supply-side changes explain the changes in the composition of employment patterns over these periods?

Methods

Data: Social Stratification and Mobility (SSM) survey, 1985, 1995, 2005, and 2015.

Sample: Person-years of women who gave birth to their first child at age 18–45 in 1966–2005, from three years before first childbirth to ten years after. The sample size is 4,995 (N of individuals).

Statistical model: Group-based trajectory model (Nagin 2005), hereafter GTM.

- Observed trajectory at population is divided into trajectories of finite sub-groups.

$$P(Y_i) = \sum_{j=1}^J \left[\pi_j \prod_{t=1}^T p^j(y_{it}) \right]$$

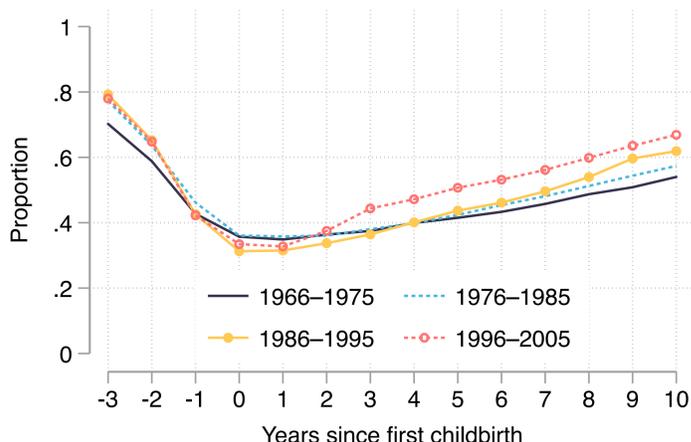
Probability of trajectory in total population = Sum of (size of group j * trajectory of group j)

- Trajectory shape in each group is predicted by following cubic order function.

$$\log \frac{p^j(y_{it} = 1)}{p^j(y_{it} = 0)} = \beta_0 + \beta_1 \text{Year}_{it} + \beta_2 \text{Year}_{it}^2 + \beta_3 \text{Year}_{it}^3$$

- Number of groups is decided considering BIC criterion, average posterior probability (APP), and substantive meaning.

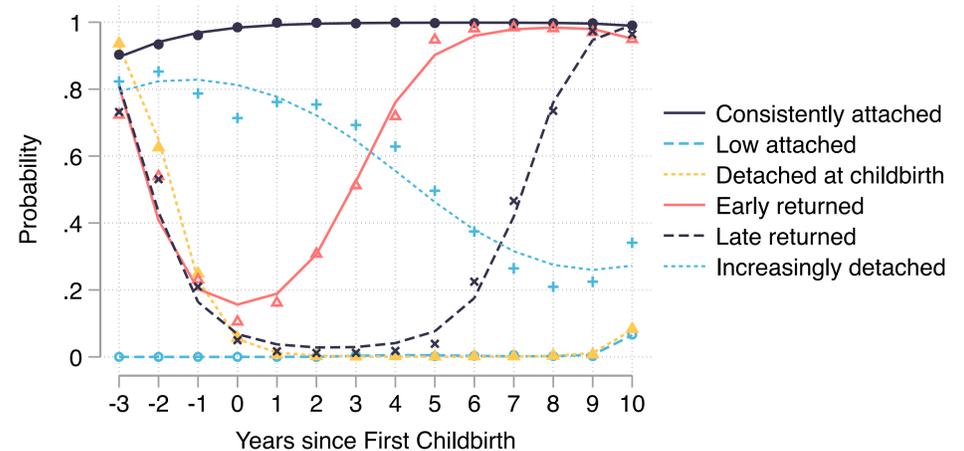
Employment Rate by Childbirth Cohort



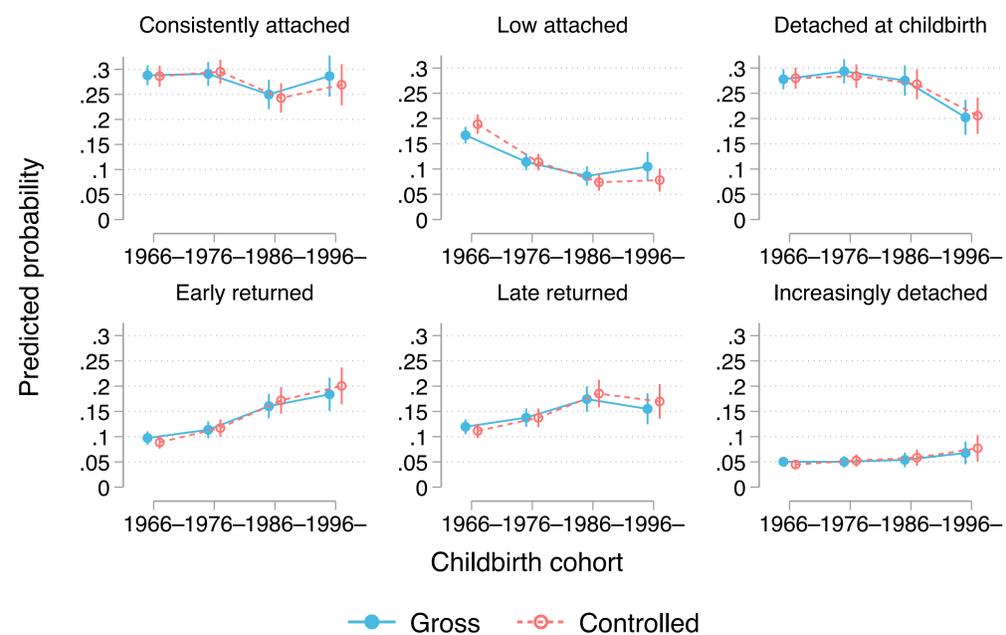
Compositional Change over Childbirth Cohort

	1966–1975	1976–1985	1986–1995	1996–2005	Total
Years at work (0–14)	6.40	6.72	6.75	7.31	6.66
Educational attainment					
Middle school	0.28	0.10	0.03	0.03	0.16
High school	0.53	0.54	0.49	0.41	0.51
Vocational school	0.09	0.13	0.17	0.18	0.13
Junior college	0.06	0.14	0.19	0.20	0.12
University or more	0.04	0.09	0.13	0.18	0.08
Age at first childbirth	25.31	26.29	27.10	28.08	26.23
Number of children born for 10 years since the first childbirth					
1 child	0.13	0.13	0.21	0.24	0.16
2 children	0.60	0.58	0.48	0.54	0.57
3 or more children	0.27	0.29	0.31	0.22	0.28
Survey year					
1985	0.15	0.00	0.00	0.00	0.06
1995	0.16	0.17	0.00	0.00	0.12
2005	0.34	0.40	0.46	0.00	0.34
2015	0.35	0.43	0.54	1.00	0.48
N	2096	1436	895	568	4995

Identifying Employment Patterns Using GTM



Predicted Trends in Employment Patterns



Note: "Gross" indicates the predicted probabilities of each employment patterns estimated by multinomial logit model controlling survey years. "Controlled" indicates the predicted probabilities controlling respondents' educational attainment, respondents' age at first childbirth and its square, number of children born for ten years since the first childbirth, and survey years.

Conclusion

1. Women's employment trajectories around first childbirth could be summarized by six distinguished patterns.
2. The proportion of patterns returning to the labor market is increasing, although the proportion of continuing to work is stable over cohort.
3. These trends can hardly be explained away by the supply-side change in women's attributes. Demand-side changes would induce (and suppress) women's employment behavior in Japan (Brinton 2001).

Contribution

Using individual-level data, we directly demonstrated that supply-side changes cannot explain changes in mothers' employment behavior at all in the strict gender-unequal societies.