Policy or Male Involvement?  
Revisiting Female Employment and Marital Fertility in Japan

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Gender equity and fertility: Cross-country evidence

The gap between high levels of gender equity (GE) in public spheres and low levels of GE in family life may explain cross-country differences in low fertility (McDonald 2000).

Men’s share in HW/CC * TFR

GGG * TFR increase by HDI

Feyrer et al. (2008)

Myrskylä et al. (2013)
Gender equity and fertility: Theoretical inference

Fertility levels can change in response to the degrees of female revolution within one country (or one society) (Esping-Andersen and Billari 2015)

+ men’s increasing involvement in the family as the necessary condition for the second stage of the gender revolution where we expects fertility upturn (Goldscheider et al. 2015)
However, we lack empirical evidence on

- Whether improving gender really leads to higher fertility?
- Is the theoretical inference valid in non-western context?
Japan as an interesting case

1. Non-western advanced country

2. No empirical evidence on the topic yet

3. Relatively rapid changes in policy, gender norms and female employment in recent years

4. Ideal data to examine how the changes in gender situation affects marital fertility
Relevant policy reforms since 2000

• Equal Employment Opportunity law

• Paid parental leave / family care leave / flexible work hours

• Increasing state-subsidized childcare & enlarging its coverage

• Increase in the amount and duration of child allowances (2010)

• free tuitions for public schools until high school (2010)

• free charge for medical treatments for children up to 15 years old (2005-) * The details differ by municipalities
Research question

“How the shift in gender contexts affects decisions to have an additional child among married couples in Japan?”

• **Focus:** *Period changes* in the correlates of Parity Progression to the 2\(^{nd}\) and 3\(^{rd}\) births,

particularly, how *wife’s employment status* interacts with

  1. *husband’s participations in domestic work* (housework & childcare)
  2. *policy variables* (parental leave & (in)formal childcare)
Data

Longitudinal Survey of Newborns in the 21st Century (LSN21): The 2001 cohort and the 2010 cohort

- Sample: Households with all the babies born in the specific two weeks in 2001 and 2010 in Japan (linked from vital statistics)
- Conducted by Ministry of Health, Labour and Welfare
How PPR and correlates of PPR changed between the two cohorts?
Analytical sample

Sample size

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parity 1</td>
<td>21,934</td>
<td>17,210</td>
</tr>
<tr>
<td>Parity 2</td>
<td>16,579</td>
<td>13,917</td>
</tr>
</tbody>
</table>

1) Japanese married couples
2) First/second child is the subject of the survey
3) Both parents were living together with the subject baby at wave 1
4) Censoring at divorce/widowhood, attrition or having no additional birth at wave 6
Measurement of domestic work involvement

• A simple sum of the 6 items for CC and HW measured at wave1 (when the subject baby was 6 months old)
  ① Childcare score (0-18) for husband and wife
  ② Housework score (0-18) for husband and wife

• Potential problems of the measure
  1) Assigned by wife
  2) Selection of time point
PPR in the 2001 and 2010 cohorts

PPR by waves

PPR within 5.5 years (up to the 6th wave)*

<table>
<thead>
<tr>
<th></th>
<th>Parity 1 -&gt; 2</th>
<th>Parity 2 -&gt; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 cohort</td>
<td>0.72</td>
<td>0.25</td>
</tr>
<tr>
<td>2010 cohort</td>
<td>0.69</td>
<td>0.27</td>
</tr>
</tbody>
</table>

*: Excluding censoring cases.
## Sample characteristics (in the risk set of both P1 and P2)

### Wives' employment status by wave

<table>
<thead>
<tr>
<th>Year</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>49.9</td>
<td>25.7</td>
<td>15.6</td>
</tr>
<tr>
<td></td>
<td>44.1</td>
<td>19.9</td>
<td>16.1</td>
</tr>
<tr>
<td></td>
<td>27.5</td>
<td>8.3</td>
<td>15.0</td>
</tr>
<tr>
<td></td>
<td>30.0</td>
<td>9.3</td>
<td>15.3</td>
</tr>
<tr>
<td></td>
<td>24.1</td>
<td>3.5</td>
<td>16.0</td>
</tr>
</tbody>
</table>

### Childcare Usage

<table>
<thead>
<tr>
<th>Year</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>3.7</td>
<td>17.8</td>
<td>51.6</td>
</tr>
<tr>
<td></td>
<td>50.8</td>
<td>26.3</td>
<td>15.0</td>
</tr>
</tbody>
</table>

### Parental leave: Women (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>H-cc</th>
<th>W-cc</th>
<th>H-hw</th>
<th>W-hw</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>23.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>42.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Housework and childcare score at wave 1

<table>
<thead>
<tr>
<th>Year</th>
<th>H-cc</th>
<th>W-cc</th>
<th>H-hw</th>
<th>W-hw</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>1.0</td>
<td>17.1</td>
<td>17.3</td>
<td>16.7</td>
</tr>
<tr>
<td>2010</td>
<td>1.0</td>
<td>17.3</td>
<td>17.2</td>
<td>16.4</td>
</tr>
</tbody>
</table>

### Child's age (in year)

<table>
<thead>
<tr>
<th>Year</th>
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<th>Part-time</th>
<th>Others</th>
</tr>
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<tr>
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<td>19.9</td>
<td>16.1</td>
</tr>
<tr>
<td></td>
<td>27.5</td>
<td>8.3</td>
<td>15.0</td>
</tr>
<tr>
<td></td>
<td>30.0</td>
<td>9.3</td>
<td>15.3</td>
</tr>
<tr>
<td></td>
<td>24.1</td>
<td>3.5</td>
<td>16.0</td>
</tr>
</tbody>
</table>

<table>
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<tr>
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<th>Part-time</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
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<td>35.1</td>
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</tr>
<tr>
<td></td>
<td>48.1</td>
<td>52.9</td>
<td>30.3</td>
</tr>
<tr>
<td></td>
<td>52.9</td>
<td>61.0</td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td>19.9</td>
<td>25.7</td>
<td>51.6</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Year</th>
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<tr>
<td></td>
<td>52.9</td>
<td>61.0</td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td>19.9</td>
<td>25.7</td>
<td>51.6</td>
</tr>
</tbody>
</table>
Results – Model 3

• How policy intermediates the effects of wife’s employment status on 2\textsuperscript{nd} birth?

\[\text{2nd birth hazard ratios of wives in 2001 and 2010: full-time work vs no-work}\]

-> The same but stronger effects of the use of CC on the 3\textsuperscript{rd} birth
Results – Model 1

- How husband’s domestic work involvement relates to the 2nd and 3rd births
Results – Model 2

• How the effects of husband’s involvement differ by wife’s employment status: **2nd birth**

The positive effect in W's other type of employment disappeared.

No statistically significant period change
Results – Model 2

- How the effects of husband’s involvement differ by wife’s employment status: **3rd birth**
Conclusion -1-

✓ Japan may be completing the first half of the gender revolution

1. Clear period changes in the association of female employment and additional birth

   - Parental leave and childcare mitigate/turn over negative effects of female employment on marital fertility

   - Availability of childcare becomes more important for hazard of additional birth in the 2010s, particularly for full-time employed wives and on the 3rd birth
2. No clear period change in husband’s participation

- H’s participation in childcare has a moderate positive effects on HR of additional births (more so for the 3rd birth)

- H’s participation in housework has negative effects when wife stays at home (2nd birth in the 2001 & 2010) or self-employed (3rd birth in the 2001).

- In the 2010 cohort, the effects of H’s participation in housework turn to be positive on the 3rd birth when wife works full-time or self-employed.

=> Onset of the 2nd half of the Gender revolution?
Gender equity and fertility: Where is Japan?

Source: Esping-Andersen and Billari (2015)
Thank you!

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New gender/family policies in “Abenomics”

“Our goal in Japan is to boost women in the workforce significantly by 2020 and reduce pay disparity.” (Abe 2013)

By 2020,
1) Raise the female employment rate (age 25-44) to 73% (from 68% in 2012), ⇒ 74.3% in 2017!
2) Increase the share of women in leadership positions to 30%.
Measurement of domestic work involvement

- Questionnaire

I’d like to ask you how you’re sharing childcare and housework. Please circle the number of each item which applies to you.

<table>
<thead>
<tr>
<th></th>
<th>Mother</th>
<th>Father</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>Rarely</td>
</tr>
<tr>
<td><strong>Childcare</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) feeding</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2) changing a diaper</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3) bathing</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4) bedding</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5) nursing and playing</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6) taking outside for a walk</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td><strong>Housework</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) cooking</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2) doing dishes</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3) cleaning rooms</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4) washing clothes</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5) taking out garbage</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6) shopping daily goods</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
Model

- Discrete-time hazard model with complementary log-log link
- Event: 2nd/3rd birth (single event)
- Time unit: month
- Parity-specific analysis
Modeling strategy

• Full interactions with the baby cohort (2001 vs 2010)

M1: Full interaction model of all covariates and baby cohort

M2: M1 + (W’s emp * H’s CC/HW * baby cohort)

M3: M1 + (W’s emp * policy variables * baby cohort)

↓

1. Wife’s uptake of parental leave
2. (in)formal childcare usage at child’s age under 3
Covariates

1. Gender role
   wife’s and husband’s employment statuses, 
couple’s involvement in housework and childcare activities

2. Policy variables
   wife’s use of parental leave, use of childcare at child’s age under 3

3. Mother’s psychological variables
   anxiety and feelings of burden over child rearing

4. Characteristics of the previous child(ren)
   sex, premature birth, premarital pregnancy

5. Household and demographic characteristics
   wife’s education, educational pairing with husband, wife’s age at previous birth, 
coresidence with grandparents, region of residence, size of municipality
Results – Model 2

- Husband’s involvement by wife’s employment status: 3rd birth

The negative effect in W's other type of employment turn to be positive.
Gender equality in Japan -1-

• Dual-earner HHs exceeded single-earner HHs

Figure 1 Number of male-breadwinner households and dual-earner households

Source: Statistics Bureau (each year), “Labour Force Survey”
Gender equality in Japan -2-

Mothers who continue employment after first birth increased in 2001-2010

Gender equality in Japan -3-

• Men’s domestic work participation: low but increasing

International Comparison of Men’s hours spent for household tasks: a dual-earner married couple with pre-school child(ren)

Men and Women’s hours spent for household tasks in 2001 & 2011 Japan: a dual-earner married couple

Statistics Bureau Japan (2011) "Survey on Time Use and Leisure Activities"
Gender equality in Japan -4-

• Life course expectations shift to favor dual-earner family for both men and women

Single men’s expectations for women’s (wife’s) life course: 1987-2010

Single women’s planned life course: 1987-2010

Sample characteristics

Household Income

Income share of H & W in HH income

2001 vs 2010
Attrition rates

- 2001 < 2010
- Non-Tohoku < Tohoku (Iwate, Miyagi and Fukushima)
- Tohoku-2010 at wave 2 (Earthquake year) has the highest attrition rate, but with a relatively minor impact (only +1.5% points from Non-Tohoku-2010)
Results 1-1

• Policy variables: Wife’s parental leave (PL)

* No interaction effects with wife’s current employment status.
Results 1-2

• Policy Variables: Childcare use at child’s age under 3 (CC)

2nd birth hazard ratio: childcare use U3

3rd birth hazard ratio: childcare use U3