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Session 4.3 - Japanese Panel Data 4:
Panel Survey of Consumers and the 21st Century Panel Data Survey

Gender Equality and Transition to the Second Birth in Japan

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Introduction -1-

- How gender equality relates to fertility?
 - > Growing concern for population scholars and policy makers in developed countries
- Achieving high degree of gender equality
 - > Efficient use of female labor force is mandatory to respond to the pressure of shrinking working-age population.
 - > An Important policy goal to mitigate work-family conflict.
 - > Contributing to increase individuals' well-being & fertility?



Introduction -2-

- JAPAN

-> A country with the highest socioeconomic development and the least gender equality

HDI: 12th / 187 countries, GGG: 98th / 135 countries

(in 2011)

-> How gender equality “at home” relates to fertility?

very limited findings in Japan!



Introduction -3-

- In this study
 - > Using the largest panel data in Japan and examine the correlates of the second birth by focusing on
 - 1) both wife's and husband's participations in domestic work (housework & childcare), and
 - 2) how effects of 1) differ by wife's employment status.
 - > Examining a direct linkage between couples' gender relations (both at work and at home) and additional fertility in Japan.



Theory -1-

- Gender equality in the theory of fertility decline
 - > McDonald's (2000) paper pointed out that ... decline to very low fertility is associated with the gap between high levels of GE in education/labor market and low levels of GE in family life
 - > Some empirical support from cross-country study (Myrskylä, Kohler and Billari 2013)



Theory -2-

- Men's gender attitude and fertility in relation to social role expectation
 - > Some supports for men's gender egalitarian attitudes and higher fertility desire / outcomes in Europe (Puur et al. 2008, Miettinen et al. 2011)
 - > Do "balanced gender equalities" lead to fertility upturn?
(or just country-specific results?)



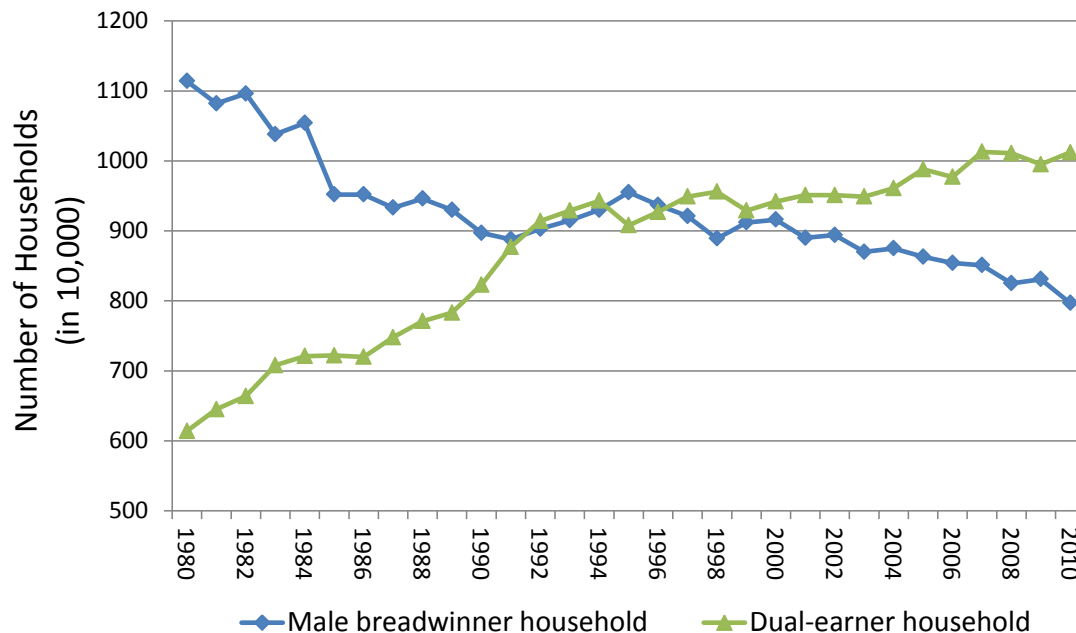
Demographic Background

- Below replacement level fertility since 1974
- The major cause: marriage postponement
- More recent cause: marital fertility decline
-> 2nd birth becomes more selective event than before.

Gender Equality in Japan -1-

- In transition?

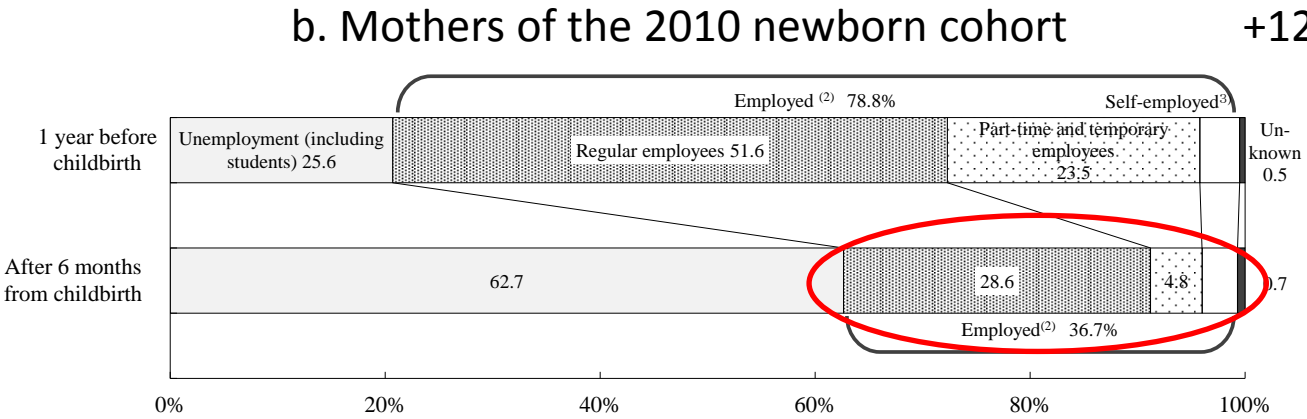
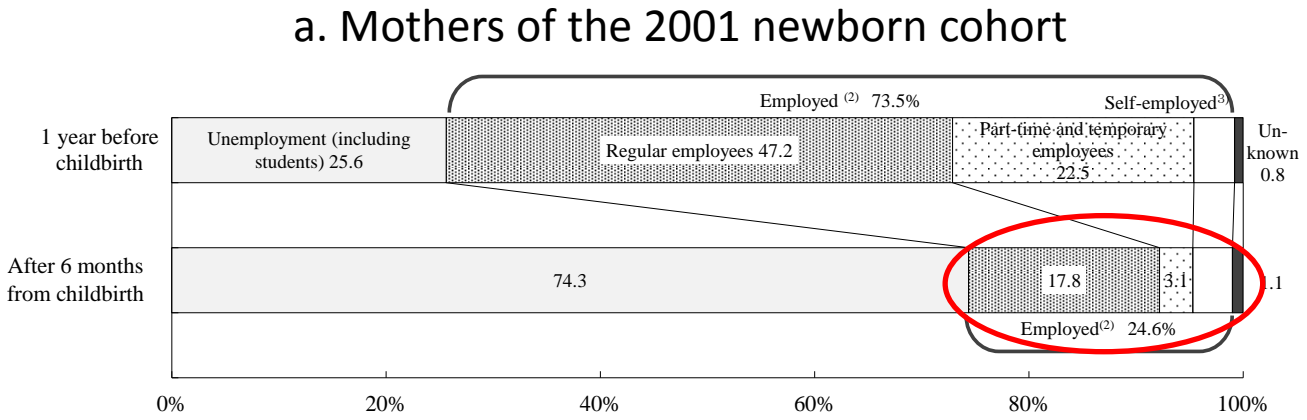
Figure 1 Number of male-breadwinner households and dual-earner households



Source: Statistics Bureau (each year), "Labour Force Survey"

Gender Equality in Japan -2-

Figure 2 Women's employment status changes over first birth in 2001 and 2010



+12% points

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



Gender Equality in Japan -3-

- Policy introductions since 2000
 - > Gradual expansion of childcare leave
 - > “Iku-men” project
- Still very low levels of men’s childcare participation
 - > less than 1 hour of domestic work per day
 - > men’s childcare leave 1.89% in 2012



Data

- Longitudinal Survey of Newborns in the 21st Century (LSN21)
 - > conducted by Ministry of Health, Labour and Welfare since 2001
 - > following all babies born in 2 weeks in January and July in 2001
 - > 1st wave valid respondents 47,015 / 53,575 (88%)
- Largest and highest quality panel data in Japan



Measurement of Domestic Work Participation

- Measured at 1st – 3rd waves
- Measured for both wife and husband
- Housework 6 items
- Childcare 3 items
- Each item is scaled from 0 (Not at all) to 3 (always)
- Questionnaire is assigned by wife



Measurement of Domestic Work Participation

• 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.

	Mother				Father			
	Not at all	Rarely	Sometimes	Always	Not at all	Rarely	Sometimes	Always
Childcare								
1) feeding	1	2	3	4	1	2	3	4
2) changing a diaper	1	2	3	4	1	2	3	4
3) bathing	1	2	3	4	1	2	3	4
4) bedding	1	2	3	4	1	2	3	4
5) nursing and playing	1	2	3	4	1	2	3	4
6) taking outside for a walk	1	2	3	4	1	2	3	4
Housework								
1) cooking	1	2	3	4	1	2	3	4
2) doing dishes	1	2	3	4	1	2	3	4
3) cleaning rooms	1	2	3	4	1	2	3	4
4) washing clothes	1	2	3	4	1	2	3	4
5) taking out garbage	1	2	3	4	1	2	3	4
6) shopping daily goods	1	2	3	4	1	2	3	4



Construction of the Measure

- Potential problems of the measure
 - 1) Subjective measure
 - 2) Selection of time point
 - 3) Considerable within-individual variations
- > The best solution is to use full information, while controlling for wife's evaluation tendency and within-individual variations.



Construction of the Domestic Work Measurement

- Our solution

Step 1: principal component analysis (PCA) for both W's and H's HW items and CC items using pooled data

e.g. ①PCA for H's HW items, ②PCA for H's CC items
③PCA for W's HW items, ④PCA for W's CC items

-> Save PCA scores

Step 2: Fixed-effect model on each PCA score

-> Save individual fixed-effects of each PCA score

-> **our measure of domestic work participation**



Analytical Sample

- 1) Japanese married couples
- 2) First child is the subject to the survey
- 3) First birth was single birth
- 4) Both parents were living together with the first baby through 1st to 3rd wave
- 5) Mother filled in the questionnaire through 1st to 3rd wave

-> 10,808 couples are subject for the analysis



Model -1-

- Discrete-time hazard model with complementary log-log link

$$\ln[-\ln(1-P_t)] = a_t + b_1 X_1 + b_2 X_2(t) + \dots + b_k X_k(t)$$

P_t : hazard probability, a_t : baseline hazard function, b_k : coefficient of X_k



Model -2-

- Covariates

wife's and husband's employment statuses, couple's participations in housework and childcare activities,
wife's anxiety and feelings of burden over child rearing,
first child characteristics (sex, birth month, premature, premarital pregnancy), other household and demographic characteristics (wife's education, coresidence with grandparents, wife's age at first birth, region of residence and size of municipality)

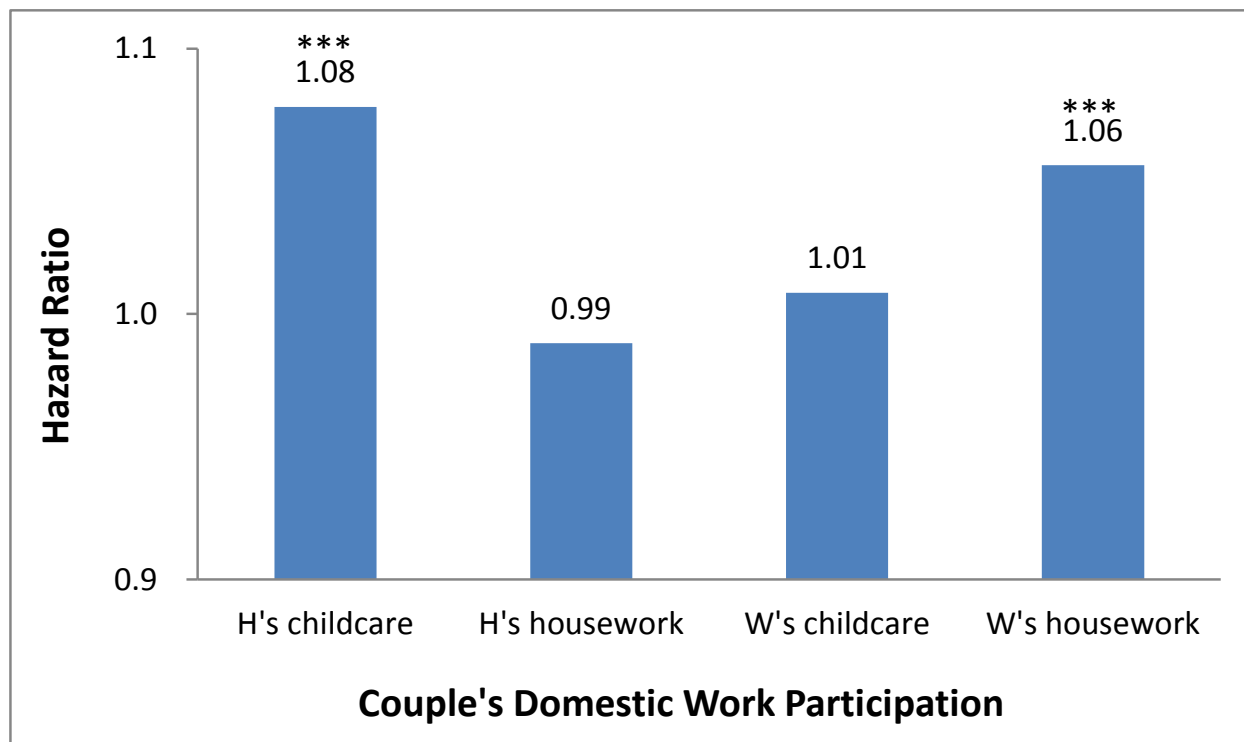


Modeling Strategy

1. Interaction models: employment status at each wave
w's emp * (w's HW, w's CC, h's HW or h's CC)
-> One interaction effect is examined in one model
2. Dual-earner couples VS Male-bread winner couples
: w's employment status at wave1 (6m after 1st birth)
-> Analytical sample is divided into 2 groups
 - 1) Wife is full-time employee at wave 1
 - 2) Wife is not working at wave 1
-> Examine how main effects differ

Results -1-

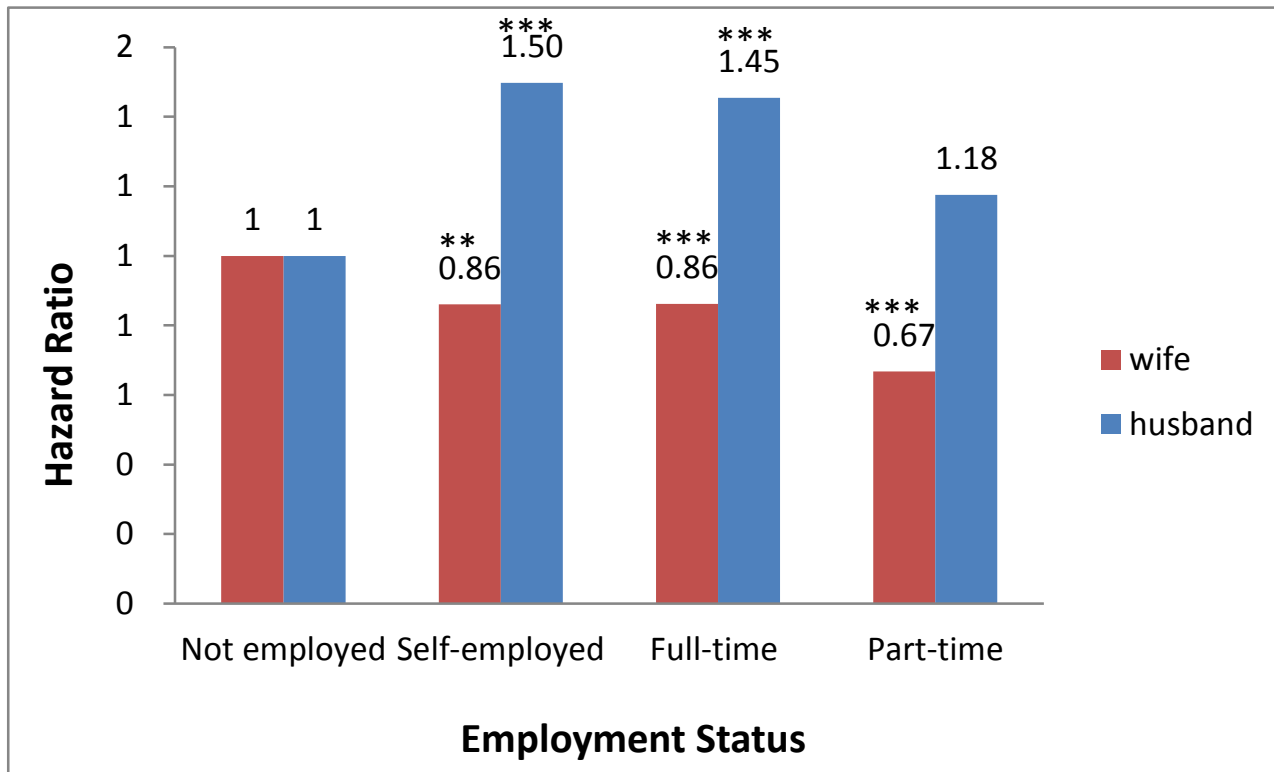
- Main Effects of Domestic Work Participation



*: $p < .10$, **: $p < .05$, ***: $p < .01$

Results -2-

- Main Effects of Employment



*: $p < .10$, **: $p < .05$, ***: $p < .01$



Results -3-

- Interaction Effects

By one unit increase in h's or w's housework, 2nd birth hazard increases up to

1) w self-employed * h's housework: +22.5%

2) w full-time * w's housework: -1.2%

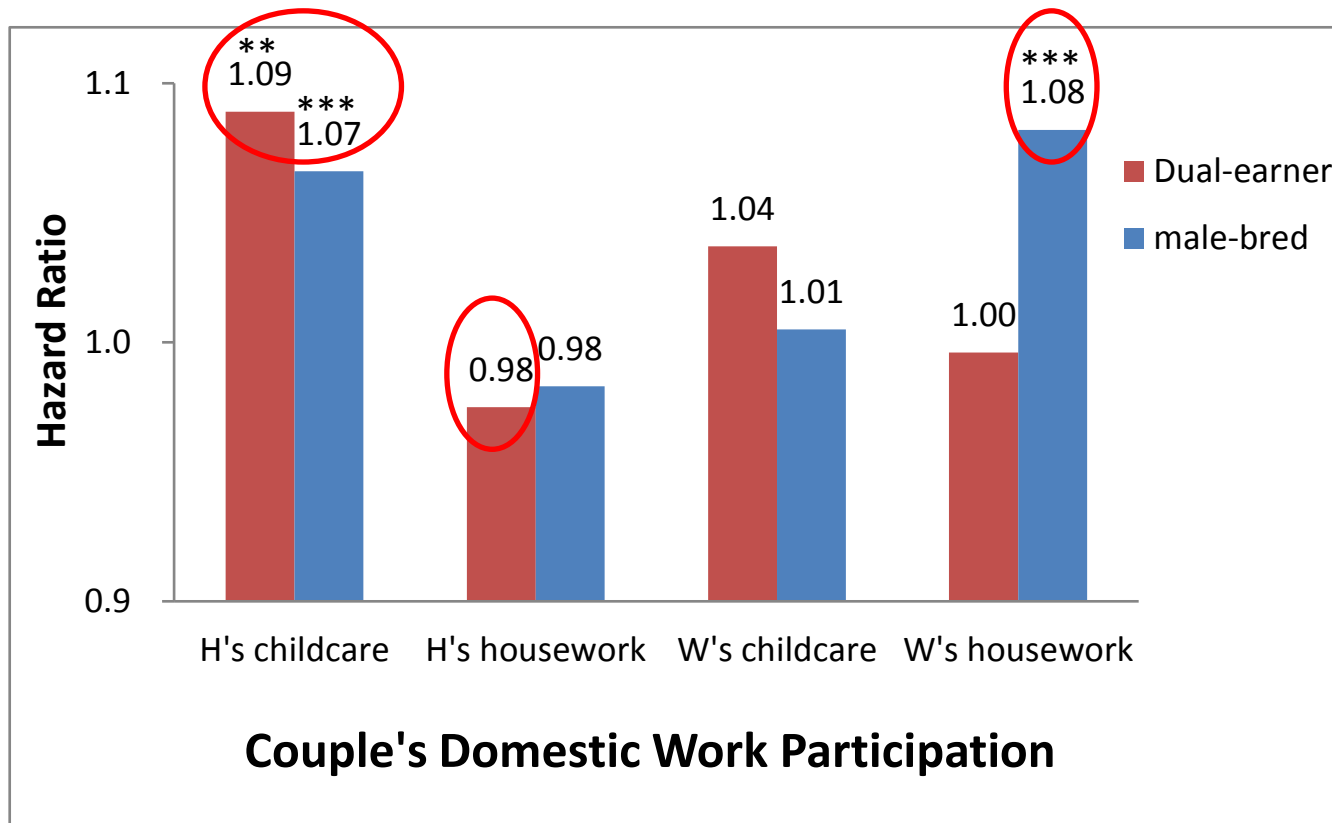


Summary -1-

- Second birth hazard is the highest among the couples with traditional gender role division where a husband works outside and a wife stays at home.
-> consistent with Finnish study (Miettinen et al. 2011)
- Husband's greater participation in childcare can increase 2nd birth hazard irrespective of wife's employment status.
- Wife's heavy "second shift" reduces fertility.
- Fertility of self-employed couples increases as gender equality becomes high?

Results -4-

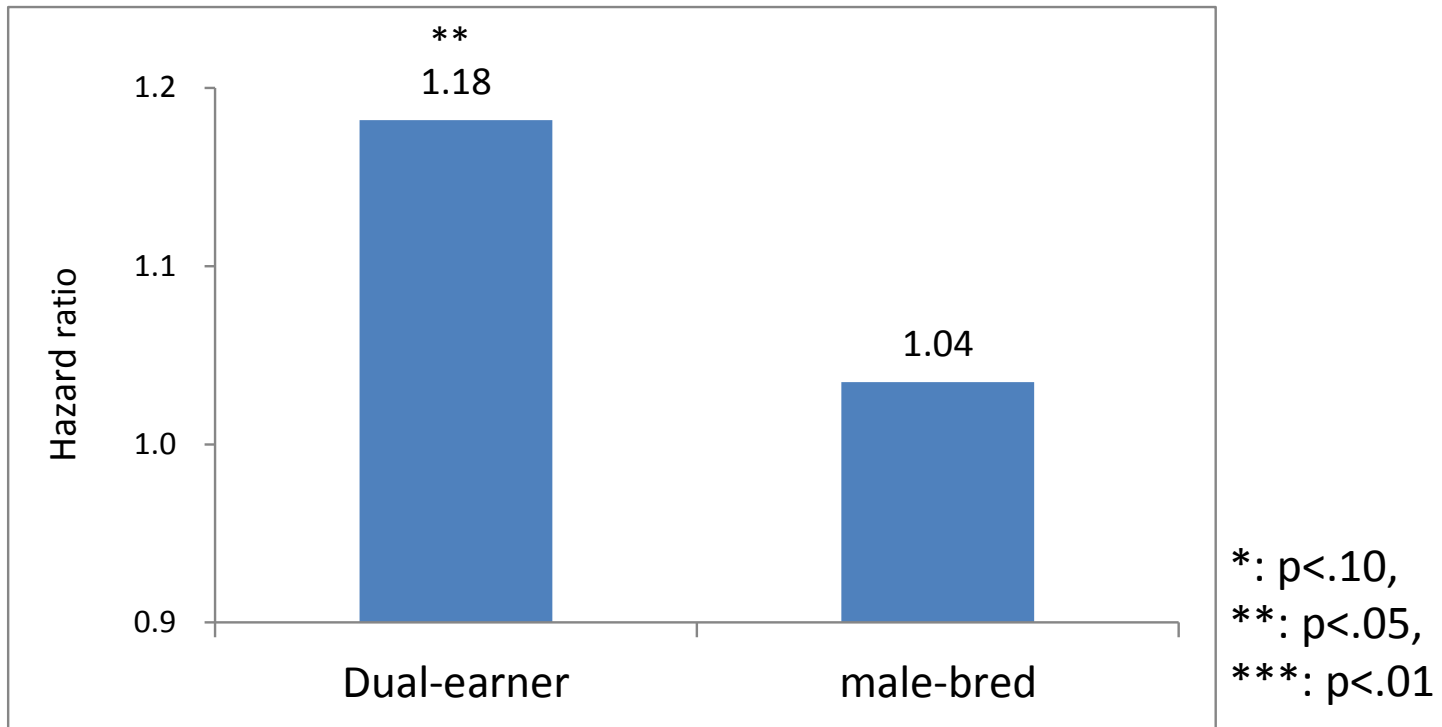
- Dual-earner couples vs Male-breadwinner couples



*: $p < .10$, **: $p < .05$, ***: $p < .01$

Results -5-

- Coresidence with grandparent(s)



-> Is wife's double burden mitigated by couple's parent(s)?



Results -6-

- Other findings
 - h's employment status matters only among housewives.
 - Psychological factors are more important factors for 2nd birth of housewives.
 - Sex of the first child matters only among full-time employed wives.
 - Full-time employed wives in Kyushu and Okinawa show higher fertility than other areas.



Summary -2-

- Full-time wives' "second shift" is not mitigated by husbands's help, but possibly mitigated by parent(s)'s.
- Husbands' participations in childcare increase 2nd birth hazard in both groups (again).
- Decisions/determinants of the second childbirth are quite different between dual-earner families and male-breadwinner families.
- Unobserved work- and family environments in Kyushu and Okinawa may be a key to increase fertility of full-time working wives.



Discussions

- Negative effects of wife's employment:
 - > Further policy measures are necessary to reduce women's worker-mother conflicts.
 - > Analysis is based on early 2000s period. Is the situation different around 2010?
- Husband's participations in childcare seem to be a norm in today's Japan. Facilitating men's greater participation in childcare may increase a chance of additional birth.
- Characteristics of self-employed couples or Kyushu/Okinawa region, e.g. flexible work arrangement, proximity of home and workplace may contribute to a positive link between gender equality at home and fertility.