

Interdependencies between Women's Employment, Coresidence with Parents and Childbirth in Post-war Japan

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1. Introduction

This study examines interdependencies between wife's employment, coresidence with parents and childbearing in post-war Japan. The fertility change from the late 1950s to 2001 is analyzed by employing simultaneous hazard models to the data from a nationally representative sample of Japanese women. The aim of this study is 1) to identify the degree and direction of correlations between the processes of event occurrences and 2) to investigate the causal effects of wife's employment and coresidence with parents on first, second and third birth intensities by controlling for endogeneities between the events. The results are relevant to issues of 1) the traditional economic theory of female labor force participation and fertility, 2) the importance of kinship in a context of scarce childcare supports both in public and private domains and 3) the rationale behind intergenerational coresidence in modern Japanese society.

2. Background

In Japan where almost all births take place within marriages, fertility decline in the past few decades has been mainly associated with the increasing proportion of unmarried women of reproductive age. Slowing parity progressions among married couples, however, has become an important cause of the recent fertility decline in Japan. In a context of sustained economic uncertainty since the 1990s, young people tend not only to delay marriage but also to postpone parenthood. Therefore, it is important to investigate the causes of parity transitions as well as of marriage postponement to explain low fertility in contemporary Japan.

In Japan where public support for childrearing is scarce and traditional division of labor in domestic work remains relatively strong, incompatibility in women's career and childrearing is important in explaining the slowing parity transitions. Theories suggest that childrearing incurs opportunity cost in a form of foregone income for employed women (Becker 1993). The amount of foregone income caused by childrearing is tremendous in Japan (Cabinet Office 2001). Based on calculations from the "Basic Survey on Wage Structure", a woman who graduated from two-years college and started a fulltime job at age 20 can earn a lifetime wage of 186 million yen lower by age 60 (about 1.7 million U.S. dollar using the exchange rate in September 2008) if they quit fulltime employment at age 27 for childbearing and return to a part-time job at age 33 (Cabinet Office 2001).

Furthermore, career-oriented women typically face stronger incompatibility of the roles of mother

and worker due to the institutional settings of Japanese families. Both hardly assured women's maternity leave and a lack of public childcare facilities for working mothers make it difficult for women to pursue their career paths while raising children. Also the tax policy in Japan provides a strong incentive to married women to work part-time and limit earnings in order to keep dependent status. In line with these situations, studies on marriage found that women's higher earnings potential conflicts with family formation in Japan (Tsuya and Mason 1995, Ono 2003, Raymo 2003, Raymo & Iwasawa 2005).

However, the changes in fertility behavior have been relatively slow, at least among married women. Total marital fertility rate has been stable around 2.2 between the 1960s and the 1980s, whereas women's socio-economic status has already been rising at the same period. Young couples who decide to marry have highly valued having children and forming own families whatever the price of foregone income was huge. The fact suggests that foregone income and childbirth are not simply comparable among married women in Japan. Also as M-shaped patterns of the age-specific female labor force participation rates suggest, Japanese women sequentially combine their work and childbearing rather than simultaneously, thereby reducing the role incompatibility. Therefore, the relationship between women's socio-economic roles and fertility, especially marital fertility, is not straightforward as the traditional economic theory suggests.

3. Literature Review

In fact, empirical studies found that women's tertiary education delay the tempo of the first birth. It affects, however, neither the probability of first birth nor the tempo and quantum of second birth (Ōtani 1993, Sasai 1998, Fukuda 2005, Fukuda 2007). The effect of education on third birth is, however, inconsistent across studies. Furthermore, previous studies generally found a negative impact of wives' employment on risks of birth. Ōtani (1989) found that women's employment negatively affects risks of first, second and third conception. Sasai (1998) also found the negative effects of employment in the analysis of first and second but not third birth intensities. Other studies include covariates indicating if women continued or left their work at the time of marriage or previous childbirths (Nagase 1999, Fukuda 2004). Those studies found negative impact of continued employment after marriage on risks of first birth, but only a marginal effect on second birth. These studies, however, do not control for endogeneity between wife's employment and childbirth. Therefore, they cannot separate out the reverse causation from childbirth intention to employment behavior. As a result, the effect of wife's employment on birth hazards is most likely overestimated in the models. In Japan where women adjust their work status with fertility behavior, it is possible that a wife's employment has only slightly negative effect on birth hazards after controlling for the endogeneity.

Availability of childcare is one important factor moderating women's role conflict. Because of the tradition of stem-family system along with the lack of public childcare support, childcare has been largely provided by grandmothers in Japan. In fact, statistics shows that increasing number of wives is receiving childcare support from their mothers who live within arm's reach (Morgan and Hiroshima 1983, Iwasawa

2004). Although working wives are having several childcare arrangements such as public or private childcare facilities, availability of the parental support still plays an important role for their decisions both to work outside family and to have an additional child. Morgan and Hiroshima (1983) argue that extended family residence in Japan is an alternative strategy in reducing the incompatibility of mother and worker roles which women typically face in modern society.

The empirical results generally confirm that extended family living is associated with higher fertility in Japan (Morgan and Hiroshima 1983, Atoh 1981, Ōtani 1993, Sasai 1998). There are a number of reasons for this association. Morgan and Rindfuss (1984) clarified the relationship between the extended family and fertility. According to their reformulation, high fertility is observed because (1) the extended family provides the younger generation with support such as the provision of shelter and it facilitates young adults to marry at a younger age, (2) the economic cost of children and both psychological and physical childcare burden are borne by the extended family, and (3) young couples are motivated to have a considerable number of children to improve or solidify the status in the family. Based on these explanations, the first effect can be controlled for by including age at marriage into models. The third explanation does not fit in the situation of contemporary Japan. Therefore, the second explanation of the economic and noneconomic supports for childrearing can be applicable. Consistent with the second explanation, wives living with parents are less likely than those in nuclear families to state economic and housing constraints as the reasons for not wanting more children (Morgan and Hiroshima 1983). Other explanation, however, can be a selection effect. As was the case of the studies on wife's employment and childbearings, previous studies do not control for endogeneity between coresident with parents and childbirth. Therefore, it is possible that young couples who choose to live with parents are more birth prone than young couples who choose to live in nuclear family settings. My study aims to clarify which explanation fits better to the relationship between coresidence with parents and birth intensities.

4. Data and Methods

The data come from the 2001 survey of National Family Research of Japan (NFRJ-S01), a retrospective survey of women ages 32 to 81. Rich information is collected on women's birth and employment histories as well as the history of living arrangements with the couple's parents.

Using these event-history data, simultaneous hazard modeling is conducted to study 1) women's entry into/exit from labor market, 2) coresidence with parents, and 3) parity-specific childbirth. In each model, I specify unobserved heterogeneity terms and allow them to correlate in the models. By examining correlation coefficients of unobserved heterogeneity terms, one can statistically test the degree and direction of the interdependence, in other words endogeneity, between the processes of each two of three events.

The models allowing for correlations between unobserved heterogeneities of parallel processes make it possible to test several research questions: 1) are more career-oriented women less birth prone? 2) are

women living in a traditional living arrangement more birth prone? and 3) are there any causal effects of wife's employment and coresidence with parents on childbearing after controlling for endogeneity? These questions were never answered in previous studies due to the lack of a sophisticated method and suitable data. The analyses in this study will be conducted by using the statistical software, aML (Lillard and Panis 2003).

5. Expected Results

Several results are expected from this study. First, unobserved heterogeneities of wife's employment and coresidence with parents are expected to have a negative and a positive correlation with unobserved heterogeneity of childbirth, respectively. The former negative correlation is due to the severe incompatibility between work and motherhood in Japan, while the latter positive correlation reflects the selection effect of couples in traditional family arrangement to be more birth prone than their counterpart.

Second, after controlling for these endogeneities between the interdependency processes, both the effects of wife's employment and coresidence with parents on childbirth hazards should be much smaller than the original models without these controls. The results will offer a more accurate picture of causal relationships between those parallel processes. This study aim to show that existence of these endogeneities is one of the reasons that traditional economic theory has only minor explanatory power to Japanese fertility behaviors among married couples.

In conclusion, this study aims to understand Japanese fertility behaviors by combining economic and sociological theories relevant to Japanese context. The sophisticated method employed and the rich data used will make it possible to answer some of the research questions never explored before. All in all, this study is expected to contribute to the clarification of the validity of economic theory for fertility and serves as an example of an interdisciplinary study of fertility behavior in a country with poor public support for childrearing.

References

- Atoh, Makoto, 1981, "Social Determinants of Marital Fertility in Japan (in Japanese)", *Journal of Population Problems*, 157, pp. 1-27.
- Becker, Gary S., 1993, *A Treatise on the Family*, enlarged ed., Massachusetts, Harvard University Press.
- Cabinet Office, 2001, *Kazoku to Raifusutairu nikansuru Kenkyukaihoukoku (A Report of the Study Group on Family and Life Style)*.
- Fukuda, Noubutaka, 2004, "Shusshōkōdō no Tokuchō to Ketteiyōin: Gakureki • Jendā • Kachiishiki (The Features and Determinants of Birth Behavior in Japan)", Watanabe, Hideki, Akihide Inaba and Naoko Shimazaki, ed., *Structure and Change in Contemporary Japanese Families: Quantitative Analyses of National Family Research (NFRJ98)*, Tokyo, University of Tokyo Press pp.77-97.
- Fukuda, Nobutaka, 2005, "Women's Education and Fertility Strategy in Japan: Spacing or Stopping? (in

- Japanese)", *Journal of Population Problems*, 61(4), pp. 3-21.
- Fukuda, Setsuya, 2007, "The Socio-economic Status of Women and Marital Fertility in Postwar Japan: Effects of Education, Employment and Family Structure on Parity Transitions", *Jinkogaku Kenkyu (The Journal of Population Studies)*, 40, pp. 79-100.
- Iwasawa, Miho, 2004, "Wife's Work Arrangement and Reproductive behavior over 30 Years (in Japanese)", *Journal of Population Problems*, 60(1), pp. 50-69.
- Lillard, Lee A. and Panis Constantijn W.A., 2003, *aML Version2: User's Guide and Reference Manual*, LosAngeles, EconWare.
- Morgan, Philip S., and Kiyoshi Hiroshima, 1983, "The Persistence of Extended Family Residence in Japan: Anachronism or Alternative Strategy?", *American Sociological Review*, 48, pp. 269-281.
- Morgan, Philip S., and R. R. Rindfuss, 1984, "Household Structure and the Tempo of Family Formation in Comparative Perspective", *Population Studies*, 38, pp. 129-139.
- Nagase, Nobuko, 1999, "Work and Childbearing Choice of Married Women in Japan: the Effect of Labor Practices", *Journal of Population Problems*, 55(2), pp. 1-18.
- Ono, Hiromi, 2003, "Women's Economic Standing, Marriage Timing, and Cross-National Contexts of Gender", *Journal of Marriage and Family*, 65, pp. 275-286.
- Ōtani, Kenji, 1989, "Proportional Hazards Model Analysis of Women's Reproductive Career in Present-Day Japan (in Japanese)", *Journal of Population Problems*, 189, pp. 1-17.
- Ōtani, Kenji, 1993, *Gendai Nihon Shushhōryoku Bunseki (An Analysis of Fertility in Contemporary Japan)*, Osaka, Kansai University Press.
- Raymo, James M., 2003, "Educational Attainment and the Transition to First Marriage among Japanese Women", *Demography*, 40, pp. 83-103.
- Raymo, James M., and Miho Iwasawa, 2005, "Marriage Market Mismatches in Japan: An Alternative View of the Relationship between Women's Education and Marriage", *American Sociological Review*, 70: 801-822.
- Sasai, Tsukasa, 1998, "Changes in Marital Fertility and Their Determinants in Japan (in Japanese)", *Journal of Population Problems*, 54(4), pp. 3-18.
- Tsuya, Noriko O. and Karen Oppenheim Mason, 1995, "Changing Gender Roles and Below Replacement Fertility in Japan", Mason, Karen Oppenheim and AM. Jensen, ed., *Gender and Family Change in Industrialized Countries*, Oxford, Clarendon Press, pp. 139-167.