Achieving Desired Family Size in Japan: Socio-Demographic Causes of the Discrepancies

Setsuya FUKUDA[1]

Introduction

Fertility levels in most of the developed countries are well below replacement level. In many of these countries, however, the average of intended fertility is above replacement levels. Thus, it is well known that there exists varying degree of discrepancies between individuals' intended and actual fertility among developed countries. Japan is one such country that discrepancy between intended and observed levels of fertility is relatively large. For example, calculated from a nationally representative survey in 2010 (IPSS 2011), the average number of intended children among women aged 40-44 is 1.84, while their observed cohort total fertility is estimated to be 1.48[2]. These discrepancies between intended and observed fertility suggest social constraints on meeting intentions. Therefore, studies of the discrepancies provide important insight into the mechanisms of the low fertility in Japan.

Just as other developed countries, however, evolutional patterns of fertility intention as well as correlates of achieving early intended family size are not well documented in Japan due to the absence of suitable data. In nature, the investigation of the link between early fertility intention and its outcome requires a long series of panel data which ideally covers women's entire reproductive period. Most studies of intended and observed fertility in Japan are either based on cross-section data or panel data with a small sample size.

This study overcomes the shortage of previous studies by using a recently available 10-wave panel survey with a relatively large sample. Use of the new panel data enables us to examine important research questions which have long been left unexplored in Japanese fertility study. In our research, we are going to investigate the following research questions;

1) Who are the achievers of desired number of children?

2) How consistent is the measure of desired family size?

3) Who changes early desired family size and why?

Although the survey asked the respondents' "desired" family size, rather than "intended", by taking advantages of longitudinal data, we examine the effects of important but often neglected factors on the evolution and achievement of early fertility expectations such as gender role

[1] Department of Population Dynamics Research, National Institute of Population and Social Security Research, Tokyo JAPAN. E-mail: fukuda-setsuya@ipss.go.jp

[2] The numbers are from author's calculation based on the 14th Japanese Fertility Survey (IPSS 2011).

attitudes, childrearing experiences, spousal share of household chores and economic stabilities of the household. The survey design also allows us to examine how adjustment is made between spouses when their fertility intentions are mismatched. Both achievement and changes in women's desired family size are examined using the same dataset.

The results of our analysis may be particularly relevant to the situations of other East Asian countries such as South Korea and Taiwan as these countries share similar social and economic characteristics. These countries are in similar levels of economic development and women's enrollment in tertiary education. Moreover, they share almost identical values on gender and family life due to the influence of Confucianism. Finally and most importantly, marriage is still central institution for reproduction in these countries and expansion of non-marriage is leading the country's lowest-low fertility. Therefore, it is likely that findings from Japan are much in common with some of East Asian countries. For this reason, our research is the first longitudinal study which presents trends and determinants of fertility intention outcomes in East Asia.

Data

We employ 10-wave panel data for our analysis. The data is from "The Longitudinal Survey of Adults in the 21st Century (LSA21)" which is a nationally representative survey conducted by the Ministry of Health, Labour and Welfare in Japan. The first wave survey took place in November 2002 and data is collected annually in the subsequent waves. The sample consists of both married and unmarried men and women aged 20-34 in the initial wave. Spouses of the original sample is subjects of the survey and asked to fill in own questionnaire form. This rule applies to the newlywed spouses of the original sample. Therefore, the survey collects information from both wives and husbands once the original sample marries.

The sample size of about 34,000 men and women were a subject for the original sample. Among them, 84.6% women and 81.0% men gave valid responses for the first wave survey. Therefore, the initial sample size of the original cohort is 14,150 women and 13,743 men. Exceptionally high response rates are attained by the fact that the survey is conducted as an official statistics survey by Statistics and Information Department in the Ministry of Health, Labour and Welfare in Japan. The survey is conducted by a drop-off and pick-up method by field workers until the 8th wave and changed to a mail survey method since the 9th wave.

Attrition occurs at 4-15% annual rates in the past ten years of observation. Men are more likely than women and single young adults are more likely than married adults to drop out from the survey due to employment and marriage. Therefore, our data may be more skewed to the characteristics of stable married couples in later waves just as other panel data. Despite of the attrition problem, we believe that LSA21 is eventually the only panel data being available in Japan to examine outcome of fertility desire at the national level.

Methods

The survey asks desired number of children in every wave to both male and female respondents. But the study focuses on only women's fertility desire. The desired family size is obtained in the following manner in the LSA21; "Do you **want** to have (another) child?" If the respondents answered "Yes" to any extent among five-point scale choices of this question, she is further asked following; "How many (more) children do you want to have?" In wave 2, 3, 6 and 8, however, only the second question is asked. In addition, birth year and month of respondents' children are also provided in each wave. By combining these items, we can model the determinants of probabilities of underachieved, achieved and overachieved early fertility desire as well as fluctuation of desired fertility.

We first present descriptive tabulations of the percent of underachieved, achieved and overachieved fertility desire as well as (in)stability of fertility desire over the life course by individuals' characteristics. Since our results will be the first evidence from East Asia on this topic, we are going to show our results as comparable as possible to the similar studies conducted in western countries such as U.S.A., U.K. and the Netherlands (Hayford 2009, Liefbroer 2009, Morgan and Rackin 2010, Iacovou and Tavares 2011) by utilizing descriptive tables used in these studies. By referring these previous studies, the study features Japanese pattern in clear contrast with those of western societies where fertility is close to the replacement levels.

In further stage, we employ multivariate methods and examine the correlates of both 1) achieving desired number of children and 2) the changes in desired number of children during the period of 2002-2011. In the first analysis, correlates of fertility desire outcomes are examined. The outcome of fertility desire is constructed by contrasting early fertility desire which is the desired family size measured in the first wave survey, and fertility outcomes at the 10th wave. To allow for the effects of covariates being different in the estimation of under- and over-achieved fertility, multinomial logit model of three outcomes, namely, underachieved, achieved and overachieved, is used for the parameter estimates of the covariates. Covariates used in the model will be 1) fertility desire: desired family size at wave 1 and spousal difference in desired family size, 2) Demographics: age, age at marriage, marriage duration and age difference between spouses, 3) Socio-economic statuses: coresidence with grandparents, region of residence, wife's education, wife's employment status and husband's occupation, and 4) Attitudes or Values: wife's views on spousal role sharing.

The analysis of the change in women's fertility desires identifies individual characteristics associated with the changes in fertility. In this analysis, we are going to take advantages of panel data analysis by controlling for individuals' unobserved time-constant heterogeneities. This study employs fixed-Poisson model (Allision 2009) to estimate fixed effects parameters for time-variant covariates. In sum, the model aims to identify social, economic and demographic factors associated with the change in fertility desire, net of individual fixed effects.

Covariates planned to use in the fixed-Poisson model is following; age, presence of a child aged four years old and older, marital status, number of children and employment status. The model pays particular attention to the effects of marriage and childbirth as well as their interactions with desired family size measured at wave 1. In this way, the model can estimate how desired family size is modified by the experience of the demographic events such as marriage and childbirth, and how adjustment is made according to the initial levels of desired fertility.

Expected Results

Our research will be the first results from Japan or even from Asia, of showing both fertility expectations and its outcomes based on a large panel data. Our descriptive tables will display basic information on 1) achievement levels of initial fertility expectations and 2) consistencies in the levels of desired number of children. Our panel data analyses further reveals individual characteristics associated with both achievement and changes of desired number of children and will answer the following questions;1) who can (and cannot) achieve their initial levels of fertility desire, and among those lower achievers, 2)who has lowering their initial levels of fertility expectations and why.

By interpreting above results, our research aims to facilitate our understandings of the nature of fertility expectations and its roles in actual fertility behavior in lowest-low fertility context.

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