

Long-Term Trends in the Number of Children and Age-Specific Fertility Rates of Japanese Women

Ikuko Funatogawa, PhD *The Institute of Statistical Mathematics*

Introduction and Theoretical Focus

Childbirth generally occurs at ages between the late teens and mid-40s in women, but typical age range or typical number of children can vary according to the calendar year or birth year. Childbirth will affect a woman's lifestyle and health later in life, as well as their mortality and other future outcomes. Therefore, it is important to take the birth year into account when considering relationships between childbirth trends and subsequent life events. In this study, we estimated long-term trends in the number of children born to Japanese women and the age-specific fertility rate according to birth year.

Data and Research Methods

Using the number of children born to Japanese wives aged mainly 45–49 from the population census and the national fertility surveys conducted during 1950 and 2021, we analyzed the distribution of the number of children among Japanese women born between 1890 and 1973, adjusted by the female unmarried rate. Because this distribution was a rough estimate based on 5- year age intervals, we further confirmed detailed changes in the age-specific fertility rate at 1-year age intervals.

Results

The changes in the number of children and the proportions of unmarried female are shown. Prior to the 1908 birth cohort, including plus or minus two years, the number of children varied widely, from 0 to 8 and more, with a mode of 5 children. Thereafter, the mode shifted to 4 and 3, eventually approached 2 children in newer cohorts. By the 1928 birth cohort, the distribution had changed significantly to a mode of 2 children. There was little change between the 1935 and the 1955 birth cohorts, with about 50% of women having 2 children and about 25% having 3 children; the proportion of married women with 0 children was low. Changes were observed between the 1955 and the 1973 birth cohorts, as the number of children generally decreased. Although the mode remained at 2 children; the proportions of women with 3 or 4 children decreased, the proportions of married women with 0 or 1 children increased, and the proportions of unmarried women increased.

Following the baby boom of 1947–49 in Japan, there was a sudden drop in fertility rates from 4.5 to 2.0 by 1957. Because of this sudden drop, fertility rates declined for women born between 1906 and 1932, i.e. within the typical childbearing age range for the period: late teens to early 40s. These cohorts roughly corresponded to cohorts showing a change in the distribution of number of children. Among women born around 1908, there was a limited decline in annual fertility rates, whereas the fertility rates of newer cohorts showed declines at younger ages. Among women born around 1932, the cumulative fertility rate was 2.0. In addition to this sudden drop in the calendar year fertility rates, an earlier fertility decline was found to contribute to the difference between 1906 and 1932 birth cohorts, with more pronounced declines for women in their late teens and early 20s being. Fertility declines were also observed in women in their late 20s and 30s among earlier cohorts.

Discussion

The impacts of major social change can vary depending on the age of the people affected; birth cohorts exhibit distinctive characteristics. The average life expectancy has increased over time, and a long-time lag occurs between childbearing and death. A single time period can include a wide range of birth cohorts who have had different experiences. To unravel complex human-related phenomena, long-term, age-specific indicators are required to construct birth cohorts. This study identified long-term trends in fertility indicators according to birth year that may be useful for elucidating social phenomena in Japan.

Acknowledgments

This work is supported by JSPS KAKENHI Grant Number 23K11022 and the ISM Cooperative Research Program (ISMCRP-2010).