

Research in Brief



Building D, 370 Sicheong-daero, Sejong City 30147 KOREA **Korea Institute for Health & Social Affairs**

Issue No 2020-15

Publication Date July 29 2020

ISSN 2092-7117

Total Fertility Differentials in Women of Different Socioeconomic Backgrounds: Policy Implications

Yoon-jeong Shin

Research Fellow, KIHASA

Introduction

Korea's total fertility rate (TFR) was estimated to be 0.92 in 2019. It was the second year in a row for Korea to post a TFR below 1, portending a population decline in the years to come. With the three rounds of its Basic Plan for Aging Society and Population, the Korean government has expanded its work-family balance policy and childcare services for young children and introduced childcare and child allowance programs.

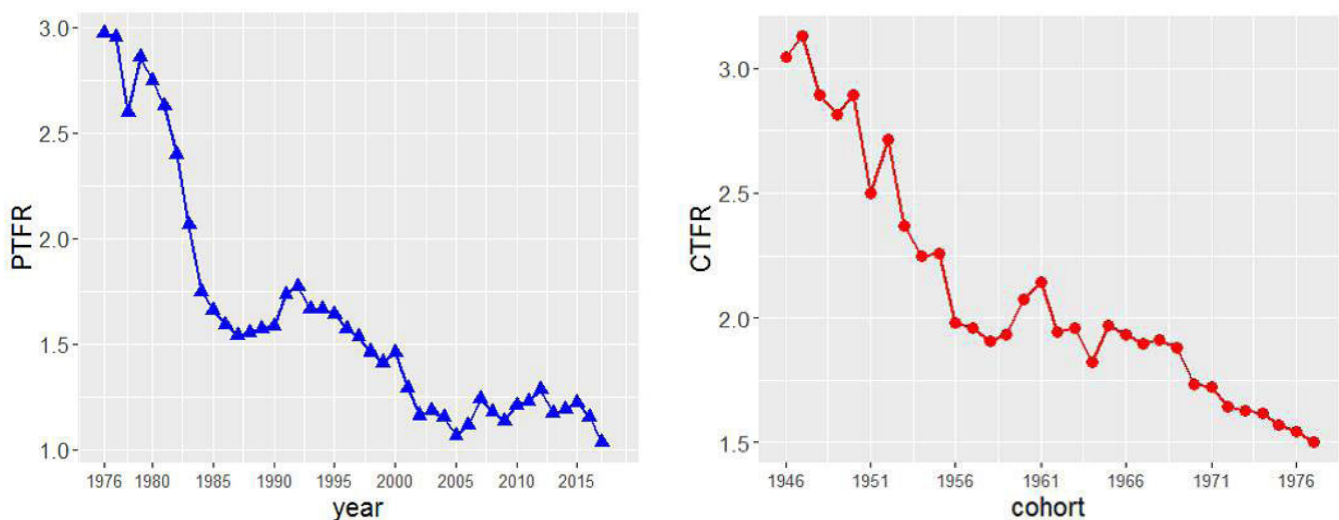
The fertility rate has dipped and remains low for the overall population. However, fertility differentials exist across women of different socioeconomic backgrounds. This suggests that government's response to low fertility, which until now has been increased in an across-the-board fashion, needs to be redesigned so as to better meet the different needs of different socioeconomic groups. Findings of earlier studies have shown that fertility rates were lower among women with higher educational attainment. More recent studies of women in Europe link higher fertility rates with high educational attainment. These studies also find that fertility rates vary in women of the same educational levels depending on how stable their employment has been. Given that women with higher educational attainment levels and more stable jobs are likely to have higher income levels, childbirth decisions in recent years can be thought to have been affected more by income effects than by opportunity costs. This study attempts to examine total fertility rates in women of different educational levels, employment status and occupational types, and draw implications for policy.

Long-term trends in Korea's total fertility rate

This study examined the period total fertility rate (PTFR) for the years 1976 through 2017 and the cohort total fertility rate (CTFR) for women born in the years from 1946 to 1977. The data used here include age-specific fertility data for the years 1961 through 2010, drawn from “New Cohort Fertility Forecasts for the Development World (Myrskylä, M., Goldstein, J. R., Cheng, Y-H. A (2013). Max Planck Institute for Demographic Research, 1-57). This study also used Statistics Korea's Midyear Population Data (statistics based on resident registration) for the years 2011 through 2017. These data are then reorganized into cohort data covering the period 1946~1977. The long-term trends in CTFR and PTFR that are observed in this study are for women aged between 15 and 40, the age at which this study assumes that women of the most recent cohort have completed their childbearing.

The PTFR declined from around 3 in 1976 to below the replacement level from 1984 onward, plunging further to below 1.3 in 2001 and to 1.03 in 2017. The CTFR also declined over time, from its highest at 3.73 for the 1941~1945 cohort to a sub-replacement 1.96 for the 1956~1960 cohort to 1.62 for the 1971~1975 cohort.

[Figure 1] Trends in period total fertility rate and cohort total fertility rate



Source: Shin, Y., Lee, M., & Park, S. (2019). An Analysis and Outlook of Korea's Long-term Trends in Lowest-low Fertility. Korea Institute for Health and Social Affairs. p. 28.

Total fertility rate by social group

This study examined TFR by birth cohort and by calendar year. The CTFR, defined as the average number of children women have until they reach ages 40 to 44, is observed here for four 5-year cohorts born between 1956 and 1975, while the PTFR, the sum of the age-specific fertility rates for women of ages 15 to 49, is for years 1997, 2000, 2003, 2006, 2009, 2012, 2015, and 2017. The data used here comes from Statistics Korea's Population Census 2-Percent Sample (for years 2000, 2005, 2010 and 2015) and birth

statistics. “Educational attainment” is divided into “high school or less” and “college or more” and into “middle school or less”, “high school diploma”, “college diploma” (including 2-year college) and “graduate school degree”. “Work status” means either employed or non-employed. The employed is defined as someone who is within the labor force that has actually carried out any work in the past week for income-earning purposes. The non-employed refers to someone who is not in work.

Those with jobs are grouped into four types as classified by the Korean Standard Classification of Occupations: elementary workers, service workers and salespersons, office workers and professionals. The educational attainment, occupational status and occupational types are as of when the total fertility rates were measured.

The CTFR has been lower in groups with higher educational attainment for all the cohorts (from the 1956~1960 cohort to the 1971~1975 cohort). The CTRF gap, however, reduced in recent years as fertility decline has been sharper in those with lower educational levels. When educational attainment was divided into “high school or less” and “college or more”, the CTFR declined from 1.77 to 1.54 for women with college graduation or higher educational levels and from 1.99 to 1.71 for women with a high school diploma or less. The gap between the two groups reduced from 0.22 to 0.17. When educational attainment was divided into four categories—middle school or lower, high school graduation, college graduation, and graduate school education or more—the decline in the CTFR was from 1.59 to 1.35 for the group with a graduate school education and more, and from 2.10 to 1.63 for those with a middle school education or less, with the gap reducing from 0.51 to 0.28. For the 1971~1975 cohort, the total fertility rate was lower in those with a middle school diploma or less (1.63) than in those with a high school diploma or less (1.71).

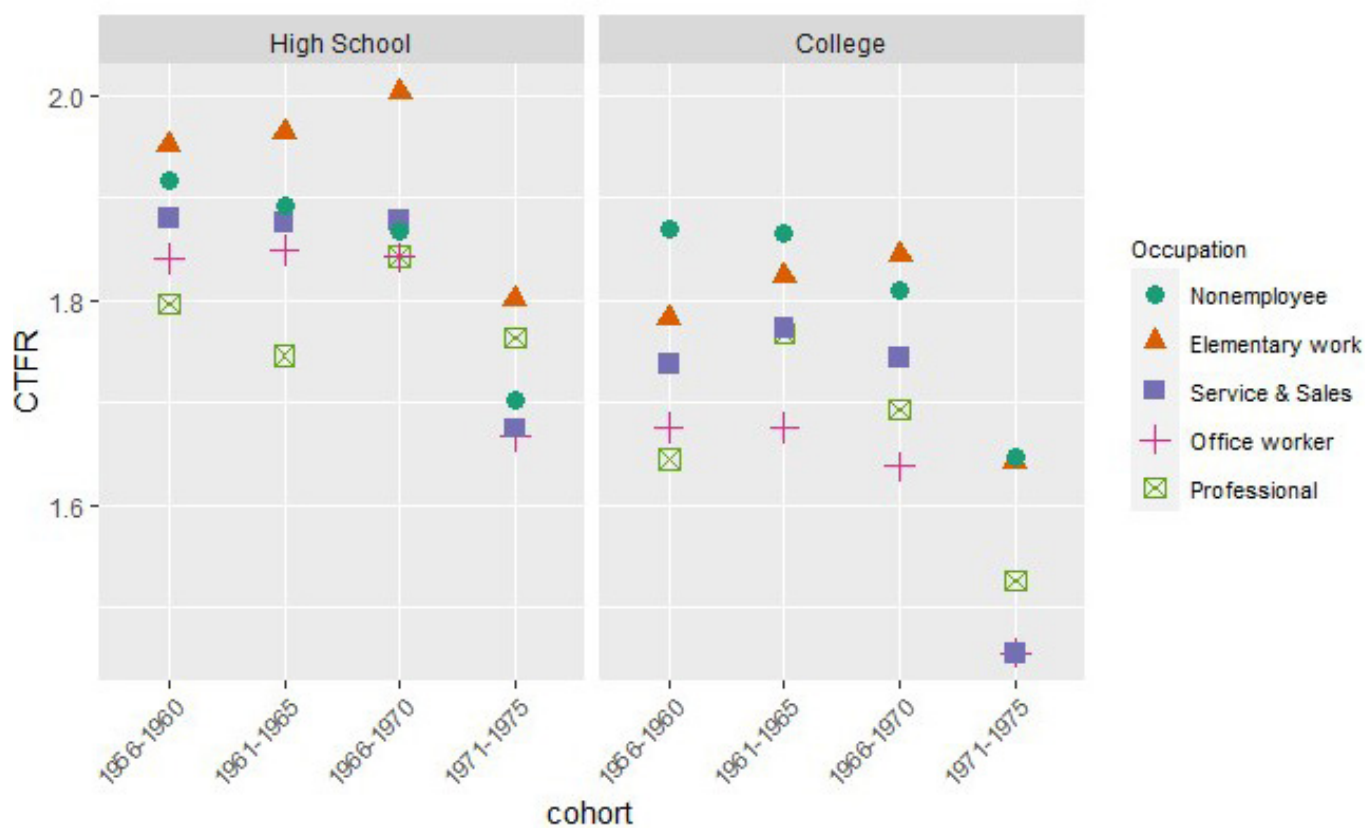
[Table 1] Cohort total fertility rates by educational levels

Birth cohort	Overall	Two educational levels		Four educational levels			
		High school or less	College or more	Middle school or less	High school	College diploma	Graduate school degree
1956~1960	1.96	1.99	1.77	2.10	1.90	1.79	1.59
1961~1965	1.88	1.91	1.80	1.95	1.89	1.82	1.57
1966~1970	1.84	1.90	1.73	1.92	1.90	1.75	1.49
1971~1975	1.62	1.71	1.54	1.63	1.71	1.56	1.35

Source: Y., Lee, M., & Park, S. (2019). An Analysis and Outlook of Korea’s Long-term Trends in Lowest-low Fertility. Korea Institute for Health and Social Affairs. p. 68.

When examined in terms of occupational types, the CTFR for the 1971~1975 cohort was higher in those with professional occupations than in office workers and service and sales workers.

[Figure 2] Cohort total fertility rates by educational levels and by occupation



Source: Shin, Y., Lee, M., & Park, S. (2019). An Analysis and Outlook of Korea's Long-term Trends in Lowest-low Fertility. Korea Institute for Health and Social Affairs. p. 85.

The PTFR dropped over the years from 1997 to 2017 for women of all educational levels, with the decline sharper for women with a high school diploma or lower than for women with a college degree or higher (from 1.75 to 1.08 compared to from 1.34 to 1.07). Employed women had a PTFR of 0.48 in 2000, substantially lower than non-employed women's 2.34. The subsequent years saw Korea's PTFR rise by a little to 0.71 for employed women but drop rapidly to 1.50 for non-employed women.

[Table 2] Period total fertility rate by educational level and by occupational status

Year	Overall	Educational level		Occupational status	
		High school or less	College or more	Non-employed	Employed
1997	1.54	1.75	1.34	2.49	0.50
2000	1.47	1.73	1.34	2.34	0.48
2003	1.19	1.35	1.14	1.79	0.48
2006	1.13	1.28	1.12	1.77	0.52
2009	1.15	1.38	1.13	1.92	0.58
2012	1.30	1.56	1.28	2.17	0.73
2015	1.24	1.42	1.23	1.93	0.79
2017	1.05	1.08	1.07	1.50	0.71

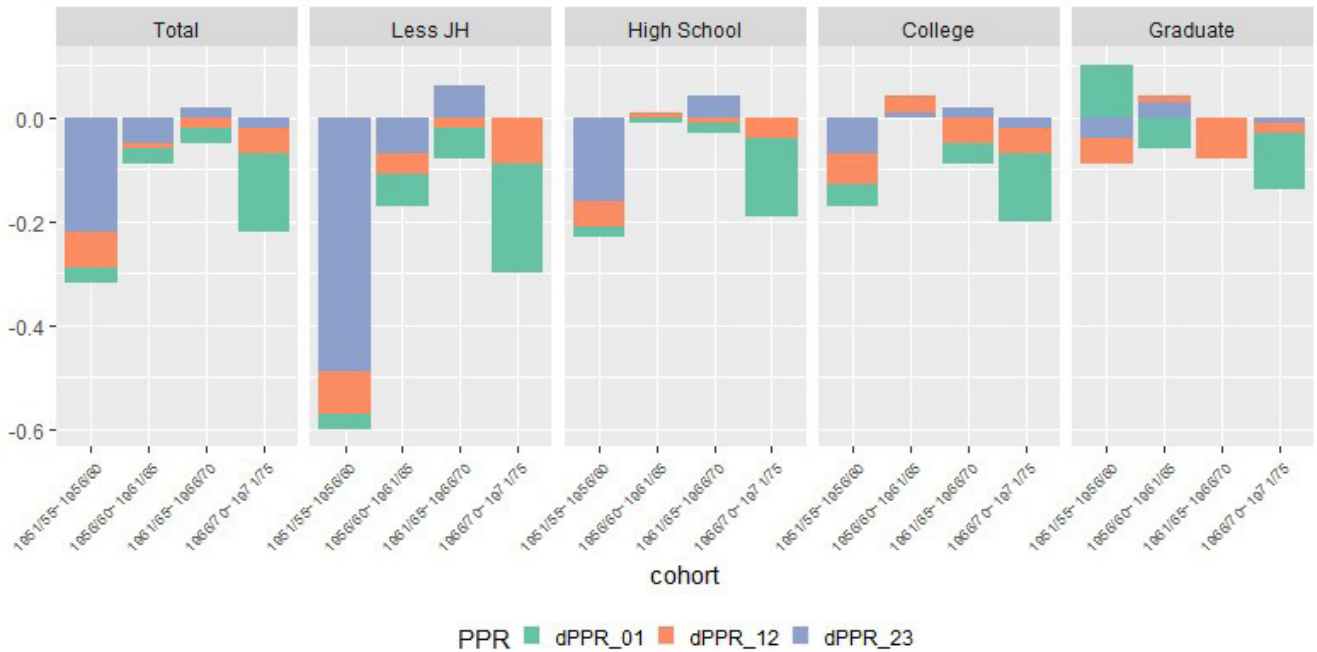
Source: Shin, Y., Lee, M., & Park, S. (2019). An Analysis and Outlook of Korea's Long-term Trends in Lowest-low Fertility. Korea Institute for Health and Social Affairs. p. 168, 171.

To examine how women of different social backgrounds contribute in different magnitudes to fertility changes, this study draws on the standardization and decomposition methods advanced by Das Gupta (1993)¹ and Zeman et al (2018)². While in older birth cohorts, changes in the CTFR were attributed more or less equally to changes in population composition and to changes in group-specific fertility rates, changes in fertility rates for the 1971~1975 cohort were attributed much more to declines in group-specific fertility rates than to changes in population composition. The decline in the CTFR was driven more by fertility decline in women with a high school education or less than in fertility decline in women with a college education and more, and more by fertility decline in women in service and sales jobs than fertility decline in women in professional occupations.

In older cohorts, it was the declining parity progression to a third child that led to declines in the CTFR. This was salient in women with a high school education and in women in elementary jobs and service and sales work. In the 1971~1975 cohort, however, fertility declines were driven mainly by the decline in progression to first child, a tendency observed in all women in the cohort irrespective of the educational and occupational backgrounds.

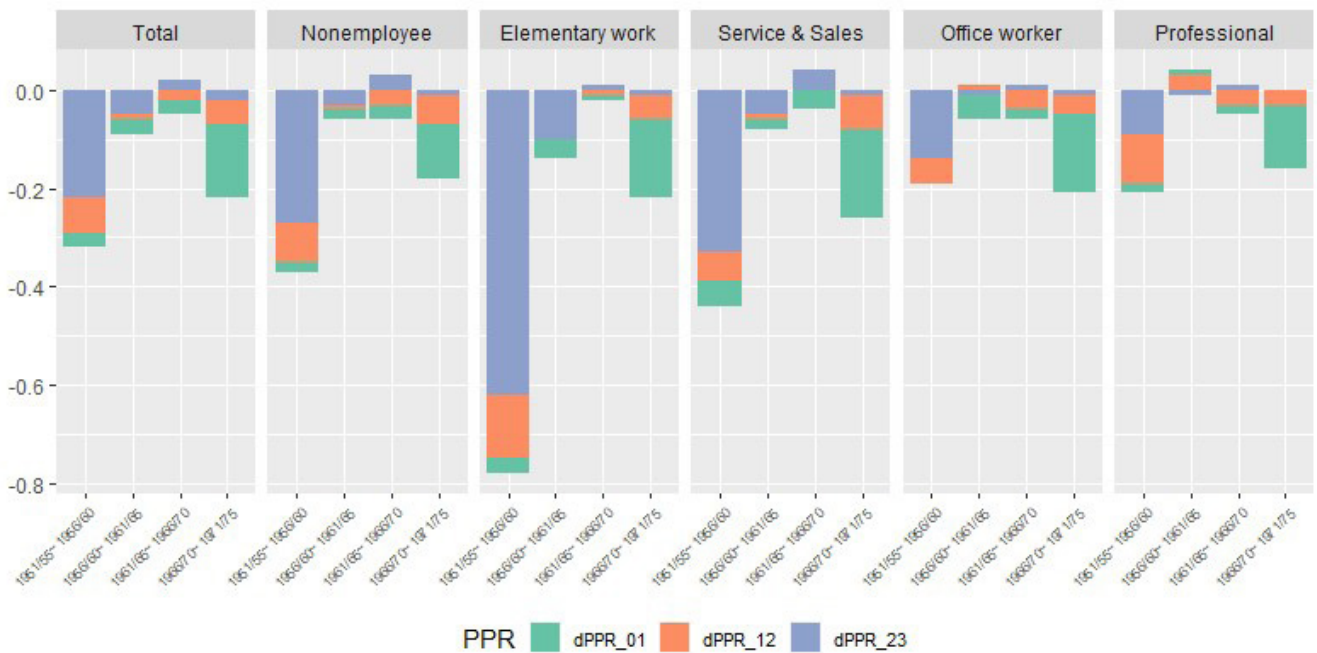
-
- 1) Das Gupta, P. (1993). Standardization and Decomposition of Rates: A User's Manual, Current Population Reports, Special Studies, p23-186, US Department of Commerce, Economics and Statistics and Administration, Bureau of the Census.
 - 2) Zeman, K., Beaujouan, E., Brzozowska, Z., & Sobotka, T. (2018). Cohort fertility decline in low fertility countries: Decomposition using parity progression ratios. Demographic Research, 38(25), 651-690.

[Figure 3] The contribution of parity progression ratios to changes in the cohort total fertility rate: by educational level



Source: Shin, Y., Lee, M., & Park, S. (2019). An Analysis and Outlook of Korea's Long-term Trends in Lowest-low Fertility. Korea Institute for Health and Social Affairs. p. 128

[Figure 4] Contribution of parity progression ratios to CTFR change, by occupation



Source: Shin, Y., Lee, M., & Park, S. (2019). An Analysis and Outlook of Korea's Long-term Trends in Lowest-low Fertility. Korea Institute for Health and Social Affairs. p. 135



Concluding remarks

The overall tendency is that fertility rate in Korea is lower among women with higher educational attainment and professional jobs. On a closer look, however, fertility decline in recent years was sharper in women with lower educational attainment or in non-professional occupations, which suggests that fertility decline in Korea may be more of an outcome of income effects than it is of opportunity cost effects. This may require further research scrutiny. Also, although the PTFR for employed women has risen in recent years, it still remains lower than that for non-employed women. This points to the need for further expansion of the ongoing work-family balance policies.

The recent decline in Korea's total fertility rate is attributable more to the fertility decline among women with a high school diploma or less than to the fertility decline among women with a college education or more, and more to the fertility decline among women in service and sales jobs than to the fertility decline among women in professional jobs. The increasing contribution of the decline in progression to first child to the decline in CTFR was a common trend in the youngest cohort, regardless of educational and occupational backgrounds.

Korea's childcare policy, while having been expanded across the board in recent years, has to focus on helping socioeconomically vulnerable groups meet their childcare needs and also on strengthening support for women working in the informal sector so that they in stable working conditions can balance life and work.