Completed Cohort Fertility in Korea and Its Policy Implications

Yoon-jeong Shin
Research Fellow, KIHASA

Korea has posted a total fertility rate of 0.98 for 2018, the lowest ever since its government began keeping records in 1970. The total fertility rate, as defined by the UN, is "the average number of children that would be born alive to hypothetical cohort of women if, throughout their reproductive years, the age-specific fertility rates for the specified year remain unchanged." Thus, a decline in the total fertility rate may occur as a consequence of declining age-specific fertility rates and delayed childbearing.

Some European countries that have seen their total fertility rates decline in and after 1995 are reported to have shown an upturn in births led by mothers in their later childbearing ages.[1] [2] The Korean case by contrast is one where increased postponement of childbearing has not been recuperated in any significant way.[3] The low level of fertility recuperation can be attributed to increases in the never-married population—that is, in a culture where out-of-wedlock births are extremely rare—and in married couples who by choice remain childless. Korea's increasingly marked trends toward delayed childbearing may have led to the low fertility rates in recent years, as putting off births beyond some point in time can increase their likelihood of ending up unrealized[4].

This study looks at postponed fertility in Korea and the extent to which it has been recuperated. We also examine the ongoing decline in completed cohort fertility rates and its key driving factors and attempt to draw policy implications.[5] Completed cohort fertility, defined as the "average number of children born to a woman belonging to a certain cohort," has an advantage over the total fertility rate in that it represents the number of births a woman has actually had by the end of her childbearing years. This study draws on Myrskylä *et al.*[6] The data used here comes from Statistics Korea's Midyear Population Data (statistics based on resident registration), Vital Statistics on births, and the Population Census 2-Percent Sample.

Changes in total fertility and age-specific fertility

Korea's total fertility rate dropped to below the replacement level in 1984 and kept falling down, to below 1.3 in the early 2000s. The TFR continued falling over the past three years, to 1.17 in 2016, 1.05 in 2017, to 0.98 in 2018. The completed cohort fertility rate, having remained in the

---

[1] Liefbroer, A., Klobas, J. E., Philipove, D., & Ajzen, I. (2015). "Reproductive Decision-Making in a Macro-Micro Perspective: A Conceptual Framework" in *Reproductive Decision-Making in a Macro-Micro Perspective*, Springer.

[2] Sobotka, T. (2017). Post-transitional fertility: The role of childbearing postponement in fueling the shift to low and unstable fertility levels. J. Biosoc. Sci., 49, s20-s45.

[3] Frejka, T., Jones, G. W., & Sardon, J. P. (2019). East Asian Childbearing Patterns and Policy Developments. Population and Policy Development Review. 36(3), 579-606.

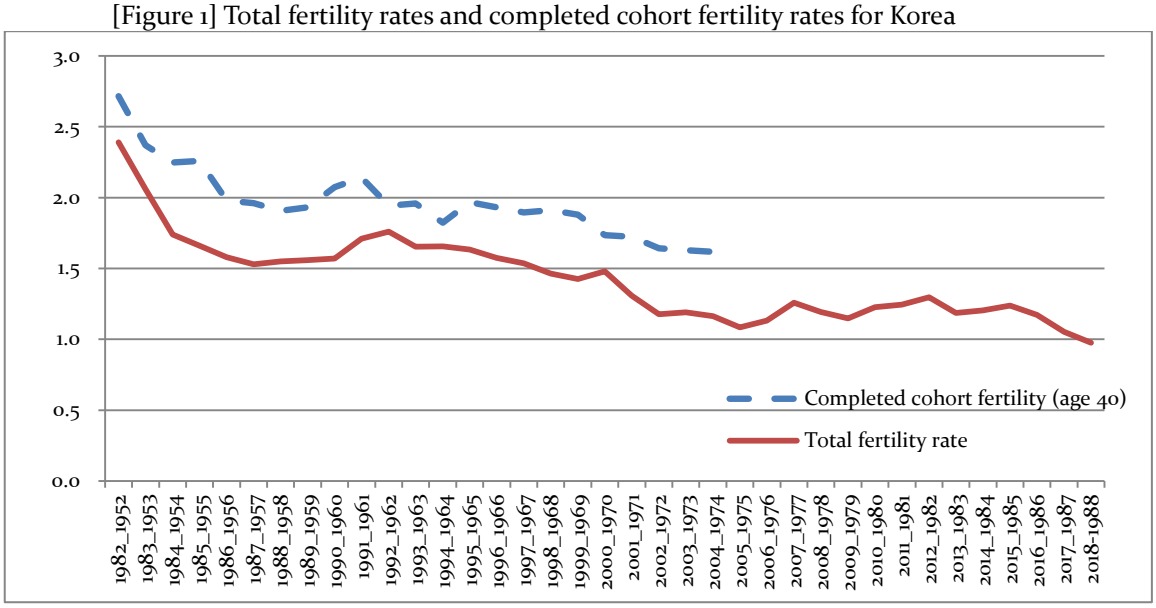
[4] Zolt Spéder. (to be published in 2019). The "fertility gap," intention and realization, and the lessons for policy formulation. Policy Briefs: Effectiveness of Family Policy on Fertility. KIHASA-INED.

5 In this study, by the total fertility rate, we mean period total fertility rate, and by the completed cohort fertility rate, cohort total fertility rate. The completed cohort fertility rate in this study refers to the average number of children to whom a certain cohort of women gives birth until they are 40.

[6] Myrskylä, M., Goldstein, J. R., Cheng, Y-H. A (2013). New Cohort Fertility Forecasts for the Developed World. Max Planck Institute for Demographic Research, 1-57.

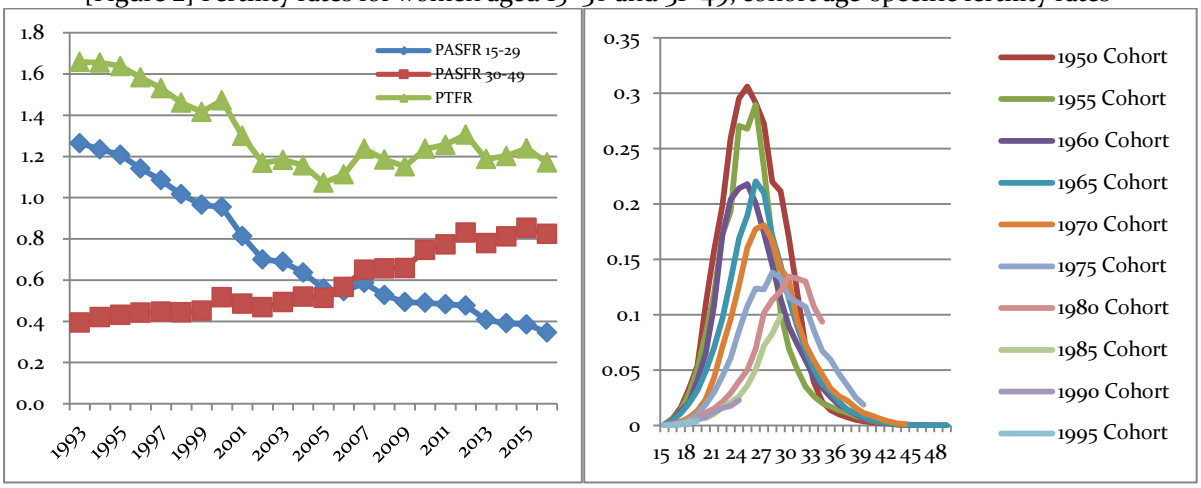
region of 2 for the cohort of 1957, fell to 1.6 for the cohort of 1974.

[Figure 1] Total fertility rates and completed cohort fertility rates for Korea



The upper graph in Figure 2 shows that while the fertility rate of women aged 15~29 has trended down, that of women aged 30~49 has been on the rise, suggesting a transition to a later timing of childbearing. The lower graph illustrates that the more recent the cohorts, the later the timing of their childbearing and the fewer the children they have.

[Figure 2] Fertility rates for women aged 15~30 and 31~49; cohort age-specific fertility rates

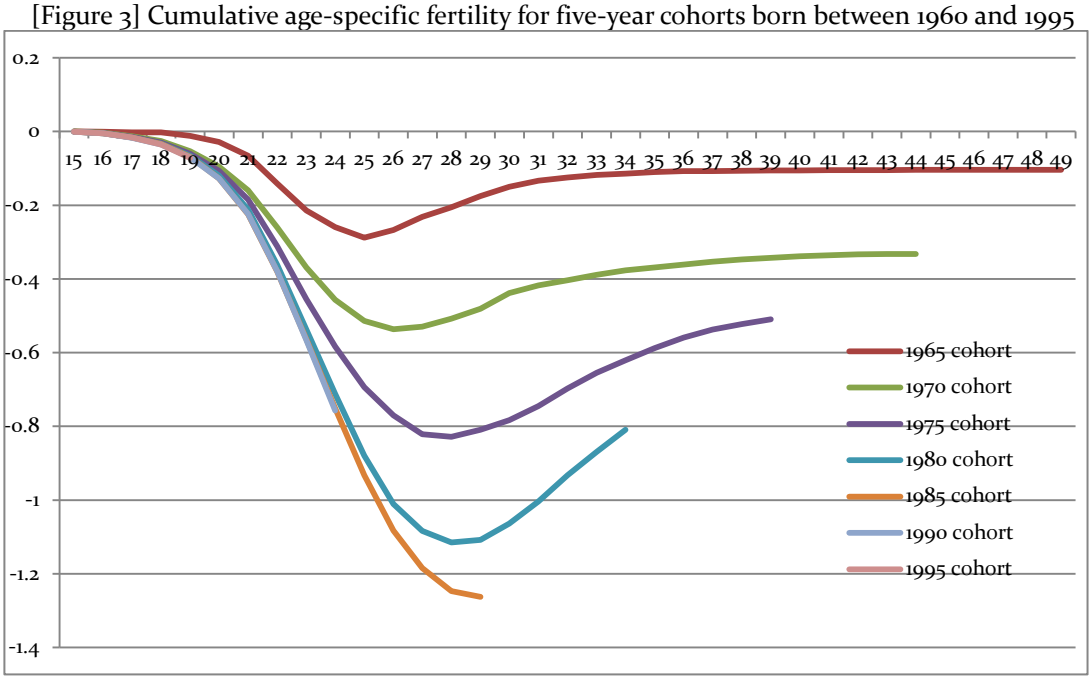


Childbearing postponement and recuperation

In our analysis of the patterns of childbearing postponement and recuperation, we used a method previously explored by Frejka and Sardon (2004). The 1960 cohort was chosen as the base group, as its fertility rate (2.08) approximated more closely than any other's to the replacement level. We then examined differences in cumulative fertility rate between the base cohort and subsequent cohorts. In particular, we looked at the age at which the difference in cumulative fertility reached its peak between a subsequent cohort and the base cohort. This way we arrived at an account of the extent to which women of each cohort at different ages in

their reproductive life offset the fertility deficits (relative to the base cohort) that had been accrued in their earlier childbearing years. Figure 3 illustrates the number of births the women of each successive cohort, compared with the 1960 cohort, had at certain age. The more recent the cohort, the lower and further to the right is the trough of its cumulative age-specific fertility curve. This is to say that there has been a steady increase in childbearing postponement across the cohorts. Each of the cohorts born in 1965 and afterward demonstrates a tendency to compensate for the postponed births, but never to such an extent as to catch up with an older cohort.

[Figure 3] Cumulative age-specific fertility for five-year cohorts born between 1960 and 1995



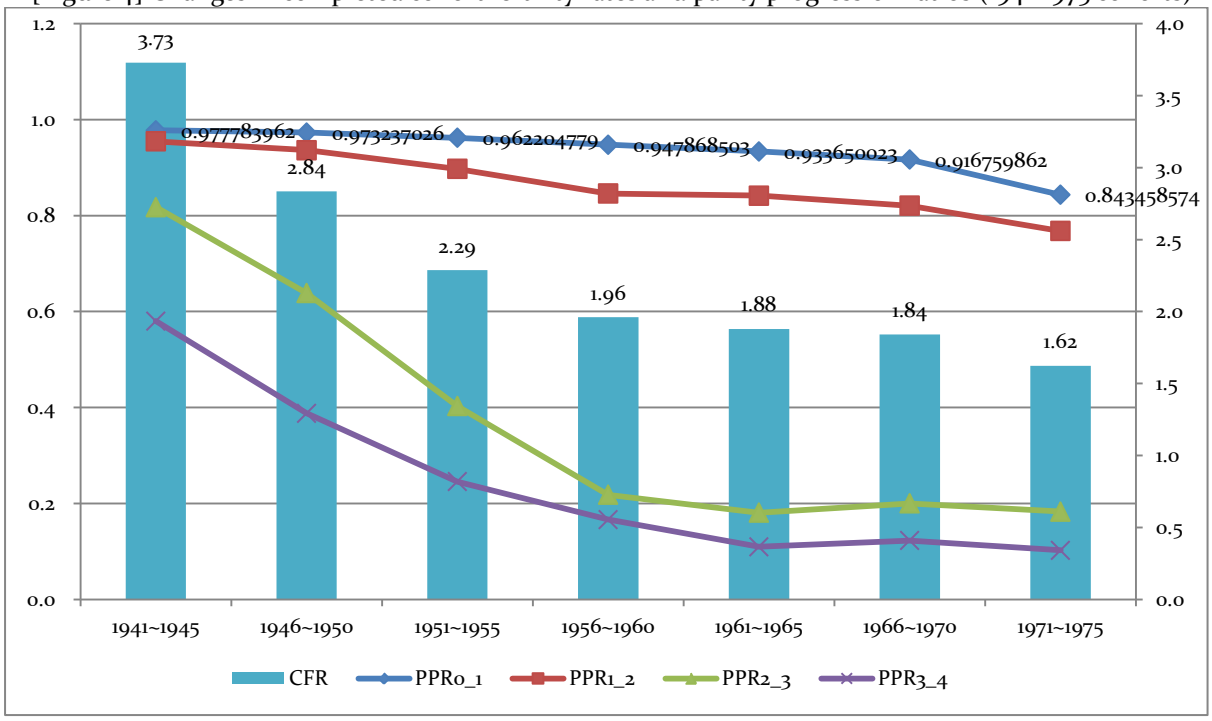
Decomposing changes in completed cohort fertility rates

In their 2018 paper, Zeman *et al* (2018) have observed a worldwide fall in completed cohort fertility, which they trace in large part to the declining parity progression ratios[7]. Following these authors' approach, we decomposed the contribution of the changing parity progression ratios to declines in completed cohort fertility. This analysis is of women of ages 40 to 44 from five-year cohorts born between 1941 and 1975.

The completed fertility rate 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 (see Figure 4). The likelihood of parity progression to a third child (parity progression ratio 2-to-3, or PPR2-to-3) and that to a fourth child (PPR3-to-4) both decline rapidly across cohorts born between the 1940s and 1960s and remain at low levels all the way into those born in 1975. After having remained at levels just a little short of 1 until the 1946~1950, cohort PPR 1-to-2 and PPR0-to-1 declined rather steadily in women born between 1956 and 1970 and somewhat more steeply in more recent cohorts.

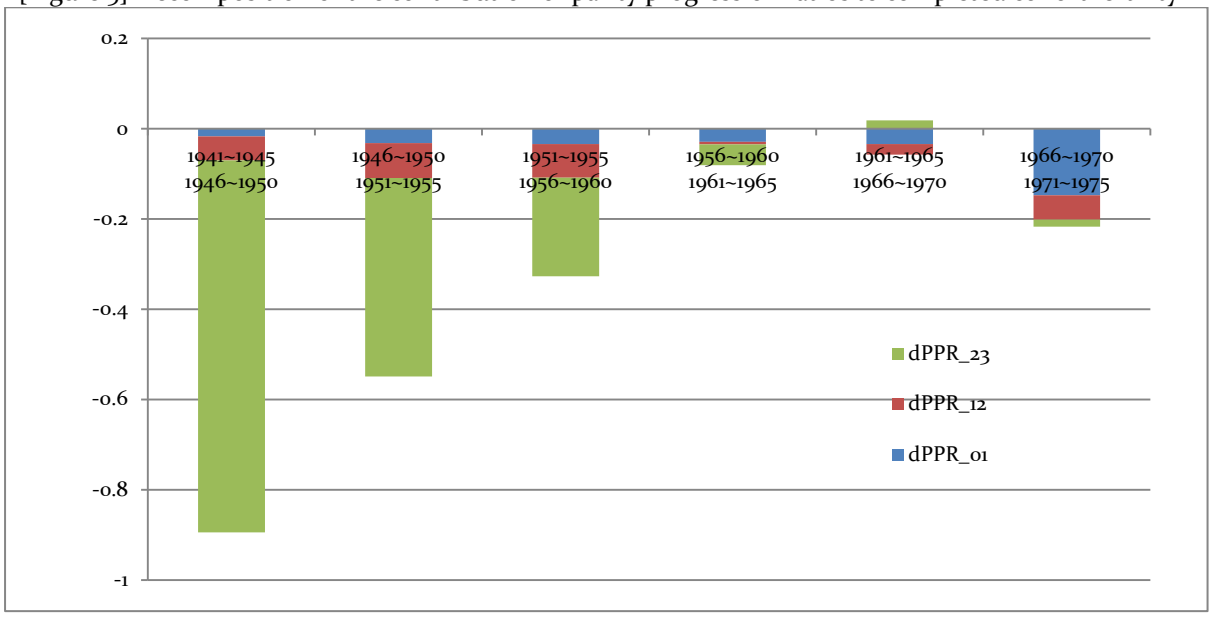
[7] Parity progression ratio is the probability that a woman will proceed from one parity (say, ith) to the next.

[Figure 4] Changes in completed cohort fertility rates and parity progression ratios (1941-1975 cohorts)



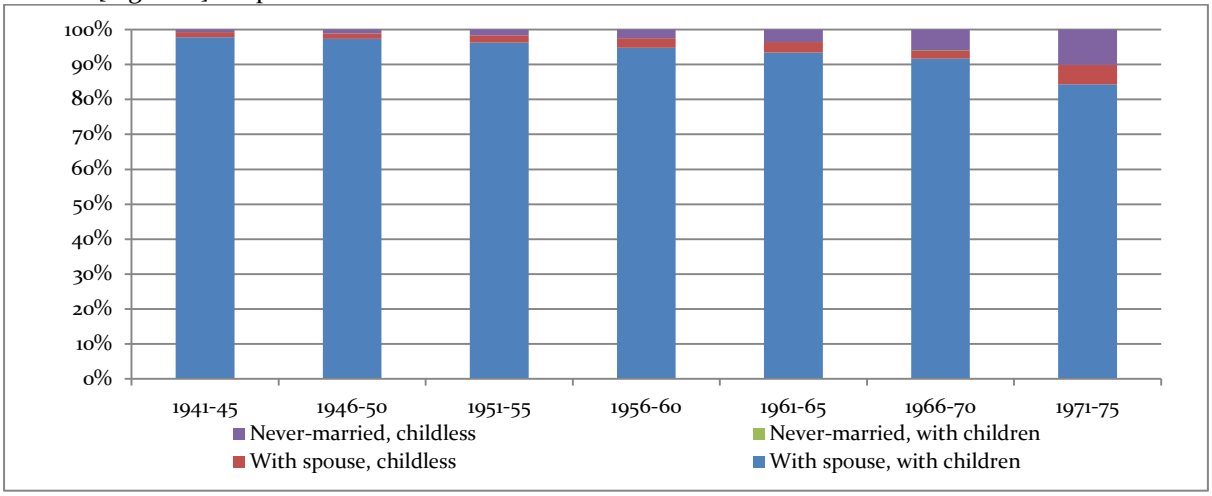
Our decomposition analysis reveals that there occurred a structural transition around the time when the completed cohort fertility rate declined below the replacement level. During the times when Korea had above-replacement completed cohort fertility rates, it was the declining parity progression to a third child that led to declines in completed cohort fertility. Once the completed cohort fertility had gone down to the replacement level, however, further fertility declines were driven mainly by lack of progression from childless to first child. This is a finding in line with the trends Zeman *et al* observed in European countries.

[Figure 5] Decomposition of the contribution of parity progression ratios to completed cohort fertility



Having found the increasing proportion of childless women to be the main driver of the declining completed fertility for recent cohorts, we looked at births and childlessness in women aged 40~44, married or never-married. Few, if any, of the never-married women aged 40~44 had had a birth and, thus, that most of births in Korea were within wedlock. The proportion of those remaining never-married in this age group increased over time to 10.1 percent in the 1971~1975 cohort. Meanwhile, those childless in married women of this age range, while very few in older cohorts, accounted for as much as 6.2 percent in the 1971~1975 cohort.

[Figure 6] Proportions of married and never married women childless and with children



Concluding remarks

Korea has seen a continued decline in the completed cohort fertility as well as in the total fertility rate. This can be attributed to the increase in those remaining never-married[8] and to the fact that many married couples end up having fewer children than they would like to have[9]. The number of children women have over their childbearing years has also declined markedly. Korea's remarkably low fertility rate of even less than 1 can in large part be a consequence of increased postponement of childbearing which Korean women do not make up for enough in their later reproductive years. The current government has of late shifted the focus of its policy responses to low fertility from "recovery of fertility quantum" to "improved quality of life" and the "realization of gender equality." The quantity-to-quality transition needs to be followed by policy strategies to reduce the gap between realities and the ideal number of children individuals would like to have. Such efforts should be based on detailed consideration of socioeconomic factors that drive Koreans to postpone childbearing and keep them from going on to have as many children as they otherwise would choose to have.

[8] Kim, S. (2018). Determinants of Fertility Decline in Korea. International Seminar on Indicators and Policies of Low Fertility, December 10~11 2018, Statistics Korea, UNFPA.

[9] "2018 National Survey on Fertility, Family Health and Welfare in Korea" finds that for married women aged between 15~49 had planned to have 2 children on average; the actual number of children they had was 1.75.