

# KDI FOCUS

KDI FOCUS APRIL 16, 2024 (No. 132, Eng.)

For Inquiry KDI Communications Unit

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Video Report



In South Korea, more women are postponing or forgoing childbirth due to concerns about career interruption. Their conscious decision to refrain from motherhood is estimated to be responsible for about 40% of the decrease in the fertility rate. In the face of the world's lowest fertility rate, Korea needs to overhaul its policies to better support work-life balance, enabling parents to maintain their careers while raising children.

## Women's Career Interruptions and the Declining Fertility Rate in South Korea

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## I. The Evolution of Economic Perspectives on Fertility Rates

Traditional economic theory explains the decline in fertility rates as a result of the increase in women's opportunity costs.

South Korea currently has one of the world's lowest fertility rates. Its total fertility rate has been on a steady downward trend, decreasing by approximately 0.07 children per woman each year since 2015, when it stood at 1.24, reaching a critical low of 0.72 in 2023. In contrast, the OECD average total fertility rate has only slightly decreased by about 0.017 annually between 2015 and 2021, from 1.68 to 1.58. However, even among OECD nations that fare better than Korea, particularly those in Northern Europe, known as benchmarks for family-friendly policies, the recent decline in fertility rates has emerged as a serious social issue.<sup>1)</sup>

Worldwide, except for the post-war baby boomers, fertility rates have steadily declined throughout the 20th century as income levels increased. The global total fertility rate sharply decreased from 4~5 children per woman in the 19th century to 1.4~2.1 by the late 20th century (Doepke *et al.*, 2023). Panel (a) of Figure 1 shows a negative correlation between national per capita income and fertility rates.

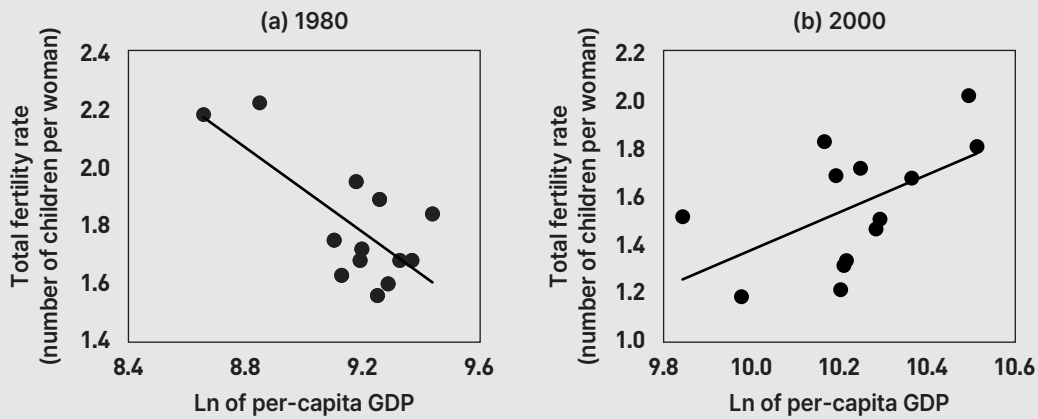
Economic theory advanced by Becker and Lewis (1973) and others explains the negative correlation between fertility rates and income levels through the quantity-quality trade-off theory. As the number of children increases, parents must dedicate more time to childcare. Also, as income rises, the opportunity cost of parenting time increases, prompting parents to reduce the number of children and redirect their enhanced income towards education to improve the quality of their children's lives. This theory operates under the implicit assumption or social constraint that, while education—a means to enhance children's well-being—can be purchased in the market, parenting time—which scales with the number of children—is an irreplaceable good that parents must personally provide.<sup>2)</sup>

\* I would like to express my gratitude to President Dongchul Cho, as well as to my esteemed colleagues and fellows at the institute, including Dr. Daehee Jung and Dr. Sungik Cho, for their constructive advice and invaluable assistance in the preparation of this paper.

1) *Financial Times*, "Birth rates are falling in the Nordics. Are family-friendly policies no longer enough?" January 29, 2024.

2) Particularly in contexts where women bear sole responsibility for childbirth and childrearing, or in cultures where childcare is distinctively perceived as the female domain, higher wages for women can significantly raise the opportunity cost for childcare, thus lowering fertility rates. When women's wages take up only a minor portion of household income, their wage increase may primarily trigger a substitution effect, which reflects the opportunity cost of parenting time, rather than an income effect that would otherwise encourage having more children.

Figure 1. Correlation between Income and Fertility Rates.: 1980 vs 2000



Note: Reproduced from Figure 8 in Doepke *et al.* (2023), this figure excludes South Korea and focuses on high-income countries (13 OECD members, including the US, Germany, France, and Japan). Since the 2000s, a positive correlation between income and fertility rates has been consistently observed in these countries.

Since the 2000s, a positive correlation between women’s labor force participation rates, income, and fertility rates has been commonly observed in high-income countries, which appears to be closely associated with the extent to which women (mothers) can balance work and family life.

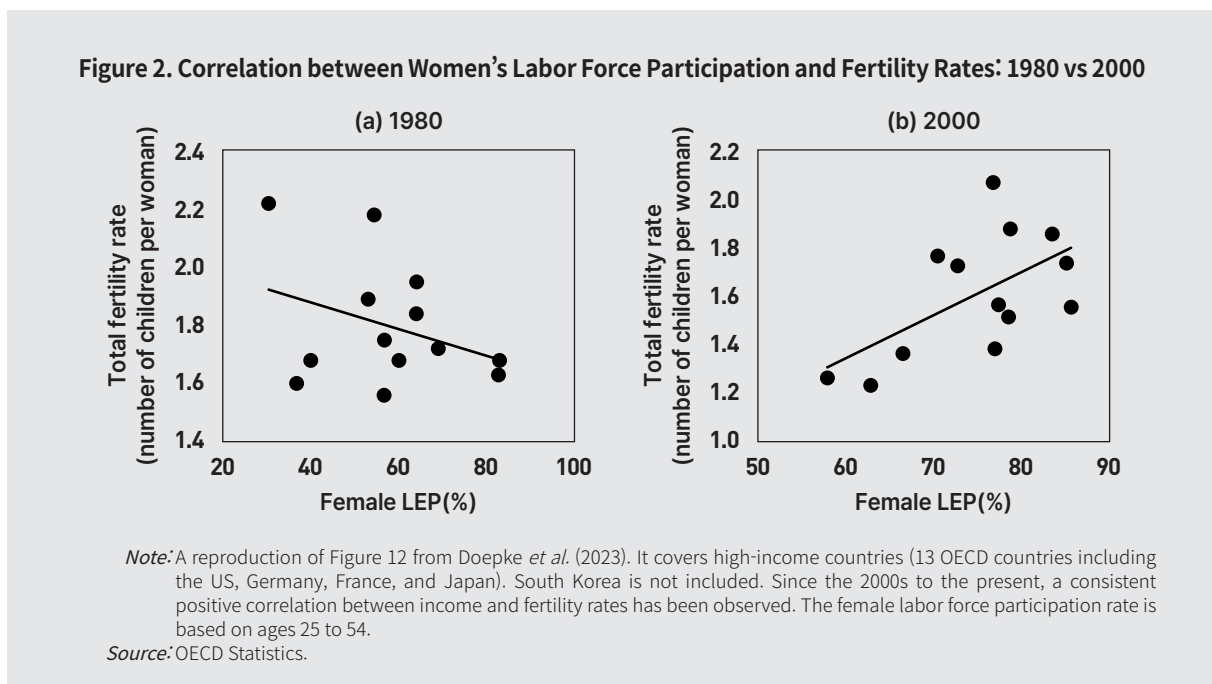
However, since the turn of the millennium, the correlation between income and fertility rates has shifted from negative to positive especially among high-income countries (Panel (b) of Figure 1). Similarly, a positive correlation between women’s labor force participation rates and fertility rates, marking a significant change from past trends, is now observable (Panel (b) of Figure 2) (Doepke *et al.*, 2023).

One factor driving this recent reversal of established trends regarding fertility rates is the changing socioeconomic environment. The expansion of quality public education has lessened the need for parents to bear the entire cost of their children’s private education. Moreover, with the availability of quality public and private childcare services that effectively substitute for parental care, the traditional trade-off theory, which previously explained the negative correlation between income and fertility rates, now holds less explanatory power.<sup>3)</sup>

Doepke and Kindermann (2019) argue that in understanding the changes in fertility-related correlations between 1980 and 2000, fertility decisions should be viewed as a negotiation between men and women. They emphasize that with improvements in women’s rights and the narrowing of gender gaps, the decision to become parents is no longer solely made by the head of the household. Instead,

3) The increasing opportunity cost remains the most pivotal economic factor in explaining the decline in fertility rates. The observed changes in stylized facts related to fertility rates are considered to stem from changes in the socio-economic environment that can effectively offset or limit opportunity costs, rather than a weakening of the importance of opportunity costs (e.g., Doepke *et al.*, 2023).

men (fathers) and women (mothers) jointly decide whether to have children. In modern society, childbirth occurs only with the consent from both parties, and if one refuses, it does not happen. Therefore, as quality childcare services are provided and environments are created where both equally share childcare and housework, the likelihood that women with career aspirations will refuse to have children decreases, potentially leading to higher fertility rates. Their analysis implies that in societies where women do not suffer economic disadvantages from childbirth, women's labor force participation rates, income, and fertility rates can all increase.



## II. Women's Probability of Career Interruption by Parenthood Status

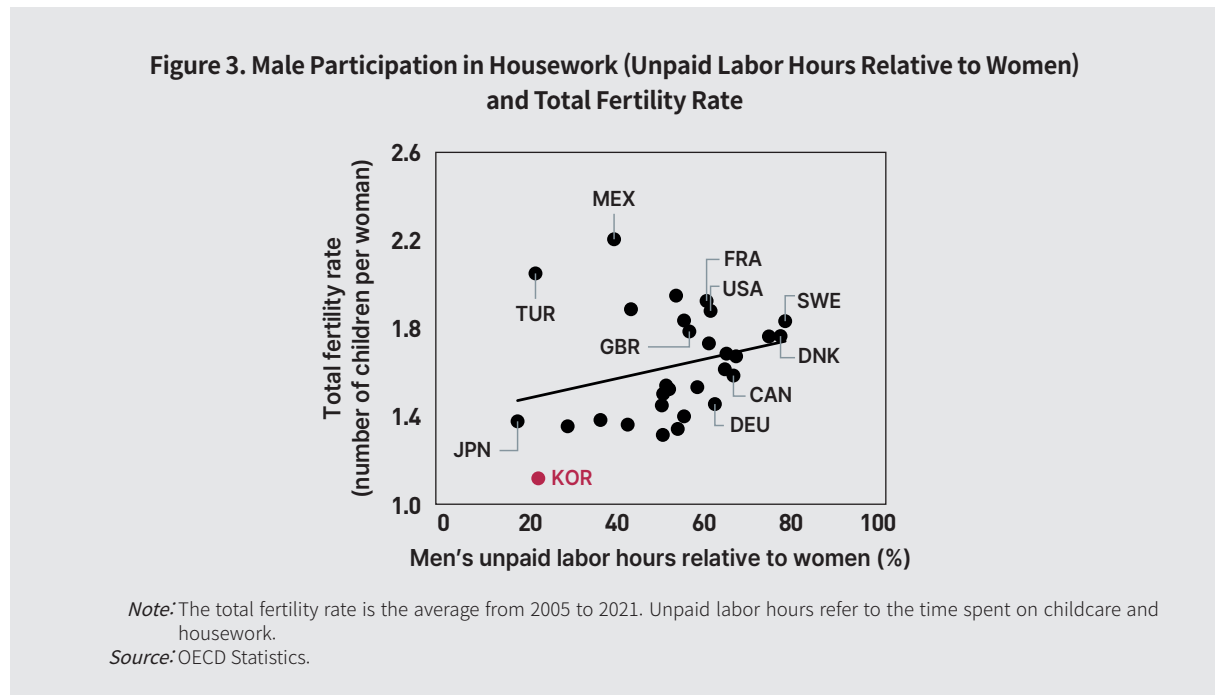
South Korea's low fertility rate may have stemmed from the disproportionate burden of childcare on women,

As stated earlier, since the 2000s, there has been a noticeable trend among OECD high-income nations showing higher fertility rates as income and female labor force participation rates increase. However, there is an outlier. Despite steady increases in these two metrics since then, why has Korea's fertility rate experienced a steep decline starting in the 2010s?

Drawing on the viewpoint of Doepke and Kindermann (2019), one possible reason for Korea's declining fertility rate is the persistent job market conditions unfavorable for work-family balance, leading more women to postpone or forego childbirth out of fear of career interruptions. This tendency is more pronounced in socioeconomic settings where

combined with the persistent difficulty in balancing work and family life, leading women to postpone or forgo childbirth.

the burden of childbirth and childcare is disproportionately borne by women. Figure 3 shows that Korea (KOR) ranks just after Japan (JPN) and Turkey (TUR) in terms of low male participation in housework, and also has the lowest fertility rates.



If the presence of children significantly affects women's probability of career interruption, the number of women who forgo childbirth while maintaining their careers due to these concerns may increase.

Despite the broader trend toward closing gender disparities, substantial disadvantages related to childbirth and childcare persist for women in Korea. Dynan *et al.* (2022) reveal that Korea's gender pay gap, chiefly driven by married women with children, remains among the highest within OECD countries, even given the high educational attainment of women. Additionally, Kim and Hahn (2022) found that mothers in Korea face a long-term income decrease of about 66% as their labor force participation drops after childbirth, unlike fathers barely affected. This disparity likely stems from the career disruptions commonly experienced by women due to childbirth, a challenge that men generally do not encounter.

Assume that young women face a higher chance of career interruptions after childbirth compared to men and that the gap in the likelihood of career breaks between women with and without children is increasing. Under these conditions, it becomes economically sensible for young women to delay or give up motherhood. As more young women choose to remain childless, the overall fertility rate is bound to fall. Do young women in Korea actually experience different

probabilities of career interruption depending on whether they have children?

Figure 4 presents three probabilities for female career interruption, including the average percentage for women in their 30s and the conditional percentages for women with and without children. Applying Bayes' theorem, these figures are synthesized from two datasets by Statistics Korea: "Women experiencing career interruptions by age and reason" from the Local Area Labor Force Survey and "Projected households by household head age, type, and size" from the Household Projections.<sup>4)</sup>

The average probability of career interruption for women in their 30s ( $\Pr(\text{Career Interruption})$ , gray), i.e., the likelihood of experiencing work hiatus for any reason, has been steadily decreasing since 2014, falling to 17% by 2023. Given that career interruptions are rare for men in Korea, this decline indicates that the overall gender gap is closing in the job market. In fact, the conditional probability for childless women ( $\Pr(\text{Career Interruption} \mid \text{without Children})$ , orange) has seen a dramatic reduction, plummeting from 33% in 2014 to just 9% in 2023.

However, examining mothers specifically, the probability of career interruption ( $\Pr(\text{Career Interruption} \mid \text{with Children})$ , blue) has decreased by only 4%p from 2014 to 2023.

4) Bayes' theorem can be employed to derive the conditional career interruption probabilities experienced by women with and without children as follows:

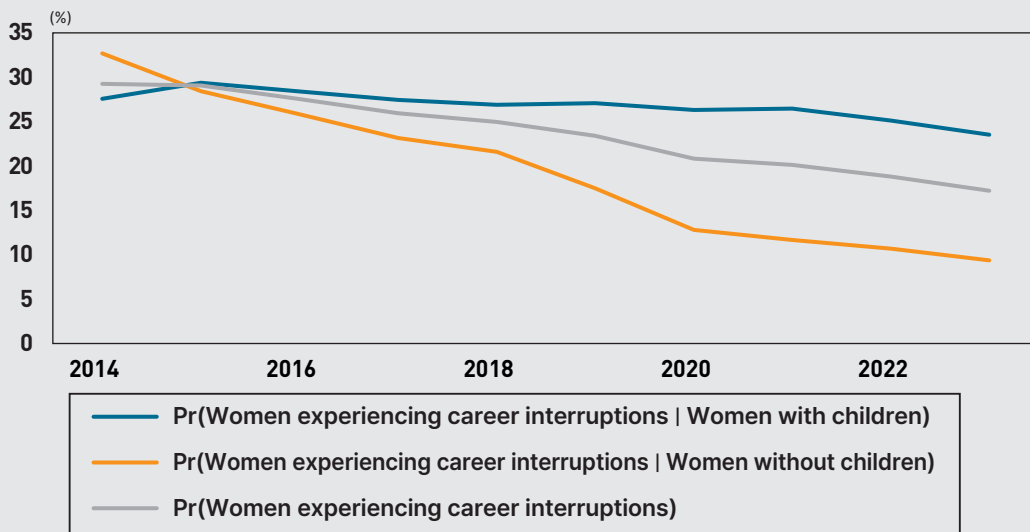
$$\begin{aligned} & \Pr(\text{Women experiencing career interruptions} \mid \text{Women with children}) \\ &= \Pr(\text{Women experiencing career interruptions} \cap \text{Women with children}) / \Pr(\text{Women with children}) \\ &\geq \frac{\Sigma(\text{Women with child-related career interruptions}) / \Sigma(\text{Women})}{\Sigma(\text{Women with children}) / \Sigma(\text{Women})} \\ &\approx \frac{\Sigma(\text{Women with child-related career interruptions}) / \Sigma(\text{Women})}{\Sigma(\text{Households with children with women (mothers)}) / \Sigma(\text{Households with women})} \end{aligned}$$

The reason for using the inequality sign in the second row of the equation is that women with career interruptions unrelated to children may also be women with children.

$$\begin{aligned} & \Pr(\text{Women experiencing career interruptions} \mid \text{Women without children}) \\ &= \Pr(\text{Women experiencing career interruptions} \cap \text{Women without children}) / \Pr(\text{Women without children}) \\ &\leq \frac{\Sigma(\text{Women with career interruptions unrelated to children}) / \Sigma(\text{Women})}{\Sigma(\text{Women without children}) / \Sigma(\text{Women})} \\ &\approx \frac{\Sigma(\text{Women with career interruptions unrelated to children}) / \Sigma(\text{Women})}{\Sigma(\text{Households without children with women (mothers)}) / \Sigma(\text{Households with women})} \end{aligned}$$

The reason for using the inequality sign in the second row of the equation is that women with career interruptions unrelated to children may also be women either without or with children.

**Figure 4. Conditional Career Interruption Probabilities for Women with and without Children**



*Note:* Due to the calculation method for conditional probabilities and the features of the data used, it is likely that the actual conditional probability of career interruption for mothers is higher than the estimated, and that for childless women lower. Refer to Footnote 4 for more explanation.

*Source:* Statistics Korea, “Local Area Labor Force Survey,” each year; “Household Projections,” each year.

If young women choose to have children, their probability of career interruption increases by about 14%p, leading to a higher likelihood of experiencing a substantial level of economic loss throughout their lifetime.

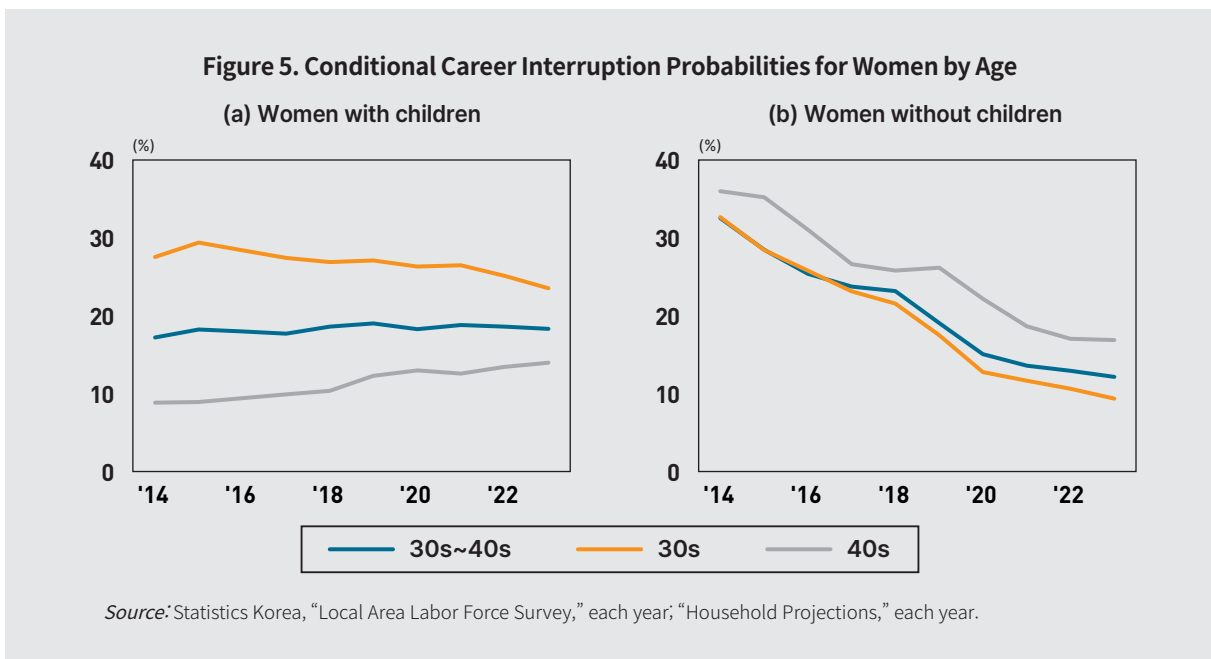
As a result, the relative difference in the probability due to family planning ( $\Pr(\text{Career Interruption} \mid \text{with Children}) - \Pr(\text{Career Interruption} \mid \text{without Children})$ ) has substantially expanded over the past decade (2014~23). Specifically, the extent of the growth in the likelihood of women experiencing career interruptions after childbirth has increased compared to previous years.

Put differently, as of 2023, if economically active, childless women in their 30s in Korea choose to remain childless, their probability of career interruption could decrease by at least 14%p.<sup>5)</sup> Considering the loss of human capital due to career interruptions and the potential wage increases from uninterrupted careers, this minimum reduction is enough to materially impact individual lifetime earnings. Additionally, when factoring in the costs associated with raising children, the economic benefits for these women in opting out of parenthood could be considerable.

Figure 5 displays the conditional career interruption probabilities for women with and without children, categorized by age group. Since 2014, the probability of career interruption for women with children (a) has shown diverging trends: a slight decrease for those in their

5) Due to the calculation method of conditional probabilities and the features of the data used, it is likely that the actual conditional probability of career interruption for mothers is higher than the estimated (underestimation), and that for childless women lower (overestimation). Therefore, it is probable that the actual gap in career interruption probability for women is larger than the figures presented in this paper.

30s (orange) and a relatively substantial increase for those in their 40s (grey). This divergence has led to a modest overall increase in the career interruption probability for mothers in their 30s and 40s.<sup>6)</sup> Meanwhile, the probability of career interruption for childless women has seen substantial declines in both their 30s (orange) and 40s (grey), with only slight variations. Over the past decade, there has been a marked reduction in the conditional probability of career interruptions for childless women, regardless of age. By choosing to remain childless, the likelihood of experiencing career breaks for women in these age groups in Korea can be as low as 10% as of 2023.



Then, despite the steady decline in the career interruption probability for childless women, why has this metric for mothers remained relatively unchanged? This could be attributed to the direction Korean society has taken in addressing the gender gap. Instead of aiming for work-family balance, the focus has been on enabling childless women

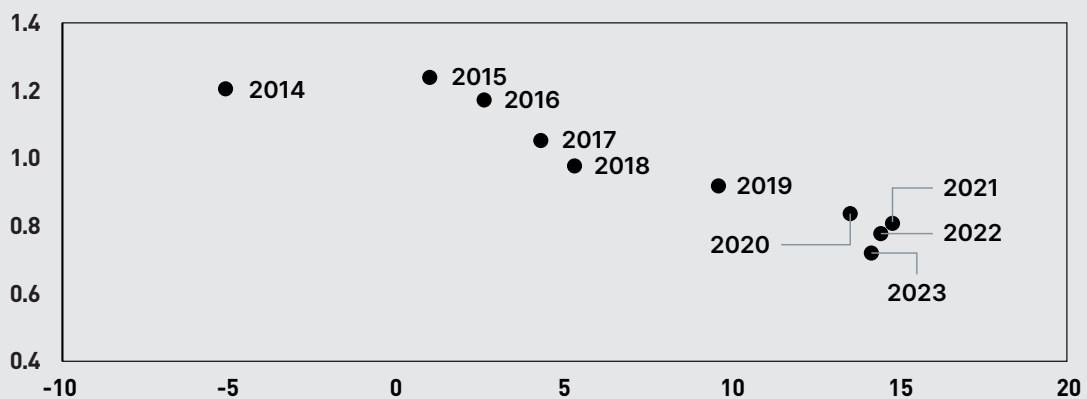
6) Despite the expansion of Early Childhood Education and Childcare (ECEC) services and the strengthening of maternity and parental leave policies, the career interruption probability has increased for women with children in their 30s and 40s, especially those in their 40s. This paper suggests a few possible explanations. Firstly, if only women who could endure career interruptions chose parenthood, this could elucidate the increased probability among women in both their 30s and 40s. However, it explains why the probability has increased for women in their 40s and not why the probability for the younger group decreased. Secondly, the expansion of proactive ECEC policies is another explanation. While these policies have slightly reduced the career interruption probability for women in their 30s, whose share of having younger children is high, they have had a limited impact on women in their 40s, who generally have older children, possibly leading to an increase in career interruptions in this age group. Thirdly, as more women delay childbirth due to concerns about career interruptions, the number of women in their 40s who require more parenting time for younger children might increase, potentially contributing to higher career interruption rates.

to compete with men in the labor market, without adequate attention to parenting responsibilities. In other words, while outdated labor market norms that overlook work and family harmony continue to prevail, childless women have made some progress in closing gender gaps by competing on equal terms with men. However, mothers are still facing considerable employment disparities due to the competitive labor market dynamics and the unequal burden of childcare.

Since the mid-2010s, Korea's total fertility rate has rapidly decreased, as the gap in career interruptions based on parenthood status has widened.

Per Figure 6, since 2015, a downward trend in fertility rate is evident, alongside the growing gap in interruption probabilities between women with and without children. This finding suggests that the interruption gap based on the parenthood status is a primary driver behind the fertility rate decline. Considering other multiple factors also at play, the next section will quantify to what extent career interruptions for women explain the decrease in fertility rate.

**Figure 6. Gap in Career Interruption Probability among Women in their 30s (with and without Children) and Total Fertility Rate**



*Note:* The horizontal axis represents the gap in career interruption probability (%p) for women, calculated by subtracting the conditional career interruption probability for women without children from that for women with children. The vertical axis represents the total fertility rate (number of children per woman).

*Source:* Statistics Korea, “Local Area Labor Force Survey,” each year; “Household Projections,” each year; “Population Trends Survey,” each year.

### III. The Impact of Women’s Child Penalty on Fertility Rates

To quantitatively measure the impact of women’s career interruptions on the fertility rate, this study utilizes city/county-level microdata by Statistics Koera’s Local Area Labor Force Survey. Due to data accessibility limitations, child penalty,<sup>7)8)</sup> or the after-childbirth employment disadvantages women face relative to men, is employed as a proxy variable for the gap in career interruption probabilities between women with and without children.<sup>9)</sup>

Specifically, to identify the anticipated shocks of the child penalty on women, this study employs the methodology of Fukui *et al.* (2023)<sup>10</sup> to analyze changes in employment rates by gender and age, as well as the total fertility rate, at the city/county levels since 2013. As shown in the earlier analysis (Section II), the majority of the increase in the career interruption probability gap between women with and without children since 2014 is attributable to the reduced conditional probability for childless women. Building on this observation, this study further investigates how the gender employment gap among young women, who are predominantly childless, influences the decline in the total fertility rate.

- 7) The disadvantages women face due to childbirth, often referred to as the child penalty, are commonly measured by the gender gap in employment status (or career interruption status) depending on parenthood. Kleven *et al.* (2024) analyzed data from 134 countries and reported that as economies develop, the gender gap related to marriage facing women in the labor market converges to zero, and the unexplained gender gap decreases. However, the gender employment gap caused by childbirth and childcare actually increases.
- 8) The child penalty is defined in this study as the gender employment gap following childbirth. It can be approximately measured by the difference in the gender employment gap observed between young women, who have a high proportion of being childless, and middle-aged women, who have a high proportion of having children.

$$\begin{aligned}
 \text{Child penalty} &\propto (\text{Gender gap in youth employment rate} - \text{Gender gap in middle-aged employment rate}) \\
 &\text{Gender gap in youth employment rate} - \text{Gender gap in middle-aged employment rate} \\
 &= s_y(\text{gap}_{\text{without Children}} + \epsilon_y) + (1 - s_y)(\text{gap}_{\text{with Children}} + u_y) - [s_o \text{gap}_{\text{without Children}} + (1 - s_o)\text{gap}_{\text{with Children}}] \\
 &= (s_y - s_o)(\text{gap}_{\text{without Children}} - \text{gap}_{\text{with Children}}) + s_y \epsilon_y + (1 - s_y)u_y \\
 &\propto (\text{gap}_{\text{without Children}} - \text{gap}_{\text{with Children}}) \\
 &= \text{Child penalty}
 \end{aligned}$$

$s_y$  and  $s_o$  represent the proportion of childless women among the young and middle-aged groups, respectively.  $\text{gap}_{\text{without Children}} + \epsilon_y$  and  $\text{gap}_{\text{with Children}} + u_y$  denote the gender employment gap experienced by young women without and with children, respectively.  $\text{gap}_{\text{without Children}}$  and  $\text{gap}_{\text{with Children}}$  represent the gender employment gap experienced by middle-aged women without and with children, respectively.  $\epsilon_y$  and  $u_y$  represent the difference between young and middle-aged women. If the change in  $(s_y - s_o)$ ,  $\epsilon_y$ ,  $u_y$  is not significant, the change in the child penalty over time can be approximated as follows:

$$\begin{aligned}
 \Delta \text{Child penalty} &\propto \Delta (s_y - s_o)(\text{gap}_{\text{without Children}} - \text{gap}_{\text{with Children}}) + (s_y - s_o) \Delta (\text{gap}_{\text{without Children}} - \text{gap}_{\text{with Children}}) + \Delta (s_y \epsilon_y + (1 - s_y)u_y) \\
 &\approx (s_y - s_o) \Delta (\text{gap}_{\text{without Children}} - \text{gap}_{\text{with Children}})
 \end{aligned}$$

- 9) Men's employment rates remain constant from their 30s, when they typically enter the workforce, regardless of whether they have children. Therefore, the gender employment gap by parenthood status is primarily attributable to the increased likelihood of career interruptions among women due to child-related responsibilities. Furthermore, depending on the characteristics of city/county-level data, there can be significant regional differences in population traits such as age, education level, and industry of employment. The variables of age and gender employment gap offer the advantage of controlling for these regional and age-specific differences in population traits.
- 10) Fukui *et al.* (2023) noted that while the employment rate of women in the U.S. was historically much lower than that of men, this gap has nearly closed in recent years. They argued that for male and female employment rates to converge, female-specific shocks must have occurred more significantly in regions with pronounced historical gender employment gaps. They used the past regional gender employment gaps in the U.S. as an instrumental variable to estimate the impact of increased female labor supply on both male and female employment rates. This paper employs a similar identification strategy, specifically using the regional and age-specific gender employment gap in 2013 as an instrumental variable. This study estimated the impact of the change in the child penalty, measured between 2013 and 2019, on youth employment rates and fertility rates.

Recently (2013~19), the gender employment gap has narrowed. Still, this converging trend has been limited to the young without children, ironically increasing the women's opportunity costs for choosing to give birth. This increased child penalty is estimated to account for about 40% of the overall decline in the fertility rate.

Table 1 presents the estimated effects of the narrowing gender employment gap (or the increasing child penalty) among young women on the declining total fertility rate. This reduction in the gender employment gap is estimated to have lowered the total fertility rate to a statistically significant level. When including women aged 30~34 with the highest childbirth rates, in the analysis of young women, the reduction in the gender employment gap accounts for about 40% of the decrease in the total fertility rate.<sup>11)</sup>

The narrowing in the gender employment gap among young adults can be interpreted as improved conditions for women, marked by increased status and reduced discrimination. Therefore, it can be speculated that this change will not adversely affect the fertility rate. However, despite the decreased probability of career interruption for childless women, the corresponding likelihood for mothers is either stalling or increasing. These divergent trends make the option of forgoing motherhood increasingly appealing, potentially influencing their reproductive decisions. As a result, the decrease in gender disparity in employment among childless young women has paradoxically led to a widening gap in career interruption probabilities between women with and without children, prompting more young women to delay or avoid childbirth.

**Table 1. Impact of Decreasing Gender Employment Gap among Young Women on Total Fertility Rate Decline<sup>12)</sup>**

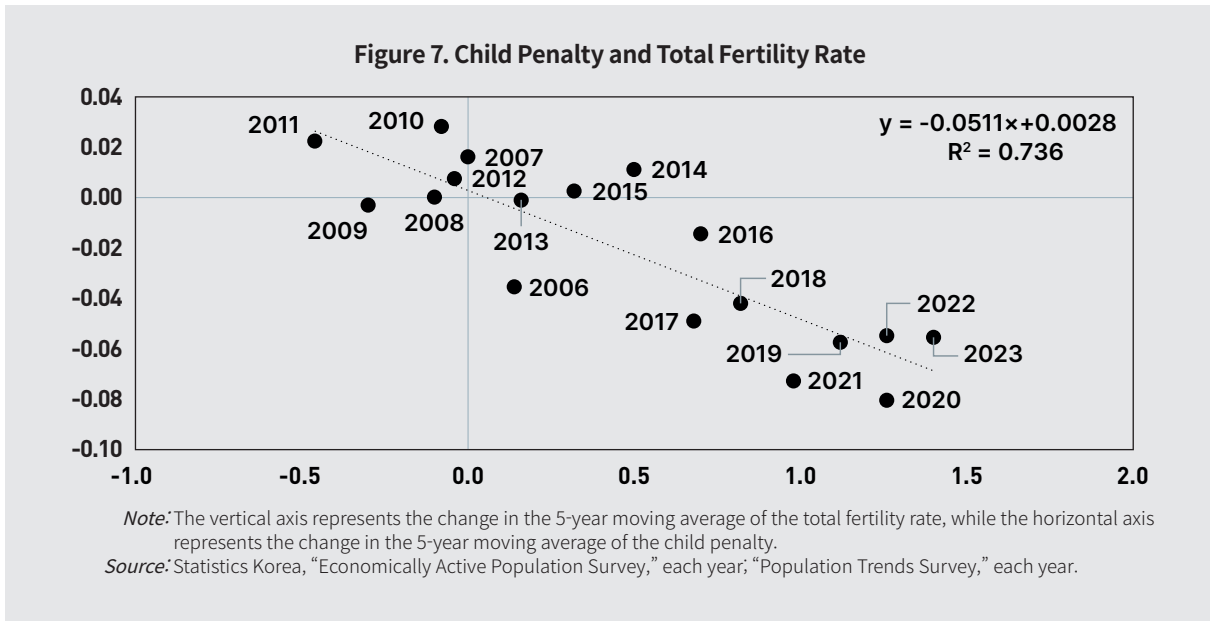
	Model I 25~29	Model II 30~34	Model III 25~34	Model IV 30~39	Model V 25~39
Impact of decreasing gender employment gap on total fertility rate (%p)	-0.0039** (0.0014)	-0.0092** (0.0031)	-0.0093*** (0.0027)	-0.0131** (0.0042)	-0.0134*** (0.0036)
Contribution to total fertility rate decline during 2013~19 (%)	7.4	45.6	39.6	45.5	46.2

**Note:** Numbers in parentheses represent heteroskedasticity-consistent standard errors. Estimates are weighted using city/county-level population data. Employing the methodology in Fukui *et al.* (2023), this analysis utilizes the gender employment gaps among young adults and middle-aged adults (ages 40-49) as instrumental variables. Additional control variables include regional wage levels, the proportion of unmarried individuals, wage disparities by education levels, the proportion of the manufacturing industry, and working hours. \*\*\* indicates a p-value of 0.001 or less, and \*\* indicates a p-value of 0.01 or less.

**Source:** Statistics Korea, "Local Area Labor Force Survey," each year; "Population Trends Survey," each year.

11) Strictly speaking, the analysis in this paper does not explain the total fertility rate of South Korea as a whole but rather explains the differences in total fertility rates across regions. Therefore, it may have underestimated the extent to which the increase in the career interruption probability gap actually decreased the total fertility rate. However, Fukui *et al.* (2023) showed that if the utility function of economic agents follows a log form, the effect on the change in regional disparities can be interpreted as the effect on the change nationwide.

Figure 7 graphically presents the data from Table 1, illustrating a scatter plot between the child penalty and the total fertility rate.<sup>13)14)</sup> A strongly negative correlation between these two variables indicates that as the child penalty increases, women are more likely to postpone or forgo childbirth, thereby leading to a decrease in the total fertility rate. Observations since 2016 show a sharp rise in the child penalty, accompanied by a dramatic fall in the total fertility rate.<sup>15)</sup>



- 12) Table 1 is derived using the following specific model as follows. First of all, observing that regions with higher gender employment gaps experienced a faster decrease in these gaps, the first stage employed the initial value (2013) of the gender employment gap for young women by region as an instrumental variable to estimate the change in the gender employment gap for young women during the 2013~19 period. Particularly, as regional differences in the gender employment gap converge towards zero over time, they may influence the variable  $\Delta gap_{without\ Children}$  in region  $i$ . However, they do not affect changes in fertility rates or the proportion of women without children ( $\Delta s_y$ ), except through  $\Delta gap_{without\ Children}$ . The analysis results show that the values in all models are rejected by the Weak Instrument Test ( $p\text{-value} \leq 0.001$ ), indicating the appropriateness of an instrumental variable, and by the Wu-Hausman Test ( $p\text{-value} \leq 0.025$ ), but not by the Sargan Test ( $p\text{-value} \geq 0.8$ ). Thus, the gender employment gap is deemed appropriate for use as an instrumental variable.
- 13) Although Figure 7 shows a clear negative correlation between the child penalty and the total fertility rate, this observation may be attributable to a confluence of factors. To exclude this possibility, this paper uses the initial gender gap among the younger generation as an instrumental variable to estimate the impact of the child penalty on fertility rates.
- 14) The negative correlation between the child penalty and the total fertility rate is observed not only in Korea but also in scatter plots for OECD countries.

Figure A1. 38 OECD countries (2019)

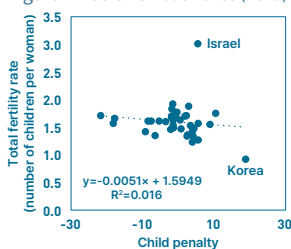
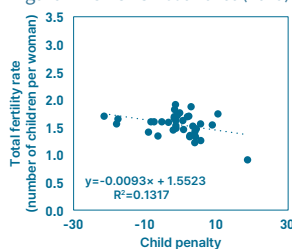


Figure A2. 37 OECD countries (2019)



*Note:* The young adult age range is defined as 25 to 34 years, and the middle-aged group from 40 to 44 years. Figure A1 includes all 38 OECD countries, while Figure A2 excludes Israel.

*Source:* OECD Statistics.

On the other hand, observations from 2006 to 2012, except for 2006, show that the total fertility rate marginally increased while the child penalty decreased, unlike the fertility decline observed over the past decade. What socioeconomic factors influenced the increase in the total fertility rate during 2006~12? Over this period, a marked growth in the number of early childhood education and care institutions alleviated the childcare burden on parents of young children. Additionally, the phased implementation of a five-day workweek system enhanced work-family balance. Furthermore, the economic conditions for the young generation and newlyweds improved, supported by real estate prices and economic growth rates that increased at a similar pace, posting relatively high growth rates in total factor productivity and overall economic development.

#### IV. Conclusion and Policy Directions

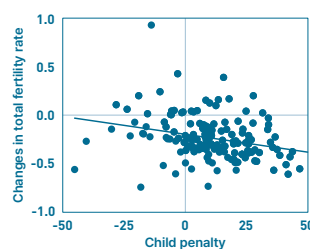
Policies aimed at preventing career interruptions for women with children are expected to contribute to raising the fertility rate

Childbirth is a dynamic decision-making process that spans a person’s entire life, shaped by a multitude of complex factors. This study, although limited in scale, initially investigates the widening gap in career interruption probabilities between women with and without children since 2014. It then empirically analyzes how an increasing relative employment disadvantage—or child penalty—for women with children might have contributed to the declining total fertility rate in South Korea from 2013 to 2019.

The analysis outcomes imply that lowering the probability of career interruption for women with children is necessary to improve the fertility rate. To that end, recommended policies include telecommuting, working hour reduction, and increased subsidies to alleviate time constraints that parents of young children face. Additionally, it is advisable to lessen the asymmetric childcare burden on women by promoting greater

- 15) Figure A3 is a scatter plot showing the changes in the total fertility rate and the changes in the child penalty at the city/county level during 2013~19, measured using Statistics Korea’s Local Area Labor Force Survey and Population Trends Survey. The child penalty has increased in most city/county regions. As observed in Figure 7, which uses national-level data, regions with a larger increase in the child penalty exhibit a larger decline in the total fertility rate, confirming a negative correlation.

Figure A3. Child Penalty and Total Fertility Rate (Changes over 2013~19, City/County Level)



Source: Statistics Korea, “Local Area Labor Force Survey,” each year, “Population Trends Survey,” each year.

by reducing the number of women who delay or forgo childbirth.

Policies that mitigate career interruptions for women with children can increase labor supply and prevent the erosion of irrecoverable human capital, thereby not only helping to raise the fertility rate but also promoting macroeconomic growth.

involvement by men (fathers) in the care and education of infants and toddlers. These measures can decrease career interruptions for women and, consequently, elevate the fertility rate as the burden of childbirth and childcare are alleviated.

Particularly noteworthy is the persistent pattern of career interruption among women with children in their 30s and 40s since 2014, despite the availability of parental leave and temporary flexible work hours for parents in Korea's labor market. Childbirth, childcare, and child education are core responsibilities that parents undertake until their children reach adulthood, spanning several years or decades. The ongoing discontinuity in the careers of working mothers, which has seen little to no significant improvement even recently, underscores the limitations of current short-term fertility policies, such as maternity leave lasting a few months, parental leave for one to three years, or reduced working hours available only for a couple of years. Therefore, it is prudent to establish long-term institutional support mechanisms, such as telecommuting and flexible work hours, within a decade-long policy framework to ease the time constraints faced by parents balancing work and childcare responsibilities.

Policies aimed at mitigating career interruptions for working mothers not only preserve valuable human capital but also indirectly boost overall labor productivity. Even with setbacks in labor market competition due to myriad factors related to childrearing, preventing the loss of this hard-to-replace human capital allows these women to re-enter the labor market at comparatively high wages once their children reach upper elementary or middle school. In turn, this significantly elevates overall productivity to a higher level.

In addition, although childcare-related work hour reductions decrease parents' working hours, effectively reducing the probability of career interruption through the policies discussed in this study can increase the total labor hours that women contribute over their lifetimes. This improvement translates into a lifelong increase in earnings for individuals or households and also drives economic growth through an increased labor supply on a macroeconomic scale.

Thanks to a strong emphasis on education, Korea's young adults have amassed the highest level of human capital in the world. They want to and should pursue their personal achievement and life goals while effectively managing the demands of parenting. We must create a supportive environment that enables them to make their families without career interruptions. ■

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