Why Gender Disparities Persist in South Korea’s Labor Market

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ABSTRACT
Although the South Korean economy fared relatively well on the whole during the pandemic, the labor market consequences were uneven, with women experiencing worse outcomes than men. These gender disparities have reinforced and highlighted important longer-term gender-related challenges in the South Korean labor market. Despite an above-average level of female tertiary education, the gender pay gap in South Korea is at the top of the range among OECD countries. The labor force participation rate is 20 percentage points lower for women than for men, a difference that is about one-quarter larger than the average for high-income countries. These disparities—as well as fertility that is the lowest of any advanced economy country in the world—reduce South Korea’s future economic prospects and will contribute to fiscal challenges as the population rapidly ages. The analysis in this paper suggests that the combination of low female employment and low fertility in South Korea reflects features of the traditional nature of work that create a particularly stark tradeoff for women between work and family and put pressure on women to choose one or the other. This tradeoff has increased in recent years because the opportunity cost of having a child has risen with the rapid growth in the tertiary education rate of South Korean women. Regressions based on individual-level data from the Korean Labor and Income Panel Study (KLIPS) show that the entire gap in female labor force participation is driven by married women, particularly women with children. Unmarried women with no children are just as likely to be employed as men. A sizable “child earnings penalty” for South Korean women is fully explained by women dropping out of the labor force after the birth of their first child rather than reducing hours or hourly wages. Although South Korea has made strides toward making work more family friendly, there is scope to do better.

JEL Codes: J11, J18, J22, J31
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INTRODUCTION

South Korea’s economy performed relatively well during the COVID-19 pandemic. Real GDP fell by less than 1 percentage point in 2020, compared with a decline of 4.5 percent for advanced economies as a group (IMF 2022b). The unemployment rate did not rise above 4 percent during the pandemic period, and the output gap (the difference between potential GDP and actual GDP) is projected to shrink to just 1 percent in 2022 (IMF 2022b). South Korea’s relative economic success during the pandemic owes largely to an effective initial public health response, which kept virus caseloads low in 2020 and 2021 (Kirkegaard 2021a).¹ The government also put forward a modest fiscal response, including spending measures targeting particularly hard-hit sectors and industries and interventions designed to bolster consumer spending, such as income support for families (Dyer 2021).

The overall performance of the economy during the pandemic masked uneven effects across different parts of the population, however. Women were hit harder than men by the economic fallout in the labor market. The early pandemic declines in employment and labor force participation rates for women were roughly twice those experienced by men (IMF 2022a). Pandemic gender disparities were even larger at the end of 2021, at which point most of the initial decline in employment and participation for men had been reversed but only half of the (much larger) initial decline for women had been recovered. The larger impact of the pandemic on female workers in South Korea is perhaps not surprising given their higher representation in the high-contact services sector and among nonregular workers without labor contracts.

Gender disparities during the pandemic reinforced important longer-term gender-related challenges in the labor market and more broadly in South Korea. Despite a high level of female tertiary education, the gender wage gap is at the top of the range among countries in the Organization for Economic Cooperation and Development (OECD 2022b). The female labor force participation rate is 20 percentage points below that for men, a gap that is about a quarter larger than the average for OECD countries (OECD 2022c).

Understanding the causes and implications of these gender labor market disparities is central to the economic prospects of South Korea over both the short and longer terms. In coming years, putting more policies in place to reduce gaps will help South Korea attain a robust and complete economic recovery. Over the longer run, boosting the productive capacity of the economy through full use of the potential labor force is critical to fiscal sustainability. South Korea’s population is graying rapidly, with the number of people aged 15–64 passing its peak in the late 2010s and an elderly dependency ratio that is about to soar (Kirkegaard 2021b).

Although a high effective age of retirement and relatively modest public pension benefits are currently mitigating the fiscal challenges associated with supporting the older population, the situation in coming decades might become much worse, because of a pronounced downtrend in fertility in South Korea. The total fertility rate in South Korea was roughly stable for the first 15 years of the 21st century but began to drop steadily in the mid-2010s, falling from 1.24 in 2015

¹ South Korea experienced a surge in COVID cases and deaths in March and April of 2022, after two years of exceedingly low virus caseloads. Cumulative confirmed COVID–related deaths per million people are still very low relative to the average for high-income countries, however (Our World in Data 2022).
to 0.84 in 2020—the lowest of any OECD economy (OECD 2022a). Unless reversed, this drop will reduce the size of the South Korean workforce in the decades to come and make it more difficult to support the retired population.

The labor market and fertility patterns in South Korea are linked. Countries with higher female employment also have higher fertility rates (Doepke et al. 2022)—a marked reversal from previous decades. Our analysis suggests that the combination of low female employment and low fertility in South Korea reflects a particularly stark tradeoff for women between work and family that puts pressure on women to choose one or the other. Employment rates in South Korea have long exhibited an M-shape, with many women leaving the labor market when they have children and returning only after a multiyear absence. The rapid aging of South Korea’s population—in combination with expanded but still relatively skimpy public support for the older population—is likely to add to these pressures, as more women will have to choose between working and caring for elderly relatives.

A key contributing factor to the stark work-family tradeoff women face is the structure of work in South Korea. Despite sizable declines in average work hours over the last two decades, South Koreans still put in the longest hours of any high-income country in the OECD. The prevalence of part-time work is low, making it difficult for South Korean women with young children to remain employed. These challenges are compounded by extremely large gender disparities in time spent on household labor and childcare in South Korea.

Another contributing factor is the “insider-outsider” nature of South Korea’s dual labor market. Women are disproportionately represented in the nonregular work sector. Indeed, they have the highest temporary work share in the OECD, according to OECD Labor Force Statistics. All net job growth for Korean women in the last two decades has been in regular work, meaning that the temporary and irregular work share is declining rapidly. This trend is promising along some dimensions but may be contributing to lower fertility.

Policy changes and other steps taken in the past two decades have helped mitigate the challenges, but, as evidenced by the still-large employment disparities, they have not been enough. Notably, the South Korean government has instrumented a huge expansion in the provision of early childhood education. South Korea is now well above Anglo-Saxon OECD members and Japan and closer to Scandinavian expense levels in terms of public spending on early childhood education and enrollment; it also has very low private out-of-pocket childcare costs (OECD Social Expenditure Database). In addition, South Korea’s maternity and parental leave policy is generous for both parents, although income replacement rates are lower than in many peer countries and take-up from mothers and, particularly, fathers is low by international standards.

Our analysis of the relevant trends and institutions strongly suggests that family and child considerations play a substantial role in explaining gender labor market gaps in South Korea. We investigate this idea using individual-level data from the Korean Labor and Income Panel Study (KLIPS) for the years 2000–19. We estimate how much of the gender wage gap and gender participation gap can be explained by observable traits of workers. We consider patterns over

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2 Available at www.stats.oecd.org.
time as well as by demographic characteristics, paying particular attention to patterns that are plausibly related to the marked downturn in the fertility rate and the aging of the population.

We find that the South Korean gender wage gap declined in recent years but is still substantial, remaining above 20 percent in 2019 after controlling for education, industry, occupation, workplace type, hours, worker status, firm size, and union status. The gap is smallest for female workers in their 20s; it widens in their 30s and 40s and narrows somewhat in their 50s. It is wider for female workers with less education. Strikingly, it is not much larger for female workers with children than for female workers without children.

In contrast to patterns of wages by family status, all of the gap in female labor force participation is driven by married women, particularly women with children. Unmarried women with no children are just as likely to be employed as men. Estimating the effect of the birth of a first child on women and men’s labor market outcomes, we show that a large share of women drop out of the workforce when they have children, and few of the women who remain employed reduce their hours.

The size of the “child earnings penalty” and its concentration on the extensive margin (whether women are employed at all, as opposed to whether they reduce their wages or hours) distinguishes Korea from other countries. This finding suggests that certain unique features of Korean labor markets and related institutions—such as the traditional inflexibility of “regular” work (as opposed to lower-paying contract jobs)—may explain the combination of large gender wage and participation gaps and low fertility.

The paper is organized as follows. Section 1 considers gender patterns in the South Korean labor market and related issues, such as childcare and parental leave policy. Section 2 describes the demographic trends of declining fertility and an aging population as well as their likely relationship with women’s labor force participation. Section 3 uses individual-level data to explore the underpinnings of gender gaps in wages and participation. Section 4 examines the role of children and family status for female workers. Section 5 considers policy implications.

**1. THE SOUTH KOREAN LABOR MARKET AND RELATED INSTITUTIONS**

South Korea is rightly regarded as one of the economic miracles of the second half of the 20th century, having risen from colonization by Japan and a devastating civil war between 1950 and 1953 to become one of Asia’s strongest economies. South Korea became a member of the OECD in 1996. Powered by manufactured exports, its real GDP per capita surpassed that of Japan in 2018, according to the IMF’s purchasing power parity (PPP)–adjusted data.

The South Korean economy has struggled to overcome entrenched gender gaps in labor market outcomes, however. Although women’s labor force participation in South Korea rose in recent decades, it continues to lag that of its high-income OECD peers (figure 1). South Korea also lags the G-7 countries in terms of earnings equity, with larger gender and seniority pay gaps (figure 2).
Figure 1 Female labor force participation, 1977Q1-2021Q4, ages 15-64

Source: Organization for Economic Cooperation and Development.

Figure 2 Gender and senior-prime age wage gaps, 2020 or latest available, percent mean wages

Source: Organization for Economic Cooperation and Development.
Many types of employees in South Korea have traditionally faced grueling work schedules. At least in part because of regulatory changes limiting the maximum work week, official work hours declined somewhat over the past dozen years. The work week remains long relative to other OECD countries of similar productivity and income levels, however (figure 3). Moreover, official hours likely understate actual hours in South Korea, as workers are reportedly reluctant to leave before their supervisor departs and face pressure to socialize with colleagues after the work day is over.

Figure 3 Annual hours worked/worker and GNI/hour worked

GNI = gross national income
Source: Organization for Economic Cooperation and Development.

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3 Productivity in figure 3 is based on gross national income (GNI) rather than gross domestic product (GDP). GDP estimates the value added of economic activities within a country’s geographic borders, irrespective of ownership; it includes foreign direct investments. GNI estimates the value added of economic activities controlled by Korean nationals, irrespective of where they are located; it excludes the activities of foreign-owned businesses in Korea but includes the activities of Korean-owned businesses globally. As such, GNI is an ownership-based concept that better captures the true productivity levels of Korean-owned entities.

4 See Kocken (2015) for a discussion of the Korean “noonchi culture” of workers being mindful of when superiors leave, and always appearing to be busy.
Long full-time hours in South Korea combined with low (albeit rising) levels of part-time work (figure 4) make it difficult for Korean women with children to remain employed, given that they are responsible for nearly all childcare and household activities.\(^5\) In recent decades, the strong zeal for education in South Korea—what Lee, Calonge, and Hultberg (2019) calls “education fever”—has likely increased the burden on mothers as they strive to organize and support their children’s educational progress.\(^6\) Inactivity rates of prime-age female workers are far above those of men in South Korea (figure 5), with most inactive women not retired or in school engaged in childcare and/or housekeeping (figure 6).\(^7\)

**Figure 4** Part-time work, share of total employment ages 15-64, by gender

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\(^5\) Doepke et al. (2022) show a substantially wider gender gap in time spent with children in South Korea than in Austria, Denmark, France, Italy, the Netherlands, Spain, the United Kingdom, or the United States. In addition to cultural underpinnings, long full-time hours for Korean men make it more difficult to rebalance the gender allocation of time for housework and childcare (Brinton and Oh 2019).

\(^6\) See Lee, Calonge, and Hultberg (2019) for discussion of this phenomenon and its consequences.

\(^7\) The very limited contribution of South Korean men to childrearing duties relative to other high-income OECD countries also depresses Korean fertility levels, as modern couples tend to have another child only if both partners want it. When men contribute very little to taking care of the first child, women are far less likely to want more, and fertility declines. See Doepke and Kindermann (2019).
Figure 5 South Korea’s inactive population, by gender and age group, second half of 2021

Source: Statistics Korea, Local Area Labour Force Survey.

Figure 6 South Korean inactive (not part of the labor force) population ages 15y+, by reason of inactivity other than old age, June 1999-April 2022

Source: Statistics Korea, Economically Active Population Survey.
Against this backdrop, female labor force participation in South Korea has persistently exhibited an M-shape, in which participation is high at a young age, drops during prime age (presumably because of family responsibilities), and then picks up again at higher ages. This M-shape has persisted over time, albeit evolving to a “different font” by 2020 (figure 7). In particular, the dip now occurs roughly 10 years later in the lifecycle than it did in 1980, as South Korean women now tend to stay longer in full-time education before entering the workforce. South Korean female labor force participation today peaks when women are in their late 20s before dropping when they reach their 30s and then rising again from age 40 through the early 50s.

Figure 7 Korean female labor force participation, by age group, 1980-2020

The South Korean labor market has traditionally had the same insider-outsider characteristics observed in many countries, especially in southern Europe. Prime-age men are on the inside, enjoying well-paid jobs with high job security, while women, young people, migrants, and older workers are on the outside, disproportionally toiling in lower-paid and often temporary jobs. In

8 Japan’s female labor force participation also exhibits an M-shape over the lifecycle, although this pattern diminished substantially in recent years (Shambaugh, Nunn, and Portman 2017). In contrast, the United States and European countries tend to have more of a “hump” shape in women’s labor force participation that does not feature a large decline at child-bearing age (see Kinoshita and Guo 2015 and Goldin and Mitchell 2017).

9 See, for instance, Gali (2016) and Schwander (2018) for analyses of European insider-outsider labor markets and their effects.
2021, South Korea had the largest share of female temporary work in the OECD, at 32 percent, almost three times the OECD average of 12 percent and higher than even the notorious insider-outsider labor markets of Spain (27 percent) and Japan (21 percent), according to OECD labor force statistics.\textsuperscript{10}

Recalling the $M$-shape of female labor force participation over the lifecycle, it seems likely that the prevalence of temporary work reinforces women’s propensity to drop out of the labor force when they have children. With such contracts coming to a regular end, typically after one year, dropping completely out of the labor market in connection with imminent childbirth is more likely, and finding new employment after childbirth may be more difficult.\textsuperscript{11}

The share of temporary employment among Korean women has been gradually declining over recent decades, although it is still high by OECD standards. In particular, the number of Korean women in the most unstable arrangements—“daily workers” on contracts up to one month duration—declined significantly in recent years (figure 8).

**Figure 8 Korean female employment, by work contract/status (excluding nonsalaried workers), NSA, January 1989-April 2022**

![Graph showing Korean female employment trends](image)

*Source:* Statistics Korea.

\textsuperscript{10} Available at [www.stats.oecd.org](http://www.stats.oecd.org).

\textsuperscript{11} See also Del Boca (2002), Adserà (2004), and Da Rocha and Fuster (2006) for analysis showing how in countries with scarce well-paid and flexible jobs for women, parents will be worried that temporary career disruptions for women starting a family may turn into permanent labor market absence, especially in the case of multiple children. In this type of labor market duality, in which relatively few full-time regular jobs for women exist, many may choose to forego having a child, dampening fertility.
The number of South Korean women on temporary work contracts of up to one year’s duration was relatively stable over the last 10 years. All of the increase in Korea’s female labor force participation during the 21st century came from more women entering “insider type” open-ended jobs. This news is unambiguously good for Korean women. With the right legal framework and family-friendly policies, enforcement of regulations, and better social norms surrounding parental leave (for both parents), the availability of still-open (or “indefinite”) job contracts should help more Korean women return to the labor force more quickly after childbirth. (In the absence of appropriate institutions to facilitate the return of women on open contracts to the workforce, this trend could be associated with continuously fewer women choosing to start a family and further declining fertility.)

The expansion of the welfare state began later than in South Korea than in its OECD peers, but public spending on early childhood education and care expanded rapidly after 2004. The Korean government now spends close to 1 percent of GDP on this category of spending—a level below that of Scandinavian welfare states and France but well above public spending levels in English-speaking OECD countries and other countries, such as Italy and Germany, that historically have had low levels of female prime-age labor force participation (figure 9). Public spending levels have been higher in Korea than in Japan since 2007, with South Korea continuing to spend more than Japan even after Prime Minister Abe launched Japan’s “Womenomics” policy to boost female labor force participation.

**Figure 9 Public spending on early childhood education and care, ages 0-5, percent of GDP**

*Source: OECD Social Expenditure Database.*
Likely as a result of its relatively high public spending levels on early childhood education and care, South Korea has the highest enrollment rates in the OECD, reaching close to 95 percent for the three- to five-year old children. This enrollment level is comparable to the Nordic OECD members and well ahead of the United States and many other high-income OECD countries (figure 10).

**Figure 10 Enrollment rates in early childhood education and care services 2018, ages 0-5, percent of children enrolled by age**

Public spending on early childhood education and care services are even in the most generously funded OECD members complemented by private out-of-pocket supplementary spending (which may be mitigated by features of the tax code and other policies). Available data on out-of-pocket early childhood expenses show that South Korea, with net childcare costs for two children aged 2 and 3 at just 5 percent of average wages for a two-earner family, has private costs at levels below many European and even Nordic OECD members—and far below typical private costs in English-speaking OECD countries (figure 11).
South Korea’s already very high enrollment rates in early childhood education and care at the youngest ages and its low level of private out-of-pocket expenses suggests that the scope for government policy to expand access to this category of services may be limited. Higher per-child spending to reach the levels in the most generously funded European systems would likely help boost female labor force participation by improving access to flexible and all-day early childhood education and care services. At the same time, given the extent to which such services are already available, a further boost is likely to have declining returns in terms of the prospective increase in Korean female labor force participation.

OECD data for the average usual weekly hours for children under the age of two using early childhood education and care services show that average levels for the entire OECD at 30.6 in 2019 was only a little below the EU average of 31.6, implying that Korean children also spend a comparable number of hours benefitting from these services. In light hereof and recalling, too, that Korean female labor force participation remains well below that of OECD peers, including Japan with less enrollment at the youngest ages and higher out-of-pocket supplementary expenses, suggests that lack of access to public childcare is not the principal driver of Korean women’s labor force participation, or its M-shape across age groups. It may be that national norms and South Korea’s “education fever” render objectively generous access to early
childhood education inadequate to allow for market work given the burden for some South Korean women associated with optimizing their children’s educational advancement.\textsuperscript{12}

Data from the 2020 Korean Population and Housing Census report that 60.2 percent of children under the age of 12 (i.e., including at least six years during which primary and secondary schooling is mandatory) were taken care of by their parents during the daytime. This figure is remarkably high, given Korea’s high early childhood enrollment rates and compulsory primary schooling.\textsuperscript{13} The same data source reports that in 2020, just 5.9 percent of Korean under 12 attended after-school programs or childcare programs in elementary schools.\textsuperscript{14} Despite very high early childhood childcare enrollment, attachment to the labor force by prime-age women in Korea remains much more fragile than in OECD peers.

Maternal and parental leave policies are relatively generous in South Korea, where women are entitled to 90 days of paid maternity leave (60 days covered by firms and 30 by employment insurance). However, just 76.5 percent of eligible Korean women took maternity leave in 2018 (OECD 2020). The lack of full take-up may reflect pressure related to firms’ reluctance and/or inability to fill temporary vacancies (with the result that colleagues have to take on additional work), suggesting scope for refinement and stronger enforcement of regulations.

South Korea’s paid parental leave policy allows for up to 12 months to be taken while children are young. However, the required replacement rate amounted to just 31 percent of average earnings for a full possible one-year leave in 2019, only about half of levels in Japan, Germany, and many other OECD peers. Although Korean fathers have become significantly more likely to take parental leave in recent years—with the rate having risen from 2.4 percent in 2011 to 21.2 percent in 2019 (OECD 2020)—the low income replacement rate means that both men and women face short-term financial disincentives to take parental leave, in addition to any long-term career consequences associated with doing so. Recent Korean governments have pledged to improve enforcement of parental leave options at private firms and make leave options more flexible, with shorter leave periods at higher replacement rates possible.

2. SOUTH KOREA’S DEEPENING FERTILITY BUST AND LOOMING OLD-AGE CARE CRISIS

For years, Japan led the world in population aging, driven by the lowest fertility levels in the OECD; rising life expectancy; and, since around 2010, an absolute decline in the number of Japanese. Today, Japan has one of the highest fertility levels in North East Asia, as its neighbors in China, Taiwan, and especially South Korea have witnessed the rate of new births plummet to levels never experienced among Japanese women.

\textsuperscript{12} The pressure to achieve educational excellence may also be important in reducing fertility, as the cost (in terms of money and parental time) of giving even one child an excellent education is very high in South Korea (Anderson and Kohler 2013; Kim, Tertilt, and Yum 2021).

\textsuperscript{13} Del Boca (2002) and Apps and Rees (2004) find that if childcare is to materially increase female labor force participation, it must cover the entire working day.

\textsuperscript{14} The effect of work-from-home policies during the COVID-19 pandemic and other social restrictions may have inflated the data from 2020. Data from the 2015 Census showing over half of Koreans under the age of 12 are taken care of by their parents during the daytime indicate that this potential upward bias from children being taken care of by parents only during the pandemic is limited in scope.
In 2020, for the first time, South Korea experienced a decline in its natural population (the difference between the number of live births and deaths); in 2021, it experienced its first total population decline (of about 69,000). In addition, net migration figures turned negative in 2021 (likely as a result of the effects of the COVID-19 pandemic), indicating that migration no longer offsets the structural decline in the natural population. With South Korea’s mortality rate on track to slowly rise, given the aging population and fertility rates having dropped precipitously since 2015, net migration of even historically unprecedented scale would not—in the absence of a rebound in fertility levels in the future—prevent the total population from declining for many years (figure 12). Figure 12 illustrates how collapsing birth numbers are the principal driver of South Korea’s accelerating depopulation, as even the COVID-19 pandemic caused no discernable increase in mortality levels.

**Figure 12 South Korean population trends, 1970-2021**

South Korea’s fertility levels have plummeted, with the total fertility rate (TFR) falling by about two-thirds, from an estimate of about 4.5 children on average for a woman between 15-44 years of age in the early 1970s to about 1.5 by the late 1980s (figure 13). A period of stability followed until the early 21st century, when South Korea experienced a further decline in fertility levels to “Japanese levels” of 1.2–1.3. After 2015, South Korean fertility levels collapsed further to a

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15 Data for net migration in South Korea start in 2000, implying that the total population change can only be estimated after this year.
record low among OECD members of just 0.81 in 2021 (Adema et al. 2020, Kirkegaard 2021b). The COVID-19 pandemic appears to have had no discernable effect on South Korea’s post-2015 downward fertility trend.

Figure 13 South Korean total fertility rates and marriage and divorces 1970-2021p

Note: Vital and TFR data for 2021 are preliminary.
Source: Statistics Korea.

The historical reasons for South Korea’s fertility decline lie with rapid economic development; urbanization; rapidly rising female educational attainment (which, as we argue below, increased the opportunity cost of working women having children); changed government family policies; and increased access to birth control. The unwanted post-2015 decline in fertility to new global lows appears intimately linked with the simultaneous dramatic decline in marriages relative to divorces in South Korea (see figure 13). The “marriage surplus”—the number by which new marriages exceed divorces in a given year—fell by more than half between 2015 and 2021, from 194,000 to just 91,000. Because it is very rare for children to be born out of wedlock in South Korea—because of both social norms and legal discrimination—the dwindling popularity of marriage will need to be reversed if any material rebound in fertility is to materialize.16

16 In South Korea, just 2.3 percent of children were born out of wedlock in 2019, a fraction of the average among OECD members of around 40 percent. Promoting marriage likely requires additional changes in policies and norms. See Kirkegaard (2021b) for a discussion.
Despite its recent ascent to the top of the OECD’s tertiary educational attainment ranking for young women, South Korea has continued to lag other high-income economies in both female employment rates and fertility levels. South Korean fertility levels declined as employment rates rose between 1980 and 2019 (figure 14). In the highest-income OECD countries, the relation between the employment rate among prime-age women and fertility levels is positive.¹⁸

**Figure 14 Female employment rates and fertility levels in South Korea and high-income* OECD countries**

![Figure 14](image)

* Only OECD countries with GDP/capita above PPP$25,000 in 2019 included. Fertility data from Israel have been excluded due to uncertainty about data from disputed areas of the Golan Heights, Eastern Jerusalem and Israeli settlements in the West Bank under the terms of International law. Turkey has been excluded due to the large decline in the value of the Turkish lira in recent years, undermining its status as a high-income OECD member. Trendline excludes South Korea.

Source: Organization for Economic Cooperation and Development.

The experience of other high-income OECD countries suggests scope for South Korea to replicate their policies and increase both prime-age female labor force participation and fertility. Of course, in any democratic society, the role of government may be limited by public preferences regarding optimal family sizes. South Korea’s prolonged period of ultra-low fertility has been increasingly coupled with a decline in the expected number of children born to married Korean women of child-bearing age, which dropped from 1.96 in 2010 to 1.68 in 2020 (KOSIS 2020). To the degree that these trends reflect preferences rather than factors changing the costs

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¹⁷ In 2020, 67 percent of women 35–44 and 76 percent of women 25–34 had tertiary educational attainment in South Korea (OECD 2021).

¹⁸ This positive relationship between women’s labor force participation and fertility rates is a stark reversal from the 1980s, when countries with higher female labor force participation tended to have lower fertility (Doepke et al. 2022).
and benefits of having additional children, a prolonged period of ultra-low fertility rates in Korea may be entrenched.

South Korea has one of the most rapidly aging populations in the world, because of the combination of rising life expectancies at high ages and very low levels of fertility. The quickly rising number of elderly Koreans will put heavy fiscal strains on what remains one of the OECD’s less generous welfare states. In 2008, South Korea switched from a means-tested to a universal public long-term care insurance (LTCI) system, at a time when the population age 65 and older represented about 10 percent of the total Korean population. This share is rising rapidly and will have doubled to 20 percent by 2025 (figure 15). This increase in the share of the elderly population will require a significant expansion of employment in the professionalized elder care sector and/or a significant increase in the number of family members taking on the daily tasks of looking after elderly and frail relatives. The 2008 introduction of universal LTCI in South Korea appears to have significantly affected social and family norms regarding whether caring for elderly relatives is a family responsibility or not. In 2006, roughly two-thirds of South Koreans regarded caring for older parents as a family responsibility; by 2016—eight years after the introduction of universal LTCI—only about a third of South Koreans reportedly did so (Kim and Kwon 2021).

**Figure 15 South Korean main population age groups (millions) and old age dependency ratio, 1960-2070p**

![Figure 15 South Korean main population age groups (millions) and old age dependency ratio, 1960-2070p](image)

*Note: Data after 2020 projections are from Statistics Korea's Medium Variant Population Forecast. Source: Statistics Korea.*
In 2022, South Korea’s old-age dependency ratio was around 25 people 65 and older for every 100 people 15–64. This ratio will double as early as 2035 and is on track to reach the unfathomable level of 100 by the mid-2060s, when the elderly population is projected to be as large as the working-age population. South Korea’s total old-age spending has risen, but it is currently only around one-third of the spending levels of high-income OECD countries (figure 16).

**Figure 16 Social spending on old age, all categories, public and mandatory and voluntary private sources**

![Graph showing social spending on old age](image)

*Source: OECD Social Expenditure Database.*

In light of the dramatic aging of the South Korean population, this low level of total (public and private) spending on the older population may be fiscally sage, but it gives South Korea the highest level of old-age poverty in the OECD. In 2018, 43 percent of South Koreans older than 65 (and 48 percent of older South Korean women) had incomes less than 50 percent of the median equivalized household disposable income. This old-age poverty rate compares with 13 percent for the OECD as a whole and 17 percent for the Korean population of all ages, according to data from [stats.oecd.org](http://stats.oecd.org).

Unless significantly more resources are devoted to LTCI in the coming decades, the risk of increased hardship among older South Koreans is likely to compel more working-age people to leave the labor market to care for elderly relatives unable to manage on their own and without
access to adequate public services. Given that women bear most household- and childrearing-related responsibilities in South Korea, it is overwhelmingly likely that Korean women will have to bear the vast majority of any future rise in families’ need to care for elderly relatives. Such an outcome could jeopardize some of the recent years’ gains in their labor force participation.

3. GENDER WAGE AND EMPLOYMENT GAPS: INDIVIDUAL-LEVEL ANALYSIS

South Korea’s gender wage and employment gaps are strikingly large in international context. In this section, we use individual-level survey data to analyze how the gaps have changed over time and how they vary by age, and to decompose the roles of men and women’s different education levels and job characteristics (industry, occupation, regular or irregular work) in explaining them.

The source of data is the Korean Labor and Income Panel Study (KLIPS), a longitudinal study conducted by the Korea Labor Institute (KLI) and funded by South Korea’s Ministry of Employment and Labor that surveys urban households and their individual residents. The KLIPS has been implemented since 1998, when it included 5,000 households. These households and the new households formed by their individual members have been followed since then. In 2009, 1,415 additional households were added to the sample; another 5,044 households were added in 2018. The latest public data are from 2019.19

The KLIPS captures a range of information about every individual in the household, including demographic information, highest level of educational attainment, and a large range of variables describing the individual’s work. We use the data both as an individual-level cross-section (for which we use the cross-sectional weights supplied by the KLI) and as a longitudinal panel (for which we use the longitudinal weights supplied by the KLI).

Our key dependent variables of interest are workers’ hourly wage, hours of work, and employment status. We construct individuals’ hourly wage from their self-reported average monthly pay and self-reported average weekly hours. Employment status is self-reported. We construct a binary variable that takes the value 1 if the person reports working (either as the main activity or as an activity alongside housework, childcare, or studying) and 0 if the person is not. Our primarily independent variable of interest is gender, which is self-reported as male or female.

Breaking Down the Gender Wage Gap

To better understand the gender wage gap, we run Mincer-style wage regressions (Mincer 1958). In particular, we regress the 2019 log hourly wage on a dummy for female, adding successive controls and observing how much of the wage gap continues to be unexplained:

\[
\log(\text{wage})_i = \alpha + \beta \cdot \text{female}_i + \gamma_i X_i + \epsilon_i
\]

\[1\]

19 The KLIPS survey tracks individuals older than 15 with annual interviews and questionnaires, even when they relocate or change households. Individuals from included households who age into or join these households in other ways (e.g., marriage) are added to the sample. The sample includes only households in urban areas (defined as city subdistricts, towns, and subcounties). It excludes Jeju Province, people in the military, and people in institutions.
where $X_i$ denotes the control variables. The groups of controls are age (a dummy variable by year of age), education, location of residence, industry, occupation, job characteristics (average weekly hours and worker status), and workplace characteristics. In our main gender wage gap regressions in Figure 17, workplace characteristics include workplace type, workplace size, and union status. In all other regressions, we exclude the control for workplace size, because a large share of observations are missing for this variable and its inclusion does not change our baseline gender wage gap coefficient. Our baseline specifications include all men and women between the ages of 20 and 70. All specifications use robust standard errors.

Figure 17 shows the point estimates of $\beta$, the coefficients on the female dummy, from each successive regression, along with 95 percent confidence intervals. The raw gender wage gap is 33 log points. It falls to 27 log points when accounting for age and education and to 18 log points when incorporating industry and occupation fixed effects; it rises to 22 log points when controlling for job and workplace characteristics. The majority of the raw gender wage gap thus cannot be explained by education, location, industry, occupation, or job or workplace characteristics.

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20 All specifications have 9,072 observations except the final specification, which has 7,344 observations, because almost a quarter of observations are missing information on workplace size. Education is a categorical variable with eight options: no schooling, elementary school, lower-secondary school, upper-secondary school, two-year college/vocational/technical/associate degree, university (four years or more), masters’ degree, and doctoral degree. Location of residence is a categorical variable with 17 options within South Korea, an option for North Korea, and an option for overseas elsewhere. Industry codes the individual’s job into the Korean Standard Industrial Classification 2000 industry codes; 199 unique industries are represented in the data. Occupation codes the individual’s job into the Korean Standard Occupational Classification 2000 occupation codes; 164 unique occupations are represented in the data. Average weekly hours is average weekly hours in the main job; for individuals for whom this variable is missing, we follow the KLIPS FAQ guide in calculating it from self-reported regular and overtime hours. Worker status indicates whether a worker is a regular worker, a temporary worker, a daily worker, self-employed, or an unpaid family worker. Workplace type is a categorical variable with eight options: private company, foreign company, government-related company, foundation or corporation, government or government branch, civic or religious group, other, or does not belong to any specific company or institution. Union status indicates the existence of a union at the individual’s main job. Workplace size is a categorical variable for the number of employees at the individual’s company, with options “1–4, 5–9, 10–29, 30–49, 50–69, 70–99, 100–299, 300–499, 500–999, 1,000 or more, and I don’t know.”

21 Log points approximate percent differences for small changes. For large changes, they slightly underestimate percent differences. In keeping with the academic literature on gender wage gaps (e.g., Blau and Kahn 2017), we report the gaps in log points (which correspond directly to the coefficient estimates in our regressions, as we regress log wage on gender).
The size of the residual gender wage gap in South Korea is striking. In the United States, for example, the raw gender wage gap estimated in a similar fashion from individual-level survey data in the Current Population Survey is 16.0 log points; it falls to 11.5 log points when controlling for demographics, industry, occupation, and job characteristics. (Full details of this estimation are in appendix table A.1). The regression-adjusted gender wage gap in South Korea is thus almost twice as large as in the United States.

Estimation of raw and regression-adjusted gender wage gaps in 15 major industry sectors in 2019 reveals that all sectors except the arts, sports, recreation, and agriculture have negative and statistically significant gender wage gaps when controlling for age, education, residence, (narrow) industry, occupation, average hours, worker status, workplace type, and union status. The sector with the largest gender wage gap is manufacturing, where the raw gender wage gap was 49 log points and the regression-adjusted gender wage gap 32 log points. The sectors with the smallest regression-adjusted gender wage gaps were human health and social work (8 log points) and education (12 log points). Appendix table A.2 displays the full set of coefficient estimates.

---

22 The point estimate for the regression-adjusted gender wage gap in agriculture is very large and negative, but the standard error is large, so the estimate is not statistically significant. The point estimate for the regression-adjusted gender wage gap in arts, sports, and recreation is very close to zero (in fact, slightly positive) and not statistically significantly different from zero.
Although gender wage gaps remain wide, they have narrowed considerably since 2000. Between 2000 and 2019, the regression-adjusted gender wage gap declined by about 10–15 log points (figure 18, panel A). This decline was part of a longer-term trend in which the regression-adjusted gender wage gap declined from 1988 to 1998 (Monk-Turner and Turner 2004).

**Figure 18 Raw and regression-adjusted gender wage gap over time and by age group**

Panel B of figure 18 shows the results from estimating gender wage gaps separately for each five-year age group between 20 and 59, using pooled data over the 2010–19 period. Both the raw and regression-adjusted gender wage gaps are negligible for 20- to 24-year-olds and still relatively small for 25- to 29-year-olds. The gap increases significantly for women in their 30s and is widest for women in their 40s (the raw gap remains wide for women in their 50s).

---

23 Specifically, we estimate a separate Mincer regression for each year with our full set of controls (regression-adjusted) and with no controls (raw).

24 As our data are panel data, pooling over several years means including multiple observations for each person. The regressions include year fixed effects and cluster standard errors at the person level.

25 In our baseline regression specification, we are unable to control for years of experience in the labor force, possibly biasing our estimates of the residual gender wage gap upward, as women who leave the labor force and then return will have less labor market experience than men. Taking advantage of the panel aspect of the KLIPS data, we calculate the number of years working over 2000–19 for all men and women in the data and estimate the same gender wage gap regressions as above for 2019 only, segmenting by age group and adding dummy variables for previous years working. We find no significant difference in the size of the gender wage gap when controlling for years of work experience alongside our full baseline controls, although the previous 19 years do not capture older workers’ full labor market histories (see appendix table A.3).
Breaking Down the Gender Employment Gap

Using the same data, we also estimate the gender employment gap—the degree to which a given woman is less likely to be working than a man with similar observable characteristics. For these analyses, we use the following specification:

\[
emp_i = \alpha + \beta \cdot female_i + \gamma_i X_i + \epsilon_i \tag{2}
\]

where \( emp_i \) is a binary variable denoting whether someone is working or not, and the vector of controls \( X_i \) contains dummy variables for age, education, and region of residence.

Panel A of figure 19 shows the results of these regressions run separately for each year and with and without age, education, and residence controls. The gender employment gap is wide but narrowed somewhat over time, with women 21.5 percentage points less likely to be working than men of the same age, education level, and region of residence in 2019.

Panel B shows the results broken down by five-year age group between 20 and 59. There is no gender employment gap for women in their 20s, with women in their early 20s actually a little more likely to be working than men of the same age, education status, and region of residence. A gender employment gap of 35 percentage points appears for women 30–34. It persists, widening in women’s late 30s and narrowing a little in their late 40s and 50s.

Figure 19 Gender employment gap, over time and by age

Source: Korean Labor and Income Panel Study (KLIPS).
Gender Wage and Employment Gaps by Education

In panel A of figure 20, we estimate the regression-adjusted gender wage gap separately for workers with and without a four-year college degree over 2010–19 (segmented by five-year age group between 20 and 59). As before, the regression-adjusted gender wage gap regressions include dummies for age, education, location of residence, industry, occupation, worker status, union status, and workplace type, as well as a control for hours of work. This gap is substantially larger for non-college-educated workers than for workers with a four-year college degree. For both groups, the gender wage gap is zero at age 20–24 but widens rapidly with age, peaking at 45–49 at 27 log points for college-educated workers and a striking 48 log points for non-college-educated workers.

In panel B, we estimate the gender employment gap separately by education status and age group over the same period, with dummies for age, education, and location of residence. Both college-educated and non-college-educated women are more likely than men to be working in their early 20s. For non-college-educated women, a gender employment gap of around 10 percentage points arises at ages 25–29, widening to around 40 percentage points by 30–34. For college-educated women, the gender employment gap appears only at ages 30–34 (at 30 percentage points). From the mid-30s onward, this gap is the same size for college-educated and non-college-educated women (unlike the gender wage gap, which remains substantially larger across age groups for the non-college-educated).

Figure 20 Regression-adjusted gender wage and employment gaps for college- and non-college-educated workers

Source: Korean Labor and Income Panel Study (KLIPS).
4. GENDER WAGE AND EMPLOYMENT GAPS: THE ROLE OF CHILDREN AND FAMILY STATUS

The M-shape in South Korean women’s labor force participation over the lifecycle described in section 1 and the large increase in regression-adjusted gender wage and employment gaps for women in their late 20s and 30s estimated in section 3 suggest that family responsibilities are important factors behind women’s labor market decisions. In this section, we investigate this question, estimating Mincer regressions for gender wage and employment gaps separately by family status and then estimating directly the effects of the arrival of the first child on women’s labor market outcomes.

Breaking Down Gender Wage and Employment Gaps by Family Status

We repeat our analysis from section 3, using the same Mincer regression specifications in equations (1) and (2) to estimate gender wage and employment gaps separately for two groups of women 25–54: (a) married or formerly married women with children and (b) never-married women with no children (combined, the two groups cover 93.5 percent of women in our data).26 For each of these two groups, we estimate the gender log wage or employment gap relative to all men (regardless of the men’s marital status or children).

Figure 21 illustrates the results for the gender wage gap. Although the regression-adjusted gender wage gap is consistently wider for women with children than women without children, it narrowed somewhat in recent years. The gender wage gap is still very large for unmarried women without children (10–15 log points in the late 2010s), even when controlling for age, education, location, industry, occupation, and work and job characteristics (panel A).

Panel B shows the regression-adjusted gender wage gap for 2010–19 by age group. Never-married in their 30s and 40s with no children face a regression-adjusted gender wage gap that is large and similar to that for married women with children. The difference in the gender wage gap for women with and without children shown in panel A seems to be driven by younger (25–29) and older (50–54) women (although the difference for 50-54 year old women is not statistically significant). These results suggest that on the whole, South Korean women in their 30s and 40s who remain in the labor force after having a child continue to perform on par with childless women and suffer no greater stigma.

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26 We restrict the sample to women 25–54, rather than 20–59 as in our other analyses, because there are few married women 20–24 with children and few never-married women 55–59 with no children, so the standard errors for these groups are very large. We do not consider never-married women with children because of the extremely low rate of extramarital births in Korea. Similarly, we do not include married women without children because the rate of childlessness within marriage is very low (in 2015, for example, the rate of childlessness among married women 45–49 in South Korea was only 2.9 percent [Myong, Park, and Yi 2021]). Thus, even younger married women who currently have no child may already be adjusting labor market behavior to prepare for having children (as described in Brinton and Oh 2019). To identify women with children in our data, we select either women who answer “yes” to the question “Have you ever given birth?” or women who are in a household in which at least one member is under 18. The former question is asked only of women in the first year they are in the survey. The latter variable is constructed by matching the individual-level KLIPS data to the household-level data. We define women as “married or formerly married” if they identify their marital status as either married, divorced, separated, or widowed.
Figure 21 Regression-adjusted gender wage gap for women with and without children

Source: Korean Labor and Income Panel Study (KLIPS).

Figure 22 illustrates the results of the same exercise for the gender employment gap. These results are strikingly different. Family status accounts for all of the gender employment gap for women 25–54. There is almost no gender employment gap for never-married women with no children. In contrast, the gender employment gap for married women with children is very large, although it declined from 40 percentage points in 2000 to 35 percentage points in 2019.

Panel B shows the gender employment gap by age and family status in 2010–19. By far the largest gender employment gap is for women 25–39 with children. The employment gaps between women with and without children narrow when women reach their early 40s, a finding that is consistent with women leaving the workforce when their children are born and gradually reentering later on. Married women with children account for the vast majority of the gender employment gap, but there is still a small gender employment gap even for never-married women with no children, particularly in their 30s and 40s.
We next consider women’s additional responsibility for caring for elderly relatives who cannot manage on their own and lack access to public services that might help them. In panel A of figure 23, we estimate the gender employment gap for women 25–54 in 2010–19 for (a) married women with children, (b) unmarried women with no children and no one over 65 in the household, and (c) unmarried women with no children and at least one person over 65 in the household. We see a large gender employment gap for the last group and no gender employment gap at all for the second group. Given the rapid aging of the Korean population, and the minimal provision of old-age care described in section 2, elder care is likely to be a large and growing obstacle to women’s labor force participation.

Source: Korean Labor and Income Panel Study (KLIPS).

27 The gender employment gap is particularly large for unmarried women in their 30s and 40s with at least one person 65 or older in the household, quite likely a parent (results available on request).
We examined gender gaps in the probability of employment, but even when women are working, they are likely to engage in different types of work from men. In panel B of figure 23, we estimate the gender gap in the likelihood of being employed in a regular job as opposed to an irregular job and being employed full time as opposed to part time for women aged 25-54 over 2010-19. On average, women were less likely than men to be employed in a regular job and less likely to be employed full time, even controlling for age, education, region of residence, occupation, and industry. Once again, however, this gap is almost entirely driven by women with care responsibilities: Never-married women with no children or person over 65 in the household were just as likely as men to work full time and only marginally less likely to be in a regular job. In contrast, both never-married women with a family member over the age of 65 and married women with children were substantially more likely than men to be in an irregular job and/or to be employed part time.


The Mincer regressions estimating employment gaps strongly suggest that women’s low labor force participation rate in South Korea is related to children and family status: Never-married women with no children are as likely to work as men, conditional on age, education, and location of residence. As an explanation, we propose that the rigidities in the Korean labor market discussed in section 1, combined with women’s high educational attainment, mean that the cost of having a child in terms of forgone labor market opportunities is unusually high.
We use the longitudinal feature of the KLIPS to explore this hypothesis. In particular, we adapt the methodology from Kleven, Landais, and Søgaard (2019) to estimate the decline in women’s earnings after the birth of their first child relative to the counterfactual of not having had children, known as the “child earnings penalty.” We denote event time \( t = 0 \) as the year a person has their first child, inferred from the KLIPS dataset as the first year a child with age 0 is listed in the household where there was no person under the age of 18 in the household the previous year. We then run the following regression separately for men and women:

\[
Y_{i,s,t}^g = \sum_{j=-2} \alpha_j^g \cdot I[j = t] + \sum_k \beta_k^g \cdot I[k = age_{i,s}] + \sum_y \gamma_y^g \cdot I[y = s] + v_{ist}^g
\]

where \( Y_{i,s,t}^g \) denotes the outcome of interest for individual \( I \) with gender \( g \), in year \( s \) and event time \( t \). The regression includes a full set of event time, age, and year dummies. We use only individuals who were present in the data for 2000–19 for at least three years before and five years after having their first child, yielding a sample of 1,750 women and 1,632 men. We run this regression on total annual earnings and each of the three components of earnings: the employment rate (extensive margin participation), hours (intensive margin participation), and hourly wages.

Figure 24 displays the results. Unlike Kleven, Landais, and Søgaard (2019), we select time \( t = -2 \) (two years before the arrival of the first child) as the baseline year relative to which outcomes are estimated, because we see strong evidence that women start to reduce their labor force participation the year before their first child is born.

Figure 24 Child earnings penalty estimates, 2000–19

Note: Shaded areas show 95 percent confidence intervals.
Source: Korean Labor and Income Panel Study (KLIPS).
Women’s likelihood of working falls substantially with the arrival of their first child and begins to increase in the five years following the birth only very slowly. Conditional on working after the birth of the first child, however, there is no change in hours or wages. (For men, there is no statistically detectable change in employment, hours, or wages after the birth of a first child). These results are consistent with the Mincer regression results shown above, which find a large differential in the probability of employment for women with or without children but almost no differential in the gender wage gap for women with or without children. Park (2021) also finds that the earnings effect is concentrated entirely on the extensive margin of labor force participation.

The patterns for South Korea are strikingly different from the experience of continental European countries, where the child earnings penalty is typically a mix of the intensive and extensive participation margin and hourly wages. In Denmark, for example, Kleven, Landais, and Søgaard (2019) find that, four to five years after the birth of their first child, women’s participation rates are around 13 percentage points below the counterfactual, women’s hours worked are around 10 percentage points below the counterfactual, and women’s wages are around 9 percentage points below the counterfactual. In South Korea, the comparable figures are 20-40 percentage points for participation and close to zero for hours and hourly wages. Kleven et al. (2019) find that child penalties in Austria, Germany, and Sweden come from a mix of extensive margin participation, intensive margin participation, and hourly wage penalties. In contrast, they find that the child penalty in the United Kingdom and the United States is driven largely by the extensive margin labor force participation.

5. POLICY IMPLICATIONS

Our findings are consistent with the view that women in South Korea face an especially stark tradeoff between work and family, which is holding down both female labor force participation and fertility. Women can expect to have either a “good” job or a successful family experience, with little ability to combine them. High-paying secure regular jobs require long hours and offer little to no flexibility. At home, the traditional South Korean gender division of household labor means that women are expected to do most of the work of childcare, family and home maintenance (including promoting better child educational outcomes), and elder care (if needed).

Given the earnings premium associated with a college degree, the opportunity cost of having a child is particularly high for South Korean women, because they are the most-educated young women in the world. The share of South Korean women 25–34 with a tertiary degree more than tripled between 1995 and 2020, rising from 24 percent to 76 percent, according to OECD data.

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28 One hypothesis for why women’s labor force participation declines sharply after the arrival of their first child is that childbirth may provide a natural break in work for women in irregular jobs with fixed-term contracts. We estimate the child penalty in labor force participation separately for women who were in irregular or regular jobs at event time –2 (two years before arrival of their first child). We find no evidence to suggest that there is any difference between regular and irregular workers in the rate at which women stop working when they have their first child. We also estimate child penalty regressions separately for college- and non-college-educated women and men. Our point estimates suggest that the child penalty in employment is a little smaller for college-educated than for non-college educated women, but the estimates are not statistically significantly different. (The replication code is available for both these sets of estimates in the replication files; results are available on request.)
increasing the opportunity cost of having a child. Given the significant challenges facing working mothers and the increasingly high income returns for many South Korean women, it is unsurprising that South Korea has seen such a striking decline in fertility.29

Raising female labor force participation in Korea will become increasingly imperative as the older population grows relative to the working-age population. Older individuals will need income support and healthcare. The scope for such transfers depends on the earnings of the working population. South Korea could realize significantly higher income if more women worked and were in jobs that made the most of their skills. The IMF (2019) estimates that real GDP in South Korea could be 4 percent higher by 2035 if female labor force participation rose to the average rate for other advanced economies and 7 percent higher if the participation gap between men and women closed altogether. Over the longer run, the economy’s ability to support its older population also depends on population growth, highlighting the benefits of also raising the fertility rate.

These considerations argue for policies that increase the flexibility of “regular” work, the availability of good part-time jobs, and on-ramps that encourage women with interrupted careers to reenter the workforce. Policies that shift norms around caregiving of children and elderly relatives at home are also needed. Such measures would increase gender equity, make more efficient use of women’s talents in the workforce, and help reduce or (ideally reverse) some of the decline in fertility.30

South Korea should also aim to close gender wage gaps (including by addressing gaps in promotion) for reasons of equity and efficiency. However, closing such gaps alone might further reduce fertility, as better opportunities at work would increase the opportunity cost of having a child yet further. This risk underscores the importance of coupling policies to reduce gender earnings gaps with reforms that enhance work-life balance and boost female participation.

Korea has already taken a number of steps in this direction. Government subsidies have increased access to and the affordability of childcare for infants and young children. the government has also put in place maternity and parental leave policies that, in principle, compare favorably with other countries. It has lowered the legal maximum for weekly hours (Hijzen and Thewwissen 2020) and increased the number of reemployment centers for women with interrupted careers (Yang 2021). These steps—along with the increase in the educational attainment of women—have likely contributed to the significant rise in female labor force participation in South Korea shown in figure 1. But the sizable remaining gap between the female labor force participation rate in South Korea and peer countries suggests that South Korea can do better.

Notwithstanding the reduction in maximum weekly hours, working very long hours remains common in South Korea, partly because more than 40 percent of workers are exempt from the rules (Hijzen and Thewwissen 2020). Policy measures to encourage firms to offer flexible hours

29 Over time, fewer children per family will increase the elder care burden women shoulder.
30 Cross-country evidence is consistent with the idea that it is possible to raise fertility rates and women’s labor force participation at the same time. Across industrial economies, countries with higher fertility rates tend to be those with higher women’s labor force participation (see Doepke et al. 2022).
or part-time work arrangements would likely help Korean mothers stay in (or reenter) the labor force. Many OECD countries—including Australia, Austria, the Netherlands, New Zealand, Norway, Portugal, Sweden, and the United Kingdom—provide a statutory right to request reduced hours, flexible work, or part-time work arrangements. Blau and Kahn (2013) find that this right is associated with a significantly narrower gender employment gap.

Firms might be more willing to introduce flexibility to regular work arrangements if the cost savings associating with hiring nonregular workers were not as large as it currently is. Jones and Fukawa (2016) argue that increasing nonregular workers’ coverage by social insurance would help equalize the relative costs (in addition to better protecting nonregular workers).

Take-up of maternity and parental leave is limited in South Korea, suggesting scope for better enforcement of access to these benefits. Kim, Hwang, and Kim (2021) report substantial evidence that South Korean women—particularly women in nonregular jobs, women who work long hours, and women who do not belong to a labor union—are often not aware that they are eligible for maternity or parental leave or worried about the professional repercussions of taking it.31

There is also scope to increase the generosity of paid parental leave, as the required replacement rate in South Korea is substantially lower than in many peer countries. Higher replacement rates reduce the opportunity cost of taking leave to have children. They may encourage more fathers to take leave. In addition, several studies of other countries suggest that more generous parental leave can increase fertility, by reducing the opportunity cost of having children.32

As with childcare, increasing access to elder care would allow more women to work. This issue will become particularly important as the older population swells in coming years. South Korea took the proactive step of addressing future population aging concerns by establishing a universal public long-term care insurance program in 2008. Although the program is appropriately viewed as a major achievement (Kim and Kwon 2021), restrictive eligibility criteria have resulted in relatively modest coverage of the older population and gaps by socioeconomic group (Jeon and Kwon 2017). At the same time, the shrinking of the (premium-paying) working population relative to the older population means that the program will put increasing stresses on public finances over time (Kim and Kwon 2012). As South Korea considers the important question of balancing the program’s coverage with its financial stability, it should take into account the benefits that expanding coverage are likely to have for female labor force participation.

31 Park (2021) finds that women who have never worked in a firm that offers maternity leave are substantially more likely to leave the labor force after having a child than women who have worked at a firm that offers maternity leave.

32 In her study of the effect of parental leave on fertility rates across 19 OECD countries, including Japan and Korea, from 1969 to 2010, Shim (2014) finds that paid job-protected parental leave is strongly associated with higher fertility but that unpaid or non-job protected leave is not. In their study of 18 OECD countries over 1982–2007, Luci-Greulich and Thevenon (2013) find strong relationships between fertility and the availability of paid leave, childcare provision, and cash transfers to families. Lalive and Zweimüller (2009) find that Austria’s extension of parental leave from one to two years increased fertility rates. Raute (2015) finds positive fertility effects of an expansion in the replacement rate of paid leave among higher-earning mothers in Germany. In contrast, Dahl et al. (2016) find that extension of parental leave in Norway had no effect on fertility.
The government could also strengthen its active labor market policies, particularly its coverage of the nonregular sector, to make it easier for women with interrupted careers to find new employment (Jones and Urasawa 2013).³³

Private sector businesses in South Korea can play a substantial role in developing and implementing practices that will raise female labor force participation and promote gender equality more broadly. As the decline in the working-age population accelerates, private businesses will presumably become incentivized to make more use of the highly educated female population. The government may be able to hasten such efforts through nudges such as requiring public disclosure of gender gaps.³⁴

REFERENCES


³³ Korea is already taking some of the steps that Japan took as part of its “Womenomics” agenda, but a closer look at whether there is scope for adapting any remaining steps might be constructive. Studies support the view that Japan’s policies had some success raising female labor force participation and female employment in “regular” work (see, for example, Nobuko 2018 and Kawaguchi, Kawata, and Toriyabe 2021). There are some important differences between South Korean and Japanese labor market institutions that limit the applicability of the Japanese experience—for example, Kim (2010) argues that nonregular employment in Japan is more likely to be a voluntary complement to regular employment as opposed to an involuntary substitution for regular employment.

³⁴ Evidence on gender pay gap disclosure policies in Denmark and the United Kingdom suggests that mandatory gender pay disclosures appear to reduce gender pay gaps, although the effects appears to come more from moderating men’s pay growth than raising women’s pay growth (Bennedsen et al. 2019; Blundell 2020; Duchini, Simion, and Turrell 2020).


APPENDIX A US GENDER WAGE GAP ANALYSIS

We estimate Mincer regressions for the gender wage gap in the US using Current Population Survey data for 2019, downloaded from IPUMS. We regress the log of the hourly wage on a dummy for female and various controls, using the same regression specification as outlined in the main text in equation (1).\(^3\) Table A.1 shows the coefficients on the female dummy in each specification, and standard errors in parentheses.

| Table A.1 Gender wage gaps in the United States, raw and regression-adjusted, 2019 |
|-----------------------------------|---|---|---|---|
| Dependent variable: log wage | (1) | (2) | (3) | (4) |
| Female | -0.164\(^{***}\) | -0.203\(^{***}\) | -0.128\(^{***}\) | -0.115\(^{***}\) |
| | (0.00340) | (0.00287) | (0.00322) | (0.00324) |
| Observations | 138,708 | 138,708 | 138,708 | 134,008 |

Controls:
- Year: Y Y Y Y
- Demographics: Y Y Y Y
- Industry, occupation: Y Y Y
- Job characteristics: Y

Note: Standard errors in parentheses. \(^*\) \(p < 0.05\), \(^{**}\) \(p < 0.01\), \(^{***}\) \(p < 0.001\). Demographics includes age, age squared, education, and location. Job characteristics includes average weekly hours, paid hourly, full/part-time, and union status.

Mincer gender wage gap regressions by industry

Table A.2 shows coefficients and standard errors on the interaction between sector dummies and a female dummy, from a regression of the log hourly wage on dummies for sector and dummies for sector interacted with a female dummy variable. “No controls” specification includes no further controls. “Full controls” specification also includes dummies for age, education, location of residence, narrow industry, occupation, worker status, union status, workplace type, and a control for hours of work.

The 15 sectors are the same as the 21 industry sections in the KSIC classification, with two exceptions: we combine Agriculture, forestry, and fishing and Mining and quarrying into Agriculture & mining, and we combine Electricity, gas, steam and air conditioning supply and Water supply, sewage, waste management, materials recovery into Utilities. We exclude sectors

\(^3\) Education is a categorical variable for the highest level of education, including school grades, college, associates’ degree programs, masters’ degree, professional degree, or doctorate. Location includes both state of residence and a dummy for whether the person is in a metropolitan area. Industry is a set of fixed effects with 2012 Census industry codes. Occupation is a set of fixed effects with 2010 Census occupation codes. Average weekly hours is the usual number of hours per week the respondent reports being at their main job. Paid hourly is a dummy indicating whether the respondent is paid by the hour for their current job. Full/part-time is a categorical variable indicating part-time or full-time status and reason for this status (economic or noneconomic reasons). Union status indicates whether the respondent is a union member, covered by union but not a member, or has no union coverage. All regressions include robust standard errors.
S, T, and U from our regressions given small sample sizes (S: Membership organizations, repair, and other personal services; T: Activities of households as employers; U: Activities of extraterritorial organizations and bodies).

<table>
<thead>
<tr>
<th>Sector</th>
<th>No controls</th>
<th>Full controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation and food service</td>
<td>–0.106***</td>
<td>–0.268***</td>
</tr>
<tr>
<td></td>
<td>(0.0159)</td>
<td>(0.0381)</td>
</tr>
<tr>
<td>Agriculture &amp; mining</td>
<td>–0.431**</td>
<td>–0.223</td>
</tr>
<tr>
<td></td>
<td>(0.133)</td>
<td>(0.137)</td>
</tr>
<tr>
<td>Arts, sports, and recreation</td>
<td>–0.127</td>
<td>0.0295</td>
</tr>
<tr>
<td></td>
<td>(0.100)</td>
<td>(0.0756)</td>
</tr>
<tr>
<td>Business facilities management and support</td>
<td>–0.213***</td>
<td>–0.220***</td>
</tr>
<tr>
<td></td>
<td>(0.0631)</td>
<td>(0.0502)</td>
</tr>
<tr>
<td>Construction</td>
<td>–0.224***</td>
<td>–0.230***</td>
</tr>
<tr>
<td></td>
<td>(0.0445)</td>
<td>(0.0425)</td>
</tr>
<tr>
<td>Education</td>
<td>–0.168***</td>
<td>–0.118***</td>
</tr>
<tr>
<td></td>
<td>(0.0407)</td>
<td>(0.0307)</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>–0.395***</td>
<td>–0.204**</td>
</tr>
<tr>
<td></td>
<td>(0.0801)</td>
<td>(0.0630)</td>
</tr>
<tr>
<td>Human health and social work</td>
<td>–0.227***</td>
<td>–0.0763*</td>
</tr>
<tr>
<td></td>
<td>(0.0452)</td>
<td>(0.0332)</td>
</tr>
<tr>
<td>Information and communication</td>
<td>–0.272***</td>
<td>–0.173***</td>
</tr>
<tr>
<td></td>
<td>(0.0522)</td>
<td>(0.0462)</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>–0.488***</td>
<td>–0.317***</td>
</tr>
<tr>
<td></td>
<td>(0.0245)</td>
<td>(0.0198)</td>
</tr>
<tr>
<td>Professional, scientific, and technical</td>
<td>–0.397***</td>
<td>–0.217**</td>
</tr>
<tr>
<td></td>
<td>(0.0810)</td>
<td>(0.0744)</td>
</tr>
<tr>
<td>Public administration and defense</td>
<td>–0.189**</td>
<td>–0.187***</td>
</tr>
<tr>
<td></td>
<td>(0.0584)</td>
<td>(0.0431)</td>
</tr>
<tr>
<td>Real estate</td>
<td>–0.0796</td>
<td>–0.154**</td>
</tr>
<tr>
<td></td>
<td>(0.0648)</td>
<td>(0.0557)</td>
</tr>
</tbody>
</table>
Gender wage gap, accounting for years of labor market experience

In table A.3, we re-run our baseline gender wage gap regressions (equation 1), with our full baseline controls for age, education, location of residence, industry, occupation, and job and workplace characteristics, and also adding dummy variables for years of work experience. We run the regressions for 2019 only, and separate by 10-year age group for women and men between 25 and 64. We estimate years of work experience for people in 2019 by counting the total number of years in the KLIPS data in which they report that they are currently working – so we observe a maximum of 19 years of work experience for each individual. This is an imperfect proxy for those in the older age groups, who will have had substantially longer potential work histories. However, for the 45–54 age group, the prior 19 years will capture at least some of the time over which women may have been out of the labor force to have and raise children.

Table A.3 Gender wage gap, with and without control for labor market experience, 2019

<table>
<thead>
<tr>
<th>Experience control?</th>
<th>Ages 25-34</th>
<th>Ages 35-44</th>
<th>Ages 45-54</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Female</td>
<td>-</td>
<td>-0.219***</td>
<td>-0.216***</td>
</tr>
<tr>
<td></td>
<td>(0.0238)</td>
<td>(0.0238)</td>
<td>(0.0205)</td>
</tr>
<tr>
<td>Observations</td>
<td>1,480</td>
<td>1,480</td>
<td>2,412</td>
</tr>
</tbody>
</table>

Standard errors in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001

Note: All specifications have controls for age, education, location of residence, industry, occupation, and job and workplace characteristics.