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Research Article

Division of domestic labour and lowest-low fertility in South Korea

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Erin Hye-Won Kim[1]

Abstract

BACKGROUND
One explanation offered for very low fertility has been the gap between improvements in women's socioeconomic status outside the home and gender inequality in the home. The related empirical evidence is lacking for East Asian countries, where women may face particular challenges combining career and family due to the unique regional context.

OBJECTIVES
This paper provides an up-to-date picture of Korean women's fertility intentions, fertility behaviour, and the division of domestic labour with husbands, parents, parents-in-law, and formal childcare services. It also examines how the informal and formal help women receive affects their fertility behaviour.

METHODS
Using data from the 2008, 2010, and 2012 waves of the Korean Longitudinal Survey of Women and Families, this study describes fertility intentions, fertility behaviour, and the division of labour. Focusing on women with one child, I use logit regressions to estimate how various sources of help relate to the intended and unintended births of second children.

RESULTS
Fertility intentions were a good predictor of fertility behaviour. Both fertility intentions and behaviour displayed the greatest variability among women with one child. Husbands did not contribute much to domestic work, and gender inequality grew with parity. Husbands' support in the domestic sphere increased the likelihood of intended births. Formal help also had a positive impact when its costs were not high, but parental help had no significant impact. None of these sources of help was related to unintended births.

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CONCLUSION AND CONTRIBUTION

Government policies that aim to address Korea's low fertility would be wise to target women with one child. Empirical evidence from Korea supports the recent theoretical literature on the association of low fertility with gender inequity. Various sources of support that relieve women's domestic labour burden and enhance their ability to reconcile work with family life may boost fertility rates in East Asia.

1. Introduction

During the last few decades, total fertility rates (TFRs) have remained below replacement level in most developed countries, but the rates have been particularly low in East Asian countries, with TFRs around 1.2 (Population Reference Bureau 2014, 2015). McDonald (2000a, 2000b) posits that the low fertility in the region is due in part to a conflict between improvements in women's status outside the home, such as increased access to education and employment, and high gender inequality within the home. East Asian countries have experienced exceptionally fast economic growth, while the expectations of women's traditional gender roles have tended to persist, lagging behind their socioeconomic advancement (Hwang 2016; Jones and Yeung 2014; Kim and Cheung 2015). Anderson and Kohler (2015) point to South Korea (Korea hereafter) as a typical example and argue that changes in its gender regimes are a prerequisite for a rebound of its fertility rates.

Some other recent theoretical works also try to understand fertility levels through the lens of gender. The increase in female labour force participation in developed countries around the world, which Goldschieder, Bernhardt, and Lappegård (2015) see as the first stage of the gender revolution, was initially associated with a decline in fertility. However, the negative relationship between women's labour force participation and childbearing has turned positive since the 1990s. They argue that this reversal is related to the revolution's second stage, which has seen men getting more involved in the family sphere. Myrskylä, Kohler, and Billari (2009) show that declines in fertility tend to reverse as countries become highly developed; however, Korea is one of the exceptions in their study: Despite achieving high levels of development, it has yet to experience a rebound in fertility rates. The authors suggest that gender inequality and the difficulty of combining work and family are plausible explanations for this anomaly.

Studies at the micro-level support these propositions, demonstrating that the informal and formal help women receive with domestic labour, comprising childcare, housework, and other domestic work, encourages them to plan for and have more

babies. Evidence has been found for links between higher fertility rates and 1) the husband's contributions to domestic work (Cooke 2004, 2009; De Laat and Sevilla-Sanz 2011; Feyrer, Sacerdote, and Stern 2008; Nagase and Brinton 2017; Park, Cho, and Choi 2010; Park 2012), 2) help with childcare from parents or parents-in-law (Morgan and Hirosima 1983; Kaptijin et al. 2010; Thomese and Liefbroer 2013; Waynforth 2012; Zhang 1990), and 3) the availability and affordability of formal childcare services (Gauthier 2007; Rindfuss et al. 2007).

In the context of prevailing patriarchal family systems and Confucian traditions, women in East Asian countries face particular challenges when attempting to pursue careers and family lives at the same time. However, so far evidence about the role of the informal and formal help for women comes predominantly from Western countries, and it would be interesting to know whether the findings in the Western context apply to the very different context in the East. Available evidence from East Asia is largely from cross-sectional studies, in which the estimated association could be biased due to reverse causality – that is, actual fertility might affect the extent to which women receive help, not vice versa. Longitudinal studies, which are better suited to establish the direction of causal effect, are, again, mostly from the United States or Europe.

This paper intends to fill these gaps in the literature using the Korean Longitudinal Survey of Women and Families (KLoWF), a recent, nationally representative longitudinal survey. The KLoWF contains detailed information on women's fertility intentions and behaviour, as well as on the help they receive with domestic labour. This paper first provides an up-to-date picture of Korean women's childbearing intentions and behaviour and describes who provides domestic labour in Korea. It then examines how informal and formal help for women affects their fertility behaviour.

2. Current knowledge and gaps in the literature

Overall, existing literature suggests that the extent of help women receive with domestic labour may affect their childbearing, and finds that women taking responsibility for most of the childcare and housework tends to be associated with low fertility. This section summarises the relevant studies.

2.1 Husbands' contribution

A number of macro-level studies using data from OECD countries have shown that fertility rates are positively related to men's share of childcare and housework relative to their wives' (Feyrer, Sacerdote, and Stern 2008; De Laat and Sevilla-Sanz 2011).

The literature at the individual level has also documented positive relationships between husbands' domestic work and women's fertility intentions and actual childbearing. In particular, longitudinal analyses using panel data from Germany (Cooke 2004), Italy (Cooke 2009), and Japan (Nagase and Brinton 2017) show that the likelihood of couples' having a second child is higher if husbands spend more time on childcare and household chores. Available evidence on Korea comes only from cross-sectional studies, which find that Korean women, particularly employed ones, have stronger intentions to have a second child if their husbands contribute in the domestic sphere (Park, Cho, and Choi 2010; Park 2012).

2.2 Help from parents and parents-in-law

Parents and parents-in-law often serve as a source of informal help for women's childcare. Due to a lack of data, earlier studies used coresidence with or geographic proximity to parents as a proxy for parental help, rather than measuring it directly. For example, Morgan and Hirosima (1983) in Japan and Zhang (1990) in China found that women in extended families had more children than their counterparts in nuclear families, and these findings were attributed to the reduced opportunity costs of childrearing for women. However, Raymo et al. (2010) find no relationship between intergenerational coresidence or residential proximity and fertility intentions in Japan and Italy. Similarly, in Korea, living with parents or parents-in-law is found to be unrelated to the intention to have a second child (Park 2012).

As for studies which use a direct measure of parental help, a cross-sectional study by Park, Cho, and Choi (2010) finds that Korean women who receive help with childcare and housework from kin are more likely to intend to have a second child than women who say they do all or most of the domestic work. This relationship is found only among employed women. Several European studies have also shown a positive association between parental help and the likelihood of childbearing (for example, Kaptijin et al. 2010; Waynforth 2012). One shortcoming of these studies is their failure to control for the provision of alternative formal childcare, which may substitute for parental help. By contrast, Thomese and Liefbroer (2013) analyse longitudinal data while controlling for the availability of formal childcare and find that help from both parents and parents-in-law is positively related to the likelihood that Dutch people with at least one child will have an additional child.

2.3 Formal childcare

In addition to informal help, formal (that is, paid) childcare also reduces women's domestic labour due to childrearing. Gauthier (2007) and McDonald (2006) provide comprehensive reviews of studies on how the availability and affordability of childcare affect fertility. According to the reviews, the studies tend to find a positive effect of childcare availability and a negative impact of household expenditure on formal childcare. However, not all of the studies find a statistically significant impact. While these mixed findings are probably due to endogeneity associated with the childcare variables, Rindfuss et al. (2007) show that, after eliminating the possibility of omitted variable bias, day care availability in Norway has a substantial positive impact on women's transition to motherhood.

One source of the bias is governmental intervention in childcare. To varying degrees across countries, governments share childcare responsibility by providing the care themselves or by subsidising its costs. A greater role played by governments may lead to higher fertility rates by lowering the care burden on parents (Blau and Robins 1989). There are only a few empirical studies that examine both government subsidies and household expenditure. In a micro-level analysis of US data, Blau and Robins (1989) find no impact of childcare tax credits, but some negative influence of household expenditure. Wood, Neels, and Vergauwen (2016) compare European countries and find that family allowances that parents can use to pay for childcare have a positive impact on second births, but childcare enrolment per se does not have any impact.

Another issue related to formal childcare is private education, which includes private preschool education for children of preschool age and private supplementary education outside schools for children of school age. Parents in East Asian countries are known for making a large investment in children's education, the so-called education fever, and the high costs of education have been referred to as one of the key causes of low fertility in the region (for example, see the discussion in Anderson and Kohler 2013; McDonald 2009; Tan, Morgan, and Zagheni 2016). As competition grows fiercer, parents' investment in their children's education begins earlier and earlier, blurring the distinction between private education and formal childcare. Empirically, Anderson and Kohler (2013) show that, at the provincial level in Korea, there is a negative association between household spending on children's education and TFRs. Ogawa et al. (2009) find a similar negative relationship using data over several years across four Asian countries: Korea, Japan, Taiwan, and Thailand. However, related quantitative evidence at the individual or household level is lacking.

3. The Korean context

Korea is well known for the fast pace of its development. For decades after the 1960s the economy experienced sustained growth of around 7% annually (World Bank 1993). Over the same period Korea's fertility rate declined radically. The TFR, which was 5.6 in 1965, has dropped to 1.2 in recent years, one of the lowest fertility rates in the world (Statistics Korea 2011a). This decline in fertility has been attributed both to delays in marrying and to a decline in marital births (Lee 2009; Jones 2011). Despite the low fertility, childbearing remains a cultural norm among married Korean women (Jones, Straughan, and Chan 2009), and only about 2% of births are outside wedlock (Eun 2007; Statistics Korea 2011a).

Today's Korean women tend to have higher educational attainment and to participate more in the labour market than their mothers. While enrolment rates for postsecondary education in 1985 were 16.1% for women and 28.7% for men, by 2010 the enrolment rates had increased to 66.2% for women and 68.5% for men (Korean Ministry of Education 1985, 2010). Employment rates among women of working age rose from 39.3% in 1970 to 49.7% in 2011, with a decrease in male–female differences in the rates from 36.8 percentage points to 23.4 percentage points (Statistics Korea 1970, 2011b).

Confucianism and patriarchy have pervaded family systems and values in Korea for many centuries (Park and Cho 1995). Despite the improvements in women's socioeconomic status, individual and societal attitudes are still gender-segregated, and expectations of intergenerational support within the family remain high (Anderson and Kohler 2013; Lee and Bauer 2013). While women provide more domestic labour than men in most countries, Korean men spend the fewest hours on unpaid work, and their relative shares in couples' total unpaid work hours are the lowest among OECD countries (OECD 2012).

Furthermore, the Korean government has depended on families, especially their female members, to provide social services. Universal childcare subsidised by the government is only a recent development. Prior to 2012, fees for childcare centres were exempted only for a small group of disadvantaged children. In 2012 a free programme began for all children under the age of 2. A subsidised programme, called Nuri Curriculum, was started in 2012 for 5-year-olds and in 2013 for 3- and 4-year-olds (Suh et al. 2009, 2012). In addition, the Basic Subsidies programme provided subsidies not to parents but to childcare centres, based on the number of registered children aged 2 or under, resulting in lower fees for parents.

Owing to the gendered context, workplaces are not friendly to mothers. Despite the decrease mentioned above, Korea's gender gap in employment is still one of the largest among OECD countries, and women's earnings as a percentage of men's remain

low. Korean women have the second-longest working hours after Japanese women, and Korean men have the third-longest working hours after Japanese and Mexican men (OECD 2012). Parents with children aged 8 or younger are eligible to take a maximum of one year of childcare leave at 40% of their pay, which is capped at ₩1,000k per month (Yoon 2014). (The monetary unit in this study is the Korean won, abbreviated ₩ or KRW. ₩1,000k were worth about €740 or $890 as of September 2017.) However, more than four out of ten eligible women did not take the leave, and in 2012 only about half of those who took it returned to the same workplace after one year. Although both fathers and mothers can take the leave, less than 3% of the beneficiaries were male.

As a result, married women tend to be responsible for domestic labour, with limited support from husbands, employers, and the state. For many women, pursuing career success is incompatible with family life, especially after they have their first child, due to the additional burden of childcare. Consequently, employed Korean women in their 30s tend to drop out of the labour force with marriage and childbearing and to return to work in their 40s, around the time their children begin primary school (Statistics Korea 2012).

Given the heavy, unequal burden of domestic work on women, formal and informal support for women might make childbearing more attractive. This paper will investigate three potential sources of such help – husbands, extended family, and formal childcare – and their effects on fertility. As motherhood remains normative among married Korean women, the regression analysis of this paper focuses on women with one child and their progression to a second birth. Based on the Korean context and the review of the literature above, this paper hypothesises that when women in Korea divide domestic labour with husbands, parents, and parents-in-law and have access to formal childcare, the likelihood that they will bear children will increase.

4. Data, variables, and the research design

4.1 Data

This study uses data from the Korean Longitudinal Survey of Women and Families (KLoWF), collected by the Korean Women's Development Institute. The KLoWF is a nationally representative, longitudinal survey of Korean women that contains information on their fertility intentions and behaviour and on domestic labour. The first wave of data was collected in 2007 from 10,000 women aged 19 to 64, with follow-ups in 2008, 2010, and 2012. This paper analyses data from 2008 (Wave 2), 2010 (Wave 3), and 2012 (Wave 4). It uses the 2008 wave as the baseline, including those who newly participated in the wave, for the following two reasons. First, Wave 1 posed its question

about fertility intentions only to women who had at least one child, while later waves posed the question to all women of childbearing age. Second, in contrast to the other waves, which are spaced at two-year intervals, Wave 1 was about a half-year apart from Wave 2. The analysis sample consists of married women aged 40 or below in 2008 (and hence aged 44 or below in 2012). The sample excludes women over 40 because both fertility intentions and actual fertility rates are very low for these women. The sample also omits unmarried women, since childbearing out of wedlock is very rare in Korea. After the restrictions, the sample comprises 2,239 women.

4.2 Fertility intentions and fertility behaviour

Each wave of the KLoWF surveys fertility intentions by asking whether a respondent intends to have a child, that is, to have a first child if she has no child, and to have another child if she has at least one. The possible answers are 'intend,' 'do not intend,' and 'unsure.' For women who answer 'intend,' the survey asks when they plan to have the intended child. Possible answers for the timing question vary across waves. Wave 2 included six categories ('within the next year,' 'within the next one to two years,' 'within the next two to three years,' 'within the next three to four years,' 'after the next four years,' and 'unsure'), while later waves had only three categories ('within the next one year,' 'within the next one to two years,' and 'after the next two years'). As for actual fertility behaviour, the first wave of the KLoWF asked how many children had ever been born to a respondent. Other waves asked each respondent whether she had given birth since the last most recent wave she had participated in, or whether she was pregnant at the time of the survey.

To provide a picture of women's fertility intentions and behaviour I first describe fertility intentions (i.e., whether women intended to have a child and, if they intended to, when they planned to have one) in the baseline year 2008. For fertility behaviour, I present the probability of a woman having a child between 2008 and 2012. To see how fertility intentions predict fertility behaviour, I tabulate the probabilities by fertility intentions in 2008. I also break down these analyses by parity in 2008.

4.3 Division of domestic labour

This section describes women's own domestic labour and the help they receive, both of which are reported by women in the KLoWF. As sources of help, this paper focuses on 1) husbands, 2) parents and parents-in-law, and 3) formal childcare and private education. First, women report on how much time they and their husbands spend on

domestic labour, including childcare, housework, and other domestic work. Second, the KLoWF contains information on the time parents and parents-in-law devote to helping with childcare. The questionnaire first asks whether parents and parents-in-law help with childcare at least one hour per day on weekdays, and then asks about the number of hours they spend. I use the sum of time parents and parents-in-law contribute (hereafter 'parents' time spent on childcare'). In relation to parental help, I also describe coresidence with either the wife's or husband's parents (hereafter 'coresidence with parents').

Third, as one category of household consumption, the KLoWF surveys monthly household expenditure on formal childcare and private education. I describe formal childcare and private education by the first child's age in three groups, 0–2, 3–5, and 6 or older, for several reasons. First, I use the first child's age as the current study focuses on the transition to second births. Second, regarding the age cut-offs, the majority of children enter school at age 6. Of the two preschool groups, the need for formal childcare service is particularly high for the youngest age group, while the costs of preschool education might be relatively higher for the second group. As described earlier, age 3 is also the age cut-off when government support for childcare varies. The KLoWF does not contain information on government subsidies that households receive for childcare or education.

To describe women's domestic work and informal help, I use the proportion of women with a positive amount of time spent on domestic labour, along with the mean value of the amount of time. For formal help, I summarise the proportion of women who bought any formal help (i.e., women who spent a positive amount of money), as well as the median amount of the expenditure. I present these statistics for the overall sample, as well as by parity, to see how the division changes over parity progression. I also summarise key variables that might relate to the informal and formal help women receive, including their age and employment status, their education and that of their husband, the first child's sex and age, marriage duration, and household income.

4.4 Regression analysis of fertility intentions and behaviour on help with domestic labour

Following the established practice in earlier studies (e.g., Kuhnt and Trappe 2013 and Spéder and Kapitány 2009), I divide women with one child into two groups, women who intended to have a second child and women who did not. I then analyse intended births among the former (i.e., whether they realised their intentions), and unintended births among the latter (i.e., whether they had an unintended birth) with multivariate logit regressions. Why some people who intend to have a child fail to realise their

intention is of particular interest in a low fertility context. Although the results are not presented here, the majority of births since 2008 occurred between 2008 and 2010, and hence the regression analysis pools the 2008 wave (to study childbearing between 2008 and 2010) and the 2010 wave (to analyse childbearing between 2010 and 2012). In line with the two-year study period, the sample for regression analyses is restricted to married women aged 42 or below in 2008 (and hence 44 or below in 2010) for the 2008–2010 analysis, and to married women aged 42 or below in 2010 (and hence 44 or below in 2012) for the 2010–2012 analysis.

For example, the regression of intended births for the 2008–2010 period is estimated for women who intended to have a child in 2008, and the dependent variable in the regression is a dummy variable indicating whether women had a child between 2008 and 2010. The regression of unintended births for the 2008–2010 period is run for women who did not intend to have a child in 2008, and uses the same dependent variable. Analogously, the analysis of the 2010–2012 period examines whether women had a child between 2010 and 2012 in the two subgroups characterised by whether or not women intended to have a child in 2010. Since the regression analysis focuses on the parity progression from one child to two, the analysis sample includes women who had one child either in 2008 (for the 2008–2010 analysis) or in 2010 (for the 2010–2012 analysis). The final analysis sample in the pooled data includes 254 women-waves for the analysis of intended births and 625 women-waves for that of unintended births.

For the key independent variables on help with women's domestic labour, I examine 1) husbands' time spent on domestic labour in hours per week (0, 0–2, 3 or more), 2) whether parents helped with childcare at least one hour per day on weekdays (while controlling for coresidence with parents), and 3) household expenditure on formal childcare and private education. For the third variable, the regression analyses the expenditure with five binary variables, indexing ₩0 (i.e., no formal help bought), ₩1–100k, ₩100k–200k, ₩200k–300k, ₩300k–400k, and ₩400k or above.

As shown later, whether women buy formal help varies substantially with the first child's age. Accordingly, for regressions of both intended and unintended births, in addition to the basic specification with the five binary variables, I try a second specification. In the model, '₩0' interacts with the three dummy variables for the first child's age (0–2, 3–5, 6+), omitting the interaction term for the youngest age group. In that case, the coefficient of the noninteracted '₩0' term captures the effect of 'no formal help' for the omitted group, that is, women with their first child aged between 0 and 2. The coefficient of the interaction term between '₩0' and the middle age group shows how the effect of 'no formal help' differs for that age group compared to the omitted, youngest group. Analogously, the coefficient of the interaction term between '₩0' and the oldest age group shows how the effect differs for that age group compared to the omitted group.

The regressions control for various covariates, including women's age (below 28, 28–32, 33–37, 38–42), wives' and husbands' education (in years), women's employment status, the first child's sex and age (0–2, 3–5, 6 or older), marriage duration (in years), and household income (logged). To eliminate the possibility of reverse causality, the analysis of the 2008–2010 period uses the independent variables from 2008, and the analysis of the 2010–2012 period uses the variables from 2010.

5. Results

5.1 Description of fertility intentions and fertility behaviour

Table 1 presents fertility intentions and fertility behaviour. Of the three numbers in each cell, the first number shows the distribution of women by fertility intention in 2008. In the entire sample, 12.3% of respondents chose 'intended,' 5.0% 'unsure whether,' and 82.7% 'did not intend.' Next, when the intentions were decomposed by parity, more than three-quarters of the childless women (75.5%) intended to have a child. The proportion was more than twice that of women with one child (37.2%). Only 2.3% of women with two children or more reported the intention to have another child.

As for actual childbearing between 2008 and 2012, the second number of the three in each cell presents the probability of a woman having a child between the two years. In the entire sample, 11.0% of the women had a child (see the bottom row in Table 1). By parity, 40.8% of childless women and 31.6% of women at parity one made parity progression, while only 4.1% of women with two or more children did so. Thus, in terms of both fertility intention and behaviour, women with one child displayed the greatest variability, compared to childless women and to women with two or more children.

To see how fertility intentions predict fertility behaviour, Table 1 compares the probability of actual childbearing between 2008 and 2012 by fertility intention in 2008 (see the second number in each cell in the nonbottom rows in Table 1). The results show that fertility intentions are good predictors of actual births. Women who intended to have a child had the highest probability of doing so, while women who reported no intention showed the lowest probability. Among women with childbearing intentions, the probability declined as women planned to have a child later. In the decomposition by parity, again, whether women intended to have children or not predicted fertility behaviour quite well at all parities. Among those who intended to have a child, women with one child were the most likely to make parity progression. The role of intended timing in predicting the probability was less clear, in part due to the small number of women in each timing category.

Table 1: Distribution of women by fertility intention and the proportion of women who had a child by fertility intention, married women aged 19–40 in 2008 in Korea

	% of women by fertility intention in 2008, % of women who had a child between 2008 and 2012 by fertility intention in 2008 (total counts within parentheses)			
Fertility intention in 2008	**All**	**Parity = 0**	**Parity = 1**	**Parity ≥ 2**
Intended to have a child				
Within the next 1 year	4.6%, 54.9% (102)	38.8%, 57.9% (38)	12.2%, 57.7% (52)	0.7%, 33.3% (12)
Within the next 1–2 years	4.4%, 53.0% (98)	19.4%, 47.4% (19)	15.9%, 57.3% (68)	0.6%, 36.3% (11)
Within the next 2–3 years	1.3%, 46.4% (28)	7.1%, 42.9% (7)	3.5%, 60.0% (15)	0.3%, 16.7% (6)
Within the next 3–4 years	0.5%, 41.7% (12)	2.0%, 0.0% (2)	1.2%, 60.0% (5)	0.3%, 40.0% (5)
After the next 4 years	0.2%, 20.0% (5)	– – (0)	0.2%, 100.0% (1)	0.2%, 0.0% (4)
Unsure when to have a child	1.3%, 27.6% (29)	8.2%, 12.5% (8)	4.2%, 33.3% (18)	0.2%, 33.3% (3)
Unsure whether to have a child	5.0%, 24.8% (113)	5.1%, 80.0% (5)	15.5%, 27.3% (66)	2.5%, 14.3% (42)
Did not intend to have a child	82.7%, 4.5% (1,852)	19.4%, 5.2% (19)	47.3%, 14.3% (202)	95.2%, 3.2% (1,631)
All	100.0%, 11.0% (2,239)	100.0%, 40.8% (98)	100.0%, 31.6% (427)	100.0%, 4.1% (1,714)

Source: The author's calculations from the 2008, 2010, and 2012 KLoWF.
Notes: 'Having a child' means having the first child for childless women, and having another child for women with at least one child. Achieved fertility between 2008 and 2012 includes pregnancies in 2012. Parity includes pregnancies in 2008.

5.2 Women's domestic labour, informal and formal help received, and related factors

Table 2 describes who provides domestic labour in Korea. Almost all married women of childbearing age spent some time on housework, childcare, or other domestic work. The mean time spent on domestic work per day almost tripled with the transition to motherhood, from 2.0 to 5.9 hours, but it did not increase with further parity progression.

Table 2: Summary of women's domestic labour, informal and formal help received, and related factors, among married women aged 19–40 in Korea, 2008

	Parity = 0	Parity = 1	Parity ≥ 2
Women's time spent on domestic labour			
% women with a positive amount	99.0	99.8	99.8
Mean amount of time (per day in hours)	2.0	5.9	5.3
Husbands' time spent on domestic labour			
% women with a positive amount	82.7	78.0	71.7
Mean amount of time (per day in hours)	0.4	0.7	0.5
Parents' time spent on childcare			
% women with a positive amount	–	11.9	8.1
Mean amount of time (per day on weekdays in hours)	–	0.7	0.4
Coresidence with parents: % coresident	5.1	10.5	8.4
Household expenditure on formal childcare and private education			
(1) For women with the first child aged 0–2			
% women with a positive amount	–	22.6	46.8
Median (in ₩k)	–	0	0
(2) For women with the first child aged 3–5			
% women with a positive amount	–	83.3	89.3
Median (in ₩k)	–	230	250
(3) For women with the first child aged 6 or above			
% women with a positive amount	–	97.8	95.8
Median (in ₩k)	–	330	460

Table 2: (Continued)

	Parity = 0	Parity = 1	Parity ≥ 2
Woman's age (in years): Mean	31.8	33.0	35.4
Woman's education (in years): Mean	14.3	14.0	13.4
Husband's education (in years): Mean	15.1	14.5	14.0
Woman's work status: % employed	52.0	30.7	33.4
First child's sex: % male	–	52.0	51.6
First child's age (in years): Mean	–	4.8	9.6
Marriage duration (in years): Mean	4.0	6.6	10.7
Household income: Median (in ₩k)	2,800	2,700	3,000
Number of observations	98	427	1,714

Source: The author's calculations from the 2008, 2010, and 2012 KLoWF.
Notes: See notes at the end of Table 1.

While about three-quarters of women received some help with domestic labour from husbands, the time husbands contributed was brief: Childless men spent 0.4 hours per day and men with one child spent 0.7 hours. Men's contribution went down to 0.5 hours with two or more children. Thus, gender inequality in the division of labour in the home was substantial at all parities. Moreover, the relative share of husbands' domestic labour in couples' total domestic work hours declined as the number of children increased, from 16.7% for childless men to 10.6% for men with one child to 8.6% for men with two or more children.

Some women received help with childcare from their parents. In terms of both incidence and amount of time, women received more parental help with their first births than with later ones. (The proportion of women coresident with parents was also highest among those with one child). Although the proportion of women receiving parental help was not high (11.9% for women with one child and 8.1% for women with two children or more), those who received it showed substantial reliance on the help: While women were much more likely to receive 'any' help from husbands than from parents, the average amount of help, measured in hours, from the two sources was almost the same.

Whether women used formal childcare and private education and how much it cost varied substantially with the age of the first child. The majority of women with a first child of school age spent some money on purchasing formal help. The median value of the monthly expenditure was ₩330k for women with one child and ₩460k for women with two or more children. By contrast, when the first child was aged between 0 and 2 the use of formal help was much more optional, with less than a quarter of women with

one child and less than half of women with two children or more spending money on childcare.

Table 2 also describes the trends by parity for factors that might relate to women's domestic labour and the support they receive. Notably, women's employment declined from 52.0% to 30.7% with their first child and went up slightly to 33.4% with additional children. Women's age, the first child's age, and marriage duration increased with parity. This raises the question of how these trends relate to changes in women's domestic labour and the help they received over parity progression. With the transition to parenthood, gender roles seem to become more traditional and gendered: Women's share of domestic labour increased and they were more likely to stay at home, while husbands contributed less to domestic labour (in terms of the share in a couple's total amount of time). At higher parity with two or more children, the first child may have entered school, or women may have become more experienced mothers and hence less in need of help. With greater economic responsibility, husbands might be less interested in contributing to domestic work and more in pursuing career success.

5.3 Regression analysis of fertility on help with domestic labour

Table 3 summarises the results of the logit regressions of a second birth on help with women's domestic work. The first two columns in Table 3 show the analysis of intended births, and the next two columns present the analysis of unintended births. For each subgroup analysis, Model 1 estimates the basic specification, which uses the five binary variables for household expenditure on formal childcare and private education, while Model 2 estimates the second specification, which adds the interaction terms between the expenditure of '₩0' and the dummy variables for the first child's age (0–2, 3–5, 6+) to Model 1.

First, regarding intended births, women whose husbands contributed to domestic labour were more likely to have a second child than women whose husbands did not. In Model 1 the effect was more significant statistically and larger in size if the husband spent more hours ($\beta = 0.853$, $p < 0.10$ for up to 2 hours of help vs. $\beta = 1.296$, $p < 0.01$ for more than 3 hours of help). The results remained robust in Model 2.

Table 3: Logit regression analyses of second childbirths within the next two years among married women aged 21–42 who had only one child in 2008 or in 2010, Korea

Characteristics in year *t* (2008 or 2010)	Intended births by year *t* + 2		Unintended births by year *t* + 2	
	Model 1	Model 2	Model 1	Model 2
Husband's time spent on domestic labour (in hours / week) (ref: 0)				
0–2	0.853*	0.805*	–0.270	–0.296
	(0.462)	(0.465)	(0.385)	(0.387)
3+	1.296***	1.267***	–0.318	–0.339
	(0.451)	(0.450)	(0.394)	(0.400)
Parents' time spent on childcare > 0	–0.141	–0.121	0.125	0.134
	(0.464)	(0.460)	(0.422)	(0.422)
Coresidence with parents	0.809	0.792	–0.305	–0.328
	(0.663)	(0.656)	(0.504)	(0.506)
Household expenditure on formal childcare and private education (ref: ₩1–100k)				
Expenditure: ₩0	–1.311**	–1.189**	–0.346	–0.208
	(0.549)	(0.551)	(0.457)	(0.523)
Expenditure: ₩0 × First child's age: 3–5 (ref: 0–2)	–	–0.889	–	–0.515
		(1.034)		(0.955)
Expenditure: ₩0 × First child's age: 6+ (ref: 0–2)	–	No observation	–	13 cases dropped
Expenditure: ₩100k–200k	–0.696	–0.759	0.423	0.406
	(0.789)	(0.796)	(0.539)	(0.532)
Expenditure: ₩200k–300k	–1.044	–1.094	0.030	–0.006
	(0.680)	(0.677)	(0.571)	(0.571)
Expenditure: ₩300k–400k	–0.914	–0.977	–0.289	–0.304
	(0.715)	(0.711)	(0.639)	(0.632)
Expenditure: ₩400k or above	–1.897**	–1.990**	–0.600	–0.607
	(0.825)	(0.839)	(0.724)	(0.716)
Woman's age (ref: below 28)				
28–32	–0.471	–0.462	0.349	0.362
	(0.444)	(0.443)	(0.515)	(0.513)
33–37	–0.617	–0.581	–0.263	–0.248
	(0.538)	(0.538)	(0.540)	(0.538)
38–42	–0.342	–0.246	–1.983**	–1.967**
	(0.748)	(0.771)	(0.803)	(0.800)
Woman's education (in years)	0.162*	0.158*	–0.053	–0.057
	(0.096)	(0.095)	(0.097)	(0.098)
Husband's education (in years)	–0.100	–0.097	0.079	0.083
	(0.083)	(0.082)	(0.082)	(0.082)

Table 3: (Continued)

Characteristics in year *t* (2008 or 2010)	Intended births by year *t* + 2		Unintended births by year *t* + 2	
	Model 1	Model 2	Model 1	Model 2
Woman's work status: 1 if employed	–0.076	–0.072	0.357	0.350
	(0.366)	(0.363)	(0.346)	(0.346)
First child's sex: 1 if male	–0.297	–0.298	–0.549*	–0.552*
	(0.281)	(0.281)	(0.288)	(0.290)
First child's age (ref: 0–2)				
3–5	–0.338	–0.062	–0.446	–0.292
	(0.474)	(0.565)	(0.432)	(0.516)
6+	–1.105	–0.949	–1.027	–0.901
	(0.954)	(0.971)	(0.812)	(0.836)
Marriage duration (in years)	–0.101	–0.106	–0.109	–0.108
	(0.102)	(0.102)	(0.086)	(0.086)
Household income (in log)	0.213	0.201	–0.310	–0.309
	(0.368)	(0.369)	(0.337)	(0.340)
Constant	–1.441	–1.387	1.821	1.730
	(2.655)	(2.673)	(2.590)	(2.625)
N	254	254	625	612
Pseudo R^2	0.121	0.124	0.204	0.200

Source: 2008, 2010, and 2012 KLoWF.
Notes: See notes at the end of Table 1. The analysis sample pools the 2008 wave (for childbirths between 2008 and 2010) and the 2010 wave (for childbirths between 2010 and 2012). The sample excludes pregnant women in year *t*. Achieved fertility includes pregnancies in year *t* + 2. Regarding the interaction term between '₩0' and the first child aged 6 or older in Model 2, in the regression for intended births there was no woman who intended to have a second child and did not use formal help; in the regression for unintended births, 13 cases of women who did not intend to have a second child and did not use formal help were dropped from the regression, since none of them had a second child. Standard errors are clustered at the individual level.
*** p < 0.01, ** p < 0.05, * p < 0.10.

With regard to formal help, Model 1 shows that compared to spending ₩1–100k on formal childcare and private education, spending no money on these had a negative association with intended births ($\beta = -1.311$, $p < 0.05$), implying that some formal help had a positive impact. However, the influence of expensive formal help was also negative: Spending more than ₩400k, compared to spending ₩1–100k, showed a negative relation with births ($\beta = -1.897$, $p < 0.05$).

Recall that in Model 2, the coefficient of the noninteracted term '₩0,' captures the effect of 'no formal help' for women in the reference category; that is, those with children aged up to 2. Thus, for these women, using no formal childcare was negatively related to intended births ($\beta = -1.189$, $p < 0.05$). The coefficient of the interaction term between '₩0' and the first child aged between 3 and 5 is not statistically significant, meaning there was no difference in the effect of no formal help between this age group and the omitted, youngest group. Accordingly, for all women with preschool children,

using some formal childcare and private education had a positive impact on intended births. As for the interaction term between '₩0' and a first child aged 6 or above, no woman in the sample intended to have a second child while at the same time not paying for formal help for a school-aged first child. As in Model 1, the coefficient of spending more than ₩400k was significant and negative ($\beta = -1.990$, $p < 0.05$).

Parental help with childcare showed no significant relationship with intended births in either model. Likewise, no significant association was found for coresidence with parents. As for the impact of variables other than help, only women's education showed a significant, positive relation with intended births ($p < 0.10$).

Next, for unintended births, neither informal nor formal help had a statistically significant association. The regression in Model 2 dropped 13 cases of women who did not use formal help for a school-aged first child, since none of them had a second child. As for other factors, women aged between 38 and 42 were less likely to have unintended children than women aged below 28 ($\beta = -1.983$, $p < 0.05$ in Model 1, $\beta = -1.967$, $p < 0.05$ in Model 2). Women were less likely to have unintended births if the first child was a son ($\beta = -0.549$, $p < 0.10$ in Model 1, $\beta = -0.552$, $p < 0.10$ in Model 2).

6. Conclusion

Using recent longitudinal data on Korean women's fertility, this paper adds valuable evidence to the empirical literature on low fertility, especially its relationship to the informal and formal help with domestic labour that women receive in the East Asian context. In terms of both fertility intentions and behaviour, women with one child displayed greater variability compared to childless women (who were more likely to intend to have a child or to make the actual parity progression) and to women with two or more children (who were unlikely to do either). For the overall sample, as well as for women at every parity, fertility intentions were good predictors of actual births, which is consistent with the literature (e.g., Vinokur-Kaplan 1978; Gillmore et al. 2002). Moreover, among women who intended to have children, those with one child were the most likely to make parity progression, as was found in Europe (Berrington 2004; Toulemon and Testa 2005) and the United States (Schoen et al. 1999). To tackle the lowest-low fertility in East Asia, McDonald (2009) emphasises the need for further investigation into progression to second children, which is critical for boosting current fertility rates to replacement level. These up-to-date figures in Korea provide empirical support for his point. Government policies that target women with one child and help them to have a second child could be particularly effective.

Gender inequality in the division of domestic labour was substantial at all parities, and the inequality increased with parity progression. Although the proportion of women

receiving parental help was not high, those who received help showed substantial reliance on parents in terms of the amount of time. Women received much more parental help with their first child than with later children, which suggests that first-time mothers are particularly in need of help. Regarding formal childcare and private education, the majority of women with a first child of school age spent money on formal help, but the purchase of formal childcare was much more optional for women with children aged up to 2.

Husbands participating in the domestic sphere made women more likely to realise their intention to bear a second child. This finding is consistent with the results of previous longitudinal studies, such as those by Cooke (2004) for Germany, Cooke (2009) for Italy, and Nagase and Brinton (2017) for Japan. Korean husbands' lack of contribution cannot be attributed solely to their unwillingness to share domestic work with their wives, stemming from gendered family norms. Korean men tend to work very long hours, which competes with their time spent in the home. Korean women work just as long, so that with their transition to motherhood they either drop out of the paid labour force or assume most of domestic labour in addition to their work commitments. For both male and female workers, reducing overtime work and taking childcare leave may come at the cost of promotion and pressure from colleagues (e.g., Kim, Yi, and Kang 2013). Thus, men's gender-role attitudes becoming more egalitarian may have limited implications for fertility unless they are accompanied by reforms in related labour policies, such as legal workweek limits and leave policies, and strict enforcement of the reforms by the government.

Help with childcare from parents did not show a significant relationship with intended births, which is in contrast to other findings in the literature (for example, Thomese and Liefbroer 2013; Park, Cho, and Choi 2010; Kaptijin et al. 2010; Waynforth 2012). One plausible explanation might be the small number of women in the analysis sample who received parental help. This group might also have faced some difficulty that led them to require the help, and this selection bias may have cancelled out the positive effect of the help. In addition, women might not need as much parental help with their second child as with the first as they become more experienced mothers. Indeed, as shown in Table 2, women were in more need of parental help with their first children. Coresidence with parents, which many previous studies used as a proxy for parental help, was also controlled for and found to have no impact.

High expenditure on formal childcare and private education for the first child had a negative relation to the intended birth of a second child. Thus the current study contributes individual-level evidence to the theoretical discussion on the negative effect of the economic burden of education on fertility in Asia (e.g., Anderson and Kohler 2013; Tan, Morgan, and Zagheni 2016). Receiving no formal help at all was also negatively associated with intended second births. This finding held true for the

mothers of preschoolers of all ages. The positive effect of formal help for mothers of preschoolers makes sense, probably because formal help frees mothers from childcare responsibilities during this time. If this is the case, the finding is in keeping with previous studies (Gauthier 2007; McDonald 2006; Rindfuss et al. 2007) and demonstrates that increased availability of childcare for preschool children can help raise fertility.

As for the impact of variables other than help, only women's education had a positive association with intended births, probably because more highly educated women have stronger bargaining power to realise their fertility desires when these desires differ from those of their husbands. Neither women's age nor their first child's age was related to the likelihood of intended births once intentions were accounted for, while these factors did have negative associations with fertility intentions (results not shown but available upon request).

With unintended births, neither informal nor formal help showed a significant association. Older women who did not intend to have a second child were less likely to make the progression than their younger counterparts, plausibly due to more cautious contraceptive practices, lower biological fecundity, or a higher likelihood of terminating unintended pregnancies. Evidence, although weak, for son preference was found: Women were less likely to have unintended births if their first child was a son.

This paper conducted the following sensitivity checks, and the regression results on informal and formal help remained robust. First, the regressions replaced whether women intended to have a child or not with whether women intended to have a child within the next two years or not (in consideration of the two-year intervals between two adjacent waves). Second, the regressions controlled for parental help in the form of a continuous variable, instead of a dummy variable that indicated a positive amount of help. Third, the fertility achieved in year $t + 2$ excluded pregnancies. Lastly, the regressions dropped women's employment status, which might be jointly determined with future childbearing. Although the regression results did not change in regard to the control of whether women worked, a large proportion of women dropped out of the paid labour market with the transition to motherhood, and the inequality in domestic labour grew as they had more children. Further in-depth research is urgently needed on the dynamics among women's domestic and paid labour, that of their husbands, and parity progression.

This study has limitations. Causal interpretations of the regression results call for further caution. To resolve concerns about reverse causality, I used lagged values for all help-related variables and other covariates. I also excluded from the regression analyses women who were pregnant in year *t*. Nevertheless, the analysis was restricted to women with one child, and there could be bias associated with the sample selection. As mentioned above, the small number of women receiving parental help might have had

particular difficulties which made the help necessary, and whether to work or not might have been decided in consideration of childbearing expectations. The estimates on formal childcare and private education need to be interpreted with caution, as the household expenditure in the KLoWF is the net amount of government spending on childcare. While the government programmes started in 2012 and 2013 are not likely to have affected the findings of this study, which considers childbearing between 2008 and 2012 (the results do not change even after excluding pregnancies from the fertility achieved in year $t + 2$), how the programmes have affected fertility rates in subsequent years remains an interesting empirical question.

In sum, despite these modelling challenges and data limitations, the current study provides valuable empirical evidence and important policy implications. To tackle Korea's lowest-low fertility, government policies would be wise to target women with one child and relieve their burden through a more gender-equal division of domestic labour and available and affordable childcare. It has been argued that South Korea, together with several other East Asian countries, remains in the first stage of the gender revolution framework proposed by Goldscheider, Bernhardt, and Lappegård (2015) (Kan and Hertog 2017). Reversing the current low fertility rate through the second stage of the revolution could be challenging in highly gendered East Asian societies, with their patriarchal family systems, welfare regimes relying on the family, and work-oriented lifestyles. For these countries to boost their persistently low fertility rates, it seems inevitable that they would have to improve gender equality, both inside and outside the home, to enable women to have a better work–life balance. Raising fertility in East Asia may take an entire nation: Changes in various institutions, including the family, the workplace, and the government, can lift the heavy burdens from the shoulders of women, making childbearing more attractive to them.

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