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The Association Between Socioeconomic Status and Lifetime Fertility for Men and Women in South Korea: Is There a Gender Difference?

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Abstract

This study seeks to examine the association between socioeconomic status of men and women and their lifetime fertility or childlessness. Declining fertility is a concern for many industrialized economies and childlessness is an important phenomenon that contributes to low fertility rates. This study used data from 4,705 of the over 10,000 people in the Korean Longitudinal Study of Aging (KLoSA), Wave 1 collected in 2006, a nationally representative sample of people aged 45 and over in South Korea. This sample of middle-aged individuals provides information about lifetime fertility of men and women of South Korea, including those who have never been married. Results from logistic regression analyses showed that, for men, education, employment, and income were significantly positively associated having a child/children, whereas no significant association was found among women. The findings imply that in South Korea, men who have difficulty bearing the normative expectation of financial responsibility of fatherhood tend not to have children.

Keywords: childlessness, lifetime fertility, socioeconomic status, family roles, South Korea

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Introduction

Declining fertility is a concern for many industrialized economies due to the inevitable impacts on economic and military power that population decline entails, as well as an ensuing imbalance between the number of workers and those needing care. Fertility rates, defined as the number of children born on average to a woman over her lifetime per country, vary around the world, from 6.9 to 0.8 births per woman for 2020 (World Bank 2023). Most industrialized economies have below-replacement (below 2.1 births per woman) fertility rates, while developing countries have higher rates (World Bank 2023).

In 2020, South Korea ranked the lowest for fertility rate among 200 countries and territories ranked by the World Bank (2023). The South Korean government has been trying to implement policies since 2005 to increase birth rates (Sung et al. 2015a) but to no avail. Some of the policy measures implemented by the South Korean government have included providing varying degrees of affordable housing, maternity leave, spouse pregnancy leaves, reduced medical costs for children, flexible and/or reduced work hours, monthly child benefit (of about 88 US dollars), accessible childcare, and extra-curricular activities at school (Jang 2018). However, the fertility rate has been falling constantly to 0.98 births per woman for 2018 (Gim 2019). From the results we can say that the existing policies have not been effective in encouraging fertility in Korea. It is unknown whether the ineffectiveness of South Korea's approach is attributable to the policies' direction, strength, or both. A better understanding of fertility decisions and factors that lead to childlessness can be helpful in designing more effective policies. Therefore, the purpose of this paper is to explore the link between men and women's childlessness and socioeconomic conditions in South Korea.

Literature Review

Childlessness is an important phenomenon to understand in the study of fertility. According to Aarssen and Altman (2006), fertility decline is largely attributable to the fact that many women do not have children at all. Childlessness is often divided into three large categories in the existing literature: involuntary childlessness, childlessness by choice, and childlessness by circumstances (Buhr and Huinink 2017). Involuntary childlessness commonly means that a person does not have children because he/she lacks the biological capacity to reproduce. The second group, childlessness by choice, consists of people that consciously chose not to have children. Lastly, those that are childless by circumstances are people that do not definitely reject parenthood but postponed having children or remained childless for different reasons. Those that are childless by circumstances forms the largest group within the childless population (Buhr and Huinink 2017). In contrast to the involuntarily childless group, people that are childless for non-biological reasons (childless by choice or childless by circumstances) are often called 'voluntarily' childless.

There has been prior research to understand the childlessness phenomenon and the focus of such research has mostly been on women. For example, there have been studies on women's fertility intentions over time (Hayford 2009), reported reasons for choosing childlessness (Graham et al. 2013), experiences of being childless (Doyle et al. 2013), psychological well-being among voluntarily and involuntarily childless women compared to mothers (Jeffries and Konnert 2002), dealing with the stigma aimed at women who do not have children (Gillespie 2000; Kelly 2009), and on the role of companion animals on fertility intentions (Laurent-Simpson 2017). While there is still significant room for research, the research literature on women's fertility is fairly well-established.

Men are a relatively understudied group in the research field of childlessness (Bell 2013; Blackstone and Stewart 2012; Jamieson et al. 2010), though men's attitudes are as important as women's in making a couple's fertility decisions. One older study (Marciano 1978) shows that within a couple, when the husband and the wife disagree on fertility intentions, women tend to follow their husbands' decisions. A more recent study from Italy (Tanturri and Mencarini 2008) shows that there was a larger percentage of voluntarily childless women who ascribed their childlessness to their husbands than those who attributed that choice to their own preferences (the age of respondents for this study were 40-44, an age range that was deemed old enough to provide information about permanent childlessness). This tells us that, for lifetime fertility choices, intentions of men are at least as important as those of women.

Studies on voluntarily childless individuals illustrate that pathways to fertility decisions are not identical for men and women (Park 2005; Seccombe 1991). Women reported worry and stress about childcare, career, and physical consequences of childbearing, whereas men reported financial burden and not being able to make major purchases as reasons for childlessness (Avison and Furnham 2015; Park 2005; Seccombe 1991). It can be seen that intentions of both men and women are important in fertility decisions and that pathways into fertility decisions are different by gender. Thus, it is important to study characteristics of childlessness for both men and women.

We have some knowledge about childlessness and socioeconomic factors for men in industrialized economies. It has been shown that men with high levels of education are less likely to be childless and/or intend to remain childless (Fiori et al. 2017; Kneale and Joshi 2008; Miettinen et al. 2015; Miettinen and Szalma 2014; Parr 2010). Conversely, a Canada-based study (Ravanera and Beaujot 2014) finds that childlessness was positively associated with education among younger age groups (20-29 and 30-39). Ravanera and Beaujot (2014) attribute this positive association to the 'postponement effect' of education; the postponement effect means that those with high levels of education start their careers late, and thus postpone having children until a later age. Employment and occupational status were also found to be significantly negatively associated with men's childlessness/intentions to remain childless in multiple studies

(Berrington and Pattaro 2014; Fiori et al. 2017; Miettinen and Szalma 2014; Parr 2010; Ravanera and Beaujot 2014; Seiz 2013; Vignoli et al. 2012; Waren and Pals 2013). Also, a Finland-based study demonstrates that unemployed men were more likely to relinquish parenthood; in other words, they were more likely to have no fertility intentions, even though their personal ideal number of children is above zero (Miettinen 2010). Similarly, negative associations were found between income and childlessness/intentions to remain childless for men (Kanazawa 2014; Ravanera and Beaujot 2014; Vignoli et al. 2012). There appears to be a trend that men with low socioeconomic status are more likely to be childless in industrialized economies.

For women, the impact of socioeconomic status on childlessness tends to be inconsistent. It has been demonstrated that in Australia women with higher income tended to be childless (Parr 2005) and in the Netherlands, highly educated women tended to remain childless (Keizer et al. 2008). In the United States those with higher years of education (Waren and Pals 2013) or those with higher incomes and prior work experience (Abma and Martinez 2006) were more likely to be voluntarily childless. Similarly, in Italy and Britain, women with no employment or part-time employment were less likely to be childless (Fiori et al. 2017). A Germany-based study (Kreyenfeld 2005) that investigates the impact of economic uncertainty on women's fertility postponement demonstrates different directions of association based on women's educational attainment. Women with high levels of education tended to postpone parenthood when they feel worried about their personal economic status. However, women with low education were more likely to become pregnant when they are unemployed or unhappy with their personal economic situation (Kreyenfeld 2005). Also, unemployed women aged 29 to 44 had lower risks of first birth compared to employed women in Germany (Kreyenfeld and Andersson 2014). In Finland, women with high income were less likely to be voluntarily childless (Miettinen 2010). The impact of socioeconomic status on fertility appears inconsistent among women, which may indicate a need to more closely examine policy contexts or cultural contexts to better understand the relationship.

As mentioned earlier, South Korea has the lowest fertility rate in the world (World Bank 2023), and there has been research that examined reasons for childlessness and the characteristics of childless people and couples. There was a qualitative study on South Korean men who were delaying parenthood (Sung et al. 2015a). Sung, Choi, and Lee's in-depth interview study mentions economic problems and insecure living standards as important reasons for their postponement of fatherhood. A similar in-depth interview study on married women who were delaying parenthood (Sung et al. 2015b) finds economic difficulties and difficulty of maintaining both work and childcare, among others, as reasons for fertility decisions. Using married couples' data, Lim (2021) examined the socioeconomic differentials of fertility in South Korea, and found that husbands' higher education, standard (relatively secure) employment, and homeownership were associated with transition to parenthood, but employed wives were less likely to enter parenthood. Lim (2021) is very similar to this study in that it also examined the association

between socioeconomic status and (transition to) parenthood; however, this study is unique in that it tested the relationship between economic variables and lifetime fertility of South Korean men and women, including those who have never been married. This gap in knowledge is critical because researchers point out the possibility that economic factors are a potential reason for South Korea's low fertility rate, but this possibility has not been fully validated (Sung et al. 2015a; Sung et al. 2015b; Yang and Rosenblatt 2008), especially for lifetime fertility.

Research on middle-aged people is important because it provides information about lifetime fertility, but there is no study on middle-aged individuals and childlessness in Korea. The age of 45 is commonly used as the cut-off point when examining completed fertility (Ciganda 2015; Parr 2010). Only by looking at middle aged or older adults we can make conclusions about who remains childless until (nearly) the end of their childbearing years. In order to find out whether the trend for childlessness found in other industrialized economies is also present for middle-aged men and women in South Korea, this study investigates the effect of education level, employment status, and income on childlessness of middle-aged men and women.

Gender differences in the childlessness phenomenon imply that gender norms may play a role on who becomes a parent and who remains childless. It could be that those that do not fit into the expected roles of the male breadwinner/female homemaker family model tend not to have children. The authors of a Canada-based study on childless men stated that 'the normative expectation that men should be economically stable before forming a family and becoming a parent continues to prevail' (Ravanera and Beaujot 2014:59). A study demonstrates that East Asian countries have cultural difference when it comes to childrearing. Using South Korea as a case study, Anderson and Kohler (2013) study the link between the low fertility rates of East Asian countries and the culture of the region that places high emphasis on children's education. They suggest that the cultural norm of 'education fever' raises the cost of childrearing in East Asian countries, such as South Korea, perhaps making socioeconomic factors more salient in procreation choices. Following Ravanera and Beaujot's (2014) theoretical explanation, this study is a preliminary attempt to investigate whether one's ability to fulfill the normative expectation for fatherhood/motherhood influences childlessness in South Korea.

Methods

Sample

Cross-sectional data of the baseline survey (Wave 1, conducted in 2006) of the Korean Longitudinal Study of Aging (KLoSA) (Korea Employment Information Service) was used for this study. KLoSA is a nationally representative sample of people aged 45 and older living in households (as opposed to those living in institutions) in South Korea, except the island of Jeju. The original purpose of KLoSA is to guide policy making in preparation for the aging society of South Korea (Korea Employment Information Service). The survey collected data about

respondents' health, income, consumption, assets, and employment (Korea Employment Information Service). The population was stratified according to region and type of housing (apartment and non-apartment). The total number of respondents in the sample was 10,254.

In an attempt to minimize contamination in the employment variable by retirement, the upper limit for age was set at 59. The statistical analysis of this study used a subsample of 4,705 men and women aged 45 to 59 (1947-1961 birth cohorts). Among the 4,705 individuals, 167 were childless. It is safe to state that the number of children an individual has in this age group is close to his/her lifetime fertility.

Procedures

The KLoSA Wave 1 survey was conducted in the six-month period starting from July 2006 through personal interviews. Households were selected and visited based on stratification and randomization. Selected households were informed by mail that they would be visited by interviewers. Interviewers visited households that had at least one person aged 45 or above. 7,574 households were considered to meet the qualifications and at least one member in 6,171 households responded; the response rate for households was 81.5%. Everyone above the age of 45 in the household was interviewed. 13,602 individuals were considered to meet the criteria for this survey and 10,254 completed the survey within the time frame; the response rate for individuals was 75.4%. If there was no one above 45 in the visited household, the next household was visited. Computer assisted personal interviewing (CAPI) was used to receive the information from subjects. At the end of the interview, respondents received a predetermined amount of money as an incentive. Korea Employment Information Service did not reveal the amount of the incentives.

Measures

In this study, level of education, status of employment, and the amount of income are examined as the socioeconomic status (SES) variables per person. Education, income, and occupation are key components recommended by The National Committee on Vital and Health Statistics for consistent measures of SES across groups (Carr 2012). In addition to education, employment, and income, they also recommended using 'family size and relationships' as a measure for SES, in order to capture the amount of resources allocated to one individual in the family unit. However, family size and relationships will not be used as a measure for SES in this study because family size is directly relevant to the outcome variable of this study (whether a person is childless or not). Family size and relationships cannot be used as a dependent variable and independent variable at the same time. Moreover, education, employment, and income were commonly used as measures for socioeconomic factors across many previous studies, and therefore are consistent measures for SES. In this study, two dependent variables, four independent variables, and four control variables were utilized.

For childlessness, the dependent variable, a re-coded variable of the original variable, ‘number of children alive,’ was used. For this research, this question was re-coded into a dichotomous variable, where 0 represents childless and 1 denotes having a child/children. It is important to note that this measure denotes childlessness vs. having a child/children, and not childlessness by choice or circumstances. From this data, one cannot make claims about their ideal number of children. Moreover, this survey question did not capture the number of deceased children that respondents may have had.

Gender was used as an independent variable. For analyses that involve either only men or only women, gender is used as a grouping variable. The responses for the variable were either male or female.

For the second independent variable, education, a re-coded variable of an original variable in the survey was used. The original variable was labeled ‘respondent’s education level’ and the respondent had the following four options: ‘elementary school or below,’ ‘middle school graduate,’ ‘high school graduate,’ and ‘university graduate or higher.’ This variable was recoded into a three-outcome variable by combining elementary school or below and middle school graduate into middle school or below. The value of 1 represented middle school or below, 2 high school graduate, and 3 university graduate or higher. In other research (such as Parr 2010 or Ravanera and Beaujot 2014), middle school graduates are usually grouped together as ‘high school or below’. In this study, however, middle school or below is a separate category because a large percentage of people in this sample fit into the categories of middle school or below (43.6%; 2047 out of 4,700) and high school graduate (41.1%; 1930 out of 4,700). This is probably because for most people in the sample education was free only up to elementary school, as middle school education started becoming free in 1985 and has become completely free in 2002 (Lee 2018).

For the third independent variable, employment, one original variable in KLoSA was used. The original variable was whether the respondent was working or not at the time of the interview. ‘Yes’ to this question means that he/she was working, and ‘no’ means that he/she was not working.

For the fourth independent variable, income, four original variables in KLoSA were re-coded into one variable for combined income from employment and self-employment. Variable 1 was ‘whether respondents had income from employment’ in the year before the interview, 2005. Variable 2 was ‘whether the respondent had income from self-employment’ in 2005. The third and fourth variables were ‘average monthly incomes’ from ‘employment’ and ‘self-employment’ in South Korean won (KRW). Variables 3 and 4 originally had missing outcomes if the respondent did not have income from employment or self-employment, respectively. The missing outcomes in Variables 3 and 4 were replaced by 0’s when it was clear from Variables 1

and 2 that the respondent had no income from the source. However, when they refused to respond whether or not they had income in Variables 1 and 2, the missing outcomes remained as missing in Variables 3 and 4. To make a variable for total income from employment and self-employment, Variables 3 and 4 were added. When there was at least one missing outcome in either Variables 3 or 4, the combined variable was left as missing. Lastly, the combined variable was re-coded into a dichotomous variable, according to whether the respondent had an income that was above or below the 2005 average monthly wage of KRW 2,404,385 (Ministry of Employment and Labor).

Age group was used as a control variable. Ravanera and Beaujot (2014) demonstrated that the proportions of childless men are higher in recent birth cohorts than in older cohorts. To account for the effect of cohorts, age group was used as a control variable. Age was grouped into three categories identical to those used in Parr (2010): 45-49 year olds, 50-54 year olds, and 55-59 year olds.

Disability was used as the second control variable. This is to prevent spurious associations between the independent and dependent variables. It is possible that a person is not in employment, does not have high levels of education, and is childless because he is severely disabled. The effect of disability on childlessness was accounted for in the logistic regression in order to minimize such confounding influence. This question asked whether the respondent has ever been diagnosed with a disability by a doctor (yes/no).

Region was used as the third control variable. The original variable for region had 15 administrative divisions of South Korea as outcomes. This was re-coded into a dichotomous variable that denotes whether a respondent resides in the Seoul Capital Area (*sudogwon* in Korean) which includes Seoul, Incheon, and Gyeonggi. Seoul Capital Area is where much of the economic and political functions of the country are concentrated. In 2006, about half (48.4%) of the total population of South Korea resided in Seoul Capital Area (Korean Statistical Information Service).

Religion was used as the fourth control variable. The original variable for religion had six outcomes: no religion, Protestantism, Catholicism, Buddhism, Won Buddhism, and other. The re-coded variable had four outcomes: no or other religion, Protestantism, Catholicism, and Buddhism (three major religions of South Korea). Won Buddhism and other had very low frequencies: 6 (0.1%) and 37 (0.8%), respectively. Therefore, no religion, Won Buddhism and other were combined into 'no or other religion.'

Analyses

Using SPSS, crosstabulations, chi-square tests, and logistic regression analyses were run. For the logistic regression analysis, the dependent variable was 'having a child/children,' the

independent variables were gender, education, employment, and income, and the control variables were age group, disability, region, and religion. To test the moderation effect of gender on socioeconomic variables, interaction terms between education, employment, or income and gender were used. Missingness was treated with listwise deletion. The logistic regression analyses only used cases that had complete data; 4,613 out of 4,705 (98.0%) were included in the analysis. Most of the missingness was from the income variable, which had 86 missing cases (1.8%) out of 4705.

Results

The sample represented a diverse cross-section of South Korean's middle-aged population. Slightly more women than men were in the sample, but there was great diversity in terms of education, income, employment, religion, disability status, and other factors. In relation to the dependent variable, in the total sample, 3.6% (167 out of 4,704) of the respondents were childless.

Chi-Square Tests for Childlessness

Table 1 presents results from the crosstabulations and chi-square analyses. For the total sample, the dependent variable of having a child/children had statistically significant relations with age group, disability, region, religion, gender, education (marginal significance), employment, and income. For consistency, the same independent and control variables were used for logistic regression analyses, even when some of the variables were not significantly associated with the outcome variable in the chi-square tests. This was because some variables had significant associations in one gender and not the other.

Table 1

Crosstabulations and Pearson's chi-square tests for numbers and percentages of respondents who have never been married or are childless by variables: Men and women aged 45-59 in KLoSA Wave 1 data for South Korea 2006.

	# of individuals <i>childless</i> (% within row)	Row total
Age Group (control)	$\chi^2 = 15.443$ **	
45-59	81 (4.5%)	1789
50-54	58 (3.9%)	1506
55-59	28 (2.0%)	1409
Disability (control)	$\chi^2 = 52.522$ **	
No disability	139 (3.1%)	4474
Has a disability	28 (12.2%)	230
Region (control)	$\chi^2 = 19.783$ **	
Does not live in Seoul Capital Area	72 (2.6%)	2808
Lives in Seoul Capital Area	95 (5.0%)	1896
Religion (control)	$\chi^2 = 8.491$ *	
No or other religion	86 (4.0%)	2152
Protestantism	42 (4.3%)	968
Catholicism	10 (2.5%)	397
Buddhism	29 (2.4%)	1187
Gender (IV)	$\chi^2 = 13.158$ **	
Female	70 (2.7%)	2616
Male	97 (4.6%)	2088
Education (IV)	$\chi^2 = 5.234$ ^	
Middle school or below	87 (4.3%)	2046
High school graduate	57 (3.0%)	1930
University graduate or higher	23 (3.2%)	723
Employment (IV)	$\chi^2 = 4.376$ *	
Not working	83 (4.2%)	1969
Working	84 (3.1%)	2735
Income (IV)	$\chi^2 = 8.450$ **	
Below average	150 (3.9%)	3869
Above average	13 (1.7%)	749

** . $p < 0.01$; * . $p < 0.05$; ^ . $p < 0.10$ for Pearson's chi-square tests between each pair of variables

Association between Economic Variables (Education, Employment, and Income) and Childlessness for the Total Sample

For the total sample, the control variables, age, disability, and region were significantly associated with having a child/children. The independent variables, gender, education, employment, and income were significantly positively associated with having a child/children after accounting for the control variables. Model 1 in Table 2 presents the result from the logistic regression analysis for childlessness for the total sample. Being male had a significant negative association with having a child/children ($p < 0.01$; OR: 0.373; CI_{95%}: 0.256, 0.542). Being a high school graduate had a significant positive association with having a child/children ($p < 0.01$; OR: 1.846; CI_{95%}: 1.286, 2.650). The odds of high school graduates having a child/children were 1.846 times higher compared to those with middle school education or below. Being a university graduate or higher had a marginally significant positive association with having a child/children ($p < 0.1$; OR: 1.651; CI_{95%}: 0.966, 2.820). Compared to those with middle school or below level of education, the odds of university graduates having a child/children were 1.651 times higher. For the employment variable, compared to those not working, those working were significantly more likely to have a child/children ($p < 0.01$; OR: 1.661; CI_{95%}: 1.147, 2.407); their odds of having a

Table 2

Logistic regression model for the outcome variable of childlessness: Men and women aged 45-59 in KLoSA Wave 1 data for South Korea 2006.

Outcome: <i>has a child/children</i>	Model 1 Men and women Odds Ratio	Men only Odds Ratio	Women only Odds Ratio
Age Group (control) (Ref. 45-49)			
50-54	1.388 ^	2.506 **	0.604 ^
55-59	3.545 **	7.576 **	1.270
Disability (control) (Ref. no disability)			
Has a disability	0.341 **	0.475 *	0.208 **
Region (control) (Ref. does not live in Seoul Capital Area)			
Lives in Seoul Capital Area	0.510 **	0.497 **	0.544 *
Religion (control) (Ref. no or other religion)			
Protestantism	0.873	0.926	0.736
Catholicism	1.467	4.495 *	0.739
Buddhism	1.304	1.983 ^	0.847
Gender (IV) (Ref. female)			
Male	0.373 **		
Education (IV) (Ref. middle school or below)			
High school graduate	1.846 **	2.009 **	1.328
University graduate or higher	1.651 ^	2.243 *	0.852
Employment (IV) (Ref. not working)			
Working	1.661 **	2.809 **	1.029
Income (IV) (Ref. below average)			
Above average	2.625 **	2.643 **	1.269

** . $p < 0.01$; * . $p < 0.05$; ^ . $p < 0.10$; Odds ratios of interest for the analyses are in bold.

child/children were 1.661 times higher compared to those not working. For income, the reference category was having an income of below average. Having an income of above average had a significant positive association with having a child/children ($p < 0.01$; OR: 2.625; CI_{95%}: 1.393, 4.947). Compared to those with the income of below average, the odds of those with above average having a child/children were 2.625 times higher.

Association between Economic Variables (Education, Employment, and Income) and Childlessness for Men and Women

Table 2 also presents the result from the logistic regression analyses for childlessness for men and women separately. For men in the sample, the control variables, age, disability, region and religion were statistically significant. The independent variables, education, employment, and income were significantly positively associated with having a child/children after accounting for the control variables. For education, the reference category was middle school or below. Being a high school graduate had a significant positive association with having a child/children ($p < 0.01$; OR: 2.009; CI_{95%}: 1.227, 3.289). The odds of high school graduates having a child/children were 2.009 times higher compared to those with middle school or below. Likewise, being a university graduate or higher had a significant positive association with having a child/children ($p < 0.05$; OR: 2.243; CI_{95%}: 1.110, 4.533). Compared to those with middle school education or below, the odds of university graduates having a child/children were 2.243 times higher. For employment, compared to those not working, those working were significantly more likely to have a child/children ($p < 0.01$; OR: 2.809; CI_{95%}: 1.681, 4.693); their odds of having a child/children were 2.809 times higher compared to those not working. For income, the reference category was having an income of below average. Having an income of above average had a significant positive association with having a child/children ($p < 0.01$; OR: 2.643; CI_{95%}: 1.301, 5.367). Compared to those with the income of below average, the odds of those with above average having a child/children were 2.643 times higher.

For women in the sample, the control variables, age group, disability, and region had significant or marginally significant associations with having a child/children. The independent

Table 3

Examination of the moderation effect of gender on the impacts of socioeconomic variables on childlessness: Men and women aged 45-59 in KLoSA Wave 1 data for South Korea 2006.

Outcome: <i>has a child/children</i>	Model 2 Odds Ratio	Model 3 Odds Ratio	Model 4 Odds Ratio
Age Group (control) (Ref. 45-49)			
50-54	1.377 ^	1.387 ^	1.383 ^
55-59	3.506 **	3.592 **	3.547 **
Disability (control) (Ref. no disability)			
Has a disability	0.342 **	0.374 **	0.345 **
Region (control) (Ref. does not live in Seoul Capital Area)			
Lives in Seoul Capital Area	0.514 **	0.515 **	0.509 **
Religion (control) (Ref. no or other religion)			
Protestantism	0.869	0.876	0.874
Catholicism	1.480	1.468	1.464
Buddhism	1.299	1.302	1.307
Gender (IV) (Ref. female)			
Male	0.332 **	0.267 **	0.358 **
Education (IV) (Ref. middle school or below)			
High school graduate	1.710 ^	1.805 **	1.850 **
University graduate or higher	1.122	1.608 ^	1.634 ^
Employment (IV) (Ref. not working)			
Working	1.640 **	1.154	1.676 **
Income (IV) (Ref. below average)			
Above average	2.441 **	2.448 **	0.994
Education × gender (interaction term) (Ref. middle school or below × female)			
High school graduate × male	1.166		
University graduate or higher × male	1.881		
Employment × gender (interaction term) (Ref. not working × female)			
Working × male		2.014 *	
Income × gender (interaction term) (Ref. below average × female)			
Above average × male			2.996

** . $p < 0.01$; * . $p < 0.05$; ^ . $p < 0.10$; Odds ratios of interest for the analyses are in bold.

variables, education, employment, and income, were not statistically significantly associated with having a child/children after accounting for the control variables.

The Moderation Effect of Gender on the Impact of Socioeconomic Variables on Childlessness

In addition to Model 1, the interaction terms between each socioeconomic variable and gender were added. Again, one interaction term was added at a time to each model. Table 3 presents the findings from the examination of the interaction effects. Model 2 shows that the interaction term between education and gender was not significant with respect to having a child/children. Model 3 demonstrates that the interaction effect between employment and gender on childlessness was statistically significant ($p < 0.05$). Model 4 illustrates that there was no significant interaction effect between income and gender with respect to having a child/children.

Discussion

This Korea-based study on lifetime fertility revealed two main findings. First, education, employment, and income were significantly positively associated with having a child/children. Second, for men, education, employment, and income were significantly positively associated with having a child/children, whereas for women, none of the socioeconomic variables had significant associations with having a child/children. There were clear differences in the results of men and women. The statistically significant effects of socioeconomic variables on having a child/children for the total sample appear to be mostly, if not completely, driven by men.

The significant positive associations between socioeconomic variables and having a child/children imply that, in South Korea (at least in the older generations), men tend not to have children when there is a discrepancy between one's own capacity (perceived by oneself or by others) and the normative expectation of economic capability of fatherhood (Ravanera and Beaujot 2014). This relationship could be because these men internalize the norms of fatherhood, and/or because they have difficulty finding a partner (Ahn 2010) to have children with due to the discrepancy between their low socioeconomic status and ideals about male breadwinners. Also, it appears that the traditionally masculine financial responsibility was a burden for men only in this cohort.

Some recommendations can be made for policy design and future research. First, it appears that men's childlessness seems to be impacted by poor socioeconomic status, which is presumably not by voluntary choices. If it can be assumed that there is no difference in ideal numbers of children between those in high SES and low SES, childlessness by circumstances appears to be a major group within childless men. However, more research is needed to find out whether individuals' fertility ideals are different by SES in South Korea.

This study's examination of the effects of socioeconomic variables on childlessness highlighted that men in South Korea tended to have a child/children when they were able to take care of financial responsibilities. Consequently, alleviating men's normative financial burden could be one of the possible ways to encourage fertility in South Korea. The financial responsibility of men can be reduced by sharing it with women by encouraging female labor force participation. If women can bring incomes of their own, families would not have to rely on men's economic capability alone. Women would not have to be as selective about men's socioeconomic standing when finding a partner and having children with him as they would in the male breadwinner/female homemaker model. This would mean a large cultural shift, both in terms of convincing men to support their wives' wage earning, but also providing additional care outside of the home for children to allow women to return to the workplace. Another place for policy intervention would be to encourage the development of daycare and other childcare situations at low or reduced costs. A potential implication of this study's findings for South Korea and other countries is that family-friendly policies and change in culture that enable and encourage sharing of financial responsibility could be beneficial for slowing fertility decline. However, more research is needed to determine what the best policies might be to support the younger cohorts now in their childbearing years.

Providing affordable and accessible childcare and job-protected parental leaves could also be potential solutions. Measures that are often named family-friendly policies for gender equality (OECD 2017) could also help slow fertility decline. Such policies could help alleviate the normative financial responsibility of fatherhood (Ravanera and Beaujot 2014) and normative childcare responsibility of motherhood (Park 2005; Seccombe 1991) by encouraging dual-income families and enabling work-life balance. As aforementioned, some of these policy measures (such as accessible childcare maternity leave, spouse pregnancy leaves, and flexible work hours) are already in place in South Korea. Since the existing policies have not been effective in countering fertility decline in South Korea, it is possible that the existing policies have not been strong enough to change gender norm-related behavior. Strengthening the policies and ensuring that people take advantage of them are important. Also, it is necessary to make efforts to change people's minds so that family-friendly policies are used.

Limitations of this study must be discussed. The data for study was cross-sectional and the respondents were aged 45 and over. Therefore, causality cannot be reliably established. From this data, we do not know the socioeconomic status of the respondents at the times when their fertility decisions were formed and finalized. Especially, income quartile and employment status could have been different when their fertility decisions were made. It is also possible that childless men have less motivation or pressure to pursue career success and/or higher income, thus appear to have lower socioeconomic status than those that had a child/children. Future research can examine the causality of the relationship between socioeconomic status and childlessness for men. The income variable was limited to income from employment and self-

employment. This means that their income from other sources (such as rents) or value of assets owned are not accounted for. Also, one of the dependent variables for this research was childlessness, and not voluntary childlessness, childless by choice, or childless by circumstances. As aforementioned, the respondents' ideal number of children would provide more insight into their reasons for childlessness. There is also no historical information to understand the socioeconomic history of each person in the study, only their current socioeconomic status. Lastly, because this study was done with 2006 data with 1947-1961 birth cohorts, whether the results can be generalized to current young generations of South Korea remains a question. Nevertheless, the findings show that high SES men are less likely to be childless, in terms of finalized fertility. More research on South Korean individuals of childbearing age is needed to establish pathways into childlessness for young generations.

Conclusion

In South Korea among a cohort of middle-aged adults, men who have low education levels, are not working, and/or have low income were more likely to be childless. This could be because they are unable to fulfill the normative expectation that fathers should be financially capable (Ravanera and Beaujot 2014) to support a family. The pressure of gender role norms could be a reason that some people are childless in South Korea. Family-friendly policies and change in culture that enable both parents to maintain careers and to share parenting roles could also be beneficial for encouraging fertility.

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