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Research Article

The paradox of change: Religion and fertility decline in South Korea

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The paradox of change: Religion and fertility decline in South Korea

Sam Hyun Yoo¹

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Abstract

BACKGROUND

The scholarship on the association of religion and fertility has paid relatively little attention to East Asia, a region that has experienced rapid fertility declines. South Korea is an important setting to study this association as its fertility decreased dramatically and its population includes sizable shares of Buddhists, Catholics, and Protestants, as well as a large nonreligious segment.

OBJECTIVE

We analyze patterns of religious differentials in fertility and their changes between the era of near-replacement fertility and that of lowest-low fertility by relating these changing patterns to massive and rapid socioeconomic and cultural shifts in South Korean society.

METHODS

Using the pooled data from the 1985, 2005, and 2015 census samples, which cover the period of falling fertility first to near replacement and then to far below replacement levels, we fit zero-inflated Poisson models to test for differences in the number of children ever born between women with a religious affiliation and those without one as well as across religious affiliations.

RESULTS

Controlling for age and education, Catholics and Protestants had fewer children than did women with no religious affiliation in the mid-1980s, which was the transitional phase of fertility change. But in the posttransitional stage, two and three decades later, Catholic and Protestant women had more children than did the nonaffiliated. In comparison, Buddhist women, who had a similar number of children to that of the nonaffiliated until the mid-2000s, had more children than the nonaffiliated in the mid-2010s.

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CONTRIBUTIONS

The findings shed light on the dynamic nature of the association between religious affiliation and reproduction in contexts of rapid and radical societal transformation by illustrating how evolving cultural meanings of religion may impact fertility outcomes.

1. Background

A considerable body of literature has addressed the role of religion in shaping fertility patterns and differentials. Historically, the connection between religion and fertility has been conceptualized using three theoretical foci: religious teachings directly related to fertility; minority-group status of a religious group that may both stimulate and discourage fertility; and certain sociodemographic, economic, or cultural characteristics of adherents of different religious traditions that may affect fertility (Goldscheider 1971; Johnson 1993). It has been also argued, however, that in reality these three realms are often dynamically interconnected (e.g., Agadjanian 2001; Chamie 1981). McQuillan (2004) further retheorizes the field by arguing that religion affects fertility when it has teachings related to fertility, the means to communicate these teachings, and members who feel strong attachment with their religious identity and community. However, these conditions are not constant and change over time. The possibility of changing relation between religion and fertility has been demonstrated in the literature (e.g., Chamie 1977; Peri-Rotem 2016; Westoff and Jones 1979), but empirical research is limited to finding a unilineal change, such as a gradual decline or rise in differential fertility.

The association between religion and fertility may vary across contexts. While religiosity and religious affiliation often connote greater traditionalism and more conservative attitudes toward family and fertility in Western contexts, outside the Western world, the notions of tradition versus innovation may have different associations with membership in certain religious groups, which may change over the course of profound and rapid societal transformations. Thus, Agadjanian (2013) shows that in the early transitional setting of Mozambique, the use of modern family planning was highest among Catholics and among women frequently attending church. In such settings, religious affiliation may create propitious ground for contraceptive use by fostering the diffusion of novel reproductive preferences and practices (Agadjanian 2001), especially when religious leaders are supportive of these innovations (Yeatman and Trinitapoli 2008).

Most studies on religion and fertility outside the Western world have focused on settings in relatively early stages of the fertility transition, where religious beliefs are still widely and actively professed. However, as the Western experience shows, as

secularization progresses in countries with low fertility, the significance of religion for demographic behaviors also gradually diminishes (Lesthaeghe 2010). The decline of religion in private and public spheres is often evidenced by convergence in fertility between secular and religious groups and across religious denominations (e.g., Frejka and Westoff 2008; Westoff and Jones 1979). At the same time, as the societal prominence of religion declines, religious affiliation becomes more selective of individuals who are more devoted to the religious doctrines, including religious teachings regarding family and reproduction, which may lead to higher fertility among them, compared to those with no religious affiliation (Kaufmann, Goujon, and Skirbekk 2011; Peri-Rotem 2016; Philipov and Berghammer 2007; Régnier-Loilier and Prioux 2008). Yet, again, the debate on whether the religious effect on demographic behaviors withers or persists remains limited mainly to Western settings.

The literature on religion and fertility has paid little attention to East Asia, a region where fertility decline has been dramatic. In particular, the role of Buddhism, the religious tradition with deep roots in the region, relative to that of historically more recent imports, has not been well investigated. Recent studies report that Buddhist affiliation is either negatively associated with fertility or not associated with it in the region (Bessey 2018; Kojima 2014; Skirbekk et al. 2015). However, the findings of these studies are not consistent across countries and most of them, constrained by the data, looked at certain time points only. In addition, it is unclear how the effects of Buddhism on fertility are different from those of Christianity in East Asian contexts.

This study seeks to fill these gaps by examining religious differentials in fertility over time in South Korea (hereafter Korea). We look at the dynamics of fertility differentials across religious affiliations in the context of the transition to near-replacement and then to lowest-low fertility. We focus on fertility of four major groups – Buddhists, Catholics, Protestants, and those with no religious affiliation – and examine how the association between religion and fertility changed over three decades starting in the mid-1980s. For this analysis, we pooled the sample data from the 1985, 2005, and 2015 Korean censuses, in which both religious affiliation and the number of children ever born are available.

2. The context

Korea has experienced one of the most rapid and dramatic fertility declines in the world. Its total fertility rate (TFR) fell from around 6.0 children per woman in 1960 to replacement levels in the early 1980s and then to below 1.3 (i.e., the conventional threshold of what is considered lowest-low fertility) in the early 2000s. Since then, the TFR of Korea has remained below 1.3. The rapid fertility decline to the near-replacement

level resulted from the combination of socioeconomic changes and the diffusion of small family size norms and of birth control, which was facilitated by the national family planning program launched in 1962 (Jun 2005; Kim 2005; Yoo 2014). In contrast, the further decline to very low levels of fertility is usually attributed to delay in or even avoidance of marriage and childbearing, caused by improvements in women's status, a conflict between work and family, and ideational changes promoting individualization (e.g., Kim 2005; Lee and Choi 2015; Yoo 2016).

As the TFR dropped below 1.3 in the early 2000s, the Korean government declared a change in the policy direction toward promoting childbearing and preparing for population ageing. Specifically, the government put together an action plan named the Basic Plan for Low Fertility and Ageing Society, updated every five years, which includes diverse actions supporting childbirth and childrearing, balancing work and family life, and improving gender equality (Lee and Choi 2015). However, despite these efforts to raise fertility, Korea's TFR further declined to a record low, 0.92, in 2019 (Statistics Korea 2020). Such a rapid and dramatic fertility decline in Korea in the past few decades provides a rare opportunity to test how the association of religion and fertility may change depending on overall fertility levels.

The religious makeup of Korea extends this opportunity by allowing us to examine this association over time across different religious faiths and denominations. While the majority of Koreans, 56% of the total population according to the 2015 census, have no religious affiliation, Buddhists (16%), Catholics (8%), and Protestants (20%) are the country's main religious groups. In comparison, Confucianism, which greatly imprinted Korea's earlier history, nowadays tends to be seen as a political philosophy rather than religion, and the share of the population affiliated with Confucianism constitute less than 0.2% (Statistics Korea 2020). Despite their obvious doctrinal differences, none of the three main religious groups can be thought of as having a distinct 'minority status,' thus reducing concerns that typically underlie the minority-group-status hypothesis (Goldscheider 1971; Goldscheider and Uhlenberg 1969). Korea is also an ethnically homogeneous country, and therefore any confounding effects of ethnic differences should be negligible.

Korea's current religious landscape is a product of the country's history and of its rapid modernization and industrialization as well as its exposure to cultural influences from the West in the last half-century. Until the beginning of industrialization, people not affiliated with a formal religion were the overwhelming majority, accounting for 90% of the total population in 1962 (Kang 1997: 97). However, in that era, most of the nonaffiliated adhered, to various degrees, to traditional folk religious beliefs and practices, such as *mudang*, a spiritual intermediary between deities/spirits and humans, communal rituals (*dongje*), and divination, fortune-telling, and shamanism (*mugyo*) (Choi 2005).

Since the 1960s, folk religion was increasingly stigmatized as ‘superstition’ by the state because social and political leaders perceived it as old-fashioned, irrational, and unscientific, and therefore an obstacle to socioeconomic development (Choi 2005:17; Jung 2012; Lee and Suh 2017). As a result, the influence of folk beliefs and practices continuously diminished until the early 2000s while many of the nonaffiliated joined Buddhism, Catholicism, and Protestantism (Kim et al. 2009). Although more recently folk beliefs have been increasingly recognized for their importance as cultural heritage, they have not been elevated to the status of a formal religion, and their adherents do not appear as such in national religious statistics.

However, since the 2000s, affiliation with the established religions also began to decline. This retreat from religious affiliation has been driven mainly by the overall secularization of Korean society but has also been influenced by the growing public discontent about clerical corruptions and conflicts among and within religious institutions (Gallup Korea 2015). As a reflection of these processes, the share of the nonaffiliated among the population aged 20 and over, which declined from 51% in 1985 to 45% in 2005, rebounded to 54% by 2015 (Statistics Korea 2020). Importantly, the majority of the nonaffiliated today are secular people. Not surprisingly, since the 2000s, those with no religious affiliation tend to be younger, male, and urban residents typically embracing individualistic lifestyles (Gallup Korea 2015, Kim et al. 2009).

Buddhism has been deeply rooted in Korean culture since its introduction from China in the fifth century. Given the long presence of Buddhism in Korea, especially in rural areas, folk beliefs have been integrated into Korean Buddhism in diverse ways. For example, Buddhist temples often have small structures dedicated to the mountain god and other spirits, such as those who are believed to help families to gain fortune and happiness or to have a son. Although the Buddhist doctrine does not include specific teachings on family and childbearing, its focus on detachment, renunciation, and pursuit of enlightenment generally aligns with traditional patriarchal family norms and values.

During the industrialization era between the 1960s and the mid-1990s, the influence of Buddhism expanded as did the numbers of its followers. As the government ramped up campaigns to rid Korean society of superstitions, Buddhism could partially absorb folk believers who wanted to keep their customs. The Korean political leadership at that time was generally not sympathetic to Buddhism, but like other established religions, Buddhism also got some government support, such as subsidies for restoring Buddhist temples, the creation of the Buddhist military chaplain program, and the declaration of Buddha’s birthday as a public holiday (Lee and Suh 2017). Nonetheless, Buddhism was considered a traditional religion, particularly in comparison with rapidly growing Catholicism and Protestantism in modernizing Korea. In fact, as the nonaffiliated people have increasingly become secular, the traditional image of Buddhism has grown more prominent.

Christianity was first introduced in Korea in 1784 when Yi Seung-hun, the first Korean Catholic martyr, was baptized while visiting China. The first Protestant missionaries arrived in Korea in 1863, with a large number coming in the 1880s, mostly from the United States. Initially, both Catholics and Protestants often suffered persecution because of their refusal to accept ancestor worship, which was central to the Confucianism of the ruling Joseon dynasty and because of the country's isolationist policies vis-à-vis the Western powers at that time.

As proselytizing was prohibited, Christian missionaries first focused on establishing educational and health facilities and providing social services (Lee 2014). The country's first Western medical clinic, modern school for boys and girls, and orphanage were all created by Protestant missionaries (Kim 2001). Some of major universities in contemporary Korea were also established through activities of Catholic and Protestant missions. These activities played a significant role in promoting positive impressions about the West among common people in Korea (Kane and Park 2009).

Christianity has rapidly grown in Korea since its liberation from the Japanese occupation in 1945. South Korea was heavily influenced by the American culture in the 1940s–1950s, first because of the US military presence soon after the liberation and later because of the military alliance with the United States during and after the Korean War (1950–1953). Thanks to their modern image, all things coming from the United States, including religion, were considered advanced and something to be imitated, therefore contributing to the rapid expansion of Christianity (Shin 2003).

The postwar political climate also favored Christianity because of the government's close ties with the United States and the policies aimed at modernization, of which cultural westernization was an important component. Many political leaders, including most presidents, were either Catholics or Protestants. During the Cold War, with their explicit opposition to the godless communism of North Korea, Christians could get wide access to ideological radio broadcasting and were granted privileges such as to create the military chaplaincy program, which happened seventeen years earlier than the creation of such a program by Buddhists (Kang 2012:107; Lee and Suh 2017). Given that military service is mandatory for Korean men, this program likely contributed to the expansion of Christianity. Christian churches were also successful in expanding their membership by absorbing masses of internal migrants from rural to urban areas during the period of rapid urbanization and industrialization. Many such internal migrants sought Christian churches for psychological comfort, fellowship, and social services in the face of hardships of city life (Kim 2000).

Christian churches have adapted to the Korean context by incorporating some indigenous cultural traditions. For example, it is common for the sermons of leading Protestant pastors to include more prayers for material success and health in this world (Kim 2000:120). Traditional notions of filial piety and ancestor worship are also often

accepted among contemporary Catholics and Protestants in Korea. Thus, the combination of prestigious foreign connotations, geopolitics, and partial indigenization contributed to the vigorous expansion of Christianity, especially Protestantism, in Korea after the liberation.

However, as younger generations have increasingly grown irreligious, both Catholicism and Protestantism have experienced a decline in membership since the end of the last century. Some Christians gradually become unaffiliated or secularized for various reasons, such as pursuit of unconstrained religious life or dissatisfaction with pastors (Woo 2016), while conversions across denominations also increase among Protestants. As a result, those who retain affiliation with Christian churches, while declining in numbers, are also increasingly more conservative than before, especially given the ageing of church membership and the growing share of Evangelical churches (Freston 2001; Lee 2009).

3. Conceptualization and hypotheses

Guided by the general theoretical vision of a dynamic relationship between religion and fertility, we examine how the religious mosaic of Korean society may have manifested itself in fertility differentials through the transitional period, when fertility declined from high to the near-replacement level, as well as in the posttransitional period, when fertility plunged well below that level. The first half of the 1980s is usually thought of as the end of the transitional period in fertility change in Korea (Jun 2005; Kim 2005). Therefore, the number of children ever born measured in the 1985 census should correspond to the transitional phase as it reflects reproductive behaviors largely during that phase. In comparison, the figures of the 2005 and 2015 censuses represent the posttransitional fertility.

Following the western scholarship, we assume that the causes of fertility decline in the posttransitional phase are different from those in the transitional phase. As noted earlier, the rapid socioeconomic development and the expansion of modern family planning program were the main drivers of the fertility decline to replacement levels (Jun 2005; Kim 2005; Kwon 2001; Mason 1997). In comparison, the continuing fertility decline in the posttransitional phase in Korea and other settings is attributed to such factors as improvement in women's educational attainment and social engagement, conflict between work and family, youth unemployment, and ideational changes (Balbo, Billari, and Mills 2013; Basten, Sobotka, and Zeman 2014; Chung 2013; Lesthaeghe 2010, 2020; Morgan and Taylor 2006; Rindfuss, Guzzo, and Morgan 2004; Woo 2018). Accordingly, the role of religion may differ in the two phases. Our hypotheses reflect these differences while adapting them to the realities of the Korean context.

Having their roots in the West, both the Catholic and Protestant churches in Korea acted as institutions promoting Western-style modernization. The economic growth and transformation of the country, as well as its military alliance with the United States, also created favorable ideas about norms and behaviors originating from the West, including nuclear family and modern contraceptive use. Christianity was also associated with middle class, youth, intellectualism, and urban residence, as well as with the social and political leadership (Kim 2001).

The diffusion of innovative norms and behaviors, such as small family size and modern contraceptive use, plays an important role in fertility decline to below replacement level (Bongaarts and Watkins 1996; Montgomery and Casterline 1998). In the industrialization of Korea, Christian churches, both Catholic and Protestant, absorbed a mix of various social groups from old elites and nouveaux riches to rural-to-urban migrants and peasants (Lee and Suh 2017). In a patriarchal society where most women stay at home and take care of household chores, women's church attendance and activities, in particular, could offer an important opportunity for nontraditional social interactions. Church-based interactions of individuals with diverse backgrounds contributes to sharing novel ideas and practices, such as benefits of having fewer children and using contraception (Agadjanian 2001, 2013). Religious leaders' positive attitudes toward family planning also facilitate the spread of contraceptive use (Yeatman and Trinitapoli 2008), and in Korea, because of widespread public concerns about rapid population increase until the 1980s, some Christian leaders were actively enlisted in supporting the government-led family planning program (e.g., Kang 1963; Park 1975). Therefore, we expect that being a Catholic or Protestant would be associated with lower fertility levels, compared to not having a religious affiliation, even after controlling for other characteristics such as age and educational attainment.

Hypothesis 1: Women affiliated with Christian churches have lower fertility than nonaffiliated women in the transitional phase.

Although both the Catholic Church and Protestant churches were seen as symbols and purveyors of Western ideas, norms, and behaviors, given the higher levels of Catholic fertility, compared to fertility of Protestants, in the West at least in earlier stages of the fertility transition (e.g., Frejka and Westoff 2008; Westoff and Jones 1979), we also expect that the hypothesized contrast may be pronounced between Protestants and the nonaffiliated than between Catholics and the nonaffiliated.

With continuing economic growth and a massive expansion of global connections, Korean society has become increasingly westernized. Although both Protestant and Catholic affiliation is still associated with higher socioeconomic status, it is no longer advantageous in engaging and absorbing all things modern. In fact, it may be argued that

Christian churches have not kept up with recent radical transformation of the notions of sexuality, marriage, and childbearing. For example, studies have showed an association of Christian affiliations (especially with Protestant churches) with more conservative orientations in matters such as dating or sexual partnership (e.g., Lee, Joo, and Kim 2019) or in more general social and political views (e.g., Jang 2018; Kang 2004; Kang 2012: 333–337). As a result, Catholicism and Protestantism, which were once in the vanguard of Korean modernization, are increasingly seen as symbols of ‘traditionalism’ in today’s Korea. In a society where birth control is widely available and fertility limitation is a generalized norm, innovative behavioral choices – such as marriage postponement or even avoidance, cohabitation, easy union dissolution and repartnering, and childlessness by choice – are manifestly incompatible with Christian sociocultural prescriptions.

Moreover, some Catholic and Protestant leaders now take a vocal negative stance against the use of induced abortion and emergency contraception. Nonmarital births and divorces are also less likely to happen among Christians, especially Catholics. Church-based social interactions that in the transitional phase may have helped to spread and legitimize novel fertility desires and behaviors may now serve to enhance relatively more conservative (by contemporary standards) values, aspirations, and practices. We therefore anticipate that in the posttransitional phase, the fertility difference predicted by our first hypothesis diminishes and even reverses itself, with Catholics and Protestants displaying higher levels of fertility, as is the case of posttransitional Western settings (e.g., Peri-Rotem 2016; Philipov and Berghammer 2007).

Hypothesis 2: The difference between Catholics/Protestants and the nonaffiliated predicted in H1 is likely to disappear or reverse itself in the posttransitional phase.

While our first two hypotheses focus on fertility of Christians versus the nonaffiliated, Buddhism is also an important part of our conceptual framework. Unlike, Christianity, which was a marker of modernity in much of the twentieth century, Buddhism has always been a traditional religion. Buddhism has experienced considerable influence of folk religious beliefs throughout Korean history; in fact, as noted above, many adherents of folk beliefs converted to Buddhism during the industrialization era when the government disparaged folk religious beliefs and practices as ‘superstitions.’ Given this cultural proximity and even fusion between Buddhism and traditional beliefs and practices, we expect the fertility of Buddhist women to be similar to that of the nonaffiliated in the transitional phase.

However, in the posttransitional phase of fertility change, we assume a growing cultural and normative distancing between Buddhists and the nonaffiliated. Thus, while the latter are an increasingly secular segment of Korean society, with corresponding

cultural preferences and demographic propensities, Buddhists tend to maintain more conservative family views (Kim 2002), including, for example, son preference (e.g., Chung and Das Gupta 2007; Kim and Song 2007). Accordingly, we formulate our third hypothesis:

Hypothesis 3: Fertility of Buddhists is similar to that of the nonaffiliated in the transitional phase but higher than that of the nonaffiliated and closer to that of Christians in the posttransitional phase.

4. Data and methods

We use pooled data from the samples of the 1985, 2005, and 2015 Korean censuses, in which both the number of children ever born and religious affiliation are available. The Korean census is conducted every five years, but information on religious affiliation has been collected only every ten years since 1985. We drop the 1995 census from the pooled data because it did not contain any information on fertility. Religious affiliation is often omitted from census microdata; for instance, religious affiliation from the 2015 census is available in a 20% sample restricted-use file only. Consequently, we use datasets of different sizes: the 1985 and 2005 1% sample public-use files and the 2015 20% sample restricted-use file. While the public-use files of the 1985 and 2005 censuses do not contain any weights, the restricted-use file of the 2015 census data include weights, which make estimates for the total population possible. We use the weights so that the data from the 2015 census become equivalent to 1% of the total population, as in the 1985 and 2005 census data. Notably, our results are robust whether or not we use the weights.

Our measure of fertility is the number of children ever born at the time of census. The questions on fertility were asked of women only, and thus men are excluded from our analysis. For religious affiliation, we focus on the four major groups discussed above: nonaffiliated, Buddhists, Catholics, and Protestants. Our analysis includes an 'others' category for minor religions and new religious movements, such as Won Buddhism, Confucianism, Cheondogyo, Daesun Jinrihoe, and Daejonggyo, which jointly constituted just 0.75% of the total population of Korea in 2015. Because this group is very small and heterogeneous, we refrain from interpreting the corresponding results.

For the analytic samples, we choose women of reproductive age over those who completed fertility so that our results reflect recent fertility patterns from latest birth cohorts. This choice also helps to reduce the potential bias due to religious conversion associated with ageing (e.g., Hayward and Krause 2015). As most women finish their education by their mid-20s in Korea, we further limit our sample to those aged 25 and

over to control for mediating effects of educational attainment on the association between religion and fertility.

The covariates are age group (25 to 29, 30 to 34, 35 to 39, 40 to 44, and 45 to 49) and educational attainment (less than high school, high school, some university, and bachelor's degree or higher). The question on the number of children is asked of women who have been married only. Out-of-wedlock births are still rare in Korea, accounting for less than 2% of the total births in 2015 (Statistics Korea 2020). We include women who have never married, assuming that all of them are childless. Accordingly, we do not control for marital status to avoid multicollinearity.

Table 1 shows descriptive statistics of the pooled data for women aged 25 to 49 between 1985 and 2015. As can be seen, those with no religious affiliation constituted 45.8% of the analytic sample in 1985. Their share declined to 43.9% in 2005 but rose to 56.0% in 2015. This group is larger than any affiliated group in all periods, confirming its dominant status in Korea.

The share of Buddhists declined from 27.5% in 1985 to 24.0% in 2005 and to 14.1% in 2015. Protestants slightly expanded their share from 18.7% in 1985 to 18.9% in 2005 and to 20.7% in 2015, whereas Catholics experienced up and down changes as their share rose from 5.9% to 12.3% between 1985 and 2005 but then declined to 8.5% in 2015. The distributional change of religious affiliation partly reflects the expansion of the Christian segment (including Protestants and Catholics) by the mid-2000s and subsequent secularization of the Korean population, due mainly to the shrinking shares of Buddhists and, to a lesser extent, of Catholics.

Table 1: Distribution of religious affiliation by census year (%)

Variables	1985	2005	2015	Total
<i>Religious affiliation</i>				
Not affiliated	45.8	43.9	56.0	55.0
Buddhist	27.5	24.0	14.1	15.1
Catholic	5.9	12.3	8.5	8.6
Protestant	18.7	18.9	20.7	20.5
Other religion	2.2	0.9	0.8	0.8
<i>Age group</i>				
25–29	29.5	17.7	16.6	17.2
30–34	22.2	20.4	18.9	19.1
35–39	18.0	20.8	19.6	19.6
40–44	15.4	21.0	22.1	21.7
45–49	15.0	20.2	22.9	22.4
<i>Educational attainment</i>				
< High school completion	4.9	0.6	0.5	0.7
High school completion	60.0	13.7	3.7	6.4
Some university	29.5	61.9	58.4	57.4
Bachelor's or higher	5.6	23.9	37.5	35.5
Total (weighted N)	69,010	92,577	95,209	256,796

Note: All values are weighted.

For multivariable analyses, we first fit a model predicting the number of children ever born from religious affiliation and year controlling for age group and educational attainment. Then, we add interaction terms between religious affiliation and census year to capture the changing relations between religion and fertility. For these analyses, we chose zero-inflated Poisson (ZIP) models as these models are best suited for count data with overdispersion and excess zeros. A ZIP model consists of two components: a binary logit model predicting excess zeros and a Poisson model for the positive count (see Long 1997: 242–249), which, in our case, are a logit model for being childless and a Poisson model for the number of children. In exploratory analyses, the ZIP models also showed better model fits (both in log-likelihood and Bayesian information criterion) than the Poisson models. The coefficients are exponentiated and interpreted as odds ratios (ORs) and incident risk ratios (IRRs), respectively. Finally, we implemented robustness checks with a sample limited to women aged 45 to 49. For those analyses, Poisson models had a better fit because few women remain childless in their late forties.

5. Results

5.1 Analytic results

Table 2 shows changes in the average number of children ever born by religious affiliation and census year. On average, women with no religious affiliation consistently have fewer children than those with religious affiliation. The average number of children ever born among the nonaffiliated women was 2.47 in 1985 but declined to 1.40 in 2005 and to 1.13 in 2015. Among the affiliated, the average number of children varies by specific affiliation and census year. In 1985 the number of children is lower among Catholics and Protestants but is higher among Buddhists compared to the nonaffiliated. However, in both 2005 and 2015, all the religious affiliations had a higher mean number of children than the nonaffiliated. These descriptive patterns illustrate the changing association between religion and fertility in Korea, which might be determined by difference in characteristics across religious affiliations.

Table 2: Average number of children by religious affiliation and census year

Variables	1985	2005	2015	Total
<i>Religious affiliation</i>				
Not affiliated	2.47	1.40	1.13	1.59
Buddhist	2.71	1.59	1.33	1.79
Catholic	2.14	1.48	1.16	1.54
Protestant	2.27	1.50	1.28	1.63
Other religion	3.16	1.61	1.20	1.87
Total	2.50	1.48	1.19	1.65

Note: All values are weighted.

Table 3 shows the results of the ZIP models testing our hypotheses on the association between religious affiliation and fertility. Model 1 includes religious affiliation, census year, age group, and educational attainment; Model 2 adds interaction terms between religious affiliation and census year. For each model, we first interpret the logit (Part A) and then the Poisson part (Part B).

In Model 1, being Catholic or Protestant is not associated with childlessness relative to not having a religious affiliation. In contrast, Buddhist women are more likely than nonaffiliated women to be childless (Part 1.A). Part 1.B shows that Protestant women have more children than the nonaffiliated while Catholic women have a similar number of children to the nonaffiliated. Like Protestant women, Buddhist women also show a larger number of children than the nonaffiliated. Compared to the nonaffiliated, being a Protestant or a Buddhist increases the mean number of children by 1.9% ($e^{0.019} = 1.019$) and 1.4% ($e^{0.014} = 1.014$), respectively, holding year, age, and educational attainment constant.

As Model 1 also shows, the likelihood of having no children tends to increase in 2005 and 2015, reflecting the rise in childlessness in Korean society. Among age groups, only women aged 30 to 34 show a lower likelihood of being childless than those aged 25 to 29, whereas women's educational attainment does not affect the likelihood of never having children. The mean number of children gradually declines between 1985 and 2015. As could be expected, the predicted number of children increases with women's age but decreases with educational attainment. However, these results are based on the entire period, assuming the relation between religious affiliation and fertility is constant over time.

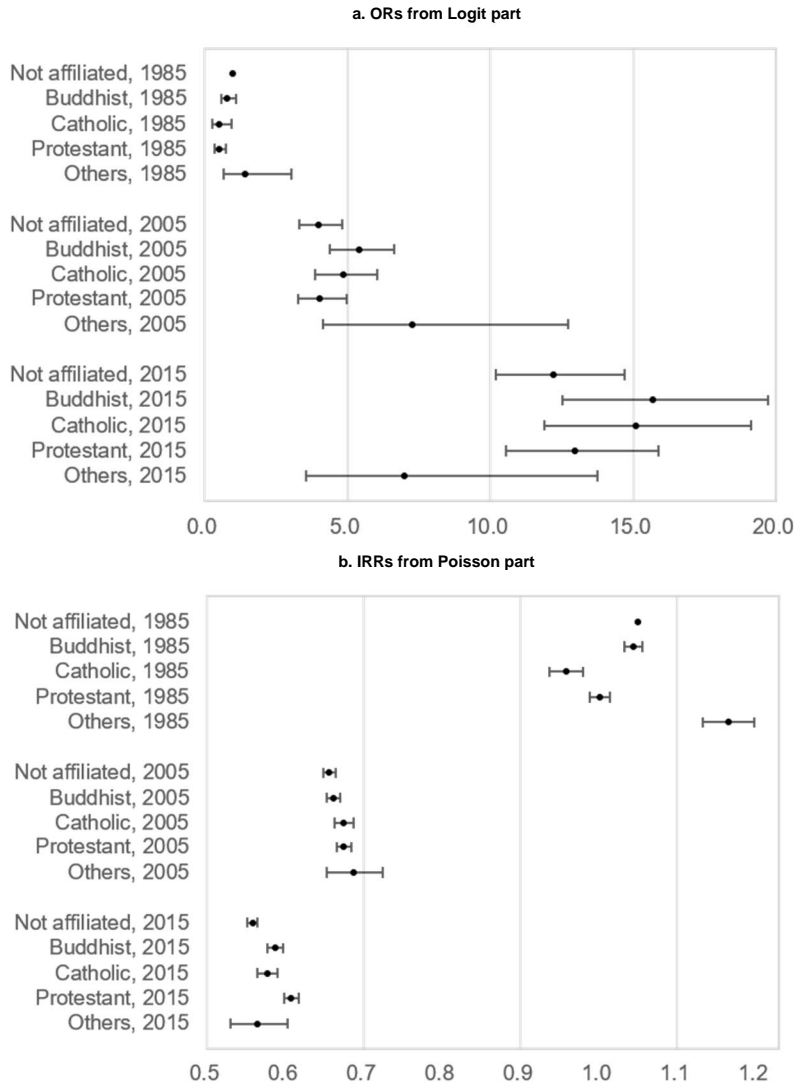
Model 2 tests our hypotheses on the changing association between religious affiliation and period. When interaction terms between religious affiliation and year are taken into account, the influence of religious affiliation on fertility displays considerable changes over time. To facilitate interpretation, we computed ORs (logit part) and IRRs (Poisson part) with 95% confidence intervals for religious affiliation and year and contrasted them to the nonaffiliated in 1985. These results are shown in Figure 1.

Table 3: Zero-inflated Poisson model parameter estimates of children ever born to women aged 25–49 from religious affiliation

Covariates	Model 1						Model 2					
	A. Logit			B. Poisson			A. Logit			B. Poisson		
	Est.	SE	P value	Est.	SE	P value	Est.	SE	P value	Est.	SE	P value
<i>Religious affiliation</i>												
Not affiliated	Ref.			Ref.			Ref.			Ref.		
Buddhist	0.217	0.051	<0.001	0.014	0.004	0.001	-0.224	0.172	0.191	-0.007	0.006	0.241
Catholic	0.105	0.060	0.080	-0.003	0.006	0.639	-0.706	0.323	0.029	-0.097	0.012	<0.001
Protestant	-0.071	0.047	0.129	0.019	0.004	<0.001	-0.695	0.200	0.001	-0.050	0.007	<0.001
Others	0.194	0.191	0.311	0.097	0.012	<0.001	0.359	0.383	0.349	0.109	0.015	<0.001
<i>Year</i>												
1985	Ref.			Ref.			Ref.			Ref.		
2005	1.712	0.075	<0.001	-0.471	0.005	<0.001	1.386	0.095	<0.001	-0.501	0.006	<0.001
2015	2.823	0.077	<0.001	-0.626	0.005	<0.001	2.504	0.093	<0.001	-0.677	0.007	<0.001
<i>Religious affiliation × Year</i>												
2005 × Not affiliated							-			-		
2005 × Buddhist							0.525	0.186	0.005	0.014	0.009	0.121
2005 × Catholic							0.897	0.333	0.007	0.127	0.015	<0.001
2005 × Protestant							0.701	0.213	0.001	0.080	0.010	<0.001
2005 × Other religion							0.238	0.471	0.613	-0.059	0.032	0.068
2015 × Not affiliated							-			-		
2015 × Buddhist							0.475	0.191	0.013	0.061	0.011	<0.001
2015 × Catholic							0.917	0.335	0.006	0.134	0.016	<0.001
2015 × Protestant							0.752	0.210	0.000	0.143	0.011	<0.001
2015 × Other religion							-0.916	0.509	0.072	-0.096	0.039	0.014
<i>Age group</i>												
25–29	Ref.			Ref.			Ref.			Ref.		
30–34	-2.594	0.045	<0.001	0.489	0.008	<0.001	-2.603	0.045	<0.001	0.491	0.008	<0.001
35–39	-14.244	18.337	0.437	0.745	0.008	<0.001	-14.053	16.571	0.396	0.747	0.008	<0.001
40–44	-15.709	18.738	0.402	0.878	0.008	<0.001	-15.523	16.911	0.359	0.879	0.008	<0.001
45–49	-16.013	18.406	0.384	0.962	0.008	<0.001	-15.823	16.594	0.340	0.963	0.008	<0.001
<i>Educational attainment</i>												
<High school completion	12.022	15.748	0.445	0.147	0.009	<0.001	11.676	14.193	0.411	0.140	0.009	<0.001
High school completion	Ref.			Ref.			Ref.			Ref.		
Some university	11.377	15.746	0.470	-0.154	0.004	<0.001	11.219	14.191	0.429	-0.148	0.005	<0.001
Bachelor's or higher	12.604	15.746	0.423	-0.269	0.006	<0.001	12.438	14.191	0.381	-0.268	0.006	<0.001
Constant	-13.744	15.746	0.383	0.366	0.007	<0.001	-13.299	14.191	0.349	0.387	0.007	<0.001
Unweighted N	1,748,743						1,748,743					
Log likelihood	-352771.7						-352604.2					
BIC	705744.7						705524.6					

Note: Estimates were weighted.

Figure 1: Odds ratios (ORs) and incident risk ratios (IRRs) of religious affiliations with 95% confidence intervals



Note: ORs and IRRs were computed based on Model 2 in Table 3, taking "not affiliated, 1985" as reference.

In Model 2.A, both Catholic and Protestant women have a lower likelihood of being childless than the nonaffiliated in 1985 when controlling for age and educational attainment. Being Catholic or Protestant reduces the probability of never having children in the transitional phase. This result appears to contradict our first hypothesis. However, in the transitional phase, when lifetime childlessness is still rare, the difference in the likelihood of being childless is likely related to the timing of first birth, which has a relatively small impact on overall fertility. Interaction terms between these affiliations and year generally show positive coefficients in 2005 and 2015, suggesting that childlessness among Christian women, compared to the nonaffiliated, was on the rise since the 2000s. Consequently, the differences in the likelihood of being childless between the Christian groups and the nonaffiliated disappeared in 2005 and 2015. In comparison, the probability of being childless was similar between Buddhists and the nonaffiliated over the entire span.

The changing influence of religious affiliation also appears in predicting the number of children (Model 2.B). Both Catholics and Protestants had fewer children than the nonaffiliated in 1985, holding age and educational attainment constant. This is in line with our first hypothesis that Christian women had lower fertility than the nonaffiliated in the transitional phase. The interaction terms between Christian affiliations and year also show significant positive effects. Again, it indicates that, relative to the nonaffiliated, the number of children gradually increases over time among Catholics and Protestants even though it slightly differs between the two groups and across years. When the interaction terms are considered, both Catholic and Protestant women have more children than the nonaffiliated in 2005, but the difference from the nonaffiliated is significant for Protestants only (see Figure 1). In 2015, both Catholic and Protestant women have more children than the nonaffiliated (Figure 1). In sum, affiliation with either Catholicism or Protestantism, which decreased the mean number of children in the transitional phase, increased the mean number of children ever born in the posttransitional phase compared to the nonaffiliated. This supports our second hypothesis.

Women of Buddhist affiliation have a similar number of children to the nonaffiliated in 1985. However, Buddhist women, like their Christian counterparts, also experienced a change in fertility relative to that of the nonaffiliated. The mean number of children of Buddhists predicted by our model was similar to that of the nonaffiliated until 2005 but became higher in 2015. Buddhist fertility, which was not different from that of the nonaffiliated in the transitional phase, was higher in the posttransitional phase even though the magnitude of this change is less pronounced than among Christian groups. Hypothesis 3 is therefore supported.

5.2 Robustness checks

We also conducted several robustness checks. We used completed fertility, instead of the number of children ever born, by restricting samples to women aged 45 to 49. Completed fertility from older cohorts has fewer zeros and follows a Poisson distribution, therefore we used Poisson models instead of ZIP models. Restricting samples to older cohorts near the end of the reproductive span reduced fertility differentials across religious affiliations in 2015, because the exclusion of younger cohorts minimizes the extent to which variation in birth timing contributes to fertility differentials (cf., Yoo and Sobotka 2018). However, the overall results of those models (not shown but available upon request) are not different from what we illustrated above, even though statistical significance differs by religious affiliation. Buddhists, Catholics, and Protestants had fewer children than women with no religious affiliation in 1985, but none of the religious affiliations generated significant difference in the number of children in 2005. In 2015, only Protestants had more children than the nonaffiliated with age and education held constant. Buddhists and Catholics also have more children than the nonaffiliated even though the differences from the nonaffiliated fall outside 95% confidence intervals. The results of these models are available upon request.

6. Discussion

This study examined the changing relationship between religious affiliation and fertility during the transitional and posttransitional phases in Korea. We found that holding age and educational attainment constant, Catholics and Protestants had fewer children than did women with no religious affiliation in the mid-1980s (i.e., shortly after the time when Korean fertility reached replacement level). But in the posttransitional stage, two to three decades later, Catholic and Protestant women had more children than the nonaffiliated. Buddhist women showed a similar level of fertility to that of the nonaffiliated until 2005 but had higher fertility in 2015, regardless of age and education.

Interestingly, being affiliated with Catholicism or Protestantism was also related to higher likelihood of being childless in 1985 but not in 2005 and 2015. This conflicts with the association of being Catholic or Protestant with the expected number of children. However, because the higher likelihood of childlessness among Catholics and Protestants is observed only in 1985, it is likely more related to the timing of childbearing rather than the probability of lifetime singlehood and of childlessness that typically accompanies it in the Korean context. The association between having a religious affiliation and childlessness disappeared in the posttransitional phase, when the postponement of marriage and childbearing become widely prevalent.

We interpret these trends as supporting our conceptualization of the evolving role of religion in transitional and posttransitional Korea. Thus, during the transitional phase involvement with Western religions, which were seen as markers of both modernity and higher status, may have helped to promote the spread of lower fertility ideals and corresponding behaviors such as contraceptive use, as was observed in other non-Western settings (e.g., Agadjanian 2001, 2013; Yeatman and Trinitapoli 2008). As a result, contrary to its role in Western contexts, Christianity contributed to modernization of fertility behavior in Korea during the transitional phase. However, in the posttransitional phase, when fertility dropped to very low levels, religion may have increasingly become a marker of cultural traditionalism. Thus, by the middle of the second decade of this century, being a Protestant was associated with a larger number of children than being nonaffiliated, after controlling for age and education. Interestingly, however, fertility of Catholic women was lower than that of Protestants in both 1985 and 2015, contrasting with the Western experience of fertility transition in which Catholics typically had higher fertility than Protestants (Westoff and Jones 1979). The covariates like age and educational attainment that we used could not completely capture nuanced differences in characteristics between Catholic and Protestant groups. The observed patterns may also reflect the transformation of Protestantism in Korea (as in many other parts of the world), with a rising share of culturally more conservative Evangelical and Pentecostal denominations (Freston 2001; Lee 2009).

We also found that fertility of Buddhist women was not different from that of the nonaffiliated until 2005 but became higher than it in 2015. This conforms to prior studies that found no difference of Buddhist fertility from that of the nonaffiliated in the 2000s in Korea (Bessey 2018; Kojima 2014). However, our finding contradicts an earlier study arguing that Buddhism is related to low fertility in other Asian countries, such as Mongolia, Thailand, and Japan (Skirbekk et al. 2015). This contradiction may be attributed to country-specific contexts. In countries where Buddhism is a dominant religion shared by power elites, Buddhists may lead social changes and innovations including fertility limitation. However, it is hardly the case in Korea. Rather, Korean Buddhists are more likely to have traditional values and attitudes regarding childbearing (e.g., Chung and Das Gupta 2007; Kim and Song 2007).

A caveat regarding our findings is that we could not distinguish the religious effects of religion-based traditionalism/innovation on the tempo versus quantum of fertility. Religion may impact the timing of the onset of childbearing and the progression to higher-order births differently. For example, lower completed fertility of adherents of Western religions in the earlier stage in our time window might be attributable to their modernity, leading to a delay in the start of childbearing. In comparison, in the more recent stage, when the postponement of childbearing became widely prevalent, the religious effects on fertility limitation might become more prominent. Considering that

the reversal of the religious effect on completed fertility was also present, even if not as saliently, in the sensitivity analyses for women aged 45 to 49, we conjectured that this reversal is likely to be driven, at least partially, by changes in completed fertility. Future research, supported by adequate data, will be able to convincingly disentangle the associations of religious affiliation with tempo versus quantum of fertility.

Other limitations of our study must be acknowledged. Our data do not contain information on religiosity (attendance, prayer frequency, and self-rated religiousness), which may be more consequential for fertility than religious affiliation per se (cf., Berghammer 2012; Brañas-Garza and Neuman 2007; Hayford and Morgan 2008; Zhang 2008). However, religious practices like service attendance and prayers greatly differ across religions, especially between Christians and Buddhists, and therefore it would have been difficult to incorporate conventional measures of religiosity into the analysis even if the corresponding information were available. Also, given the nature of our repeated cross-sectional data, our study could not consider potentially relevant individual characteristics, such as economic activity and occupation type. Finally, while focusing on women's religious affiliation and fertility, we did not have information on partners' characteristics, including their religion, which could also be consequential for fertility. However, we should note that in the Korean context, like in other parts of the world, spouses' religious affiliations are highly correlated (e.g., Lee and Kim 2013).

These limitations notwithstanding, our findings shed light on the dynamic nature of the association between religion and fertility. As McQuillan (2004) suggests, the ways in which religion affects fertility change over time. Similar changes in fertility differentials between religious and nonreligious groups or across religious affiliations have been observed in other settings (e.g., Chamie 1981; Frejka and Westoff 2008). The increased gap between the religiously affiliated and the nonaffiliated also confirms what has been observed in European countries with advanced secularization and low fertility (e.g., Peri-Rotem 2016; Philipov and Berghammer 2007; Régnier-Loilier and Prioux 2008). Yet, the Korean case is unique in its reversal of the effect of religion on fertility from negative to positive, at least for some religious affiliations, which occurred in a relatively short historical period. This case illustrates the variability in the role of religious affiliation and highlights the significance of local context in explaining fertility differentials between religious groups (cf., Agadjanian 2013; Agadjanian and Yabiku 2014; Goldscheider 2006). Although our findings draw on a specific context, they can usefully inform our understanding of the relationship between religion and fertility in other non-Western settings as they advance through the fertility transition and beyond.

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