Ⅲ　研究成果の刊行に関する一覧表

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相馬直子	韓国：家族主義的福祉国家と家族政策	鎮目真人・近藤正基	比較福祉国家	ミネルヴァ書房	東京	2013	pp. 310-335

論文

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Keita Suga	The Second Demographic Transition in Singapore: Policy Interventions and Ethnic Differentials	Paper presented at Population Association of America Annual Meeting 2013			October 2013
Keita Suga	Ethnic differentials in effects of the 1st marriage and marital fertility on below-replacement fertility in Singapore, 1980-2010: A lifetable analysis	Paper presented at Session "296": Population and policy challenges in East Asia in XXVII IUSSP International Population Conference, Busan, Korea			August 2013

Ⅳ　研究成果の刊行物・別刷

Paper prepared for the International Conference on Discrepancies between Behavior and Attitudes toward Marriage and Fertility in Asia, 13-14 February 2014, Asia Research Institute, National University of Singapore

The Effects of Religion on Fertility-Related Attitudes in Japan, South Korea and Singapore

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Introduction

Japan and Singapore continue to have below-replacement-level fertility since the mid-1970s even though Japan experienced it before the 1970s including 1966, the year of fire-horse. South Korea (hereafter, Korea) also started having below replacement fertility in the late 1980s and has surpassed Japan in terms of fertility decline in recent years. In 2000 Japan had the total fertility rate (TFR) of 1.36 which was still a little lower than in Korea (1.47) and much lower than in Singapore (1.60). But, in 2001, Japan's TFR was 1.33 which was already higher than that of Korea (1.30) but a little lower than that of Singapore (1.41). Even though Korea had one of the lowest TFR in the world in 2002, the relative position was similar: 1.32 in Japan, 1.17 in Korea and 1.37 in Singapore. However, in 2003 Japan (1.29) was surpassed in terms of fertility decline not only by Korea (1.18) but also by Singapore (1.27). In 2010 Singapore (1.16) had lower TFR than Korea (1.23) and Japan (1.39), while Taiwan had the world's lowest fertility of 0.855 because of the tiger-year fall in Chinese-tradition societies.

The rapid fertility decline in Korea has been promoted by a rise in living standard accompanied by the sustained economic growth, rapid social change described as "condensed modernity" (Chang 2003) as well as the 'too successful' family planning programs implemented until the early 1990s. A rise in living standard, social change and successful family planning programs are likely to have changed fertility-related attitudes, particularly those related to the necessity of children and the ideal family size, and thus to have caused faster fertility decline in Singapore and Korea than in Japan.

On the other hand, the role of son preference in the process of fertility decline has attracted attention in East Asia, particularly after the spread of ultrasonic devices in the prenatal examination causing sex-selective abortion and high sex ratio at birth (SRB), for which Korea was distinguished until recently. The SRB looks normal in Japan, but there is a possibility of 'canceling out' due to 'balance preference' (Nagai et al. 2002). The SRB in Korea was the highest around 1990, but it has declined to the level around 110 in the early 2000s, while it is around the normal level in recent years (105.7 in 2011 and 2012). As a long-term consequence of unbalanced SRB since the early 1980s, marriage squeeze due to the relative shortage of women in marriage market has already started in Asian societies including Korea, which has already experienced an increase in intermarriage as an advanced response to it.

Rapid fertility decline in the three societies and changing sex ratio at birth in Korea seem to be related to changes in fertility-related values and attitudes as mentioned above. According to the UN (2003) classification, East Asia (together with Southern Europe, Austria, Canada, Germany) is characterized by high age at first birth, high proportion of childlessness, low propensity to have 2 or more children. Why is the fertility in these societies characterized by these traits? Is it related to culture including religion? Or is it related to the gender roles or the type of welfare state? Is it also related to the fact that these societies are late comer in the Second Demographic Transition (SDT)? Is it possible

that single-gender preference for children in East Asia depresses fertility further in a short run and a long run? It is also a good question whether the revival of gender preference for children ('balance preference') changes fertility in Western societies. We might as well analyze determinants of fertility-related attitudes in East Asia to start exploring the possible answer to these questions.

While religion is a "forgotten" variable in Japanese social surveys except in international comparative surveys, it has been known to affect various socioeconomic and demographic attitudes and behaviors in many other societies. In the case of Singapore, religion and ethnicity (called "race" in Singapore) may have independent effects, but the effects of religion was not necessarily analyzed possibly because of the sensitivity. While Koreas are considered to have more Confucian values than other Asians, the society seems to be in the process of Christianization.

This study presents the results of comparative analysis of religion's effects on fertility-related attitudes in Japan, Korea and Singapore, drawing on the microdata from the 2009 Survey on Comparative Study of Family Policies in East Asia (Korea, Singapore and Japan), which was conducted by the Section for Measures against Declining Birthrate, Director-General for Policies on Cohesive Society, Cabinet Office (Japanese Government). It also examines the effects of religion on the discrepancy between attitudes and behavior regarding fertility. This is an extension of the author's past study analyzing the effects of religion on fertility-related attitudes and behaviors (e.g., Kojima 2003, 2004, 2006, 2011, 2012a, 2012b, 2013).

Literature Review

There are an increasing number on the effects of values and culture on fertility behaviors and attitudes as indicated by van de Kaa (1996) since the 1980s. There seem to be differences in fertility values even among European societies sharing a similar culture (Surkyn and Lesthaeghe 1999). The studies focusing on the effects of religion are also on the increase (e.g., Lehrer 2004, McQullan 2004, Adsera 2004). Although there have been studies on the value of children (VOC) in the 1970s (e.g., Arnold et al. 1975), they do not seem to be directly related to this line of studies. More recently, there are studies on the effects of religion on family-related behaviors including Manabe and Onodera (2000) for Japan, but they are based on cross-tabulations. The present author's recent multivariate analyses also examined the effects of religion on fertility-related behaviors in Japan and Korea for the general adult population (Kojima 2003, 2004, 2006).

The following short literature review of multivariate analyses on the effects of religion on fertility-related attitudes in East Asia focuses on the four fertility-related attitudes: felt necessity of children, desired number of children, and son preference. It draws mainly on Japanese and English materials since Korean empirical studies are not readily available and not always accessible to the author due to the language problem.

Felt Necessity of Children

In Japan, Kojima (2003, 2004) analyzed the felt necessity of children among the adult population, using the JGSS and TSCS-2001. Kojima (2003), applying logit models to the JGSS-2000 and the JGSS-2001, found that Japanese male respondents with a personal religion are less likely to feel non-necessity to have children and female respondents with a household religion are more likely in 2000, but female respondents with a personal religion are more likely. Kojima (2004) found a similar tendency for the analysis by sex of respondents in Japan in 2000, 2001 and 2003 (similar to 2002), but he could not find any significant effects of religion (Christianity and other religions) in Taiwan, applying the

logit model to the TSCS-2001. Kojima (2006)

Seo (1992) conducted a regression analysis of the necessity of children, drawing on the 1991 Korean National Fertility Survey, but she could not find any significant effects of Christianity. The present author could find no similar multivariate analyses on the effects of religion on felt necessity of children for Singapore.

Desired Number of Children

Ideal number of children has been more extensively analyzed in Japan. Retherford and Ogawa (1991), Retherford et al. (1999), Otani (1987), Kojima (1993), Kojima (2000), Kojima (2003), but the effects of religion has not been analyzed except in the present author's works because religion is not a standard question in Japanese surveys. Kojima (2003) found no significant effects of religion on a small family (two children or less) among male respondents in 2000 and 2001, but a negative effect of household religion in 2000 and a negative effect of personal religion in 2001 among female respondents.

Seo (1992) conducted regression analyses of the ideal number of children (two or less) in Korea, but she could not find any significant effect of Christianity. The present author could find no similar multivariate analyses for Singapore. However, Li et al. (2011) have recently found that Singaporean women are more materialistic than American women and, thus, they are less likely to favor marriage and childbearing due to lower life satisfaction and higher income standard placed on potential mates. On the other hand, Swinyard et al. (2001) found that in Singapore and the US more materialistic respondents tend to have less life satisfaction, which is partly mediated by religion. Thus, we might examine more direct relationship between religion and attitudes toward family formation, including those related to family policies.

Lesthaeghe (2010) has recently suggested that East Asia is experiencing "Second Demographic Transition" and revealed that the effects of value-related factors on the delay in childbearing in Japan, South Korea and Singapore are similar to Western societies, but only in the case of Japan factors related to religion-secularization values tend to have effects in the opposite direction. This is in line with Kojima's (2006) finding that Japan is different from South Korea and Taiwan for the positive effects of interaction between religion and young age on pronatalistic attitudes. However, there are not many Japanese studies analyzing the effects of religion on demographic attitudes and behaviors partly because it is not a standard question item in Japanese surveys.

Son Preference

Kojima (2003, 2004) seems to be the only multivariate analyses of the effect of religion on son preference for Japan and Taiwan. Kojima (2003) found the positive effects of personal religion on son preference both among male and female respondents in 2000, but no significant effects in 2001. Kojima (2004) found similar effects for Japan in 2000 and 2001 and a positive effect of household religion among Japanese male respondents in 2002 as well as a positive effect of Christianity among male respondents. Seo (1992) also conducted regression analyses of son preference in Korea and found negative effects of Christianity. The present author could find no similar multivariate analyses on the effects of religion on Son preference for Singapore.

Discrepancy

Kojima (1993) is probably the first multivariate analysis to study the discrepancy between fertility attitude and behavior, but it did no include religion as an independent variable because the information on religion is not available in the microdata. Morita (2006) and Matsuura (2008) also conduct multivariate

analysis of the discrepancy, but they did not analyze the effects of religion due to the lack of information. The present author could find no similar multivariate analyses on the effects of religion on the discrepancy for Korea or Singapore.

Data and Methods

The microdata used in this study derive from the 2009 Survey on Comparative Study of Family Policies in East Asia (South Korea, Singapore and Japan), which was conducted by the Section for Measures against Declining Birthrate, Director-General for Policies on Cohesive Society, Cabinet Office (Japanese Government). Even though Singapore is located in Southeast Asia, it was included because it has been conducting an active pronatalistic family policy during the past three decades and it exhibits diversity in terms of ethnicity and religion.

The details about the survey procedure are found in CAO (2009). The survey in Japan used two-stage stratified sampling to randomly selected municipalities and the area sampling based on age and sex quota in the sampled municipalities to obtain 1,000 (male and female) respondents aged 20-49. Respondents of surveys in other countries seem to be selected in a similar manner. The original questions and choices for fertility-related attitudes and behavior (dependent variables) to be analyzed in this study are as follows.

Having Children

Q14. How do you feel about having children? Please choose **up to three** answers.

1) It is natural to have children ("Natural").
2) I will be able to leave behind descendants ("Descendants").
3) I will gain social recognition for having children ("Recognition")
4) Having children will enrich my life and make it more enjoyable ("Enjoyable").
5) My children will support and provide for me in my old age ("Old-age support").
6) Children are the future of the society ("Society's Future").
7) Children help to improve the relationship with my spouse ("Spouse Relation").
8) I want to have children with the person I love ("Loved One").
9) My spouse, parents, or others have wanted me to have children ("Family Demand").
10) I want to continue with the family name ("Family Name").
11) Having children will reduce my personal time ("Time Squeeze").
12) Having children will increase my financial burden ("Money Burden").
13) Having children will increase my physical and mental health burden as I need to take care of them ("Health Burden").
14) Others---Please specify
15) None (DO NOT READ)
16) Don't know

Whether You Should Have Children After Marriage

Q15. To what extent do you agree or disagree that one should have his/her own child after marriage?

1) Strongly agree; 2) Somewhat agree; 3) Somewhat disagree; 4) Strongly disagree; and 5) Don't know

Desired Number of Children

Q16. How many children would like to have?

_____ Children

Desired Number of Children

Q17. Would you prefer your first child to be a boy or girl?

1) Boy; 2) Girl; and 3) Doesn't matter

Q18a. How many children (including adopted children) do you have in total?

1) _____ Children

2) Do not have children

The dependent variables for multivariate analysis for attitudes toward having children include the binary one on whether the respondent selected the following seven choice in Q14: "1. Natural," "2. Descendants," "4. Enjoyable," "6.Society's Future," "7. Spouse Relation" "8. Loved One" and "12. Money Burden." The dependent variables for multivariate analysis for fertility attitudes and behavior include the binary one on whether or not the respondent agree to the statement saying that one should have children after marriage ("Kid Necessity") in Q15. They also include the following three trichotomous variables: "Desired Number of Kids" based on Q16: 0-1, 2, 3+; "Desired Sex of 1st Kid" based on Q17: Male, Female, Either; "Actual Number of Kids" based on Q18a: 0-1, 2, 3+; and Desired Number – Actual Number of Kids: 1≤, 1, 2+ (The categories with underline are reference ones).

The methods used in this study are the bivariate analysis and the logit analysis. For the bivariate analysis, independent variables are religion: Buddhist and No Religion for Japan; Buddhist, Catholic, Protestant and No Religion for Korea; and Buddhist, Catholic, Protestant, Muslim, Taoist, Hindu and No Religion for Singapore. The means of dependent variables for each religion will be presented.

The logit analysis with comparable predetermined models include, as independent variables, Buddhist for Japan, Buddhist, Catholic, and Protestant for Korea and Buddhist, Catholic, Protestant, Muslim, Taoist, and Hindu for Singapore. The models also include, as control variables, age (20-29, 30-39, 40-49), marital status (Married, Others), education (Higher, Lower, Medium) and urban/rural residence (Metropolitan, Rural, Medium Size City) for Japan and South Korea and nationality (Foreigner, Others) for Singapore. Lower Education was not included for Korea due to the low frequency. For the estimation of logit models, CATMOD procedure in the SAS package is used.

Results

1, Bivariate Analyses

1) Attitudes toward Having Children

Table 1 shows the percentage of respondents choosing each feeling about having children by sex and religion in Japan, Korea and Singapore. It reveals that the percentage choosing "1. Natural" is the highest among the thirteen items in all the three societies (except Japanese women who have somewhat

higher percentage for "4. Enjoyable") and its level is the highest in Korea and the lowest in Japan. The second highest percentages are found for "4. Enjoyable" in Japan and Singapore, but the percentages are higher for "7. Spouse Relation" in Korea. Consequently, the third highest percentages are found for "4. Enjoyable" in Korea and "7. Spouse Relation" in Singapore, but it is not definite for Japan. Among Japanese women "8. Loved One" has by far a higher percentage than others, but among Japanese men "2. Descendants," "7. Spouse Relation," "8. Loved One," and "12. Money Burden" have similar percentages of around 20%. In addition to these six feelings mentioned above (1, 2, 4, 7, 8 and 12), we will also analyze below "6. Society's Future," of which percentages exceed the 20% mark in Singapore.

The first column of Table 1 shows that among Japanese men Buddhists are slightly more likely to choose "1. Natural" than those without religion, but that it is the opposite among Japanese women. Among Korean men and women Catholics are most likely to choose "1. Natural," while Buddhists are least likely. But such an effect of Catholicism is not observed in Singapore where Taoists are most likely to choose "1. Natural" among both sexes, while Protestants men are least likely and women without religion are least likely.

The second column of Table 1 reveals that the percentage of respondents choosing "2. Descendants" is around twice as high among men as among women in all the three societies. The similar male domination in the choice is also found for "10.Family Name" in all the three societies, possibly reflecting East Asian tradition, even though the level is about one fifth of "2. Descendants." The second column indicates that among Japanese men Buddhists are more likely to choose "2. Descendant" than those without religion, but it is the opposite among Japanese women. Among Korean men Protestants are most likely to choose "2. Descendants," while Catholics are least likely. Among Korean women, however, Catholics are most likely to choose "2. Descendants," while those without religion are least likely. In Singapore Taoists are most likely to choose "2. Descendants" among both sexes, while Hindu men are least likely and women without religion are least likely.

The fourth column of Table 1 shows that the percentage of respondents choosing "4. Enjoyable" is higher among men than among women in all the three societies (mild female dominance), possibly reflecting social desirability bias among women. Japanese men without religion are more likely to choose "4. Enjoyable," while Japanese Buddhist women are more likely. Among Korean men Catholics are most likely to choose "4. Enjoyable," while those without religion are least likely. But among Korean women Buddhists are most likely and Catholics are least likely. On the other hand, Singaporean Catholic women are most likely to choose "4. Enjoyable" like Korean Catholic men but unlike Korean Catholic women, while Singapore Hindu women are least likely. However, Singaporean Hindu men are most likely to choose "4. Enjoyable" unlike Singaporean Hindu women, while Singaporean Taoist men are least likely.

As indicated above, the percentage of respondents choosing "6. Society' Future" in the sixth column of Table 1 is relatively high only in Singapore, but mild male dominance is observed in all the three societies, possibly reflecting social desirability bias among men. Japanese men without religion are more likely to choose "6. Society's Future," while Japanese Buddhist women are more likely. Among Korean men Catholics are most likely to choose "6. Society's Future," while Buddhists are least likely. But among Korean women Protestants are most likely and those without religion are least likely. While Singaporean Muslim men are most likely to choose "6. Society's Future," Singaporean Catholic men are least likely to choose it unlike Korean Catholic men. Singaporean Protestant women are most likely to choose "6. Society's Future" like Korean Protestant women, while Singapore Taoist women are least likely.

The seventh column of Table 1 shows that Japanese men without religion are more likely to choose

"7. Spouse Relation," while Japanese Buddhist women are more likely. Among Korean men those without religion are most likely to choose "7. Spouse Relation," while Catholics are least likely. But among Korean women Protestants are most likely to choose it and Buddhists are least likely. On the other hand, Singaporean Taoist men are most likely to choose "7. Spouse Relation," while Singaporean Protestant men are least likely. However, Singaporean Catholic women are most likely to choose "7. Spouse Relation," while Singaporean Taoist women are least likely to choose it unlike Singaporean Taoist men.

The eighth column of Table 1 shows that there is little difference by religion in the selection of "8. Loved One" among Japanese men, but Buddhists are more likely to choose it among Japanese women. In Korea Buddhists are least likely to choose "8. Loved One" among both sexes, while Protestant men and Catholic women are most likely. In Singapore Protestant men are more likely to choose "8. Loved One" like Korean Protestant men, while Taoist men are least likely. Singaporean women without religion are most likely to choose "8. Loved One," while Singaporean Muslim women are least likely.

The percentage of those choosing "12. Money Burden" in the twelfth column of Table 1 is low only in Singapore unlike the percentage for "6. Society' Future." It is higher among Japanese without religion for both sexes. Among Korean men Catholics are most likely to choose "12. Money Burden," while Buddhists are least likely. But Korean women without religion are most likely, while Korean Protestant women are least likely. While Singaporean men without religion are most likely to choose "12. Money burden like Korean women," Singaporean Hindu men are least likely. Singaporean Taoist women are most likely to choose "6. Society's Future," while Singapore Muslim women are least likely.

2) Fertility Attitudes and Behavior

The first column of Table 2 shows that the level of agreement to the felt necessity to have children is quite high and higher among men (over 90% among men and over 80% among women) in all the three societies. It is the highest among Singaporean men and women, but the discrepancy between sexes is the largest in Korea. In Japan the religious difference does not seem to be large among women, but Buddhist men are more likely to feel it necessary to have children. In Korea Protestant men and Buddhist women are most likely to favor childbearing, while Buddhist men and women without religion are least likely. In Singapore all the Catholic, Taoist and Hindu men and all the Taoist and Hindu women favor childbearing, while Protestant men and women without religion are least likely.

The second column of Table 2 indicates that, on the average, women without religion have the smallest desired number of children in all the three societies, while men without religion have the smallest number except Singapore where Hindu men have the smallest. In Korea Protestant men and women have the largest mean desired number of children, while in Singapore Muslim men and women have by far the largest mean number.

The third column of Table 2 reveals the level of son preference for the first child. The percentage of respondents preferring son is the highest in Korea and it is higher among men than among women in Japan and Korea. In Japan Buddhist men are most likely to prefer son, while women without religion are more likely. In Korea Buddhists of both sexes are more likely to prefer son like Japanese Buddhist men, but Protestant men and Catholic women are least likely. In Singapore Muslim men and Taoist women are most likely to prefer son, while Protestants of both sexes are least likely to prefer son like Korean Protestant men

The fourth column of Table 2 shows the mean number of children for all the respondents including the never married. It is the lowest among Koreans of both sexes. It is higher among women because of higher proportion married and lower age at marriage. In Japan Buddhist men have a larger mean

number of children, while women without religion have a slightly larger mean number. In Korea Buddhists of both sexes have the largest mean number of children and those men and women without religion have the smallest mean number like Japanese men. In Singapore, however, Muslim men and women have the largest mean number of children, while Taoist men and women without religion have the smallest mean number.

Consequently, as the fifth column of Table 2 indicates, the discrepancy between the desired number and the actual number of children are larger among men than among women. In Singapore the gap is the largest for men and the smallest for women among the three societies. In Japan men without religion are more likely to have a larger gap, while Buddhist women have a larger gap. In Korea Protestant men and women have the largest gap, while Buddhist men and women have the smallest gap. Among Singaporean men the gap is the largest among Muslims and the smallest among Catholics, while among Singaporean women the gap is the largest among both Buddhists and those without religion and the smallest among Hindus.

In addition, the sixth column shows the percentage of negative discrepancy, which indicates the excess of the actual number of children over the desired number of children. It is somehow zero in Korea, but there is very small negative gap in Japan where men without religion and Buddhist women are a little more likely to have excessive number of child. In Singapore, however, the negative gap is more pronounced, particularly among women than men: Muslim men and women have the largest gap while Taoist and Hindu men have no gap and Buddhist women have the smallest gap.

2. Logit Analyses with Comparable Models: Attitudes toward Having Children

Tables 3 through 5 show, for Japan, Korea and Singapore, the results of binomial logit analyses for the seven feelings about having children, which are discussed above. The results reveal the effects of religion after controlling for age, marital status, education, and urban-rural residence (nationality for Singapore).

The first through seventh columns of Table 3m (upper panel) presents the results for Japanese men and those of Table 3f (lower panel), the results for Japanese women. Among Japanese men Buddhists are marginally less likely to feel having children as "4. Enjoyable" and no significant effects are found for other feelings. Among Japanese women Buddhists are more likely to feel having children as "4. Enjoyable" and "8. Loved One," while they are less likely to feel it as "1. Natural."

The first through seventh columns of Table 4m (upper panel) presents the results for Korean men and those of Table 4f (lower panel), the results for Korean women. Among Korean men Buddhists are marginally less likely to feel having children as "1. Natural" and "6. Society's Future," while Catholics are more likely to feel it as "1. Natural" and "4. Enjoyable" and less likely to feel it as "7. Spouse Relation." Among Korean women Buddhists are marginally less likely to feel having children as "1. Natural" and "7.Spouse Relation," while Catholics are more likely to feel it as "2. Descendants" and Protestants are less likely to feel it as "12.Money Burden."

The first through seventh columns of Table 5m (upper panel) presents the results for Singaporean men and those of Table 5f (lower panel), the results for Singaporean women. Among Singaporean men Buddhists are less likely to feel having children as "12.Money Burden. Catholics are more likely to feel it as "7. Spouse Relation" and less likely to feel it as "12.Money Burden," while Protestants are more likely to feel it as "6.Society's Future" and "8.Loved One." Muslims are more likely to feel having children as "6.Society's Future" and "7. Spouse Relation" and less likely to feel it as "12.Money Burden." Taoists are more likely to feel it as "2. Descendants" and " 7. Spouse Relation" and less likely to feel it as "4. Enjoyable." But Hidus are more likely to feel it as "4. Enjoyable," "6.Society's Future"

and " 7. Spouse Relation" and less likely to feel it as "2. Descendants" and "12.Money Burden."

Among Singaporean women Buddhists are more likely to feel having children as "1. Natural" and less likely to feel it as "8.Loved One," while Protestants are more likely to feel it as "6. Society's Future." Muslims are also likely to feel it as "6. Society's Future" and less likely to feel it as "12.Money Burden." But Taoists are more likely to feel having children as "1. Natural" and "12.Money Burden."

Therefore, in Japan religion have little and marginally significant effects on attitudes toward having children and there is an opposing effect of Buddhism on "4. Enjoyable" among men and women. In Korea more significant effects of religion are found than in Japan, but they tend to be weak. The negative effects of Buddhism on "1. Natural" are found among both sexes, which is also found among Japanese women. But the negative effect of Catholicism on "7. Spouse Relation" among Korean men is in the opposite direction to the positive effect found among Singaporean Catholic men.

In Singapore much more significant effects of religion are found partly because of its diversity. Religion tends to have positive effects on "7. Spouse Relation" and negative effects on "12.Money Burden" among Singaporean men and positive effects on "1. Natural" among Singaporean women. Christianity and Islam tend to have similar effects possibly due to the Abrahamic tradition. Thus, they tend to have similar effects among both sexes including positive effects of Protestantism and Islam on "6. Society's Future" and negative effects of Catholicism and Islam on "12. Money Burden." Taoism tends to have peculiar effects possibly due to Chinese tradition including pragmatism which is reflected in its positive effect on "12.Money Burden" among Singaporean women.

3. Logit Analyses with Comparable Models: Fertility Attitudes and Behavior

Tables 6 through 8 show, for Japan, Korea and Singapore, the results of binomial and multinomial logit analyses for fertility attitudes and behavior, which are discussed above. The results reveal the effects of religion after controlling for age, marital status, education, and urban-rural residence (nationality for Singapore).

The first through ninth columns of Table 6m (upper panel) present the results for Japanese men and those of Table 6f (lower panel), the results for Japanese women. Among them only the first column exhibits the results of binomial logit analysis. It shows that among Japanese men Buddhists are more likely to feel it necessary to have children after marriage, but that no significant effect of Buddhism is found among Japanese women. The second to third columns reveal that Buddhist men are less likely to desire zero or one child and that Buddhist women are more likely to desire three or more children. This suggests the weak pronatalist attitudes of Buddhists in Japan. The fourth and fifth columns indicate that Buddhism has only a marginally negative effect on daughter preference among women. The sixth and seventh columns reveal no significant effects of religion on the actual number of children. The eighth and ninth columns show that Buddhist men are less likely to have discrepancy between the desired number and the actual number of children but that Buddhist women are more likely to have discrepancy between the two.

The first through ninth columns of Table 7m (upper panel) present the results for Korean men and those of Table 7f (lower panel), the results for Korean women. The first column shows that among Korean women Buddhists are more likely to feel it necessary to have children after marriage, but that no significant effect of Buddhism is found among Korean men. The second to third columns reveal that Catholic and Protestant men and Protestant women are more likely to desire three or more children. This suggests the pronatalist attitudes of Christians in Korea. The fourth and fifth columns indicate that Buddhism and Protestantism have only marginally positive effects on daughter preference among men, but that Protestantism has a negative effects on both son preference and daughter preference among

women. The sixth and seventh columns reveal that Buddhist men and Protestant women are more likely to have a large family and that Catholic men are less likely to have a small family. The eighth and ninth columns show that Protestant men and women are more likely to have a large discrepancy between the desired number and the actual number of children.

The first through ninth columns of Table 8m (upper panel) present the results for Singaporean men and those of Table 8f (lower panel), the results for Singaporean women. In the first column the results of binomial logit analysis are not presented because of irregular results from 100% agreement among some religious group. The second to third columns reveal that Buddhist, Protestant and Muslim men and Muslim and Taoist women are more likely to desire three or more children, while Muslim women are less likely to desire zero or one child. This shows the strong pronatalist attitudes of Muslim men and women and Taoist women. The fourth and fifth columns indicate that Catholic and Muslim men have both son preference and daughter preference and that Buddhist, Protestant and Hindu men have only daughter preference. It also reveals that Catholic, Muslim and Taoist women have only son preference. The sixth and seventh columns reveal that Muslim men and Protestant, Muslim, Taoist and Hindu women are more likely to have a large family and that Muslim and Hindu women are less likely to have a small family. The eighth and ninth columns show that Protestant men are more likely to have a small discrepancy between the desired number and the actual number of children and that Buddhist, Muslim and Taoist men are more likely to have a large discrepancy. The eighth column also reveals that Muslim men and Catholic, Muslim and Hindu women are less likely to have a small discrepancy.

Therefore, in Japan religion have little and marginally significant pronatalist effects, and there is an opposing effect of Buddhism on the small discrepancy between the desired number and he actual number of children among Japanese men and women. In Korea more significant pronatalist effects of religion, particularly Buddhism and Protestantism are found than in Japan, but there are similarities and differences between sexes and among societies. The positive effects of Protestantism on a large family and the large discrepancy (between desired and actual number of children) are found among both men and women, but its negative effect on daughter preference is in the opposite direction among men and women. The positive effect of Buddhism on the felt necessity to have children is found among women in Korea, but it is found among men in Japan. The positive effect of Protestantism on a large desired family and the positive effects of Buddhism and Protestantism on daughter preference among Korean men is shared with Singaporean men and the positive effect of Protestantism on a large family among Korean women is shared with Singaporean women.

In Singapore much more significant effects of religion are also found. Religion, particularly Islam tends to have pronatalist effects. Religion tends to have positive effects on son preference among both sexes, but it also has positive effects on daughter preference among men (except Taoism). Thus, the effects are often similar between sexes. The positive effects of Islam on a large desired family, son preference and a large family and its negative effect on the discrepancy are shared by men and women. The positive effects of Protestantism on son preference are also shared by both sexes. Taoism tends to have peculiar effects on a desired large family and son preference among women possibly due to Chinese tradition, but similar effects are also found among Muslim women.

The negative effects of religion on the discrepancy as a whole among Singaporean women seem to be different from among Singaporean men as well as Japanese and Korean women. This may be related the smaller mean gap and the higher percentage of negative gap among Singaporean women, which are found in Table 2. Singaporean women, particularly, Muslim, Hindu and Taoist and Catholic women seem to have a larger number of children than they desire. However, the results of binomial logit analysis of negative gap with the same model (not presented in the form of table) reveal that only Muslim

women are marginally more likely to have a negative gap, while age and marital status have large effects. After controlling additionally for Community Development Council Districts, the significance level of religions only marginally improves. But it was interesting to see that the residents of the North East CDC District are more likely to have negative discrepancy or excessive fertility.

Conclusion

Even though the religious composition of population is different among Japan, Korea and Taiwan, the results of comparative analysis show some similarities in the effects of religion on fertility-related attitudes among the three societies. Generally speaking, religion turns out to be pronatalistic as expected. However, the effects of the same religion are not always the same in the three societies. Japan is often the exception because of low percentage of followers and low diversity of religion. The effects of the same religion on men and women are not always the same. Even among Christians, the effects of Catholicism and Protestantism are sometimes different in South Korea and Singapore.

According to the WVS (World Values Surveys) culture maps by Inglehart and Welzel (2010), Korea moved in the opposite direction to secularization from around 2000 to around 2005, possibly due to its Christianization. This seems to be the opposite to secularization which was observed as the background for the SDT (Second Demographic Transition) in the West, while the empirical part of the SDT relies on the WVS. Even in the West, the reversal of secularization can be observed after the collapse of Soviet Union, particularly after the recent financial crisis. Thus, it is possible that the background for the SDT (secularization and post-materialism) has changed even in the West and that the background for the SDT is different in East Asia which has been relatively secular and materialistic. The discrepancy between fertility attitudes and behavior can be one of the facets to capture the different nature of the SDT in East Asia.

Finally, not only the effects of global trends but also the effects of local areas should be taken into account when the effect of religion on the SDT is studied. In many societies religious groups are often concentrated in certain local areas. Even in a small society such as Singapore CDC Districts have significant effects on the discrepancy between fertility attitudes and behavior. Kojima (2013) suggests that local areas may affect it through culture and/or policy intervention in local areas. There may be also the effects of diffusion on the discrepancy, which were suggested in the historical study of European fertility transition. This may be also something to be explored in the study of the SDT in East Asia.

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Japan's Low Fertility and Policy Interventions[1]

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[Abstract]

After two decades of the golden age of family when fertility stayed around the replacement level, the second demographic transition started in the mid-1970s and the TFR in Japan has stayed far below replacement level for almost 40 years. The latest population projection suggests that there will be no significant improvement in fertility and that population decline and aging will be very severe. While the rise in consumer/producer ratio could be avoided with the expected rise in labor force participation, the rapid population aging still has negative impact on economy. Although fertility decline has larger impact on population aging, the effect of mortality decline is also significant especially in low fertility setting.

While nuptiality decline accounts for a large part of fertility decline, decline in marital fertility also contributed. Fertility decline in Japan can be understood not from reduced demand for children but from obstacles to achieve the demand. Such obstacles include rising cost of children, worsened labor market condition for young workers and low compatibility between work and family for women.

Japan turned to pronatal policy in the early 1990s. Policy measures include child allowance, childcare leave, work-life-balance campaign, improvement in childcare services, etc. The Democratic Party failed to keep its election promise in 2009 to expand child allowance, giving negative impact on people's trust on governmental policy.

Fertility Decline in Japan

Figure 1 shows the trend of the Total Fertility Rate (TFR) and the replacement level in Japan. The latter is the level of TFR that results in a stationary population in a long run. The postwar baby boom in Japan lasted only for three years in 1947-49 and the first demographic transition took place in the 1950s. The period between the late 1950s and early 1970s was the golden age of family in Japan. The rapid economic growth was based on the male breadwinner model, the pattern of universal marriage was sustained and the TFR stayed around the replacement level except for the *Hinoeuma*

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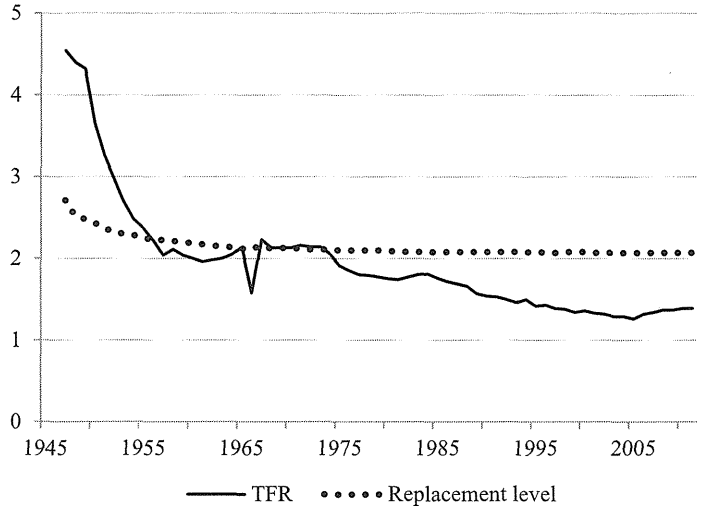
year of 1966 when parents avoided childbearing for superstition.

The TFR started declining again in mid 1970s into the below-replacement level, marking the emergence of second demographic transition in Japan. The TFR of 1.57 in 1989 was shocking because it was believed that 1.58 in 1966 was so special that the TFR would not stay below this level. However, fertility continued to decline and the TFR crossed line of 1.5 in 1993 and 1.3 in 2003. Although lowest-low fertility defined as having the TFR of 1.3 or less (Kohler, et al., 2002) lasted only for three years in 2003~2005, 1.39 in 2011 is far blow from the replacement level. The Net Reproduction Rate (NRR) of 0.67 in 2011 implies that one third of population will disappear in each generation and the population will be halved in 54 years.

Figure 1. Fertility Decline in Japan



If the presently low TFR were a result of the "tempo distortion" (Bongaarts and Feeney, 1998), the level would be improved significantly and the future population growth rate would be higher than the intrinsic natural growth rate of -1.29% in 2011 (Beppu and Ishikawa, 2012). However, the latest population projection for Japan (NIPSSR, 2012b) assumed a relatively pessimistic scenario that the TFR will converge to 1.35 in the medium variant. Although there was an improvement in TFR from 1.26 to 1.39 in 2005~2010, such change was assumed to be the rebound from a prolonged depression in fertility in 2000~2005 (Kaneko, 2010a). As the result, the medium fertility/mortality variant suggests that the population growth rate in Japan will be -0.74% in 2030 and -1.19% in 2060.

The assumption that the TFR in 2060 converges to 1.35 may seem to be too pessimistic if compared with the medium variant of UNDP(2010) assuming the TFR in Japan in 2060 will be 1.90. However, Eastern Asian demographers cannot be as

optimistic as the UNDP. Table 1 compares the assumed TFR in various projections. The medium variant of the NIPSSR falls between official projections in the Republic of Korea (simply "Korea," hence force) and in the Republic of China (simply "Taiwan," hence force). In addition, the range of assumption in the NIPSSR projection is narrower than other projections, showing more confidence in the future trend in fertility.

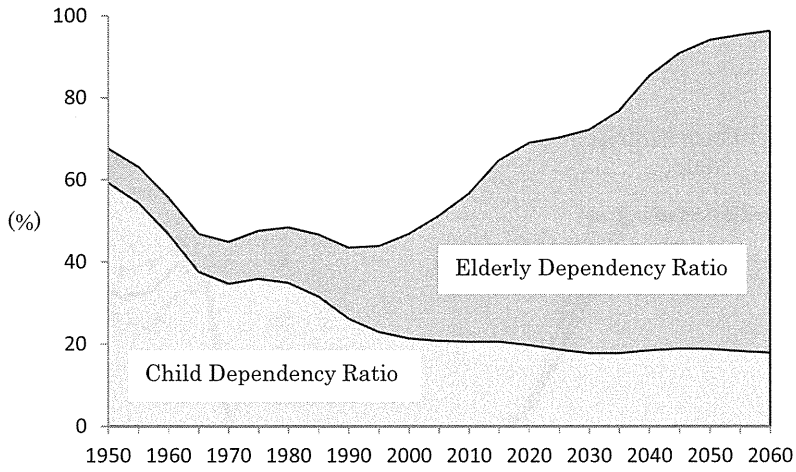
Table 1. Assumed TFR for 2060

Country	Projection	Low	Medium	High	Range
Japan	NIPSSR	1.12	1.35	1.60	0.48
	UNPD	1.40	1.90	2.40	1.00
Korea	Statistics Korea	1.01	1.42	1.79	0.78
	UNPD	1.40	1.90	2.40	1.00
Taiwan	Council for Economic Planning and Development	1.05	1.30	1.60	0.55
UN	Population Division	1.25	1.75	2.25	1.00

National Institute of Population and Social Security Research (2012b),
Statistics Korea (2011),
Council for Economic Planning and Development (2012),
United Nations Population Division (2010)

Population Aging

Figure 2. Dependency Ratios in Japan



Census, NIPSSR (2012b)

The assumption of no significant improvement in fertility results in a severe population decline and aging. Figure 2 shows the child dependency ratio, defined as the ratio of the population under 15 to that between 15 and 64, and the elderly dependency ratio, defined as the ratio of the population over 65 to that between 15 and 64. The sum