DAUGHTER PREFERENCE IN JAPAN:

A SHIFT IN GENDER ROLE ATTITUDES?*

WORKING PAPER

by

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ABSTRACT

Unlike other East Asian nations where preference for sons over daughters still prevails, gender preference for children in Japan has progressively shifted from son preference to visible daughter preference over the past few decades. In this paper, I focus on the extent to which individuals' child gender preference is shaped by their gender role attitudes and evaluate whether daughter preference is a reflection of convergence or persistent divergence in gender roles in Japan. I use data from the Single Persons subset of the 11th Japanese National Fertility Survey conducted by the National Institute of Population and Social Security Research in 1997. Findings suggest that the effect of gender role attitudes on one's child gender preference differs for men and women. Overall, while daughter preference is associated with nontraditional gender role attitudes for men, daughter preference is associated with traditional attitudes for women.

INTRODUCTION

In their report of the 12th Japanese National Fertility Survey (JNFS) conducted in 2002, the Japanese National Institute of Population and Social Security Research (2003; 2004) reported an overall daughter preference among the Japanese. Gender preference for children in Japan has progressively shifted from son preference to visible daughter preference over the past few decades. This may appear shocking to sociologists and demographers since it has been long believed that preference for sons over daughters prevails in populations of East Asia. There is a large volume of published research that uncovers parental son preference in countries such as China (e.g. Arnold & Liu, 1986; Coale, 1991; Coale & Banister, 1994; Johansson & Nygren, 1991; Li & Cooney, 1993; Yi et al., 1993) and the Republic of Korea (e.g. Arnold, 1985; Park & Cho, 1995). However, not much research has been published on the state of this issue in Japan. Such chronic lack of interest is perhaps attributable to: (1) the assumption that Japan is similar in its gender preferences for children to its neighbors because of its geographic proximity and shared Confucius background; and/or (2) the presumption that the Japanese exhibit less or no son preference given its higher level of economic development, thereby making it less appealing to examine. However, because daughter preference has become evident in Japan, it is time to give more attention to the issue.

The issue of parental gender preferences for children has implication not only for human rights but also for its demographic impact. In developing countries, salient son preference causes sex-selective abortion, female infanticide, or female neglect. Also, we know from research on China (Coale & Banister, 1994; Johansson & Nygren, 1991) that son preference coupled with strict fertility regulations has raised the issue of imbalanced sex ratios at birth. Thus, an emergence of skewed sex ratios at birth is a likely scenario if daughter preference continues to be common in a society with declining fertility. In the context of Japan's very low fertility[1] where most women have only one child, it may become crucial for their first or only child to be of the gender they desire. Because today's reproductive technologies can hypothetically give parents the ability to control the gender of their offspring, with the presence of

[1] The total fertility rate in Japan was 1.29 in 2003 (National Institute of Population and Social Security Research, 2005)

daughter preference it is likely that individuals will turn to such technologies to ensure daughters. Therefore, gender preference for children in a low fertility nation needs to be addressed for its potential demographic consequences as well as its implications for ethical issues and human rights concerns.

This paper has two goals. First, it contributes to the literature by presenting the state of gender preferences for children in Japan. Second, I focus on gender preferences among young single adults. Of particular interest is the extent to which these individuals' son/daughter preferences are shaped by their gender role attitudes. In investigating this association, I ultimately hope to evaluate whether daughter preference is a reflection of convergence or persistent divergence in gender roles in Japan.

GENDER PREFERENCES FOR CHILDREN IN JAPAN

Research on gender preference for children in Japan is in fact not a new area within the Japanese sociological and demographic literature. The tendency for preference for daughters among the Japanese has been revealed by a number of large-scale national surveys. Empirical papers on the topic have also been published in Japanese journals. In this section, I review existing literature on the current state of gender preferences for children in Japan.

Several Japanese surveys have found a trend for daughter preference by asking respondents about their gender preference. The most prominent survey is the JNFS, conducted every five years by the National Institute of Population and Social Security Research reveals that preference for daughters over sons has become increasingly common since the 1980s. The report of the12th JNFS illustrates a dramatic shift from a tendency for son preference in the 1980s to daughter preference today (see Table 1) among married couples[2]. For instance, in 1982, while only 48.5% of married couples whose ideal number of children was one child preferred a daughter (51.5% preferred a son), this percentage increased to 75% in

[2] The JNFS has two subsets; the Married Couples Study and the Single Persons Study. Here, I refer to the Married Couples Study portion of JNFS. The married couple's survey was distributed to a representative sample of married couples and it was mainly intended to gather data on the couple's marriage and fertility history and demographics, but it also asked attitudinal questions such as their gender preferences for children and attitudes towards marriage, family, and gender roles. While survey responses should reflect the couple's behavior and attitudes, because the wives were instructed to complete the survey, their answers to the attitudinal items may more or less reflect the attitudes of the wives.

the 2002 survey. Similarly, a shift from son preference to daughter preference can be seen among those who preferred to have two children and three children (National Institute of Population and Social Security Research, 2003).

The Study of the Japanese National Character, a large-scale national survey of adults conducted every five years, includes a series of questions concerning perception of gender differences. One of these questions asks whether they want a boy or a girl if they were to have only one child. In 1988, overall, while more respondents preferred a boy (32%) than a girl (29%)[3], the percentage of those preferring a girl (47%) was greater than those reporting boy preference (27%)[4] in 2003 (Institute of Statistical Mathematics, 2004). Child sex preference differs by gender, however. Among male respondents in 2003, although the percentage preferring a boy was higher (41%) than that preferring a girl (28%), the percentage gap has clearly narrowed since the 1988 survey (45% preferred a boy and 15% preferred a girl in 1988). As for female respondents, while they have tended to prefer a daughter as revealed by the 1988 study (40% preferred a daughter and 22% preferred a son), this tendency has intensified by 2003 (64% preferred a girl and only 16% preferred a boy).

The Japanese General Social Survey (JGSS), a national public opinion survey of adults 20 years of age or older also asks respondents whether they want a boy or a girl if they were to have only one child. Survey results from 2000 indicated that among men, 60.5% wanted a boy and 35.2% wanted a girl, while among women, 26.3% preferred a boy and 70.2% wanted a girl child (Iwai and Sato, 2002).

In addition, scholars have examined gender preference through analyses of demographic data. In an analysis of pregnancy histories and reproductive intentions of married women, Sato and Iwasawa (1998) found that those who do not have any boys or any girls at any given pregnancy were more likely to had intended to become pregnant, suggesting a tendency for a "balance preference" (preference to have an equal number of boy and girl children). Sakai (1987) analyzed parity progression ratios using 1985 data of retrospective birth histories of married women 40 years of age or older. While his results suggested son

[3] 37% of respondents reported "no preference" and 1% reported "other."
[4] 24% of respondents reported "no preference."

preference among the oldest cohort in the sample (60+ years old), he found a pattern for balance preference among the younger cohorts (40+ years old cohort and 50+ years old cohort). In a more recent study, Sakai (1996) examined sex ratios of children being adopted, raised in foster homes, killed in accidents, and enrolled in special education (e.g. school for the deaf). He found that that the sex ratios of children being adopted and raised in foster homes have risen since the 1970s and suggested that they are clear indications of parents increasingly wanting to keep their biological daughters due to daughter preference.

Slight daughter preference has been observed as early as 1980s in an earlier study conducted by Sakai (1989). He analyzed retrospective pregnancy and birth histories of married women with at least one child using the 8th JNFS (conducted in 1982). Overall, an examination of parity progressions suggested considerable balance preference and a slight tendency for daughter preference. Sex of existing children influenced having another child even after controlling for other demographic variables such as wife's education, place of residence, and household income. In addition, the effect of having only sons on having another child was found to be greater among younger cohorts net of demographic characteristics.

GENDER PREFERENCES FOR CHILDREN IN LESS DEVELOPED COUNTRIES AND IN DEVELOPED COUNTRIES

The literature on gender preferences for children in less developed countries and developed countries has approached the issue differently due to differences in the assumptions about the degree and direction of gender preference. Of particular interest in the sex preference literature of less developed countries, especially of East and South Asia, has been the magnitude of son preference. On the other hand, the focus on research of developed countries has been on the extent to which people have balance preference. Both literature, however, have generally approached the issue in relation to societal gender systems.

Since sons and daughters are wanted for different reasons, gender preferences for children are shaped by the relative importance of those motives. In the mid-1970s, the Value of Children Study

collected data from the U.S. and a number of Asian nations to examine people's social, economic, and psychological determinants of childbearing behavior including differences in motives for wanting sons and daughters.[5] Overall, sons were mainly wanted for (1) continuity of the family line and (2) financial and practical help; daughters were desired for (1) household and childcare help and (2) companionship (Arnold and Kuo, 1984). Such gender norms are emphasized in the literature on developing countries because differences in the qualities sons and daughters contribute to parents appear to be a significant factor in determining gender preferences. Research on developed countries, on the other hand, have examined parental gender preferences with respect to gender equality and convergence of gender roles. Both approaches have implications for understanding emerging daughter preference in Japan.

As Mason (1987) points out, the general assumption in the demographic literature is that women's position in society directly affects the perceived value of daughters, thereby shaping gender preferences for children. This notion is particularly applicable to populations of developing countries where sons offer continuity of the family line and future economic returns. Many studies on developing countries with son preference have in fact found that strong son preference is a result of low perceived worth of females (i.e. Kishor, 1993). Relating the notion above to daughter preference, it implies that daughter preference, if observed, is a positive indication that girls are perceived valuable due to the improved status of women.

The focus within the literature of gender preference in developed countries, particularly in the U.S. and Europe, has long been on the extent to which people have a preference for at least one of each sex. As reviewed by Williamson (1976), empirical studies of Americans and Europeans carried out in the early 1930s to mid-1970s overall showed "… evidence of slight boy preference especially for firstborns, desire for one of each sex, and preference for a predominance of boys over a predominance of girls if a balanced number of each was not chosen" (p. 63). More recent literature on gender preferences for

[5] An exploratory study of this project was carried out in 6 countries: Taiwan, Japan, the Republic of Korea, the Philippines, Thailand, and the U.S. (Hawaii) but a more definite study was conducted in Turkey, Indonesia, the Philippines, Thailand, Republic of Korea, Taiwan, Singapore, and the U.S. See Arnold et al. (1975) and Arnold and Kuo (1984) for details on the study.

children in developed countries examine whether such preference pattern (i.e. preference for one child each sex) still holds or has diminished to find out whether there is emerging parental gender indifference. In investigating the phenomenon, recent research links alleviated gender preferences to changes in the gender system. In their analysis of U.S. time series data, Pollard and Morgan (2002) hypothesized that the sex-of-previous-child effect has disappeared over the decades and emphasized that "[s]uch a finding would provide strong evidence of *emerging gender indifference* among parents and clear evidence of gender equality in U.S. society" (p.600). Their results supported this claim as they found that the effect of having two children of the same gender (i.e. two sons or two daughters) on having/intending to have a third child has attenuated over the decades. Based on their findings, the authors also suggested an emerging convergence in gender roles where sons and daughters are not necessarily perceived irreplaceable. To further test this gender equality argument, Hank and Andersson (2002) replicated Pollard and Morgan's work using Swedish population register data. Although the authors expected parental gender indifference in Sweden for their high level of gender equality, they saw a clear preference for one child of each sex to this date, concluding that the changing perception of women's role in society does not explain shifts in gender preferences for children.

Overall, the literature appears to suggest that gender preference for children is shaped by societal gender systems and by the extent to which gender roles diverge or converge. Therefore, in the present study, I explore gender preference for children among the Japanese in relation to one's gender role attitudes and perception of women's position in society.

HYPOTHESES

I derive several hypotheses that relate gender role attitudes to gender preferences for children in Japan. In line with Pollard and Morgan's gender equality argument, if convergence in gender roles resulting from higher level of gender equality causes gender indifference, I should find that individuals with nontraditional sex role attitudes tend to be indifferent about their child(ren)'s gender.

Hypothesis 1: Individuals with traditional gender role attitudes are more likely to have a preference for the gender of their child(ren) while individuals with nontraditional gender role attitudes tend to be indifferent about the matter.

Moreover, it is plausible that convergence in gender roles with higher gender equality has not only caused gender indifference, but has also significantly improved the perceived worth of women (i.e. due to an increase in educated and employed women) to the extent that people find the benefits of having a daughter outweigh that of having a son. This leads to the following hypothesis.

Hypothesis 2a: Those who hold traditional gender role attitudes tend to have son preference while those with nontraditional gender role attitudes are likely to exhibit daughter preference.

However, if nontraditional gender role attitudes lead to daughter preference, we should observe salient daughter preference in countries with high levels of gender equality. To the best of my knowledge, however, such observation has not been reported. Moreover, the hypothesis above does not sound compelling given that the Japanese are known to hold more traditional gender role attitudes (Treas & Widmer, 2000) and Japan lags in terms of gender relations in comparison to other industrialized countries. For instance, Japanese husbands are reported to perform very little household labor (Davis and Greenstein, 2004) and the percentage of females enrolled in higher education is the lowest among OECD countries (OECD, 2004). This brings me to consider an alternative hypothesis.

The Japanese may prefer to raise girls because of the perception that girls require less financial, psychological, and time investment than boys. While men enjoy an advantage over women in wages and opportunities for employment in Japan, they still strive to succeed in a competitive economy. Since the competition to enter top universities and obtain respectable jobs is high, it not only puts psychological stress, but also time constraints (e.g. to look after their child's after-school activities) and economic pressure (e.g. to pay for quality education) on the parents to ensure their sons succeed. Receiving a

university degree is also important for their marriage prospects. Poorly educated men have difficulty finding spouses whereas highly educated men have relatively low celibacy rates (Retherford, Ogawa, & Matsukura, 2001). Thus, it is possible that the Japanese are unenthusiastic about raising boys because of all the pressure associated with raising a son successfully. Similarly, they may perceive that girls do not necessarily have to attend the best schools and build a promising career, thus require less investment. Because the expectation for a girl to be successful is not very high in the first place, it is perhaps perceived "easier" and "safer" to raise a girl. This may be especially true among more traditional-minded individuals who consider educational and occupational achievement more crucial for men.

There are also reasons why having a daughter can be beneficial in Japan today. The Japanese tend to want daughters for old-age support and women especially want daughters for companionship. The Japanese are increasingly preferring to cohabit or reside in close proximity to their daughters (as opposed to their sons and daughter-in-laws) because they hope to be cared by their daughters. Companionship for the mother has also been cited as one of the major reasons for wanting a girl child in countries examined in the Value of Children project including Japan (Arnold and Kuo, 1984). Recently, there have been many media accounts that present close mother-daughter relationships as trendy. It is likely that such close mother-daughter representation in the media has further triggered daughter preference among women in particular. Thus, people find daughters valuable for their anticipated care in one's old age and companionship. Given this, it is conceivable that those with traditional gender role attitudes are more likely to prefer a girl child because they tend to expect such prescribed gender roles as old-age care and companionship. In sum, instead of convergence in gender roles, persistent divergence in gender roles may continue to shape people's preference for daughters in Japan. Perhaps the relative importance of having a son or a daughter has changed in such a way that the Japanese find the unique contributions of a daughter more beneficial.

Based on the discussion above, I derive the following hypothesis that competes with the preceding hypothesis.

Hypothesis 2b: Individuals who hold traditional gender role attitudes are more likely to prefer a girl child, not only because they perceive girls are "easier" and "safer" to raise, but also because they see benefits to having a daughter for their prescribed gender roles such as old-age care and companionship. This may particularly be the case among women because traditional-minded women are less likely to be socially and economically independent and may foresee themselves wanting companionship and old-age support.

In the subsequent section of the paper, I examine these hypotheses by focusing on the extent to which individuals' gender preferences for children are shaped by their gender role attitudes.

DATA AND METHODS

Data

I explore my hypotheses using data from the 11th Japanese National Fertility Survey (JNFS) conducted by the National Institute of Population and Social Security Research in 1997[6]. The JNFS is a well-respected, government funded survey that has been conducted every 5 years since 1952. The JNFS has two subsets: the Married Couples Study, and the Single Persons Study, both of which are based on nationally representative samples. In this study, I only analyze the Single Persons Study subset of the survey.

The Single Persons Study is a nationally representative mail survey of single men and women of age 18 to 49. A survey was sent out to 12,866 singles randomly selected through two-stage cluster sampling. 9,686 questionnaires were returned with usable data resulting in a response rate of 75.3%. Respondents were asked about their life style as a single, quality of life, attitudes toward gender roles, marriage, and family, intentions/expectations for marriage, intentions for having children, gender preferences for children, and demographics. A small percentage of the sample have been previously

[6] I had hoped to acquire the 12th JNFS conducted in 2002. However, the National Institute of Population and Social Security Research has only released up to the 11th JNFS as of today.

married (7.63%; 6.9% of which are divorced and 0.73% are widowed). Also, 10.5% of the single women in the sample have been pregnant one or more times but no data have been collected on whether they have any children. However, given that a substantial percentage of those who have been pregnant endured a miscarriage or had an induced abortion, very few of them appear to be single mothers or ever had children.[7]

The JNFS is well suited for my research purposes. The JNFS is unique in that it has attitudinal questions on gender preferences for children. Questions that directly ask for respondent's gender preference have not been incorporated in recent major U.S. surveys on fertility or families (i.e. National Survey of Family and Households, National Survey of Family Growth, General Social Survey). While recent research on developed countries has used indirect behavioral measures to assess gender preference such as the effect of sex of previous children on (intentions of) having another child (Brockmann, 2001; Hank & Andersson, 2002; Hank & Kohler, 2000; Hank & Kohler, 2002; Pollard & Morgan, 2002), I consider asking direct questions for their preference to be also appropriate. In very low fertility contexts, since the odds of wanting/having a third or even a second child are low due to social and economic constraints, it is likely that a desire for an additional child in response to gender preference may not be translated into actual behavior. In other words, individuals' actual preference may not be captured by indirect measures. As mentioned earlier, it is possible that people with strong preferences may start resorting to reproductive technologies to ensure their first child is a girl or a boy in the context of very low fertility. Therefore, I argue that gender preference for children as assessed by direct survey questions is not only a valid measure but also a critical variable in predicting future demographic outcomes.

While gender preference questions are included in both subsets of the survey, I only focus on the Single Persons subset for this study. First, because most respondents never had children (see footnote #6),

[7] According to the data, a total of 468 pregnancies have occurred among the 4,456 single women in the sample. Among these pregnancies, 100 of them ended in a miscarriage and 273 of them were aborted, resulting in a total of 95 pregnancies that were carried to term. Therefore, I estimate that approximately 2% of all single women have had children ((95/4,456)*100=2.13%). Since only such a small percentage of women have had children, I opted not to exclude them from the analyses even though the fact that they have had children may affect how they respond to gender preference questions.

their responses to gender preference questions are not contaminated by the presence of their own child(ren). Rather, their responses truly reflect their preference for the gender of their future child(ren). Second, since the sample of the Single Person's Study are relatively young (age 18-49) and are not yet married, it represents a group whose future reproductive behavior in response to their gender preference may have an impact on future demographic outcomes.

Dependent Variable: Gender Preference for Children

The focus of the present paper is to examine the extent to which individuals' gender preferences for children are associated with their gender role attitudes. In this paper, I work with a dependent variable with four categories in which each of the categories represents a different type of gender preference.

In the JNFS, respondents were first asked for their ideal number of children. Respondents were then asked if they have a preference for a specific gender configuration. Lastly, respondents indicating a specific gender composition preference were instructed to provide an ideal gender composition of children that matches their ideal number of children. For example, respondents who preferred to have only one child and indicated having gender preference specified whether they want a boy or a girl, and those who desired two children and had gender preference specified whether they prefer two boys, a boy and a girl, or two girls.

Based on these responses, I create a categorical dependent variable. Those who reported not having preference for a specific gender configuration are assigned to the "no gender preference" category. To those who indicated gender preference, I assign one of the three gender preference types: balance preference, son preference, or daughter preference. Respondents who preferred more children of a specific sex than the other are assigned to the appropriate category (either son preference or daughter preference) while respondents indicating a preference for an equal number of boys and girls are assigned to the balance preference category. This resulted in a dependent variable with four categories.

Primary Independent Variable: Gender Role Attitudes

My independent variable of interest is the extent to which individuals exhibit traditional gender role attitudes. I use two different measures of gender role attitudes in this study.

The 11th JNFS includes a battery of items that assess attitudes toward gender roles, marriage, and family. Respondents indicated how much they agree or disagree on a 4-point scale (1=strongly agree, 2=somewhat agree, 3=somewhat disagree, 4=strongly disagree) to the following statements.[8]

a. Remaining single all life is not a preferable way of life (reverse coded)
b. A man and a woman should get married if they want to live together (reverse coded)
c. It is okay to have premarital sex if a man and a woman are in love
d. Even after marriage, one should have their own life goals unrelated to their marriage or family
e. After marriage, one is expected to make personal sacrifices for your family (reverse coded)
f. Men should work outside and women should take care of the home after marriage.[9] (reverse coded)
g. Once married, one should have children (reverse coded)
h. Once married, it is unacceptable to get a divorce for reasons such as incompatibility (reverse coded)

Responses are recoded so that larger values are assigned to more traditional responses. Taking the mean of the eight items, I create a traditionalism measure. Cronbach's alpha for this measure is .6871 for male respondents and .7347 for female respondents.[10] Since these items do not necessarily cover a wide range of gender role attitudes, I use this as a measure that broadly captures one's attitude toward gender roles, marriage, and family. This measure will be referred to as the traditionalism measure (TRAD).

The Single Persons Study also includes an ordinal variable that taps on one's attitude toward women's role in the family and at work. Female respondents were instructed to choose from the following five scenarios that come closest to their ideal while male respondents selected the one they most prefer women to pursue. Lower-number responses are given to more nontraditional choices while

[8] The series also contained an item, "Marriage and love are two distinct concepts." Including this item in the scale greatly reduces the reliability alpha indicating that the item may not be tapping on traditionalism well. I opted not to include this item when computing the traditionalism measure.
[9] The 12th JNFS contains one other item in the series that reads, "It is better for the mother to stay home at least while there are small children." It will be worthwhile to account for this item in future analyses once data is released.
[10] I also preformed factor analyses on these items. While factor analyses results indicated a possible two-factor structure, I opted to use a single factor measure since it produced a high reliability coefficient.

higher-number responses are given to more traditional choices. This variable will be referred to as women's ideal life (WIL).

1. Not get married and work all life
2. Get married and work all life but not have children
3. Get married and have children but also work all life
4. Get married and have children, quit job once married or have children, but go back to work after raising children
5. Get married and have children, quit job once married or have children and never go back to work.

Background Variables

I also examine the effects of several background variables in my analyses that are expected to be associated with one's gender preference for children. I control for respondent's gender, age, educational attainment, type of place of residence (urban/rural), mother's employment history, and presence of brothers and/or sisters.[11]

Most importantly, I explore how the effect of gender role attitudes on gender preference differs for men and women. It is often cited that girls are wanted because they provide the mother companionship while boys are wanted for their companionship to the father (Williamson, 1976). Also, according to a review of gender preference in the U.S. and in Europe, men are generally found to have stronger son preference than women (Williamson, 1976). More generally, it has been widely reported that men and women differ in their reproductive goals where men constantly appear to want more children than women (see Mason and Taj, 1987 for a review). Given this, it is conceivable to assume that there are gender differences in reproductive preferences such as gender preferences and that the mechanisms in which

[11] As I hypothesized in Hypothesis 2b, if individuals, especially those with more traditional attitudes, are reluctant to have a boy partly because it requires more financial investment than a girl, I should control for a measure of affluence (i.e. income) to better test the hypothesis. However, because I am using a sample of singles age 18-49, I found that a substantial proportion of the sample are students (19.6% of males and 20.2% of females) and not yet in the labor force. Therefore, I opted not to include any income measures in my analyses.

gender preferences are shaped would differ for men and women. Therefore, I perform all analyses separately for men and women.[12]

Age is likely to be related to both gender role attitudes and child gender preference. The effect of age has been found to be a significant predictor in explaining variations in attitudes in various contexts. For instance, a study of the U.S. found a linear age effect on sex-role attitudes in which older individuals of both sexes exhibit more traditional sex-role attitudes (Smith and Kluegel, 1984). Age was also consistently positively associated with traditionalism in a comparative study of seven countries: West Germany, France, Great Britain, the U.S., Japan, Italy, and the Netherlands (Kamono, 1999). It can also be speculated that age is associated with gender preference where older respondents are more likely to seek an offspring of the same gender for companionship. In the JNFS, respondents are asked for their year of birth. I converted the responses to their actual age at the time the survey was completed and they ranged from 18 to 49 years old.

Educational attainment and type of place of residence (urban/rural) are also likely to be associated with my dependent and primary independent variables. Research on gender preference in China found weak son preference among individuals who are educated (particularly women) and in urban areas (Arnold and Liu, 1986). The authors even found that son preference appears nonexistent in the most urban places, namely in Beijing and Shanghai. In Kamono's (1999) comparative study, she found that less traditional ideas are exhibited by those with higher education (in West Germany, Great Britain, the U.S., Japan, and the Netherlands) and those residing in larger cities (in West Germany, the U.S., and Japan). Therefore, since educated individuals and urban residents are more likely to exhibit egalitarian attitudes, they may tend to be indifferent about the gender (composition) of their child, and may be more open to the idea of having an unconventional family composition such as having only daughters.

[12] In my preliminary analyses, I ran analyses with both genders combined and found substantial interaction effects between gender and gender role attitude variables on gender preference as well as several significant interaction effects between gender and age on gender preference. Such preliminary findings led me to perform my analyses separately for men and women.

In the JNFS, respondents reported their completed level of education. While the survey provided more specific types of educational institutions for the respondents to choose from, as in other research that uses the same survey (Raymo, 2003a; Raymo, 2003b), I collapsed the responses into the following four categories: junior high, high school, junior college or vocational school, and college or above.[13] In my analyses, high school graduates are the reference category. The JNFS has a variable that distinguishes whether a respondent's current place of residence is urban (population concentrated area) or rural (population non-concentrated area). Rural is the reference category in my multivariate analyses.

Due to lack of a more appropriate variable, I include mother's employment history as a proxy that measures one's closeness to his/her mother while growing up. Given people want children for companionship, I expect that individuals who established a close tie with his/her mother are more likely to want a daughter for their personality characteristics that make them good companions. This may especially be the case for women who find that daughters would provide them greater companionship than sons. For men, those who were close to their mother may have a more positive image for women thus are likely to desire daughters. Responses were recoded to one of the following four categories: (1) mother has always worked, (2) mother returned to work after children have grown up (i.e. reached school age), (3) mother has been self-employed, or (4) mother has always been a full-time homemaker. The first category, "mother has always worked" serves as the reference category.

I also include presence of brothers and sisters in my models. I consider the effect of siblings because individuals may want to recreate the environment in which they grew up. Those who have a brother may be likely to have son preference and those with a sister may be more enthusiastic about having a daughter.

[13] In the original survey, respondents chose from: 1) junior high, 2) co-ed high school, 3) all women's or all men's high school, 4) vocational school (after high school), 5) junior college, 6) women's university or graduate school, 7) co-ed university or graduate school.

Methods

All results are based on a sample of 2,736 single males and 2,594 single females whom I have data on all of the variables included in the analyses. First I present sample characteristics by showing percentage distributions of all variables in the analyses. Next, I present bivariate associations between type of gender preference and my independent variables. Lastly, I use multinomial logistic regression to test models predicting one's type of gender preference for children. I report the odds ratios representing the odds of having: (1) balance preference versus no gender preference, (2) son preference versus no gender preference, (3) daughter preference versus no gender preference, (4) son preference versus balance preference, (5) daughter preference versus balance preference, and (6) daughter preference versus son preference. In the first model, I include the TRAD measure as well as all background variables. The second model incorporates the WIL variable instead of the TRAD measure.

RESULTS

Characteristics of the respondents are summarized in Table 2. On average men exhibit significantly more traditional gender role attitudes as measured by TRAD (2.55 for men, 2.33 for women) and by WIL (4.04 for men, 3.84 for women). Male respondents on average are slightly older (26.65 years old) than female respondents (24.67). A random sample of single women is inevitably younger than that of single men because women marry at a younger age than men. A larger percentage of men have a college degree or above (38.49%) than women (23.13%) although a greater percentage of women have attended a junior college or a vocational school (43.48%) than their male counterparts (16.63%). The majority of respondents live in urban areas (70.32% of men and 72.21% of women). The distribution of mother's employment status is similar for both genders. About a fifth of the sample (21% of men and 22% of women) reported that their mother had always been in the labor force; 31% of men and 32% of women reported that their mother returned to the labor force after her child(ren) grew up; 22% of men and 20% of women had self-employed mothers; and approximately 26% of all mothers have always stayed at home. The majority of respondents (56.87% of men and 58.02% of women) have at least one brother. Similarly

more than half of the respondents (58.52% of men and 54.90% of women) reported having one or more sisters.

Table 3 and Table 4 present bivariate analyses of type of gender preference and independent variables. Among men, overall, 37% had no gender preference, 41% had balance preference, 15% had son preference, and 7% had daughter preference. The gender preference distribution is somewhat different for women than it is for men. Thirty-one percent had no gender preference, 41% had balance preference, and a larger percentage of women had daughter preference (15%) than son preference (12%). Looking at the two gender role attitude variables, men who had son preference on average had more traditional attitudes (2.62 on TRAD and 4.1 on WIL) followed by balance preference (2.59 on TRAD and 4.09 on WIL). Men with no gender preference and daughter preference on average had less traditional attitudes (2.49 on TRAD and 3.98 on WIL, 2.52 on TRAD and 3.98 on WIL, respectively). A different pattern holds among female respondents. Women with daughter preference and balance preference scored highest on TRAD (2.42 and 2.34, respectively) and on WIL (3.90 and 3.91, respectively). Women without gender preference and with son preference on average appear to have the least traditional attitudes (2.29 on TRAD and 3.73 on WIL, 2.29 on TRAD and 3.9 on WIL, respectively).

Although age does not appear to be associated with type of gender preference for males, age is related to gender preference for women. Most obviously, the average age of women who have daughter preference (25.27) is higher than those with son preference (23.72).

An interesting pattern exists between educational attainment and gender preference. For both men and women, low levels of educational attainment appear to be associated with daughter preference. Men with the lowest level of educational attainment are more likely to exhibit son preference (16.78% compared with 11.65%-15.29% in other educational attainment categories) or daughter preference (14.41% compared with 4.18%-7.32% who received higher levels of education). The majority of women in all four educational attainment categories indicated that they have no gender preference or have balance preference; however, a much larger proportion of junior high school graduates (25.45%) reported having daughter preference than those with higher educational attainment (13.17%-16.93%).

Type of gender preference does not appear to be associated with urban/rural residence or with mother's employment status while growing up for both male and female respondents.

Gender preference is associated with presence of a male sibling for men. While only 5.98% of men with a male sibling exhibited daughter preference, 7.8% of men without a brother exhibited daughter preference. A greater percentage of men with son preference had at least one brother than those who had no brothers (15.75% compared with 13.05%). Presence of a brother and sister both appear to have a significant impact on type of gender preference for women. Having a male sibling is associated with exhibitng son preference (10.47% of those without brothers compared to 12.76% of those with brothers) while having a female sibling is associated with daughter preference (11.37% of those without sisters compared to 18.75% of those with sisters).

Table 5 and Table 6 present multinomial logistic regression models estimating type of gender preference. Although regression results are reported separately for males (Table 5) and females (Table 6), since I organize my discussion around my key predictors, results from the two tables are discussed simultaneously in the following sections.

Gender Role Attitudes

As found in the bivariate analysis, gender role attitudes remain being a significant variable in predicting gender preferences for children even after controlling for other factors. For men, exhibiting more traditional attitudes increased the odds of having balance preference or son preference rather than being gender indifferent. This was evident from the fact that both TRAD and WIL are significantly associated with the odds of having balance or son preference over no preference. Among women, those with more traditional attitudes are more likely to have a specific gender preference (balance preference, son preference, and daughter preference) than having no preference. TRAD is statistically significant in Model 1 predicting son preference versus no preference. Additionally, both TRAD and WIL significantly increase the odds of having balance preference and daughter preference over indifference. These findings provide some support for the first hypothesis in that individuals with traditional gender role attitudes are

more likely to have gender preference while those with less traditional attitudes tend to be indifferent about the matter.

Gender role attitudes are also related to the odds of having daughter preference for men and women; though in a different fashion. Results indicate that for men, more traditional gender role attitudes reduce the odds of having daughter preference compared to balance preference (as measured by TRAD) or son preference (as measured by TRAD and WIL). In other words, nontraditional minded men are more likely to have daughter preference as opposed to balance or son preference. This provides support for my second hypothesis (Hypothesis 2a). Thus, among Japanese single men, the most nontraditional individuals are either indifferent about their offspring's gender or have daughter preference.

Gender role attitudes do not affect Japanese single women in the same way they affect men. Results clearly show that traditional minded women tend to have daughter preference. While WIF did not appear to be significantly related to the odds of having daughter preference, TRAD significantly increases the likelihood of having girl preference compared to balance preference and boy preference. In addition, the odds of having daughter preference rather than being gender indifferent are higher for more traditional women (as measured by both TRAD and WIL). This suggests that Japanese women exhibiting traditional gender role attitudes are more likely to have daughter preference than any other type of gender preference.

Background Variables

Age is another variable that does not appear to be related to type of gender preference in the same way for men and women. For men, age is not associated with gender preference except when comparing balance preference versus no preference in Model 1. Age is strongly related to type of gender preference for women, however. The odds ratios indicate that an increase in age is associated with reduced odds of having balance preference or son preference rather than no gender preference. In other words, older women are more likely to be gender indifferent while younger women tend to report having balance or son preference. Another apparent finding pertaining to the effect of age for women is that there is an

increase in the odds of having girl preference over balance preference and boy preference with age. Hence, older single women are more likely to report daughter preference.

Findings also suggest an interesting association between educational attainment and type of gender preference. Among male respondents, junior college/vocational school graduates are more likely than high school graduates to be gender indifferent than to have boy or girl preference. Junior college/vocational school graduates are also more likely than high school graduates to have balance preference as opposed to daughter preference. For women, college education decreases the odds of having balance preference over no preference. Compared to women with only a high school education, junior college/vocational school graduates are more likely to have girl preference rather than being indifferent about the sex of their future offspring. In addition, as with men, women with the lowest level of educational attainment are much more likely to have daughter preference than balance preference. Everything else being equal, this group of women are nearly three times more likely than high school graduates to have daughter preference rather than a balanced sex composition of children.

As was the case in my bivariate analysis, residence (rural/urban) is not significantly related to the odds of having any particular type of gender preference, with one exception; urban female residents are more likely than rural female residents to have balance preference rather than no preference. Mother's employment status is also not a significant variable for both men and women in predicting one's type of gender preference in the multivariate analysis.

Among men, presence of a brother is a significant variable in predicting type of gender preference only when estimating the odds of having girl preference versus boy preference. Specifically, those who had at least one brother are less likely than those without brothers to exhibit daughter preference compared to son preference. Presence of a sister does not influence type of gender preference for men. For women, while presence of brothers is not associated with type of gender preference, presence of female siblings is strongly associated with gender preference. Women with female siblings are less likely to have balance preference than no preference. More importantly, presence of a sister increases the likelihood of exhibiting daughter preference over no preference, balance preference, or son preference.

Thus, for women, having a female sibling strongly influences one's desire to have a daughter than anything else.

DISCUSSION AND CONCLUSION

This paper builds upon previous research on gender preference for children by presenting the state of gender preferences in Japan. It also extends our understanding of how gender preference is shaped by societal gender systems by examining the link between Japanese singles' gender role attitudes and their gender preferences for children.

My results suggested that there is evidence for all three of my hypotheses. First of all, I found ample support for my first hypothesis that individuals with traditional gender role attitudes are more likely to have gender preference while individuals with egalitarian views tend to be indifferent about the gender of their future children. Findings show that this is generally the case for both men and women and suggest that gender indifference could be a reflection of perceived convergence in gender roles.

In terms of specific gender preference, my two competing hypotheses (Hypothesis 2a and Hypothesis 2b) are both supported, but by two different samples. In my analysis of single males, I found that those with traditional gender role attitudes are more likely to have son preference than no preference or daughter preference. Thus, for men, traditionalism continues to be a significant determinant of son preference. On the other hand, daughter preference is exhibited by men with nontraditional attitudes. This is consistent with the notion that nontraditional-minded individuals with egalitarian views are more likely to be enthusiastic about having a daughter.

An opposite pattern was observed from my analysis of single Japanese women providing support for my competing hypothesis (Hypothesis 2b). Results indicated that among women, traditional gender role attitudes are associated with higher odds of having daughter preference rather than balance preference or son preference. Such findings are consistent with my alternative argument that girls are preferred not because the status of Japanese women has improved but rather because there continues to be persistent divergence in gender roles. Because of such persistent divergence, people may perceive that

girls are easier to raise and that the qualities daughters contribute (i.e. companionship, old-age care) are relatively attractive in the context of contemporary Japanese society.

Therefore, results suggest that traditionalism is still driving gender preference; though in a different way for men and women. Traditional men are likely to be keen on prescribed sex roles and may want sons for continuity of his family line and name, as well as other qualities sons may provide to a traditional patriarchal family. For these men, having a son may also be perceived as a sign of masculinity. For women, traditionalism is linked to daughter preference because traditional women are more likely to see the obstacles associated with raising a son successfully. It is also plausible that since traditional-minded women are less likely to be socially and economically independent, they foresee themselves wanting companionship and old-age support.

Although I was not able to control for affluence (i.e. income) to test Hypothesis 2b more directly due to data limitations, the fact that I found an interesting association between educational attainment and gender preferences provide some additional support to my alternative hypothesis. For both men and women, being only a junior high school graduate compared to a high school graduate significantly increases the odds of exhibiting girl preference rather than balance preference. It can be speculated that junior high school graduates are opting to have only girls because they do not have good economic prospects and are unable to invest much in their children.

Strong gender preference in a very low fertility setting can have demographic implications. We have seen that daughter preference is a popular preference among women (as can be seen in Table 1 for married women and Table 4 for single women). If women play a major role in making reproductive decisions, their gender preference has a great impact on their stopping behavior. In low fertility contexts (i.e. replacement level fertility), even if a woman's first child is of the preferred gender, they are likely to go on to have additional children. However, in very low fertility contexts as in Japan, women are likely to stop after the first child if it is the preferred gender.

In addition, gender preference can have a serious demographic impact if it translates into a skewed sex ratio. There is no sign that average Japanese couples are currently resorting to advanced

reproductive technologies or will consider such options in the near future. However, less technologically sophisticated methods to become pregnant with the preferred sex of the child appear to be gaining popularity among interested individuals. For example, books concerning sex-selective pregnancy by means of more accessible methods (e.g. "timing" methods) are carried by most Japanese bookstores. Once couples begin trying ways to become pregnant sex-selectively, it may eventually produce a skewed sex ratio at the aggregate level. The end result of this would be an excess of girl children.

If a skewed sex ratio becomes evident, it has implications for other social issues. First of all, an excess of women would mean that more women will have difficulty finding mates. Moreover, a rise in women's celibacy rate will inevitably cause a further decline in birth rates. Given Japanese women's high life expectancy, an excess of women will also aggravate issues related to the aging of the population. A positive implication of excess of women, however, may be an improved status of women because there may be better economic prospects for women to make up for the deficit of men in the labor force.

Finally, since I focused on gender preferences of singles only, it is possible that there is a selection bias in which the sample are less likely to ever marry and have children in the future. Hence, their responses to gender preference questions may not be as relevant in predicting possible future demographic outcomes. In future research, I plan to analyze gender preferences of married women who do not yet have children from the Married Couples Study subset of the 11th JNFS. An examination of married women should add more insight on the population prospects of Japan. Another major limitation to the study is that I was not able to test my third hypothesis more directly by introducing measures of affluence and availability of time. For this reason, using the married couple sample in future analyses will be valuable since relevant measures (i.e. income, wife employed or not) are available in that subset. Lastly, since I have found the effect of traditionalism on gender preferences differ for men and women, I suggest future research to further clarify why the mechanisms in which gender preferences are shaped differ for men and women.

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Table 1: Ideal Gender Composition of Children by Survey Year and Ideal Number of Children

Ideal Gender Composition		Survey Year				
		8th JNFS (1982)	9th JNFS (1987)	10th JNFS (1992)	11th JNFS (1997)	12th JNFS (2002)
1 Child	1 boy and 0 girl	51.5%	37.1%	24.3%	25.0%	27.3%
	0 boy and 1 girl	48.5%	62.9%	75.7%	75.0%	72.7%
2 Children	2 boys and 0 girls	8.8%	4.1%	2.7%	2.1%	1.9%
	1 boy and 1 girl	82.4%	85.5%	84.0%	84.9%	85.9%
	0 boys and 2 girls	8.9%	10.4%	13.3%	13.0%	12.2%
3 Children	3 boys and 0 girls	0.7%	0.5%	0.3%	0.4%	0.6%
	2 boys and 1 girl	62.4%	52.3%	45.1%	38.4%	41.6%
	1 boy and 2 girls	36.2%	46.2%	52.9%	58.9%	55.4%
	0 boys and 3 girls	0.7%	0.7%	1.6%	2.3%	2.4%

Source: Adopted from *Report on the Twelfth Japanese National Fertility Survey, Volume I: Marriage process and fertility of Japanese married couples* (National Institute of Population and Social Security Research, 2003)

TABLE 2: Means and percentage distributions of selected characteristics by gender

	All (N=5,330)	Male (N=2,736)	Female (N=2,594)
Gender			
Male	51.33	-	-
Female	48.67	-	-
Gender role attitudes			
Traditionalism measure (means)*** (range=1-4; higher=traditional)	2.44	2.55	2.33
Women's ideal life (means)*** (range=1-5; higher=traditional)	3.94	4.04	3.84
Age (means)*** (range 18-49)	25.68	26.65	24.67
Educational attainment (%)^^^			
Junior high school	3.83	5.45	2.12
High school (reference)	35.46	39.44	31.26
Junior college or vocational school	29.70	16.63	43.48
College or above	31.01	38.49	23.13
Residence (%)			
Rural (reference)	28.76	29.68	27.79
Urban	71.24	70.32	72.21
Mother's employment status (%)^^			
Has always worked (reference)	21.26	20.58	21.97
Returned to work after children grew up	32.20	31.03	32.20
Self-employed	20.43	22.19	20.43
Homemaker	26.12	26.21	26.12
Presence of brothers			
No brothers (reference)	42.57	43.13	41.98
Have one or more brothers	57.43	56.87	58.02
Presence of sisters (%)^^			
No sisters (reference)	43.25	41.48	45.10
Have one or more sisters	56.75	58.52	54.90

***p≤.001 Significant mean difference between male and females

^^p≤.01, ^^^p≤.001 Significant overall chi-squre for the association between gender and the predictor variable

TABLE 3: Means and percentage distribution by type of gender preference according to selected characteristics (MALES)

	Male (N=2,736)				
	No Gender Preference	Balance Preference	Son Preference	Daughter Preference	Total
Total (%)	37.46	41.19	14.58	6.76	100
Gender role attitudes					
Traditionalism measure (means)*** (range=1-4; higher=traditional)	2.49	2.59	2.62	2.52	2.55
Women's ideal life (means)*** (range=1-5; higher=traditional)	3.98	4.09	4.10	3.98	4.04
Age (means) (range 18-49)	26.81	26.37	27.08	26.47	26.65
Educational attainment (%)^					
Junior high school	36.24	35.57	16.78	11.41	100
High school (reference)	35.59	42.26	14.83	7.32	100
Junior college or vocational school	40.88	43.30	11.65	4.18	100
College or above	38.08	39.98	15.29	6.65	100
Residence (%)					
Rural (reference)	39.29	40.15	14.78	5.79	100
Urban	36.69	41.63	14.50	7.17	100
Mother's employment status (%)					
Has always worked (reference)	38.19	42.45	13.32	6.04	100
Returned to work after children grew up	38.40	40.16	13.90	7.54	100
Self-employed	36.08	40.20	16.64	7.08	100
Homemaker	36.96	42.26	14.64	6.14	100
Presence of brothers (%)^					
No brothers (reference)	36.36	42.80	13.05	7.80	100
Have one or more brothers	38.30	39.97	15.75	5.98	100
Presence of sisters (%)					
No sisters (reference)	38.77	40.09	14.80	6.34	100
Have one or more sisters	36.54	41.97	14.43	7.06	100

*p≤.05, **p≤.01, ***p≤.001 Significant mean difference among type of gender preference

^p≤.05, ^^p≤.01, ^^^p≤.001 Significant overall chi-square for the association between type of gender preference and the predictor variable

TABLE 4: Means and percentage distribution by type of gender preference according to selected characteristics (FEMALES)

	Female (N=2,594)				
	No Gender Preference	Balance Preference	Son Preference	Daughter Preference	Total
Total (%)	31.77	41.02	11.80	15.42	100
Gender role attitudes					
Traditionalsim measure (means)*** (range=1-4; higher=traditional)	2.29	2.34	2.29	2.42	2.33
Women's ideal life (means)*** (range=1-5; higher=traditional)	3.73	3.91	3.85	3.90	3.84
Age (means)*** (range 18-49)	25.27	24.25	23.72	25.27	24.67
Educational attainment (%)^^					
Junior high school	34.55	27.27	12.73	25.45	100
High school (reference)	31.20	43.28	11.22	14.30	100
Junior college or vocational school	29.26	42.11	11.70	16.93	100
College or above	37.00	37.17	12.67	13.17	100
Residence (%)					
Rural (reference)	32.18	40.50	11.10	16.23	100
Urban	31.61	41.22	12.07	15.11	100
Mother's employment status (%)					
Has always worked (reference)	29.30	41.93	13.51	15.26	100
Returned to work after children grew up	31.26	41.64	10.50	16.61	100
Self-employed	33.82	36.72	12.83	11.26	100
Homemaker	15.26	16.61	16.60	13.19	100
Presence of brothers (%)^^^					
No brothers (reference)	34.16	37.28	10.47	18.09	100
Have one or more brothers	30.03	43.72	12.76	13.49	100
Presence of sisters (%)^^^					
No sisters (reference)	30.17	45.98	12.48	11.37	100
Have one or more sisters	33.08	36.94	11.24	18.75	100

*p≤.05, **p≤.01, ***p≤.001 Significant mean difference among type of gender preference

^p≤.05, ^^p≤.01, ^^^p≤.001 Significant overall chi-square for the association between type of gender preference and the predictor variable

TABLE 5: Odds ratios from multinomial logistic regression analyses predicting type of gender preference, Single Males

	Balance pref. vs. No pref.		Son pref. vs. No pref.		Daughter pref. vs. No pref.		Son pref. vs. Balance pref.		Daugther pref.vs. Balance pref.		Daughter pref. vs. Son pref.	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Gender role attitudes												
Traditionalism measure	1.777 ***		2.120 ***		1.213		1.193		0.682 *		0.572 **	
Women's ideal life		1.220 **		1.267 **		0.978		1.040		0.803		0.772 *
Age	0.986 *	0.990	0.998	1.002	0.986	0.987	1.012	1.013	1.000	0.998	0.989	0.985
Educational attainment												
Junior high school	0.811	0.847	1.010	1.068	1.636	1.663	1.246	1.261	2.017 *	1.960 *	1.619	1.557
High school (reference)												
Junior college or vocational school	0.891	0.886	0.688 *	0.683 *	0.483 **	0.479 **	0.772	0.770	0.541 *	0.540 *	0.701	0.701
College or above	0.911	0.876	1.036	0.983	0.810	0.790	1.137	1.122	0.889	0.902	0.781	0.804
Residence												
Rural (reference)												
Urban	1.156	1.119	1.105	1.061	1.440	1.432	0.957	0.948	1.246	1.279	1.303	1.349
Mother's employment status												
Has always worked (reference)												
Returned to work after children grew up	0.920	0.919	1.019	1.023	1.272	1.278	1.107	1.112	1.382	1.390	1.249	1.249
Self-employed	1.035	1.025	1.295	1.282	1.387	1.390	1.251	1.252	1.341	1.356	1.071	1.084
Homemaker	1.023	0.971	1.101	1.039	1.088	1.101	1.077	1.070	1.064	1.135	0.988	1.060
Presence of brothers												
No brothers (reference)												
Have one or more brothers	0.900	0.910	1.158	1.173	0.711	0.718	1.286	1.289	0.790	0.789	0.615 *	0.612 *
Presence of sisters												
No sisters (reference)												
Have one or more sisters	1.074	1.067	1.100	1.092	0.993	0.995	1.024	1.024	0.925	0.933	0.903	0.911
Constant	-0.994 **	-0.380	-3.059 ***	-2.159 ***	-1.928 **	-1.377 *	-2.064 ***	-1.779 ***	-0.933	-0.996	1.131	0.782
Model chi-square	86.16											
Degrees of freedom	33											
n	2,736											

*p≤.05, two tailed test; **p≤.01, two tailed test; ***p≤.001, two tailed test

TABLE 6: Odds ratios from multinomial logistic regression analyses predicting type of gender preference, Single Females

	Balance pref. vs. No pref.		Son pref. vs. No pref.		Daughter pref. vs. No pref.		Son pref. vs. Balance pref.		Daugther pref.vs. Balance pref.		Daughter pref. vs. Son pref.	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Gender role attitudes												
Traditionalism measure	1.261 *		1.039		1.846 ***		0.824		1.464 **		1.777 ***	
Women's ideal life		1.255 ***		1.194 *		1.240 **		0.951		0.988		1.039
Age	0.961 ***	0.961 ***	0.935 ***	0.936 ***	1.000	1.000	0.973	0.974	1.041 ***	1.041 ***	1.069 ***	1.069 ***
Educational attainment												
Junior high school	0.554	0.518	0.978	0.939	1.632	1.536	1.775	1.815	2.962 **	2.968 **	1.668	1.636
High school (reference)												
Junior college or vocational school	1.036	1.055	1.116	1.139	1.350 *	1.332	1.077	1.080	1.303	1.263	1.210	1.169
College or above	0.711 **	0.764	0.909	0.987	0.905	0.907	1.279	1.292	1.273	1.187	0.995	0.919
Residence												
Rural (reference)												
Urban	1.080	1.079 *	1.125	1.133	1.036	1.016	1.042	1.049	0.959	0.942	0.921	0.897
Mother's employment status												
Has always worked (reference)												
Returned to work after children grew up	0.924	0.919	0.719	0.714	0.980	0.986	0.779	0.777	1.061	1.073	1.362	1.380
Self-employed	0.818	0.798	0.909	0.890	0.894	0.875	1.112	1.116	1.094	1.096	0.984	0.982
Homemaker	0.937	0.899	0.771	0.741	0.758	0.740	0.823	0.824	0.809	0.824	0.983	1.000
Presence of brothers												
No brothers (reference)												
Have one or more brothers	1.200	1.206	1.340	1.350	1.010	1.011	1.117	1.119	0.842	0.838	0.754	0.749
Presence of sisters												
No sisters (reference)												
Have one or more sisters	0.797 *	0.803 *	0.940	0.946	1.501 **	1.511 **	1.180	1.179	1.885 ***	1.882 ***	1.598 **	1.597 **
Constant	0.825 *	0.482	0.504	-0.118	-2.474 ***	-1.835 ***	-0.321	-0.600	-3.299 ***	-2.317 ***	-2.979 ***	-1.717 **
Model chi-square	136.48											
Degrees of freedom	33											
n	2,594											

*p≤.05, two tailed test; **p≤.01, two tailed test; ***p≤.001, two tailed test