

DEMOGRAPHIC RESEARCH

A peer-reviewed, open-access journal of population sciences

DEMOGRAPHIC RESEARCH

VOLUME 38, ARTICLE 1, PAGES 1–36

PUBLISHED 3 JANUARY 2018

<http://www.demographic-research.org/Volumes/Vol38/1/>

DOI: 10.4054/DemRes.2018.38.1

Research Article

Still under the ancestors' shadow? Ancestor worship and family formation in contemporary China

Anning Hu

Felicia F. Tian

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Contents

1	Introduction	2
2	Theoretical background	3
2.1	Ancestor worship in China: An overview	3
2.2	Ancestor worship in post-1949 China: Survival and revival	4
2.3	Ancestor worship and family formation: Hypotheses	8
2.4	A note on the state regulation of family formation	10
3	Data and methods	11
3.1	Sample	11
3.2	Measures	11
3.3	Analytical strategies	13
4	Caveats pertaining to the measures of ancestor worship	15
4.1	Subtle differences between the two measures	15
4.2	The meaning of family	16
4.3	Unit of analysis	16
4.4	Endogeneity	17
4.5	Limitations	17
5	Results	18
5.1	Ancestor worship and the timing of transition to first marriage	18
5.2	Ancestor worship and fertility patterns	19
5.3	Ancestor worship and son preference	21
6	Robustness check	22
6.1	Multilevel analyses	22
6.2	Endogeneity	22
6.3	Treatment effect heterogeneity	23
7	Conclusion and discussions	24
8	Acknowledgments	25
	References	26
	Appendix	33

Still under the ancestors' shadow? Ancestor worship and family formation in contemporary China

Anning Hu¹
Felicia F. Tian²

Abstract

BACKGROUND

Ancestor worship in China used to be an indispensable component of marriage and family life because it fostered an orientation toward perpetuating the family line. However, whether or not ancestor worship still matters in contemporary China is an open question.

OBJECTIVE

This article presents a comprehensive study of the association between ancestor worship practices and 1) the timing of transition to first marriage, 2) the pattern of childbearing, and 3) the orientation toward son preference.

METHODS

Drawing on the adult sample from the Chinese Family Panel Studies 2010, several multivariate models (Cox proportional hazard model, probit regression model, negative binomial regression models, and ordered probit model) were fitted, corresponding to different types of outcome.

RESULTS

All else being equal, involvement in ancestor worship practices is correlated with 1) an early transition to marriage, 2) a larger number of children, 3) a higher probability of having at least one son, and 4) a larger number of sons.

CONCLUSIONS

The relevance of the kinship tradition to family formation persists in contemporary China and has not faded away.

CONTRIBUTION

By highlighting the demographic implications of ancestor worship, this study illustrates the ongoing connection between culture and demography.

¹ Fudan University, China. E-Mail: huanning55@hotmail.com.

² Fudan University, China. E-Mail: ftian@fudan.edu.cn.

1. Introduction

Demographers have long been interested in patterns of marriage and family in East Asia (e.g., Jones and Yeung 2014; Raymo et al. 2015). China is characterized by an extended kinship network, strong family identity, hierarchical intergenerational relations, and a moral obligation of filial piety (Cheng and Chan 2006; Chiang 1995; Cohen 1990; Eastman 1988; Freedman 1966; Ikels 2004; Pasternak 1972; Szonyi 2002; Watson 1982; Watson and Watson 2004). An important cultural force underpinning these familial characteristics is ancestor worship, which is defined as a series of rituals, practices, and beliefs that focus on the perpetuation of the family line and reverence for the ancestors (Hu 2016; Yang and Hu 2012).³ According to this cultural tradition, intergenerational ties between the living and the deceased are crucial for the wellbeing of kin, so kinship members, especially the males, are obligated to make sure the family line is continued (Ahern 1973; Ebrey 1995; Feuchtwang 2001; Freedman 1965, 1966; Hsu 1971; Jordan 1972; Lang 1950; Weller 1987). This tradition has many implications for Chinese citizens' marriage and family life patterns (for a review, see Yang, Thornton, and Fricke 1999).

Nevertheless, ancestor worship could have lost its significance. During the Mao era the communist state's attitude toward many traditional practices was hostile, and ancestor worship was harshly suppressed throughout society (Davis-Friedmann 1991; Davis 1993; Parish and Whyte 1978; Whyte 1988; Whyte and Parish 1984). Then, when China introduced comprehensive reforms in the late 1970s, many social transitions, such as population mobility, urbanization, and achievement-based occupational structure, again challenged ancestor worship (Davis and Friedman 2014; Santos and Harrell 2016). Against this backdrop, we explore whether ancestor worship is still relevant to the family life of Chinese people in contemporary China.

To date, only a very limited number of studies have asked this question, and even these few works, to the best of our knowledge, do not try to directly measure ancestor worship practices (e.g., Jin, Li, and Feldman 2007; Lee and Wang 1999; Li and Lavelly 2003). Moreover, these studies mostly focus on son preference, so we know surprisingly little about how ancestor worship is intertwined with other aspects of family formation such as marriage and childbearing. This study is the first to theoretically articulate and empirically investigate the association between ancestor worship practices and different aspects of the family formation process in contemporary China. Specifically, we take advantage of a large-scale, nationally representative survey in our examination of the relationship between ancestor

³ Following the literature on Chinese culture and folk religion, we use the term 'ancestor worship,' which, at least in this study, has the same substantive meaning as other often-used terms such as 'ancestor reverence' and 'ancestor piety.'

worship and 1) the timing of transition to first marriage, 2) the pattern of childbearing, and 3) the orientation toward son preference. By so doing, the unique perspective of this study not only advances our understanding of the demographic patterns of the Chinese but also illustrates a potential partnership between culture and demographic research (Bachrach 2014).

2. Theoretical background

2.1 Ancestor worship in China: An overview

One cultural tradition that supports the extended kinship system in China is ancestor worship (Ahern 1973; Thornton and Fricke 1987; Thornton et al. 1994; Yang, Thornton, and Fricke 1999). In this study we define ancestor worship as the host of rituals, practices, and beliefs that are oriented toward venerating deceased older family members (that is, ancestors) and perpetuating the family line (Freedman 1965, 1966; Hsu 1971; Yang 1961; Yang and Hu 2012).⁴ Ancestor worship has mostly been studied in the field of religious studies, as a type of folk religion (e.g., Yang and Hu 2012). Ancestor worship has also been examined by sinologists and scholars working on Chinese folklore (for a review, see Hu 2016). In this study we are not going to address the nuanced distinctions between the religious and cultural meanings of ancestor worship, but instead we focus on whether ancestor worship practices can be significantly correlated with family life in contemporary China, a subject that has not been fully studied.

The essential idea of ancestor worship is that the afterlife is a natural extension of the earthly world, so the deceased have an unbroken tie with their living descendants, rendering the latter under the ‘shadow’ of the former (Hsu 1971). One moral obligation for the descendants is to ensure the perpetuation of the family line so that the veneration of the ancestors continues in perpetuity.

The two most prevalent practices of ancestor worship in China are compiling and maintaining the family genealogy and venerating the ancestors at the gravesite (e.g. Ahern 1973; Cohen 1990; Hu 2016; Hu and Yang 2014; Freedman 1966). In particular, family genealogy refers to a book-like record, including, but not limited to, the family tree, anecdotes about ancestors, and a list of family rules and disciplines. Perhaps the most important information in the genealogy is the family tree, with the oldest ancestors at the top, the next oldest positioned below them, and the youngest generation at the bottom. The genealogy socializes kinship members

⁴ Other characteristics of Chinese families, such as son preference and patrilineal kinship ideology, are encouraged by but differ in nature from the core meaning of ancestor worship. Therefore, the conceptualization of ancestor worship per se should not include these characteristics.

by familiarizing them with the structure of the kinship system and making descendants aware of their position in the family line. Since ancestor worship regulates kinship ethics according to relative position in a family line in which filial commitment goes from the younger to the older generation and not the other way around, knowledge about one's family tree is critical for the fulfillment of filial responsibilities and maintenance of family identity (Watson 1982). It comes as no surprise that the genealogy correlates with almost all major aspects of family life; for example, newborns' names must be added to the genealogy in a formal ritual that symbolizes the extension of the family line. The genealogy is also related to kinship property rights and local political rights.

Venerating ancestors at the gravesite is another popular means of practicing ancestor worship in China. This ritual involves descendants visiting and cleaning up the ancestral gravesite on occasions such as the death anniversary of an ancestor, the New Year festival, or the Qing Ming festival. In between they usually make offerings to the ancestors (incense, wine, food, or articles made out of paper) to request blessings from the ancestral spirits. Thus, in traditional China ancestor worship was a major component of people's spiritual lives (Ahern 1973; Wolf and Huang 1980; Freedman 1966, 1979; Weller 2006).

In summary, ancestor worship, as a moral value and a spiritual system that unites and socializes family members, was an indispensable element in the everyday life of Chinese people in the traditional era (Dean 1998; Feuchtwang 2001; Freedman 1979; Tsai 2007; Weller 2006). The question is whether ancestor worship still matters in contemporary China. This study approaches that question by investigating the association between ancestor worship practices and various aspects of family formation. Before moving on to our hypotheses, it is necessary to familiarize readers with the sociohistorical background of ancestor worship in post-1949 China.

2.2 Ancestor worship in post-1949 China: Survival and revival

Since the establishment of the People's Republic of China in 1949, the Chinese Communist Party has been hostile to ancestor worship. Reasons for the attempts to eliminate ancestor worship include loyalty rivalries among kinship groups and the conflict between 'superstitious' rituals and atheist ideology (e.g., Davis-Friedmann 1991; Davis 1993; Parish and Whyte 1978; Whyte 1988; Whyte and Parish 1984). Since the 1950s many ancestral halls have been closed or confiscated, and in rural areas ancestral graveyards have been incorporated into farmland. The suppression of ancestor worship was especially intense during the Great Leap Forward and the Cultural Revolution (Goode 1963; Parish and Whyte 1978). In urban areas, ancestor worship practices disappeared almost entirely. For example, cremation replaced

burial and became universal (Whyte 1988). In addition, the newly implemented work unit (*danwei*) system made it extremely difficult for full-time urban residents to participate in the time-consuming ancestor worship rituals (Whyte and Parish 1984).

However, with the initiation of the Reform of the late 1970s the trajectory of ancestor worship became unclear. On the one hand, the comprehensive social transition characterized by marketization was expected to undermine traditional culture, norms, and customs, therefore attenuating the significance of ancestor worship in people's family life. This has been supported by studies conducted in Taiwanese society (Thornton and Fricke 1987; Thornton et al. 1994; Yang, Thornton, and Fricke 1999) where industrialization, expansion of education, urbanization, population mobility, and diffusion of Western culture were all found to weaken the demographic relevance of ancestor worship.

On the other hand, some studies suggest a revival of ancestor worship in the Reform Era. Readers should note that the suppression during the Mao era did not totally succeed in eliminating ancestor worship from society. In fact, many traditional rituals, such as burials, were preserved in rural areas (Davis-Friedmann 1991; Whyte 1988). For urbanites, the dismantling of ancestor worship rituals and facilities did not eliminate the values of ancestor worship, such as a strong sense of continuity between this world and the next and obligations to kin (Whyte 1988). In fact, in the reform era the lifting of harsh and suppressive state policies precipitated a revival of ancestor worship (Hu 2014, 2016, 2017b; Hu and Leamaster 2013). This has received empirical support. For instance, kin exert informal control over their fellow kin in contemporary China, attenuating the influence of the birth-planning policy (Peng 2010) and promoting "norms of civic solidarity that help establish and enforce moral obligations to contribute to the community" (Tsai 2007: 185). Drawing on the first nationwide survey of Chinese citizens' spiritual lives, Yang and Hu (2012) report that 182 million Chinese adults embrace ancestor worship practices and beliefs in Reform Era China. This survey-based evidence echoes the large number of ethnographic studies that show a trend toward revitalization of traditional culture, including ancestor worship (e.g. Chau 2006; Dubois 2005; Goossaert and Palmer 2011; Grim 2008; Nedostup 2010; Yang 2011).

To illustrate the current prevalence of ancestor worship practices, in Figure 1 we present the spatial distribution of the two practices of ancestor worship that are examined in this article: having a family genealogy and visiting the gravesite of ancestors.⁵

⁵ Figure 1 is based on raw data.

Figure 1: Province-level prevalence of ancestor worship practices in contemporary China

a) Having a genealogy

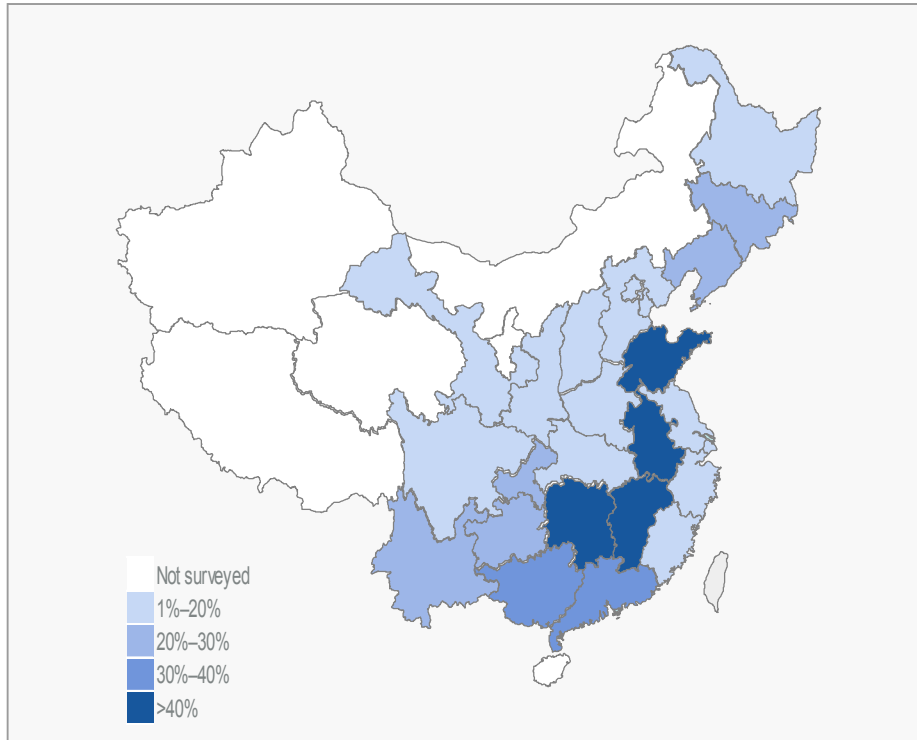
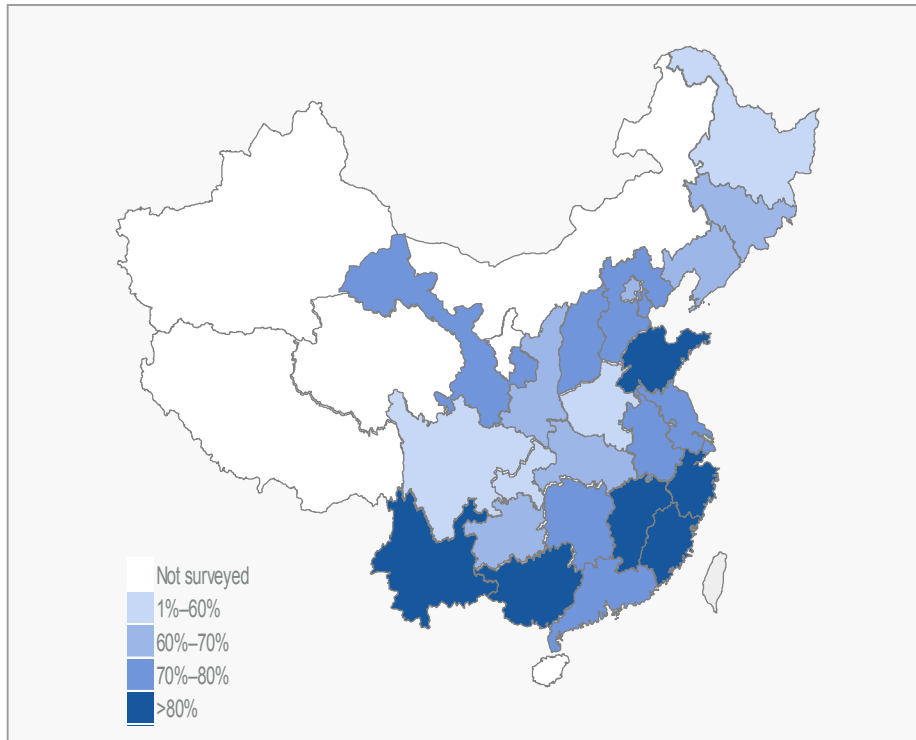


Figure 1: (Continued)**b) Visiting the gravesite**

Data source: the CFPS 2010.

As shown in Figure 1, having a family genealogy is common in many provinces. In both Guangdong and Guangxi over 30% of the residents reported having a family genealogy, and over 40% in the four provinces of Shandong, Anhui, Jiangxi, and Hu'nan. Regarding the practice of visiting the gravesite of ancestors, Shandong, Guangxi, Yunnan, Jiangxi, Zhejiang, and Fujian provinces stand out in their high percentage of practitioners (over 80%), while several other provinces report over 70%.

The descriptive spatial distributions of ancestor worship practices suggest that ancestor worship has become distinctly popular in Reform Era China, and therefore whether ancestor worship practitioners show particular demographic patterns is of real interest.

2.3 Ancestor worship and family formation: Hypotheses

The process of family formation can be defined as the progression through marriage and parenthood (e.g., Blossfeld and Huinink 1991; Schleifer and Chaves 2014). Previous studies of ancestor worship mostly cover one particular aspect of parenthood as an indicator of son preference: the sex composition of the children (e.g., Almond, Edlund, and Milligan 2013; Guilmoto 2012; Jin, Li, and Feldman 2007; Lee and Wang 1999; Li and Lavelly 2003). The potential correlations between ancestor worship and the other aspects of family formation are still unclear, and are examined in this study.

Our first hypothesis is that ancestor worship is correlated with early marriage.⁶ As discussed above, one major component of the obligation entailed by ancestor worship is perpetuating the family line. Since childbearing out of wedlock is uncommon in China there is good reason to suspect that ancestor worship encourages people to marry early so as to move a step closer to the fulfillment of the family continuation obligation (Ahern 1973; Freedman 1979; Hsu 1971; Wolf and Huang 1980). Because of this, parents often encourage early marriage, since marriage signifies the child's independence and the formal extension of the bloodline (Yang, Thornton, and Fricke 1999). The status of parents is also promoted to a more senior level in the genealogy, while responsibility for succession of the family line is passed down to the younger couples.

H1: All else being equal, on average people who practice ancestor worship, marry at a younger age than those who do not.

Second, ancestor worship is linked to particular patterns of childbearing. The moral obligation of bloodline perpetuation correlates with a pronatal orientation: Hence, on average ancestor worship practitioners should be more inclined toward childbearing than those who do not practice ancestor worship (Yang 1995). It is worth mentioning that the emphasis on fertility even overrides son preference, because the birth of a daughter, although not ideal according to the patriarchal norm, is still superior to infecundity on the part of the daughter-in-law (Yang, Thornton, and Fricke 1999). Specifically, the strong disposition toward childbearing is embodied in ancestor worship practitioners 1) being less likely to be childless, 2) having a shorter duration from marriage to first birth, and 3) having a larger number of children.

⁶ In addition to the timing of first marriage, we also looked into the relationship between ancestor worship and marriage per se. However, the percentage of those who were married, divorced, or separated in the CFPS 2010 is as high as 86.13%, which calls into question the substantive effect of ancestor worship. When using the two measures of ancestor worship to predict the probability of being married, divorced, or separated, neither is statistically significant.

H2: *All else being equal, on average people who practice ancestor worship have a higher probability of having at least one child (that is, they are less likely to be childless), relative to those who do not.*

H3: *All else being equal, on average people who practice ancestor worship have a shorter duration from marriage to first birth, relative to those who do not.*

H4: *All else being equal, on average people who practice ancestor worship have a larger number of children, relative to those who do not.*

Regarding these hypotheses, one caveat is that the likelihood of having at least one child refers to a different demographic indicator from the number of children, and their distinction is subject to the urban-versus-rural difference in the implementation of the birth-planning policy (the so called one-child policy) – i.e., the birth-planning policy is less radical in some rural areas. Because of this, in the following analyses we control for the sample location (urban or rural). Readers should note that among the urban cases the number of children is not always uniform. In fact the variation in the number of urban children is similar to that of rural children – the standard deviation is 1.23 for the urban sample and 1.42 for the rural sample.

Lastly, ancestor worship is associated with the propensity for son preference. Son preference is common in many parts of the world and has been shown to be strongly related to ancestor worship (Gaudin 2011; Murphy, Tao, and Lu 2011; Guilмото 2012). In China the patrilineal nature of the kinship system, where only male descendants are qualified to continue the family line, is one important mechanism that connects ancestor worship with son preference (Hu 2017a; Santos and Harrell 2016). According to this norm, a daughter is a transitory member of her natal family, as after marriage she becomes a permanent member of her husband's family. As a result, in traditional China a married-out daughter was not expected to provide much support to her natal parents (e.g., Baker 1979; Freedman 1970; Hsu 1971), nor was she qualified to claim her natal parents' property.⁷

Hence, the patrilineal nature of ancestor worship encourages its followers to prefer a son to a daughter, based on the incentive of guaranteeing at least one son to perpetuate the bloodline. This preference has been put into practice through the widely noted sex-selection practices in China, such as sex-selective abortion and

⁷ Some changes in this patrilineal pattern have been noted in recent decades. For instance, increasingly many studies have detected filial practices by daughters (e.g., Hu 2017; Liu 2014; Shi 2009; Santos and Harrell 2016; Xie and Zhu 2009). Also, the Family Law states that both daughters and sons are eligible to inherit. These changes may attenuate the connection between ancestor worship and son preference.

female infanticide (Coale and Banister 1994; DeLugan 2013).⁸ In addition, we suspect that son preference, as implied in the old Chinese saying “The more sons, the more blessings,” might encourage larger numbers of sons (Whyte 2004).⁹ Altogether, the following hypotheses are proposed:

H5: All else being equal, on average people who practice ancestor worship , have a higher likelihood of having at least one son, relative to those who do not.

H6: All else being equal, on average people who practice ancestor worship have a larger number of sons, relative to those who do not.

It is necessary to mention that the number of sons and whether or not one should have at least one son involve distinct aspects of family-line perpetuation. The presence of at least one son is the minimum requirement for the continuity of the family line. The number of sons is connected to whether or not a family is vibrant, meaning that there is the possibility of selecting the most qualified descendant from many candidates to shoulder the kinship group. Thus, different motives are at play in these two indicators of son preference. This difference can be empirically illustrated by the fact that among those who have at least one son in our data the average number of sons is 1.45, with a standard deviation of 0.74. Hence, despite China’s low fertility, these two variables should be treated as distinct from each other.

2.4 A note on the state regulation of family formation

It is well known that Chinese citizens have been subject to state regulation of family formation behavior. Until 2013, birth planning policy restricted fertility to one child per family for urban people and two children per family for minority groups and rural people if the first child was a daughter. The state also encouraged late marriage by setting the minimum age for the first marriage at 22 for men and 20 for women. These regulations were effective in delaying marriage formation and limiting family size in China (e.g., Ebenstein 2010)

⁸ There are some other reasons for son preference in China. For instance, rural residents prefer a son to a daughter to ensure male labor supply in labor-intensive agricultural production. Son preference is also related to the traditional pattern of eldercare in which old age wellbeing is maintained by sons, and the more sons one has, the more prosperous one is in old age.

⁹ However, readers should note that the total number of sons is used here as an ancillary and suggestive indicator of son preference, since other mechanisms could be at play such as the desire to have an ideal sex composition.

This state regulation affects our results. If ancestor worship encourages early marriage and larger families, as we hypothesize, these regulations will make the effect more difficult to observe due to the legal limits on age at first marriage and family size. In other words, by creating a floor for age at first marriage, those with more intense ancestor worship involvement would have to marry later than if the policy had not been in place. Also, a cap on family size means that those with stronger ancestor worship involvement would have more children if the policy were not in place.

It is beyond the scope of this article to evaluate the interaction between ancestor worship and state regulation (see Peng 2010 on this issue). However, we want to point out that our findings may underestimate the impact of ancestor worship on Chinese family life because of these state regulations. As we show below and as we hypothesize, even under these conditions, ancestor worship practices are still significantly associated with the family formation process in China, given the influence of the country's unique sociopolitical regime.

3. Data and methods

3.1 Sample

The data used in this study comes from the adult sample of the China Family Panel Studies (CFPS) 2010 (Xie and Hu 2014). The CFPS 2010 is a nationally representative survey, which focuses on the economic and noneconomic wellbeing of Chinese citizens. Multistage probability-proportional-to-size sampling (PPS) was adopted, where the primary sampling unit (PSU) was administrative districts and counties, the second-stage sampling unit (SSU) was administrative villages or urban neighborhoods, and the third-stage (ultimate) sampling unit (TSU) was households. With this sampling design, the CFPS 2010 is based on a sample of the population across 25 provinces/cities/autonomous regions in China, excluding Hong Kong, Macao, Taiwan, Xinjiang, Qinghai, Inner Mongolia, Ningxia, and Hainan. Accounting for about 95% of the national population, the CPFS 2010 sample can be regarded as representative at the national level. In this study we use the adult sample with valid information for all of the variables. The final sample size is 10,410.

3.2 Measures

Corresponding to the six hypotheses, this study examines six outcome variables, which are, respectively, 1) the timing of the transition to first marriage, 2) the

probability of having at least one child, 3) the duration from marriage to first birth, 4) the total number of children, 5) the probability of having at least one son, and 6) the total number of sons.

The outcome variable ‘the timing of the transition to first marriage’ has been used in prior studies to characterize the propensity for union formation in China (Tian 2013). The likelihood of having at least one child serves as a basic indicator of fertility. Moreover, since those who have a strong fertility propensity are likely to give birth to children earlier as well as to have more children, both the duration from marriage to first birth and the total number of children should be examined. The CFPS 2010 unfortunately does not provide direct attitude measures regarding son preference. Therefore, we assume that if a son is preferred over a daughter an attempt will be made to have at least one son. As a result, on average this group of respondents would show a higher probability of having at least one son, which is an indirect measure of son preference. In addition, as discussed earlier, we also examine the total number of sons.

The key predictor is ancestor worship, which is measured by two questions, about keeping a family genealogy and visiting the gravesite of ancestors: Does your family have a genealogy? (1 = Yes; 0 = No). Does your family regularly visit the gravesite of ancestors? (1 = Yes; 0 = No). These two questions are theoretically valid in light of the discussion presented earlier. The quality of these two measures is supported by the fact that they have been widely used and examined in previous studies, both qualitatively and quantitatively (Ahern 1973; Hu 2016; Hu and Yang 2014; Yang and Hu 2012). More discussion of these two measures is presented below.

Several control variables are considered, including gender (1 = female; 0 = male), age, age squared, individual annual income (log transformed), educational attainment (years of formal schooling), ethnicity (1 = Han; 0 = Other), political identity (1 = member of the Chinese Communist Party; 0 = otherwise), region of residence (1 = urban area; 0 = rural area), education of respondent’s parents (years of formal education), age of respondent’s parents, political identity of respondent’s parents (1 = member of the Chinese Communist Party; 0 = otherwise), number of siblings, and dummies for provincial administrative units. For the childbearing analysis we also take into account the duration from the year of marriage to the survey year.

The control covariates ‘gender,’ ‘age,’ ‘age squared,’ and ‘individual annual income’ are basic sociodemographic variables that should always be considered. Educational attainment matters because well-educated people are more likely to embrace modern values and ideas and are less likely to be subject to traditional culture (O’Keeffe 2003). Similarly, the educational attainment of respondents’ parents is relevant in light of its correlation with whether or not the home environment promotes ancestor worship. Ethnicity is controlled for to accommodate

the specific population policies toward minorities. Ancestor worship might be most prevalent among the people of Han ethnicity due to the influence of Confucianism. The political identity of the respondents and of their parents is also taken into account. For example, Communist Party (CCP) membership, due to the CCP's atheist ideology, could be negatively correlated with involvement in ancestor worship practices: CCP members face severe sanctions if they violate the birth-planning policy. Region of residence is considered to control for the urban-versus-rural variation in the implementation of the birth-planning policy. Similarly, the province dummies serve as fixed-effect terms to deal with the notable cross-provincial differences in the prevalence of ancestor worship, shown in Figure 1.¹⁰ Age of respondents' parents influences engagement in ancestor worship practices, as older parents are often in greater need of support from children. The number of siblings determines the size of the family, and ancestor worship is more often practiced in large families. Lastly, the duration from the year of marriage to the survey year is related to the age of the marriage, which is clearly associated with the pattern of childbearing. More detailed statistics of these covariates can be found in the Appendix (Table A-1).

3.3 Analytical strategies

Several multivariate models were fitted in this study. Specifically, H1 and H3 entail a duration outcome variable, so we used the Cox proportional hazard model, configured as follows:

$$h(t)_{\text{marriage}} = h_0(t)_{\text{marriage}} \exp(\beta_{\text{marriage}} \text{Ancestor Worship} + \mathbf{X}\boldsymbol{\beta}) \quad (1)$$

$$h(t)_{\text{first birth}} = h_0(t)_{\text{first birth}} \exp(\beta_{\text{first birth}} \text{Ancestor Worship} + \mathbf{X}\boldsymbol{\beta}) \quad (2)$$

One merit of the Cox proportional hazard model is its flexibility and convenience for interpretation. In these two models, $h(t)_{\text{marriage}}$ and $h(t)_{\text{first birth}}$ are respectively the hazard of getting married and the hazard of having a first birth. The baseline hazards for the two models, which are unspecified, are denoted respectively by $h_0(t)_{\text{marriage}}$ and $h_0(t)_{\text{first birth}}$, where the subscript 0 highlights their baseline property. $\mathbf{X}\boldsymbol{\beta}$ refers to the product of the coefficient vector and the matrix of the control variables. Our interest is in β_{marriage} and $\beta_{\text{first birth}}$.

In Model (1), time (t) is measured as the years from the legal marriage age to the age at first marriage. The Marriage Law of 1951 set the legal marriage age at 20

¹⁰ Province-level fixed effects, as such, could not control for within-province variation, so not all levels of Skinner's hierarchical regional space model are considered.

for males who got married between 1951 and 1981, and 18 for females. In 1981 a new Marriage Law was launched and the legal marriage age was raised to 22 for men and 20 for women. The marriage age for those who got married after 1981 was configured accordingly. Respondents who were not married at the time of the survey (2010) were treated as right-censored cases. Note that not everyone adheres to the Marriage Law,¹¹ so we conducted a robustness check with the legal marriage age set at 16 for both men and women.¹² For Model (2), time (t) refers to the years between marriage and first birth. Married individuals with no child at the time of the survey were coded as right-censored.

One potential concern with Model (1) is that the risk of marriage at exposure duration t can vary by cohort, which raises questions about the proportional hazard assumption. In our supplementary analysis (not shown) the proportional hazard assumption was violated for the predictor of venerating ancestors at the gravesite (ρ test = 0.048, $p = 0.023$). To resolve this concern, we stratified our sample by cohort and then refitted Model (1). The proportional hazard assumption is now satisfied (ρ test = 0.034, $p = 0.120$). The proportional hazard assumption is met for Model (2).

Another concern regarding Models (1) and (2) is that at the time of the survey the reported ancestor worship practices refer to the families of the married women's husbands, but to the natal family of the unmarried women. This discrepancy calls into question the analysis of marriage timing for the female subsample. Thus, in both models we had to restrict our focus to the male subsample. This is by no means ideal for our research, but by doing so we can at least partially investigate how ancestor worship is related to the marriage timing of adult males in China.

For H2 and H5 we used the probit model to see how ancestor worship is linked to the probability of having at least one child (denoted as P_{child}) and at least one son (denoted as P_{son}), as presented respectively in Model (3) and Model (4). In these two models, Φ is the cumulative distribution function of the standard normal distribution. Other notations are the same as in models (1) and (2).

$$P_{\text{child}} = \Phi(\beta_{\text{child}} \text{Ancestor Worship} + \mathbf{X}\boldsymbol{\beta}) \quad (3)$$

$$P_{\text{son}} = \Phi(\beta_{\text{son}} \text{Ancestor Worship} + \mathbf{X}\boldsymbol{\beta}) \quad (4)$$

H4 and H6 concern the counts of children and sons, respectively, so we fitted two negative binomial regression models, as shown in Model (5) and Model (6). The negative binomial regression model has the advantage of being less sensitive to

¹¹ Also, the marriage age might fluctuate in periods of turmoil, such as the Cultural Revolution.

¹² Due to the well-implemented compulsory nine years of education where the age for starting school is set at 7, early marriage before 16 should be relatively rare.

data over-dispersion than the Poisson model. If over-dispersion is not severe, this model reports similar results to those of the Poisson model (McCullagh and Nelder 1989). In Model (5) and Model (6) we are interested in $\beta_{N\text{children}}$ and $\beta_{N\text{sons}}$. The terms $\varepsilon_{N\text{children}}$ and $\varepsilon_{N\text{sons}}$ denote the random errors that follow the negative binomial distribution.

$$\text{Number of children} = \beta_{N\text{children}} \text{Ancestor Worship} + \mathbf{X}\boldsymbol{\beta} + \varepsilon_{N\text{children}} \quad (5)$$

$$\text{Number of sons} = \beta_{N\text{sons}} \text{Ancestor Worship} + \mathbf{X}\boldsymbol{\beta} + \varepsilon_{N\text{sons}} \quad (6)$$

However, the number of children and the number of sons, based on the descriptive information, may not follow the negative binomial distribution well. One alternative approach is to recode these two variables into ordinal ones, and then apply the ordered probit model. Analytical results based on the ordered probit model were reported as a robustness check.

In the fertility and son-preference models we excluded cases with premarital births. This operation did not substantively alter the results of our analyses as premarital pregnancies and births are rare in China (Tian 2016; Yeung and Hu 2013). This can be affirmed empirically by the fact that the percentage of respondents whose marriage age is higher than the childbearing age in the CFPS 2010 is only around 2%.

It is necessary to mention that our main analyses are based on individuals, so where multiple members from the same family were surveyed a sample clustering effect might emerge. To accommodate this concern we computed and reported the standard error clustered by household (Wooldridge 2003).

4. Caveats pertaining to the measures of ancestor worship

4.1 Subtle differences between the two measures

Although both having a genealogy and visiting the gravesite have been widely used to gauge ancestor worship practices, subtle differences between these measures vis-à-vis the outcomes of interest should be mentioned. One difference lies in the mechanism of influence. Visiting the gravesite, as discussed earlier, is ritualistic. Other than on specific occasions, family members do not have to engage in this practice. By contrast, the genealogy, as long as it is on display, is always present in the home as a symbolic article. Although family members do not have to read it every day, as long as they are aware of its presence, culturally speaking, the genealogy bears symbolic meaning that goes beyond its physical accessibility. The

other difference between these two measures concerns the extent of routinization. Today, visiting the gravesite tends to be a routine custom rather than a sacred ritual, especially since the state recognized the Qing Ming festival as a national holiday in 2008. Hence, it is possible that some practitioners of this type of ancestor worship are not fully driven by a belief in continuing the family line. The concern for genealogy is much less serious, since almost all activity related to family genealogy is for the purpose of ancestor veneration in contemporary China. In light of these differences, although more respondents reported visiting the gravesite (70.79%) than reported having a family genealogy (22.54%), we expect a stronger effect for the latter than the former.

4.2 The meaning of family

Since ancestor worship is a family-wide practice, it is measured at the household level instead of the individual level in the CFPS 2010. The 2010 CFPS respondents were explicitly informed that in these two ancestor worship questions the household refers to the male line, so for married female respondents the items on ancestor worship refer to the characteristics of their residing family rather than their natal family. This design, as discussed above, has the drawback of concealing the potential effect of ancestor worship in the women's natal family. However, by focusing on the males, this study at least partially facilitates our understanding of the association between ancestor worship practices and marriage timing.

4.3 Unit of analysis

A unique data structure of this study is that the ancestor worship items are household-level measures while the other covariates are gauged on the individual level. To accommodate this unit-of-analysis difference, we assume that if a household reported having a genealogy or visiting the gravesite, the members of that family would answer positively to the ancestor worship questions. This assumption makes practical sense. All, and only, family members hold the genealogy, so all family members should report the same answer as the family representative in the CFPS 2010. Not all family members have to visit the gravesite. Rather, one (usually the oldest son) or some family representatives visit the gravesite on behalf of all family members. This does not mean that the practice of visiting the gravesite only affects the oldest son; therefore we do not make a distinction between the respondents themselves actually participating in ancestor worship activities and their demographic behaviors being influenced by the ancestor

worship practices of other family members. In light of the collectivist nature of ancestor worship, we believe either case serves to reveal the demographic implications of ancestor worship.

To check the robustness of our conclusions in relation to the discrepancies in the unit of analysis, we fitted a multilevel model by treating the two measures of ancestor worship as upper-level predictors relative to the individual-level control covariates and outcome variables. Analytical results were compared with those of the non-multilevel ones.

4.4 Endogeneity

The cross-sectional design of the CFPS 2010 determines that the detected associations between ancestor worship practices and outcome variables represent the partial correlations, and we are not able to ascertain a strict causal effect (Hu and Mustillo 2016). For example, the reverse direction of an effect is possible when a family formation transition, e.g., having a child, encourages a family member to get involved in ancestor worship activities. This concern can be viewed as a type of endogeneity bias, and because of it readers should be cautious when interpreting the empirical findings.

Notwithstanding this concern, previous studies have suggested that ancestor worship practices are usually learned in the formative stage of the life course (e.g., Hu and Yang 2014). That is, Chinese adults, through mechanisms such as childhood socialization, are likely to learn ancestor worship practices before they make decisions pertaining to marriage and childbearing. In light of this it is reasonable to view ancestor worship as a predictor rather than a consequence. To formally evaluate the impact of the endogeneity bias, propensity score analysis (PSA) was conducted.

4.5 Limitations

As mentioned earlier, few previous studies have deployed direct measures of ancestor worship practices, and to date the CFPS 2010 is the only nationwide survey that provides such items for demographic research. Despite this merit, there is still room for further refinement of the measures. For example, the survey items are relatively coarse, revealing no information regarding how and when the family genealogy was established, or how frequently the ritual of visiting the gravesite was performed. In addition, the two measures are inadequate to capture people's subjective advocacy of the moral obligations entailed by ancestor worship. In fact,

without more direct evidence – i.e., an interview or a direct motive survey item – this concern cannot be fully resolved.

5. Results

5.1 Ancestor worship and the timing of transition to first marriage

The result of the Cox proportional hazard model for the timing of transition to first marriage is presented in Table 1. As shown, having a genealogy significantly increases the hazard of marriage (coefficient = 0.08) at the 0.05 level. That is, all else being equal, families that have a genealogy show an 8% higher risk of getting married at any duration ($\exp^{0.08}-1$) than families that have no genealogy. The effect of visiting the gravesite is also significant at the 0.05 level (coefficient = 0.09), which means that the risk of marriage is advanced by 9% at any duration due to practicing the ritual of visiting the gravesite of ancestors ($\exp^{0.09}-1$). Altogether, H1 is supported.

To check the robustness of the analysis to the way of configuring the legal age of marriage, we performed the Cox proportional hazard model by setting the legal age of marriage at 16 for both men and women (not shown here). Consistent results were obtained, supporting the robustness of our conclusion.

Table 1: Results of the Cox proportional hazard model for the duration to first marriage

	(1)		(2)	
Having a genealogy	0.08*	(0.04)		
Visiting the gravesite			0.09*	(0.04)
Age†	0.06		0.01	
Age squared	<0.01	(<0.01)	<0.01***	(<0.01)
Educational attainment	-0.02**	(<0.01)	-0.01**	(<0.01)
Log annual income	0.01*	(<0.01)	0.01*	(<0.01)
Ethnicity (Han)	-0.02	(0.09)	-0.02	(0.09)
Region (Urban)	-0.21***	(0.04)	-0.21***	(0.04)
CCP membership (yes)	-0.05	(0.05)	-0.06	(0.05)
Educational attainment of the respondent's father	-0.01**	(<0.01)	-0.01**	(<0.01)
Age of the respondent's father	-0.02***	(<0.01)	-0.02***	(<0.01)
Political identity of the respondent's father (1= CCP membership)	0.07	(0.05)	0.07	(0.05)
Educational attainment of the respondent's mother	-0.01	(0.01)	-0.01*	(<0.01)
Age of the respondent's mother	<0.01	(<0.01)	0.01	(<0.01)
Political identity of the respondent's mother (1= CCP membership)	-0.02	(0.10)	-0.02	(0.10)
Number of siblings	0.01	(0.02)	0.01	(0.02)
Dummies of provincial-level administrative units	yes	yes	yes	yes
Wald chi ²	264.22***		388.60***	
N	2,602		2,611	

Note: Clustered standard errors in parentheses. Original coefficients are reported. Only male sample is used. Analyses were stratified by cohort.

† no standard error is reported due to the stratification of cohort.

* p < 0.05, ** p < 0.01, *** p < 0.001 (two-tailed test).

Data source: CFPS 2010.

5.2 Ancestor worship and fertility patterns

The empirical findings regarding the connection between ancestor worship and fertility are reported in Table 2.¹³ Although the point estimates for the two measures of ancestor worship practice are both positive, neither are statistically significant with regard to the likelihood of having at least one child (Models [1] and [2]) and the duration from marriage to first birth (Models [3] and [4]). In this regard, the empirical evidence for H2 and H3 is rather weak.

Analytical results regarding the number of children are shown in Model (5). Having a genealogy has a significant and positive effect, while visiting the ancestral gravesite fails to exert a significant effect. In this regard, H4 receives only partial support. Note that this empirical pattern is affirmed by the ordered probit model, where the coefficient for having a genealogy is 0.33 and it is statistically significant at the 0.001 level. The point estimate for visiting the gravesite is 0.06, but it is not significant.

¹³ If we considered both unmarried and married respondents, similar results would be obtained.

Table 2: Effect of ancestor worship on fertility patterns

	Probability of having at least one child		Duration to first birth		Number of children	
	(1)	(2)	(3)	(4)	(5)	(6)
Having a genealogy	0.12	0.16	0.01	0.03	0.06***	0.01
Visiting the gravesite						
Female	-0.03	-0.04	-0.01	(0.02)	-0.03***	<0.01
Age	0.61***	0.62***	-0.04***	(0.01)	0.08***	0.09***
Age squared	-0.01***	-0.01***	0.00***	<0.01	-0.00***	-0.00***
Educational attainment	-0.03	-0.04	0.01	<0.01	-0.01***	<0.01
Log annual income	-0.05***	-0.05***	0.00	<0.01	-0.00***	-0.00*
Ethnicity (Han)	0.14	(0.24)	0.12	(0.04)	-0.09***	(0.03)
Region (Urban)	0.01	(0.15)	0.00	(0.02)	-0.12***	(0.01)
CCP membership (yes)	-0.24	(0.27)	0.04	(0.04)	-0.05*	-0.05*
Educational attainment of the respondent's father	-0.03	(0.02)	0.00	<0.01	-0.00***	<0.01
Political ID of the respondent's father (1 = CCP membership)	-0.00	(0.02)	0.00	<0.01	-0.00**	<0.01
Educational attainment of the respondent's mother	-0.03	(0.19)	0.00	(0.03)	-0.04*	(0.01)
Age of the respondent's mother	-0.00	(0.01)	-0.00	<0.01	-0.00**	<0.01
Political ID of the respondent's mother (1 = CCP membership)	-0.00	(0.02)	-0.00	<0.01	-0.00	<0.01
Number of siblings	0.53	(0.45)	0.55	(0.07)	-0.02	(0.05)
Duration from marriage to the survey year	0.08	(0.06)	0.09	(0.01)	0.02***	(0.01)
Dummies of provincial-level admin. units	0.40***	(0.04)	0.40***	#	0.03***	<0.01
Intercept	yes	yes	yes	yes	yes	yes
	-11.47***	(1.93)	-11.34***	(1.91)	-1.27***	(0.19)
Wald chi ²	312.17***	314.22***	165.63***	170.04***	3471.07***	3429.87***
N	6,906	6,933	5,169	5,191	6,906	6,933

Note: Clustered standard errors in parentheses.
 # This variable was left out in this model due to the constructive similarity with the dependent variable.
 * p < 0.05, ** p < 0.01, *** p < 0.001 (two-tailed test).
 Data source: the CFPS 2010.

5.3 Ancestor worship and son preference

The effect of ancestor worship on the extent of subscribing to the norm of son preference is confirmed by our empirical analyses (Table 3). Specifically, both measures of ancestor worship practice have a significantly positive correlation with the probability of having at least one son, controlling for the other sociodemographic features (the coefficients are respectively 0.34 and 0.16 for having a genealogy and visiting the gravesite). These findings support H5.

Table 3: Effect of ancestor worship on son preference

	Probability of having at least one son				Number of sons			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Having a Genealogy	0.34***	(0.08)			0.12	(0.03)		
Visiting the gravesite			0.16*	(0.07)			0.06*	(0.02)
Female	-0.10	(0.05)	-0.10	(0.05)	-0.04*	(0.02)	-0.04*	(0.02)
Age	0.29***	(0.03)	0.29***	(0.03)	0.10***	(0.01)	0.10***	(0.01)
Age squared	-0.00***	(<0.01)	-0.00***	(<0.01)	-0.00***	(<0.01)	-0.00***	(<0.01)
Educational attainment	-0.04***	(0.01)	-0.04***	(0.01)	-0.02***	(<0.01)	-0.02***	(<0.01)
Log annual income	-0.01	(0.01)	-0.01	(0.01)	-0.00	(<0.01)	-0.00	(<0.01)
Ethnicity (Han)	-0.07	(0.13)	-0.04	(0.01)	-0.08	(0.04)	-0.07	(0.04)
Region (Urban)	-0.35***	(0.08)	-0.34***	(0.08)	-0.13***	(0.02)	-0.13***	(0.02)
CCP membership (yes)	0.01	(0.11)	0.02	(0.11)	-0.02	(0.04)	-0.02	(0.04)
Educational attainment of the respondent's father	-0.01	(0.01)	-0.01	(0.01)	-0.01*	(<0.01)	-0.01	(<0.01)
Age of the respondent's father	-0.02*	(0.01)	-0.02*	(0.01)	-0.01**	(<0.01)	-0.01**	(<0.01)
Political identity of the respondent's father (1= CCP membership)	-0.03	(0.08)	-0.04	(0.01)	-0.01	(0.03)	-0.01	(0.03)
Educational attainment of the respondent's mother	0.00	(0.01)	0.00	(0.01)	-0.01	(<0.01)	-0.01	(<0.01)
Age of the respondent's mother	0.01	(0.01)	0.00	(0.01)	0.00	(<0.01)	0.00	(<0.01)
Political identity of the respondent's mother (1= CCP membership)	0.28	(0.21)	0.27	(0.21)	0.04	(0.07)	0.05	(0.07)
Number of siblings	0.06*	(0.03)	0.08**	(0.03)	0.02**	(0.01)	0.02	(0.01)
Duration from marriage to the survey year	0.09***	(0.01)	0.09***	(0.01)	0.03***	(<0.01)	0.03**	(0.01)
Dummies of provincial-level administrative units	Yes	yes	yes	yes	yes	yes	yes	yes
Intercept	-4.57***	(0.66)	-4.36***	(0.65)	-2.29***	(0.31)	-2.22***	(0.36)
Wald Chi ²	706.48***		709.08***		1,155.55**		1,140.46**	
N	6,906		6,933		6,906		6,933	

Note: Clustered standard errors in parentheses.

* p < 0.05, ** p < 0.01, *** p < 0.001 (two-tailed test).

Data source: CFPS 2010.

In Table 3 we present the analytical results pertaining to the relationship between ancestor worship and the number of sons. Again, ancestor worship practitioners show a higher probability of having more sons than non-practitioners (0.12 for having a family genealogy and 0.06 for visiting the gravesite). Such an effect is statistically significant, buttressing H6. These results are consistent with those based on the ordered probit model, where the coefficient for having a

genealogy is 0.34 (p value < 0.001) and the coefficient for visiting the gravesite is 0.16 (p < 0.05).

6. Robustness check

6.1 Multilevel analyses

As discussed earlier, ancestor worship practices are measured at the household level, which is different from the individual-level control and outcome variables. Although we do not think that these unit-of-analysis discrepancies are a major issue, we conducted a series of multilevel analyses as a robustness check. The results can be found in Appendix Table A-2. The directions of the point estimates are generally the same as those reported in the main text. Moreover, except for the effect of visiting the gravesite on the number of sons, all the other multilevel estimates retain statistical significance. In general, multilevel modelling makes no material change to our substantive conclusions.

6.2 Endogeneity

To check the robustness to the endogeneity bias, we performed the PSA. PSA is a popular and handy approach for statistically checking the influence of the endogeneity bias (Imbens and Rubin 2015; Hu and Mustillo 2016; Vansteelandt and Daniel 2014). Applying PSA, we first predicted, using logistic regression, each respondent's probability of having a genealogy as well as their probability of visiting the gravesite, conditional on a series of covariates. Subsequently we controlled for the estimated propensity scores in the six multivariate models presented earlier. What is of interest is whether or not substantial changes in the estimated coefficients emerge. If not, we have evidence of analytical robustness.

The covariates used to predict the propensity score include gender, age, ethnicity, region of residence, educational attainment, log-transformed income, whether or not the respondent's father is alive, whether or not the respondent's mother is alive, self-reported health status (1 = very healthy; 2 = healthy; 3 = neutral; 4 = unhealthy; 5 = very unhealthy), the number of the respondent's siblings, the perceived importance of being missed posthumously (1 = not important at all; 2 = not important; 3 = neutral; 4 = important; 5 = very important), the perceived importance of family line perpetuation (1 = not important at all; 2 = not important; 3 = neutral; 4 = important; 5 = very important), and the dummies for the province of birth. The results of the logistic regression model predicting the

propensity score can be found in the Appendix (Table A-3). To check the covariate balance between ancestor worship practitioners and non-practitioners, in Table A-3 we also present the results of the propensity-score adjusted logistic regression models. It is evident that significant predictors in Models (1) and (3) were no longer significant (as in Models [2] and [4]) after adjusting the estimated propensity score, which suggests the balancing effect of controlling for the estimated propensity score.

Detailed comparisons of the empirical results before and after propensity score adjustment can be found in Appendix Table A-4. No substantive changes in model coefficients were found, suggesting that endogeneity bias should not be a major concern. However, note that PSA cannot fully solve the endogeneity problem because only observed covariates are used to compute the propensity score, so the evidence based on PSA is only suggestive. Longitudinal data is necessary to establish a strict time order and causality.

6.3 Treatment effect heterogeneity

Another concern with our analytical results lies in the treatment effect heterogeneity. For instance, the patrilineal nature of ancestor worship implies that its demographic implications might mainly apply to male respondents. Also, the well-documented urban–rural distinction may incur regional variations. To respond to these concerns we performed interaction analyses for the significant findings, as presented in Appendix Table A-5. No significant interaction effects were shown for gender, and the demographic implications of ancestor worship for the number of children and the number of sons were even stronger among urbanites. This is surprising, and we suspect that one possible explanation may be that practicing ancestor worship faces greater challenges in urban China than in rural areas because of the limited space and time needed for ancestor worship activities (Liu 2003). These challenges serve as a selection mechanism, where in order to maintain their practices, urban ancestor worship followers have to subscribe to the traditional culture to a greater extent. As a result, they reveal more salient demographic characteristics that are consistent with our hypotheses.

7. Conclusion and discussions

In her presidential address at the 2013 annual meeting of the Population Association of America, Christine A. Bachrach (2014) maintained that culture has always been a committed partner of demography, and she therefore urged demographers to take more cultural factors into account when investigating population topics. East Asia, where traditional culture has a strong influence on fertility, is a fruitful context for illustrating the nexus between culture and demography. In this article we show the culture–demography connection by portraying how ancestor worship has been associated with the family-formation process in post-Reform China. Drawing on the adult sample in the Chinese Family Panel Studies 2010, we find that people who are active in certain ancestor worship practices marry at a younger age (for the male respondents), have stronger fertility intentions, and have a significant preference for a son over a daughter.

The empirical results of this study highlight the long-overlooked role of traditional culture in accounting for demographic outcomes in contemporary China. In general, marriage and family decisions are the joint consequences of two factors: subjective willingness and objective constraints (Zeng and Xie 2008). In an era when many institutional constraints on Chinese citizens' family formation behavior have been loosened – i.e., the new policy since 2015 that has allowed each couple to have two children – cultural factors that are connected to people's dispositions, values, and ideas should be increasingly important. In light of this, our study is timely and serves to promote our understanding of people's demographic behaviors in China. Also, due to the popularity of ancestor worship in many other societies, our findings in this article shed light on similar themes in other studies (e.g., Steadman, Palmer, and Tilley 1996).

The effect of ancestor worship on marriage and childbearing also has implications for other demographic transitions in contemporary China. For instance, over the past several decades China has witnessed a rising divorce rate, from 0.9 per thousand in 1985 to 2.67 per thousand in 2014 (The Ministry of Civil Affairs 2015). Against this background, ancestor worship might serve as a counteracting cultural force, due partly to its emphasis on the integrity and stability of the kinship group. In the CFPS 2010 the percentage of divorced individuals is extremely low (1.3%), so a thorough multivariate analysis is not possible. However, we computed the bivariate odds ratio between whether people were divorced and ancestor worship measures. The odds ratio for having a genealogy is 0.64, and for visiting the gravesite is 0.62, both significantly less than unity at the 0.001 level. These estimates provide some preliminary evidence for the counter-divorce effect of ancestor worship. Another demographic tendency that could affect the demographic implications of ancestor worship is the concerted rural-to-urban migration. Migrants in urban areas may advocate traditional culture to give meaning to life and instill a

sense of belonging in an alien environment. A supplementary analysis did not find a significant correlation between migration and ancestor worship, but more studies could be done in this area of research.

Some limitations of this study are acknowledged. Because of our use of cross-sectional data we are not able to establish a strict time order, so causal interpretation of our findings should be made with caution. Although PSA results lend support to the effect of ancestor worship on family formation, more substantive conclusions cannot be made until panel data are available. Moreover, there could be unmeasured family and regional characteristics that confound the correlation between ancestor worship and the outcomes of interest and which cannot be handled by PSA. Another limitation is that the analysis of marriage timing has to be restricted to the male sample because of the particular way of measuring ancestor worship in the CFPS 2010. Because of this, how ancestor worship in the natal family is linked to the females' marriage timing is still an open question. Lastly, for our research objective an ideal measure would have been the subjective approval of ancestor worship, but this type of attitude measure was not available in the CFPS 2010. What we could do was to use behavioral items as proxies, but the potential difference between subjective and behavioral measures should be kept in mind.

Notwithstanding these limitations, this study, as the first rigorous and quantitative investigation of the association between ancestor worship and the marriage and family formation process in contemporary China, illustrates the role of cultural force in demographic patterns. It also adds to the body of knowledge revealed in similar studies of other nations where ancestor worship is still alive and prevalent.

8. Acknowledgments

An earlier version was presented at the Department of Sociology, Zhejiang University. We appreciate the insightful comments of Dr. Yang Cao and other scholars. Also, we very much thank the editors of *Demographic Research* and anonymous reviewers for their the suggestions and comments. This study was supported by the national social science foundation (15CSH030) and the School of Social Development and Public Policy of Fudan University.

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Appendix:

Table A-1: Descriptive statistics of variables

Variable	Mean/Percentage (Std. Dev.)	
Having a genealogy	22.54%	
Visiting the gravesite	70.79%	
Gender (female)	51.53%	
Age	33.80	(10.00)
Educational attainment	6.71	(5.03)
Annual income	9636.59	(19803.68)
Log annual income	5.76	(5.63)
Ethnicity (Han)	91.56%	
Region (urban)	46.38%	
CCP membership (Yes)	8.21%	
Educational attainment of the respondent's father	5.73	(4.63)
Age of the respondent's father	10.84%	
Political identity of the respondent's father (1= CCP membership)	61.46	(11.39)
Educational attainment of the respondent's mother	3.28	(4.27)
Age of the respondent's mother	1.73%	
Political identity of the respondent's mother (1= CCP membership)	59.22	(10.96)
Number of the respondent's siblings	3.16	(1.77)
Fertility (yes)	83.69%	
Son (yes)	66.08%	
Number of children	1.77	(1.36)
Number of sons	0.96	(0.91)
Duration from marriage time to the survey year	23.68	(13.99)
N	10,410	

Data source: the CFPS 2010.

Table A-2: Results of the multilevel models

Fertility patterns		
<i>Probability of having at least one child</i>		
Having a genealogy	0.05	(0.16)
Visiting the gravesite	0.15	(0.15)
<i>Duration to first birth</i>		
Having a genealogy	1.33	(0.24)
Visiting the gravesite	0.96	(0.16)
<i>Number of children</i>		
Having a genealogy	0.06**	(0.02)
Visiting the gravesite	<0.01	(0.02)
<i>Son Preference</i>		
<i>Probability of having at least one son</i>		
Having a genealogy	0.30***	(0.07)
Visiting the gravesite	0.12 [#]	(0.06)
<i>Number of sons</i>		
Having a genealogy	0.12***	(0.03)
Visiting the gravesite	0.02	(0.03)

Note: Control variables are the same as those reported in Table 1 through Table 3. Clustered standard errors in parentheses.
marginally significant.

* p < 0.05, ** p < 0.01, *** p < 0.001 (two-tailed test).

Data source: CFPS 2010.

Table A-3: Results of the logistic regression predicting propensity score

	Having a genealogy				Visiting the gravesite			
	(1)	(2)	(3)	(4)	(3)	(4)	(3)	(4)
Female	-0.02	(0.03)	-0.01	(0.03)	0.08**	(0.03)	0.04	(0.04)
Age	-0.00	(0.00)	-0.00	(0.00)	-0.00**	(0.00)	-0.00	(0.00)
Ethnicity (Han)	0.62***	(0.07)	0.35	(0.19)	0.65***	(0.06)	0.34	(0.24)
Region (Urban)	-0.16***	(0.04)	-0.08	(0.06)	-0.21***	(0.03)	-0.12	(0.08)
Educational attainment	0.02***	(0.00)	0.01	(0.01)	0.03***	(0.00)	0.02	(0.01)
Log annual income	0.01*	(0.00)	0.00	(0.00)	0.01**	(0.00)	0.00	(0.00)
Father alive	0.11**	(0.04)	0.06	(0.05)	-0.17***	(0.04)	-0.09	(0.07)
Mother alive	-0.03	(0.04)	-0.02	(0.04)	-0.03	(0.04)	-0.02	(0.04)
Health status	-0.01	(0.02)	-0.01	(0.02)	-0.00	(0.01)	-0.00	(0.01)
Number of siblings	0.05***	(0.01)	0.03	(0.02)	0.02*	(0.01)	0.01	(0.01)
Perceived importance of being missed posthumously	-0.02	(0.01)	-0.01	(0.01)	0.03**	(0.01)	0.02	(0.02)
Perceived importance of family line perpetuation	0.05***	(0.02)	0.03	(0.02)	0.03*	(0.01)	0.02	(0.02)
Dummies for the province of birth	yes	yes	yes	yes	yes	yes	yes	yes
$\hat{\beta}$ (gerontology)			2.55	(1.67)				
$\hat{\beta}$ (visiting the gravesite)							2.26	(1.70)
Interpret	-3.39***	(0.45)	-3.20***	(0.46)	-0.08	(0.27)	-1.21	(0.89)
LR Chi ²	2,518.17***		2,520.48***		1,648.46***		1,650.23***	
N	10,410		10,410		10,410		10,410	

Note: Clustered standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed test).

Data source: CFPS 2010.

Table A-4: Comparison of the analytical results before and after propensity-score adjustment

		Unadjusted	Adjusted
Duration to the first marriage	Having a genealogy	0.08*(0.04)	0.08#(0.04)
	Visiting the gravesite	0.09*(0.03)	0.09*(0.04)
Probability of having at least one child	Having a genealogy	0.15 (0.10)	0.14 (0.10)
	Visiting the gravesite	0.12 (0.10)	0.11 (0.10)
Duration to first birth	Having a genealogy	(0.03)	0.02 (0.03)
	Visiting the gravesite	-0.04 (0.02)	-0.04 (0.02)
Number of children	Having a genealogy	0.08*** (0.02)	0.08*** (0.02)
	Visiting the gravesite	0.01 (0.02)	0.01 (0.02)
Probability of having at least one son	Having a genealogy	0.34*** (0.07)	0.30*** (0.07)
	Visiting the gravesite	0.16* (0.07)	0.15* (0.07)
Number of sons	Having a genealogy	0.14*** (0.03)	0.12*** (0.03)
	Visiting the gravesite	0.06* (0.03)	0.06* (0.03)

Note: control variables are the same as those reported in Table 1 through Table 3. Clustered standard errors in parentheses.

$p=0.054$.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed test).

Data source: CFPS 2010.

Table A-5: Results of the interaction effects

	Duration to the first marriage [#]		Number of children		Prob. of having at least one son		Prob. of having at least one son		Number of sons		Number of sons	
Having a Genealogy (G)	0.02	(0.06)	0.06 [*]	(0.02)	0.28 ^{**}	(0.11)			0.11 ^{**}	(0.04)		
Visiting the gravesite (V)			0.01	(0.06)			0.15	(0.11)			0.05	(0.04)
G × Female					-0.04	(0.02)	-0.05	(0.09)			-0.04	(0.03)
G × Urban	0.12	(0.08)			0.10 ^{**}	(0.03)	0.17	(0.14)			0.12 [*]	(0.05)
V × Female							0.05	(0.09)			-0.01	(0.03)
V × Urban			0.15	(0.08)			-0.03	(0.14)			0.04	(0.05)

Note: control variables are the same as those reported in Table 1 through Table 3. Clustered standard errors in parentheses.

only for male respondents, so no interaction with gender.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed test).

Data source: CFPS 2010.