The Role of Social Norms in Old-age Support: Evidence from China

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Abstract

Intergenerational old-age support within families is an important norm in developing countries, which typically lack comprehensive pension coverage. The transmission mechanism for this norm is potentially influenced by socioeconomic factors internal and external to the family, which the norm may in turn influence. This paper studies the inter-generational transmission of this social norm in China, focusing on the role of gender. The mechanism behind this transmission is that parents, by their provision of support to their own parents, shape their same-gender children's preference for future old-age support. Given that the gender ratio of Chinese children is not random, I use an interaction term of the timing of the ban on sex-selective abortions in China and the gender of the first-born child as the instrumental variable for the gender of the children to alleviate the possible endogeneity. The empirical results, using two Chinese datasets, show that parents with more same-gender children provide more support to their ageing parents than parents with more cross-gender ones, controlling for their household size. The father effect is more significant in rural subsamples, and the mother effect is mainly seen in the urban ones. The urban-rural difference in the results may indicate a normative shift accompanying economic and demographic changes.

Keywords— Old-age support, Intergenerational transfers, Social norms, Indirect reciprocity

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1 Introduction

Family support provided by adult children acts often as a major income source for ageing parents in developing countries. This social norm of providing support to the elderly is traditional and common, especially in China.[1] Usually, the norm is gender-specific: sons provide more support than daughters (Lee et al., 1993). It helps to offset possible risks and expected income drops for the elderly in countries with underdeveloped public pension systems and incomplete financial markets. As a large developing country with an estimated share of the elderly population due to reach 25% in 2030, China is feeling the weight on its public finances of sustaining, improving, and complementing its current pension schemes.[2] Family old-age support has served as a complement for the incomplete public pension system in sustaining the welfare of the elderly in China. A major topic of debate here has been how the norm of providing old-age support can continuously be the complement for the public pension in future generations. Given the decline in population growth and the potential problem of ageing in other developing countries, a study of the transmission of social norms of support for the elderly in China may help many developing countries understand better how to encourage such support in the future.

This paper studies the inter-generational transmission of the social norm of old-age support provision in China, focusing on the same-gender channel. Parents convey the social norm of old-age support provision to their same-gender children, in the way that they provide support to their own parents. The hypothesised mechanism behind this norm transmission is the same-gender "demonstration effect". It is based on the demonstration effect by Cox and Stark (1996). The demonstration effect means that parents treat their parents well if they have "their own children to whom to demonstrate the appropriate behaviour" (Cox and Stark, 2005). This inter-generational demonstration meets the anthropologists' description of an upward and positive indirect reciprocity (Arrondel and Massaon, 2006). Anthropologists believe the indirect reciprocity is an important channel of cultural norm transmission (Mauss, 1950, 1968). I improve Cox and Stark's demonstration effect by adding the same-gender transmission channel for two reasons. First, there is good evidence in sociology and psychology that children are largely influenced by their same-sex parent in their learning of gender norms in society (Lytton and Romney, 1991; Bussey and Bandura, 1999; McHale et al., 1999). Economists have recently found empirical evidence for same-gender intergenerational transmissions in individual preferences and social norms (Alesina et al., 2013; Kleven et al., 2018). The second reason is that the gender difference is prominent in the norm of old-age support provision in China and other developing cultures (Gupta et al., 2003). Traditionally, sons are responsible for supporting their elderly parents in China (Lee et al., 1993; Chan et al., 2002).

[1] In the Chinese Household Finance Survey, 74% of the respondents believed that their children should be fully or at least partly responsible for their care in old age.

[2] United Nations (2015) estimated that, in 2030, the share of the population in China aged 60 and older will be 25%. The current share of the population aged 60 and older in the U.K. is 23.9% and in China is 16.2% (United Nations, 2017). The total number of people aged 60 or above is 222 million, which is around 4 times the current population of the United Kingdom. WSJ coverage: https://blogs.wsj.com/chinarealtime/2015/03/10/china-sets-timeline-for-first-change-to-retirement-agesince-1950s/. In 2017 China raised the retirement age, set in the 1950s, to alleviate pressures on its public finances.

In my proposed mechanism, parents provide old-age support to their parents, and they expect to be recompensed by their same-gender children. A key assumption in this mechanism is that parents internalise the fact that their behaviours regarding old-age support provision may affect their same-gender children (Eccles et al., 1990; Bussey and Bandura, 1999). Under this mechanism, a parent should provide more old-age support when the household includes more same-gender children than the case when this parent has more cross-gender children. This channel of inter-generational transmission of the norm does not only exist in the theoretical framework created by academic researchers, but there are also real-world examples for it. Public service announcement posters in China in Figure 1 show the same-gender demonstration effect described. These posters also show the government's efforts to promote the norm of providing family support in old age, which indicates the importance of this norm in Chinese society. By studying the same-gender inter-generational transmission of the norm in old-age support provision, this paper seeks to demonstrate how changes in economic and demographic conditions affect the norm and its transmission in China, both financially and non-financially.

I provide novel evidence for the same-gender transmission of this social norm of support in old age and show that the decision-making regarding old-age support provision involves three generations. Most of the family old-age support studies assume by default that children will provide old-age support when their parents retire because of altruism or direct reciprocity (Becker and Lewis, 1973; Guttman, 2001). These channels limit the effect of old-age support to two generations, the parents and the children.[3] However, there is a gap in the literature: only a few researchers focus on the way in which the social norm of providing old-age support is transmitted to the next generation. Cox and Stark (1996, 2005) provide a theoretical framework for the inter-generational transmission of the norm of providing support in old age. The only relevant empirical evidence has been collected by Wolff (2001) and Mitrut and Wolff (2009). The present paper helps to fill this gap by providing empirical evidence for the gender-specific effect demonstrated in support for the elderly in China. The empirical results show the importance of the future generation in the process of transmitting the social norm of old-age support. The paper also contributes to the literature by first documenting a normative shift with economic and demographic changes during China's transformation into a modern nation, thanks to the wide urban-rural differences.

When studying the effects of the gender of children on the support for the elderly provided by their parents in China, an empirical difficulty is that the gender of the children is endogenous. The increasing gender ratio of newborns in China corresponds to the imbalance in the gender ratio of the children in the datasets. The gender ratio of new-borns has been increasing since 1990 (China Population and Employment Statistics Yearbooks, Figure 2). For this, sex-selective abortion is one of the main reasons (Chen et al., 2014). The non-random gender ratio of the children could positively or negatively affect the support for the elderly provided by parents.[4] To address this problem, I utilise two facts: the gender of

[3] Some of the relevant literature evaluates the "manipulation" of children by their parents to ensure more old-age support in the future (Becker et al., 2016).

[4] This will be further elaborated in the empirical results section.

the first child in households and the timing of a policy ban on sex-selective abortions.

I use the interaction term of whether or not a household is affected by the policy ban on gender-selective abortion and the gender of the first child in a household as the instrumental variable (IV) for the gender ratio of the children. This IV exploits two facts. First, a policy was introduced to reduce the gender ratio to its natural level, so the gender of children who were born in or after the year of the policy ban should be random. The policy banned the use of ultrasound for prenatal sex determination and imposed fines on those who conduct sex-selective abortions. It was initiated by the National Family Planning Commission (NFPC) in 2003 affecting all households that have at least one child born in or after 2003. Yet, given policy implementation conditions in China, the gender ratio for children born on or after 2003 is still higher than the natural rate. Second, the gender of the first child is closer to the natural rate than the gender ratio for all new-borns in China, espeically for households with more than one child (Ebenstein, 2010; Wei and Zhang, 2011). Scholars usually regard the gender of the first child as random (Jayachandran and Pande, 2017; Heath and Tan, 2018). The IV utilise the differences caused by the affected compliers before and after the policy change. They have not conducted sex-selective abortions since the policy ban and have children of the opposite sex to their preferences.

The main empirical findings indicate that parents increase probabilities of providing financial and non-financial support in old age with more same-gender children, controlling for the household size. I only compare the difference within parents' gender for the old-age support provided by them. In the datasets, the father and the mother both show gender-specific demonstration behaviours. The results from the robustness check and the heterogeneity analysis are mostly consistent with the expected results under the demonstration effect channel. The 'father' demonstration effect is generally more significant in low-income and rural subsamples, and also in households with more than one child. The 'mother' effect is most significant for the outcome variables in low-income and urban subsamples. The empirical evidence implies that support for the elderly is closely linked to the composition of the gender of parents and their children, which suits the assumption that the norm of providing support for the elderly is likely to be transmitted to offspring of the same gender.

However, the two datasets exhibit different gender-dominated demonstration behaviours. The CHARLS (the China Health and Retirement Longitudinal Study) mainly presents the father demonstration effect. The mother effect has a more substantial role in the urban subsample and also in the whole sample of the CHFS (the China Household Finance Survey). One explanation for this difference is because the CHARLS contains more rural samples than the CHFS. It is consistent with results from the urban-rural heterogeneity analysis and subsample check. The discrepancy between the urban and rural subsample results has implications for the norm-shift of providing support for the elderly together with the development of China. Urban areas in China are more developed than rural areas: they have higher pension/insurance coverage, better public infrastructure, and, in particular, fewer gender inequalities and higher female bargaining powers (Fong, 2002; Lee, 2012). The results may suggest that higher female household bargaining power may lead to more significant mother demonstration effects. The mechanism checks also show that the existence of other possible mechanisms, such as altruism and direct reciprocity, is not likely to largely affect the demonstration effect mechanism in the results.

The paper proceeds as follows. More background information on support for the elderly from children in China is in Section 2. Section 2 also provides the theoretical background for the same-gender social norm transmission. This is followed by Section 3, which provides the identification strategy and the empirical findings. Section 4 also provides the robustness check for the key empirical findings. Section 5 offers some concluding thoughts.

2 Background

2.1 Old-age support in China

The provision of financial and non-financial support to ageing parents is a pro-social norm in China and other countries that are influenced by Confucianism. This family support for the elderly has been acting as an alternative way of sustaining the welfare of elderly to the incomplete public pension system. Table 1 shows that in 2005 less than 50% of the urban elderly viewed public pensions as their major source of income. In rural areas, the percentage was only around 5%. 54% of the rural elderly and around 37% of their urban counterparts believed their major source of income to be family support. Even with the development of the public pension in both urban and rural areas in China, the percentage of rural elderly choosing pensions as their main income source in 2010 was unchanged, although the percentage of those who chose family support declined to 47%. The pension schemes in urban areas have been improved since 2005: around 70% of the urban elderly in 2010 relied on a public pension while only around 20% of them lived mainly on family support. Inferring from the statistics, the public pension coverage shows a large urban-rural difference. Rural areas in China do not seem to have had an effective pension scheme before 2011, so the elderly there were still depending on the norm of private old-age support.

A large proportion of the elderly in China live on support from their family members, especially from their adult children. The social norm of providing support for the elderly is then important to those who try to secure their income after their retirement. First, they have to know which characteristics affect the amount of support that they can depend on in old age. The number and the gender of the adult children are two major aspects studied in the relevant literature on China. In the standard old-age support literature, such as Becker and Lewis (1973), people believe that more children in a household will lead to more support for the elderly in the future. Cai et al. (2006) and Oliveira (2016) both verify this common belief among Chinese people. As regards the gender of the children, traditionally, males are responsible for providing support, both time and money, to their parents in their old age. Hence the early literature assumed that males provide more than females due to cultural and labour market restrictions (Lee et al., 1993; Chan et al., 2002). The value of male offspring in providing support for the elderly is one of the reasons behind the persistent preference for sons in China and other developing countries (Gupta et al., 2003). It was common in China for households to have at least one son, right up to the implementation of the "One-Child" Policy (OCP) (Milwertz, 1997; Ebenstein and Leung, 2010).

The gender division of in terms of old-age support provided in China is not as clear as the common belief of the gender role, which is that females provide more time support and males provide more monetary support. Traditionally in China, males took all the responsibility to provide financial and non-financial support to their elderly parents. The situation changed a bit in modern China society. In the recent literature with the increasing women's labour force participation rate in China, Xie and Zhu (2009) find that females were providing more financial support to elderly parents in urban areas, and Oliveira (2016) finds no gender differences in the provision of financial old-age support and the co-residence with the elderly. From these two empirical results, it can infer that females in China are not necessarily more likely to provide non-financial support than males. Also, the gender difference in terms of any old-age support provided is closing up. But given the rising gender ratio for newborns in China, especially in rural areas, it is reasonable to assume that this gender difference still exists, though it may head in different directions in rural and urban areas.

Once those who rely on family support for income in old age know the factors affecting their future income, it is highly likely that they will try to manipulate these characteristics. For many families in China, the number of children is difficult to manipulate. With the strict implementation and high fines of the OCP, Ebenstein (2010) has found that the policy reduced fertility. Gender, however, was a characteristic that was easier for people to manipulate, with the help of advanced technologies before 2003. Chen et al. (2013) have inferred that the increasing gender ratio could be attributed to increased gender selection before birth, thanks to gender-selection technology. For example, B-mode ultrasound allowed people to know the sex of a foetus and was in common use all over the world after 1980 (White, 2001). Qian (2008) has discovered that an increased future income for females also improved the female survival rate. In addition, Ebenstein and Leung (2010) have studied the effects of having a public pension system on the sex ratio at birth in China. They find that when a region is covered by a public pension scheme, its gender ratio is more balanced than it is in regions without such coverage. From the literature, it seems that in China, support for the elderly is important enough to affect fertility decisions, especially the gender of people's future children. Parents internalise future support that they will receive from their children when they are old and try to alter the characteristics that might affect their own future support.

2.2 Indirect reciprocity

It is important to learn how to best support the elderly, given their situation. First, we should understand the possible mechanisms for doing so. Altruism and exchange are the two main motives in the standard theoretical models analysing intergenerational transfer. Altruism, in the context of supporting the elderly means that people are generally willing to support their ageing and retired parents. The theoretical framework for altruistic individuals is developed by Barro (1974) and Becker (1976, 1981). The exchange mechanism is also referred to as (direct) reciprocity. It describes support for the elderly as reciprocal payments for the financial and/or non-financial investment made in the donors' childhood (Cox, 1987). However, the existing empirical results are not robust enough to support these two motives in theoretical models (Arrondel and Masson, 2006). The theory of indirect reciprocity may serve to reconcile the motives of altruism and exchange. Indirect reciprocity is also the theoretical support for the inter-generational transmission of the norm of giving support to the elderly.

The concept of indirect reciprocity is usually attributed to Mauss (1950, 1968), a French anthropologist. He expands the common "gift-return" reciprocity relationship between two parties, the giver and the beneficiary, to three parties. He states that indirect reciprocities involving three successive generations will lead to infinite chains of transfers. He observes that the givers do not get direct payback from the beneficiary but receive it from a third person (Arrondel and Masson, 2001). The channel works for any type of transfer: upward, downward, positive or negative. Cox and Stark (1996) provide a model to describe similar behaviours in the provision of support in old age, which coincides with the upward and positive indirect reciprocity channel. In the context of supporting the elderly, the interaction between three parties is that parents educate their children by providing support for the elderly to their parents so that the parents when elderly will receive support from their children. It is usually referred to as the "demonstration effect". The model predicts that transfers from individuals to their parents are positively affected by the presence of their children. Cox and Stark (2005) test the prediction using U.S. data. Wolff (2001) and Mitrut and Wolff (2009) also find that the existence of granddaughters increases the visits paid to the grandparents; Becker et al. (2016) believe that parents can "manipulate" the preferences of children, an assumption underlying the demonstration effect.

Bau (2019) studies the connection between the cultural norm and support for the elderly in Ghana and suggests that support for the elderly is a product of cultural norms. Except for Mitrut and Wolff (2009), the relevant literature considers only the role of the children in the transmission of the norm of old-age support, without any consideration of the role of gender. Given the gender difference regarding support for the elderly and preference in China for sons, the demonstration effect may also be linked with the gender of the third generation. Godelier (1982) describes indirect reciprocity as gender-specific when it functions as a channel for the transmission of cultural traits and norms. A gender-specific social norm would also be a channel for passing on this gender norm in society. A common belief about the role of gender is that parents of girls are the more likely ones to pay visits and care for the elderly (Lee et al., 1993). Mitrut and Wolff (2009) find that parents' visits to their own parents are largely affected by the presence of daughters rather than sons in their households, which is consistent with the general belief.

If providing support for the elderly links with gender norms, one vital assumption is that parents should be able to influence their same-gender children more effectively than cross-gender children. Children would also mimic the behaviour of the same-gender parent in the future, a phenomenon which is known in psychology and sociology as "gender socialisation/specification". Many sociologists and psychologists believe that the same-sex parent is the main source for ensuring that children to learn the corresponding gender role that fits social expectations and that the children will perform gender-related behaviours when they become adults (Lytton and Romney, 1991; Bussey and Bandura, 1999; McHale et al., 1999). In the recent economics literature, several papers focus on same-gender intergenerational transmission. Jayachandran and her colleagues show that the effects of the same-sex parent on gender attitudes are greater than the peer effects (Dhar et al., 2018). Kleven et al. (2018) reveal that in Denmark preferences over family and career for females are largely influenced by the mother's preference observed during childhood. Alesina et al. (2013) also find that paternal ancestors affect the perspectives of males on the gender role and the female labour market participation.

Parents should also internalise the fact their children's future behaviours will be affected by theirs. This internalisation means that parents will begin to influence their offspring in order to form their children's preferences. Becker (1996), Bisin and Verdier (2000), Guttman (2001), Bronnenberg et al., (2012), and Becker et al. (2016) study whether parents show certain behaviours to or spend more resources on their children in order to formalise their children's preferences. After listing the relevant evidence supporting the demonstration effect and same-gender intergenerational norm transmission, it is reasonable to assume that the demonstration effect works in a more gender-specific way when there is a wide gender difference in the planned support for the elderly. People will demonstrate the norm of support in old age to their same-gender offspring by providing support for the elderly to their own parents. Figure 1 provides examples in China for the same-gender demonstration effect.

3 Data and empirical results

3.1 Model description

I construct a simple two-period consumption model describing the three-generation interactions in providing old-age support to illustrate the same-gender demonstration effect. The model includes inter-household transfers (Banerjee et al., 2014) and a demonstration effect (Cox and Stark, 1996). It also contains a key factor: the intra-household bargaining components. The assumption for the same-gender demonstration effect is that old-age support provided by parents in the first period will positively affect their same-gender children more than their cross-gender children. Other assumptions described in the literature review part are also included in the model, such as parents know their old-age support behaviours will shape their children's behaviour in future. The model concludes that the parent who holds higher bargaining power in a household is more likely to demonstrate the norm of old-age support to offspring of the same gender, which provides a possible explanation and simple theoretical support for the different gender-dominated demonstration effects in the empirical results. The baseline model in Appendix A.5 has many restrictive assumptions. Similar conclusions hold under certain conditions in models with more relaxed assumptions, but given the length limitation, I did not show these models in this paper. Figure 2 gives a simple graphical illustration for the model.

3.2 Data

Two datasets are used to assess the gender effects of children on the norm transmission of old-age support, more specifically, how the gender of children affects the support for the elderly provided by their parents. The first dataset is the China Health and Retirement Longitudinal Study (the CHARLS). The CHARLS is a longitudinal survey of 28 out of the 34 provinces of the country for three waves in the years 2011, 2013 and 2015 up to the present day.[5] It collects a representative sample of residents aged 45 or above. The main wave used in this paper is the 2011 wave. The data set contains information on each respondent's family, work, retirement, wealth, health and income. The main demographic group in the survey is people aged 45 or above. In the 2011 sample, this covered about 17,708 individuals in 10,257 households from 28 provinces. The sample was randomly selected from four samplings at different levels: county-level, neighbourhood-level, household-level and respondent-level.[6] The CHARLS provides detailed information on inter-generational and inter-household transfers. One advantage of this dataset is that it clearly distinguishes between the transfers from different household members of the respondents. Given the high average age of the respondents, the sample size for the available observations in terms of the transfer provided by the respondents to their parents is small. But many of the respondents have children of working age, so most of them receive support from their children.

To fit the original dataset into my setting, I regard the support for the respondents provided by their children as the support from parents to their elderly parents discussed in the previous section. The respondents in the survey are the passive recipients of old-age support. Namely, they are the elderly the main regressions in the CHARLS. The grandchildren of the survey's respondents are the third generation. I construct a new sample that covers the adult children of the survey respondents, namely, the parents.[7] In the newly constructed sample, the sample size decreases to about 14,000 observations. The urban-rural composition of the reconstructed 2011 wave is notable. Around 65% of people live in rural areas, and more than 75% of them have rural *hukou* ("household registration"). However, due to the questionnaire design of the CHARLS, the demographic information on the parents and their children is not as detailed as the information on the elderly parents in my regression. The available demographic variables in the 2011 wave about the children are only the gender and the number of them. In the 2013 and 2015 wave, the only available demographic variable is the number of the children. This is the reason why I can conduct only cross-sectional analyses when using the CHARLS.

I used a second dataset to verify the generalisation of the results from the CHARLS and also to provide supplementary evidence for the demonstration effect. The dataset is the China Household Finance Survey

[5] The detailed distribution in provinces and counties is presented in Figure A.1.
[6] The detailed sampling method at each level can be accessed at: http://charls.pku.edu.cn/en/page/about-sample-2011.
[7] A detailed discussion of the dataset reconstruction is in Appendix A.4.

(the CHFS). The CHFS is a panel dataset covering 25 provinces in China, by Southwestern University's Department of Finance and Economics and Research Institute of Economics and Management. This survey focuses on household-level financial behaviours. It currently has three waves: for the years 2011, 2013, and 2015. The survey does not have the same age limitation on the survey respondents as the CHARLS does; hence, there is no need to reconstruct the dataset. In the CHARLS, I treated the main respondents of the survey as the parents. The sample in the 2011 wave includes only 8,438 households, and its questionnaire includes only the gender of the children who are living together with the respondents. In the 2013 wave, the number of observations increased significantly: 28,142 households and 97,916 individuals. Accordingly, I used the 2013 wave in the CHFS for more observations and more precise information on the gender ratio of the children and the parents' demographics.

I include only the main respondent for each household in my CHFS sample for regression. The main respondents know the household financial situation best (Li et al., 2015). They are responsible for answering the household-level financial questions, which includes the questions regarding inter-household transfers. If I included only the main respondents, there would be a selection bias. In this sample, the parents are in charge of household finances. So, one possible effect would from females who were in charge of the household finances, who may have a higher power in their household than is held by females who are not in charge. A possible result of this selection would be that the females in my CHFS sample transferred more to their parents, which makes my CHFS results an upper bound of the female demonstration effect. However, regarding the households' support for the elderly, the main respondents may know only the exact amount of their own transfers, and not that of their partner. Their partner may hide the information from them (Ashraf, 2009). Moreover, the CHFS only asks detailed demographic information for the main respondents' own parents. One limitation of the CHFS is that the information about the intergenerational and inter-household transfer collected in the survey is not as detailed as the information available in the CHARLS. Each dataset has its advantages and disadvantages. A comprehensive interpretation of the results from both datasets is necessary.

3.3 Main regression

The paper sets out to examine the gender effects of the children on the support for the elderly provided by their same-sex parent. The main regression includes the gender of the parents, the gender ratio of their children in their household, and their interaction term. The main regression is:

$$y_i = \alpha + \beta sex\_ratioK_i + \gamma maleP_i + \delta(maleP_i \times sex\_ratioK_i) + \mathbf{X_i'}\boldsymbol{\theta} + \phi_c + \varepsilon_i. \quad (1)$$

In the equations, i stands for a parent i. y_i represents the outcome variables testing various aspects of old-age support. The error term is ε_i is clustered at the prefecture city-level for the CHARLS and the province-level for the CHFS.[8] The different cluster-levels for the CHARLS and the CHFS is because the

[8]The results are similar when the error terms clustered at the individual-level and also the province-level. The choice of the cluster level is discussed in the following section discussing the instrumental variable.

CHFS does not provide any information on prefecture cities. ϕ_c is the province fixed effects. For the main regressors, I use the three-generation setting: P is the mid-age parents, K represents the children of P, and O is the parents of P, which is the elderly generation. $maleP_i$ is the gender of a parent i in the P generation. It equals 1 if the parent is male and 0 otherwise. The regressor sex_ratioK_i is the actual male-to-female gender ratio of the children in parent i's household. The gender ratio of K equals the number of sons for a parent i divided by the total number of K in the household if i has more than one child. For i with one child, if the only child is a boy, then $sex\_ratioK_i = 1$. If the only child is a girl, then $sex\_ratioK_i = 0$. $sex\_ratioK_i \times maleP_i$ is the interaction term, and $\mathbf{X_i}$ is the set of demographic variables for P and O to be controlled for in the regression.[9] I run separated regressions for the CHARLS and the CHFS, since the difference between the two datasets is large. Using this regression equation, I manage to calculate the within-parent gender differences in terms of providing support for the elderly caused by the gender ratio of their children, while controlling for the P's own gender and household-size.

There are three consistent main outcome variables in both two datasets. They are the dummy indicating whether P provide any financial transfer to O (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on P's visits paid to O per year (*visit days*). The transfers provided to P's parents are the pecuniary old-age support provided. For the amount of the transfer, I unify it to the annual amount and the amounts are capped.[10] The summary statistics for the outcome variables, key regressors, and control variables in different datasets are shown in Table 2.[11] The amount of any transfer provided in the CHARLS is the sum of the regular and the non-regular transfer, which will be discussed later.[12]

Before analysing the gender effects of children, I first want to verify whether there are gender differences in the provision of support for the elderly by the parents in the CHARLS and the CHFS. In the recent literature, it seems that males no longer provide more old-age support than females (Xie and Zhu, 2009; Oliveira, 2016). I want to use the simple OLS regressions with $maleP$ as the only key regressor to check whether the male P provide more in the datasets used. The results in Table A.3 might imply that there are certain gender differences of P in old-age support. The coefficients of $maleP$ are similar to the corresponding main results in Table 3. The gender role in terms of different forms of old-age support does not fit the general belief: females are not more likely to provide non-financial support than males. The detailed discussion about the gender differences of P in old-age support is in Appendix Section A.1.

The OLS results from Equation (1) for the CHARLS and the CHFS are shown in Table 3. Before interpreting the results, I refer to females in the P generation as mothers, and their male counterparts as

[9]The controls are different in the CHARLS and the CHFS. I try to make the controls consistent between the two datasets. The control variables for O are more in the CHARLS than in the CHFS, but information on P and K is more precise in the CHFS.

[10]The amount of transfers are capped at 100,000 per year in the CHARLS and 10,000 in the CHFS. The cap is for only a few outliers in the two datasets.

[11]The full summary statistics for all the controls and the summary statistics by gender of the adult children are in Tables A.1 and A.2.

[12]In the CHARLS questionnaire, transfers are classified into two different types: regular transfer and non-regular transfer. The regular transfer is the fixed-amount transfer that parents make to their elderly parents at fixed times. The non-regular transfer represents transfers provided by the parents at non-regular but important social events or circumstances. These two types of transfers are not used in the main analysis, but in the check parts only.

fathers. I only focus on the gender effects of K within a certain gender of P. In Equation 1, $-\beta$ indicates, for mothers, the change of old-age support provision corresponding to decreases in the gender of K in their households. The decrease in the gender of K means there are more daughters in one's household, controlling for the total household size. So I name $-\beta$ as the mother demonstration effect. $\beta + \delta$ shows the same change for fathers corresponding to increases in the gender of K in their households, which is the father demonstration effect. If the same-gender channel works, the expected coefficients of β should be negative and significant for the mother demonstration effect. The coefficients of $\beta + \delta$ should be positive and significant to show the father effect. For the CHARLS results, the mother demonstration effect, which represented by $-\beta$, is only significant for $visit\ days$. The mother and father demonstration effect on the probability of providing any transfer are insignificant. The father demonstration effects are significant for visits paid and the amount of transfer. The coefficients for β and $\beta + \delta$ are all insignificant in the CHFS results, yet the signs mostly fit the prediction of the same-gender effects. In general, I cannot imply that both demonstration effects exist in the CHFS results, but there might be corresponding demonstration effects in the CHARLS results.

I also include the coefficients for the P household size in Table 3. A large household size implies more children in one's household. For a mother, an increase in household size has negative effects on her provision of old-age support, financially or non-financially. But It is only significant for the visits paid to her parents in both datasets. A father, on the other hand, an increase in his household size have positive effects on the amount of his support provided and the visits paid to his parents. These positive effects are significant for the visits paid to his parents in both datasets and for the amount of old-age support in the CHARLS. The impacts of household-size on fathers are consistent with the demonstration effect by Cox and Stark (1996): people provide more old-age support if they have more children in their households. The household size is another important factor that might affect the decision of gender selections, which is a problem that I would discuss more in the later subsection, so controlling the household size and its interaction term with $maleP$ might help to alleviate the possible selections.

3.4 Identification strategy

The OLS results in both datasets do not appear to support the proposed demonstration effect. It may be that the results under the OLS model suffer from biases caused by various possible endogenous problems. One main endogeneity problem comes from the gender selection issue affecting the gender ratio of the children, sex_ratioK. According to the China Population and Employment Statistics Yearbooks, the yearly national level gender ratio of new-borns has been increasing since the late 1980s.[13] The yearbook in 2011 shows the ratio of boys to girls to be as high as 1.25 to 1, revealing the gender selection problem as quite severe. Households with son preference would be likely to conduct selective abortions, and these are usually the households holding the traditional stereotypes of daughters. In my sample, the gender ratio of the parents is almost free from this problem. It is around 0.51 in both datasets. In the CHARLS

[13] The yearly national level gender ratio of new-borns is shown in Figure 3.

the average age of the parents in the sample is 40 and in the CHFS, it is 48. When they were born, gender selection technology was not yet available in China (Chen et al., 2013). The endogeneity problem of sex_ratioK is a larger one, and it may affect the OLS outcomes in two opposite ways as illustrated by males with a preference for sons. First, if a male is eager to have a boy only to secure his own future support, then gender-selection will lead to an upward bias for the father demonstration effect. Second, if, alternatively, a father wants to have a boy to enhance the household's prosperity, he will invest more family resources in a son's upbringing. So the father effect is downwardly biased. The effect of the endogeneity is ambiguous in this setting for the fathers. If a mother is eager to have sons in her households, it is likely she will not ask for more old-age support from her daughters had she had sons, so the mother demonstration effect will be biased downward.

To alleviate the bias, I use the instrumental variable (IV) method and construct an IV utilising two factors, the timing of a regulation ban sex-selective abortions and also the gender of the first child in a household. The regulation was announced in late 2002 by the Ministry of Health, State Food and Drug Administration (SFDA) together with the National Family Planning Commission (NFPC). It bans the use of B-scan ultrasonography and other technologies for determining foetal sex from January 1st 2003.[14] It states that all methods of gender selection should be banned and imposes fines for different levels of violation of the regulation. Fines are imposed on individuals who choose the sex of a foetus allowed to survive and on the hospitals that conduct scans and abortions. The policy was designed to bring the gender ratio of new-born males to females closer to the natural birth rate, so it would be relevant to the average gender ratio of children in households, which is sex_ratioK in the main regression equation. Figure 4 presents the estimated yearly gender ratios of new-borns and the first-born children in the CHARLS and the CHFS respectively. Both estimated gender ratios fall after the year 2003.

I use mainly the timing of the policy change to construct the first part of the instrumental variable employed in the paper. The policy covers most of the provinces, and the provincial congresses passed the policy at much the same time,[15] with no great time difference between them. I assign the value of the policy timing variable to 1 for P with at least one child born in or after 2003, and 0 otherwise. The increasing gender ratio of male to female new-borns is a heated social issue that usually attracts public attention. So public discussion may accompany the agenda-setting process of the policy. However, Hu (1998) and Shen (2008) declare that detailed information and plans are rarely revealed to the Chinese public in the policy planning stage. Thus, the timing of the policy implementation is exogenous to the general public. Regarding this policy, in particular, most of the news about it on Baidu.com or Google.com appears after the provincial governments or the central government passed the associated regulation. Also, the policy ban on gender-selective abortions is designed mainly for adjusting the high male-to-female gender ratio for the newborns in China.[16] The exclusion restriction of using the policy

[14] Website: http://www.gov.cn/banshi/2005-10/24/content_82759.htm. Last accessed: September 2018.

[15] The provincial congresses all passed the policy at some time between November 2002 and January 2003. The information was collected from the provincial government websites.

[16] http://www.gov.cn/banshi/2005-10/24/content_82759.htm

variation is satisfied policy-wise because the policy design does not include the concern of the old-age provision. To conclude, the exogeneity assumption of the policy timing is in general reasonable in my setting. However, some people might still violate this policy ban and pay high fines to conduct gender-selective abortions. This could, in turn, affect that total expenditure of the households, and affect old-age support provision due to household budget limitations.

Although Figure 4 shows the gender ratio in the CHARLS and the CHFS decreased after 2003, Figure 3 indicates that the national gender ratio has been stagnating at a high level since 2003, although it has not increased since then. Figure 3 implies a slight chance that the policy does not ban sex-selective abortions outright.[17] To address this concern, I combined the dummy indicating the timing of the policy implementation together with the gender of the first-born child in the households surveyed. The gender ratio of the oldest child in a family is relatively balanced in China, because the One-Child Policy (OCP) does not strictly require all households to have only "one child", especially in rural areas and households with more than one child (Ebenstein, 2010). In Figure 5, the national statistics show the ratio of new-born boys who are not the eldest to their girl counterparts are all larger than the gender ratio among first-born babies. The gender of the oldest child is correlated with the gender ratio of children in households (Angrist and Evans, 1998; Heath and Tan, 2018), which satisfies the relevance condition. Together with the timing of the policy ban, my instrumental variable can plausibly satisfy the exclusion condition. The IV is an interaction term of two dummies: one dummy equals 1 for households with at least one child born in or after 2003 and one dummy equals 1 if the oldest child in a household is a son. The constructed instrumental variable is used for two datasets.[18]

This instrumental variable borrows the concept of the instrumented difference-in-differences design (DDIV) (Dulfo, 2001; Hudson et al., 2017).[19] The key variation comes from the affected policy compliers. There are two different types of compliers: affected and unaffected. The affected compliers are those who have children of the opposite sex to their wishes. They capture the time variation of the policy. For example, after 2003, the affected compliers who would have been willing, had no ban existed, to conduct sex-selective abortions, have daughters, and this decreases the gender ratio of their children. Unaffected compliers who have sons after 2003 by natural chance provide no variation. The gender ratio of the children in the affected compliers' households will decrease after the policy implementation.

One additional assumption that should be stated is that the support for the elderly provided by the parents does not change over time after controlling for the demographic variables, because the DDIV variables are usually time-variant. Due to the data limitation, I manage to get only cross-sectional datasets, so I use the CHFS dataset to compute the average probability of providing old-age support for

[17] Because the policy did not make the gender ratio of new-borns completely random, I cannot only use the subsample of households with new babies in or after 2003 to test the demonstration effect.

[18] As noted above, the CHARLS gives limited information on the children of the parents that it surveys. Hence, constructing the gender of the first child in a household using the CHARLS entails a few assumptions, which are included in Appendix A.4.

[19] Using of the interaction term of the gender of the first child and whether a household is affected by the policy as IV is necessary. I cannot use only the subsample of households that are affected by the policy ban when using the gender of the first children as IV. This is because, even with the policy ban, the gender ratios in some provinces are still higher than the natural rate. A more detailed explanation in Appendix A.4 and the sub-sample regression results are shown in Table A.21.

the elderly for groups of P who have their last child in the same year. If there is no increasing trend in these averages in the different years of the last childbirth, the DDIV assumption is likely to be satisfied in the datasets. The graphs for plotting the "time-trend" are shown in Figure A.2. They show that for the P generation, there is no significant decrease in the trend in the year of birth of the last child in households until the last two years before 2013.

I also construct another instrumental variable to proxy for the household-level gender ratio for the CHARLS only. It is the prefecture-level compliance index of the policy implementation/enforcement. Bo (2018) exploits geographical variations in the policy ban on gender-selective abortions and use it as an IV of the children's gender ratio. Only the CHARLS has detailed information on the different prefecture-level cities. The component included in the index concerns a campaign in early 2005 initiated by the Ministry of Health with the NFPC targeting illegal clinics and under-qualified doctors in prefecture-level cities.[20] The illegal clinics are usually the ones which illegal conduct sex-selective abortions. The policy acts to complement the policy ban of 2003. Both the central and the provincial governments decide to implement this campaign at prefectural city-level because the local governments may have better control over the detailed implementation. The campaign enforcement-level varies in different prefecture-level cities: Some cities have mounted this campaign every year since the campaign started. Others may have implemented the campaign in 2005 for only one year or may even have started the campaign later than the NFPC requirement. The number of years that a city has enforced the campaign and also the year each city started to do so are indicators of the strictness with which the regulation was implemented at the prefecture-level. I take the relevant information from various prefectural government websites and also from newspapers and generate an index showing the various compliance levels of the listed prefectural cities regarding this campaign. The constructed compliance index varies from 0 to 2, where 2 is the highest level of allegiance to the aims of the campaign.

The policy implementation levels at the prefectural city-level also link to the choice of the cluster level in the main regression for the CHARLS. As the policy compliance level varies in different prefectural cities, the residuals for the regressions for the CHARLS are likely correlated at the prefecture-level. So, it is reasonable to cluster the stander errors at the prefecture-level for the regression results in the CHARLS. For the CHFS, because the data does not offer any information on prefectural cities, I cluster the standard errors at the province-level. There is another argument that the error terms should be clustered at the household-level in generation O in the CHARLS. Under the data reconstruction, some P and their sibling P are from the same family in O. Also, given the provision of the old-age support is a household-level decision, the stander errors in the CHFS should be clustered at the household level. The main results are similar to the results in Table A.4 when clustering at different levels. I use the prefecture-level cluster for the CHARLS and the province-level cluster for the CHFS for conservative clustered standard errors.

To summarise, the instrumental variables used in the paper are the gender of the first child for

[20]Website: http://www.gov.cn/zwgk/2006-08/02/content_352694.htm. The regulation date was in 2006, but in the content, it states that the campaign started early in 2005.

households having at least one child in or after 2003 and the prefecture-level compliance index. The IV method exploits three facts: first, that the gender of the first child is closer to the natural rate than the total gender ratio for all new-borns, especially in households with more than one child; second, that the gender of children, especially the first-born children, who were born in or after the year of the policy ban is closer to the natural ratio;[21] third, that the prefecture-level policy compliance level is higher when the gender ratio of the children, in general, is lower. The results from the IV regressions are shown in Tables 4. The first stage results are in Table A.5.

3.5 Main results

The first three columns of Table 4 shows the results for the CHARLS. For $any\text{-}transfer$, the coefficients of $maleP$ and $maleP \times hh\text{-}size$ have opposite signs compared to the corresponding coefficients in OLS results, but all four coefficients are insignificant. The coefficients of $maleP$ and $maleP \times hh\text{-}size$ for the amount of any transfers provided and $maleP \times hh\text{-}size$ for the visits paid are consistent with the OLS results. The $maleP$ coefficient for *visit days* is negative and significant in the IV results. The CHARLS IV results show that the father demonstration effects are positive for all three outcomes, and significant for the probability of providing any transfer and the visits paid. One unit increase in the actual gender ratio of K in fathers' households increases the fathers' probability of providing old-age support to their parents by 7.9%. A simple interpretation is that, compared to fathers with only daughters, fathers with only sons are 7.9% more likely to provide support of any support to their own parents. They also pay 72 days of annual visits more to their own parents. For the mother demonstration effect, the coefficients of sex_ratioK are negative yet insignificant for three outcomes. These results indicate there might be some potential mother demonstration effects, but the effects are less significant compared to the father demonstration effects. It implies that mothers may also try to demonstrate filial piety to their daughters, as the fathers in the CHARLS do.

The demonstration effect in the CHFS is different from the father demonstration effect in the CHARLS. The mother demonstration effect is stronger and more significant than the father counterpart.[22] The coefficients for sex_ratioK are negative and significant for the probability of providing any support and visits paid to their own parents, and negative for the amount of transfer. Similar interpretations, mothers with only daughters are 7.3% more likely to provide any support to their own parents than mothers with only sons. They will also devote 46.9 more days per year visiting their own parents. In the CHFS, it is difficult to draw any conclusion about the father effect. The coefficients for $sex\_ratioK + maleP \times sex\_ratioK$ are insignificant for all outcomes, and the signs of these coefficients are also inconsistent.

[21] It would be desirable to use the gender of the first child born on or after 2003 as IV directly. Yet this would impose more assumptions when constructing the IV for the CHARLS. The desired IV is applied in the CHFS. The results using this IV give me larger and more significant results than the main results presented. This is because the IV desired is a subset of the IV used. So the results in this paper is a lower-bound of the demonstration effect in terms of the IV used. Also, the CHFS data also tells me that the gender ratio of the first child is lower in households having at least one child in or after 2003 compared to the gender ratio of the first child born on or after 2003.

[22] The difference between the mother demonstration effects and the father demonstration effect is $-2\beta - \theta$, which are significant for the outcomes *any-transfer* and *visit days* in the CHFS results.

The gender ratio of the third generation is the actual gender ratio of children in P's households. Using the actual gender ratio, I impose a linear assumption on the gender ratio when interpreting the results. It is possible that the linear interpretation would be violated when the gender ratio changes from values below 0.5 to values above 0.5. So I create a variable, $more\_sons$, which is a dummy variable equals 1 if the gender ratio is greater or equal to 0.5, and 0 otherwise. The results are presented in Table A.6. The coefficients are very similar to and consistent with the ones in Table 4. So I continue to use the actual gender ratio sex_ratioK as my main regressor in the later analyses. It is also possible the definition of the outcome variables, especially for financial old-age support, could affect the results. In Section A.2 in Appendix A, I discuss detail about different ways to present the financial old-age support and show the demonstration effect under the different representations. The signs of the father or mother demonstration effects in Table A.7 are also mostly consistent with the main results in Table 4, yet the significance-level varies. Another problem that might arise from the controls is household size. The household size control, which includes the number of children in households, might be endogenous with the gender ratio of the children. To deal with this possible endogeneity, I calculate two counter-factual household sizes using Qian's method in her working paper in 2009. The detailed description of this method is in Appendix A.3. Given the data limitation, this household size adjustment is only applied to the CHFS results. The IV results using the counterfactual household size in Table A.8 are consistent with the main results presented. The results using Qian's adjustment suggest that there are certain endogeneities between the household size and the gender ratio of the children, but the bias caused by these are not large enough to affect the main results.

The IV results from the CHARLS and the CHFS, they show a very interesting phenomenon. The fathers in the CHARLS and the mothers in the CHFS both demonstrate to their same-gender children. They counterpart demonstration effects insignificantly appear in the corresponding dataset. One possible explanation may be that the CHARLS and the CHFS focus on different samples. As shown in the summary statistics, one major difference between the CHARLS and the CHFS is the proportion of urban samples in each dataset. The CHFS has a sample of which 65.2% live in an urban area, while the sample in the CHARLS contains 33.2% urban dwellers. In the CHARLS OLS results, fathers, in general, support their own parents more than mothers do. This result is consistent with the hypothesis that sons in rural areas are still preferred for their propensity to provide old-age support. In China's rural areas, a higher proportion of people accept traditional gender discrimination/stereotype, and females have less bargaining power in their households than males (Wang and Zhang, 2018). Urban areas contain more households with a single child than rural areas do as a result of the "1.5" Child Policy implemented in China (Rosenzweig and Zhang, 2009; Wang and Zhang, 2018).[23] If a household only has a daughter, mothers are more likely to demonstrate to this daughter so that they can look forward to receiving support when they grow old. Urban areas in China also have more opportunities for female labour market participants and more gender equality compared to rural areas, which indicates higher females bargaining

[23]The gender preference in the CHFS is in Table A.9.

power in the households. My predictions for the discrepancies between the CHARLS and the CHFS are an urban-rural difference and/or a single-K/nonsingle-K household difference. The significant female or male demonstration effect might be driven by the corresponding subsamples with more observations. The results of a subsample check and heterogeneity analysis provide more empirical findings on these two conjectures in the following subsections.

There is a possible channel that could also explain the demonstration effects that I found. Fathers with only or more sons might anticipate receiving more old-age support in future, thus they are able to provide more old-age support to their own parents because they do not need to save for their old age. Analogously, it could happen to mothers in the urban areas as well, if their daughters are the possible future old-age support. They could have more money to provide support to their own households. This channel works in the same directions with the demonstration effect. It is likely that they co-exist in the real world scenario and also in the empirical results. The key component that distinguishes the demonstration effect from this possible channel is that the demonstration behaviours from fathers and mothers need to be observed by their same-gender children. In the CHARLS, there are two different types of transfer: regular transfer and non-regular transfer. The regular transfer is the fixed-amount transfers that parents make to their elderly parents at fixed times, which suits the definition of old-age support but less visible to their children. The non-regular transfer represents transfers provided by the parents at festivals, birthdays, weddings, funerals, and for medical treatments, and also for other non-regular but important social events. In these family-gathering situations, the provisions of transfer are more visible to their children. If the channel described and the demonstration effect co-exist, then I would expect both coefficients representing the father or mother demonstration effects are significant when using the regular and non-regular transfer as outcome variables. Also, the magnitudes of these demonstration effects should be larger for the more visible transfer compared to the less visible one.

Table 5 show the corresponding results for four different outcomes: the probability of providing regular and non-regular transfer, and the amount of regular and non-regular transfer. Focusing on the IV results in Panel B, the father demonstration effect is 5.6% for the probability of providing non-regular support and 3.2% for the corresponding probability for the regular transfer. In terms of the amount of the regular and non-regular transfer, both father demonstration effects are insignificant. The magnitude of the effect for the regular support is larger than the one for the non-regular. This can be interpreted as a substitution effect between the regular and the non-regular support due to household budget constraint. Males are responsible for the regular old-age support provision, according to the traditional gender norm of the old-age support. The mother demonstration effects for the probability of providing non-regular support is positive and insignificant. Yet, one interesting result from Table 5 is the significant mother demonstration effect for the amount of non-regular transfer. The results suit the traditional norm of old-age support as provided by adult daughters in rural areas: they are not mainly responsible for the living expense of their parents. The results from Table 5 shows that the possible channel discussed could be one of the possible channels that drives the results, but the larger effects for the probability of providing more visible old-age support might indicate the demonstration effects also exist.

In the main results, I notice the demonstration effects of visits paid to the parents are larger than other outcome variables when compared to their corresponding mean. Cohabitation with the elderly parents would be one of the possible explanations for the large effect in visits paid to O. Living together with the elderly parent is one important way to take care of them. Although this may count as mutual care of the family members, it seems that the P generation is more likely to take care of their elderly parents with respect to income-earning. In the literature, cohabitation with one's ageing parents is generally used as an outcome variable. In my specification, the probability of providing monetary support and the outcome variable *visit days* partially capture the cohabitations. I use cohabitations with O as a dummy outcome variable for both datasets. The prediction of the results would be similar: the same-gender demonstration effects of cohabitation. The results are shown in Table 6. Both mothers and fathers are more likely to cohabit with their parents to demonstrate filial piety to their same-gender children, except for the father demonstration effect in the CHFS results. The father demonstration effects of cohabitation are significantly larger than the mother effects in the CHARLS. The same-gender demonstration effect has a higher significant level for this outcome variable than the main CAHRLS results.

Apart from running the main regression on the cohabitation dummy, I also check the subsample of those who are not living together with their own parents for their old-age support provision. The results are in Table A.10. The results imply that the father demonstration effect in the CHARLS might be driven by P who cohabit with their parents. But in the CHFS, the mother demonstration effect shows up in the subsample results as well. The living pattern in urban and rural areas could explain why two subsamples are showing the demonstration effect results for the CHARLS and the CHFS. Nuclear families are more common in urban areas; while in rural areas, people are more likely to live with extended family members, especially with males' ageing parents and sometimes their unmarried or even married male siblings.

In summary, the results from each dataset show up specific gender demonstration effects for various old-age support outcome variables. With more rural samples, the CHARLS results indicate the father effects, and the mother effect exists in the urban-sample dominated CHFS. However, the conclusion here is not that there is no mother nor father demonstration effect from the CHARLS and the CHFS correspondingly. These effects are merely not showing up significantly in the results using the full sample.

3.6 Subsample analysis and heterogeneity check

To verify the effect of the gender composition of K on old-age support working mostly through the demonstration mechanism, I use results from the subsample analysis and the heterogeneity check to show whether, in different circumstances, the results are still consistent with the predicted results from this mechanism. The analyses are conducted for both or only one of the datasets, depending on the available information. I mainly describe the subsample analysis results and then mention the consistency of the results with the corresponding heterogeneity checks. Since the CHARLS data exhibits the father demonstration effect and the CHFS shows the mother effect, I focus only on the father effect in different groups from the CHARLS and the mother effect in different groups from the CHFS. Six categories are used for the analysis: high or low income-level, singleton or non-singleton households regarding the children, urban or rural residence, parents with or without older brothers, the pension coverage of the parents, and membership of the *Han*/non-*Han* ethnic group. The category for the singleton or non-singleton households and the urban-rural residence are the two categories that may provide possible explanations for the discrepancies between the results from the CHARLS and the CHFS.

3.6.1 Income-level difference

As the future support for the elderly received from the offspring acts as an economic incentive to have children (Banerjee and Duflo, 2011; Alfano, 2017), households at different income levels should have different patterns for the demonstration effect. People in the high-income group will have enough savings, investments, and pension income to support their consumption after retirement. So, their incentive to demonstrate to their children by pecuniary support for the elderly is not as large as those who in the low-income group. For the financial old-age support, if the demonstration effect is to obtain secure private old-age support in future, the subsample results would show larger or more significant demonstration effects for people in the lower-income group than those with higher income. Regarding the non-pecuniary support, the high-income group may demand it as much as or even more than the other group, so larger or more significant father and mother demonstration effects are also expected for *visit days* in the high-income group. The reason for the possible higher demand for non-pecuniary support for the high-income group is that the time and monetary support are substitutes.

The subsample IV regression results for the CHARLS and the CHFS are shown in Table 7. The CHARLS only have one categorical variable of the household income level of the parents. To get a balanced subsample in the CHARLS, I classify those whose household income level above the 20,000 RMB per year category as the high-income group. The father effects in the low-income group are significant for the two pecuniary outcomes; while for the high-income, the father demonstration effects are not significant for these outcomes. For the non-pecuniary outcome, the father demonstration effect is also significant in both high and low-income group, but the magnitude of the effect is greater in the high-income group. The mother demonstration effects for visits paid in the high-income group are positive, yet they are negative in the other group. But both of the mother effects are insignificant. The coefficients seem to be consistent with the prediction. The evidence for the mother demonstration effect of pecuniary outcomes is that mother insignificantly signal the old-age support behaviours to their daughters.

With the detailed income information in the CHFS data, I classify those who have above the average income in the high-income group and the rest of the sample in the low-income group. The last three columns of Table 7 show that in the low-income group, mothers increase their visits paid to their own parents with more daughters, which implies a mother demonstration effect in the non-pecuniary old-age support. While in the high-income group, the mother demonstration effects are insignificant for all outcomes. The mother demonstration effect for *amount* is even positive. For the insignificant mother effects for *visit days*, it could be the reason that people in urban areas with busier lifestyles than rural areas, so people with high income might hire others to take care of their own parents.

The heterogeneity check provides similar results to those of the subsample analysis. It can also check whether there are significant differences in the demonstration effect between the high and low-income groups. The results of the heterogeneity check for the income-level are shown in Tables A.11. The CHARLS results show that the father demonstration effects for pecuniary outcomes are positive and significant in the low-income group, while they are negative and significant in the high-income group. The differences in the father demonstration effect between these two subgroups are significant for the two pecuniary outcomes, which indicates the low-income group has a larger father demonstration effect than the high-income group. Both groups show positive and significant father effects for the visits paid, yet the difference is insignificant.

In CHFS heterogeneity results, an important coefficient is the coefficient for $sex\_ratioK \times high\ income$. It is the difference between the mother demonstration effects for P with high-level income and with low-level income, which should be negative and significant if the mother demonstration effects for P with high-level income are larger than the effects for P with low-level income. The absolute value of the coefficient of sex_ratioK is now the mother demonstration effect for P with low-level income. The mother demonstration effect in the high-income group is insignificant for the pecuniary outcomes and positive and significant for the visits paid. The coefficient for $sex\_ratioK \times high\ income$ is positive and significant for the amount of transfer and the visits paid, which implies the mother demonstration effect for P with low-level income is larger than the effect in the high-level income group. The CHARLS heterogeneity results are mostly consistent with the subsample analysis, yet the CHFS heterogeneity analyses fit the prediction better than the subsample results. Both of these CHFS results show the low-income group has larger father demonstration effects.

3.6.2 The number of the children

The number of children could also be an explanation for the discrepancy between the CHARLS and the CHFS results. Most of the households with only one child ('singleton households') are the households that strictly comply with the OCP. These households may hold modern views of gender roles; hence, females in these households may be able to enjoy higher bargaining powers. A preference for sons is a good indicator of whether a household has more traditional views on gender roles. Such households are more likely to violate the OCP (or be allowed by "1.5" Child Policy) to have a second child if their first child is a girl. So females in these households have less intra-household bargaining power. If the existence of the father and mother demonstration effects depends on the intra-household bargaining, then I expect larger and more significant mother demonstration effects in singleton households and father effects in non-singleton households. Table 8 displays the results for the CHARLS and the CHFS.

The first three columns of Table 8 show male P in both types of households increase the visits paid with more sons. P with non-single child family show significant and positive father demonstration effect in terms of the probability of providing any transfer to their own parents, while the corresponding father effect is insignificant in the households with a single child. As discussed in the previous section, given the OCP, households with more than one child are usually rural households or urban households with relatively strong son preference. If the OCP is violated in urban areas, the fine is higher than in rural areas (Ebenstein, 2010). Non-singleton households in urban areas usually possess a stronger preference for sons than singleton ones do; hence, females may have less bargaining power in this type of households. The singleton households in the CHARLS is trying to show up a mother demonstration effect in the pecuniary old-age support, when the magnitude of the coefficient of *sex_ratioK* is larger in this subsample than the magnitude in the non-single child households, although both of them are insignificant.

The CHFS results in Table 8 show significant mother demonstration effects in singleton households in terms of the probability of providing any transfers and the visits paid. But in terms of the amount of provision and the visits paid, the non-singleton households also show significant mother demonstration effects. The father demonstration effects are insignificant for both subsamples. The results of the heterogeneity check for the singleton and non-singleton households are shown in Tables A.12. The CHARLS results show that the father demonstration effect in terms of the visits paid is on average greater in non-singleton households than in singleton households, yet the difference is insignificant. Table A.12 also shows that in the CHFS the mother demonstration both exists in the singleton and the non-singleton households. But, for the amount of transfer provided, the non-singleton group has a larger and significant mother demonstration effect compared to the singleton group. The heterogeneity analysis results are in general consistent with the subsample analysis. Higher bargaining power for mothers in singleton households is one of my conjectures for explaining the difference between the CHARLS and the CHFS results. But the CHFS results do not support this conjecture completely. I need to explain the discrepancy of the results between the CHARLS and the CHFS by the urban-rural difference.

3.6.3 Urban-rural differences

Another conjecture in explaining the discrepancies between the CHARLS and the CHFS results is the urban-rural difference. Residences in urban areas in China enjoy more developed public pension systems, more opportunities for females to be employed and more gender equality. As the previous argument, with increase in females' social status and household bargaining power in urban areas, the mother demonstration effect should show up more in urban subsamples, and the father effect should appear in the rural one. Table 9 presents the regression results for the urban and rural subsamples in the CHARLS and the CHFS using the IV regressions. In the urban and rural areas in the CHARLS, the gender effects of the children are insignificant for pecuniary and non-pecuniary outcomes of the mother demonstration effect. While in the rural subsamples, the father demonstration effects are significant for *any-transfer* and *visit days* for. In urban areas, the CHARLS results only show up a significant father demonstration effect for the visits paid. The heterogeneity analysis in Table A.13 shows the father demonstration effect for the amount of transfer and the visits paid are significantly larger in the rural areas. The heterogeneous analysis findings may indicate that the the fathers' bargaining power in terms of supporting the elderly is not strong in urban areas compared to rural areas.

The difference in the gender effects of the children between rural and urban areas in the CHFS mostly corresponds to my prediction. The last three columns of Table 9 show that the mother demonstration effect is significant except for *amount* in the urban subsample. In the rural subsample, there is no significant demonstration effect for mothers to their daughters nor fathers to their sons in terms of the pecuniary outcomes. Although mothers in rural areas has little bargaining power over the pecuniary outcomes, the results also shows that they do try to demonstrate to their daughters in terms of the non-pecuniary outcomes, which they may have higher control over. But the differences between the rural and urban mother demonstration effects are insignificant. The father demonstration effect for *visit days* in the rural subsample is significantly larger than the corresponding coefficients in the urban subsample with the supporting evidence from Table A.13. Also in Table 9, the magnitude of the mother demonstration effect from the rural sample is larger than the corresponding effects in the urban areas. This might be explained by different residence patterns in urban and rural areas in China.

The urban-rural subsample analysis generally supports my prediction of more mother demonstration effects and fewer father effects in urban areas. Scholars believe that females have higher bargaining power in urban areas in China (Fong, 2002). However, certain urban households where the first-born is a girl would still pay the high fine to have a son (Ebenstein, 2010). Lee (2012) and Hu and Shi (2018) find that the human capital investment for boys and girls is not significantly different in singleton households, but the gap is still wide in multiple-child households. Fong (2002) also limits the rising female empowerment in urban China only to daughters in singleton households. I run a simple urban-singleton and other types of household subsample in CHARLS. The results for this simple subsample are shown in Tables A.14 and are mostly consistent with Table 9. The similar results between urban-rural and urban-singleton subsample results show that the urban-rural difference in females' intra-household bargaining power is a possible explanation for the discrepancies between the CHARLS and the CHFS results.

3.6.4 Siblings of the parents

Supporting ageing parents is crucial for most males in China owing to the enduring cultural impact of Confucianism. Some people have to support their own parents, regardless of the gender of their children. This is especially true for many males who are the eldest son. It may also be the case for some females if they are the eldest child and/or have no older brothers. If people are not fully responsible for the support of their elderly parents and only want to demonstrate the norm of providing support for the elderly to their children, there may be greater effects from the gender ratio of the children. I use the same regression equations and the identification methods to obtain the separate results for those who with and without older brothers. The results are shown in Table 10. The CHFS provides only the number of siblings for the main respondents in households, but no information on his or her rank in the siblings.

So this subsample analysis is conducted in the CHARLS dataset only. The results indicate that, for the probability of providing any support and also the visits paid, the father demonstration effects are all significant for those with older brothers and for those without. However, the heterogeneity results in Table A.15 shows the difference is insignificant for the visit days paid. For the probability of providing any transfer, the group without older brother shows up significantly lager father effect than the other group. I cannot draw any conclusions on the subsample check results in this part.

3.6.5 Pension coverage

Family support for the elderly acts as a complement of the public pension scheme. Under the demonstration channel, if parents do not have public pension coverage, then they are more likely to provide more support to their elderly parents if they have more same-gender children to secure future old-age support. The demonstration effect will be larger or more significant for parents without any pension coverage, especially for the pecuniary old-age support. To check this hypothesis, I conduct heterogeneity analysis on parents with and without a pension scheme. In the CHARLS, due to the data reconstruction, I have no information on P's pension coverage. However, I use the occupation of the parents as a proxy for their pension status. The CHARLS provides six categories of occupation for the parents, namely, managers; professionals and technicians; clerks, commercial and service workers; agricultural, forestry, husbandry, and fishery producers; and production and transportation workers. Of these six categories, the agricultural, forestry, husbandry, and fishery producers are less likely to be covered by public pension schemes, as indicated in Table 1. I create a dummy, $pensionP$, that equals 0 if a parent is classified as an agricultural, forestry, husbandry, or fishery producer, and 1 otherwise. The results from this heterogeneity analysis are shown in Table 11 and they show that the father demonstration effect is larger for parents if they are less likely to be covered by a pension system for the visits paid. But for *amount*, it is the other group showing up the father effect. The difference between the father demonstration effects in the group with pension coverage and without is insignificant for the probability of providing any transfer. The empirical results from the CHARLS only fit a small part of the description of the relationship between pension coverage and family old-age support. It may due to the dataset with inaccurate information.

In the CHFS, the information is available for defining the exact pension status of the parents. I create a dummy which equals 1 if a parent is covered by at least one pension scheme, and 0 otherwise. The heterogeneity check results are shown in the last three columns of Table 11. Yet mothers, both with and without any pension coverage, have two out of three significant negative coefficients corresponding to positive mother demonstration effects. The differences between them show that the mother demonstration effects for P without any pension coverage are larger the effects in the other sub-group, although only the difference for *amount* is significant. The CHFS results in Tables 11 might provide a piece of suggestive evidence on the relationship between pension coverage and family support for the elderly suggested previously in the paper. Similar conclusions are difficult to draw from the CHARLS results.

3.6.6 *Han* culture and norm

As discussed in the background section, the norm of providing support for the elderly is closely linked with Confucianism and filial piety. This raises a possible concern: because the culture of Confucianism is well-known in Chinese society, not only do parents teach their children to provide support for the elderly in the future through the demonstration effect, but also the surrounding community, in schools, the neighbourhood, or the media, could shape young children's predilection to provide support to their parents in their old age. *Han* ethnic group is the majority ethnic group in China and filial piety is the key value in the *Han* group. If other channels apart from the parents affect children's preferences regarding old-age support, the demonstration effect from the parents will be smaller or less significant in a *Han*-ethnic dominated community or an exclusively *Han*-ethnic group. In the community survey questionnaire in the CHARLS, there is information on whether minority ethnic groups are living in the same community that the parents live in. I generate a dummy that equals 1 if there are minority ethnic groups living in the community, and 0 otherwise. From the results in Table A.16, the father demonstration effect for *any-transfer* and *visit days* in communities with people from minority ethnic groups are significant, yet the differences are insignificant for the fathers in two types of community.

There is no information on the community ethnic composition in the CHFS, but there is detailed information on P's ethnic groups. So I use this information to check whether *Han* ethnic group are more likely to demonstrate the filial piety to their children than other ethnic groups. I create a *Han* dummy that equals 1 for members of the *Han* ethnic group, and 0 otherwise. In the heterogeneity analysis results in Table A.17, the mother demonstration effects are significant for *Han* ethnic groups in terms of *any-transfer* and *visit days*. The effects are insignificant for the non-*Han* group. Yet, the differences are again insignificant. The heterogeneity analysis results from the CHARLS and the CHFS seems to lead to opposite implications. The CHARLS results imply the social influence might act as the complement for the family demonstration effect, and the CHFS results indicate that mothers in *Han* ethnic group may still perceive self-demonstration of the filial piety more important than other ethnic minority groups. The only conclusion here is that the family demonstration effect and other social influences might co-exist as channels passing on the filial piety.

4 Robustness check

4.1 Mechanism check

Other different channels may also explain the effects of children on the support for the elderly provided by their parents. The results from the subsample check and the heterogeneity analysis only show a few possible drivers behind the demonstration effect. In this section, I check other mechanisms discussed in the literature review section and try to disentangle the demonstration effects from these additional mechanisms. I first discuss the channels of altruism and direct reciprocity that may affect my empirical results and go on to discuss the effectiveness of the demonstration effect.

4.1.1 Investment in K and household budget constraint

One of the possible explanations for the mother demonstration effect is that, given the household budget constraint, higher investment in sons might lead to less old-age support provided by the elderly generation. The education investment in children would be a good example for the investment in children that are highers for sons and lower for daughters in China, except for urban singleton households (Fong, 2002). Having daughters in households, mothers may invest less in daughters' human-capital such that they can provide more for their parents, leading to the significant mother demonstration effects in the CHFS. However, this argument does not work for the significant father effects from the CHARLS results.

Checking from the dataset, I run the main regressions on three new outcome variables presenting the investment in the education of K. Only the CHFS offers information on the education investment in K. If the household budget constraint is the main reason behind the mother demonstration effect, the results should show that mothers with more daughters have less education investment on their children. The evidence from the CHFS is shown in Table A.18. It implies that mothers with more daughters increase the amount of education investment and the percentage of education investment in the household expenditure, and decrease the probability of investing in K's education, controlling for the household size. For fathers with the household size fixed, with more sons, they increase the probability of investing in K's education, yet decrease the amount of education investment and the percentage of education investment in the household expenditure. From the results, the gender of K affects the total amount of education investment and the probability of providing education investment in different ways, so I cannot draw the concrete conclusion on whether mothers and fathers invest more on their daughters or their sons. However, in terms of the absolute and the percentage amount of education investment, it seems households invest more on daughters, regardless of the gender of the parents. Different investments in sons and daughters of P might not be the main channel for the mother demonstration effect in the CHFS results.

4.1.2 Altruism and Direct reciprocity channel

A main mechanism of providing old-age support is altruism (Becker, 1976). If the main mechanism is pure altruism, the only reason behind the parents providing support to their own elderly parents is that these parents are poor and in need of help. There should not be any significant coefficients for the gender of the adult children, the gender ratio of the children or their interaction term after controlling for the income of the elderly parents in the regression. I run heterogeneity checks on the elderly parents' income-level as included in the CHARLS only. In the sample, most of the elderly parents observed have no income, so I create a dummy $income\ of\ O$ which equals 1 if the elderly parents have some income, and 0 otherwise. The results are shown in Table 12. They reveal that, for *any-transfer* and *visit days*, the father effect is significant for elderly parents without any income, whereas for the high-income group, the effects are positive but insignificant except for the father effect for *visit days*. However, the key is that the difference between these two groups is also insignificant. I may draw the conclusion that there is a certain degree of altruism among the motives of providing support to one's elderly parents, but it is not the main channel working behind the empirical results in this paper.

Another mechanism discussed in the previous section is direct reciprocity. One kind of direct reciprocities in the context of old-age support is the parents support their ageing parents to repay the investment in their childhood. I name this kind of direct reciprocity as sequential direct reciprocity. It may explain why females provide less support to the elderly to their parents because, according to the CHARLS, they did not get enough financial nor non-financial investment from their parents during their childhood. Only the CHARLS provides the relevant information, so I use only this dataset to check this mechanism. If sequential direct reciprocity is the only channel for old-age support to flow along, then controlling in the regression for the financial and non-financial investment received by the parents in their childhood should confirm that males and females in the P generation should provide the same amount of old-age support. Moreover, the gender of the children should not have different effects on the transfers provided by the parents. I control for different variables that indicate the financial investment and non-financial investment the P received during their childhood in the regression. The results are in Table 13.

There are two variables represent the time investment (non-financial support) during the parents' childhood. *awaytime* is the variable representing how long a P has been away from his or her parents in childhood, and *awayage* indicates the age when the parent left her/his parents. The *log edu expense* indicates the financial investment in education that P received in their childhood. I also show the coefficients for *edu level* in the table, which is the education level controlled in the main regression. It is another indicator of the size of the financial investment. Table 13 shows that, after controlling for the non-financial, financial investment, and their interaction terms with $maleP$, the coefficients that represent the demonstration effect are still similar to the results in Table 4. With most of the coefficients representing the father demonstration effect being still significant, it also suggests that the same-gender demonstration effect is still the main channel as described. Most of the coefficients regaring the financial and non-financial childhood investment received are insignificant as well. In addition to the results in Table 13, the CHFS main results may also demonstrate that this sequential direct reciprocity channel is not the main mechanism. In general, mothers provide more to their own parents in the CHFS than fathers, given the fact that females on average have a lower education level than males.

Another direct reciprocity channel works through the current-period transfers from the elderly parents to the parents. This is a type of non-sequential direct reciprocity. In the main results in the CHARLS and the CHFS, I control the transfer from the elderly parents to the parents. This variable would, in theory, have positive effects on the outcome variable, and vice versa. I also control for the time that the elderly parents spend on taking care of the children of the parents and also the transfer to the children in the regressions in the CHARLS. For the robustness check, I show the regression results without these controls in Table A.19, also their corresponding coefficients in Table A.20. The key results are similar to the main results, except for the mother demonstration effect for *any-transfer* in the CHFS.

The rationale behind the non-sequential direct reciprocity is that if the parents with more same-gender children receive more from their elderly parents, then they provide more old-age support than those receiving less. However, when I run the same regression on the transfer received by the parents from their elderly parents, the CHARLS results appearing in the second column of Table 14 show that people who provide more to their elderly parents, namely fathers with more sons, receive less. Also, for the CHFS in the fourth and the fifth column of Table 14 show the fathers, who are more likely to receive transfers from their parents with more sons, are not more likely to provide transfer to their parents. Also, in the CHFS, mothers increase the probability of old-age support provision with more daughters but are less likely to receive transfers from O. The results may fit the explanation by Li et al. (2010): the elderly parents may show more altruism toward their adult children, which are P, who do not provide more transfer than others, rather than expecting commensurate paybacks from the parents who receive their support. To conclude, the non-sequential direct reciprocity may exist, but there is still room for the proposed mechanism: the demonstration effect.

The CHARLS results in Table A.20 show that the coefficients for both time and financial transfer from elderly parents to their grandchildren are positive for most of the outcome variables. This may suggest another form of indirect reciprocity. The elderly can transfer to their favourite grandchildren. If the favourite grandchildren receive more, their parents are more likely to provide support to their corresponding grandparents, O, in return. This indirect reciprocity has no time lag for the payback, unlike the demonstration effect studied in the paper. The preferred grandchildren are usually grandsons, which might lead to the significant father demonstration effect in the CHARLS. If the indirect reciprocity works in this way, male parents with more sons should have more transfers from their elderly parents to their sons. However, the third column of Table 14 shows that, statistically, male P's sons do not receive more than daughters of males with more daughters. These grandchildren gender effects are not significant for transfers from elderly parents. Thus, it is less likely to be the main channel driving the main results.

4.1.3 Effectiveness of the demonstration effect

Apart from verifying the possible channels, I also test for the effectiveness of the demonstration effect. The previous results imply only that the parents demonstrate filial piety to their children, but they do not show whether the children actually go on to provide old-age support to their parents in the future. Using the CHARLS dataset only, I obtain the information on support in old age that is provided by the elderly generation to their own parents, who are the grandparents of the parent generation. I run a simple OLS regression to regress the upward-transfers of males and females among the elderly parents to their own parents on the outcome variables used for the CHARLS results. I run the regression separately for male and female parents. The types of transfer provided by the elderly parents to their own parents on the left-hand side of the equation also match the corresponding dependent variables. Take, for example, the regressions for $log(regular)$, two key regressors, *father's transfer* and *mother's transfer*, these are the logarithm amount of the regular transfer provided by the O generation to their parents. The outcome variables are the probability of providing any, regular, and non-regular transfer, and the logarithm of the amount of regular and non-regular transfer from the P generation to the O generation. The control variables are the same as the controls in Table 2. One extra control that I have for the particular regressions is the average self-reported health of the grandparents of the parents. The health problems of P's grandparents may affect the support provided, given their old age.

The results are combined in Table 15. The key regressors for male and female P panels are *father's transfer* and *mother's transfer*. For male and female P, the demonstration effects seem to take into account the effects from the same gender channel: females are more affected by the support for the elderly provided by their mothers than their fathers'. The converse is partially true for males. The same-gender demonstration effect is more significant for female members of P than the cross-gender demonstration effect. The magnitude and also the significance level for *father's transfer* are much smaller than the *mother's transfer* for female P; while for males P, the difference is not large. The results show that if the members of O provide more to their parents, they are more likely to receive more from their children, P.

4.2 Panel results: Event study

The main regression results mainly show the cross-sectional empirical evidence of the demonstration effect. The conclusion will be more convincing if there is empirical evidence from a panel dataset. Both the CHARLS and the CHFS are longitudinal datasets, but CHARLS does not provide information on the gender composition of the children for the whole sample in the 2013 and 2015 wave. The CHFS contains this necessary information in the 2011, 2013, and 2015 wave. The reason for using this three-wave dataset is to gain more yearly data before and after the event. The drawback of using the CHFS is that I can only test the demonstration effect on one consistent outcome variable - the probability of providing old-age support - for three different waves. Together with the limited number of waves in the CHFS, I use only the panel result as a robustness check for the main results.

To examine the yearly effect of having a son or a daughter on old-age support, I use the event study approach. The event is the birth of the first child. The event usually causes sharp changes in several outcomes for the parents, especially labour market outcomes (Kleven et al., 2018). I apply a similar event study approach to that used by Kleven et al. (2018) and aim to show even possible causal results in the event study approach. In the three-wave panel dataset, the sample is still limited to household respondents. Given the event study approach setting and the limited number of waves for the data, the panel sample includes only those respondents whose first child was born between 2011 and 2015. For each household respondent, I set the event time $e = 0$ for the year in which the respondent has his or her first child. The value of other years is set relative to the $e = 0$ year. Using the specification in Kleven et al. (2018), the regression is:

$$y_{ite} = \sum_j \alpha_j \times \mathbf{I}[j = e] + \sum_k \beta_k \times \mathbf{I}[k = age_{it}] + \sum_l \gamma_l \times \mathbf{I}[l = t] + \varepsilon_{ite}, \quad (2)$$

where i stands for individual i, t for wave t, and e for the event time e. y_{ite} is the probability of providing support to elderly parents. $\mathbf{I}[j = e]$ represents the event time dummies, $\mathbf{I}[k = age_{it}]$ is for the age dummies, and $\mathbf{I}[l = t]$ is the wave fixed effects. By controlling the age dummies, I can control the non-parametrical underlying life-cycle trend (Kleven et al., 2018). I run this regression separately for four different groups: fathers with a first son (father-son), fathers with a first daughter (father-daughter), mothers with a first son (mother-son), and mothers with a first daughter (mother-daughter). Then I compare the results for the parents within a certain gender and observe that the effect of having a first son/daughter on the father/the mother. The reason why the results may be causal is that I examine the variation in the results caused by the gender of the first child. As noted in the previous section, the gender of the first child is almost exogenous. In addition, the timing of the birth for the first child is after 2003, which is after the ban on the use of ultrasonography techniques for sex-detective abortions. The regression results are shown in Table 16. The sample size for each group is around 800 observations, which also indicates that the gender of the first child in the event study sample is satisfactorily balanced.

The graphs for the plot of the event time dummies coefficients are in Figure 6. The graph on the left shows the difference between fathers with a son and fathers with a daughter. The right graph is the difference between mothers. After the birth of a first child, the mothers with a daughter provide more than those with a son, whereas the differences between fathers are relatively small. For the pre-trend of the event study, I only observe one period before the birth of the first child in the panel due to the limitations of the data. But from this one-period pre-trend result, it seems that for mothers and fathers, the pre-trend differences are insignificant. Lack of the pre-trend time period affects the validity of the inference and the causality of the event study results. But the results may provide some insights into the effects of the gender of the children on the old-age support provided by their same-gender parents.

There is a concern that the mother demonstration effect from the event study takes off from the birth year of the child. For the demonstration effect, K have to observe the corresponding behaviour of their same-gender P. More likely to provide old-age support during the very early stage of K's life (age 0-2) would not help with the interpretation of the demonstration effect. However, the birth of a new child is a big change in household composition. According to Heath and Tan (2018), "a daughter raises her mother's participation in household decisions", and the mothers with daughters seek more female autonomy in their households. A newborn girl in the family, the mother realises that she needs to start to participate more in the decisions on the household resources allocation and to provide more old-age support to her own parents, so she could affect her daughters' norm formation later and receive more old-age support in her old age. It is also possible that a mother with a newborn daughter will receive more support from her parents, so that she provides old-age support to her parents accordingly. If this is the case, then fathers with a newborn son should also get more support from his parent, yet the old-age support by fathers to their parents are not significantly more than those with a newborn daughter.

5 Conclusions

The existence of a younger generation plays an essential role in parents' decisions on the support that they provide for the elderly. This paper finds that the gender of the children in China affects the support for the elderly provided by their parents. The parents are more likely to provide more financial and non-financial support to their ageing parents when they themselves have more same-gender offspring, which is the demonstration effect. However, the demonstration effects by mothers and fathers are exhibited in different areas in China. Rural areas show the father demonstration effects while mother demonstration effects appear in urban areas. The urban-rural difference may be due to female empowerment in urban areas, but this needs to be verified by future studies. The demonstration effect is a way for the norm of providing support in old age to be conveyed to future generations. The intergenerational transmission of norms is also gender-specific.

This paper theoretically predicts that support for the elderly provided by a father increases when more sons in his family and when he has greater bargaining power than his wife, fixing his household size constant. The support for the elderly provided by mothers increases with the advent of more daughters and when mothers earn more income. The empirical results of the gender ratio for the household's children match the predictions of the model. In China, urban females have more bargaining power in their households than females in rural areas have. The findings indicate that the mother demonstration effect mainly shows up in the dataset with more urban samples. The heterogeneity analysis for the urban households further suggests that the assumption of intra-household bargaining is valid. The theoretical model that support the empirical results.

The empirical evidence shows that the gender of the parents and their children in China jointly affect the likelihood and the amount of old-age support, both financial and non-financial, that they provide. The story behind this is more complicated than any pure gender effect from the children. The proposed mechanism, with the same-gender intergenerational transmission, is indirect reciprocity, or the demonstration effect. It carries the social norm of providing private support for the elderly across the generations. Given the heavy financial burden of the public pension system facing the central government in China, the government has realised that private support for the elderly is a crucial complement to the public pension. In 2017, the central government started a pilot implementation of "homebased old-age care services". One of the expected goals of this pilot implementation is to collect information on the demographics of all households with ageing parents and use the information to set future policies or incentives for completing the home-based system of care services for old people.[24] The empirical results in the present paper can offer some insights into the demographics of those who provide or do

[24] Website: http://xinhuanet.com/gongyi/yanglao/2017-04/17/c_129543350.htm

not provide support to their ageing parents: policy-makers could introduce diverse incentives in order to target different groups. The rural-urban discrepancies in the results will also help the government to set targeted policies in rural and urban areas.

Although the Chinese government has become aware of the importance of private support for the elderly and has started to promote "filial piety", there may be a hidden hazard behind this action. As this paper shows, sons in rural areas in China provide more support for the elderly than daughters do. The previous literature also states that economic incentives, especially old-age support, provide one reason for sex selection before birth (Qian, 2008; Ebenstein and Leung, 2010). The gender ratio might stagnate at a high level, to create a damaging equilibrium. The government needs to promote gender equality by legislating to protect the right of females to inherit, own property and compete in the labour market, especially in rural areas. In urban areas, there is already a healthier balance in the gender ratio of new-borns. Mother demonstration effects showing in urban areas alone may also be due to female empowerment and higher bargaining powers in the household for females. More research is needed to confirm this possible mechanism.

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6 Figures and Tables

Figure 1: Public service announcement posters in China

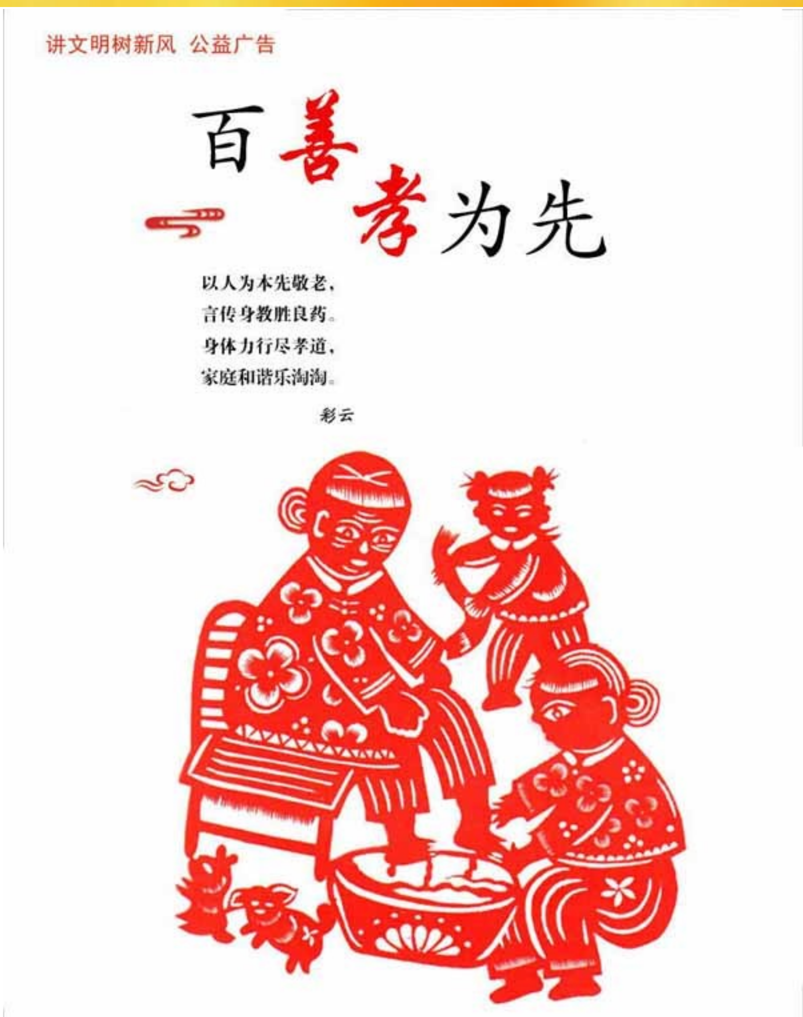
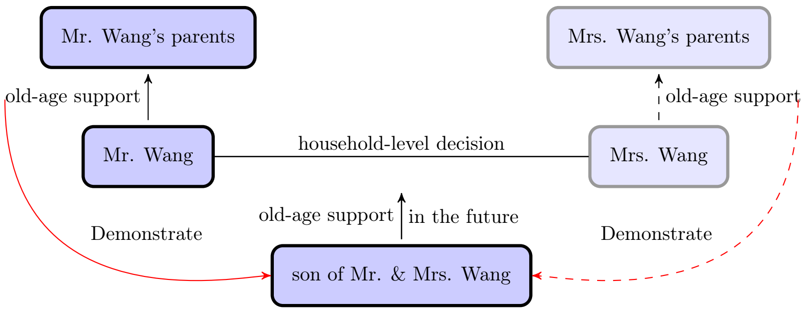
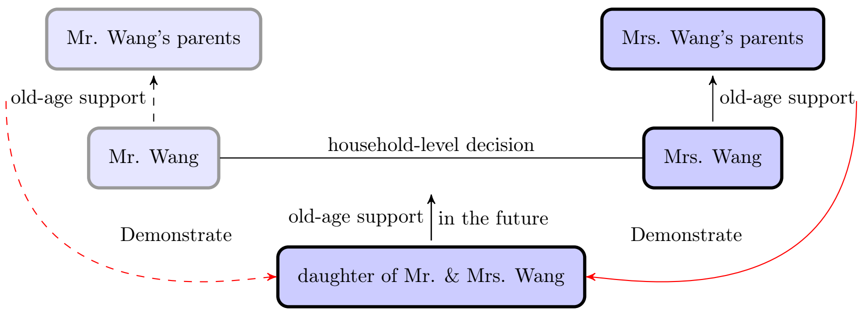


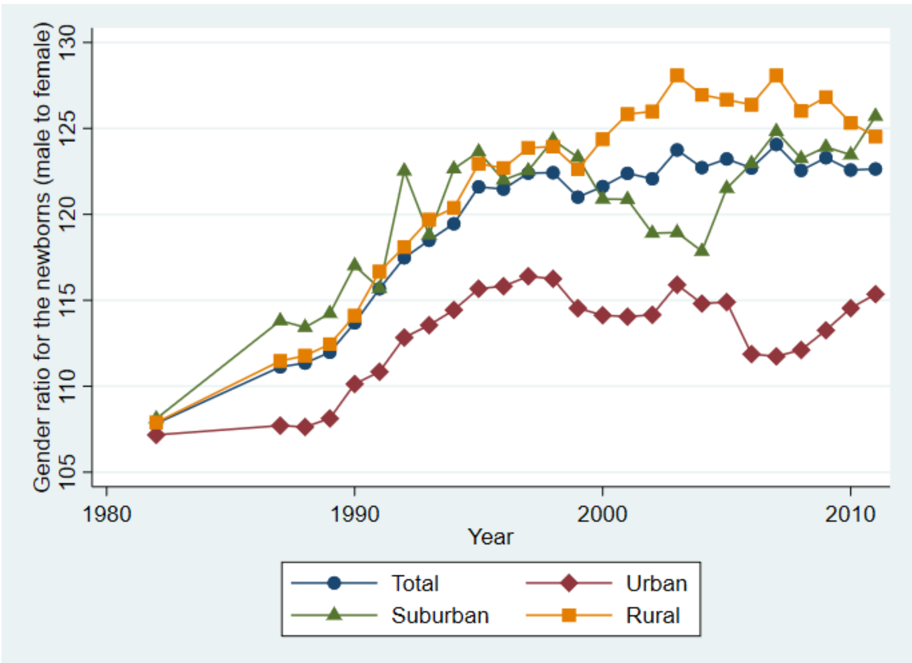
Figure 2: Simple graphical illustration of the basic model





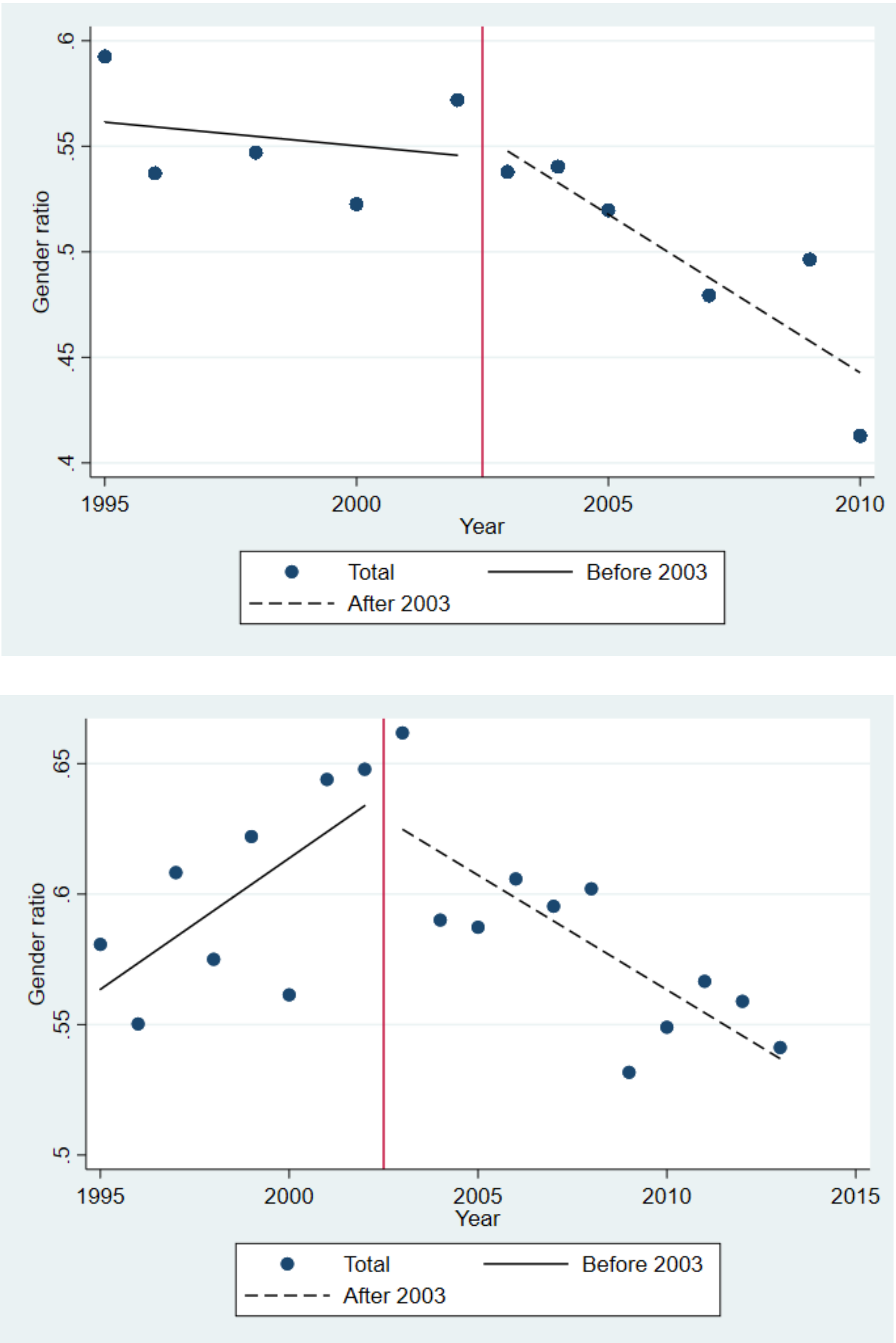
Note: This graphic illustration is for a simple scenario of the baseline model. I assume in this graph that each household has one child only. Mr. and Mrs. Wang have different degrees of influence on their child depending on its gender. The solid curve line represents a larger influence compared to the dashed curve line. Also, the dashed lines from Mr.or Mrs. Wang to their respective parents indicate Mr.or Mrs. Wang provide less old-age support than their partner in the household.

Figure 3: Actual gender ratios for the newborns in China: the yearly trend



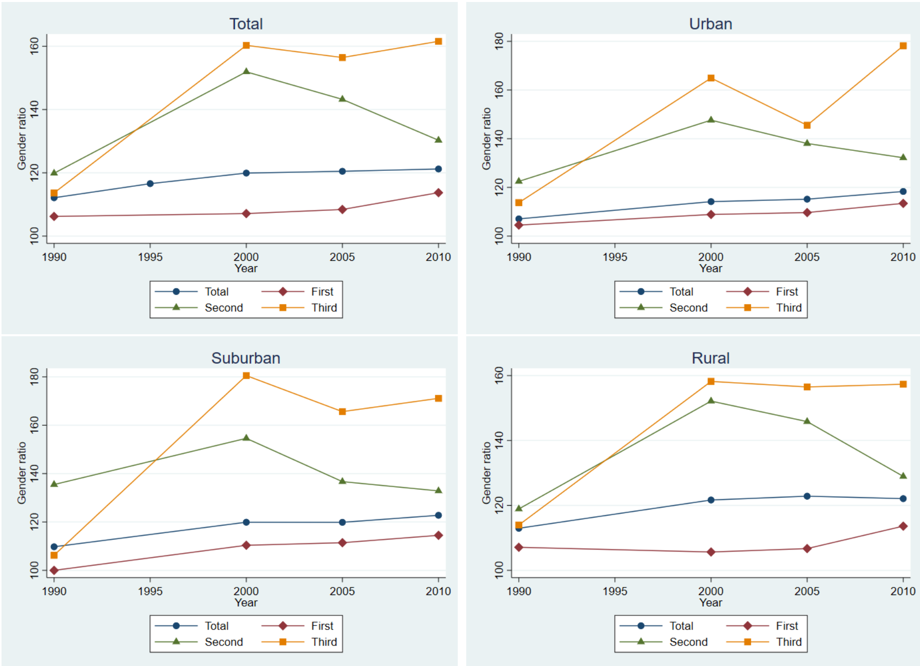
Note: The information is obtained from the China Population and Employment Statistics Yearbook. 1982-2011. y-axis is the male to female gender ratio for the newborns (female=100). x-axis is the year 1982 to 2011. The yearly trend started in 1987. The circle dot is the national male to female gender ratio. The diamond dot represents the male to female gender ratio in urban areas only. The triangle and square dots are for the male to female gender ratio in township (suburban) areas and rural areas respectively.

Figure 4: Estimated gender ratios for the newborns in China: the yearly trend



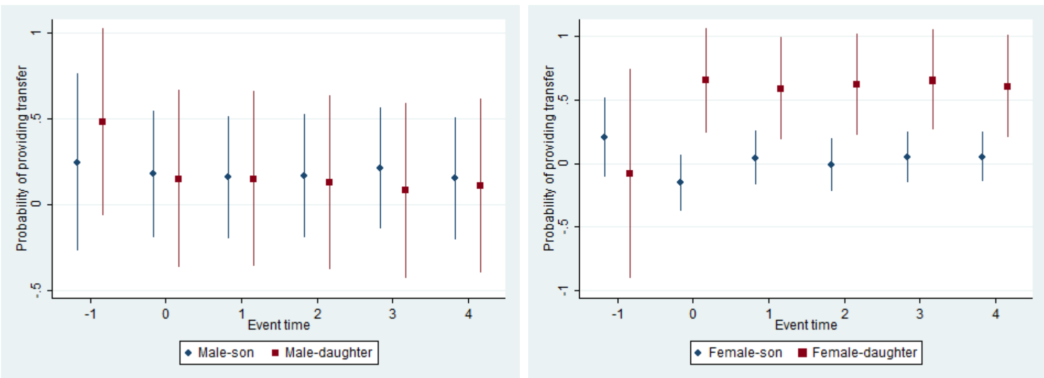
Note: The graphs are the estimated male-to-female gender ratio for the newborns in China using the 2011 CHARLS wave (above), and the estimated male-to-female gender ratio for the first-born child in the 2013 CHFS wave (below). y-axis is the male-to-female gender ratio (male newborns divided by the total number of newborns). x-axis is the year from 1995 to 2011 for the CHARLS and from 1995 to 2013 for the CHFS. The dots represent the estimated gender ratio for each year. The red vertical line represents the implementation of the policy ban on gender-selective abortion. The solid line is the linear estimation of the gender ratio trend before 2003, and the dashed line is the estimated linear trend after 2003.

Figure 5: Actual gender ratios for the newborns in China: by birth order



Note: The information is obtained from the National Population Census. 1990, 1995, 2000, 2005 and 2010. The figure shows four graphs on the male-to-female gender ratio (female=100) of the new-borns by different birth orders. From left to right, the graphs show the gender ratios in China, urban areas, township (suburban) areas, and rural areas. The circle dot is the overall gender ratio. The diamond dot represents the ratio for the first-born children. The triangle and square dots are for the male to female gender for the second-born and the third-born children respectively.

Figure 6: Impact of the gender of the first child on the probability of providing any old-age support



Note: The graphs are the plot of the coefficients in Table 16. y-axis is the probability of providing any transfer to O, and x-axis is the event time. The event is the birth of the first child in households. The graph on the left is the coefficients for males and the right graph is the results for females. The diamond dot coefficients represent people with first child as a son. The square dot coefficients are for people with first child as a daughter. Due to data limitation, I can only get one period before the event in the panel dataset.

Table 1: Primary source of support of China's elderly, 2005 and 2010

2005

	Urban			*Rural*		
Source of support	Average	Male	Female	Average	Male	Female
Labour income	13.0	18.4	7.9	37.9	48.5	27.5
Pensions	45.4	56.9	34.6	4.60	8.1	1.3
Dibao	2.4	1.8	2.9	1.3	1.8	0.9
Insurnace and subsidy	0.3	0.3	0.2	0.1	0.2	0.0
Property income	0.5	0.5	0.5	0.2	0.2	0.1
Family support	37.0	20.7	52.3	54.1	39.3	68.5
Other	1.5	1.4	1.6	1.8	2.0	1.7

Source: NBS, 2006. Most significant share of support reported.

2010

	Urban			*Rural*		
Source of support	Average	Male	Female	Average	Male	Female
Labour income	6.16	9.72	3.75	41.18	50.53	32.14
Pensions	66.30	74.21	58.99	4.60	7.19	2.09
Dibao	2.33	1.76	2.87	4.48	5.14	3.85
Insurnace and subsidy	-	-	-	-	-	-
Property income	0.68	0.75	0.62	0.19	0.21	0.16
Family support	22.43	12.13	31.95	47.74	35.13	59.93
Other	1.64	1.44	1.83	1.81	1.79	1.83

Source: NBS, 2011. Most significant share of support reported.

Table 2: Summary statistics: Key variables

	CHARLS				CHFS			
VARIABLES	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
whether P provides								
any transfers	0.284	0.306	0	1	0.265	0.441	0	1
regular transfer	0.105	0.272	0	1	-	-	-	-
non-regular transfer	0.243	0.308	0	1	-	-	-	-
amount of								
total transfer	831.2	4598.6	0	100000	599.2	1649.8	0	10,000
regular transfer	354.6	3873.1	0	100,000	-	-	-	-
non-regular transfer	476.6	3065.6	0	100,000	-	-	-	-
visit days	118.7	2.374	0	365	91.66	145.4	0	365
gender of P	0.513	0.500	0	1	0.499	0.500	0	1
gender ratio of K	0.562	0.405	0	1	0.567	0.416	0	1
household size of P	3.643	0.774	2	10	3.662	0.889	2	11
age of P	39.73	9.287	21	65	48.17	10.71	21	65
income level of P	5.078	1.420	1	11	-	-	-	-
income of P	-	-	-	-	21779	43639	0	1649439
education of P	0.892	0.496	0	2	0.832	0.646	0	2
whether P has a rural *hukou*	0.680	0.466	0	1	0.546	0.498	0	1
P living in rural areas	0.652	0.476	0	1	0.332	0.471	0	1
No. of siblings of P	3.758	1.612	1	10	3.218	1.856	0	16
marital status of P	0.998	0.040	0	1	0.763	0.425	0	1
professional title/occupation of P	0.105	0.547	0	4	0.902	1.717	0	8
any transfers from O	0.037	0.190	0	1	0.144	0.351	0	1
average education level of O	2.898	1.665	1	9.5	1.894	1.104	0	7
P's ranking in siblings	2.391	1.396	1	10	-	-	-	-
working status of P	-	-	-	-	0.688	0.463	0	1
distance from O	3.265	1.837	0	7	-	-	-	-
gender of household head of O	0.439	0.496	0	1	-	-	-	-
average age of O	63.94	10.441	42	101	-	-	-	
No. of O alive	-	-	-	-	1.230	0.929	0	2
average working status of O	0.568	0.453	0	1	-	-	-	-
average pension of O	0.185	0.388	0	1	-	-	-	-
who should support O	1.626	1.042	1	5	-	-	-	-
have O retired	1.875	0.301	1	2	-	-	-	-
whether O are party members	-	-	-	-	2.086	0.9291	0	3
whether O have deposit	0.137	0.347	0	1	-	-	-	-
hukou status of O	-	-	-	-	2.086	0.9291	0	3
household income of O	157661	4336359	0	2.00e+8	-	-	-	-
hours of O taking care of K	530.901	1816.5	0	17136	-	-	-	-

Table 3: The demonstration effect on the provision of old-age support: OLS

	OLS: CHARLS (mostly rural)			OLS: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	0.0104	-95.90	14.51***	-0.0325**	-99.75	23.70***
	(0.0281)	(233.8)	(5.201)	(0.0153)	(63.95)	(6.275)
sex_ratioK	0.00471	-7.627	-4.680**	-0.0119	-38.61	-1.326
	(0.0172)	(136.6)	(2.352)	(0.00968)	(51.97)	(3.441)
maleP × *sex_ratioK*	-0.0108	271.2	10.39***	0.00977	41.14	6.089
	(0.0215)	(175.7)	(3.853)	(0.0116)	(62.96)	(5.324)
hh-size	-0.00910	-12.69	-4.398**	-0.00527	-20.49	-7.979***
	(0.0129)	(89.94)	(1.829)	(0.00527)	(18.53)	(1.263)
maleP× *hh-size*	-0.000565	327.5**	12.22***	-0.00299	30.36	14.73***
	(0.0120)	(152.5)	(2.837)	(0.00675)	(24.30)	(2.843)
sex_ratioK+	-0.006	263.6*	5.713*	-0.002	2.535	4.762
maleP × *sex_ratioK*	(0.013)	(142.8)	(3.251)	(0.009)	(38.86)	(4.208)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.205	0.050	0.628	0.282	0.203	0.168
Mean	0.401	831.2	118.7	0.303	489.1	91.66

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of *P*. *sex_ratioK* is the gender ratio of *K* in the household of *P* and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS.

Table 4: The demonstration effect on the provision of old-age support: IV

	IV: CHARLS (mostly rural)			IV: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.0802	-230.5	-29.89***	-0.0518	-237.7	-3.363
	(0.0499)	(316.5)	(11.24)	(0.0448)	(173.5)	(16.57)
sex_ratioK	-0.0450	-273.3	-4.315	-0.0733**	-96.20	-46.92***
	(0.0437)	(399.4)	(7.493)	(0.0343)	(135.4)	(10.82)
$maleP \times sex\_ratioK$	0.125**	472.9	76.49***	0.0412	259.2	49.37**
	(0.0579)	(442.2)	(14.13)	(0.0645)	(291.9)	(24.53)
hh-size	-0.0116	-35.25	-3.153	-0.00878	-21.63	-10.35***
	(0.0139)	(73.55)	(2.005)	(0.00599)	(18.06)	(1.259)
$maleP\times$ *hh-size*	0.0085	340.3**	16.66***	-0.00180	39.99	16.52***
	(0.0132)	(147.0)	(2.910)	(0.00789)	(26.58)	(3.048)
$sex\_ratioK+$	0.079***	200.0	72.17***	-0.032	163.0	2.455
$maleP \times sex\_ratioK$	(0.026)	(190.6)	(11.72)	(0.045)	(203.9)	(17.92)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.201	0.050	0.610	0.280	0.203	0.159
Mean	0.401	831.2	118.7	0.303	489.1	91.66

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of *P*. *sex_ratioK* is the gender ratio of *K* in the household of *P* and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table 5: Visibility of the provision of financial old-age support

Panel A	OLS: CHARLS (mostly rural)			
VARIABLES	*regular*	*nonregular*	*amount reg*	*amount nonreg*
maleP	0.00117	0.000998	-161.2	65.27
	(0.0138)	(0.0267)	(205.9)	(110.0)
sex_ratioK	-0.00141	0.00227	-39.45	31.82
	(0.00744)	(0.0177)	(110.0)	(70.37)
maleP × *sex_ratioK*	-0.00503	-0.00224	110.2	161.1*
	(0.00976)	(0.0215)	(139.5)	(93.03)
hh-size	-0.0147**	0.000577	-55.72	43.03
	(0.00636)	(0.0133)	(63.71)	(52.53)
maleP× *hh-size*	0.0211***	-0.0166	222.6	104.9*
	(0.00670)	(0.0114)	(137.3)	(60.95)
sex_ratioK+	-0.006	0.000	70.71	192.9**
maleP × *sex_ratioK*	(0.007)	(0.134)	(105.4)	(81.46)
Observations	12,232	12,232	12,232	12,232
R-squared	0.077	0.141	0.043	0.025
Panel B	IV: CHARLS (mostly rural)			
VARIABLES	*regular*	*nonregular*	*amount reg*	*amount nonreg*
maleP	-0.0149	-0.0848*	-165.8	-64.68
	(0.0241)	(0.0480)	(254.7)	(235.5)
sex_ratioK	0.0126	-0.0697	79.85	-353.1**
	(0.0218)	(0.0447)	(337.7)	(166.9)
maleP × *sex_ratioK*	0.0190	0.126**	116.9	356.1
	(0.0248)	(0.0561)	(355.6)	(230.1)
hh-size	-0.0129*	-0.00421	-43.84	8.588
	(0.00671)	(0.0145)	(49.49)	(46.01)
maleP× *hh-size*	0.0228***	-0.00816	223.5*	116.8*
	(0.00738)	(0.0126)	(132.9)	(68.68)
sex_ratioK+	0.032***	0.056**	196.7	2.929
maleP × *sex_ratioK*	(0.012)	(0.024)	(165.0)	(101.9)
Observations	12,232	12,232	12,232	12,232
R-squared	0.075	0.139	0.043	0.023
P demographics	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes
Mean	0.105	0.243	354.6	476.6

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of *P*. *sex_ratioK* is the gender ratio of *K* in the household of *P* and represents the mother demonstration effect. *sex_ratioK* +*maleP* × *sex_ratioK* shows the father demonstration effect. The four outcome variables are the dummy indicating whether parents provide any regular and non-regular financial transfer to their elderly parents (*regular* and *nonregular*) and the amount of any regular and non-regular transfer provided (*amount reg* and (*amount nonreg*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*. The standard error is clustered at the prefectural city level for the CHARLS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS.

Table 6: The demonstration effect on cohabitation

	IV: CHARLS (mostly rural)	IV: CHFS (mostly urban)
VARIABLES	Ageing parents cohabitation	
$maleP$	-0.564***	0.003
	(0.047)	(0.031)
sex_ratioK	-0.039**	-0.059**
	(0.018)	(0.023)
$maleP \times sex\_ratioK$	0.883***	0.109**
	(0.064)	(0.048)
$maleP \times sex\_ratioK$	0.843***	0.049
$+sex\_ratioK$	(0.061)	(0.034)
P demographics	Yes	Yes
O demographics	Yes	Yes
Observations	12,232	19,509
R-squared	0.183	0.141

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. $maleP$ is the gender of P. sex_ratioK is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The outcome variable is a dummy that equals 1 if P is living together with their own parents. The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table 7: Subsample analysis: Income-level

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
Low income group						
maleP	-0.0982	-533.8*	-5.406	-0.0375	-339.8*	-18.91
	(0.0694)	(299.2)	(13.90)	(0.0599)	(205.2)	(19.64)
sex_ratioK	-0.0680	-226.6	5.073	-0.0757	-285.5	-86.57***
	(0.0623)	(151.2)	(10.75)	(0.0481)	(192.7)	(14.78)
$maleP \times sex\_ratioK$	0.131**	0.0166	0.122**	247.4	125.1	47.07***
	(0.0614)	(0.0296)	(0.0581)	(297.2)	(158.3)	(11.61)
sex_ratioK+	0.080**	376.4***	56.12***	-0.057	140.5	16.57
$maleP \times sex\_ratioK$	(0.031)	(196.7)	(11.67)	(0.062)	(249.3)	(22.45)
Observations	7,048	7,048	7,048	12,663	12,663	12,663
R-squared	0.177	0.021	0.626	0.288	0.168	0.177
High income group						
maleP	-0.0636	-107.4	-55.53***	-0.0538	-57.27	-7.504
	(0.0651)	(691.3)	(15.59)	(0.0568)	(236.4)	(25.08)
sex_ratioK	-0.0168	-320.0	-12.74	-0.0631	113.6	-3.169
	(0.0534)	(796.2)	(10.61)	(0.0432)	(204.0)	(11.90)
$maleP \times sex\_ratioK$	0.0935	569.3	114.2***	0.0457	-75.62	-1.974
	(0.0749)	(975.3)	(21.93)	(0.0875)	(411.6)	(33.00)
sex_ratioK+	0.077	249.3	101.5***	-0.017	37.94	-5.143
$maleP \times sex\_ratioK$	(0.046)	(507.0)	(19.06)	(0.059)	(290.6)	(25.97)
Observations	5,184	5,184	5,184	6,846	6,846	6,846
R-squared	0.238	0.080	0.160	0.259	0.220	0.126
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of *P*. *sex_ratioK* is the gender ratio of *K* in the household of *P* and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. The sample is split based on the income-level of *P*.

Table 8: Subsample analysis:: Single-K family

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
Single child family						
maleP	-0.0437	26.27	0.900	-0.0751**	-121.7	31.15**
	(0.0379)	(299.0)	(8.138)	(0.0355)	(133.6)	(12.90)
sex_ratioK	-0.0540	-323.9	-0.0551	-0.0891**	50.33	-18.69*
	(0.0402)	(395.0)	(8.140)	(0.0348)	(155.5)	(10.46)
$maleP \times sex\_ratioK$	0.0852	431.4	51.12***	0.0737	94.86	12.40
	(0.0518)	(444.6)	(11.76)	(0.0588)	(252.6)	(21.59)
$sex\_ratioK+$	0.031	107.4	51.07***	-0.015	145.2	-6.285
$maleP \times sex\_ratioK$	(0.025)	(255.3)	(8.782)	(0.038)	(265.5)	(15.85)
Observations	5,909	5,909	5,909	12,144	12,144	12,144
R-squared	0.209	0.064	0.650	0.270	0.210	0.148
Non-single child family						
maleP	-0.175*	19.53	-64.56**	0.0280	-405.2	-43.86
	(0.106)	(701.5)	(26.02)	(0.0934)	(383.3)	(47.88)
sex_ratioK	-0.0175	0.151	-13.72	-0.0266	-534.2**	-146.9***
	(0.111)	(674.3)	(17.47)	(0.0669)	(236.6)	(39.24)
$maleP \times sex\_ratioK$	0.184	29.52	145.0***	-0.110	766.6	167.0**
	(0.140)	(919.2)	(32.91)	(0.151)	(650.6)	(73.58)
$sex\_ratioK+$	0.167***	29.67	131.3***	-0.137	232.4	20.09
$maleP \times sex\_ratioK$	(0.060)	(416.4)	(26.24)	(0.110)	(525.8)	(56.69)
Observations	6,323	6,323	6,323	7,365	7,365	7,365
R-squared	0.198	0.046	0.566	0.293	0.149	0.175
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of P. *sex_ratioK* is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. The sample is split based on whether P have only one child in the household or not.

Table 9: Subsample analysis: Urban-rural differences

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
Urban						
maleP	-0.0306	-973.8	-16.20	-0.0658*	-318.9*	-9.214
	(0.0621)	(758.0)	(16.74)	(0.0391)	(188.2)	(16.84)
sex_ratioK	0.00798	-475.3	1.422	-0.0846**	-193.8	-30.11***
	(0.0614)	(931.6)	(16.47)	(0.0386)	(154.7)	(9.295)
$maleP \times sex\_ratioK$	0.0471	657.9	34.88*	0.0681	357.3	25.96
	(0.0779)	(1,074)	(20.65)	(0.0613)	(319.1)	(24.20)
$sex\_ratioK+$	0.055	182.7	36.31**	-0.016	163.5	-4.149
$maleP \times sex\_ratioK$	(0.048)	(504.4)	(15.61)	(0.042)	(236.4)	(19.56)
Observations	3,869	3,869	3,869	12,979	12,979	12,979
R-squared	0.231	0.067	0.587	0.260	0.200	0.132
Rural						
maleP	-0.125**	105.4	-30.25*	0.115	286.8	-79.63
	(0.0620)	(377.7)	(15.61)	(0.130)	(288.7)	(49.30)
sex_ratioK	-0.0677	-141.7	-3.406	0.0443	287.3	-155.2***
	(0.0550)	(321.2)	(8.393)	(0.0944)	(216.2)	(37.84)
$maleP \times sex\_ratioK$	0.179***	226.9	91.59***	-0.226	-445.5	240.9***
	(0.0688)	(391.1)	(18.96)	(0.172)	(410.6)	(67.97)
$sex\_ratioK+$	0.111***	85.27	88.18***	-0.181	-158.1	85.71*
$maleP \times sex\_ratioK$	(0.030)	(209.3)	(15.21)	(0.113)	(306.1)	(46.12)
Observations	8,363	8,363	8,363	6,530	6,530	6,530
R-squared	0.195	0.046	0.622	0.312	0.076	0.217
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of *P*. *sex_ratioK* is the gender ratio of *K* in the household of *P* and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. The sample is split based on whether *P* lives in urban areas or rural areas.

Table 10: Subsample analysis: P with or without brothers (CHARLS)

	IV: CHARLS (mostly rural)		
VARIABLES	*any-transfer*	*amount*	*visit days*
With older brothers			
$maleP$	-0.0795	-594.8	-49.85***
	(0.0742)	(616.8)	(16.75)
sex_ratioK	-0.0425	210.5	-7.118
	(0.0681)	(669.6)	(14.63)
$maleP \times sex\_ratioK$	0.132	595.4	96.13***
	(0.0806)	(829.5)	(20.22)
hh-size	-0.0176	-103.2	-2.210
	(0.0210)	(91.64)	(3.102)
$maleP \times$ *hh-size*	0.0195	557.4**	20.80***
	(0.0209)	(245.8)	(3.993)
$sex\_ratioK+$	0.090**	805.8	89.01***
$maleP \times sex\_ratioK$	(0.045)	(555.0)	(16.16)
Observations	5,283	5,283	5,283
R-squared	0.202	0.040	0.566
Without older brothers			
$maleP$	-0.0788	-63.51	-7.773
	(0.0558)	(479.5)	(11.14)
sex_ratioK	-0.0417	-588.3	1.403
	(0.0498)	(466.3)	(8.813)
$maleP \times sex\_ratioK$	0.121*	451.5	49.05***
	(0.0654)	(542.4)	(14.51)
hh-size	-0.00345	38.00	-4.284*
	(0.0138)	(93.56)	(2.585)
$maleP \times$ *hh-size*	-0.00234	196.5	14.03***
	(0.0153)	(137.0)	(3.548)
$sex\_ratioK+$	0.078**	-136.7	50.45***
$maleP \times sex\_ratioK$	(0.031)	(198.3)	(10.43)
Observations	6,912	6,912	6,912
R-squared	0.207	0.065	0.647
P demographics	Yes	Yes	Yes
O demographics	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. $maleP$ is the gender of P. sex_ratioK is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K. The standard error is clustered at the prefectural city level for the CHARLS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS. The sample is split based on whether P have any older brothers.

Table 11: Heterogeneity Check: Parents' pension coverage

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.120*	35.20	-59.80***	0.0243	4.783	5.230
	(0.0626)	(514.2)	(12.73)	(0.0625)	(174.3)	(30.80)
sex_ratioK	-0.0808	-362.6	6.448	-0.0912	-375.5**	-59.71***
(Without pension mother demonstration effects)	(0.0565)	(585.4)	(10.15)	(0.0647)	(166.5)	(20.62)
pensionP	-0.0894	-300.8	8.126	0.0131	-152.5	-6.875
	(0.0580)	(341.1)	(8.636)	(0.0351)	(151.5)	(14.70)
maleP × *sex_ratioK*	0.183*	-171.5	106.1***	-0.0497	0.968	45.57
	(0.101)	(860.9)	(19.01)	(0.0981)	(309.3)	(47.91)
maleP × *pensionP*	0.0907	-498.3	39.13**	-0.0872	-249.2	-7.197
	(0.104)	(587.3)	(15.93)	(0.0592)	(235.1)	(32.88)
sex_ratioK × *pensionP*	0.0692	192.3	-17.39	0.0366	470.0*	22.06
(Difference in mother demonstration effects)	(0.0961)	(517.2)	(13.85)	(0.0594)	(272.1)	(25.15)
sex_ratioK × *maleP*	-0.109	1,172	-26.08	0.104	238.5	-0.917
×*pensionP*	(0.169)	(960.7)	(23.87)	(0.104)	(426.6)	(56.75)
With pension father	0.063	829.7**	69.07***	-0.000	334.0	7.002
demonstration effects	(0.058)	(392.2)	(17.35)	(0.057)	(259.1)	(22.69)
Without pension father	0.103	-534.1	112.5***	-0.140**	-374.4	-14.14
demonstration effects	(0.072)	(509.5)	(15.74)	(0.067)	(231.8)	(42.81)
Difference in father	-0.040	1363*	-43.47**	0.141	708.4**	21.14
demonstration effects	(0.118)	(803.7)	(17.60)	(0.088)	(329.4)	(52.64)
With pension mother	-0.012	-170.2	-10.94	-0.054**	94.55	-37.65***
demonstration effects	(0.072)	(342.8)	(10.30)	(0.027)	(203.8)	(13.28)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.202	0.049	0.600	0.281	0.201	0.160

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. *pensionP* is a dummy representing whether P have any types of pension, and it interacts with key regressors. *maleP* is the gender of P. *sex_ratioK* is the gender ratio of K in the household of P and is the mother demonstration effect for P without pension. *sex_ratioK* × *pensionP* represents the difference between the mother demonstration effects for P with pension and the mother demonstration effects for P without pension coverage, which should be negative and significant if the mother demonstration effects for P with pension coverage is larger than the mother demonstration effects for P without pension coverage.

Table 12: Heterogeneity Check: Income of generation O

	IV: CHARLS (mostly rural)		
VARIABLES	*any-transfer*	*amount*	*visit days*
maleP	-0.0877	-249.4	-30.60*
	(0.0624)	(372.4)	(17.26)
sex_ratioK	-0.0520	-572.3	5.128
(Low-income O's mother demonstrate effect)	(0.0664)	(445.7)	(11.20)
income of O	-0.0141	-529.4	16.14
	(0.0592)	(418.1)	(10.13)
sex_ratioK× income of O	0.00973	804.0	-15.20
(Differences in mother demonstrate effects)	(0.0938)	(688.9)	(17.02)
maleP × sex_ratioK	0.141*	646.0	80.50***
	(0.0840)	(590.1)	(22.24)
maleP× income of O	0.0169	91.57	-14.40
	(0.0831)	(672.2)	(15.66)
maleP × sex_ratioK	-0.0384	-469.8	12.06
× income of O	(0.146)	(1,153)	(23.06)
High-income O's father demonstrate effect	0.060	407.9	82.49***
	(0.072)	(577.5)	(12.36)
Low-income O's father demonstrate effect	0.089**	73.66	85.63***
	(0.043)	(340.5)	(17.35)
Differences in father demonstrate effects	-0.029	334.2	-3.143
	(0.100)	(825.1)	(15.14)
High-income O's mother demonstrate effect	-0.042	231.7	-10.07
	(0.059)	(608.5)	(11.48)
P demographics	Yes	Yes	Yes
O demographics	Yes	Yes	Yes
Observations	12,232	12,232	12,233
R-squared	0.202	0.050	0.601

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K. The standard error is clustered at the prefectural city level for the CHARLS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS. *income of O* is a dummy representing whether O have any income sources, and it interacts with key regressors. *maleP* is the gender of P. *sex_ratioK* is the gender ratio of K in the household of P and is the mother demonstration effect for P whose O have income. *sex_ratioK× income of O* represents the difference between the mother demonstration effects for P whose O have income and the mother demonstration effects for P whose O do not have income, which should be negative and significant if the mother demonstration effects for P whose O have income is larger than the mother demonstration effects for P whose O do not have income.

Table 13: Effects of education and time investment on the provision of old-age support

	IV: CHARLS (mostly rural)		
VARIABLES	*any-transfer*	*amount*	*visit days*
maleP	-0.0996*	-417.1	-22.01
	(0.0562)	(337.8)	(15.09)
sex_ratioK	-0.0459	-244.3	-2.669
	(0.0438)	(388.1)	(7.441)
$maleP \times sex\_ratioK$	0.126**	424.7	88.30***
	(0.0582)	(429.2)	(15.88)
awayage	0.0675**	-13.89	-0.0725
	(0.0291)	(140.0)	(4.325)
awaytime	-0.0110	35.12	0.200
	(0.00903)	(82.48)	(1.040)
ln(edu_expense)	0.00175	125.0*	0.0899
	(0.00421)	(72.07)	(0.586)
edu level	-0.00137	24.90	9.006***
	(0.0194)	(128.2)	(3.137)
$maleP \times awayage$	-0.0824***	202.5	-7.187
	(0.0319)	(274.8)	(5.885)
$maleP \times awaytime$	0.00531	-116.7	0.0528
	(0.0110)	(95.28)	(2.161)
$maleP \times ln(edu\_expense)$	-0.00768	-99.08	-1.089
	(0.00471)	(93.84)	(0.775)
$maleP \times$ *edu-level*	0.0283	292.3	-13.92***
	(0.0223)	(211.8)	(5.011)
$sex\_ratioK +$	0.080***	180.4	85.63***
$maleP \times sex\_ratioK$	(0.027)	(191.9)	(13.83)
P demographics	Yes	Yes	Yes
O demographics	Yes	Yes	Yes
Observations	12,232	12,232	12,232
R-squared	0.202	0.051	0.642

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of *P*. *sex_ratioK* is the gender ratio of *K* in the household of *P* and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*. The standard error is clustered at the prefectural city level for the CHARLS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS. *awayage* is the age that *P* were away from their parents during *P*'s childhood. *awaytime* is the length of time that *P* were away from their parents during *P*'s childhood. $edu - level$ is the education-level of *P* and *ln(edu_expense)* is the log of the education investment that *P* received from their parents during *P*'s childhood.

Table 14: The demonstration effect on upward and downward transfer

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)	
VARIABLES	*any transfer*	*any receipt by P*	*any receipt by K*	*any transfer*	*any receipt by P*
$maleP$	-0.0802	0.0368**	0.101**	-0.0518	0.00864
	(0.0499)	(0.0164)	(0.0450)	(0.0448)	(0.0363)
sex_ratioK	-0.0450	-0.0397***	0.0353	-0.0733**	0.173***
	(0.0437)	(0.0144)	(0.0288)	(0.0343)	(0.0278)
$maleP \times sex\_ratioK$	0.125**	0.00392	-0.0912	0.0412	-0.00716
	(0.0579)	(0.0168)	(0.0577)	(0.0645)	(0.0607)
any receipt by P	-0.0200	-	0.170***	0.357***	-
	(0.0331)	-	(0.0261)	(0.0151)	-
any transfer	-	-0.00442	0.0901***	-	0.242***
	-	(0.00653)	(0.0113)	-	(0.0108)
$sex\_ratioK+$	0.080***	-0.036***	-0.056	-0.032	0.166***
$maleP \times sex\_ratioK$	(0.027)	(0.009)	(0.047)	(0.045)	(0.047)
P demographics	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509
R-squared	0.201	0.040	0.086	0.280	0.229

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. $maleP$ is the gender of P. sex_ratioK is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the male dominated demonstration effect. *any-transfer* is the probability of P providing any transfer to O, and $anyreceiptbyP$ and $anyreceiptbyK$ are the transfer from O to P's household and P's children K. The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table 15: The demonstration effect by generation O

VARIABLES	OLS: CHARLS (mostly rural) *any-transfer*	*regular*	*nonregular*	*log(regular)*	*log(nonregular)*
Male P					
$father's\ transfer$	0.064**	0.103***	0.102***	0.114***	0.102***
	(0.027)	(0.030)	(0.029)	(0.037)	(0.035)
$mother's\ transfer$	0.048**	0.067**	0.109***	0.111**	0.116***
	(0.021)	(0.028)	(0.023)	(0.045)	(0.027)
Observations	6,688	6,688	6,688	6,688	6,688
Female P					
$father's\ transfer$	0.056	0.031	0.112***	0.058*	0.113**
	(0.035)	(0.025)	(0.039)	(0.030)	(0.045)
$mother's\ transfer$	0.108***	0.075**	0.185***	0.171***	0.206***
	(0.048)	(0.031)	(0.030)	(0.054)	(0.034)
Observations	5,540	5,540	5,540	5,540	5,540
P demographics	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The $father's\ transfer$ and $mother's\ transfer$ are the transfer provided by O to P's paternal and maternal grandparents. The outcome variables are the probability of providing any, regular, and non-regular transfer to O (*any-transfer*, *regular*, and *nonregular*), and the log of the amount of regular and non-regular transfer (*log(regular)* and *log(nonregular)*). The controlling variables for P are age, marital status, rural *hukou*, provinces, education, professional title, income level, whether P lives with parents and the distant to parents place, visit frequency to O, the number and rank of siblings and the number of children. And also O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K. The standard error is clustered at the prefectural city level.

Table 16: Impact of the gender of the first child on the probability of providing any old-age support

VARIABLES	*any-transfer* in CHFS (mostly urban) father-son	father-daughter	mother-son	mother-daughter
Event time				
-1	0.244	0.479*	0.207	-0.0824
	(0.264)	(0.278)	(0.160)	(0.418)
0	0.175	0.148	-0.155	0.655***
	(0.186)	(0.262)	(0.114)	(0.211)
1	0.157	0.148	0.0436	0.588***
	(0.181)	(0.258)	(0.108)	(0.206)
2	0.163	0.125	-0.0116	0.618***
	(0.183)	(0.258)	(0.105)	(0.204)
3	0.208	0.0787	0.0499	0.660***
	(0.180)	(0.259)	(0.102)	(0.201)
4	0.150	0.105	0.0507	0.607***
	(0.182)	(0.258)	(0.0991)	(0.204)
Age fixed-effect	Yes	Yes	Yes	Yes
Wave fixed-effect	Yes	Yes	Yes	Yes
Observations	809	771	811	765
R-squared	0.140	0.142	0.093	0.064

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *any-transfer* is the probability of providing any transfer to O. The event is the birth of the first child in the respondents' household. The event time equals 0 in the year of the birth of the first child. All the other event times are adjusted accordingly. male-son is the male group with the first child as a son, male-daughter is the male group with the first daughter. female-son and female-daughter are the corresponding female groups. The outcome variable is the probability of providing any transfer to elderly parents. The results are for the CHFS only and use 2011, 2013 and 2015 wave. The error term is clustered at household-level.

Appendix

A.1 Gender differences of P in old-age support

The OLS results from in the first three columns in Table A.3 show that, in the CHARLS, there is no significant gender difference between the parents in the probability of providing any kinds of transfer and the total amount of the transfer provided. But males visit their parents more. Also for male P, with the increase in their household size, they provide more old-age support and visit their parents more. To sum up, males still provide more support than females, especially when it comes to transfers and visits paid to elderly parents recorded in the CHARLS. However, the OLS results from the CHFS in Table A.3 seem to show fewer gender differences. The coefficients of $maleP$ for the probability of providing any kind of transfer and for the total amount of any transfer are both negative, although the coefficient for the total amount of any transfer is insignificant. The only positive and significant coefficient for $maleP$ is the one for the days spent visiting their ageing parents. From the CHFS results, it seems that at least regarding the probability of providing pecuniary transfer, female P are more likely to provide than males. The greatest difference between the two datasets arise from the composition of samples living in urban and rural areas, as shown in the summary statistics (see Table 2) and discussed in the subsample section. The discrepancy between the OLS results from the CHARLS and the CHFS for $maleP$ may suggest that there is a difference in the gender norm for providing support for the elderly in urban and rural areas in China. Combining the results in the CHARLS and the CHFS, it is reasonable to assume that males still provide more in the rural areas and urban females may have more important roles in terms of providing old-age support, supported by the empirical finding in Xie and Zhu (2009).

A.2 Different representations of outcome variables

In the previous results, the outcome variable regarding the amount of the transfer is the gross amount of the transfer. The results when using the gross amount of the transfer might be affected by the outliers in the survey sample, so I capped the amount of the transfer used, and this might create bias in the results. Using the logarithms of the amount of transfer and also the corresponding income or expenditure percentage help to reduce the sensitivity of the results caused by the outliers. For both datasets, I run Equation (1) on the new outcome variables for the amount of the transfer: the logarithms of the amount of the transfer and the amount of the transfer as a percentage of total income. The results are shown in Table A.7. For the CHARLS results, the father demonstration effect for the outcome variable, the percentage of income, appears to be consistent with the results in Table 4, although with an 88% significance level. The log amount of the transfer has a marginally significant father demonstration effect that is consistent with the main results using the CHARLS dataset. The father demonstration effects for the transfer percentage in the CHARLS are both positive and insignificant. With the CHFS, the results show the insignificant but negative mother demonstration effect for the percentage outcome and the log amount of any transfer provided by the parents.

The transfers from the elderly are not included in the construction of the outcome variables used in the main regressions. I change the transfer outcome variables to net transfer variables. If $any\ transfer$ equals 1 and the parents receive the transfers from or are living together with their elderly parents, I change the corresponding value to 0. For the amount of the monetary transfer, I use the net transfer provided by the parents, which is the amount of transfer provided to the parents minus the amount of the transfer received by them from their elderly parents. The change is made for both datasets. The results for the net transfers are also included in Table A.7. They are consistent with the main results, except for the negative father demonstration effect for $any\ transfer$ in the CHFS. The magnitudes of the demonstration effect for the probability of providing any net transfer increase beyond the main results.

A.3 Household size adjustment

Qian in her paper "Quantity-Quality and the One-Child Policy: the Only-Child Disadvantage in School Enrolment in Rural China" proposed a method to adjust for the number of children for households which with more than one child and first child is a girl. She constructed a sample to "estimate the lower bound of the absolute value of the family size effect". The method estimates the "extra" number of boys using the time variation of the key policy used in the paper and also the gender of the first child, then adjust the household size accordingly. Applying this method in my own setting, there are two ways of specification I can use. The first specification is to use the existing IV to estimate the number of "extra" children related to the gender of the first child for different provinces. In this specification, the gender dummy is 1 if the first child is a boy, and 0 otherwise. According to Qian (2009), the "extra" children in a family is mainly due to the first child is a girl. So I also use the second specification, which the time variation of my policy ban on gender selective abortions times the gender dummy for the first child. In the second specification, this dummy is 1 if the first child is a girl and 0 otherwise. Again the number of "extra" children is estimated for different provinces. If the estimation is insignificant for a province, that province-level household size will not be adjusted. Also, like what Qian did in her paper, I adjust the number of household size based on whether household belongs to Han or ethnic minority group.

A.4 Additional Notes

Data and IV construction in CHARLS: I have had to make certain assumptions when constructing the gender of the first child IV in CHARLS. As discussed above, I have restructured the original dataset from a dataset where the main respondents are the O generation in my setting to a dataset in which the main observations are the children of the main respondents. In the regression setting, the children of the respondents are the P generation. The original dataset gives no information on the birth year but gives the gender composition and number of the K generation. The year of birth is available only if grandchildren are living with the first generation.

Moreover, many observations are missing for P and K that are not living together with O. Apart from this information, the dataset does provide information on the gender composition and number of the third generation if she or he is above the age of 16. For most households, I can use this information to work out the gender of the first child. But some estimations are still needed in this process; they are based on the parents' age, especially the average age of female parents when their children are born, in order of birth, in both urban and rural areas.

For households affected by the policy ban after 2003 As discussed, using a subsample includes only households affected by the policy ban after 2003 might not provide well-identified results when the gender of the first child is kept as the instrumental variable. This is because, even with the policy ban, the gender ratio in some provinces is still high. I use a subsample check to provide relevant evidence. I divide the sample that includes only households affected by the policy ban after 2003 into two subsamples, one showing a high gender-ratio and the other showing a low gender-ratio. A province is classified as a high gender-ratio province 1 if in the 2010 Population Census gender ratio there is above the national gender ratio, and 0 otherwise. Table A.21 shows the results of this simple subsample check. The father demonstration effects are positive for the amount of the transfer and the visits paid for the high gender-ratio provinces. The father effect is only significant for the visits paid in the low gender-ratio province subsample. The results from the CHFS are also in Table A.21, which shows that the only significant mother demonstration effect is the effect on the amount of the transfer provided in low gender-ratio provinces. The results from this simple sample check add a piece of suggestive evidence that depending on the gender ratio level, different provinces might lead to the demonstration effect differently.

A.5 Baseline model

The model describing the same-gender demonstration effect in the following section is based on the demonstration effect model by Cox and Stark (1996, 2005), combined with a definition of intergenerational transfers taken from a model by Banerjee et al. (2014). It is a simple inter-temporal two-period consumption model. Cox and Stark (1996, 2005) maintain that "... childhood experience affects behaviour in adulthood". Parents who value support for the elderly will demonstrate the norm of providing support for the elderly to their children by providing support to their own elderly parents. Based on the demonstration effect, the model assumes that parents know that their support to their own elderly parents will affect the future support behaviour of their same-gender children. Another assumption noted above is that children will be affected by the behaviour of their same-gender parents. Given differences in anticipation of the future and same-gender intergenerational transmission, the model predicts that parents will provide support to their own parents, according to the gender of their children. This explains the relationship between parents' support for the elderly and the gender ratio of their children.

There are three generations in the model: the mid-age generation (P), the parents; the older generation (O), parents of P, and the younger generation (K), children of P. They correspond to the second generation, the first generation and the third generation respectively, but only in this paper. There are two periods in the model: the first period, $t = 1$, and the second period, $t = 2$. The baseline model uses the notation in Banerjee et al. (2014) and requires a few additional assumptions:

- (i) each household in P has a father and a mother;
- (ii) the father transfers a fraction τ_1^F of his income and the mother transfers a fraction τ_1^M of hers to their own parents. Both of them have income Y_1. Y_1 is exogenous;
- (iii) the number of K in each household, n, is exogenous. The male-to-female gender ratio of children in a household is ϕ;
- (iv) people value their parents' welfare as well as their own consumption, so they derive utilities from providing transfers to their parents. However, there is also a discount factor, $0 < \delta < 1$, for the utility derived from the provision of old-age support, since the transfer to O is not direct consumption for the individuals;
- (v) τ_t^F and τ_t^M are endogenous and different when $t = 1$ and when $t = 2$. The transfer from the children of the father and mother in the second period will be affected by their same-gender parents' transfer in the first period.[25] In the equations, this assumption is expressed as

  $$\tau_2^F = \mathcal{T}^F(\tau_1^F) \quad \text{and} \quad \tau_2^M = \mathcal{T}^M(\tau_1^M). \tag{3}$$

  Both functions are strictly concave and increasing in τ_1^F and τ_1^M, and

  $$\tau_2^F = 0 \quad \text{if} \quad \tau_1^F = 0 \quad \text{and} \quad \tau_2^M = 0 \quad \text{if} \quad \tau_1^M = 0;$$

- (vi) the father and the mother in a household make unitary household-level decisions. The household consumption is c_t in each time period;
- (vii) for simplicity, I assume the transfer from P to their parents-in-law would only make their children provide transfers to their parents-in-law in the second period. So providing transfers to P's parents-in-law is not in line with the interest of the P's household. So I do not consider the transfer to P's parents-in-law here;[26]
- (viii) for simplicity, I assume that there is no saving in the baseline model;[27]
- (ix) $u(\cdot)$ is a strictly concave function.

In this model, P is the generation solving the optimisation problem in the first period. O passively receives support from P in the first period and dies in the second period. Members of K observe their

[25] This same-gender demonstration assumption is later relaxed (See Section **??**).
[26] This assumption is a bit restrictive. I should consider incorporating the relaxed version of this assumption in future.
[27] Saving is included in the basic model in Section **??**.

parents' τ_1 in the first period and provide their parents with τ_2 in the second period. With the assumptions above, a typical household in generation P solves the following problem:

$$\max_{\tau_1^F,\tau_1^M} \quad U = u(c_1) + \delta u(e_1) + \beta u(c_2)$$
$$s.t.$$
$$c_1 + c_2 \leq Y_1(2 - \tau_1^F - \tau_1^M) + Y_2(\mathcal{T}^F(\tau_1^F)\phi n + \mathcal{T}^M(\tau_1^M)(1-\phi)n);$$
$$e_1 = Y_1(\tau_1^F + \tau_1^M).$$

The father and the mother in generation P make unitary household-level decisions, and there is no saving, thus that the expressions for the household consumption for the two periods are as follows:

$$c_1 = Y_1(2 - \tau_1^F - \tau_1^M); \quad c_2 = Y_2[\mathcal{T}^F(\tau_1^F)\phi n + \mathcal{T}^M(\tau_1^M)(1-\phi)n].$$

e_1 is the old-age support provided by the whole household. δ is the discount factor for the utility generated from altruism, and β is the time discount factor. If $u(c)$ is specified as a log or a CRRA function, and τ_2 is a concave function of τ_1, the FOCs with respect to τ_1^F and τ_1^M are:

$$U^1 = \frac{\mathrm{d}U}{\mathrm{d}\tau_1^F} = u'(c_1)(-Y_1) + \delta u'(Y_1(\tau_1^F + \tau_1^M))Y_1 + \beta u'(c_2)Y_2\tau_2^{F'}\phi n = 0; \tag{4}$$

$$U^2 = \frac{\mathrm{d}U}{\mathrm{d}\tau_1^M} = u'(c_1)(-Y_1) + \delta u'(Y_1(\tau_1^F + \tau_1^M))Y_1 + \beta u'(c_2)Y_2\tau_2^{M'}(1-\phi)n = 0. \tag{5}$$

Given Equations (4) and (5), I obtain the following condition to derive the optimal τ_1^F and τ_1^M, which are τ_1^{F*} and τ_1^{M*} respectively:

$$\frac{\tau_2^{F'}}{\tau_2^{M'}} = \frac{1-\phi}{\phi}. \tag{6}$$

From the FOCs, I can derive the SOCs corresponding to τ_1^F, τ_1^M, and ϕ. Recall that $c_1 = Y_1(2 - \tau_1^F - \tau_1^M)$ and $c_2 = Y_2(\tau_2^F\phi n + \tau_2^M(1-\phi)n)$. From Equation (4), the SOCs with respect to τ_1^F and ϕ are:

$$\begin{aligned}\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{F2}} &= u''(c_1)(Y_1^2) + \delta u''(Y_1(\tau_1^F + \tau_1^M))Y_1^2 \\ &\quad + \beta u'(c_2)Y_2\tau_2^{F''}\phi n + \beta u''(c_2)(Y_2\tau_2^{F'}\phi n)^2; \\ \frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^F\mathrm{d}\phi} &= \beta u''(c_2)(Y_2^2\phi n^2)\tau_2^{F'}(\tau_2^F - \tau_2^M) + \beta u'(c_2)Y_2\tau_2^{F'}n.\end{aligned} \tag{7}$$

I assign:

$$U^{11} = \frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{F*2}}; \qquad U^{13} = \frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{F*}\mathrm{d}\phi},$$

which are the SOCs at the optimal value of τ_1^F and τ_1^M. Recall that function u is strictly concave in c_1 and c_2. $\mathcal{T}^F$ and $\mathcal{T}^M$ are both strictly concave functions. U^{11} is always smaller than 0 under these assumptions. For the sign of U^{13}, when the function $u(\cdot)$ is specified as a log or a CRRA function, I obtain

$$|u''(c_2)(Y_2^2\tau_2^{F'}\phi n)(n\tau_2^F - n\tau_2^M)| < |u'(c_2)Y_2\tau_2^{F'}n| \quad \Rightarrow \quad U^{13} > 0.$$

From Equation (5), the corresponding SOCs are:

$$\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{M2}} = u''(c_1)(Y_1^2) + \delta u''(Y_1(\tau_1^F + \tau_1^M))Y_1^2$$
$$+ \beta u'(c_2)Y_2\tau_2^{M''}(1-\phi)n + \beta u''(c_2)(Y_2\tau_2^{M'}(1-\phi)n)^2; \tag{8}$$
$$\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^M\mathrm{d}\phi} = \beta u''(c_2)(Y_2^2(1-\phi)n^2)\tau_2^{M'}(\tau_2^F - \tau_2^M) - \beta u'(c_2)Y_2\tau_2^{M'}n.$$

The SOC for τ_1^F and τ_1^M is:

$$\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^F\mathrm{d}\tau_1^M} = u''(c_1)(Y_1^2) + \delta u''(Y_1(\tau_1^F + \tau_1^M))Y_1^2 + \beta u''(c_2)Y_2^2\tau_2^{F'}\tau_2^{M'}\phi(1-\phi)n^2. \tag{9}$$

Here again I specify

$$U^{22} = \frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{M*2}}; \qquad U^{23} = \frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{M*}\mathrm{d}\phi}; \qquad U^{12/21} = \frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{F*}\mathrm{d}\tau_1^{M*}};$$

which are the SOCs at the optimal value of τ_1^F and τ_1^M. Because of the concave assumptions for $u(\cdot)$, $\mathcal{T}^F$, and $\mathcal{T}^M$, I infer the signs of U^{22}, U^{23}, and $U^{12/21}$ are negative, and do not depend on the specification of the utility function $u(c)$, as long as $u(c)$ is concave. If Equation (6) is substituted for Equations (7), (8) and (9), then the comparison between the absolute values of U^{11}, U^{22}, and U^{12} is

$$|U^{11}| > |U^{12}|; \qquad |U^{22}| > |U^{12}|.$$

According to the assumption of the demonstration effect, I would expect the optimal value of the transfer from the father, τ_1^{F*}, to be positively affected by his children's gender ratio, ϕ, and the optimal value of the transfer from the mother, τ_1^{M*}, would be negatively affected by ϕ. In other words, the expected comparative statics from the optimisation problem are:

$$\frac{\mathrm{d}\tau_1^{F*}}{\mathrm{d}\phi} > 0; \qquad \frac{\mathrm{d}\tau_1^{M*}}{\mathrm{d}\phi} < 0.$$

To obtain these two comparative statics, I need to totally differentiate Equations (4) and (5), which are:

$$U^{11}\mathrm{d}\tau_1^{F*} + U^{12}\mathrm{d}\tau_1^{M*} + U^{13}\mathrm{d}\phi = 0;$$
$$U^{21}\mathrm{d}\tau_1^{F*} + U^{22}\mathrm{d}\tau_1^{M*} + U^{23}\mathrm{d}\phi = 0, \tag{10}$$

where again

$$U^{11}=\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{F*2}};\quad U^{13}=\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{F*}\mathrm{d}\phi};\quad U^{22}=\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{M*2}};\quad U^{23}=\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{M*}\mathrm{d}\phi};\quad U^{12/21}=\frac{\mathrm{d}^2U}{\mathrm{d}\tau_1^{F*}\mathrm{d}\tau_1^{M*}}.$$

The asterisks denote optimal values. The U^{ij}s are the SOCs when $\tau_1^F=\tau_1^{F*}$ and $\tau_1^M=\tau_1^{M*}$, $i\in\{1,2\}$ and $j\in\{1,2,3\}$. Hence, the comparative statics from the conditions in Equation (10) are:

$$\frac{\mathrm{d}\tau_1^{F*}}{\mathrm{d}\phi}=\frac{U^{12}U^{23}-U^{13}U^{22}}{U^{11}U^{22}-U^{12}U^{21}};\quad \frac{\mathrm{d}\tau_1^{M*}}{\mathrm{d}\phi}=\frac{U^{11}U^{23}-U^{13}U^{21}}{U^{12}U^{21}-U^{11}U^{22}}.$$

The signs for SOCs when $\tau_1^F=\tau_1^{F*}$ and $\tau_1^M=\tau_1^{M*}$ are:

$$U^{11}<0;\quad U^{13}>0;\quad U^{22}<0;^{28}$$

$$U^{23}<0;\quad U^{12}=U^{21}<0.$$

From the equations for SOCs, I can obtain the sign of the numerators and denominators in the comparative statics:

$$U^{12}U^{23}-U^{13}U^{22}>0;$$

$$U^{11}U^{23}-U^{13}U^{21}>0;$$

$$U^{11}U^{22}-U^{12}U^{21}>0,$$

and thus the signs of the comparative statics are:

$$\frac{\mathrm{d}\tau_1^{F*}}{\mathrm{d}\phi}=\frac{U^{12}U^{23}-U^{13}U^{22}}{U^{11}U^{22}-U^{12}U^{21}}>0;\quad \frac{\mathrm{d}\tau_1^{M*}}{\mathrm{d}\phi}=\frac{U^{11}U^{23}-U^{13}U^{21}}{U^{12}U^{21}-U^{11}U^{22}}<0. \tag{11}$$

The comparative statics can be summarised in the following proposition:

Proposition 1: *In the model in this section, when the utility function is specified as a log or a CRRA function, then τ_1^{F*} is increasing in ϕ and τ_1^{M*} is decreasing in the gender ratio of K, ϕ. The model shows:*

$$\frac{\mathrm{d}\tau_1^{F*}}{\mathrm{d}\phi}>0;\qquad \frac{\mathrm{d}\tau_1^{M*}}{\mathrm{d}\phi}<0.$$

The first interpretation of the comparative statics in *Proposition 1* is that the fraction of the father's income transferred to his parents increases with the male-to-female gender ratio of his children. It also means that he will provide more old-age support to his parents the more sons he has in his household, fixing the number of K. The mother will transfer more to her own parents if she has more daughters, regardless of whether τ_1^F is greater or smaller than τ_1^M. As noted above, it is more usual in China for

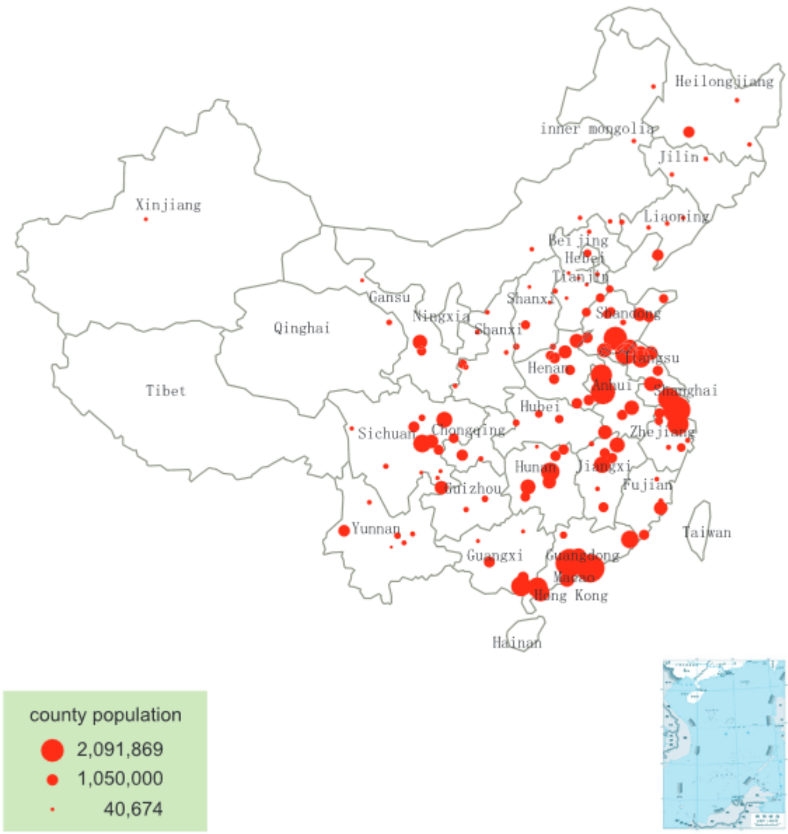
[28]Note that $U^{13}>0$ when the utility function is specified as a log or a CRRA function. For example, if $u(c)=log(c)$, then $U^{13}=\frac{\beta Y_2^2 n^2 \tau_2^{F'} \tau_2^M}{C_2^2}>0$.

males to support their parents than for females. $\tau_1^F > \tau_1^M$ indicates that the father transfers more than the mother does, as a general social norm. However, the condition $\tau_1^F > \tau_1^M$ does not affect the conclusion of the baseline model.

One key assumption for the interpretations is that ϕ should be exogenous. To make sure that ϕ, the gender ratio of the generation K, is exogenous at the household-level in the empirical part of the empirical part, I use the policy change which started in 2003. From this date, the selection of unborn children by sex was banned in China. The regulation brought the gender ratio of newborns after 2003 closer to the natural rate than the gender ratio was before the policy changed.

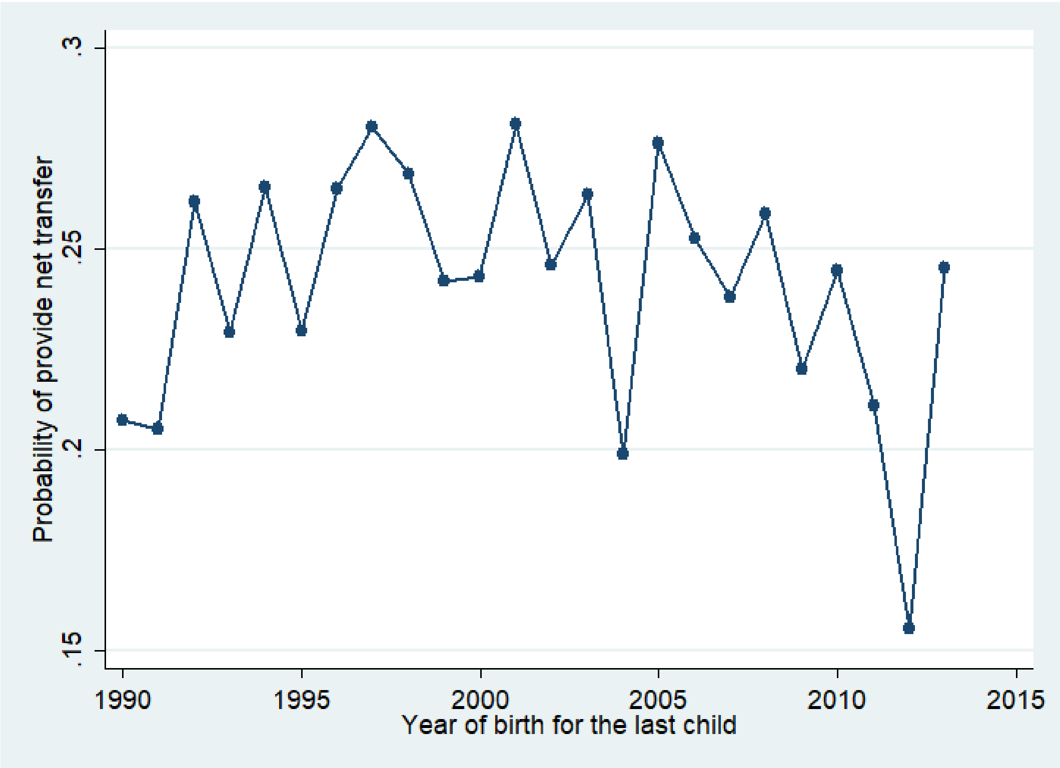
A.6 Figures and Tables

Figure A.1: Distribution of CHARLS sample counties and districts



Data source: Official report by CCER. Website: http://charls.pku.edu.cn/uploads/document/public_documents/application/Challenges-of-Population-Aging-in-China-final.pdf

Figure A.2: Trend assumption for the instrumental variable (DDIV)



Note: x-axis is the year of birth for the last child in households and y-axis shows the average probability of providing net old-age support for people who have their last child born in the same year. The graph is generated from the CHFS only.

Table A.1: Summary statistics for CHARLS: Females and males subsamples

	CHARLS (mostly rural)			
	Females		Males	
VARIABLES	Mean	Std. Dev.	Mean	Std. Dev.
whether P provides				
any transfers	0.254	0.264	0.314	0.341
regular transfer	0.045	0.166	0.164	0.336
non-regular transfer	0.222	0.262	0.265	0.346
amount of				
regular transfer	209.9	3036.5	475.4	4450.2
non-regular transfer	412.1	2330.1	531.7	3564.7
visit days	61.67	104.6	166.4	157.6
more sons in K	0.679	0.467	0.688	0.464
No. of Y	1.648	0.781	1.637	0.766
age of P	38.11	8.956	38.81	8.737
income level of P	5.085	1.417	5.076	1.419
education of P	0.814	0.531	0.960	0.444
whether P has a rural *hukou*	0.766	0.423	0.767	0.423
whether P is married	0.999	0.031	0.998	0.0462
P living in rural areas	0.351	0.477	0.345	0.476
No. of siblings of P	3.875	1.598	3.645	1.617
P's ranking in siblings	2.827	1.445	1.978	1.210
professional title of P	0.077	0.481	0.130	0.600
distance from O	3.874	1.332	2.703	2.048
household head of O	0.433	0.496	0.431	0.495
average age of O	65.25	9.622	66.04	9.552
average working status of O	0.550	0.455	0.536	0.456
average pension of O	0.180	0.384	0.182	0.385
average education level of O	2.735	1.564	2.690	1.556
who should support O	1.592	1.024	1.567	1.003
have O retired	1.874	0.302	1.870	0.305
whether O have deposit	0.124	0.330	0.129	0.336
household income of O	103669	3454041	129728	3796947
hours of O taking care of grandchildren	217.61	1124	827.9	2248
any transfers from O	0.034	0.182	0.041	0.197

Table A.2: Summary statistics for CHFS: Females and males subsamples

	CHFS (mostly urban)			
	Females		Males	
VARIABLES	Mean	Std. Dev.	Mean	Std. Dev.
whether P provides any transfers	0.301	0.459	0.228	0.420
amount of total transfer	650.0	1670.0	548.4	1627.8
visit days	69.05	126.2	114.4	159.2
gender ratio of K	0.559	0.426	0.575	0.407
No. of K	1.585	0.833	1.740	0.936
age of P	46.91	10.35	49.44	9.822
income of P	22510	43919	21049	43347
education of P	0.801	0.652	0.864	0.638
whether P has a rural *hukou*	0.493	0.500	0.597	0.491
marital status of P	0.763	0.425	0	1
P living in rural areas	0.268	0.443	0.395	489
No. of siblings of P	3.189	1.821	3.248	1.890
whether P is working	0.576	0.494	0.801	0.400
occupation of P	0.789	1.597	1.014	1.822
whether P has loan	0.096	0.295	0.934	0.291
No. of O alive	1.279	0.948	1.181	0.904
average education level of O	1.974	1.137	1.813	1.064
whether O are party members	2.722	0.546	2.736	0.555
hukou status of O	1.372	0.504	1.283	0.904
any transfers from O	0.144	0.351	0.118	0.323

Table A.3: The gender of the adult child on the provision of old-age support

	OLS: CHARLS (mostly rural)			OLS: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	0.00313	85.61	21.48***	-0.0264**	-73.99	27.56***
	(0.0223)	(223.1)	(4.754)	(0.0124)	(56.59)	(5.792)
hh-size	-0.00937	-16.81	-4.125**	-0.00463	-18.53	-7.966***
	(0.0126)	(87.83)	(1.835)	(0.00531)	(18.48)	(1.296)
maleP× *hh-size*	0.000158	309.0**	11.54***	-0.00339	28.64	14.46***
	(0.0117)	(151.0)	(2.858)	(0.00667)	(24.01)	(2.876)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.205	0.050	0.628	0.282	0.203	0.168
Mean	0.401	831.2	118.7	0.303	489.1	91.66

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of P. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS.

Table A.4: The demonstration effect on the provision of old-age support: different cluster levels

	IV: CHARLS (mostly rural)						IV: CHFS(mostly urban)		
cluster-level	O household			province			P household		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
$maleP$	-0.0802**	-230.5	-29.89***	-0.0802*	-230.5	-29.89***	-0.0518	-237.7	-3.363
	(0.0391)	(392.6)	(8.057)	(0.0467)	(327.1)	(11.26)	(0.0393)	(159.4)	(13.13)
sex_ratioK	-0.0450	-273.3	-4.315	-0.0450	-273.3	-4.315	-0.0733**	-96.20	-46.92***
	(0.0411)	(356.7)	(7.011)	(0.0428)	(398.9)	(6.859)	(0.0362)	(151.3)	(10.86)
$maleP \times sex\_ratioK$	0.125***	472.9	76.49***	0.125**	472.9	76.49***	0.0412	259.2	49.37**
	(0.0482)	(444.9)	(9.592)	(0.0523)	(372.5)	(14.47)	(0.0601)	(255.6)	(19.88)
$sex\_ratioK+$	0.079***	200.0	72.17***	0.079***	200.0	72.17***	-0.032	163.0	2.455
$maleP \times sex\_ratioK$	(0.022)	(247.3)	(6.221)	(0.022)	(231.9)	(12.89)	(0.042)	(181.5)	(14.77)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.201	0.050	0.610	0.201	0.050	0.610	0.280	0.203	0.159
Mean	0.401	831.2	118.7	0.401	831.2	118.7	0.303	489.1	91.66

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. $maleP$ is the gender of P. sex_ratioK is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the O's household-level and the province level for the CHARLS and the cluster-level is the P's household-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.5: First stage for two constructed instrumental variables

VARIABLES	sex_ratioK	
	CHARLS	CHFS
$sex\_ratioK\_1st\_2003$	0.263***	0.430***
	(0.007)	(0.007)
$prefectural\_index$	-0.039**	-
	(0.009)	-
P demographics	Yes	Yes
O demographics	Yes	Yes
Observations	12,232	19,509
F-test	199.88	512.63
Under-identification test		
Kleibergen-Paap rk LM statistic	65.17	25.715
Weak identification test		
Cragg-Donald Wald F-stat.	678.83	2100.56
Kleibergen-Paap Wald rk F test	199.88	512.63
Over-identification test		
Hansen J statistic	0.858	-

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The coefficient presented here for first stage coefficients for the IV regression. sex_ratioK is the gender ratio of K in the household of P. $sex\_ratioK\_1st\_2003$ is the gender of the first-born child in households with at least one child born in or after 2003 together and $prefectural\ \_index$ is the index that indicating how strict the cities on the gender selection behaviours at prefecture-level. The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS.

Table A.6: The demonstration effect on the provision of old-age support: Dummy gender ratio

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.0774	-230.3	-31.03**	-0.0497	-230.8	-1.524
	(0.0491)	(308.0)	(12.27)	(0.0432)	(165.2)	(16.01)
more_sons	-0.0387	-254.6	-3.464	-0.0695**	-89.49	-44.25***
	(0.0406)	(368.1)	(7.092)	(0.0321)	(126.1)	(10.14)
$maleP \times more\_sons$	0.120**	467.7	78.72***	0.0397	242.9	46.80**
	(0.0566)	(419.3)	(14.75)	(0.0606)	(271.0)	(22.87)
hh-size	-0.00835	-18.43	-2.253	-0.00467	-14.67	-7.549***
	(0.0131)	(81.63)	(1.865)	(0.00498)	(18.17)	(1.227)
$maleP\times$ *hh-size*	-0.000595	307.2**	10.72***	-0.00509	26.01	13.32***
	(0.0119)	(149.2)	(2.888)	(0.00624)	(23.66)	(2.734)
$more\_sons+$	0.081***	213.1	75.25***	-0.030	153.4	2.551
$maleP \times more\_sons$	(0.029)	(207.1)	(12.36)	(0.043)	(190.1)	(16.83)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.200	0.049	0.602	0.280	0.202	0.158

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of P. $more\_sonsK$ is a dummy representing whether the gender ratio of K in the household of P is larger or equal to 0.5, and it is the mother demonstration effect. $more\_sons + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.7: Different representations of the probability and the amount of transfers

	IV: CHARLS (mostly rural)				IV: CHFS (mostly urban)			
VARIABLES	any net transfer	net total *amount*	*log* amount of transfer	percentage of income	any net transfer	net total *amount*	*log* amount of transfer	percentage of income
$maleP$	-0.0969*	-35,144	-0.315	-0.0468**	-0.00450	382.3	-0.527*	-0.00497
	(0.0514)	(37,300)	(0.363)	(0.0226)	(0.0359)	(851.0)	(0.307)	(0.00649)
sex_ratioK	-0.0354	3,950	-0.141	-0.0178*	-0.0977***	-104.9	$-0.361^{\dagger}$	-0.00205
	(0.0439)	(4,241)	(0.290)	(0.0105)	(0.0264)	(925.4)	(0.224)	(0.00616)
$maleP \times sex\_ratioK$	0.129**	-1,141	0.719	0.0593*	-0.0375	-507.8	0.0676	-0.000853
	(0.0582)	(14,263)	(0.481)	(0.0335)	(0.0521)	(1,523)	(0.448)	(0.0104)
hh-size	-0.012	-8,070	-0.117	-0.00530***	-0.010**	-8.107	-0.0912**	-0.00125
	(0.014)	(7,373)	(0.0878)	(0.00148)	(0.005)	(30.94)	(0.0421)	(0.000819)
$maleP \times$ *hh-size*	0.011	10,244	0.0754	0.0137***	-0.006	-61.41	0.0601	0.00137
	(0.014)	(8,902)	(0.0871)	(0.00325)	(0.006)	(54.87)	(0.0486)	(0.00112)
$sex\_ratioK +$	0.094***	2,809	0.578*	0.041	-0.135***	-612.7	-0.293	-0.002
$maleP \times sex\_ratioK$	(0.026)	(15,917)	(0.346)	(0.030)	(0.036)	(788.7)	(0.309)	(0.007)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P income level	Yes	Yes	Yes	No	Yes	Yes	Yes	No
O demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	12,232	19,509	19,509	19,509	19,509
R-squared	0.198	0.006	0.120	0.507	0.056	0.009	0.202	0.040

*Notes:*Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. $maleP$ is the gender of P. sex_ratioK is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The outcome variables from left to right are the probability of providing any net transfers, the net amount of the transfer provided, the log amount of the total transfer provided, and the percentage of the amount of the total transfer in the total household income of P. The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.8: Household size adjusted using Qian's method (Qian, 2009)

	IV: CHFS (mostly rural)					
	Specification 1			Specification 2		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.0540	-223.0	0.756	-0.0508	-219.9	0.112
	(0.0422)	(163.9)	(15.64)	(0.0439)	(170.3)	(16.27)
sex_ratioK	-0.0733**	-98.71	-46.90***	-0.0738**	-99.16	-46.98***
	(0.0345)	(137.2)	(10.80)	(0.0343)	(135.9)	(10.79)
maleP × *sex_ratioK*	0.0408	260.5	49.19**	0.0418	262.6	49.49**
	(0.0648)	(294.6)	(24.57)	(0.0645)	(291.9)	(24.56)
hh-size	-0.00923	-17.27	-10.55***	-0.00782	-14.77	-9.944***
	(0.00574)	(19.91)	(1.184)	(0.00602)	(17.63)	(1.199)
maleP× *hh-size*	-0.000205	36.45	17.02***	-0.00307	29.84	15.80***
	(0.00727)	(29.98)	(2.787)	(0.00800)	(25.10)	(2.994)
sex_ratioK+	-0.032	161.8	2.294	-0.032	163.4	2.504
maleP × *sex_ratioK*	(0.045)	(204.7)	(17.94)	(0.045)	(203.6)	(17.94)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19,509	19,509	19,509	19,509	19,509	19,509
R-squared	0.280	0.203	0.159	0.280	0.202	0.159

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of *P*. *more_sonsK* is a dummy representing whether the gender ratio of *K* in the household of *P* is larger or equal to 0.5, and it is the mother demonstration effect. *more_sons* + *maleP* × *sex_ratioK* shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*, depending on the availability of the information in the CHFS. The standard error is clustered at the cluster-level is the province-level. The IV is the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.9: Son preference in China

	Urban areas		Rural areas	
CHFS	No.	Percentage	No.	Percentage
Prefer sons	1,159	8.43%	621	9.25%
Prefer daughters	2,904	21.12%	672	10.01%
Indifferent	9,685	70.45%	5,423	80.75%

Notes: The question asked in the 2013 CHFS wave is "Do you think it is better to have a son or it is better to have a daughter?". I separate the sample into people who live in urban areas and those who live in rural areas.

Table A.10: The demonstration effect: no cohabitation sample only

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
$maleP$	-6.097	-1,452	-1,229	-0.0966**	-354.1*	-15.63
	(16.87)	(25,990)	(2,917)	(0.0486)	(195.1)	(13.24)
sex_ratioK	-0.114	-246.0	-21.28	-0.0816**	-190.7	-41.03***
	(0.341)	(687.8)	(65.42)	(0.0338)	(140.1)	(9.957)
$maleP \times sex\_ratioK$	8.995	2,098	1,837	0.0827	514.2	41.74**
	(24.97)	(38,537)	(4,311)	(0.0692)	(323.9)	(21.24)
$sex\_ratioK+$	8.881	1,851	1,815	0.001	323.5	0.715
$maleP \times sex\_ratioK$	(24.65)	(37,960)	(4,249)	(0.050)	(247.0)	(16.16)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,488	10,488	10,489	17,786	17,786	17,786
R-squared	-24.100	0.048	-18.517	0.230	0.220	0.072

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. $maleP$ is the gender of P. sex_ratioK is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.11: Heterogeneity Check: Household income level

	IV: CHARLS (mostly rural)			IV: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.104	-780.7**	-17.08	-0.0448	-354.0*	-29.87
	(0.0654)	(369.9)	(14.29)	(0.0592)	(199.6)	(18.96)
sex_ratioK	-0.0214	-153.4	8.847	-0.0789	-470.0**	-67.30***
(Low income mother demonstrate effects)	(0.0628)	(339.8)	(10.93)	(0.0514)	(212.2)	(14.98)
high income	0.0553	-600.1	24.80***	0.00333	-587.2***	-19.90*
	(0.0567)	(426.7)	(9.306)	(0.0400)	(186.2)	(11.44)
maleP × *sex_ratioK*	0.198**	1,136**	69.74***	0.0326	500.9	105.2***
	(0.0870)	(484.7)	(19.72)	(0.0904)	(335.2)	(29.20)
sex_ratioK× *high income*	-0.0451	-256.4	-22.31	0.0121	778.4**	41.26**
(Differences in mother demonstrate effects)	(0.0930)	(625.2)	(16.06)	(0.0728)	(361.8)	(19.03)
maleP× *high income*	0.130	1,202**	-42.42***	-0.0141	229.5	50.48**
	(0.0856)	(593.2)	(14.58)	(0.0721)	(254.8)	(22.78)
maleP × *sex_ratioK*	-0.276*	-1,676*	39.33*	0.0183	-513.5	-112.3***
×*high income*	(0.142)	(857.1)	(23.61)	(0.130)	(466.6)	(38.19)
High income father	-0.145**	-949.1*	95.61***	-0.016	295.8	-33.14
demonstrate effects	(0.068)	(502.8)	(16.47)	(0.062)	(289.8)	(26.55)
Low income father	0.176***	983.0***	78.58***	-0.046	30.91	37.92*
demonstrate effects	(0.043)	(311.8)	(15.94)	(0.063)	(265.1)	(22.25)
Differences in father	-0.321***	-1932.2***	17.02	0.030	264.9	-71.06**
demonstrate effects	(0.093)	(702.0)	(16.95)	(0.088)	(382.1)	(32.02)
High income mother	-0.066***	-409.7	-13.46	-0.067	308.4	-26.03*
demonstrate effects	(0.065)	(635.4)	(11.10)	(0.048)	(239.7)	(13.29)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.195	0.047	0.600	0.280	0.199	0.154

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. *maleP* is the gender of *P*. *high income* is a dummy representing *P*'s income-level, and it interacts with key regressors. *sex_ratioK* is the gender ratio of *K* in the household of *P* and the mother demonstration effect for *P* with high-level income. *sex_ratioK*× *high income* represents the difference between the mother demonstration effects for *P* with high-level income and the mother demonstration effects for *P* with low-level income, which should be negative and significant if the mother demonstration effects for *P* with high-level income are larger than the mother demonstration effects for *P* with low-level income.

Table A.12: Heterogeneity Check: Single child family

	IV: CHARLS (mostly rural)			IV: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.0623	1,069	-15.65	0.00656	-394.9	-28.71
	(0.104)	(998.0)	(20.78)	(0.0829)	(317.8)	(37.09)
sex_ratioK	0.0160	-209.2	-4.973	0.0329	-854.0***	-100.4***
(non-singleK HH mother demonstrate effects)	(0.115)	(777.9)	(17.51)	(0.0835)	(264.2)	(38.34)
singleK	0.0346	16.06	0.577	0.0822*	-472.6***	-23.44
	(0.0635)	(456.5)	(10.84)	(0.0441)	(160.4)	(22.81)
$maleP \times sex\_ratioK$	0.112	-605.5	118.8***	-0.0838	769.1	177.9**
	(0.198)	(1,706)	(38.17)	(0.161)	(634.6)	(70.41)
$sex\_ratioK \times singleK$	-0.0830	50.71	5.181	-0.141	1,020***	68.50
(Differences in mother demonstrate effects)	(0.125)	(766.7)	(19.55)	(0.0872)	(305.3)	(43.22)
$maleP \times singleK$	-0.00938	-1,004	1.102	-0.0794	286.8	61.52*
	(0.128)	(1,170)	(20.48)	(0.0780)	(279.8)	(37.03)
$maleP \times sex\_ratioK$	0.0281	1,192	-44.64	0.162	-684.1	-166.7**
$\times singleK$	(0.232)	(1,991)	(36.89)	(0.154)	(543.5)	(69.94)
singleK HH father	0.073	428.5	74.32***	-0.031	250.7*	-20.66
demonstrate effects	(0.049)	(409.4)	(11.42)	(0.036)	(146.2)	(15.62)
Non-singleK HH father	0.128	-814.6	113.7***	-0.051	-84.88	77.49
demonstrate effects	(0.129)	(1,053)	(30.72)	(0.119)	(567.3)	(63.71)
Differences in father	-0.055	1,243	-39.46	0.020	335.6	-98.16
demonstrate effects	(0.167)	(1,399)	(28.09)	(0.108)	(507.1)	(64.70)
singleK HH mother	-0.061*	-158.4	0.207	-0.108***	165.7	-31.86***
demonstrate effects	(0.040)	(380.3)	(8.022)	(0.034)	(158.6)	(11.10)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.200	0.047	0.597	0.278	0.198	0.151

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. *maleP* is the gender of *P*. *singleK* is a dummy representing whether *P* have only one child, and it interacts with key regressors. *sex_ratioK* is the gender ratio of *K* in the household of *P* and the mother demonstration effect for *P* with only one child. $sex\_ratioK \times singleK$ represents the difference between the mother demonstration effects for *P* with only one child and the mother demonstration effects for *P* with more than one child, which should be negative and significant if the mother demonstration effects for *P* with only one child are larger than the mother demonstration effects for *P* with more than one child.

Table A.13: Heterogeneity Check: Urban-rural differences

	IV: CHARLS (mostly rural)			IV: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.108*	-773.6*	-39.24**	0.0675	118.6	-95.96*
	(0.0618)	(406.0)	(15.80)	(0.131)	(314.6)	(51.21)
sex_ratioK	-0.0640	-495.6	-4.914	0.00835	-522.6*	-16.54
(Rural mother demonstrate effects)	(0.0605)	(423.5)	(8.866)	(0.127)	(275.8)	(39.53)
urban	-0.0904	-320.3	12.19	0.0987	-131.6	23.86
	(0.0615)	(494.2)	(11.21)	(0.0852)	(178.5)	(24.47)
$maleP \times sex\_ratioK$	0.133	1,234**	99.33***	-0.154	-251.1	259.7***
	(0.0828)	(622.2)	(20.21)	(0.196)	(482.3)	(75.87)
$sex\_ratioK \times urban$	0.0489	674.6	17.13	-0.0905	526.2	-46.43
(Differences in mother demonstrate effects)	(0.103)	(858.2)	(18.51)	(0.150)	(336.5)	(40.78)
$maleP \times urban$	0.0511	1,358*	15.15	-0.125	-391.4	92.35*
	(0.0751)	(765.2)	(13.60)	(0.116)	(336.2)	(48.16)
$maleP \times sex\_ratioK$	-0.0125	-2,108*	-50.96**	0.219	604.9	-233.3***
$\times urban$	(0.131)	(1,219)	(21.06)	(0.196)	(580.7)	(77.24)
Urban father	0.104*	-694.7	60.59***	-0.017	357.3	-36.54*
demonstrate effects	(0.062)	(519.9)	(14.63)	(0.042)	(251.1)	(21.54)
Rural father	0.068*	738.5**	94.41***	-0.145	-773.7*	243.1***
demonstrate effects	(0.041)	(308.1)	(17.54)	(0.133)	(408.0)	(66.24)
Differences in father	0.036	-1,433**	-33.82*	0.128	1,131**	-279.7***
demonstrate effects	(0.088)	(703.3)	(18.08)	(0.132)	(533.4)	(73.37)
Urban mother	-0.015	179.1	12.22	-0.082*	3.561	-62.98***
demonstrate effects	(0.071)	(813.6)	(16.33)	(0.044)	(154.7)	(11.19)
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.201	0.047	0.601	0.279	0.194	0.094

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K. The standard error is clustered at the prefectural city level for the CHARLS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS. $maleP$ is the gender of P. $urban$ is a dummy representing whether P live in urban areas, and it interacts with key regressors. sex_ratioK is the gender ratio of K in the household of P and the mother demonstration effect for P with any older brothers. $sex\_ratioK \times urban$ represents the difference between the mother demonstration effects for P live in urban areas and the mother demonstration effects for P live in rural areas, which should be negative and significant if the mother demonstration effects for P live in urban areas are larger than the mother demonstration effects for P live in rural areas.

Table A.14: Subsample analysis: Urban-singleton households

	IV: CHARLS (mostly rural)			IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
Urban-singleton						
$maleP$	-0.00299	-592.9	8.020	-0.0816**	-180.6	8.082
	(0.0568)	(722.7)	(12.85)	(0.0328)	(131.2)	(13.64)
sex_ratioK	-0.0157	-244.4	7.033	-0.0896***	-13.23	-24.11**
	(0.0670)	(911.7)	(15.49)	(0.0343)	(158.8)	(10.14)
$maleP \times sex\_ratioK$	0.00379	877.1	19.02	0.0921	173.6	26.14
	(0.0830)	(1,215)	(18.31)	(0.0580)	(255.3)	(22.34)
$sex\_ratioK+$	-0.012	632.7	26.04**	0.002	160.3	2.028
$maleP \times sex\_ratioK$	(0.045)	(622.6)	(12.56)	(0.039)	(157.7)	(17.27)
Observations	2,466	2,466	2,466	9,364	9,364	9,364
R-squared	0.230	0.085	0.612	0.254	0.206	0.128
Others						
$maleP$	-0.142**	55.45	-29.65**	0.0655	-301.6	-6.517
	(0.0593)	(346.3)	(14.86)	(0.103)	(369.0)	(38.15)
sex_ratioK	-0.0634	-279.4	-3.850	-0.0101	-258.5	-122.7***
	(0.0526)	(430.1)	(8.439)	(0.0650)	(181.0)	(29.26)
$maleP \times sex\_ratioK$	0.184***	391.7	92.12***	-0.149	477.7	127.6**
	(0.0681)	(504.5)	(17.89)	(0.140)	(538.1)	(53.40)
$sex\_ratioK+$	0.121***	112.2	88.26***	-0.158	219.1	4.876
$maleP \times sex\_ratioK$	(0.030)	(179.7)	(14.27)	(0.099)	(436.5)	(40.35)
Observations	9,766	9,766	9,766	10,145	10,145	10,145
R-squared	0.195	0.043	0.610	0.293	0.136	0.196
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. $maleP$ is the gender of P. sex_ratioK is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. The sample is split based on whether P live in urban areas and have only one child.

Table A.15: Heterogeneity Check: Family compositions of P

	IV: CHARLS (mostly rural)		
VARIABLES	*any-transfer*	*amount*	*visit days*
maleP	-0.138**	-483.6	-30.12**
	(0.0549)	(421.6)	(13.41)
sex_ratioK	-0.0851	-662.8	4.674
(Without older brothers mother demonstrate)	(0.0578)	(473.8)	(9.214)
older bro	-0.0370	-559.4	17.30
	(0.0564)	(437.7)	(10.88)
maleP × *sex_ratioK*	0.239***	851.1	73.15***
	(0.0729)	(604.3)	(18.52)
sex_ratioK× *older bro*	0.104	1,013	-17.87
(Differences in mother demonstrate effects)	(0.0980)	(718.1)	(17.44)
maleP× *older bro*	0.212***	519.7	-24.12
	(0.0736)	(725.1)	(15.26)
maleP × *sex_ratioK* ×*older bro*	-0.358***	-721.7	37.93
	(0.125)	(1,183)	(24.21)
With older brothers father demonstrate	-0.101	479.5	97.87***
	(0.063)	(754.3)	(16.26)
Without older brothers father demonstrate	0.154***	188.3	77.82***
	(0.035)	(256.5)	(14.61)
Differences in father demonstrate effects	-0.255***	291.2	20.05
	(0.078)	(909.5)	(14.35)
With older brothers mother demonstrate	0.019	350.2	-13.20
	(0.074)	(615.3)	(13.96)
P demographics	Yes	Yes	Yes
O demographics	Yes	Yes	Yes
Observations	12,232	12,232	12,232
R-squared	0.196	0.049	0.599

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K. The standard error is clustered at the prefectural city level for the CHARLS. The IVs is the gender of the first child born in or after 2003 and the prefectural compliance index for the CHARLS. *maleP* is the gender of P. *older bro* is a dummy representing whether P have any older brothers, and it interacts with key regressors. *sex_ratioK* is the gender ratio of K in the household of P and the mother demonstration effect for P with any older brothers. *sex_ratioK* × *old bro* represents the difference between the mother demonstration effects for P with any older brothers and the mother demonstration effects for P without any older brothers, which should be negative and significant if the mother demonstration effects for P with any older brothers are larger than the mother demonstration effects for P without any older brothers.

Table A.16: Heterogeneity Check: Living in a community with minority ethnic groups

	IV: CHARLS (mostly rural)		
VARIABLES	*any-transfer*	*amount*	*visit days*
maleP	-0.0591	-174.0	-49.90***
	(0.0725)	(494.5)	(17.56)
sex_ratioK	-0.0141	-559.5	-5.602
(Non-Mino. mother demonstration effects)	(0.0780)	(535.2)	(10.25)
minority	-0.0300	-412.2	-0.749
	(0.0677)	(411.8)	(9.165)
maleP × *sex_ratioK*	0.0469	540.2	104.3***
	(0.114)	(585.2)	(22.49)
sex_ratioK × *Minority*	-0.0760	695.4	6.357
(Difference in mother demonstration effects)	(0.114)	(699.5)	(13.90)
maleP × *Minority*	-0.0624	-1.668	20.78
	(0.0920)	(575.3)	(15.57)
sex_ratioK × *Minority*	0.183	-239.6	-35.77
×*maleP*	(0.163)	(864.3)	(22.90)
Mino. father demonstration effects	0.140***	436.4	69.29***
	(0.050)	(361.1)	(13.63)
Non-Mino. father demonstration effects	0.033	-19.33	98.70***
	(0.065)	(453.5)	(18.73)
Difference in father demonstration effects	0.107	455.8	-29.40
	(0.102)	(720.7)	(18.36)
Mino. mother demonstration effects	-0.090	135.8	0.754
	(0.062)	(476.0)	(10.15)
P demographics	Yes	Yes	Yes
O demographics	Yes	Yes	Yes
Observations	12,232	12,232	12,232
R-squared	0.201	0.050	0.601

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*. The standard error is clustered at the prefectural city level for the CHARLS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS. *maleP* is the gender of *P*. *minority* is a dummy representing whether *P* live in communities with any minority ethnic groups, and it interacts with key regressors. *sex_ratioK* is the gender ratio of *K* in the household of *P* and the mother demonstration effect for *P* living in communities with any minority ethnic groups. *sex_ratioK* × *minority* represents the difference between the mother demonstration effects for *P* living in communities with any minority ethnic groups and the mother demonstration effects for *P* living in *Han*-only communities, which should be negative and significant if the mother demonstration effects for *P* living in communities with any minority ethnic groups are larger than the mother demonstration effects for *P* living in *Han*-only communities.

Table A.17: Heterogeneity Check: Ethnic groups

	IV: CHFS (mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*
maleP	-0.0558	-212.6	15.15
	(0.135)	(537.3)	(36.25)
sex_ratioK	-0.184	-93.91	-5.164
(Non-Han mother demonstration effects)	(0.161)	(558.5)	(45.56)
Han	-0.0462	-23.79	30.46
	(0.0677)	(411.8)	(9.165)
$maleP \times sex\_ratioK$	0.0618	253.8	16.61
	(0.226)	(935.7)	(66.02)
$sex\_ratioK \times Han$	0.126	7.621	-47.45
(Difference in mother demonstration effects)	(0.166)	(556.6)	(46.18)
$maleP \times Han$	0.0133	-10.09	-24.61
	(0.136)	(506.5)	(38.11)
$sex\_ratioK \times Han$	-0.0355	-20.43	42.04
$\times maleP$	(0.241)	(889.5)	(72.12)
Han father demonstration effects	-0.031	147.0	6.036
	(0.047)	(189.5)	(20.19)
Non-Han father demonstration effects	-0.122	159.8	11.44
	(0.191)	(690.2)	(46.56)
Difference in father demonstration effects	0.091	-12.81	-5.408
	(0.199)	(650.6)	(56.40)
Han mother demonstration effects	-0.058*	-86.28	-52.61***
	(0.034)	(130.7)	(11.19)
P demographics	Yes	Yes	Yes
O demographics	Yes	Yes	Yes
Observations	19,509	19,509	19,509
R-squared	0.280	0.203	0.160

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are *P*'s household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from *O*, and *O*'s transfer to *P*, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of *O* taking care of *P*'s *K*. The standard error is clustered at the province level for the CHFS. The IV is the gender of the first child for households having at least one child in or after 2003 for the CHFS. *maleP* is the gender of *P*. *Han* is a dummy representing whether *P*'s ethnicity is *Han*, and it interacts with key regressors. *sex_ratioK* is the gender ratio of *K* in the household of *P* and the mother demonstration effect for *P* as *Han*. $sex\_ratioK \times Han$ represents the difference between the mother demonstration effects for *P* as *Han* and the mother demonstration effects for *P* as other minority ethnic groups, which should be negative and significant if the mother demonstration effects for *P* as *Han* are larger than the mother demonstration effects for *P* as other minority ethnic groups.

Table A.18: The demonstration effect and the education investment in generation K

	IV: CHFS (mostly urban)		
VARIABLES	the amount of the education investment	any education investment in K	percentage of edu. investment in total expense
maleP	-29.39	-0.0879**	-0.0342**
	(1,071)	(0.0422)	(0.0169)
sex_ratioK	-3,360***	0.0914**	-0.0838***
	(959.8)	(0.0416)	(0.0190)
maleP × *sex_ratioK*	791.2	0.143**	0.0437*
	(1,275)	(0.0669)	(0.0254)
maleP× *hh-size*	-323.0*	-0.00354	-0.00103
	(185.8)	(0.00952)	(0.00412)
hh-size	491.8***	0.0280***	0.00443
	(144.5)	(0.00688)	(0.00382)
amount of old-age support	-0.539	-	-
	(0.483)	-	-
any old-age support	-	0.0452***	-0.0299***
provided	-	(0.00997)	(0.00443)
sex_ratioK +	-2,568**	0.235***	-0.040*
maleP × *sex_ratioK*	(1,024)	(0.066)	(0.023)
(Male with sons-males with daughters)			
maleP +	761.7	0.055*	0.010
maleP × *sex_ratioK*	(478.2)	(0.031)	(0.011)
(Male with sons-females with sons)			
P demographics	Yes	Yes	Yes
O demographics	Yes	Yes	Yes
Observations	19,509	19,509	19,509
R-squared	0.308	0.144	0.051

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of P. *sex_ratioK* is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the amount of the education investment on K from$P$, the probability of P providing any education investment for K, and the percentage of the education expenditure on K in the total household expenses. The key controls are P's household-size, whether provide any old-age support to O and the corresponding amount, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K. The standard error is clustered at the province level for the CHFS. The IV is the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.19: The demonstration effect without controlling for the transfers from generation O

	IV: CHARLS (mostly rural)			IV: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.121**	-325.3	-10.26	-0.0533	-240.2	-3.723
	(0.0595)	(312.8)	(9.130)	(0.0521)	(185.3)	(16.79)
sex_ratioK	-0.116**	-302.3	-2.654	-0.0127	5.500	-37.15***
	(0.0494)	(403.7)	(7.169)	(0.0374)	(135.3)	(10.36)
$maleP \times sex\_ratioK$	0.224***	649.7	47.79***	0.0422	261.0	50.83**
	(0.0772)	(448.7)	(11.04)	(0.0747)	(309.2)	(24.52)
hh-size	-0.00751	-26.42	-3.820*	-0.00589	-16.78	-10.09***
	(0.0136)	(74.95)	(2.000)	(0.00685)	(19.78)	(1.273)
$maleP\times$ *hh-size*	0.00385	355.5**	14.50***	-0.000755	41.74	17.12***
	(0.0136)	(145.8)	(2.750)	(0.00860)	(27.53)	(3.122)
$sex\_ratioK+$	0.108***	347.4*	45.13***	0.030	266.4	13.67
$maleP \times sex\_ratioK$	(0.050)	(181.4)	(7.853)	(0.055)	(219.6)	(18.58)
Transfer from O	No	No	No	No	No	No
O taking care for K	No	No	No	No	No	No
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	12,232	12,232	12,232
R-squared	0.084	0.049	0.670	0.214	0.186	0.140

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of P. *sex_ratioK* is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's age, education, working status, retirement status, any deposit, *hukou* status, and household income, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.20: The direct downward transfer from generation O

	IV: CHARLS (mostly rural)			IV: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
maleP	-0.0962*	-283.6	-29.82***	-0.0518	-237.7	-3.363
	(0.0505)	(320.7)	(11.18)	(0.0448)	(173.5)	(16.57)
sex_ratioK	-0.0503	-291.0	-4.282	-0.0733**	-96.20	-46.92***
	(0.0434)	(403.1)	(7.485)	(0.0343)	(135.4)	(10.82)
$maleP \times sex\_ratioK$	0.138**	518.3	76.39***	0.0412	259.2	49.37**
	(0.0577)	(450.1)	(14.08)	(0.0645)	(291.9)	(24.53)
hh-size	-0.0115	-34.99	-3.152	-0.00878	-21.63	-10.35***
	(0.0135)	(73.16)	(2.005)	(0.00599)	(18.06)	(1.259)
$maleP\times$ *hh-size*	0.00947	343.5**	16.65***	-0.00180	39.99	16.52***
	(0.0133)	(147.5)	(2.907)	(0.00789)	(26.58)	(3.048)
$sex\_ratioK+$	0.088***	227.3	72.11***	-0.032	163.0	2.455
$maleP \times sex\_ratioK$	(0.028)	(190.6)	(11.70)	(0.045)	(203.9)	(17.92)
transfer from O to P	-0.0491	-401.3	-3.679	0.357***	598.4***	62.91***
	(0.0322)	(267.9)	(5.636)	(0.0151)	(49.66)	(4.418)
O taking care for K	7.61e-06***	0.0627***	0.000929	-	-	-
	(2.40e-06)	(0.0240)	(0.000614)	-	-	-
transfer from O to K	0.173***	568.7***	-0.273	-	-	-
	(0.0178)	(214.0)	(2.715)	-	-	-
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,232	12,232	12,232	19,509	19,509	19,509
R-squared	0.201	0.050	0.610	0.280	0.203	0.159
Mean	0.401	831.2	118.7	0.303	489.1	91.66

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of P. *sex_ratioK* is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, transfer to P's K, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS.

Table A.21: Subsample check: High and low gender-ratio provinces (after 2003 samples only)

	IV: CHARLS (mostly rural)			IV: CHFS(mostly urban)		
VARIABLES	*any-transfer*	*amount*	*visit days*	*any-transfer*	*amount*	*visit days*
Low gender-ratio provinces						
maleP	0.0418	-30.36	-10.22	-0.00266	-421.3*	10.49
	(0.0591)	(385.4)	(12.11)	(0.0458)	(231.0)	(17.75)
sex_ratioK	-0.00135	-254.9	7.162	-0.0331	-228.8*	-4.708
	(0.0392)	(220.0)	(6.782)	(0.0300)	(138.7)	(9.741)
$maleP \times sex\_ratioK$	0.0292	228.6	36.96***	0.0274	249.2	-15.74
	(0.0507)	(358.5)	(13.74)	(0.0477)	(182.5)	(13.99)
$sex\_ratioK+$	0.028	-26.33	44.12***	-0.006	20.40	-20.45**
$maleP \times sex\_ratioK$	(0.025)	(243.4)	(11.26)	(0.032)	(151.6)	(9.702)
Observations	3,373	3,373	3,373	2,672	2,672	2,672
R-squared	0.199	0.090	0.690	0.185	0.230	0.145
High gender-ratio provinces						
maleP	0.0959*	109.4	-15.82	-0.0270	-52.15	24.94
	(0.0499)	(758.5)	(19.98)	(0.0453)	(256.2)	(30.53)
sex_ratioK	-0.0326	-103.9	-19.32**	0.00924	-114.6	-16.13
	(0.0423)	(674.4)	(8.086)	(0.0485)	(178.1)	(12.19)
$maleP \times sex\_ratioK$	0.00560	630.6	83.06***	0.0430	147.1	13.21
	(0.0529)	(852.2)	(21.12)	(0.0484)	(280.7)	(35.44)
$sex\_ratioK+$	-0.027	526.6*	63.74***	0.052	32.46	-2.917
$maleP \times sex\_ratioK$	(0.027)	(318.2)	(16.47)	(0.056)	(170.3)	(35.67)
Observations	2,489	2,489	2,490	1,454	1,454	1,454
R-squared	0.265	0.065	0.717	0.255	0.316	0.199
P demographics	Yes	Yes	Yes	Yes	Yes	Yes
O demographics	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Robust standard errors in parentheses. Stars indicate statistical significance. *** p<0.01, ** p<0.05, * p<0.1. *maleP* is the gender of P. *sex_ratioK* is the gender ratio of K in the household of P and represents the mother demonstration effect. $sex\_ratioK + maleP \times sex\_ratioK$ shows the father demonstration effect. The three outcome variables are the dummy indicating whether parents provide any financial transfer to their elderly parents (*any-transfer*), the amount of any transfer provided (*amount*), and the number of days spent on visits paid to their elderly parents per year (*visit days*). The key controls are P's household-size, gender, age, income education, *hukou* status, whether live in urban areas, siblings, marital status, occupation, distance from O, and O's transfer to P, age, education, working status, retirement status, any deposit, *hukou* status, household income and hours of O taking care of P's K, depending on the availability of the information in the CHARLS and the CHFS. The standard error is clustered at the prefectural city level for the CHARLS and the cluster-level is the province-level in the CHFS. The IVs are the gender of the first child for households having at least one child in or after 2003 and the prefectural compliance index for the CHARLS and the gender of the first child for households having at least one child in or after 2003 for the CHFS. The sample only contains P who have their first child on or after 2003. This sample is split based on the province-level of gender-ratios.