Brothers, Household Financial Markets and Savings Rate in China

by

Weina Zhou
Dalhousie University

Working Paper No. 2014-03

March 2014

DALHOUSIE UNIVERSITY
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DEPARTMENT OF ECONOMICS

DALHOUSIE UNIVERSITY
6214 University Avenue
PO Box 15000
Halifax, Nova Scotia, CANADA
B3H 4R2

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March 1, 2014

Abstract

This study analyzes the effect of the number of brothers an individual has on that individual's household savings rate under the current underdeveloped household financial market in urban China. I show that having an additional brother reduces an individual's household savings rate by at least five percentage points. Brothers help households by (1) sharing risks, providing a source of informal borrowing and (2) sharing the cost of supporting parents. Sisters play a minor role in affecting a household's savings rate, mainly because of cultural norms. The decline in the average number of brothers in households induced by population policies explained at least one-third of the increased aggregate household savings rate in urban China.

JEL Classification: D12, D81, E21, J12, O16, O17
Keywords: Household Savings, Family Structure, Financial Market Development

*Department of Economics, Dalhousie University, 6214 University Avenue, Halifax, NS, B3H 4R2, Canada. Email: weina.zhou@dal.ca. I thank Thomas Lemieux and Siwan Anderson for advice, encouragement and guidance. I am also grateful to Hiroyuki Kasahara, Xin Meng, Giovanni Gallipoli, Paul Beaudry and Ashok Kotwal for insightful suggestions.

1 Introduction

It is well documented that the corporate financial market in China is underdeveloped despite China's impressive GDP growth in recent decades (Song et al. 2011; Ayyagari et al. 2010; Guariglia et al. 2011; Chen et al. 2011; Allen et al. 2005). Private entrepreneurs usually find it difficult to borrow from banks and must rely largely on the financial resources from their own networks such as family members or relatives (Cai et al. 2013; Estrin and Prevezer 2011). To date, however, little attention has been paid to the household financial market even though the degree of development in the household financial market is no better than that of the corporate financial market. According to the 2009 China Family Panel Study, even in Beijing, Shanghai, and Guangdong, China's most developed regions, more than 80% of debtors borrowed from family members or relatives in 2008, while fewer than 20% borrowed from financial institutions. At the same time, households also encounter large uncertainties. Health care reforms, pension reforms, and rising income uncertainties cause households to have high savings rates (Chamon and Prasad 2010; Chamon, Liu, and Prasad 2010). The household savings rate rose from 16 percent in 1990 to 24 percent in 2005 in urban areas.[1]

In developing countries where household financial markets are underdeveloped, research has provided evidence that shows how extended family members help each other by sending transfers and gifts to households that receive negative economic shocks (Fafchamps and Quisumbing 2008; Fafchamps 2008). However, so far it is unknown to what extent the existence of family members, which could represent *potential* transfers, affects a household's savings rate and whether the gender of the family members matters.

This paper explores the consequences of a weak household financial market by studying the effect of brothers, the most important members of a household in the extended family, on the household savings rate in urban China. This is one of the first papers to estimate the siblings' effect on a household's savings rate using micro level data.

Although individuals rely largely on their brothers under the current environment of increasing uncertainties and incomplete financial markets, population control policies such as the One-Child Policy (1979) made the situation even worse. In contrast to the individuals born during the baby boom period (1945–1978), who on average have more than three siblings, the One-Child Policy generation have fewer or even no siblings.[2] They suffer from a lack of a family-based safety net in addition to incomplete financial markets. A simple calculation suggests that the decline in the average number of brothers can explain at least

[1] The savings rate is defined as $1 - LivingExpenditure/DisposableIncome$. Data source: China Statistical Year Book.

[2] Although the overall fertility rate was high during the baby boom period, it was low during the Chinese famine period (1959–1961).

one-third of the increased aggregate household savings rate.

I estimate the brothers effect on household savings rate by using data from the China General Social Survey (CGSS) that randomly samples a respondent by household, and provides information about household income, expenditures, the number of brothers and sisters the respondent has, and other social-economic characteristics. See data appendix for detailed information of this data set and the relation of respondents with other household members.

In estimating the effect of the number of brothers of an individual on the individual's household savings rate, endogeneity problems arise: the number of brothers of a individual could potentially be correlated with that individual's unobserved characteristics such as his/her parents' preferred number of children. This paper found that conditional on the number of siblings of individuals, the gender of the siblings can be considered as a random assignment by nature for urban residents born during the baby boom (1945–1978)[3]. The gender assignments of siblings by nature help us to identify the effect of having a brother instead of a sister (a *relative* effect).

The identification strategy relies on the assumption that conditional on the number of siblings, the gender of the siblings is only determined by nature. It is well known that China had a growing missing female problem in recent decades (Qian 2008; Anderson and Ray 2010). However, I find that it was unlikely that parents were able to control the gender of their children for a given family size among urban residents born during the baby boom (1945–1978).[4] The main reason is that ultrasound technology—a technology that can identify gender before birth—was introduced in the 1980s, which is after the baby boom. In addition, female infanticide was much more difficult to practice in urban areas. In this case, it was unlikely that urban households would risk criminal prosecution for son preference.

As a robustness check, for individuals born after the One-Child Policy (1979), I use within-region across-time variation in the One-Child Policy fine to instrument the number of brothers of individuals. As the One-Child Policy had a significant impact on the gender ratio and fertility decision (Ebenstein 2010), the One-Child Policy fine had a direct impact on the number of brothers that an individual has. The results of the IV estimation are consistent with the main results in this paper: having more brothers reduces a household's savings rate in urban China; brothers reduce the savings rate by sharing risks with the individual's household.

I find that having a brother instead of a sister reduces the household savings rate by at least five percentage points. If sisters also behave like brothers and affect the household

[3]Urban residents are defined as individuals with urban resident cards.

[4]The baby boom was induced by family planning policies introduced in the 1950s that carried on until the early 1970s.

savings rate, the estimated *relative* effect would be a lower bound. That is, the absolute effect (i.e., having one more brother rather than not) would be larger than the relative effect (i.e., having a brother instead of a sister). The statistical evidence reveals that sisters have almost no effect on a household's savings rate for the baby boom generation. Therefore, the estimated *relative* effect of a brother is likely to be the same as the *absolute* effect. The lack of an effect of sisters on the savings rate may result from the relatively weak connections between female and male siblings, and between parents and daughters in Chinese culture. Having said this, interestingly, as the number of siblings declines because of the change in family planning policy, sisters also affect the savings rate like brothers for the young generation. Young households may use sisters as a substitute for brothers when there are too few brothers.

I show that brothers can reduce a household's savings rate through two channels: (1) sharing risks and extending borrowing limits, and (2) sharing the cost of supporting parents. In order to examine the effect of risk sharing/extending borrowing limits, this paper tests the effect that brothers have on households with different levels of (a) wage uncertainties, (b) bonus uncertainties, (c) health risks, (d) regional financial development and (e) income or asset levels. The estimation results are consistent with the risk-sharing/extending-borrowing-limits hypothesis: households that encounter larger wage and bonus uncertainties, have higher health risks, live in a financially less developed province, have lower incomes or have fewer assets have a larger brothers effect. The robust and consistent results suggest a strong risk-sharing/extending-borrowing-limits effect of having brothers.

In Chinese culture, the expectation is that parents will be supported by their male children (Banerjee et al. 2013).[5] A household with several brothers would need to save less for their parents' risks, in particular risks from medical expenditure, which are largely shared among the brothers. To test the parent-supporting aspect, I utilize information on whether parents are deceased. Once parents have passed away, brothers no longer play a role in sharing parents' risks. The difference in the number of parents still living helps to identify the parent-supporting effect of brothers.

Recent papers have emphasized that change in the demographic structure could affect household savings rates because of the effect of the intergenerational support. Ge, Yang, and Zhang (2012) explore the regional variation in One-Child Policy fines to examine the effect of changing demographics on household savings rates. Choukhmane, Coeurdacier, and Jin (2013) estimate an OLG model incorporating endogenous fertility, intergenerational transfers and human capital accumulation, and find that changes in the demographics explain more

[5]This is the main reason why we observe a large increase in the male–female gender ratio of newborns after the "One-Child Policy."

than one-third of the rise in the aggregate savings rate. Banerjee, Meng, Porzio, and Qian (2013) suggest that the partial equilibrium model could overstate the effect of changing demographics on the savings rate. Wei and Zhang (2011) suggest that the rising gender ratio induced parents to save more for their male children, helping them to secure a better outcome in the marriage market.

This is one of the first papers to emphasize that in addition to the intergenerational support effect, the risk-sharing effect among brothers could also explain why changes in demographics could raise the aggregate household savings rate. Furthermore, the role of risk sharing/extending the borrowing limits among family members could vary greatly depending on the gender of a family member. It discovers a gender difference in China in a new dimension.

This paper also helps to explain why there is mixed evidence regarding whether the decreasing dependency ratio could explain the rising savings rate. Modigliani and Cao (2004) use long-term national-level data and find that the decrease in both the young and old population contributes to the rising savings rate in China. On the other hand, Horioka and Wan (2007) use more recent data and find that the change in the dependency ratio does not explain the increasing savings rate adequately. This paper helps to solve the puzzle by emphasizing that individuals of prime age could save less because they have more brothers. The recent younger generation contributes to the high savings rate because they do not have siblings.

The paper proceeds as follows. Section 2 introduces the background to household financial markets, population policies, and the current savings rate in China. Section 3 introduces the identification strategies and presents the estimation results. Section 4 explores the reason that having more brothers could reduce the savings rate. Section 5 provides a robustness check for the identification strategy. Section 6 shows how much of the savings rate puzzle can be explained by the brothers effect. Section 7 concludes the paper. The Data Appendix provides information on all the data used in this paper.

2 Background

2.1 Financial Markets and Household Borrowing Resources

It is a well-known fact that the corporate financial market in China is underdeveloped; private entrepreneurs have to rely largely on financial resources from their own networks such as family members or relatives (Ayyagari, Demirguc-Kunt, and Maksimovic 2010; Guariglia, Liu, and Song 2011; Chen, Ma, and Tang 2011; Song, Storesletten, and Zilibotti 2011; Allen,

Qian, and Qian 2005). To date, little attention has been paid to the household financial market, even though the degree of development of this market is no better than that of the corporate financial market (Yao, Wang, Weagley, and Liao 2011; Coeurdacier, Guibaud, and Jin 2013).

Despite the fact that the real interest rate on domestic bank deposits has often been negative (Gordon and Li 2003; Lardy 2012), by using the China Household Finance Survey 2011, Gan (2012) suggests that the two main financial assets for households are bank deposits (58%), and cash holdings (18%). The rate of consumer loans issued by all financial institutions in China was nearly zero in 1997 (Chamon and Prasad 2010). Although it reached 2.2 trillion RMB at the end of 2005, mortgage loans amounted to about 80% of total loans.[6]

Households can also encounter significant uncertainties. Medical reforms, pension reforms and rising income uncertainties cause households to save more because of the precautionary motive (Chamon and Prasad 2010; Chamon, Liu, and Prasad 2010). How do households in China finance themselves when they encounter negative shocks?

I use two different data sets to investigate how Chinese households finance themselves in the current underdeveloped household financial markets. The first data set comes from the Chinese Household Income Project (CHIP, see Data Appendix). The CHIP 2002 urban area survey asked, "If your household suddenly encountered difficulty and needed 10,000 RMB immediately, where or to whom would you turn first?".[7] I report the results in Figure 1. More than 60% of the individuals chose "family members and relatives," while fewer than 3% of the individuals chose "financial institutions." It is very clear that family members and relatives are a household's primary borrowing source. The results also suggest that the potential transfer or quasi-credit amount available among family members could also be very large. Note that 10,000 RMB is approximately 1,600 USD, which is more than half of the median household's yearly income in the 2002 CHIP data.

The China Family Panel Study 2009 asked households if they actually borrowed money in 2008, if so the sources they borrowed from, and the reason that they borrowed. In total, 14% of the survey respondents had borrowed money in 2008. As was the case in the report using the 2002 CHIP data, "Relatives and friends" was overwhelmingly the dominant borrowing resource for households. Conditional on borrowing money, 82.3% of the households borrowed from relatives and friends, while fewer than 20% of the borrowers borrowed from banks.[8]

[6]The other major loan categories were auto loans and large durable goods loans.

[7]There were nine answers to choose from: (1) family members and relatives, (2) friend, (3) other individuals, (4) work unit, (5) bank and credit union, (6) other financial institutions, (7) need no help, (8) anywhere I can borrow, (9) other. I aggregated (5) and (6) together and named this category "financial institutions," and I aggregated (3) (4) (8) and (9) together as "other."

[8]Households had the following options to choose from in the survey: (1) banks (including credit unions), (2) relatives and/or friends, (3) loan from a private institution, and (4) other. Only 2% of households had

Note that this survey was conducted in Beijing, Shanghai and Guangdong provinces, China's most financially developed areas. In other less developed areas, the proportion of households relying on family members could potentially be even larger.

The reasons for borrowing also varied from relatives to banks. In the CFPS data, housing was the main reason for borrowing from financial institutions, which accounts for 85%. In contrast, there were a wide range of reasons for borrowing from relatives and friends that were evenly distributed among "education"(18%), "medical treatment"(20%), "housing"(22%), "living expense"(15%), and "other"(26%).

It is worth noting that the housing loan market is quite developed in China, perhaps because of the government's enforcement of housing reforms, which encourages individuals to buy houses. As the primary reason for people borrowing money from banks is housing, and mortgages are not considered to be an unexpected expense, relatives and friends become the only source of borrowing when a household encounters unexpected shocks.

2.2 Facts: Household Savings Rate by Number of Brothers and Sisters

I use the China General Social Survey (CGSS) 2006 to construct household savings rate data. The CGSS 2006 data contain the total income, basic living expenditure, medical expenditure, and education expenditure information of individuals' households. Savings are calculated as the household total disposable income minus the sum of these three household expenditures. The savings rate is defined as savings divided by household total disposable income.[9] Appendix Table 1 shows detailed descriptive statistics of disposable incomes and expenditures. The average savings rate in 2006 was 26 percent for urban residents, which is the main sample used in this paper. It is only one percentage point higher than the savings rate computed by using the data in China Statistical Year book for urban households in 2006, 25 percent.[10]

Figure 2 presents the age profile of the household savings rate by the number of brothers and sisters of individuals. In the upper panel of Figure 2, I divide the individuals into two groups: individuals with zero or one brother, and individuals with two or more brothers.

borrowed from (3) or (4).

[9]I compute the income taxes based on the Individual Income Tax Law of the People's Republic of China introduced in 2005. In an earlier version of this paper, I used income instead of disposable income. The estimation results using disposable income are almost identical to the results using (non-tax-deducted) income.

[10]When we compute the savings rate by using the data in China Statistical Year Book, the household savings rate is defined as $1 - Expenditure/Income$, where expenditure is per capita household living expenditure, and income is per capita household disposable income.

The figure clearly shows that individuals with zero or one brother have a higher savings rate than individuals with two or more brothers, for all age groups. There is a strong negative correlation between the number of brothers and the household savings rate.

By contrast, the savings rate is quite similar regardless of the number of sisters of individuals (the lower panel of Figure 2), in particular for individuals aged over 35 years. It is interesting to note, however, that the pattern of the savings rate by number of sisters for young generations is close to that of the number of brothers: having fewer sisters is associated with a higher savings rate. As the number of siblings declines because of the change in family planning policy, young households may use sisters as a substitute for brothers when there is a shortage of brothers. Sisters might also start to play the same role as brothers and affect the household savings rate.

Figure 3 repeats the same exercise by using individuals with no living parents to avoid the potential concerns of the siblings' supporting-parents effect. The figure only presents savings rates for individuals aged over 40 years because there are very few individual with no living parents below this age. The figure suggests that even for individuals with no living parents, the number of brothers still has a strong negative correlation with the household savings rate. For the number of sisters, the correlation with the savings rate is not clear (the lower panel of Figure 3).

2.3 Changes in Demographics and China's Savings Rate Puzzle

The number of siblings of individuals has changed dramatically during recent decades. Figure 4 presents the number of brothers and sisters of individuals by individuals' year of birth for the CGSS 2006 data. The figure shows that individuals born in the 1950s and 1960s have on average more than three siblings (with 1.5 brothers and 1.5 sisters). In contrast, individuals born during the later 1970s and 1980s have fewer or even no siblings.

While the average number of siblings has been decreasing in recent decades, the household savings rate has been increasing. Figure 4 shows the average number of brothers of individuals from 1980 to 2005 as well as the trend in the household savings rate. The household savings rate increased dramatically during this period. It presents one of the largest puzzles in China's savings literature, which has attracted a lot of attention among researchers and policy makers: why has the savings rate in China increased substantially in recent decades. The figure suggests that the decline in the average number of brothers may be one of the solutions to this puzzle.

The change in the number of siblings of individuals is induced by the change in family planning policies in China. The population policies in China can be divided into three main

stages: population expansion (1949–1972), voluntary birth control (1972–1978), and the One-Child Policy (1979–current).

After the founding of the People's Republic of China in 1949, policy makers promoted population growth. The Chinese government introduced many policies to encourage more births. For example, in 1952, the government published a regulation to restrict sterilization and abortions (Banerjee, Meng, Porzio, and Qian 2013). The policy allowed a female to have an abortion only if the female was over 35 or already had six or more children. Chairman Mao Zedong's famous saying "the more people, the stronger we are" is still a well-known phrase in China, even for the current generation.

This large population growth was slowed by the second stage of family planning policies implemented in 1972. During this stage, the government used the slogan "later, spaced, and few": "later" for later marriage, "spaced" for spaced birth, and "few" for fewer children. The policy emphasized birth spacing and did not place a cap on the total number of children; however, the population control policy at this stage was voluntary, and no punishment was meted out for violations. The decision to adopt birth control methods was left to the couples themselves. As a result of these population policies, China's population almost doubled in just 30 years, increasing from 540 million in 1949 to 960 million in 1978.

The famous One-Child Policy stage represents the third stage of family planning policies. This policy was introduced in 1978 and applied to the babies born in 1979. In urban areas, each family was allowed only one child; however, in rural areas, a second child was allowed if the first child was not male. Any additional children resulted in large fines. Those families who violated the policy were required to pay monetary penalties and could be denied bonuses at their workplaces.

3 The Impact of the Number of Brothers on Households' Savings Rate

3.1 Identification

Let us first consider the following equation:

$$SavingRate_i = \alpha Bro_i + X_i\gamma + \epsilon_i \tag{1}$$

The definition of the savings rate is given in Section 2.2. Bro_i is the number of brothers of an individual. X_i is a set of individual characteristics and individual's household characteristics. α, the coefficient on Bro_i, is the parameter we are interested in. Bro_i could

be correlated with unobserved family characteristics, such as parents' economic conditions or their preferred number of children, which may be correlated with individual's household savings. Thus, α cannot be consistently estimated through equation 1.

In order to identify the effect of brothers on the savings rate, I consider the following case. If individuals' parents cannot manipulate the gender of individuals' siblings, then given the number of siblings, the gender of siblings is only determined by nature. The number of brothers is not correlated with any unobserved characteristics for a given number of siblings.

If, given the number of siblings, having a brother instead of a sister is randomly assigned by nature, then the effect of having a brother instead of a sister on the savings rate can be interpreted as a randomly assigned treatment. α can be consistently estimated through equation 2. See Appendix B for proof. Keep in mind that the interpretation of α is different in equation 2 from that in equation 1, as α in equation 2 represents the effect on the savings rate of having a brother *instead* of a sister, for a given number of siblings.

$$SavingRate_i = \alpha Bro_i + \delta(Sib_i) + X_i\gamma + \epsilon_i \tag{2}$$

The identification strategy compares the savings rate of individuals with different numbers of brothers but with the same number of siblings. The upper panel of Figure 6 presents this variation. The figure suggests that for each sibling group, having more brothers is associated with a lower savings rate. As the savings rate is defined as savings divided by income, one may be concerned that the negative correlation between the number of brothers and the savings rate (conditional on the number of siblings) could be driven by the income correlation. The lower panel of Figure 6 suggests that this is not a concern, as there is not a clear pattern of how income is correlated with the number of brothers given the number of siblings.

The assumption that, conditional on the number of siblings, the number of brothers is a random assignment requires that no predetermined family characteristics affect the assignment of the gender of the siblings (the only thing that can determine the gender of the siblings is nature). Several papers in the "missing female" literature indicate that Chinese households have a son preference and that the sex ratio of newborns became distorted significantly following the introduction of the One-Child Policy (1979) (Wei and Zhang 2011; Arnold and Liu 1986), because parents wanted to ensure that they had a son. The main reason for the son preference is that male children provide financial support to parents when parents get old. Parents "chose" the gender of their children by practicing sex-selective abortion or female infanticide, which was a practice sometimes found in rural areas.

I found that by restricting the sample to urban residents, and those born before the One-Child Policy (1979) and after World War II (1945), the evidence suggests that the gender of

individuals' siblings is exogenously assigned. In the rest of the paper, I call this sample the restricted sample.

There are several reasons that there is no gender distortion in the restricted sample. First, the ultrasound technology required for sex-selective abortions was only introduced in the 1980s; households before the 1980s had no reliable method for performing sex-selective abortions. Second, female infanticide occurred mainly in rural areas where households delivered babies at home. In urban areas, babies were usually delivered in hospitals. In this case, it was unlikely that urban households would risk criminal prosecution for son preference. Keep in mind that people born close to 1979 are unlikely to have siblings born after 1979 because of the One-Child Policy. Third, Chairman Mao largely enforced gender equality in China before he passed away in 1976 (Li 2000). "Women hold half of the sky" is his famous slogan to enforce gender equality. In urban areas, females enjoyed as many job opportunities as males. The greater degree of gender equality in general made parents in urban areas less likely to exhibit the same degree of son preference as before.

Two sets of statistical tests examine whether the gender of children is exogenously assigned in the restricted sample. Table 1 reports the proportion of male siblings given the number of siblings. The natural gender ratio is 106 males per 100 females (Jacobsen, Moller, and Mouritsen 1999). This implies that the natural proportion of male siblings is 51.5%. If parents practice son preference, this proportion would be significantly greater than 51.5%. The statistics computed in Table 1 show that the proportion of males is close to the natural level, regardless of individuals' number of siblings in the restricted sample.

Table 2 provides a test of the random assignment of the number of brothers conditional on the number of siblings. In column 1, where the number of siblings is not controlled for, the number of brothers is significantly correlated with the mother's years of education. The Wald test suggests that all of the family characteristics are jointly significant. In contrast, once the number of siblings is controlled for in column 2, no parental characteristic is significantly correlated with the number of brothers, and the Wald test suggests that they are not jointly significant. I repeat the same test for the proportion of male siblings (column 3) and obtain similar results. The results in Table 2 provide strong evidence that conditional on the number of siblings, the number of brothers is random among urban residents born between 1945-1978.

One may have concerns that parents might be practicing a son preference by adopting a stopping rule; that is to say, they keep having babies until they reach the desired number of boys. This is also unlikely to happen in the restricted sample. An easy way to see whether parents adopted a stopping rule is to check the gender of their last child. If parents adopted a stopping rule, we are more likely to observe that the youngest child is a male. Recall that

the natural proportion of males is 51.5%. For urban residents born between 1945 and 1978, the proportion of males as the youngest child of parents is 51.7% in the CGSS data and 50.4% in the CULS data (see Data appendix), and both are not significantly different from the natural proportion of males.[11]

One might also want to know the effect of sisters on a household's savings rate. Ideally, we want to include the number of sisters in the regression to estimate the impact of the number of sisters on the savings rate. However, such an estimate is not feasible because of the problem of collinearity (we cannot add both the number of brothers and sisters and siblings into one regression). As we control for the number of siblings, α measures the difference between the effect of brothers and that of sisters. The coefficient on the number of siblings represents the effect of sisters with bias induced by endogeneity. See Appendix C for the proof.

Although the true effect of sisters could not be estimated, from Figure 2, it is more likely that sisters have no effect on a household's savings rate. If this is the case, the estimated relative effect of brothers compared with that of sisters, α, also equals the absolute effect of brothers. If sisters behave like brothers, by also playing a role with other siblings through risk sharing and supporting parents, the estimated brothers effect would be a lower bound of the absolute effect of brothers (see Appendix C).

3.2 Results: the Impact of the Number of Brothers on Household Savings Rate

The estimation results of equation 2 are presented in Table 3. Error terms are clustered at county level. Column 1 uses nonurban residents data. The rest of the columns use urban residents data because of the identification strategy discussed in Section 3.1. Both columns 1 and 2 control for the number of siblings, years of education, gender, age, age squared, household income, and marital status.

In both urban and rural areas, we observe a negative effect of the number of brothers on the household savings rate. The coefficient on the number of brothers for the sample of urban residents is -0.048 and statistically significant at the 1% level. This means that having one brother instead of one sister would, on average, reduce the savings rate by 4.8 percentage points. Interestingly, the magnitude of the brothers effect is larger in urban areas

[11]The CGSS data do not provide the exact birth order of individuals' siblings, because it only lists the number of younger brothers and sisters, and older brothers and sisters. For this reason, I check the gender of an individual conditional on the individual being the youngest child in the family. The CULS 2001 data (see Data Appendix for details) provide the birth order of siblings. I restrict the sample to urban residents born between 1945 and 1978. The sample size of the CULS data is 5351.

than in rural areas. The estimation results in the first two columns may suggest that urban households rely more on their brothers than their rural counterparts. Rural areas usually have less developed financial markets and experience higher risks associated with fluctuations in agricultural production. However, compared with urban households, rural households can usually share risks with village members in addition to their family members and relatives. The larger brothers effect in urban areas may be because of the relative scarcity of sources of risk sharing besides family and relatives. Keep in mind that the coefficient on brothers in the rural sample may be biased because of the potential female infanticide problem in rural areas.

Column 3 adds a large set of demographic and characteristic controls that could potentially affect a household's savings rate: family size, parents-living-together dummy, Communist Party membership status, father's and mother's education, and a send-down dummy.[12] Chamon and Prasad (2010) indicate that increases in children's education expenses and housing reform caused households to save more. For this reason, column 4 adds the number of children and children's age group dummies in order to control for the potential education expense effect. Column 5 adds households' housing characteristics: a dummy variable indicates whether each household owns the house, the mortgage value (if the house is owned), and the value of the house that a household owns.[13] Note that by controlling for these housing variables, I also control for the household asset accumulation information because housing is the most important vehicle of household asset accumulation (Wei and Zhang 2011). Column 6 uses a set of sibling dummies instead of the number of siblings. This relaxes the specification of the functional form of $\delta(Sib_i)$ in equation 2.

In columns 2 to 6 of Table 3, the coefficient on the number of brothers is very stable at around -0.048. The fact that the coefficient on brothers is fairly constant also provides evidence that the number of brothers is unlikely to be correlated with family characteristics once we have controlled for siblings. If the number of brothers were correlated with any of the related individual and family characteristics used in the regressions, then the coefficient on the number of brothers should have changed considerably in columns 2 to 6.

One may worry about possible gender differences in the brothers effect. Males may be more likely than females to get help from their brothers. In the latter case, brother-in-laws of the female (i.e., the brothers of her husband) may be playing a more important role. I look

[12]Send-down was a program during the Chinese Cultural Revolution (1967–1977) in which the government forced adolescents in urban areas to go to rural areas to do hard manual labor. Zhou (2013) found that this event had a large impact on the send-down youths' income and ability to withstand hard work.

[13]The size of the mortgage is calculated as the percentage of the housing property that is still unpaid multiplied by the housing value. Own housing is defined as a house owned by a family member. Among urban individuals aged 28–60, 0.3% of individuals live with a working parent aged below 60; 5% of individuals live with married children.

for possible gender differences by introducing the variable "*Brothers of Female Respondents*" into the regression (column 7 of Table 3). This variable is generated by interacting *Brothers* with the *Female* respondent indicator dummy. The interaction variable *Brothers of Female Respondents* captures the brothers effect on females relative to males (the total brothers effect for females is the sum of the coefficients on the main *Brothers* variable and *Brothers of Female Respondents*.) The coefficient of this variable is 0.02. However, the standard error is relatively large, and the coefficient is not statistically different from zero. I conclude that the brothers effect on females is either equal to, or slightly smaller than, the brothers effect on males.

I further restrict the analysis to both individuals and individuals' parents with urban resident cards. This ensures that the individuals were *born* in urban areas, where missing female problems are unlikely to occur. The sample becomes relatively small; however, the coefficient of brothers is still around 0.05 and statistically significant at the 1% level.

The population policy switched from encouraging fertility to voluntary birth control in 1972. The number of siblings of individuals declined gradually for people born between 1972 and 1979 (Figure 4). In order to avoid the potential effect of this policy change, column 7 drops individuals born after 1971. Doing this also allows us to estimate a relatively consistent sample of individuals with a similar number of siblings. Column 8 drops individuals close to retirement age. The last column focuses solely on individuals who are between the ages of 35 and 50. In these columns, brothers have a strong negative effect on the household savings rate.

4 Why Brothers Reduce the Savings Rate: Risk Sharing/Extending Borrowing Limits and Supporting Parents

In this section, I propose that brothers reduce the savings rate through two channels: (1) sharing their own risks and extending borrowing limits, and (2) sharing the risks of their parents. A theoretical framework is provided in the online appendix to support the arguments.

A. Individual-Level Income Uncertainties and Health Risks

I use the degree of uncertainty that individuals encounter to test the risk-sharing/extending-borrowing-limits effect. If brothers play roles in sharing risks/extending borrowing limits, those individuals with larger uncertainties will have a larger brothers effect.

Households with large uncertainties have a greater need to self-insure, so whether they have brothers (with whom they can share risks) will affect their savings rate considerably. By contrast, for those households with fewer uncertainties, the presence of brothers might not matter so much; therefore, they are likely to have a small brothers effect. In equation 3, the size of α_0 is expected to be larger than the size of α_1, where $LargeUncertainty_i$ equals 1 if individual i encounters large uncertainties , and 0 otherwise; $SmallUncertainty_i$ equals 1 if individual i encounters small uncertainties, and 0 otherwise.

$$SavingRate_i = \alpha_0 Bro_i \times LargeUncertainty_i + \alpha_1 Bro_i \times SmallUncertainty_i + \delta(Sib_i) + X_i\gamma + \epsilon_i \quad (3)$$

I use individual income uncertainties and health risks as measures of the degree of uncertainty. The income uncertainty measures come from the questions in the survey, "Is your basic monthly wage stable?" and "Is your monthly bonus stable?" A individual can choose among three possible responses: "very unstable," "a little unstable," "stable." The survey also asks, "How do you feel about the condition of your health?" The answers are "very satisfied," "satisfied," "not satisfied," and "very unsatisfied." Based on the answers, I evaluate the individual's health condition as "very good," "good," "bad," or "very bad." A bad health condition, unstable wage or bonus implies that individuals encounter greater uncertainty.

The regression results are presented in columns 1 to 3 of Table 4. The results strongly support the risk-sharing hypothesis: households with a large income uncertainty or health risks have a larger brothers effect, whereas households with a small income uncertainty or health risks have a small brothers effect.

B. Regional Financial Development

I test for the brothers effect of risk sharing/extending borrowing limits by exploring the regional variations in financial development. If the incomplete state of the financial market makes household members rely on their brothers, we should observe that households in financially developed regions have a smaller brothers effect than households in regions where the financial market is underdeveloped. This is because formal credit market information is relatively widely available in financially developed areas. In addition, households have more alternatives through which to borrow or lend funds in such areas. Therefore, households face a lower cost of accessing the financial market, and they can use the instruments available in financial markets to insure themselves. These households have less need to rely on brothers to borrow money or to share risks. In financially underdeveloped regions, the brothers effect

should be large, because households have no other alternative for acquiring insurance or borrowing money.

I use the provincial-level insurance density and the number of foreign banks per capita in 2005 to measure regional financial development. See Appendix Table 2 for the statistics of these two variables. Insurance density is provincial level insurance premiums per capita.[14] Insurance density is used to capture overall development in the insurance market. The number of foreign banks per capita has direct and indirect effects on local financial development.[15]

$$SavingRate_i = \beta_0 Bro_i + \beta_1 Bro_i \times FianncialDevelopment_i + \delta(Sib_i) + X_i\gamma + \epsilon_i \qquad (4)$$

Equation 4 is estimated. Note that the city dummies are included in all regressions in this paper in order to control for the regional fixed effect. For this reason, the provincial-level financial development indicators are not included in equation 4 because of collinearity with the city dummies.[16] Regional financial development is usually correlated with regional GDP growth. In order to avoid the potential concern that the brothers' effect is driven by economic growth instead of financial development, an interaction term of the number of brothers and regional GDP growth is also included to control for the potential economic growth effect. The error term is clustered at province level to control for the random shocks correlated within province.[17]

The results in columns 4 and 5 of Table 4 show that the brothers effect is indeed smaller in financially less developed regions. For example, in a province with the smallest insurance density (density=1), having an additional brother reduces the savings rate by

[14]The insurance premium is the sum of the private sector and public sector premia.

[15]The number of consumer loans was almost zero in 1997 when the Chinese financial market was in its infancy. The direct effect of foreign banks on the financial market is reflected in the way that foreign banks offer more services and financial products to consumers in the market. The indirect effect is the spillover effect. Foreign banks bring to China experience and knowledge accumulated in well-developed markets abroad. Local Chinese banks can enjoy a spillover effect by observing the foreign banks' ways of operating in the market and recruiting employees who have accumulated expertise from foreign banks. We observe that the number of foreign banks in each province is determined primarily by government policies rather than by local consumers' demand for financial instruments. The Chinese government first allowed foreign banks to establish branches in four cities in Guangdong and Fujian provinces. Only foreign currency businesses were allowed to operate at that time. The next city to acquire permission was Shanghai in 1990. In 1992, the government granted permission to an additional seven cities located in Liaoning Shandong, Jiansu, ZheJiang, Fujian, and Guodong provinces, and Tianjin municipality. In 1996, foreign banks were allowed to engage in business using Chinese currency in Shanghai. Later, this policy was extended to the provinces around Shanghai.

[16]Cities dummies (in total 50 cities) absorb all the variation at the city and province (a lower level of regional aggregation) level.

[17]The significance level remains unchanged if I cluster the error term at county level.

9.1 percentage points ($-0.093 + 0.002$); in a province with the largest insurance density (density=32), having an additional brother reduces the savings rate by only 2.9 percentage points ($-0.093 + 32 \times 0.002$).

C. Supporting Parents

In Chinese culture, parents are supported primarily by their male children (?? Ban; Lee and Xiao 1998; Yu, Yu, and Mansfield 1990; Ge, Yang, and Zhang 2012). By using China Health and Retirement Longitudinal Study (CHARLS) 2011 data, Table 5 shows that male children are more likely to live with their parents and to make more regular and nonregular transfers to parents.

Health care has become one of the major social issues in China in recent years. The rising private burden of health care is one of the main explanations of the high savings rate in China, in particular the high savings rate among the elderly (Chamon and Prasad 2010).[18] A household with several brothers would need to save less for their parents' risks—in particular, risks from medical expenditure, which is shared mainly among brothers. According to the CHARLS 2008 data, the conditional mean of transfers from male children to parents for medical expenses is almost twice the amount of that from female children: 2964 from male children and only 1508 from female children.[19]

If children do save for their parents, then once their parents have passed away, a household need no longer save for its parents. I utilize this idea of brothers to identify the size of the brothers effect associated with supporting parents: I add (1) the number of a individual's-parents-deceased term and (2) an interaction term between the number of (individual's) brothers and the number of (individual's) deceased parents. If parents are deceased, brothers will no longer be playing a role in sharing the risks of parents; therefore, the higher the number of parents who have passed away, the smaller the size of the brothers effect. In Equation 5, we would expect δ_2 to have the opposite sign to δ_1.

$$\begin{aligned} SavingRate_i = \delta_1 Bro_i + \delta_2 Bro \times ParentDeceased_i + \delta_3 ParentDeceased_i \\ + \delta(Sib_i) + X_i\gamma + \epsilon_i \end{aligned} \tag{5}$$

Table 6 reports the estimation results. First note that δ_3 is significantly negative. This suggests that households do save for their parents: once a parent has passed away, a household saves less. Second, the brothers effect becomes smaller if the parents have passed away:

[18] In 1978, out-of-pocket health spending was 20% of total health spending in China. In 2002, out-of-pocket health spending was 60% of total health spending (Yip and Hsiao 2008).

[19] The sample is restricted to parents who were aged over 60 years in 2008.

δ_2 has the opposite sign to δ_1. When both parents have passed away, having one brother reduces the savings rate by 0.028 ($0.026 \times 2 - 0.8$), and when no parents have passed away (the brother-parents-deceased interaction term also equals zero), the size of the brothers effect reaches its maximum value, $|-.08|$.

Column 2 uses the *One Parent Deceased* and *Two Parents Deceased* dummies instead of the number of parents deceased variable. The estimation results reveal that the supporting parents effect is linear in the number of parents: the coefficient on the two-parents-deceased interaction term (0.052) is almost twice that of the coefficient on the one-parent-deceased interaction term (0.019). Similarly, linearity is observed between the parents-deceased dummies (the noninteraction terms).

Note that two additional variables are also added to equation 5: the presence of male children of an individual, and whether a parent (of an individual) is living with that individual. The presence of male children reduces the household savings rate. This is consistent with the theory that male children carry out the duty of supporting parents. Bearing in mind that the financial support of the three generations is suggested here: individuals share the cost of supporting parents with their male siblings. At the same time, individuals also expect their own male children to support them and therefore reduce their current savings rate. Second, the parents-living-together dummy has a negative sign. Households who live with their parents usually pay a large portion of their parents' living expenses.[20] Thus, if a individual lives with his/her parents, his/her household saves less. On the other hand, children who live with their parents are most likely to inherit the parents' house after the parents have passed away. This leads to another important interpretation of the negative coefficient of the parents-living-together dummy: children who live with parents will save less because they can expect a higher future income.

Wei and Zhang (2011) suggests that parents tend to buy housing for their male children when they get married. One may worry that this may cause a potential endogeneity problem because given that parents' wealth is limited, individuals with fewer brothers (out of the total number of siblings) could anticipate a larger wealth inflow when they get married, and this may reduce the current savings rate. However, among urban residents aged 28–60, 97% of the individuals have married (including 6% who are divorced or whose spouse has passed away). Only fewer than 3% of individuals were never married, and their average age is 38. In addition, a set of detailed housing information is included in all the regressions. It is quite unlikely that Wei and Zhang (2011)'s suggestion could bias the results in this paper.

[20]According to the CLUS data, if a senior is living with his or her child, the senior only pays 58% of his/her own living expenses; 38% of the living expenses are paid by the family members who live with him/her. However, seniors not living with a child pay 88% of their own expenses; the remainder is shared by those children not living with their parents and other family members.

Other than purchasing housing for male children upon their marriage, it is quite rare for parents to provide transfers to their adult children in urban China. CHARLS 2011 data suggest that in urban China, only 0.2% of adult children aged above 23 receive regular transfers from parents, and only 2.6% of children receive nonregular transfers from their parents.

D. Brothers Effect in Different Income and Asset Groups

Low-income households usually have smaller emergency funds with which to protect themselves from risks. In addition, it is common in China, and probably in most other financially underdeveloped countries, for banks to lend money only to households with stable jobs and high income. This is consistent with the literature that supports the idea that low-income households in developing countries are usually borrowing constrained and have difficulty accessing the formal credit market (Morduch 1995). Households with low incomes or few assets may have to rely mainly on their brothers; therefore, these households would have a large brothers effect. [21]

I divide households into low- and high-income groups depending on whether the household income is below or above the median of the overall income distribution of the sample. The household income levels are used to approximate the degree of demand for brothers because of extending borrowing limits or risk sharing. Column 1 of Table 7 reports the brothers effect for each income group. The brothers effect in the high-income group is calculated from the interaction term, high-income group dummy×brothers; the brother's supporting parents effect in the high-income group is calculated from a triple interaction term: high-income group dummy×brothers×number of parents deceased. The results reveal that the brothers effect is driven mainly by the low-income group. The coefficients of both the number of brothers and its interaction term with the number of parents deceased are much larger in the low-income groups compared with the previous results (column 1 of Table 6). In contrast, both of these coefficients are not statistically different from zero in the high-income group. I further restrict samples to individuals with no living parents in column 2 to exclude the brothers' supporting-parents effect. Although the standard errors of the coefficients are large because of the small sample size, the results are consistent with what we expected: the low-income group has a much stronger effect of brothers compared with the high-income group.

[21] The 2002 CHIP data suggest that high-income households might have accumulated enough emergency savings to insure themselves against a shock: 28% of the top-income tertile households stated that they had adequate savings in their bank to finance an emergency compared with only 8% in the low-income tertile. These data relate to the CHIP 2002 question "If your household suddenly encountered difficulty and needed 10,000 RMB immediately, where or to whom would you turn first?"

I further confirm the heterogeneity of the brothers' effect by dividing households by their assets instead of by their incomes (columns 3 and 4).[22] Similar to columns 1 and 2, the brothers effect is larger in the low-asset group compared with the high-asset group, which confirms the strong risk-sharing/extending-borrowing-limits effect of brothers.

5 Robustness Check

5.1 Son Preference

The identification strategy in this paper relies on parents with a son preference not acting on it by selecting the gender of their children. In this section, I test to what extent, if any, does the subjective preference of son bias our results by controlling an indicator of son preference.

The indicator comes from the question in the Family Survey of CGSS 2006: "If you are only allowed to have one child, do you prefer a boy or a girl." A respondent can choose "Boy," "Girl," or "Both boy and girl are the same for me." (The Family Survey of CGSS 2006 is a subset of the China General Social Survey.) The proportion of individual choices in each category is 20%, 12% and 67%, respectively, in the restricted sample. Based on the answer to this question, I generated a son-preference indicator and a daughter-preference indicator, where the indicator equals one if a individual chooses a specific gender. The gender preference question is only asked in the Family Survey of CGSS 2006, which is a relatively small sample. One limitation of this indicator is that the son preference is of individuals, not of individual's parents. However, the literature has shown that the gender preference is largely transmitted from parents to children within a family (Escriche et al. 2004).

Table 8 reports the estimation results for the Family Survey sample. Column 1 does not control for the gender preferences, while column 2 controls for gender preferences. The

[22]Besides income, assets are also an indicator of the demand for brothers, for potentially two reasons. First, a household with sufficient assets would be less likely to borrow money from brothers because it can finance consumption using its own emergency funds following shocks. Second, assets, especially housing assets, improve a household's ability to access the formal financial market because assets could act as collateral when borrowing money from banks. Most bank loans in China require collateral, and the only acceptable collateral for most banks is buildings or land (Gregory & Tenev 2001; Ayyagari et.al., Cousin 2006). Only 4% of commercial loans are secured by movable assets in China. The value of housing assets is generated by subtracting mortgage balances (unpaid amount) from the housing values owned by a household. Ideally, total assets value is a better indicator than housing assets value. As CGSS does not provide total asset data, I use housing value instead. This caveat is unlikely to cause problems because the rank of household total assets and the rank of housing assets are highly correlated. Using the 2002 CHIP data, I generate the three-level (low, medium, high) housing value asset rank and total asset rank. These two ranks are highly correlated: the correlation coefficient is 0.77 and significant at the 1% level.

coefficient of brothers in column 1 is very close to the coefficient in column 2. The coefficient of both gender preference indicators is not statistically significant (the top panel of column 2). Interestingly, the estimated coefficient of son preference is the same as the coefficient of daughter preference. In the rest of the table, I repeat the same strategy in the estimation of the different channels of the brothers effect. The estimation results are almost identical with or without controlling for son preference and daughter preference. These estimation results suggest that the brothers effect on the savings rate is unlikely to be affected by the son preference.

5.2 Brothers Effect of Individuals Born After the One-Child Policy

In the main sample, I use individuals who were born before the One-Child Policy to identify the brothers effect. In this section, I provide a robustness check for the main sample to show that for people born after the One-Child Policy, there is still a strong brothers effect.

Because of the missing female problem that started to prevail after the One-Child Policy, the control function approach is no longer valid for individuals born after the One-Child Policy. Instead, I use the One-Child Policy fines for unauthorized births in urban areas as an instrument for the number of brothers that a household has in urban areas. The One-Child Policy fines are set by local government. Ebenstein (2010) shows that the One-Child Policy fine had a significant impact on the gender ratio and fertility decisions. For this reason, we can expect a strong first-stage estimation.

Fines are set as a percentage of an individual's annual income for a certain number of years. Following Ebenstein (2010), I calculated the present value of total fines to obtain a single value, which represents the percentage of a parent's annual income needed to pay fully for an additional child.[23] The typical fine requires each parent to pay 10% of his/her annual income for 14 years, which, according to my calculations, is equivalent to 123% of the combined annual income of each parent.

The provincial level One-Child Policy fines have considerable regional and temporal differences. Provincial fixed effects and time fixed effects are included when using the instrumental variable. The provincial fixed effects control for provincial level time invariant factors such as provincial initial conditions. The years fixed effects control for the factors that uniformly affected all provinces in each year. This IV strategy identifies a local average treatment effect in the sense that it identifies the effect of households' parents who would have one

[23] A 2% annual discount rate is applied to calculate the present value of fines. The One-Child Policy fine data are collected in Scharping (2003).

more child if fines or bonuses were low, but not otherwise. For this group, the impact of the number of brothers might be large because they have strong preference for having children and have strong family ties.

In the IV estimation, the sample includes individuals born between 1979 and 1984 (22 to 27 years old in the data) and who are urban residents. We should bear in mind that the IV estimation results might not be very precise because of the small sample size (355 observations).

Column 1 of Table 9 presents the results of the first stage. Fines significantly reduce the number of brothers that a households has. Changing fines from zero to 100% of annual income reduces, on average, the number of brothers by 0.779, and this is statistically significant at the 1% level. The second-stage estimation results are reported in the remaining columns. The Anderson–Rubin weak IV robust 95% confidence intervals for key variables are provided in square brackets.

The IV estimation results are consistent with the findings by using the sample data from before the One-Child Policy: having an additional brother reduces savings rate (column 2). The results are also consistent with the previous findings that low-income or wage-unstable individuals have a larger brothers effect than high-income or wage-stable individuals, which implies that brothers play a role in sharing risks and extending the borrowing limit.[24] The estimation results, however, could not detect the supporting-parents effect (column 3), potentially because there are too few households with deceased parents given their young age (22–28).

6 How the Decline in the Number of Brothers in Households Could Explain the Savings Rate Puzzle

Data from the China Statistical Year Book indicate that the average savings rate in urban areas increased from 16% in 1990 to 24% in 2005, where the average savings rate is defined as "*average saving/average disposable income*." In this section, I calculate, holding everything else constant, to what extent the change in the number of brothers can explain the change in the savings rate. I also assume that sisters have no effect on the savings rate.

From the estimation results of the previous sections, we know that the brothers effect depends on the number of living parents and their average incomes. Thus, I divide households into six groups: two income groups times three age groups. The two income groups are low and high; they are equally divided over the income distribution. The three age groups are

[24]Because of the small sample size, I divided households into two income groups (low and high) instead of three. For the same reason, I also group "wage very unstable" and "wage unstable" into one group.

ages 22–39, 40–49, and 50–60. The changes in the savings rate in each group depend on the average income, the number of parents deceased, the number of brothers and the estimated brothers effect in that group. The total change in average savings is the sum of the change in savings in each group weighted by each group's density. Mathematically, it can be described in the following way.

$$\triangle averagesaving = \sum_{A}\sum_{I} Inc_{I,A}(\widehat{broInc}_{I,A} + DP_{I,A} \times \widehat{broDP}_{I,A})\triangle bro_{I,A} f(I,A) \qquad (6)$$

A denotes the age group, and I denotes the income group. Inc is the average income. DP is the number of parents deceased. ∇bro denotes the change in the number of brothers between 1990 and 2005. $f(\cdot)$ is the density of each group. $\widehat{broInc}$ is the estimated brothers effect. $\widehat{broDP}$ is the estimated brother-supporting-parents effect. The statistics of these variables based on the CGSS data are presented in Appendix Table 3. Note that only the statistics of the low-income groups are presented, because the savings rate of the high-income group is not affected by the number of brothers. The marriage rate is also used in the calculation in order to take into account the change in the number of brothers of both the husband and wife of a household.

The simple calculation suggests that declines in the number of brothers of households explained 34.7% of the increase in the aggregate savings rate from 1990 to 2005 in urban China. Be mindful that the estimated explained increased would be larger if sisters also behaved like brothers and affected the household savings rate.

7 Conclusion and Discussion

In this paper, I found that having one more brother of a individual reduces the individual's household savings rate by at least five percentage points in urban China. Brothers reduce the savings rate because they share the risks/extend borrowing limits, and share the cost of supporting their parents. The change in the number of brothers of households explained 34.7% of the increase in the household savings rate.

It is interesting to note that although China is the world's second largest economy, household financial markets are still underdeveloped even in urban areas. The Chinese government might consider developing household financial markets as soon as possible. The baby boom generation can rely on their siblings to finance themselves. They face few hurdles while household financial markets are underdeveloped. However, the current and future younger generations have few siblings because of the One-Child Policy. They lack a family-

based safety net and they carry the huge burden of supporting their parents. Developing household financial markets is a necessary and urgent task.

This paper is one of the first papers to estimate the number of siblings effect on the household savings rate. The results may not be limited to China only. It would be interesting to see whether other countries where households share risks with their siblings and children to support their parents financially, such as India and other East Asian countries, have a similar sibling effect on the savings rate. In addition, if these countries have cultures similar to that of China, that is to say, male siblings have stronger family ties compared with female siblings, we may also observe gender differences in the siblings effect on the savings rate.

Appendix

A Data

The primary data source for this study is the China General Social Survey (CGSS) 2006 urban areas sample. It is an individual-level cross-sectional dataset. The data were collected jointly by the Sociology Department of People's University of China and the Hong Kong University of Science and Technology Survey Research Center. It covered 24 provinces and 4 municipalities. Only three autonomous provinces were not included in the survey: Tibet, Qinghai, and Ninxia. The survey was conducted based on a probabilistic sample. The stratification design was based on the 2000 population census.

According to the CGSS documentation, the survey only asked one randomly selected household member, between 19 and 70 years old, to answer all the questions. I dropped all students from the CGSS sample. Among urban area residents who born between 1945–1978 (aged 28–60 in 2006), 91% of respondents are married and 7.3% of respondents are living alone. In the following cases, respondents may not be counted as household head: a respondent is living with a sibling or with working parents under 60 years old. Fortunately, only 1.4% of respondents are living with siblings. This suggests that brothers are most likely to be the members of extended families of respondents. Furthermore, only 0.3% of the respondents live with a working parent under age 60. The estimation results remain essentially unchanged when these 1.7% of respondents are excluded from the sample. Situation in which a respondent lived with her/his uncle or aunt might also be of concern. Unfortunately, aunts and uncles were not part of the list of possible relationships with the respondent that are queried in the CGSS questionnaire. This might be due to the fact that, in urban areas, it is quite rare for an individual to live with an uncle or aunt. Furthermore, since only 0.3% of respondents lived with working parents under 60, it is unlikely that any significant number of respondents lived with an uncle or aunt who is working and under 60 years old. The basic summary statistics for all variables used in the regression are presented in Appendix Table 2.

Three other supplementary datasets are used in this paper: China Family Panel Study (CFPS), Chinese Household Income Project (CHIP) urban area sample, and Chinese Health and Retirement Longitudinal Study (CHARLS). CFPS was conducted by the Peking Uni-

versity Institute of Social Science survey in Beijing, Shanghai, and Guangdong province. This study was also based on a probabilistic sample and stratified design. It is currently available for the 2008 and 2009 series. CHIP was conducted under the auspices of the Chinese Academy of Social Science. The sampling frame is a subsample of the official household survey conducted by the National Bureau of Statistics (NBS). The 2002 CHIP survey is used in this study. CHARLS was conducted by the National School of Development (China Center for Economic Research) at Peking University. Currently, only the 2008 survey is available. The provincial-level data were primarily collected from the China Statistical Year Book published by the NBS. The provincial-level financial development data were collected from the Almanac of China's Finance and Banking. The China Urban Labor Survey (CULS) was administered from November 2001 to January 2002 in five large Chinese cities: Shanghai, Shenyang, Wuhan, Xian, and Fuzhou. The survey was administered by the Institute for Population Studies at the Chinese Academy of Social Sciences (CASS-IPS), in collaboration with local offices of the NSB in each of the five cities.

B Proof of the Identification Strategy

I show that under the assumption that ϵ_i is conditional independence of number of brothers given number of siblings; that is,

$$\epsilon_i \perp bro_i | sib_i.$$

α can be consistently estimated in the following equation. (For simplicity I ignore other controls.)

$$Y_i = \alpha bro_i + \delta(sib_i) + \epsilon_i \tag{7}$$

where $\delta(sib_i)$ is a function of sib_i.

Proof:

Use the definition of conditional independence, we have

$$\begin{aligned} f(\epsilon_i | sib_i, bro_i) &= \frac{f(\epsilon_i bro_i | sib_i)}{f(bro_i | sib_i)} \\ &= \frac{f(\epsilon_i | sib_i) f(bro_i | sib_i)}{f(bro_i | sib_i)} \\ &= f(\epsilon_i | sib_i) \end{aligned}$$

where $f(\cdot)$ is the density function. Thus,

$$\begin{aligned} E(\epsilon_i|sib_i, bro_i) &= \int_{\epsilon_i} \epsilon f(\epsilon_i|sib_i, bro_i) d\epsilon_i \\ &= \int_{\epsilon_i} \epsilon f(\epsilon_i|sib_i) d\epsilon_i \\ &= E(\epsilon_i|sib_i) \end{aligned}$$

Since $E(\epsilon_i|sib_i)$ is a function of sib_i, let

$$\tilde{\delta}(sib_i) = E(\epsilon_i|sib_i)$$

where $\tilde{\delta}(sib_i)$ is an unknown function of sib_i.

Assume

$$Y_i = \alpha bro_i + \beta sib_i + \epsilon_i$$

Since $E(\epsilon_i|sib_i, bro_i)$ is not depend on bro_i, we have

$$\begin{aligned} E(Y_i|bro_i, sib_i) &= \alpha bro_i + \beta sib_i + E(\epsilon_i|sib_i, bro_i) \\ &= \alpha bro_i + \beta sib_i + \tilde{\delta}(sib_i) \end{aligned}$$

Thus, α can be consistently estimated under equation 7, where $\delta(sib_i) = \beta sib_i + \tilde{\delta}(sib_i)$. $\delta(sib_i)$ is a control function, in order to consistently estimate α.

C Relative Effect of Number of Brothers

I show that if sisters have an effect on savings rate, I can still show the difference of the effect between brothers and sisters. Suppose we are interested in estimating equation 8. (For simplicity I ignore other controls).

$$Y_i = \alpha_b bro_i + \alpha_s sis_i + \epsilon_i \tag{8}$$

where sis_i is the number of sisters.

α_b and α_s cannot be consistently estimated because bro_i and sis_i are correlated with the error term ϵ_i. For this reason, we use the control function approach explained in the previous appendix by adding a function of sib_i into equation 8. We can have

$$E(Y_i|bro_i, sis_i, sib_i) = \alpha_b bro_i + \alpha_s sis_i + \delta(sib_i)$$

Due to collinearity, α_b and α_s cannot be estimated together. However,

$$\begin{aligned} E(Y_i|bro_i, sib_i, sis_i) &= \alpha_b bro_i + \alpha_s(sib_i - bro_i) + \delta(sib_i) \\ &= (\alpha_b - \alpha_s)bro_i + \delta'(sib_i) \end{aligned}$$

where $\delta'(sib_i) = \delta(sib_i) + \alpha_s sib_i$. Thus we can still identify the effect of brothers relative to sisters which is $\alpha_b - \alpha_s$.

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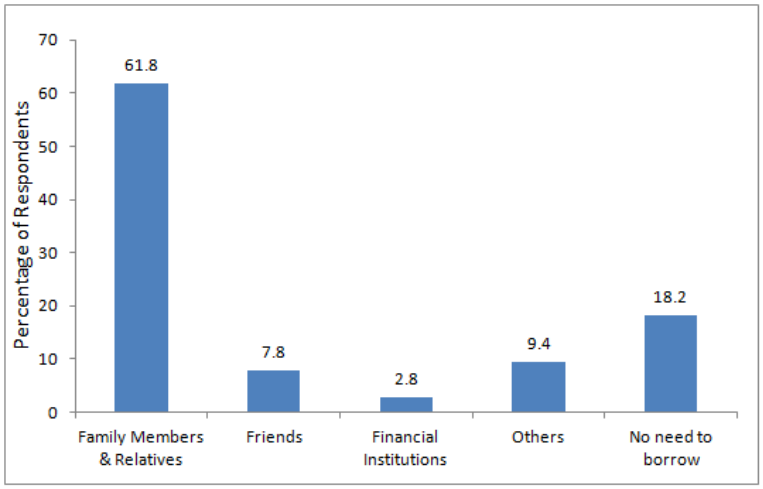
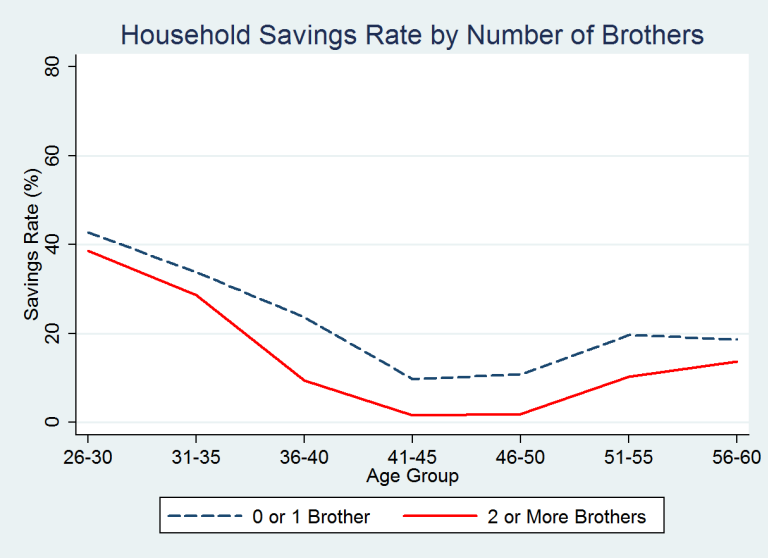
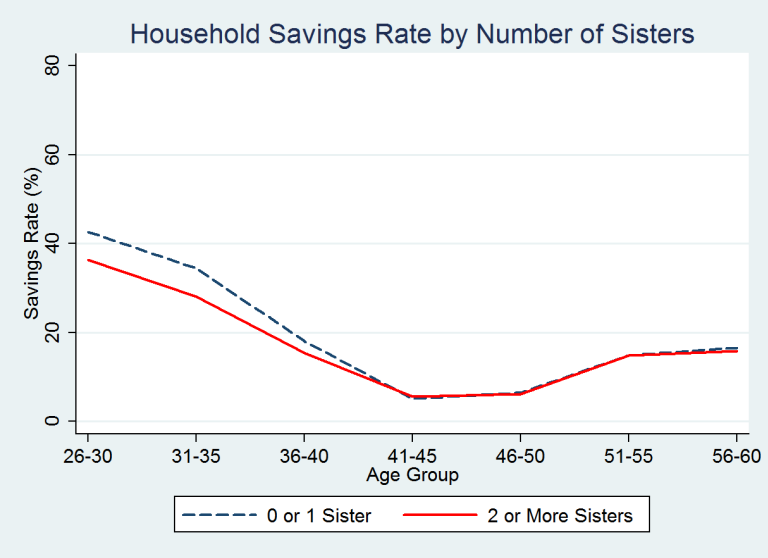
Figure 1: Sources for Borrowing Money in Urban China: Self-Reports of Borrowing Resource if One Encounters a Negative Shock (Percentage of Respondents)



Note: The above results are calculated by the author based on a question in the Chinese Household Income Project 2002 Urban Sample:"If your household encountered an abrupt difficulty and needed 10,000 RMB immediately, who (where) would you turn to first?" Sample size: 6779.

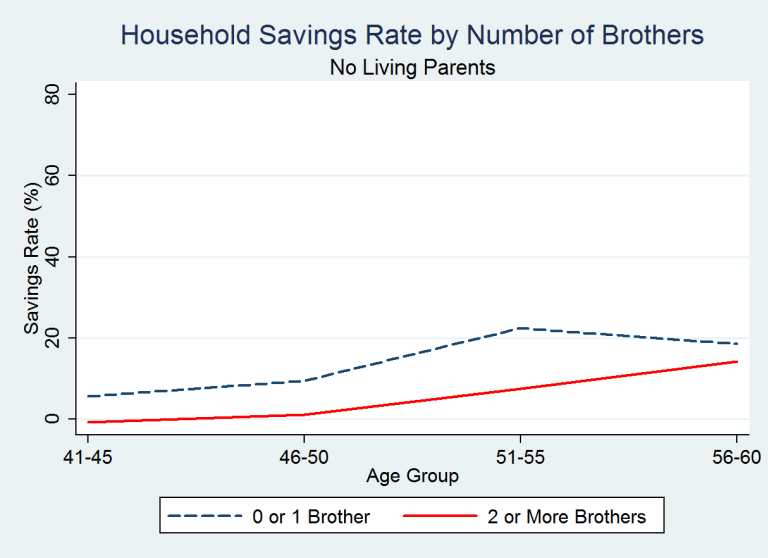
Figure 2: Age Profile Household Savings Rate by Number of Brothers and Sisters

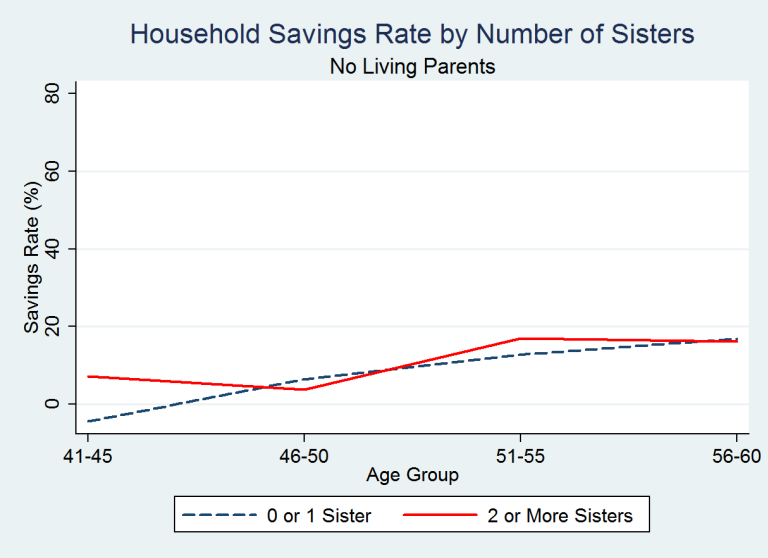




Data source: China General Social Survey 2006. Total sample size: 6886.

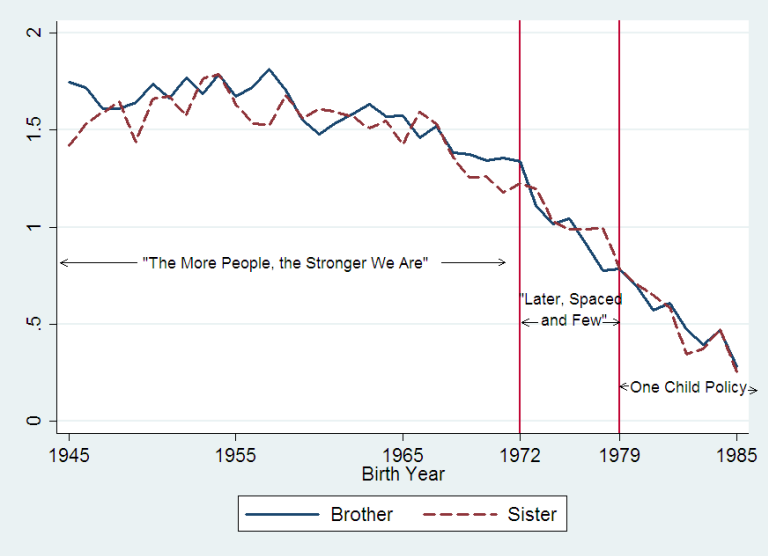
Figure 3: Age Profile Household Savings Rate by Number of Brothers and Sisters - Households with No Living Parents





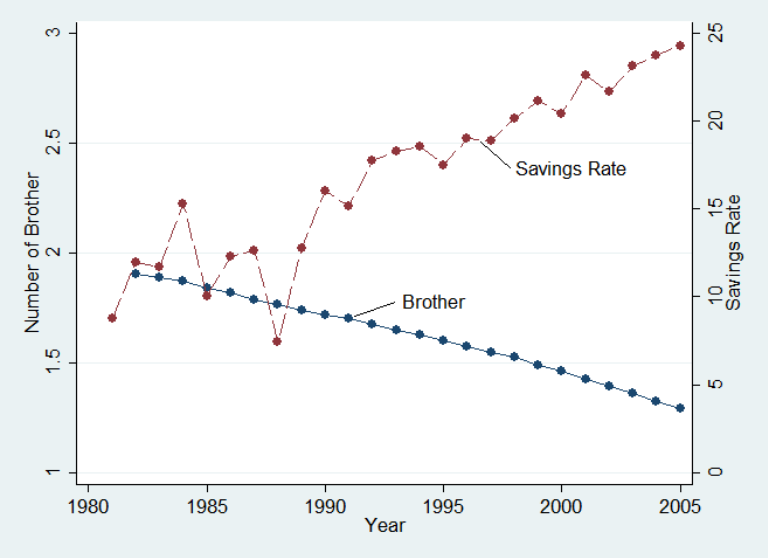
Data source: China General Social Survey 2006. Sample size: 1732.

Figure 4: Number of Brothers and Sisters by Individuals' Birth Year



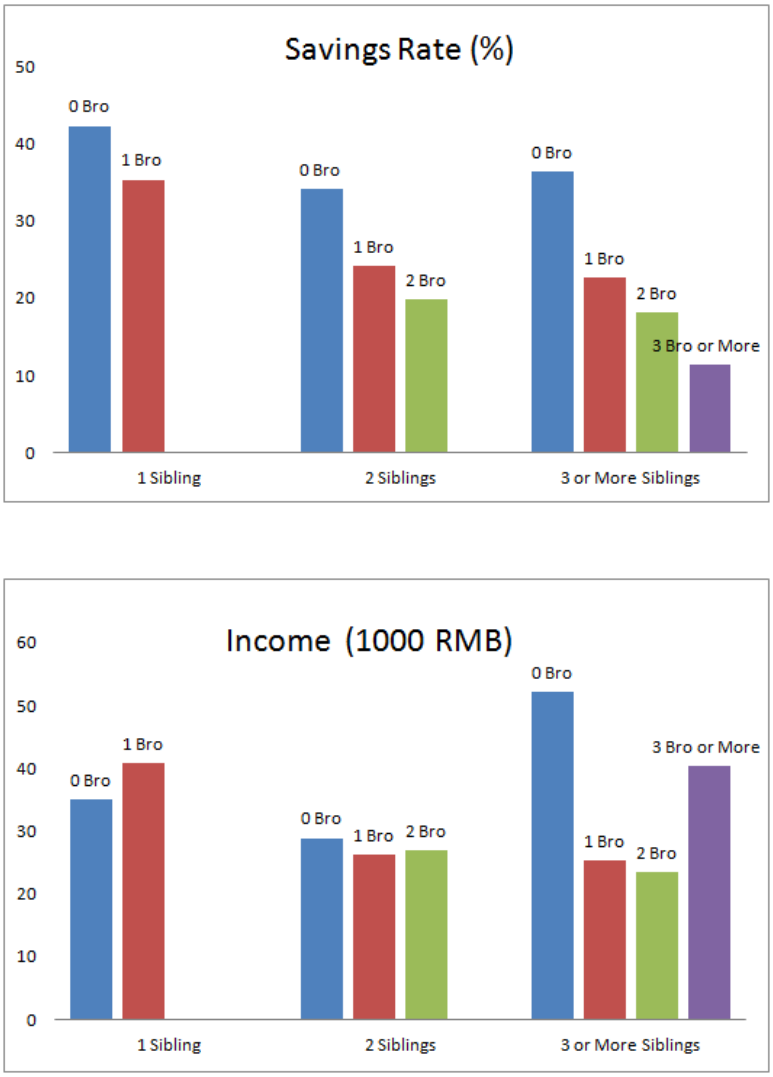
Data source: China General Social Survey 2006. Sample of urban area residents are used. Sample size: 3235

Figure 5: Number of Brothers and Household Savings Rate in Urban Areas



Note: The number of siblings are restricted to individuals aged 20-60. Death rates are used in order to compute the number of siblings in early years. Saving rate is defined as 1-living expenditure/disposable income. Saving rate and death rate data source: China Statistical Yearbook. Siblings data source: China General Social Survey 2006.

Figure 6: Source of Variation: Average Household Savings Rate by Number of Brothers for a Given Number of Siblings



Note: China General Social Survey 2006 is used. Sample is restricted to urban area residents born between 1945 to 1978.

Table 1: Fraction of Male Siblings by Total Number of Siblings

Number of Siblings	Obs	Fraction of Male	95% Conf. Interval
1	572	0.52	[0.50, 0.55]
2	846	0.52	[0.50, 0.53]
3	756	0.49	[0.48, 0.51]
4 or more	1085	0.48	[0.47, 0.49]

Note: China General Social Survey 2006 is used. Sample is restricted to urban area residents born between 1945 to 1978.

Table 2: Test of Random Assignment of the Number of Brothers Conditional on the Number of Siblings

	Dependent Variable		
	Brothers	Brothers	Fraction
Siblings		0.485***	-.009**
		(0.012)	(0.005)
Mother Education	-.042***	-.008	-.003
	(0.009)	(0.006)	(0.003)
Father Education	-.010	0.008	0.004
	(0.009)	(0.006)	(0.003)
Mother Communist Party	0.004	-.031	0.016
	(0.068)	(0.052)	(0.022)
Father Communist Party	0.059	0.039	-.024
	(0.133)	(0.098)	(0.045)
Mother Company Type	-.060	-.044	-.029
	(0.06)	(0.043)	(0.02)
Father Company Type	0.056	-.014	-.007
	(0.047)	(0.034)	(0.014)
Mother Occupation Skill Level	-.013	-.012	-.006
	(0.025)	(0.02)	(0.009)
Father Occupation Skill Level	-.013	0.002	-.0002
	(0.02)	(0.014)	(0.006)
Mother Occupation Dummies	Yes	Yes	Yes
Father Occupation Dummies	Yes	Yes	Yes
Obs.	2608	2608	2383
Wald statistics	9.32***	1.39	1.45

Note: China General Social Survey 2006 is used. Sample is restricted to urban area residents born between 1945 to 1978. The Wald test examines the joint significance of all the regressors in column 1. In column 2 and 3, number of siblings is not included in the Wald test; all other regressors are included. Standard errors are clustered at county level. *** p<0.01, ** p<0.05, * p<0.1

Table 3: The Impact of Number of Brothers on Household Savings Rate

	Dependent Variable: Savings Rate										
				Born 1946-1978 (Age 28-60)					Born before 1972 (Age 35-60)	Born after 1955 (Age 28-50)	Born 1956-1971 (Age 35-50)
	Rural	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Brothers	-.033*	-.048***	-.048***	-.046***	-.046***	-.046***	-.056**	-.057***	-.053***	-.066***	-.083***
	(0.018)	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)	(0.022)	(0.02)	(0.019)	(0.019)	(0.024)
Siblings	0.017	0.011	0.014	0.016	0.017						
	(0.012)	(0.01)	(0.01)	(0.01)	(0.01)						
Brothers of Female Respondents							0.021				
							(0.024)				
Years of Education	-.004	0.009*	0.01**	0.012**	0.012**	0.012**	0.013**	0.004	0.015**	0.012**	0.018**
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)	(0.005)	(0.008)
Household Income	1.935***	0.328***	0.335***	0.33***	0.333***	0.328***	0.328***	0.27***	0.315***	0.375***	0.354***
	(0.371)	(0.093)	(0.09)	(0.091)	(0.092)	(0.091)	(0.092)	(0.088)	(0.093)	(0.12)	(0.123)
Basic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Detailed Backgrounds			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Children				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Housing					Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sibling Dummies						Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2364	2580	2539	2539	2502	2502	2502	1730	2067	1816	1381
R^2	0.179	0.175	0.18	0.227	0.225	0.229	0.23	0.243	0.209	0.27	0.243

Note: China General Social Survey 2006 is used. Sample is restricted to individuals born between 1945 to 1978. Column 1 uses non-urban residents data. Column 2 to column 11 use urban area residents data. Standard errors are clustered at county level. *** p<0.01, ** p<0.05, * p<0.1.
Other variables included:

1. Basic Controls: female, age, age squared, marital status, years of education, household income and city dummies.
2. Detailed Backgrounds: mother education, father education, number of people in households, communist party membership and send-down dummy.
3. Children Information: number of children, children age group dummies: 0-6, 6-18 or 18 and above.
4. Housing Information: housing dummy, value of mortgage and value of housing.

Table 4: Brother's Sharing Risks / Extending Borrowing Limits Effect

	Dependent Variable: Savings Rate				
	(1)	(2)	(3)	(4)	(5)
Stability of Income					
Brothers × Wage Very Unstable	-.137***				
	(0.046)				
Brothers × Wage Unstable	-.049				
	(0.032)				
Brothers × Wage Stable	-.047				
	(0.032)				
Brothers × Bonus Very Unstable		-.114*			
		(0.065)			
Brothers × Bonus Unstable		-.068*			
		(0.037)			
Brothers × Bonus Stable		-.039			
		(0.034)			
Personal Health					
Brothers × Health Very Poor			-.158**		
			(0.065)		
Brothers × Health Poor			-.127***		
			(0.031)		
Brothers × Health Normal			-.067***		
			(0.024)		
Brothers × Health Very Good			-.093**		
			(0.037)		
Regional Development					
Brothers				-.093***	-.088***
				(0.026)	(0.026)
Brothers × Insurance Density				0.002***	
				(0.0008)	
Brothers × # of Foreign Bank per Capita					0.032***
					(0.008)
Obs.	1407	1013	2499	2499	2499
R^2	0.337	0.314	0.254	0.248	0.248

Note: Sample is restricted to urban area residents born between 1945 to 1978. Standard errors in column 1-3 are clustered at county level; Standard errors in column 3 and 4 are clustered at province level. *** p<0.01, ** p<0.05, * p<0.1.
Other variables included:

1. Basic Controls: siblings, female, age, age squared, marital status, years of education, household income and city dummies.
2. Detailed Backgrounds: mother education, father education, number of people in households, communist party membership and send-down dummy.
3. Children Information: number of children, children age group dummies: 0-6, 6-18 or 18 and above.
4. Housing Information: housing dummy, value of mortgage and value of housing.
5. Column 4 and 5 also include number of brothers × provincial level growth regional product.

Table 5: Gender Differences in Supporting Parents

	Male	Female
Living with Parents		
Proportion	23.9	4.5
	(0.5)	(0.3)
Regular Transfers to Parents		
Proportion	5.0	2.6
	(0.6)	(0.4)
Conditional Mean	7322	2833
	(1903)	(798)
Non-regular Transfers to Parents		
Proportion	32.2	31.8
	(0.6)	(0.6)
Conditional Mean	2248	1146
	(160)	(78)

Note: Authors' tabulation based on the China Health and Retirement Longitudinal Study 2011. Sample is restricted to parents who are above 60 years old, and their children are above 23 years old. There are 2410 individual level observations. Proportion represents percentage of individuals. Standard errors in parentheses.

Table 6: The Impact of Number of Brothers on Household Savings Rates - the Effect of Supporting Parents

	Dependent Variable: Savings Rate	
Brother	-.080***	-.078***
	(0.026)	(0.025)
Brother × # of Parents Deceased	0.026*	
	(0.014)	
Brother × One Parent Deceased		0.019
		(0.029)
Brother × Two Parent Deceased		0.052*
		(0.029)
# of Parents Deceased	-.081**	
	(0.034)	
One Parent Deceased		-.085*
		(0.049)
Two Parents Deceased		-.160**
		(0.07)
Male Children Presence	-.047**	-.048**
	(0.024)	(0.024)
Parents Live Together	-.106***	-.104***
	(0.038)	(0.039)
Obs.	2500	2500
R^2	0.247	0.247

Note: Sample is restricted to urban area residents born between 1945 to 1978. Standard errors are clustered at county level. *** p<0.01, ** p<0.05, * p<0.1.
Other variables included:

1. Basic Controls: siblings, female, age, age squared, marital status, years of education, household income and city dummies.
2. Detailed Backgrounds: mother education, father education, number of people in households, communist party membership and send-down dummy.
3. Children Information: number of children, children age group dummies: 0-6, 6-18 or 18 and above.
4. Housing Information: housing dummy, value of mortgage and value of housing.

Table 7: The Brother Effect in Different Income Groups and Asset Groups

	Dependent Variable: Savings Rate			
	All	No Living Parents	All	No Living Parents
	(1)	(2)	(3)	(4)
Low Income				
Brothers	-.122***	-.054		
	(0.027)	(0.034)		
Brothers× # of Parents Deceased	0.039**			
	(0.017)			
High Income				
Brothers	0.014	0.007		
	(0.016)	(0.038)		
Brothers× # of Parents Deceased	0.016			
	(0.014)			
Low Asset				
Brothers			-.090***	-.053
			(0.026)	(0.043)
Brothers× # of Parents Deceased			0.028	
			(0.018)	
High Asset				
Brothers			-.056***	-.047
			(0.022)	(0.033)
Brothers× # of Parents Deceased			0.019	
			(0.016)	
Obs.	2491	663	2312	615
R^2	0.313	0.239	0.238	0.21

Note: Sample is restricted to urban area residents born between 1945 to 1978. Standard errors are clustered at county level. *** p<0.01, ** p<0.05, * p<0.1. The brothers effect in high income group is calculated from the interaction term, high income group dummy×brothers. The brother's supporting parents effect in high income group is calculated from a triple interaction term: high income group dummy×brothers×number of parents deceased.
Other variables included:

1. Basic Controls: siblings, female, age, age squared, marital status, years of education, household income and city dummies.
2. Detailed Backgrounds: mother education, father education, number of people in households, communist party membership and send-down dummy.
3. Children Information: number of children, children age group dummies: 0-6, 6-18 or 18 and above.
4. Housing Information: housing dummy, value of mortgage and value of housing.
5. Presence of male children.
6. Column 1 and 3 also controls number of parents deceased and parents living together dummy.

Table 8: Robustness Check: Son Preference

	Dependent Variable: Savings Rate	
	Without Son, Daughter Preference	With Son, Daughter Preference
	(1)	(2)
Basic Results		
Brothers	-.089***	-.087***
	(0.027)	(0.026)
Son Preference		0.057
		(0.039)
Girl Preference		0.057
		(0.054)
Obs.	927	927
Supporting Parents		
Brothers	-.109***	-.108***
	(0.04)	(0.039)
Brothers × # of Parents Deceased	0.027	0.028*
	(0.017)	(0.017)
Obs.	927	927
Individual Wage Risks		
Brothers × Wage Unstable	-.078*	-.078*
	(0.044)	(0.044)
Brothers × Wage Stable	-.010	-.010
	(0.038)	(0.038)
Obs.	511	511
Regional Financial Development		
Brothers	-.134***	-.133***
	(0.045)	(0.044)
Brothers × # of Foreign Bank per Capita	0.022*	0.021*
	(0.013)	(0.013)
Obs.	927	927
Income Heterogeneity		
Brothers × Low Income Dummy	-.236***	-.236***
	(0.051)	(0.051)
Brothers × High Income Dummy	-.029	-.029
	(0.037)	(0.037)
Obs.	927	927

Note: The Family Survey of the China General Social Survey 2006 is used. Sample is restricted to urban area residents born between 1945 to 1978. Wage Unstable equals one if a respondent characterized his/her wage is very unstable or unstable; 0 otherwise. Wage stable equals one if a respondent characterized his/her wage is stable. Standard errors are clustered at county level. Standard errors are clustered at county level. *** p<0.01, ** p<0.05, * p<0.1.
Other variables included:

1. Basic Controls: siblings, female, age, age squared, marital status, years of education, household income and city dummies.
2. Detailed Backgrounds: mother education, father education, number of people in households, communist party membership and send-down dummy.
3. Children Information: number of children, children age group dummies: 0-6, 6-18 or 18 and above.
4. Housing Information: housing dummy, value of mortgage and value of housing.
5. Number of parents deceased, parents living together dummy and presence of male children.

Table 9: IV Estimation Results for Individuals Born after the One Child Policy

	1st Stage	2nd Stage				
	Brothers (1)	Savings Rate (2-6)				
	(1)	(2)	(3)	(4)	(5)	(6)
Fines	-0.779***					
	(0.269)					
Brothers		-0.373**	-0.359**			
		(0.18)	(0.177)			
		[-1.090, -0.035]	[-1.92, 0.045]			
Brothers × # of Parents Deceased			-0.261			
			(0.676)			
Brothers × Low Income Dummy				-0.510***		
				(0.181)		
				[-1.745, -0.110]		
Brothers × High Income Dummy				-0.253		
				(0.175)		
				[-1.56, 0.23]		
Brothers × Wage Unstable					-0.484**	
					(0.219)	
					[-1.785, 0.054]	
Brothers × Wage Stable					-0.377*	
					(0.446)	
					[-1.92, 0.082]	
Brothers × Bonus Unstable						-0.291
						(0.215)
Brothers × Bonus Stable						-0.106
						(0.166)
Birth Year & Province Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	355	355	355	355	300	236
1st Stage F Statistics		10.217	0.016	5.579	4.322	6.473

Note: Sample is restricted to urban area residents born between 1979-1984. Wage Unstable equals one if a respondent characterized his/her wage is very unstable or unstable; 0 otherwise. Wage stable equals one if a respondent characterized his/her wage is stable. Standard errors are clustered at county level. *** p<0.01, ** p<0.05, * p<0.1. Other variables included:

1. Basic Controls: siblings, female, age, age squared, marital status, years of education, household income and city dummies.
2. Detailed Backgrounds: mother education, father education, number of people in households, communist party membership and send-down dummy.
3. Children Information: number of children, children age group dummies: 0-6, 6-18 or 18 and above.
4. Housing Information: housing dummy, value of mortgage and value of housing.
5. Number of parents deceased, parents living together dummy and presence of male children.

Appendix Table 1: Household Expenditure and Total Income

Age Group	Living Cost	Education Expenditure	Medical Expenditure	Disposable Income
25-30	12219	541	660	33859
30-35	11950	1324	824	30976
35-40	11790	2203	1119	30040
40-45	10745	3830	885	24953
45-50	12144	4218	1109	26261
50-55	11429	2267	1539	24891
55-60	12043	882	1755	27360

Note: Chinese RMB is presented in the table. Exchange rate in 2006: 1 US Dollar = 7.97 RMB. China General Social Survey 2006 is used. Sample is restricted to urban area residents born between 1946-1978.

Appendix Table 2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Unit
Savings Rate	2634	0.260	0.545	-5.000	0.947	
Number of Brothers	2634	1.432	1.188	0	8	
Number of Siblings	2634	2.823	1.745	0	9	
Year of Education	2581	10.244	3.057	1	22	
Age	2634	43.992	8.925	29	60	
Household Yearly Income	2634	0.285	0.332	0.009	6	100,000 RMB
Marital Status	2634	0.908	0.289	0	1	
Female	2634	0.527	0.499	0	1	
Mother's Years of Education	2609	4.746	3.620	1	17	
Father's Years of Education	2597	6.447	3.810	1	17	
Family Size	2634	2.867	1.039	1	9	
Communist Party	2634	0.126	0.332	0	1	
Send-down	2634	0.113	0.317	0	1	
Number of Parents Deceased	2608	0.809	0.837	0	2	
Presence of Male Children	2634	0.528	0.499	0	1	
Parents Live Together	2634	0.161	0.368	0	1	
Children Age <6	2634	0.097	0.296	0	1	
Children Age 6−12	2634	0.169	0.374	0	1	
Children Age 12−18	2634	0.179	0.384	0	1	
Children Age >18	2634	0.116	0.320	0	1	
Number of Children	2634	1.070	0.665	0	6	
No House	2634	0.306	0.461	0	1	
Value of Mortgage	2616	0.013	0.130	0	4.9	100,000 RMB
Value of Other Houses	2612	0.124	0.772	0	20	100,000 RMB
Father's Huko	2634	0.696	0.460	0	1	
Mother's Huko	2634	0.647	0.478	0	1	
Mother's Company Owner Ship	2634	0.552	0.839	0	2	
Father's Company Owner Ship	2634	1.099	0.941	0	2	
Mother's Skill Level	2631	0.291	0.884	0	4	
Father's Skill Level	2632	0.857	1.457	0	4	
Father's Communist Party	2634	0.139	0.346	0	1	
Mother's Communist Party	2634	0.031	0.174	0	1	
Provincial Level Data:						
Number of the Branches						
of Foreign Banks	28	0.360	0.761	0	3.093	
Insurance Density	28	7.171	9.157	1.030	32.930	100 RMB / Person

Appendix Table 3: Statistics Used for Calculating Increased Savings Rate due to Decreased Number of Brothers

	Age Group		
	22-39	40-49	50-60
$\widehat{broInc_{l,A}}$	-0.069	-0.116	-0.155
$\widehat{broDP_{l,A}}$	0.037	0.025	0.057
Average Income (100,000RMB)	0.12	0.11	0.12
Distribution of Each Group	0.18	0.17	0.16
Marriage Rate	0.78	0.87	0.85
Decreased Number of Brothers	0.71	0.32	0.45

Note: The statistics of low income households are presented.