Micro-Data Evidence on Family Size and Chinese Household Saving Rates*

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Abstract

This paper examines the impact of family size on household saving. We first study a theoretical life-cycle model that includes finite lifetimes and saving for retirement and in which parents care about the consumption of their dependent children. The model implies a negative relationship between the number of dependent children in the family and the household's saving rate. Then, we test the model's implications using a new data set on household finances in China. We use the differential enforcement of the one-child policy across counties to address the endogeneity between household saving and fertility decisions within a standard two-stage least squares Tobit regression. We find that Chinese families with fewer dependent children have significantly higher saving rates. The regressions also indicate that saving rates vary with age and tend to be higher for households with more workers, higher education, better health, and more assets.

Keywords: China, Household Saving, Demographics, Overlapping Generations

JEL Codes: D12, D91, E21, F63, J11, O12

1. Introduction

This paper presents evidence supporting the hypothesis that the decrease in dependent children within Chinese families has led to an increase in household saving rates. We estimate the relationship between saving and family size by applying standard regression techniques to data from a new household-level survey (the China Household Finance Survey). The strong response of fertility rates to family-planning policies (e.g. the one-child policy) in China allows us to address the endogeneity between saving and birth decisions. Specifically, we instrument for the number of dependent children in the household with the county level number of births because enforcement of the family-planning policies has varied across geographic regions. Thus, we regress household saving on the instrumented number of children (and additional control variables) at the household level via a two-stage Tobit regression. Our main finding is that families with fewer dependent children save significantly more.

Uncovering the determinants of household saving is, of course, an important topic in general, and Chinese saving, in particular, has been receiving considerable attention. China's household saving rate has exploded in recent years, and this saving has helped create investment led growth in China. Excess Chinese savings has flowed towards safe assets in developed countries. Hence, policymakers both in China and abroad would like to understand the factors behind the high saving rate. Looking forward, accumulated household assets may help China cope with its rapidly aging population.

The life-cycle hypothesis is a leading candidate for explaining China's high household saving rate.[1] Modigliani and Cao (2004) was maybe the first paper to empirically show the correlation between China's age structure and saving rate in the aggregated time series data. Curtis, Lugauer, and Mark (2015) develop a structural life-cycle model of household saving decisions to illustrate the theoretical connections between demographics and savings, and, through a series of model simulations, they show that the demographic effect on China's aggregate saving rate is quantitatively large. We build off Curtis, Lugauer, and Mark (2015) by examining the implications of a life-cycle based model for saving behavior in the cross section (i.e. micro data). We focus on the main implication from the model: household saving decreases with family size.

In Section 2, we present a simplified version of the model from Curtis, Lugauer, and Mark (2015). The key model ingredients include finite lifetimes, saving for retirement, and that parents care about the consumption of their dependent children. The explicit valuation of children's consumption enters the parental utility function with the functional form from Barro and Becker (1989). The structural model has stark implications for the relationship between the number of dependent children in the family and household saving behavior. Therefore, our empirical regressions can be viewed as a test of the life-cycle hypothesis of household saving behavior.

The life-cycle model motivates our basic research question as to whether the number of children in a household affects saving decisions, but the data allow us to examine additional control variables, including the characteristics of the household head (age, education, risk aversion, and health), the number of elderly people in the home, and household assets. Our empirical strategy, then, is to leverage the policy driven (and therefore plausibly exogenous) differences in the number of children to estimate the effect of family size on household saving, while controlling for these other factors. The key identification assumption is that the enforcement of family-planning policies (as measured by county-level birth rates) affects household saving decisions only through the fertility channel.

The empirical results support the implications from the structural model. Household saving is decreasing in family size, as measured by the number of dependent children. The estimated coefficients are large and statistically significant at the 1 percent level. Thus, our main finding is in line with the model's prediction that fewer children increases saving.

The coefficient estimates for the other control variables have the expected signs. We find that households with higher education levels save more on average. Poor health is associated with lower saving rates. Families with more workers tend to have higher savings. Household saving varies by age, and rural households have significantly lower saving rates than urban. Finally, we also explore whether households with male dependent children save more.[2]

The rest of the paper is laid out as follows. Section 2 presents a 2-period structural life-cycle model. We use the model to motivate our empirical, reduced form, regressions. Section 3 summarizes the data. Section 4 details the regressions and our identification strategy. Section 5 presents the main results, which are the regression estimates, along with a few additional experiments. Section 6 concludes.

2. A Life-Cycle Model of Household Saving

This section presents a structural life-cycle model of household saving decisions. The model represents a simplification of the framework employed in Curtis, Lugauer, and Mark (2015) and Curtis, Lugauer, and Mark (2015b) to study the effect of demographic changes on aggregate household saving rates over time across several countries.[3] The model motivates our reduced form empirical regressions based on Chinese household-level data. The main take-away from the model is that household saving decreases with family size.

Households make consumption and saving decisions taking interest rates and wages as given.[4] Labor supply is inelastic, and family size (demographics) is exogenous. We think this assumption is reasonable given the evolution of the Chinese economy in regards to family-planning policies. Plus, this assumption maps into our empirical identification strategy.

Generations overlap, but each agent lives for only 3 periods. In the initial period of life, however, agents are dependent children and make no decisions. The main departure from a standard 2-period utility maximization problem is the inclusion of children's consumption in the parental utility function (via Barro-Becker preferences) in the middle period of life. Agents retire in the final period of life and no longer support children.

Budget Constraints

Let C_1 be parental consumption in the first period of the agent's decision making life (i.e. when the agent is no longer a dependent child). The household has n dependent children, each of whom consume in the amount C^c. As a dependent child (prior to period 1), the agent makes no choices and simply consumes what is provided by his or her parents. Thus, during period 1, parents choose their dependent children's consumption C^c, their own consumption C_1, and saving S to take into the next period. They receive an endowment of income I, which can be interpreted as the real value of total household income net of taxes and transfers.

The budget constraint in the first period of life is

$$nC^c + C_1 + S = I, \qquad (1)$$

where households begin their economic lives with no assets.

In period 2, all agents retire. They no longer support their (now grown) children. The budget constraint faced by the retired is

$$C_2 = S, \qquad (2)$$

where C_2 is period 2 consumption, the real return on saving equals zero, and asset holdings are required to be non-negative.[5]

Preferences

During the first period, in which parents make decisions for children, household utility takes a Barro and Becker (1989) functional form

$$u_1(C^c, C_1) = (1-\sigma)^{-1} [\mu n^{\eta} (C^c)^{1-\sigma} + (C_1)^{1-\sigma}],$$

where μ<1 and η<1 determine the degree to which parents care for their children and σ>0 is the elasticity of intertemporal substitution.

In period 2, utility is defined only over the agent's consumption, C_2. The period utility function for agents in the retirement period is

$$u_2(C_2) = (1-\sigma)^{-1} (C_2)^{1-\sigma}.$$

Let $0< \delta <1$ be the discount factor. Then, the lifetime utility problem is to choose C^c, C_1, C_2, and S in order to maximize Equation (3)

$$U = (1-\sigma)^{-1} [\mu n^{\eta} (C^c)^{1-\sigma} + (C_1)^{1-\sigma}] + \delta (1-\sigma)^{-1} (C_2)^{1-\sigma}, \qquad (3)$$

subject to the budget constraints given in Equations (1) and (2).

The Household Saving Decision

The household problem emits an analytical solution.[6] The agent's optimal choice for saving as a function of the underlying parameters and the exogenously given household income and family size is

$$S = \frac{I\delta^{\frac{1}{\sigma}}}{1+\delta^{\frac{1}{\sigma}}+\mu^{\frac{1}{\sigma}}n^{\frac{\eta+\sigma-1}{\sigma}}}.$$

Dividing by *I* and rearranging results in a relatively simple expression for the household saving rate (*S/I*). The Appendix contains the derivation of Equation (4).

$$SavingRate = \delta^{\frac{1}{\sigma}}\left[1+\delta^{\frac{1}{\sigma}}+(\mu n^{\eta+\sigma-1})^{\frac{1}{\sigma}}\right]^{-1}. \qquad (4)$$

The model has stark implications for the qualitative relationship between saving and the number of dependent children. As long as $\eta+\sigma>1$, the household's saving rate is decreasing in n. Quantitatively, the effect can be big, given a large change in family size. For example, plugging in a δ close to unity, σ equal to 1.5, μ equal to 0.65, and η equal to 0.76 (all values used in the literature) and decreasing n from 3 to 1 increases the saving rate by about 10 percentage points. In the regressions below, we test this relationship and find strong empirical support for the life-cycle model of household saving. Equation (4) also implies that the saving rate decreases with μ and η and increases with δ, as one might expect.

3. Data and Descriptive Statistics

The empirical analysis is based on data from the China Household Finance Survey (CHFS) conducted by the Southwestern University of Finance and Economics in China. The CHFS collects detailed information biennially on households' demographic characteristics, assets and liabilities, insurance and social welfare, and income and expenditures. The survey is new, and we primarily use information from 2013. The survey was also conducted in 2011, but this sample is considerably smaller.[7] We use the 2011 sample to construct a panel data set (by matching households across the two samples) in a robustness check reported below.

After removing outliers and households with missing data, the 2013 survey provides a sample of 21,861 households from 1,048 different communities in 262 counties across 29 provinces (Tibet, Xinjiang, Macau, and Hong Kong are not included). Participation in the survey was randomized, so the data are highly representative in terms of geographic location and economic development. When matching households from 2011 and 2013, our sample size is reduced to 13,120.

Table 1 reports descriptive statistics. The main variable we wish to explain, *SavingRate,* is defined as one minus the ratio of total household consumption to total income. The average saving rate in our sample is 28.2 percent, which is consistent with both the available macro data and micro data used in other studies (see Zhou 2014 and Banerjee *et al.* 2014, for example). The main independent variable (*Children*) is the number of dependent children in the household aged 18 and below (reporting no labor income) plus college students with ages between 18 and 25. We assume parents continue to support college students, which is typical in China. On average, households contain less than one dependent child. Both *SavingRate* and *Children* exhibit large variation. The variation in the number of children might seem surprising given that the one-child policy has been in effect for over 30 years. However, enforcement of the policy varies from place to place. We will leverage this policy driven difference in birth rates in our two-stage regression approach.

The remainder of Table 1 lists statistics for the variables employed as controls in the regressions. *Elders* is the number of elder persons (age 45+) in the home without a job. *Workers* is the number of family members currently employed. *Age* is the age of the household head. *Education* is the number of years the household head attended school. Variable *Health* is a dummy concerning the self-reported health condition of the household head. If the head has bad health, then *Health* equals 1, and it equals 0 otherwise. *Risk Averse* is a dummy equal to 1 if the respondent is unlikely to invest or only invests in projects with little risk and small expected returns. Similarly, *Risk Prefer* is a dummy equal to 1 if the respondent is likely to invest in high-risk, high-return projects. *Asset* is the total housing assets (house value). *Debt* is the total housing related debt. The variable *Rural* is also a dummy with 1 indicating the household resides in a rural rather than urban area.

Each variable has a similar mean in the 2013 and matched sample. On average, a little less than two people work per family. Assets per household exceed 500,000 RMB, with little debt. The average household head is 52 years old with a middle school education. Households tend to be risk averse, and about 30 percent of the sample comes from rural areas.

4. Regression Equation and Identification Strategy

In the life-cycle model, the household saving rate depends on the number of dependent children in the household.[8] Thus, we estimate the relationship between family size and saving in the data by running regressions based on Equation (5).

$$SavingRate_i = \alpha + \beta * Children_i + P + X'_i \pi + \varepsilon_i. \qquad (5)$$

The *SavingRate* and *Children* variables are defined as above for each household *i*. The vector X_i includes all the control variables listed in Table 1. The household head's age enters as a quadratic, and *P* stands for a complete set of province fixed effects.[9]

Our primary interest revolves around estimating the relationship between saving and the number of children, captured by β in Equation (5). Figure 1 and Figure 2 display the raw data underlying the analysis. Figure 1 shows the percentage of families with 0, 1, 2, 3, or 4+ dependent children. About 47 percent of households have no dependent children, 37 percent have one dependent child, 13 percent have two dependent children, and a little over 3 percent of families have three or more dependent children. Figure 2 displays the simple relationship between the number of dependent children and the household saving rate. Household saving rates monotonically decrease with the number of dependent children. Families with no children to support save over 30% of their income, on average; those with more than three children save less than 20 percent.

Of course, families with fewer children could differ from those with more children along many dimensions. Our regressions attempt to account for these differences by including the set of control variables, X_i . However, even with all the controls, fertility decisions could be endogenously determined with regards to savings. For this reason, we use an instrumental variable, a linear combination of the county level birth rates at 2000 and 2010, to address the potential endogeneity in a two-stage regression approach.[10] Equation (6) is the first stage regression equation,

$$Children_i = \alpha + \gamma * County_i + P + X'_i \pi + \varepsilon_i, \qquad (6)$$

where the instrument *County* equals the number of births per 1000 people (calculated separately for each county as the average from the 2000 and 2010 census data) in the current county of residence for household *i*. The data come from the Chinese National Bureau of Statistics, which conducts the national census every ten years. Econometrically, a linear combination of multiple instruments often serves as the best one (Wooldridge, 2013). In addition, the timing between 2000 and 2010 is close to the average birth year for the dependent children (average age of 11) in our sample. All the other variables are as defined above.

The county birth rate is a good instrument for a household's number of dependent children because it likely satisfies the two validity conditions. The number of dependent children within a family surely depends on the birthrate within their county. In other words, as we report below, the first stage is strong. When implementing the policy in 1979, the Chinese government provided economic incentives, such as a monthly subsidy, to encourage compliance. The government also imposed severe punishments, such as dismissal from work (especially from state-owned enterprises), and substantial fines to restrict female fertility. The policy has greatly reduced family size for the whole country, but the effect has not been uniform.

Importantly for our approach, the enforcement of the population control policies has varied from place to place. Thus, the one child policy can be seen as a unique natural experiment. Figure 3 summarizes the large variation in birth rates across counties. Some counties have birth rates four or five times higher than others. The strength of our identification of the parameter β depends in part on the extent to which the variation in enforcement of the one-child policy is exogenous to household-level saving decisions.

Several reasons exist for why the one-child policy has had differential effects across counties; none of which seem to be directly related to household saving. Local "fertility czars" and other officials have had a fair amount of autonomy in how to enforce the policy. Methods have ranged from brutal (allowing sex-selective abortions, coerced abortions, and infanticide) to lenient. Fines have been ignored in rural areas, since few families could afford them. Also, farmers with a girl or sickly child have been allowed additional children. Enforcement has tended to be stricter in urban areas; however, even across cities there has been variation. For instance, some areas have allowed additional children if both parents work in high-risk occupations, or are minorities, or if both parents (and sometimes only one) are single children themselves, while other areas have not.

To summarize, the number of children within a family depends on the birth rate in the county, and we think that the county birth rate has been determined exogenously relative to household saving rates. Thus, our empirical strategy is to first estimate the dependence of family size on county of residence in the first stage regression, Equation (6). The results indicate that the number of dependent children is strongly correlated with the county birth rate. Second, we estimate Equation (5) with a Tobit regression. We use a Tobit regression because our main variable of interest has a natural upper bound. The next section provides the full results.

5. Empirical Findings

Table 2 contains our main empirical findings. Column 1 reports the Tobit regression results based on Equation (5) and the 2013 CHFS data. The estimate for the coefficient (β) on *Children* equals -0.024, indicating that household saving rates decrease by about 2 percentage points with each additional child. This estimate is practically large and statistically different from zero at better than the 1 percent level.

Column 2 (IV-Tobit) reports the regression results from the two-stage instrumental variable regression. The coefficient estimate (γ) for the *County* instrumental variable in the first-stage regression based on Equation (6) is highly statistically significant.[11] The estimate of β in the second stage equals -0.049, and it is significant at the 5 percent level. Taking the estimate literally implies that each additional child decreases a household's saving rate by 4.9 percentage points, on average. We interpret this result as a very large dependent child effect.

To get a sense of the magnitude, consider the cross-sectional estimate in regards to the observed decline in family size over time in China. Prior to the enactment of the one-child policy, families contained around three dependent children on average. Now families have less than one. Thus, our estimate of β (-0.049), in a rough back of the envelope calculation, implies that the decline in dependent children (from 3 to 1) increased the average household's saving rate by 9.8 percentage points.

In the structural model presented in Section 2, reducing the number of dependent children from 3 to 1 increases the saving rate by about 10 percentage points (using standard parameter values). Thus, our empirical findings support the structural model's predications both qualitatively and quantitatively. Chinese families with fewer children have higher saving rates in the data, just as the life-cycle theory of household saving predicts.

Table 2 also contains the coefficient estimates for each of the control variables. The estimates are not surprising. Household saving rates increase with house assets (*Asset*) and the number of workers (*Workers*). Poor health (*Health*) significantly decreases saving. Household heads with more years of education (*Education*) have higher saving rates, as has been found in other contexts (see Kane and Rouse, 1995). The number of older dependents (*Elders)* significantly reduces the saving rates. This is consistent with Chinese tradition that adult children have transferred money to and otherwise materially supported their elderly parents, which likely decreases household savings. Households residing in rural areas have significantly lower saving rates, and neither the risk preference variables nor the house debt have a significant effect.

Saving rates are U-shaped with respect to age. To see this more clearly, Figure 4 shows the saving rate by age in the raw data. Saving is high for younger workers, relatively low for those aged 30-50, and high again for households about to enter retirement. This U-shaped pattern (rather than the hump shape often observed in other countries) has been well-documented, but not fully explained. Theories for its emergence include relatively high recent wage growth for younger workers (Song and Yang, 2010) and delayed fertility (Curtis, Lugauer, and Mark, 2015).

Additional Analysis

This section presents two additional experiments to check the robustness of the main results. First, we augment regression Equation (5) to control for the presence of male dependent children in the household. Second, we include the 2011 CHFS data to study a panel of households.

The literature (Wei and Zhang, 2011, for example) has debated whether the gender of dependent children affects saving behavior. On the one hand, given the gender imbalance in China, parents with young male children may save more to provide for their child's education and housing, and to generally ensure their success in the marriage market. On the other hand, parents with girls may save more because grown girls are (traditionally) less likely to support their elderly parents.

In Table 3, we re-run the regressions including a dummy variable (*boy*) indicating the presence of a dependent boy in the household. In the 2013 CHFS data, about 35 percent of families have a boy, and about 70 percent of families with children have at least one boy. Column 1 of Table 3 gives the Tobit results, and column 2 provides the two-stage estimates. The coefficient on the boy dummy is not statistically significant in either case. However, in the IV, the presence of a boy in the household increases the saving rate by 4 percentage points. The coefficient (β) on *Children* does not appreciably change and remains statistically significant, at least at the 10 percent level.

Finally, Table 4 reports the results using the matched 2011 and 2013 CHFS data. The panel allows us to address the potential bias from household specific missing variables. Both fixed and random effects are reported. Note that some families change status for many of the variables. For instance, the number of dependents can change, or rural status changes if the family migrates to the city. Therefore, we can estimate the coefficients on these variables. While smaller in magnitude, the coefficient (β) on the number of dependent children is still large and significant at the 1 percent level.

6. Conclusion

This paper studies the impact of family size on household saving in China. We first present a 2-period structural model that includes finite lifetimes, saving for retirement, and in which parents care about the consumption of their dependent children. For plausible parameter values, the model implies a negative relationship between the number of dependent children in the family and a household's saving rate. Then, we test the model's implications using a new data set on household finances. The strong response of fertility rates to family-planning policies (e.g. the one-child policy) in China allows us to address the endogeneity between saving and birth decisions. The enforcement of the family-planning policies has varied across geographic regions. Thus, we instrument for the number of dependent children in the household with the county level number of births in a two-stage regression analysis.

We find that Chinese households with fewer dependent children have significantly higher saving rates. This finding supports the implications from the life-cycle model and provides additional evidence supporting the idea that the decline in fertility rates has contributed to the increase in aggregate household saving over time. We also find that saving rates vary with age and tend to be higher for the households with more workers, higher education, better health, and more assets.

While our analysis does not focus on future policies, the findings may be relevant for the on-going debate over lifting the one-child rule. Broadly speaking, our results indicate that relaxing the one-child policy could decrease saving rates in the near term. Families with more dependent children save less.

Notes

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1. The household saving rate in China generally stayed below 5 percent prior to 1980. Today, Chinese households save nearly 30 percent of their income. Several recent papers have focused on the aggregate Chinese household saving rate, including Bannerjee et al. (2014), Chamon and Prasad (2010), Chao et al. (2011), Choukhmame, Coeurdacier, and Jin (2013), He, Lei, and Zhu (2014), Horioka and Wan (2007), Lugauer and Mark (2013), Rosenzwieg and Zhang (2014), and Song et al. (2015).

2. A few recent papers have explored the link between the number of siblings (for example, Zhou 2014) and / or the gender of dependent children (for example, Wei and Zhang 2011) and household saving behavior.

3. These papers build off of Braun, Ikeda, and Joines (2009) and Chen, Imrohoroglu, and Imrohoroglu (2007), which focus on Japan, and Curtis and Mark (2011), which examines the application of standard macroeconomic models to China. Auerbach and Kotlikoff (1987) lay out the foundation for these types of models.

4. In our simple framework, household outcomes are certain. Chamon, Liu, and Prasad (2013) and Choi, Lugauer, and Mark (2014) study how idiosyncratic income shocks affect the saving behavior of Chinese households.

5. Curtis, Lugauer, and Mark (2015) consider a richer environment featuring a formal social security system, informal intergenerational transfers, taxes, and time-varying wages and interest rates. Since the results derived in this section also hold in the richer environment, we do not include these features for the sake of simplicity.

6. Clearly, we are abstracting from many features of China, such as the transition to a market orientated economy (see Song, Storesletten, and Zillibotti (2011), Berkowitz, Ma, and Nishioka (2015), Chang et al. (2015), and Curtis (2015) for more on this topic). Instead of building an all-inclusive model, our intention is to highlight the dependent children mechanism.

7. In 2011, the CHFS randomly selected 80 counties among the total 2,585 counties in China (Tibet, Xinjiang, Inner Mongolia, Macau, and Hong Kong are not included). In each county, 4 communities were selected (320 communities in total), and 8,438 households were surveyed. Compared to 2011, 2013 contains triple the sample size.

8. Most of the literature on Chinese saving has concentrated on household rather than public or corporate saving. Ma and Yi (2010) and Yang (2012) are notable exceptions.

9. A few related papers have documented and accounted for differences across provinces, including Zhang, Zhang, and Zhang (2015), Qian (2009), and Wei and Zhang (2011).

10. Many papers, such as Rosenweig and Wolpin (1980) and Li, Zhang, and Zhu (2008), have used the occurrence of twins as an exogenous shock to family size. Angrist and Evans (1998) use parental preference for mixed-sex siblings, and Wu and Li (2012) consider the changing enforcement of the one-child policy over time. None of these studies focus on saving behavior, however.

11. Note, 176 observations do not have county information and are dropped.

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Appendix: Derivation of the Saving Rate (Equation 4)

The household utility maximization problem (Equation 3) can be rewritten by using the linear budget constraints (Equations 1 and 2) to replace C_1 and C_2. The new problem is to choose S and C^c to maximize Equation A.1.

$$U = (1-\sigma)^{-1} [\mu n^{\eta} (C^c)^{1-\sigma} + (I-S-nC^c)^{1-\sigma}] + \delta (1-\sigma)^{-1} S^{1-\sigma} \qquad (A.1)$$

The optimal choices solve the following two first order conditions.

$$0 = \mu n^{\eta} (C^c)^{-\sigma} - n(I-S-nC^c)^{-\sigma} \qquad (A.2)$$

$$0 = -(I-S-nC^c)^{-\sigma} + \delta S^{-\sigma} \qquad (A.3)$$

Solving Equation A.3 for C^c and substituting into A.2 gives the following.

$$0 = \mu n^{\sigma+\eta} (I-S- \delta^{-1/\sigma}S)^{-\sigma} - n\, \delta S^{-\sigma} \qquad (A.4)$$

Solving Equation A.4 for *S/I* using simple algebra leads to Equation 4 in the main text.

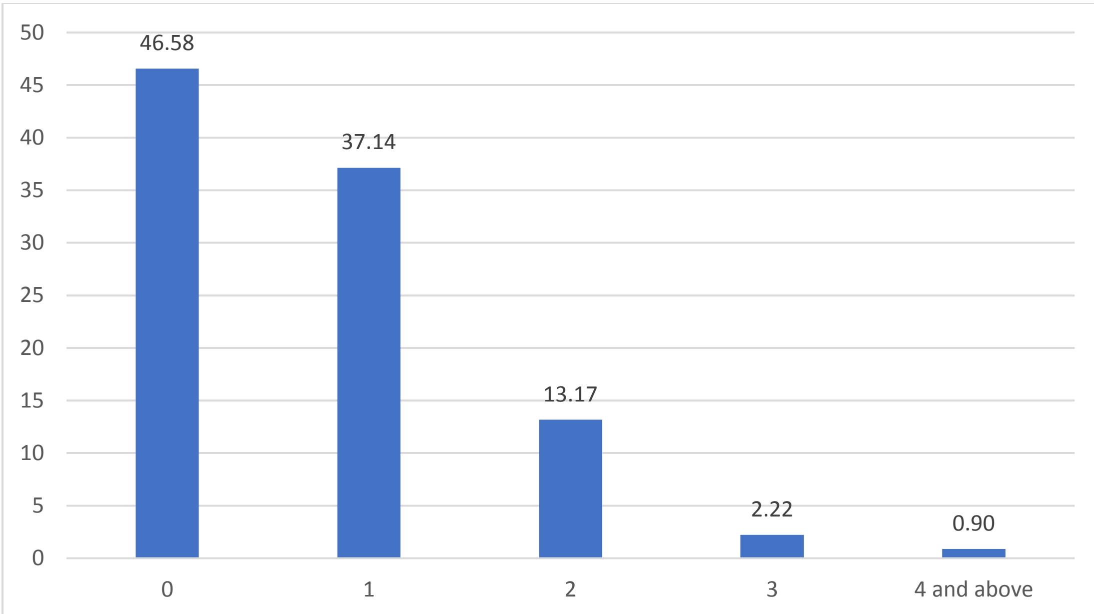

Figure 1: Number of Dependent Children in the Household (% of Households)

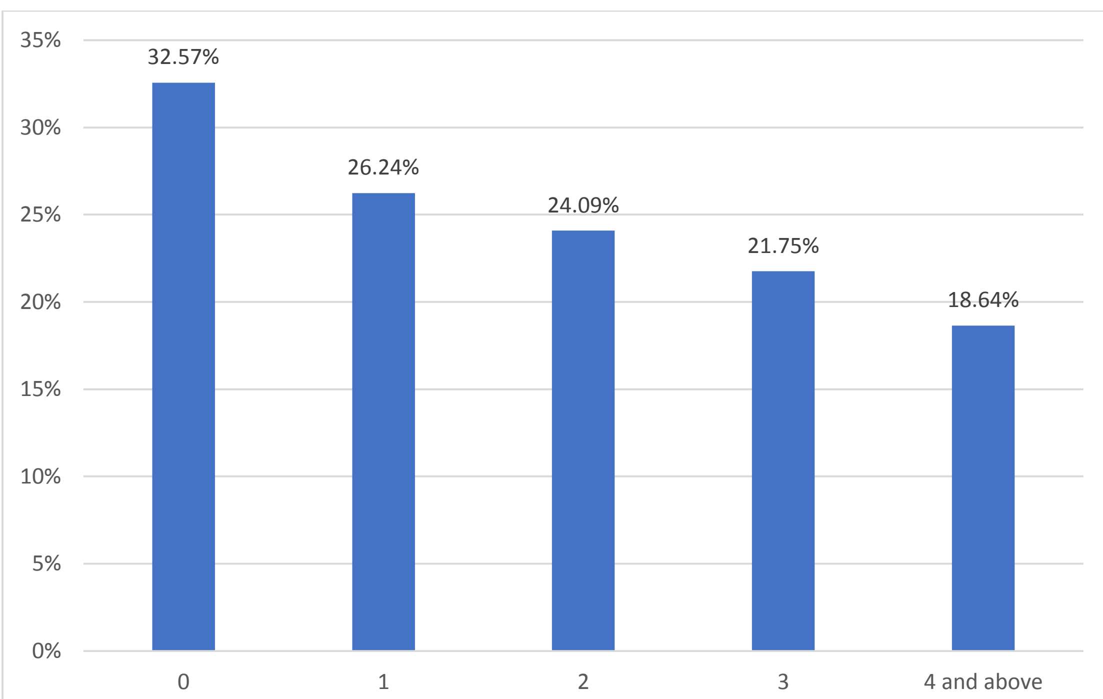

Figure 2: Household Saving Rate by Number of Dependent Children

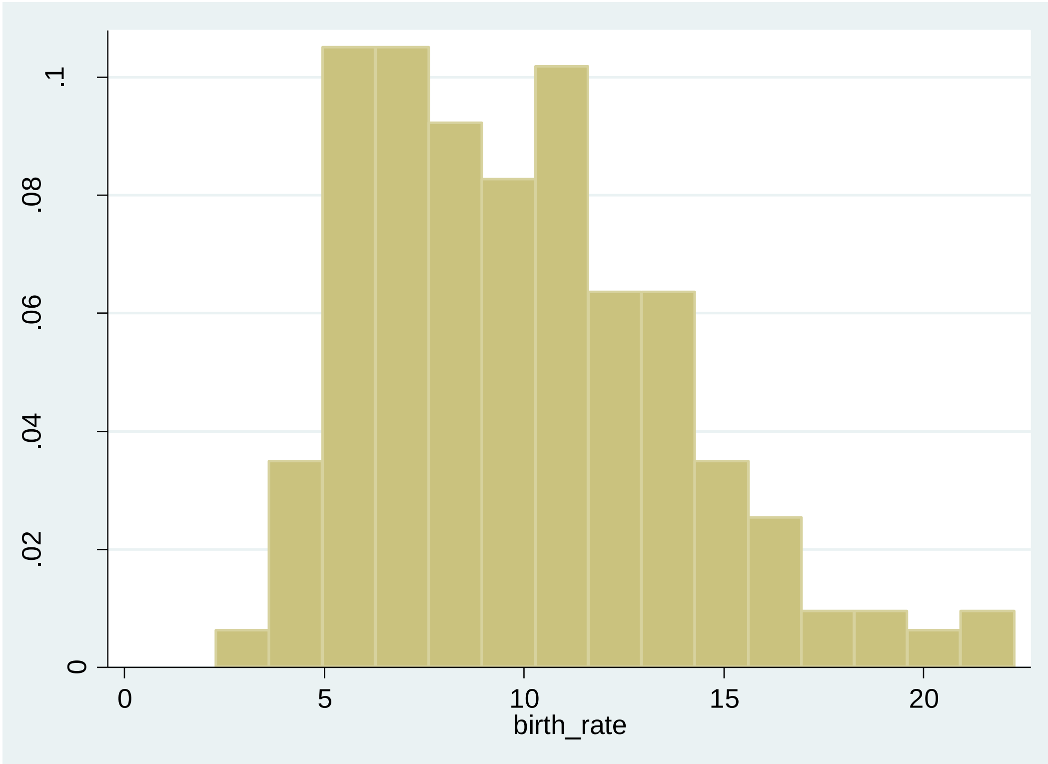

Figure 3: Distribution of County Birth Rates

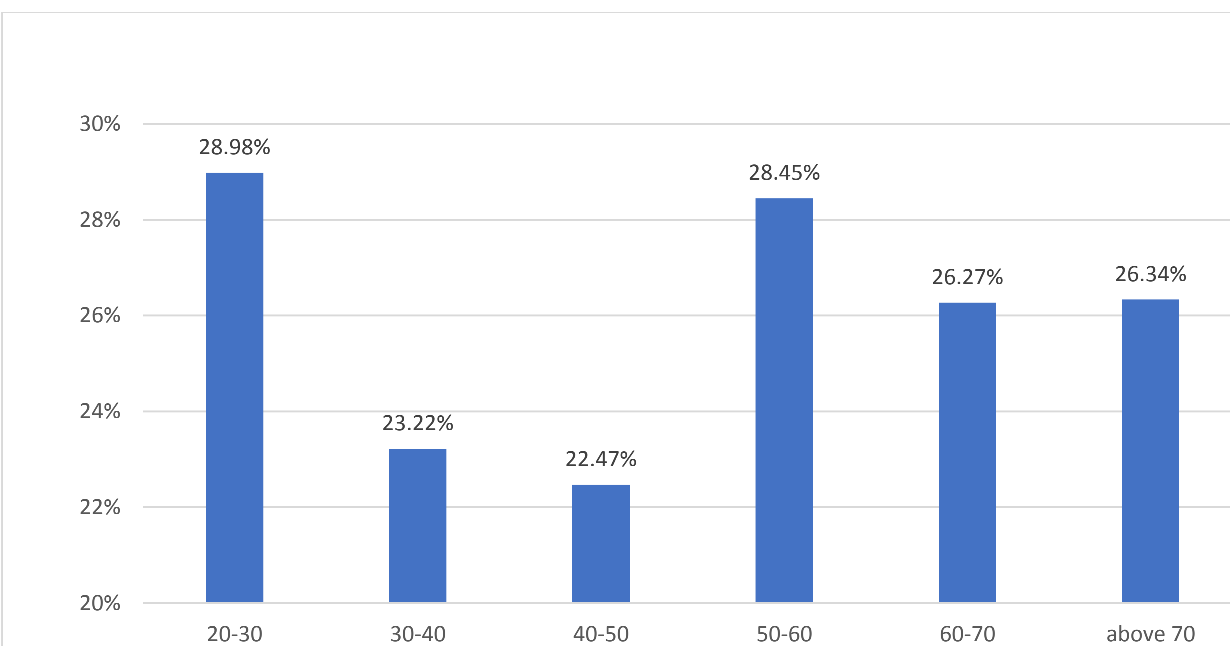

Figure 4: Household Saving Rates by Age Group

Table 1: Summary Statistics

	2013		2011-2013 Panel	
	Mean	Std Dev	Mean	Std Dev
SavingRate	0.2828	0.4432	0.2530	0.4484
Children	0.7437	0.8711	0.7908	0.8705
Boy	0.3466	0.4759	0.3660	0.4817
Elders	0.0195	0.1384	0.0159	0.1249
Workers	1.8220	1.2666	1.9523	1.2755
Age	52.05	14.47	51.38	13.94
Education	9.6158	4.2463	9.5298	4.1718
Health	0.4933	0.5000	0.2381	0.4259
Risk Averse	0.6762	0.4679	0.6424	0.4793
Risk Prefer	0.1064	0.3083	0.1158	0.3201
Asset (10K RMB)	59.4816	129.0211	52.9552	112.0058
Debt (10K RMB)	2.4958	20.1029	2.6193	14.3461
Rural	0.3123	0.4635	0.3611	0.4803
Observations	21,861		13,120	

Table 2: The Effect of Dependent Children on the Household Saving Rate

Variables	(1) Tobit	(2) IV-Tobit First Stage	(2) IV-Tobit Second Stage
Children	-0.0243***		-0.0495**
	(0.00284)		(0.0206)
Elders	-0.0404**	0.377***	-0.0313*
	(0.0174)	(0.0416)	(0.0190)
Workers	0.0264***	0.105***	0.0295***
	(0.00237)	(0.00716)	(0.00342)
Age	-0.450***	-0.715***	-0.457***
	(0.117)	(0.235)	(0.118)
Age square	0.613***	-0.857***	0.580***
	(0.111)	(0.217)	(0.113)
Education	0.00660***	-0.0181***	0.00593***
	(0.000688)	(0.00156)	(0.000834)
Health	-0.0104**	-0.0261**	-0.0106**
	(0.00512)	(0.0113)	(0.00518)
Risk Averse	-7.40e-05	-0.00413	5.78e-05
	(0.00618)	(0.0138)	(0.00622)
Risk Prefer	-0.00969	-0.0448**	-0.0114
	(0.00887)	(0.0194)	(0.00899)
Log Asset	0.00177***	0.0101***	0.00195***
	(0.000548)	(0.00114)	(0.000585)
Log Debt	0.000145	0.00343**	0.000358
	(0.000618)	(0.00140)	(0.000629)
Rural	-0.0186***	-0.00224	-0.0173***
	(0.00609)	(0.0153)	(0.00636)
Constant	1.227***	0.721***	1.263***
	(0.0328)	(0.0751)	(0.0413)
IV: Birth rate		0.0570***	
		(0.0031)	
Observations	21,861	21,685	21,685

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: The Effect of Male Dependent Children on Household Saving

VARIABLES	(1) Tobit	(2) IV-Tobit
Boy	-0.0451	-0.0357
	(0.0451)	(0.0467)
Children	-0.0242***	-0.0494**
	(0.00284)	(0.0206)
Elders	-0.0402**	-0.0311
	(0.0174)	(0.0190)
Workers	0.0263***	0.0295***
	(0.00237)	(0.00343)
Age	-0.466***	-0.471***
	(0.118)	(0.119)
Age square	0.627***	0.592***
	(0.112)	(0.115)
Education	0.00661***	0.00594***
	(0.000688)	(0.000835)
Health	-0.0103**	-0.0106**
	(0.00512)	(0.00518)
Risk Averse	-3.04e-05	0.000101
	(0.00618)	(0.00622)
Risk Prefer	-0.00964	-0.0114
	(0.00886)	(0.00899)
Log Asset	0.00177***	0.00195***
	(0.000548)	(0.000585)
Log Debt	0.000131	0.000347
	(0.000618)	(0.000629)
Rural	-0.0185***	-0.0173***
	(0.00609)	(0.00636)
Constant	1.232***	1.267***
	(0.0331)	(0.0410)
Observations	21,861	21,685

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: The Effect of Dependent Children on Household Saving in the Panel Data (2011-2013)

VARIABLES	(1) Random Effects	(2) Fixed Effects
Children	-0.0192***	-0.0141***
	(0.00170)	(0.00402)
Elders	-0.0315***	-0.0317
	(0.0110)	(0.0197)
Workers	0.0236***	0.0242***
	(0.00123)	(0.00273)
Age	-0.305***	-0.0602
	(0.0629)	(0.174)
Age Square	0.390***	0.0719
	(0.0592)	(0.162)
Education	0.00266***	-0.000226
	(0.000382)	(0.00116)
Health	0.00340	0.00814*
	(0.00297)	(0.00444)
Risk Averse	0.00367	0.00919*
	(0.00314)	(0.00528)
Risk Prefer	0.00549	-4.62e-06
	(0.00462)	(0.00789)
Asset	0.00184***	0.000516
	(0.000334)	(0.000888)
Housing debt	-0.000175	-0.00127**
	(0.000308)	(0.000591)
Rural	-0.00650*	-0.0455***
	(0.00334)	(0.0154)
Constant	1.138***	1.152***
	(0.0169)	(0.0495)
Observations	13,120	13,120
R-squared		0.029
Number of sid	8,752	8,752

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1