Less is More: The One-Child Policy and Adult Outcomes of Chinese Only Children

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Abstract

Existing research on sibship size effect largely focuses on children's outcomes, especially about their intellectual development and early educational attainment. In this study, I compare adult outcomes between Chinese only children and individuals with siblings by emphasizing the role of the One-Child Policy. I hypothesize that the trade-off between child quantity and quality will persist into adulthood. Using various statistical methods that account for both observed and unobserved differences between only children and non-only children, I provide robust empirical evidence from a nationally representative survey the *China Family Panel Studies*. Contrary to the public perception, even under the aggressive One-Child Policy, only children remain a minority group in contemporary China. Compared to the general population, Chinese only children are better-off in terms of completed level of education, income, wealth, and marriage outcomes. They turn out to be a relatively small and privileged group in society. At the population level, the One-Child Policy has increased the proportion of college degree holders, especially among people of urban origin.

Keywords: the one-child policy, sipship size effect, adult outcomes, China

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1 Introduction

Social scientists have a long and rich scholarly tradition of studying how sibship size affects inequalities. They develop theoretical frameworks to explain mechanisms (e.g., Becker, 1960; Becker and Lewis, 1973; Blake, 1981, 1989) and propose useful estimation strategies to identify causal effects (e.g., Angrist et al., 2005; Black et al., 2005; Conley and Glauber, 2006; Guo and VanWey, 1999; Li et al., 2008; Rosenzweig and Wolpin, 1980). However, previous research has largely focused on the sibship size effect on children's outcomes, especially about their intellectual development and educational attainment.[1] With only a few exceptions (e.g., Bras et al., 2010), different life chances for adults from larger and smaller families have received little scholarly attention.

In this study, I want to extend the current literature on sibship size effects to a comprehensive set of adult outcomes, including completed level of education, income, wealth, and marriage. Specifically, I use the case of China, in which the One-Child Policy reinforced differential fertility by imposing stricter regulations among advantaged groups (urban residents, Han Chinese, state sector workers, etc.) than disadvantaged groups (rural residents, ethnic minorities, informal sector workers, etc.). Compared to individuals with siblings, Chinese only children on average come from higher status families — they simultaneously benefit from more parental resources and smaller sibship size. As cumulative evidence so far largely confirms that an increasing marginal cost of quality (child outcome) with respect to quantity (number of children) leads to a trade-off between quantity and quality, particularly in developing countries (Li et al., 2008; Rosenzweig and Wolpin, 1980), I hypothesize that Chinese only children will continue to outperform non-only children as adults. The mechanism behind this phenomenon is twofold. On the one hand,

[1] Although completed level of education can be considered an adult outcome, many other commonly adopted education outcome measures such as school enrollment and school transitions are for children or teenagers only.

only children's advantages could be attributed to reproductive differentials by socioeconomic status — i.e. they were generally born to more privileged families. As parents' money and social network contribute to intelligence and academic performance, they can also improve one's opportunities in the labor market and marriage market later in life. On the other hand, even fully controlling for disparities in family background, only children could still enjoy additional benefits relative to individuals with siblings. As various types of parental resources — such as wealth, time, and energy — are intrinsically limited, any additional child would dilute available resources commonly shared in the family (Anastasi, 1956; Blake, 1981, 1985, 1989; Downey, 1995, 2001; Steelman et al., 2002; Lu and Treiman, 2008). As adults, only children expect to receive more housework assistance, economic transfer, and inherited wealth from parents, which could not only be helpful for their career development but also make them more attractive marriage partners. In order to rigorously examine the hypothesis proposed, I perform two parts of analysis. First, I use descriptive statistics to demonstrate how the average family background of Chinese only children had improved as fertility control became increasingly stricter. Second, I estimate the effect of being an only child on a comprehensive set of adult outcomes with various statistical models that account for both observed and unobserved differences between only children and non-only children. Empirical results from the *China Family Panel Studies*, a nationally representative survey, provide support to my hypothesis — as adults, only children are overall economically and socially better-off than individuals with siblings.

Although this study only tackles a special case of sibship size (being an only child) in a specific context (contemporary China), its findings have general implications. Most importantly, as advantages and disadvantages can accumulate over the life course and parents can continue to physically and financially help their adult children, I expect that the trade-off between child quantity and quality will persist into adulthood.

This article is organized as follows. In section two, I will review literature on differential fertility and population control in China. Specifically, I will discuss how the One-Child Policy reinforced the elite status of Chinese only children and why being an only child has positive effects on adult outcomes. In section three, I will introduce methods and data that I adopt to test my hypothesis. Section four will present descriptive and regression results. In section five, I conclude the whole article, point out limitations, and suggest further research.

2 Literature Review

2.1 Differential Fertility and Its Socioeconomic Consequences

Dating back to the 1960s, Duncan (1966) already noticed that when studying the two-generation social mobility pattern, if the "sons" represent a current population, it is wrong to assume that their "fathers" represent the population a "generation" ago. In fact, while some men do not have sons, some men have multiple sons. Such reproductive differentials undoubtedly affect inequalities, intergenerational mobility, and our interpretations of them. Following Duncan's footsteps, scholars made great efforts to combine social stratification and demography in both theoretical thinking and empirical research (Mare, 1997; Mare and Maralani, 2006; Preston, 1974; Preston and Campbell, 1993). Most noticeably, Mare and his colleagues developed statistical methods that formally incorporate demographic processes into the estimation of intergenerational effects. For example, by separately estimating the effect of women's education on their marriage and fertility behaviors and on their children's education, Mare and Maralani (2006) revealed that the positive effect of women's years of schooling on the educational attainment of their children are partially offset at the population level because of differential fertility and enhanced at the population level due to positive assortative mating. The three processes — marriage, fertility, and intergenerational transmission — simultaneously affect the relative numbers of

children who achieve various level of educational attainment.

While previous studies that consider reproductive differentials in social stratification largely focus on the aggregate effects and the population-level implications, I want to further discuss how it affects individuals. By simply modifying Duncan's father-son pair to a more general parent-offspring pair, in Figure 1, I illustrate differential fertility by socioeconomic status under a two-generation framework. As empirically shown, in modern era, higher status parents, especially those who are better educated, tend to have fewer offspring (e.g., Dribe and Scalone, 2014; Mare, 1997; Martin, 1995).[2] If family resources can be regarded as a pie whose size is relatively fixed and the distribution of which is a zero-sum game, one gets more either because s/he comes from a more privileged family or because s/he has fewer siblings to compete with, assuming parents' holding no gender or birth order preferences. As Figure 1 suggests, in the presence of differential fertility by socioeconomic status, individuals in the parents' generation are not equally represented in their children's generation. The two personal characteristics, family resources and the number of siblings, are negatively correlated. While individuals with a lot of siblings were usually born to poor parents, only children or those with only one sibling generally come from families that are well-resourced.

[Figure 1 about here]

At the individual level, differential fertility could lead to inequalities between social groups. Formally modeling such demographic process is data-demanding and, in many cases, researchers do not have the luxury to do so, but fully understanding the role it plays in social stratification is necessary.

[2]The relationship between socioeconomic status and fertility could be not strictly linear. For example, the poor and the most privileged group might have more children than the middle class. In addition, the mechanisms of childlessness are complicated. Here I have to rely upon a simple assumption — the overall negative association between socioeconomic status and fertility — to explain the causal process.

In contemporary China, the accumulation of socioeconomic advantages due to differential fertility, as shown in Figure 1, was amplified by fertility control policies.

2.2 Fertility Control and Only Children in China

As early as the 1960s, the Chinese government began implementing family planning policies so as to alleviate the pressure of its "burgeoning" population. In the 1960s and 1970s, the Chinese family planning policies were "soft" policies, which were often not mandatory (Freedman et al., 1988). For example, in the 1970s, the "Later, Longer, Fewer" ("Wan, Xi, Shao") campaign encouraged couples to "marry later, have longer birth spacing, and have fewer children". Since 1979, the aggressive One-Child Policy became a state policy. By design, this policy exacerbated reproductive differentials, because it imposed stricter regulations among higher socioeconomic status groups than among lower socioeconomic status groups. Between 1979 and 2013, while urban Han Chinese were allowed to have only one child under almost all circumstances, rural residents could have a second birth if their firstborn was a girl; ethnic minorities were generally authorized to have two children. In addition, the fertility behaviors for people with higher status occupations in the state-owned sector were more closely supervised than others (Baochang et al., 2007).

2.3 Sibship Size and Adult Life Chances

As Chinese only children were more likely to be born to higher status parents, they enjoy more family resources in childhood than a randomly selected peer. Based on previous research and my derivation, only children can continue to benefit from small sibship size after they grow up by the following mechanisms.

First, intergenerational coresidence between parents and adult children has a positive effect on labor force participation and working hours, especially for women. For example, Shen et al. (2016) show that by sharing the burden of housework with their parents, Chinese women who coreside with their parents are 27.9 percentage points more likely to

work than those living apart, and women who live with their parents in the same neighborhood are 34.9 percentage points more likely to work than those living in a different neighborhood. Moreover, on average, coresidence or nearby residence with parents significantly increases women's work time by 20-26 hours per week. As Ma and Wen (2016) further point out, when parents can help children with housework, coresidence with parents can be a competition among adult siblings. In an extended family with multiple adult children, parents who are young and healthy tend to coreside with higher-educated children whose opportunity cost of doing housework is higher. Without other siblings present in the family, Chinese only children do not need to compete for their parents' physical help.

Second, adult children can benefit from wealth inheritance and monetary transfer. If parental wealth can be regarded as a pie the size of which is relatively fixed and the distribution of which is a zero-sum game, under normal circumstances, only children can inherit all their parents' wealth. Prior studies reveal that intergenerational monetary transfer is more likely to happen from Chinese children to their parents (e.g., Sun, 2002; Wu and Li, 2014; Yang, 1996), but this could be less the case for only children. As parents of only children are generally wealthier, they are less dependent on their children for financial support and more likely to make monetary transfer to their children instead. As the only-child status can exert signaling effects of inheritance prospects and parent-to-child transfer in the marriage market, it facilitates only children to attract more popular partners.

In summary, adult only children continue to benefit from the double advantages of social origin — their parents are socially and economically better-off to begin with, and they do not need to compete for parents' physical and financial assistance with other siblings.

3 Data, Methods, and Variables

3.1 Data

In order to test if Chinese only children outperform non-only children as adults, this study uses the first wave of *China Family Panel Studies* (CFPS), which was conducted in 2010, covering residents from 25 provinces in China.[3] When examining the effect of being an only child on education, income, and wealth, I include all respondents born between 1949[4] and 1988 with no missing values in covariates. As for the impact on spouse's status, I further restrict my analytical sample to respondents who are in their first marriage and are currently living with their spouses. In the end, I have 16,761 individuals in the full sample and 9,954 individuals in the currently married sample.

3.2 Methods and Variables

Just as estimating the causal effects of sibship size on children's outcomes, it is also vital to compare the adult outcomes between only children and non-only children by properly taking into account observed and unobserved characteristics. In this study, I obtain the coefficients of being an only child by using ordinary least squares (OLS) regressions, propensity score weighting regressions, and instrumental variable regressions. Compared to OLS models, the propensity score weighting approach developed by Morgan and Todd (2008) can make the treatment group and control group more similar to each other in terms of observed characteristics; instrumental variable regressions, on the other hand, estimate the causal effects of interest by ruling out potential unobservables. Contrasting estimates from the three methods can shed some light on how inequalities between only children

[3]The CFPS do not survey respondents in the following provinces/areas: Xinjiang, Qinghai, Inner Mongolia, Ningxia, Hainan, Hong Kong SAR, Macau SAR, and Taiwan. However, we are able to know if a respondent was born in one of these areas. Detailed sibship information was only collected in the 2010 survey.

[4]The People's Republic of China was founded in 1949, so this year is chosen as the start of my observation period.

and non-only children are due to observed or unobserved differences in attributes.

A general OLS model with province fixed-effects is specified as follows:

$$\textbf{Outcome}_{ip} = \alpha + \beta \textbf{Only}_{ip} + \lambda \mathbf{X}_{ip} + \zeta_p + \epsilon_i \tag{1}$$

where the dependent variable, $\textbf{Outcome}_{ip}$, refers to an outcome that measures either socioeconomic well-being or spouse's social status of respondent i from province p. In the full sample, socioeconomic well-being is the principal factor of five observed variables — "years of schooling", "whether or not holding a college degree", "total income last year", "home ownership", and "current housing value". I also perform regressions by each of the five outcome variables separately. In the currently married sample, spouse's social status is the principal factor of four observed variables — "whether or not spouse holding a college degree", "spouse's rural/urban hukou status at age 3", "spouse's father's years of schooling", and "spouse's mother's years of schooling". Similarly, I also perform regressions by each of the four outcome variables separately. The key independent variable, $\textbf{Only}_{ip}$, is a dummy variable indicating whether an individual i from province p is an only child. β is my quantity of interest. $\mathbf{X}_{ip}$ is a set of control variables including gender, age, ethnicity, rural/urban hukou status at age 3, education, and family background. The hukou status is measured at the age of 3, capturing information in early childhood. ζ_p represents errors that are constant within the same province of residence at the age of 12, capturing information before adulthood. ϵ_i is the individual idiosyncratic error.

As only children are overrepresented in more privileged families, in propensity score weighting regressions, I apply weights in the OLS model above so as to balance my control and treatment groups. Specifically, I weight my analytical sample based on the odds of being an only child. I use a series of factors (gender, age, ethnicity, rural/urban hukou status at 3, education, parents' education, father's ISEI score, provincial-level fine rate of violating the One-Child Policy at birth) to predict the probability p_i for a respondent i to

be an only child in the family. Then I generate a weighting variable *weights* as follows:

$$\text{For } \mathbf{Only}_{ip} = 0,\ weights = \frac{\hat{p_i}}{1-\hat{p_i}}; \qquad (2)$$
$$\text{For } \mathbf{Only}_{ip} = 1,\ weights = 1.$$

where $\mathbf{Only}_{ip}$ is the key independent variable in equation (1); $\hat{p_i}$ is the predicted probability of being an only child. By applying these weights in OLS regressions, I am able to place more emphasis on observations in the control group (non-only children) that have a high odds of being an only child and de-emphasize the importance of observations in the control group that have a low odds of being an only child. This kind of weighting strategy allows me to make the non-only children look more similar to only children in terms of observed attributes. According to Morgan and Todd (2008), the treatment effect obtained here is the average treatment effect on the treated.

Even though the propensity score weighting approach produces a more balanced sample by only-child status, it still fails to account for unobserved confounders. Therefore, by exploiting the temporal and regional variations in the implementation of China's One-Child Policy as a natural experiment, I estimate the effect of being an only child by two-stage least squares (2SLS) instrumental variable regressions. For more details about fine rate as an instrumental variable, please refer to the article by Ebenstein (2010).

The first-step of my instrumental variable regressions is as follows:

$$\mathbf{Only}_{ip} = \xi \mathbf{Fine}_{p'} + \theta \mathbf{X}_{ip} + \nu_p + \mu_j \qquad (3)$$

where the dependent variable, $\mathbf{Only}_{ip}$, is the key independent variable in equation (1); $\mathbf{Fine}_{p'}$ refers to the instrumental variable "the fine rate of violating the One-Child Policy in the birth year and birth province $p^{'}$". $\mathbf{X}_{ip}$ includes the same set of control variables as those in equation (1). ν_p is the province fixed-effects, and μ_i is the individual idiosyncratic

error. The second-stage of my instrumental variable regressions can also be represented by equation (1).

4 Results

4.1 Descriptive Statistics: The Proportion and Distribution of Only Children

[Table 1 about Here]

In Table 1, I report descriptive statistics for the dependent and independent variables in the full analytical sample. For individuals born between 1949 and 1988, they on average receive 7.34 years of education, and 8% of them hold a college degree or equivalent. The mean of total annual income in 2009 is 10,145 CNY (1,486 USD). For home ownership broadly defined, which includes housing both self-built and purchased, 89% respondents own housing, and the average current home value is around 180,000 CNY (26,500 USD).

[Figure 2 about Here]

Around 8% respondents in my analytical sample are the only child in their family. In Figure 2, I report statistics about percent only children by birth cohort and rural/urban origin, and I compare the trends with those in some other societies. Specifically, compared to Japan, the United States, and Taiwan that also experienced dramatic fertility declines during the second half of the twentieth century, only China had witnessed a large increase in the proportion of only children, which was most likely due to its family planning policies. However, we should also notice that only children in China had always been a minority group, even under the strict One-Child Policy. For individuals born before 1979, merely 5% of them were only children. After the implementation of the One-Child Policy, the proportion of only children increased, especially among people of urban origin, but the national average remained as low as 22%. Even for post-1979 cohorts with an urban up-

bringing, among which the proportion of only children technically should exceed 90%, only around 55% of the population were the only child in their family.

[Figure 3 about Here]

More importantly, descriptive statistics confirm that Chinese only children were generally born to higher status parents, and this became increasingly true as stricter birth control policies were implemented. In Figure 3, I plot parents' years of schooling by the only-child status. For both measures, it is evident that over the years Chinese only children were more and more likely to be born to better-educated parents. The gaps first emerged in the 1960s and 1970s, when some "soft" family planning policies started, and they continued to grow during the One-Child Policy period and eventually became quite large. These findings lend some support to my argument that the One-Child Policy reinforced differential fertility by socioeconomic status.

Finally, the distributions of all control variables are largely in line with our previous knowledge of contemporary Chinese society.

4.2 Regression Results: The Socioeconomic Advantages of Only Children as Adults

4.2.1 The Effect of Being an Only Child on Socioeconomic Well-Being

[Table 2 about Here]

In Table 2, I report coefficients of being an only child on the overall socioeconomic well-being obtained from OLS, propensity score weighting, and instrumental variable regressions. All models control for gender, age, ethnicity, rural/urban origin, family background, and province fixed-effects. Under all model specifications, the effect of being an only child on the overall socioeconomic well-being, measured by the principal factor of five observed outcome variables, is positive and significant at the 1% level. These results indicate that after taking into account both the observed and unobserved differences

between two groups, only children outperform non-only children in terms of an overall measure of education, income, and wealth. The OLS estimate turns out to be similar with the propensity score weighting estimate, suggesting that the observed attribute differences have little impact on the quantity of interest. In contrast, the magnitude of the instrumental variable estimate is more sizable, which could result from unobserved confounders or the local average treatment effect among compilers. In other words, here I obtain the average treatment effect among respondents who would have become an only child if the One-Child Policy was more strictly implemented and would not have become an only child if the policy was less strictly implemented. For individuals who would certainly become or not become only children regardless of the policy enforcement, I am not able to make inferences. In fact, if Chinese parents who held low expectation for their children's achievement happened to be those who violated the One-Child Policy, we should observe very little difference in their children's outcomes with or without strict fertility control policies, because they did not invest much in their children anyway.

[Table 3 and Figure 4 about Here]

In the next step, I regress the key independent variable "being an only child" on the five outcome measures — "years of schooling", "whether or not holding a college degree", "total income last year (log)", "home ownership", and "current housing value (log)" — separately. Coefficients obtained from the three methods are presented in Table 3 and the corresponding predicted outcomes are plotted in Figure 4. As they are shown, by each dimension of socioeconomic well-being, Chinese only children are much better-off than those with siblings.

4.2.2 The Effect of Being an Only Child on Spouse's Status

[Table 4 about Here]

In this part of analysis, I examine if only children not only have better educational and economic outcomes but also have better marriage outcomes. Descriptive statistics of the currently married sample are similar to those in the full sample.

[Table 5 about Here]

In Table 5, I report coefficients of being an only child on spouse's overall social status obtained from OLS, propensity score weighting, and instrumental variable regressions. Similar to results in the previous section, under all model specifications, the effect of being an only child on spouse's overall social status, measured by the principal factor of four observed outcome variables, is positive and significant. Compared to the OLS estimate, the propensity score weighting estimate turns out to be much smaller this time, indicating that the large OLS coefficient is partially due to the observed differences between only children and non-only children. Once again, the instrumental variable estimate in Table 5 is much larger than the other two estimates, which could result from certain social groups' unresponsiveness to the One-Child Policy.

[Table 6 and Figure 5 about Here]

In Table 6, I report coefficients of being an only child on dependent variables — "whether or not spouse holding a college degree", "whether or not spouse of rural origin", "spouse's father's years of schooling", and "spouse's mother's years of schooling" — separately. The predicted outcomes by each dimension of spouse's social status are plotted in Figure 5. My empirical evidence demonstrates that only children tend to marry higher status spouses. In particular, they are more likely to marry someone with a college degree and a higher-educated mother.

4.2.3 Implications at the Population Level

[Figure 6 about Here]

In this study, I also provide tentative answers for the impact of the One-Child Policy at the population level. By using percent population holding a college degree as an example, I present the observed and simulated trends in Figure 6. In this exercise, I contrast the observed percent college degree holders with a simulated scenario in which the proportion of only children in society remains at the pre-One-Child Policy level. I set the percentages of only children as 5 and 10 in the full sample and the urban origin sample, respectively. According to Figure 6, the growth in the proportion of only children after the One-Child Policy has contributed to the increase of college degree holders in China. If the proportion of only children remained at the pre-policy level, we would observe a smaller college-educated population in Chinese society, especially in urban areas.

5 Conclusion and Discussions

To summarize, this study reveals that the One-Child Policy reinforced differential fertility in contemporary China, resulting in a situation that only children were increasingly more likely to be born to higher status parents. Moreover, by using various methods that account for both observed and unobserved differences between only children and individuals with siblings, I demonstrate that after they grow up, only children continue to outperform non-only children regarding education, income, wealth, and marriage outcomes. These findings naturally point to the related research questions — as an economically and socially more privileged group, do only children tend to marry each other and create even more inequalities by pooling resources together?

Finally, as social scientists are seeking answers about why the inequality in China has increased that rapidly these years, this study provides one possible explanation from a demographic perspective — social and economic advantages accumulate when higher status people also tend to have fewer offspring, and such advantages can persist into adulthood.

Table 1. Descriptive Statistics (Full Sample)

Variables	Mean	SD	Max	Min
Dependent Variables				
The Principal Factor of Socioeconomic Well-Being	0.06	0.77	9.88	-0.77
1) Years of Schooling	7.34	4.62	22.00	0.00
2) Whether or Not Holding a College Degree	0.08	0.27	1.00	0.00
3) Total Income Last Year (CNY)	10,145.49	18,897.50	800,000.00	0.00
4) Home Ownership (Yes = 1)	0.89	0.32	1.00	0.00
5) Current Housing Value (10,000 CNY)	18.12	45.13	1,600.00	0.00
Key Independent Variable				
Being an Only Child	0.08	0.27	1.00	0.00
Instrumental Variable				
Fine Rate for Violating the Birth Control Policy in the Year of Birth	0.22	0.45	1.62	0.00
Control Variables				
Female	0.52	0.50	1.00	0.00
Age	41.98	10.93	65.00	21.00
Han	0.92	0.27	1.00	0.00
Rural Hukou at Age 12	0.86	0.34	1.00	0.00
Father's Years of Education	4.26	4.45	22.00	0.00
Mother's Years of Education	2.31	3.71	19.00	0.00
Father's ISEI Score	30.27	14.53	90.00	19.00
Number of Individuals		16,761		
Number of Provinces		30		

Notes: All individuals were born between 1949 and 1988;
The principal factor is calculated based on five observed variables — years of schooling, whether or not holding a college degree, total income last year, home ownership and current housing value;
Home ownership is broadly defined, including housing both self-built and purchased;
The instrumental variable is only used in the 2SLS IV regressions;
Descriptive statistics for all province dummies are not shown.

Table 2. The Effect of Being an Only Child on Socioeconomic Well-Being

	Dependent Variable: The Principal Factor of Socioeconomic Well-Being		
Variables	OLS	PS Weighting	IV
Being an Only Child	0.125***	0.128***	0.340***
	(0.019)	(0.013)	(0.072)
Female	-0.230***	-0.135***	-0.135***
	(0.010)	(0.013)	(0.013)
Age	-0.010***	-0.012***	-0.012***
	(0.001)	(0.001)	(0.001)
Han	0.090***	0.069*	0.090**
	(0.019)	(0.031)	(0.032)
Rural Hukou at Age 12	-0.484***	-0.457***	-0.456***
	(0.017)	(0.016)	(0.016)
Father's Years of Education	0.022***	0.030***	0.029***
	(0.001)	(0.002)	(0.002)
Mother's Years of Education	0.034***	0.049***	0.050***
	(0.002)	(0.002)	(0.002)
Father's ISEI Score	0.006***	0.008***	0.008***
	(0.000)	(0.000)	(0.000)
Province Fixed-Effects	Yes	Yes	Yes
Adjusted R-Squared	0.343	0.454	0.342
Number of Individuals	16,761	16,761	16,761
Number of Provinces	30	30	30

Notes: The principal factor is calculated based on five observed variables — years of schooling, whether or not holding a college degree, total income last year, home ownership and current housing value;
First-stage results of the 2SLS IV regression are reported in the appendix.

Table 3. The Effect of Being an Only Child on Socioeconomic Well-Being, by Each Dimension

Variables	OLS	PS Weighting	IV
	A. Dependent Variable: Years of Schooling		
Being an Only Child	0.143	0.191***	1.169***
	(0.110)	(0.054)	(0.299)
Adjusted R-Squared	0.360	0.496	0.405
	B. Dependent Variable: Whether or Not Holding a College Degree		
Being an Only Child	0.093***	0.080***	0.269***
	(0.008)	(0.006)	(0.032)
Adjusted R-Squared	0.205	0.328	0.232
	C. Dependent Variable: Total Income Last Year (Log)		
Being an Only Child	-0.103	0.066	4.060***
	(0.109)	(0.060)	(0.721)
Adjusted R-Squared	0.209	0.202	0.110
	D. Dependent Variable: Home Ownership (Yes = 1)		
Being an Only Child	0.027**	0.008	0.154***
	(0.010)	(0.006)	(0.031)
Adjusted R-Squared	0.041	0.064	0.010
	E. Dependent Variable: Current Housing Value (Log)		
Being an Only Child	0.195†	0.079	1.195**
	(0.117)	(0.067)	(0.371)
Adjusted R-Squared	0.040	0.071	0.002
Number of Individuals	16,761	16,761	16,761
Number of Provinces	30	30	30

Notes: Control variables include gender, age, ethnicity, rural hukou at age 12, father's years of schooling, mother's years of schooling and father's ISEI score;
First-stage results of the 2SLS IV regressions are reported in the appendix.

Table 4. Descriptive Statistics (Currently Married Sample)

Variables	Mean	SD	Max	Min
Dependent Variables				
The Principal Factor of Spouse's Social Status	0.07	0.81	3.28	-0.70
1) Spouse Holding a College Degree	0.08	0.27	1.00	0.00
2) Spouse of Rural Origin	0.87	0.34	1.00	0.00
3) Spouse's Father's Years of Schooling	4.83	4.54	22.00	0.00
4) Spouse's Mother's Years of Schooling	2.85	4.01	16.00	0.00
Key Independent Variable				
Being an Only Child	0.07	0.25	1.00	0.00
Instrumental Variable				
Fine Rate for Violating the Birth Control Policy in the Year of Birth	0.18	0.42	1.62	0.00
Control Variables				
Female	0.49	0.50	1.00	0.00
Age	42.91	10.43	65.00	21.00
Han	0.92	0.28	1.00	0.00
Rural Hukou at Age 12	0.88	0.33	1.00	0.00
Father's Years of Education	4.09	4.37	22.00	0.00
Mother's Years of Education	2.12	3.51	16.00	0.00
Father's ISEI Score	30.05	14.51	88.00	19.00
Number of Individuals		9,954		
Number of Provinces		28		

Notes: All individuals were born between 1949 and 1988;
The principal factor is calculated based on four observed variables — whether or not spouse holding a college degree, spouse's hukou status at age 3 and spouse's parents' years of schooling;
The instrumental variable is only used in the 2SLS IV regressions;
Descriptive statistics for all province dummies are not shown.

Table 5. The Effect of Being an Only Child on Spouse's Social Status

	Dependent Variable: The Principal Factor of Spouse's Social Status		
Variables	OLS	PS Weighting	IV
Being an Only Child	0.086**	0.031*	0.332***
	(0.027)	(0.015)	(0.081)
Female	0.061***	0.073***	0.073***
	(0.002)	(0.002)	(0.002)
Age	0.022	-0.042**	-0.035*
	(0.014)	(0.015)	(0.015)
Han	-0.003***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)
Rural Hukou at Age 12	0.018	-0.101**	-0.064+
	(0.026)	(0.036)	(0.038)
Father's Years of Education	-0.473***	-0.391***	-0.400***
	(0.023)	(0.020)	(0.020)
Mother's Years of Education	0.010***	0.012***	0.012***
	(0.002)	(0.002)	(0.002)
Father's ISEI Score	0.024***	0.027***	0.029***
	(0.002)	(0.002)	(0.002)
Province Fixed-Effects	Yes	Yes	Yes
Adjusted R-Squared	0.346	0.453	0.344
Number of Individuals	9,954	9,954	9,954
Number of Provinces	28	28	28

Notes: The principal factor is calculated based on four observed variables — whether or not spouse holding a college degree, spouse's hukou status at age 3 and spouse's parents' years of schooling;
First-stage results of the 2SLS IV regression are reported in the appendix.

Table 6. The Effect of Being an Only Child on Spouse's Social Status, by Each Dimension

Variables	OLS	PS Weighting	IV
	A. Dependent Variable: Spouse Holding a College Degree		
Being an Only Child	0.046***	0.024***	0.086*
	(0.010)	(0.007)	(0.035)
Adjusted R-Squared	0.158	0.273	0.227
	B. Dependent Variable: Spouse of Rural Origin		
Being an Only Child	-0.022*	-0.018*	-0.034
	(0.011)	(0.007)	(0.038)
Adjusted R-Squared	0.410	0.441	0.334
	C. Dependent Variable: Spouse's Father's Years of Schooling		
Being an Only Child	-0.079	-0.249**	0.101
	(0.166)	(0.083)	(0.435)
Adjusted R-Squared	0.214	0.276	0.217
	D. Dependent Variable Spouse's Mother's Years of Schooling		
Being an Only Child	0.495***	0.233**	2.426***
	(0.150)	(0.080)	(0.429)
Adjusted R-Squared	0.215	0.314	0.174
Number of Individuals	9,954	9,954	9,954
Number of Provinces	28	28	28

Notes: Control variables include gender, age, ethnicity, rural hukou at age 12, years of schooling, father's years of schooling, mother's years of schooling and father's ISEI score;
First-stage results of the 2SLS IV regressions are reported in the appendix.

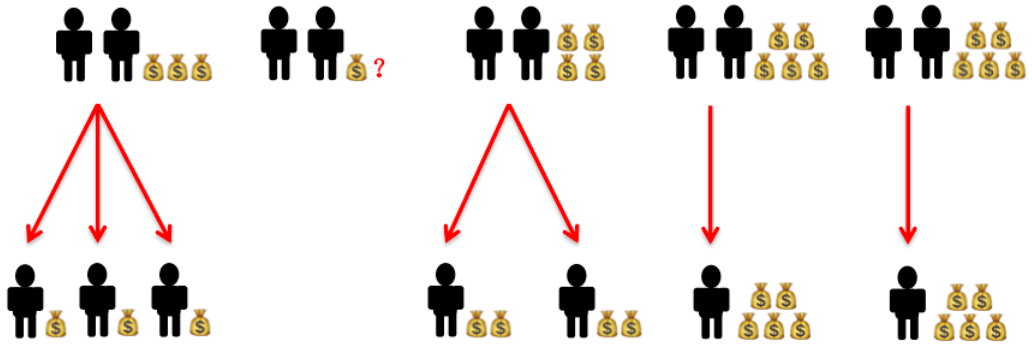

Figure 1. A Graphic Illustration of Differential Fertility by Socioeconomic Status
Note: The dollar sign represents the general form of resources, including education, money, prestige, social network, cultural capital, and so forth.

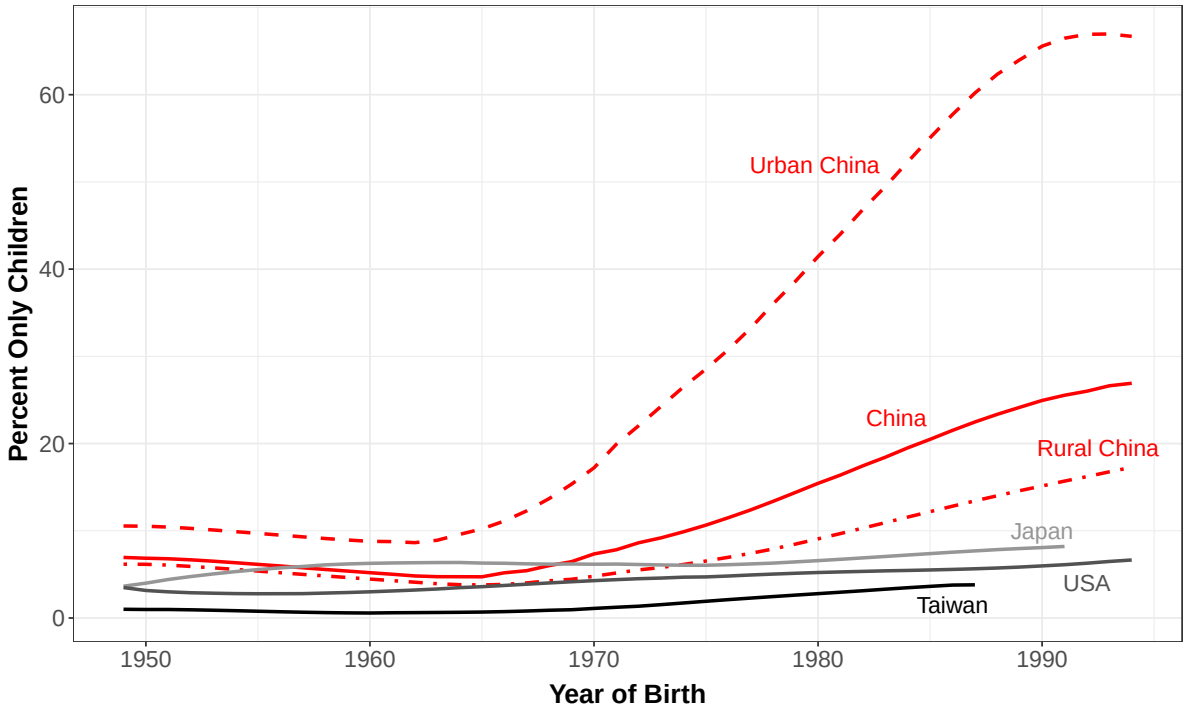

Figure 2. Percent Only Children by Birth Cohort
Notes: The lines are drawn by LOWESS smoothing (bandwidth = 0.8);
Urban or rural origin is defined by hukou status at age 12.
Sources: China Family Panel Study, 2010; Japanese General Social Survey, 2006; American General Social Survey, 2010, 2012, 2014, 2016; Taiwan Social Change Survey, 2006

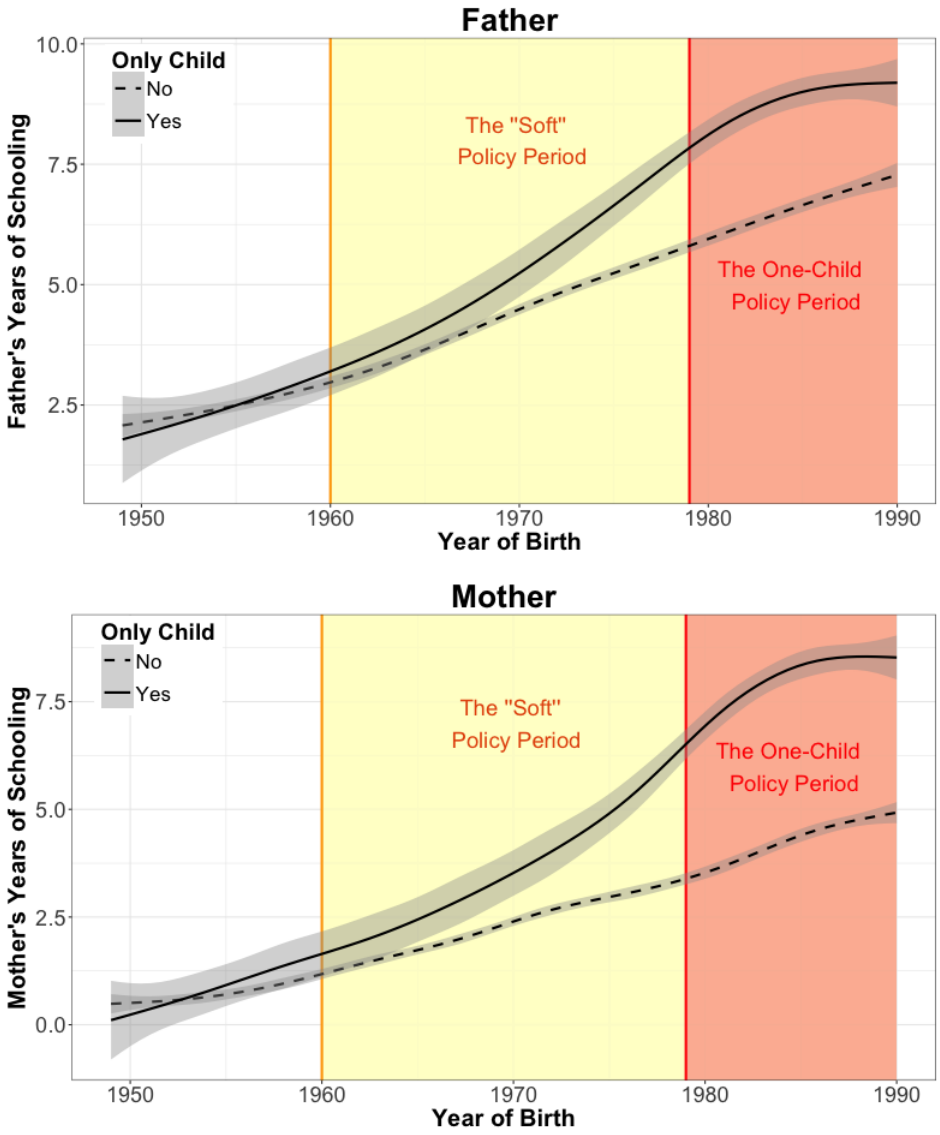

Figure 3. Parental Education by Only-Child Status Over Time
Notes: The lines are drawn by LOWESS smoothing (bandwidth = 0.8);
The "soft" policy period refers to a period in which the family planning policies were not mandatory;
The grey shaded area represents 95% confidence intervals.

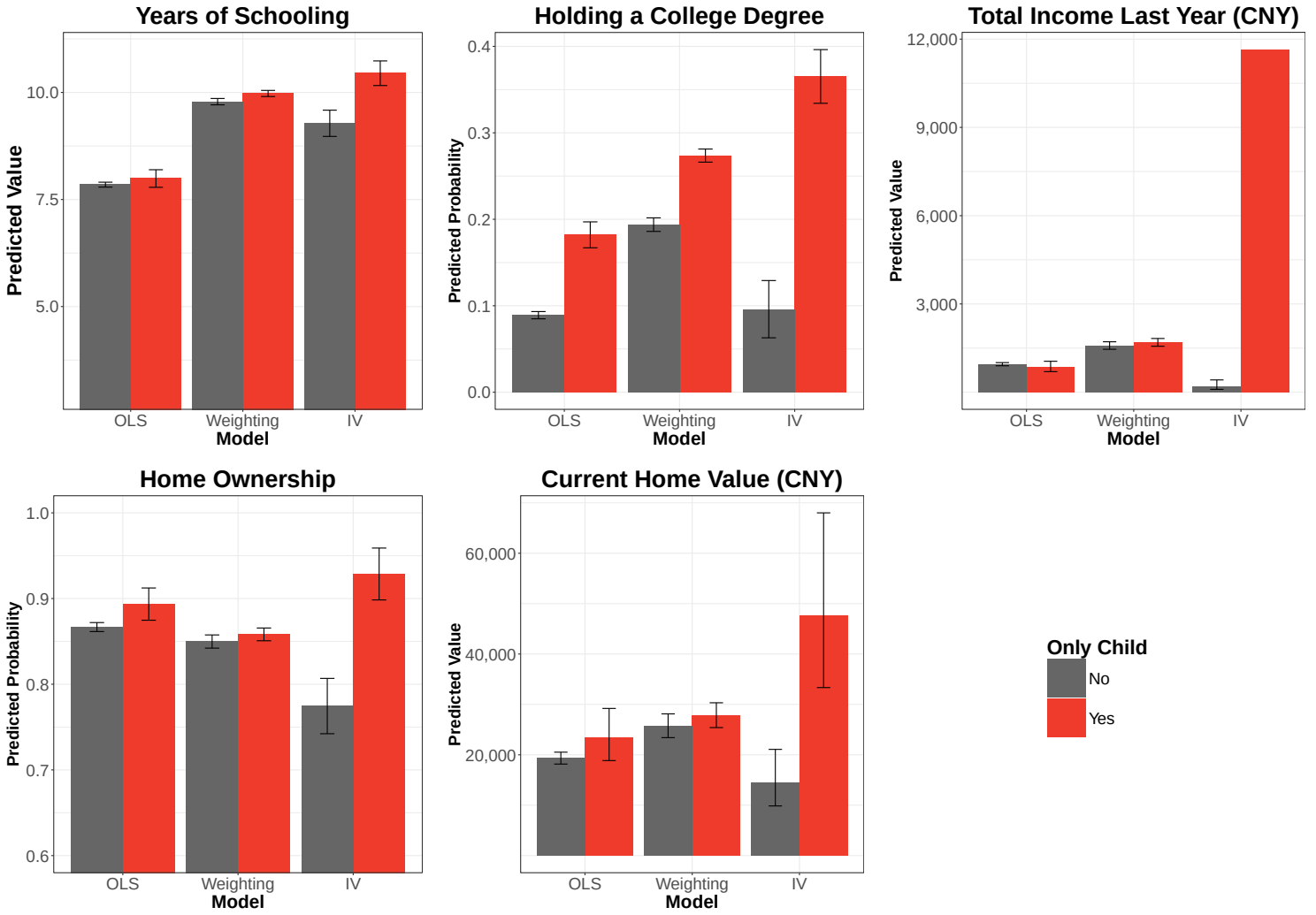

Figure 4. Predicted Values of Education, Total Income, and Housing Assets, by Only-Child Status and Model
Notes: Predicted outcomes are calculated based on the models with full controls in Table 3;
Error bars represent 95% confidence intervals;
The 95% confidence interval for the predicted total income for only children (the IV model) is [5,869, 23,121 (CNY)]. It is not shown due to space constraints.

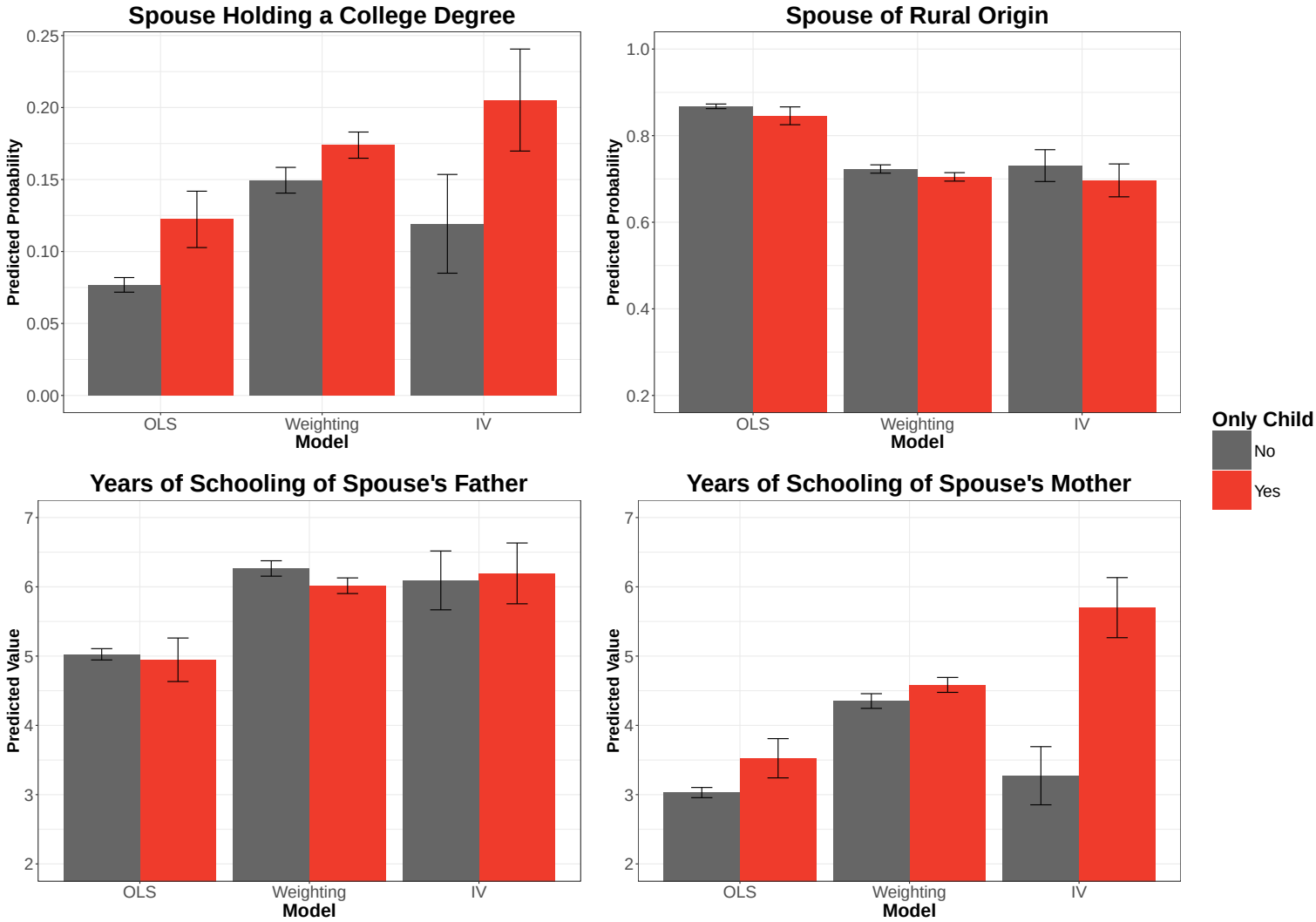

Figure 5. Predicted Values of Spouse's Education, Spouse's Rural Origin, and Spouse's Parental Education, by Only-Child Status and Model
Notes: Predicted outcomes are calculated based on the models with full controls in Table 6;
Error bars represent 95% confidence intervals.

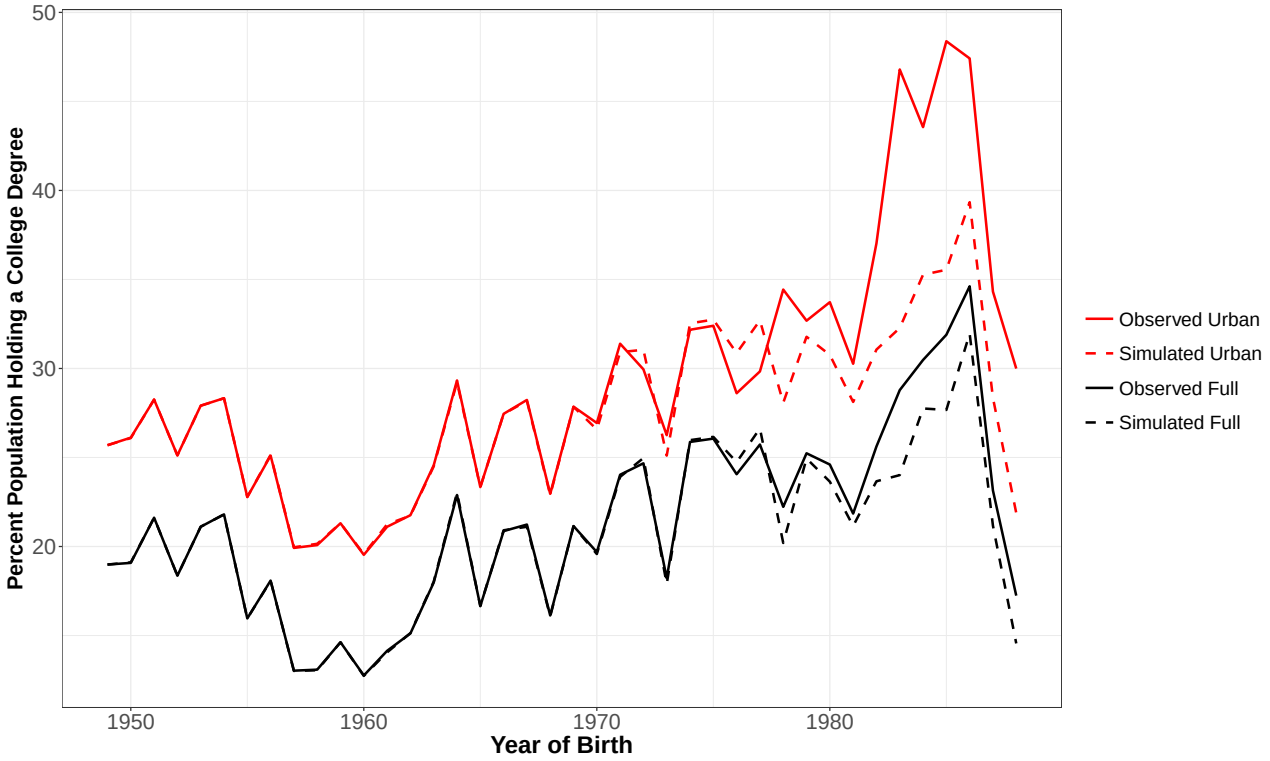

Figure 6. Percent Population Holding a College Degree, Observed vs. Simulated Patterns
Notes: In the full sample, I contrast the observed percent college degree holder with a simulated scenario in which the proportion of only children in society remains at 5%;
In the urban origin sample, I contrast the observed percent college degree holder with a simulated scenario in which the proportion of only children among urban origin population remains at 10%.

Appendix

Table A. First-Stage Results for the Probability of Being an Only Child

	Second-Stage Dependent Variable					
	Socioeconomic Well-Being	Years of Schooling	College Degree	Income (Log)	Home Ownership	Home Value
Fine Rate	0.155***	0.155***	0.155***	0.115***	0.155***	0.155***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
F Statistics	262.03	262.03	262.03	73.10	261.94	261.94

	Second-Stage Dependent Variable				
	Spouse's Status	College Degree (Spouse)	Rural Origin (Spouse)	Father's Education (Spouse)	Mother Education (Spouse)
Fine Rate	0.187***	0.187***	0.187***	0.187***	0.187***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
F Statistics	244.14	244.14	244.14	244.14	244.14

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