

Recent Marriage and Labor Supply Pattern of Young Chinese Women

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I. Introduction

In this paper, we examine the impact of sibling gender on educational attainment, earnings, and family formation for a recent cohort of women in China. Family characteristics such as number of siblings, sibling gender composition, and parents' characteristics may play an important role in children's life as the presence of a sibling can affect parents' treatment of the remaining children. Especially male siblings can affect children's outcome through various pathways as a male sibling may pull parental investment of resources away from girls, because boys may be seen as the "higher return" investment (Becker 1991). We investigate the effect of having a (male) sibling on a daughter by exploiting the change in fertility trend in China induced by the One Child Policy (OCP).

The One Child Policy (OCP) in China was implemented in 1979 and lasted until 2015, limiting most Chinese couples to one child each. It was enforced through a system of fines

or punishment for violators. For example, the employees of the government (and –affiliated organizations) risked losing their jobs if they were found to have had more than one child. Through revision of the policy, the Chinese government allowed some mothers to have a second child in certain circumstances, while the one-child limit was more effectively enforced on urban residents. For example, some mothers of a daughter in several rural provinces were allowed to have a single additional birth, and families in remote areas to have a third child.

II. Data and Samples

The data set used in this paper is the Chinese Family Panel Studies (CFPS). The CFPS is a panel data collected by the Institute of Social Science Survey at Peking University. Launched in 2010, the CFPS collects a vast range of demographic and socioeconomic information on 14,960 households (and 42,590

individuals) from 25 provinces. Especially, a household questionnaire collects fertility histories that enable us to recognize the information on siblings in each household. We use

data from Wave 1 (2010). Our preferred sample is the individuals born between 1975 and 1984. By limiting the sample period between 1960 and 1990, the final sample consists of 4,692 individuals.

Figure 1. Average Number of Siblings

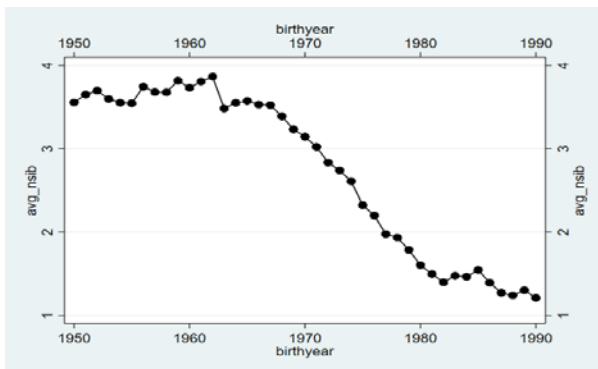


Figure 2. Average Number of Siblings (Urban-Rural)

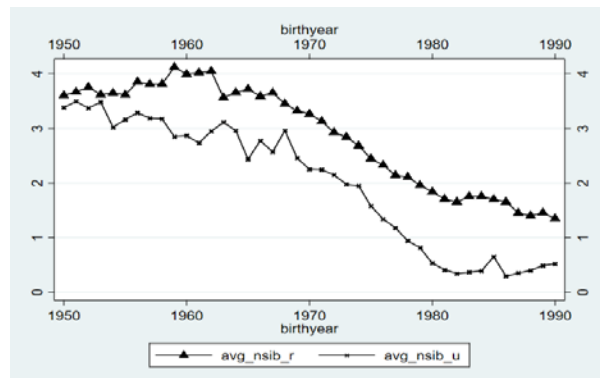


Figure 3. Probability of Being an Only Child

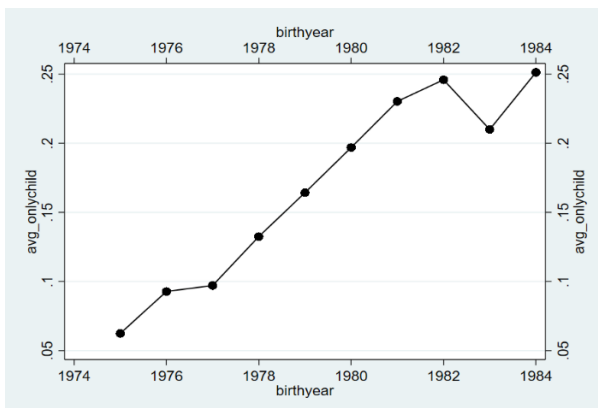


Figure 4. Probability of Being an Only Child (Son-Daughter)

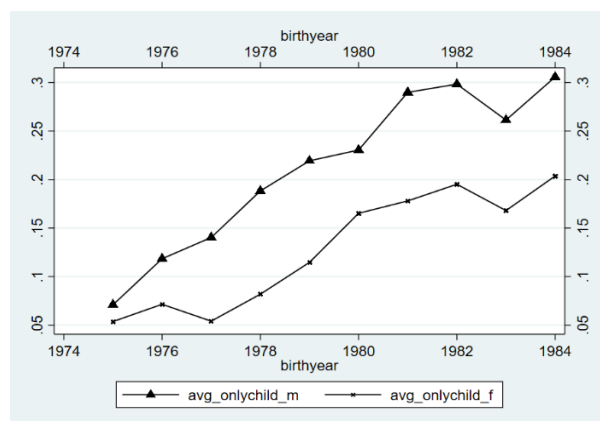
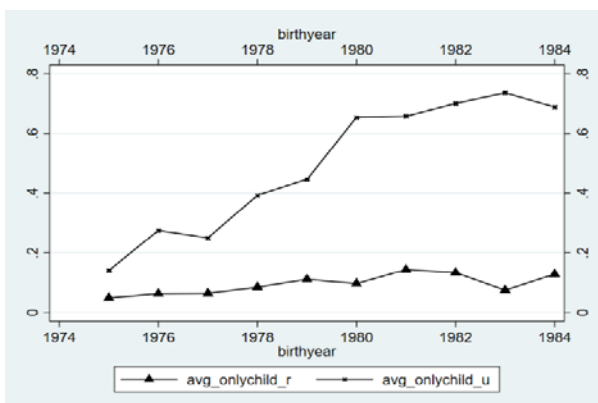


Figure 5. Probability of Being an Only Child (Urban-Rural)



We present various pieces of evidence that support the impact of the OCP on the fertility trend in China and its heterogeneity across regions and gender. Figure 1 and Figure 2 depict various trends in the average number of siblings from 1960 to 1990. Chinese households used to have roughly five children until 1960 but the number declined to 1.5 in 1980. The gap between rural and urban areas was minimal in the beginning, but it has widened since 1979, which is the year of OCP implementation.

Figures 3 to 5 show how the probability of being an only child has changed over time. We can see that the probability of being an only child has increased over time. Also, the probability of being an only child is higher in males than females. Figure 5 also confirms that the policy was compulsory in urban areas, where the probability of being an only child has increased dramatically over time while no change was observed in rural areas.

III. Methodology

We use the two-stage least-squares (2SLS) model to estimate the relationship between the number of children in the family and human capital accumulation and the labor market outcome of children. The fertility choice of parents can be endogenous as Chinese society historically has a son preference. Some families will continue having children until they have a son and redirect their resources to the son at the expense of the daughter(s). In this case, human capital or labor market outcome of girls with

and without brothers are not strictly comparable. To address this issue, we use the OCP as an instrument for predicting the probability of being an only child. Firstly, we estimate the first stage equation as follows:

$$\begin{aligned} OC_i = & \alpha_0 + \alpha_1 OCP_i + \alpha_2 Urban3_i \\ & + \alpha_3 Female_i \\ & + \alpha_4 OCP_i Urban3_i \\ & + \alpha_5 OCP_i Female_i \\ & + \alpha_6 Urban3_i Female_i \\ & + \alpha_7 OCP_i Urban3_i Female_i \\ & + \alpha_8 X_i + \varepsilon_i \end{aligned}$$

where OC_i is an indicator for individual i being an only child, OCP_i indicates that the individual i was born after the one child policy implementation, $Urban3_i$ is an indicator for individual i 's residential status (*hukou*) at age three. In addition, we include the interaction terms in order to incorporate the fact that the one-child policy was differentially implemented across the region.

$$\begin{aligned} Y_i = & \beta_0 + \beta_1 \widehat{OC}_i + \beta_2 Female_i \\ & + \beta_3 \widehat{OC}_i Female_i + \beta_4 Urban_i \\ & + \beta_5 Urban3_i + \beta_6 Urban12_i \\ & + \beta_7 Age_i + \beta_8 Age_i^2 + \varepsilon_i \end{aligned}$$

Second, we estimate the second stage where we look at various socioeconomic outcomes such as an individual's education, labor market, and marriage. We include various controls including current residency, residency at ages 3 and 12, and age. We include a residency at a younger age to capture the different social in-

frastructures at the regional level that can affect children's education and labor market outcomes. Our main interest is the coefficient on " $\widehat{OC}_i Female_i$ ", which captures the effect of being the only daughter in the family.

IV. Result

The first stage analysis results in Table 1 shows the validity of our instrument: the introduction of the One Child Policy and its variation of intensity depending on the region and gender of a child. The dependent variable for

these regression analyses is an indicator variable of whether the subject is an only child. Even after additionally controlling for birth year and its square, in consideration of any non-linearity (column 3), we still find a significant drop in the probability of being an only child if one was born after the introduction of the One Child Policy (OCP) and one's family was in an urban region, where the policy was more strictly enforced. Additionally, females are less likely to be the only child of the family due to male preference, and such a pattern is stronger for females born in the urban region.

Table 1. Impact of One Child Policy on Being an Only Child (First Stage)

VARIABLES	(1) Only child	(2) Only child	(3) Only child
One Child Policy (OCP)	0.0503*** (0.0153)	-0.0184 (0.0227)	-0.0158 (0.0227)
Lived in Urban at Age 3	0.265*** (0.0249)	0.264*** (0.0249)	0.263*** (0.0248)
One Child Policy X Lived in Urban at Age 3	0.352*** (0.0351)	0.351*** (0.0351)	0.354*** (0.0350)
Female	-0.0504*** (0.0142)	-0.0509*** (0.0142)	-0.0513*** (0.0142)
One Child Policy X Female	-0.0160 (0.0210)	-0.0162 (0.0209)	-0.0152 (0.0209)
Lived in Urban at Age3 X Female	-0.0818** (0.0359)	-0.0816** (0.0358)	-0.0813** (0.0358)
One Child Policy X Lived in Urban at Age 3 X Female	-0.00853 (0.0499)	-0.00764 (0.0498)	-0.00858 (0.0498)
Birth year		0.0138*** (0.00336)	7.864*** (2.592)
Birth year ²			-0.00198*** (0.000655)
Constant	0.101*** (0.0103)	-27.12*** (6.640)	-7,796*** (2,565)
Observations	4,692	4,692	4,692
R-squared	0.241	0.244	0.245

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

While it is statistically insignificant, we also find females born after the OCP, and additionally those who lived in the urban region, to be still less likely to be only children compared to their male counterparts. Therefore, we utilize this differential impact of the OCP to instrument the endogenous fertility decision (Only Child) of parents for young Chinese men and women.

Table 2 shows the education, labor, and marriage decisions of our sample of interest between the ages of 26 and 36. “Higher educa-

tion” is an indicator variable of whether a person has a high school degree or above (column 1). Even these days, women are still less likely to be educated compared to men on average. However, it is interesting how only daughters are likely to be higher educated compared to only sons. While being an only child seems to provide a higher education opportunity to only children, such an impact is estimated to be insignificant. On the other hand, the impact of being the only daughter of the family seems to be significant, in that the education level of only daughters significantly exceeds ($-0.0546+0.144=0.0894$) that of only sons.

Table 2. Education, Labor, Marriage Decisions of Young Chinese Men and Women (Second Stage, CFPS 2010)

VARIABLES	(1) Higher education	(2) Work	(3) Income	(4) Regular income	(5) Positive income (censored)	(6) Ever married	(7) Currently married	(8) Arranged marriage
Only Child	0.0619 (0.0817)	0.177* (0.0935)	397.0 (4,774)	-229.1 (577.3)	-486.1 (642.1)	-0.404*** (0.0572)	-0.373*** (0.0614)	0.0921 (0.114)
Female	-0.0546*** (0.0163)	-0.175*** (0.0188)	-11,169*** (952.8)	-880.4*** (140.7)	-1,003*** (161.2)	0.0449*** (0.0114)	0.0490*** (0.0123)	0.0453** (0.0210)
Only Child X Female	0.144** (0.0671)	0.153** (0.0768)	6,716* (3,931)	815.7* (469.0)	1,144** (524.7)	0.190*** (0.0470)	0.204*** (0.0504)	0.0340 (0.0939)
Urban	0.274*** (0.0128)	-0.0167 (0.0154)	7,357*** (782.2)	390.8*** (120.4)	429.9*** (139.8)	0.0200** (0.00940)	0.0164 (0.0101)	-0.0473*** (0.0164)
Higher Education		0.200*** (0.0167)	12,430*** (849.2)	587.8*** (109.2)	602.5*** (124.9)	-0.0340*** (0.0102)	-0.0384*** (0.0109)	-0.103*** (0.0182)
Observa- tions	4,725	4,618	4,717	2,135	1,919	4,725	4,725	4,227
R-squared	0.278	0.072	0.163	0.065	0.063	0.122	0.110	0.030

Notes: Estimates for constant and other control variables (age, age squared, residential region at ages 3 and 12) are not reported but are controlled in all analyses. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Does higher education lead to any specific labor market outcomes? Columns (2) to (7) of Table 2 analyze some of the major variables related to labor supply decisions while controlling for the education level. Variable “Work” in column (2) is an indicator variable that takes a value of one if the sample is currently involved in income-generating activity, including the case of agricultural work, unpaid family work, and self-employment. “Income” in column (3) is the amount of total income that may include non-labor income. “Regular income” in column (4) is an amount of labor income reported to be regular, but included 0 for those who do not claim any regular income.¹ “Positive income” in column (5) is a variable that excludes the censored 0 from “Regular income” to analyze further unique patterns that may occur in the intensive margin. While the education level itself was well translated to all dimensions of the labor market, the labor market-related analyses results show that gender inequality still exists in the labor market for the young generation of Chinese men and women, in terms of participation (extensive margin) and income level (intensive margin).

Is there any further discrepancy in the labor market between an only child and those with siblings? As with our analysis on educational attainment, while being an only child seems to result in higher labor market participation and lower labor income, the results are mostly not statistically significant. However, it is worth

noting that the only daughters again benefited from being the only child (even after controlling for the education channel). Estimates for “ $\widehat{OC}_i Female_i$ ” show how only daughters are more likely to have a job and higher labor income, compared to other women with siblings. However, such an effect is not as large as the effect on educational attainment; the positive advantage given to only daughters is only large as, if not less, than the disadvantage faced as a woman.

Due to the one child policy, the only daughters seemed to benefit from higher family support since they became a valuable investment opportunity to the family, partially ameliorating the gender gap that persists in China. However, the labor market does not seem to be the only interest for family support. Dependent variables in column (6) to column (8) are the indicator variables on marital status. While only children are less likely to marry early, supposedly due to their tertiary education or career, only daughters tend to find their spouse earlier. The pattern is distinctive considering how the estimate for “Female” already shows how women on average do get married earlier than men. Among those who are married, “Arranged marriage” in column (8) takes a value of 1 if the current spouse was introduced by someone else. Although insignificant, the results show how only children, and especially only daughters, were more active in searching for potential spouses.

¹ Having a regular income of 0 does not necessarily imply the subject is involved in an occupation in which the

wage has high volatility, for that the irregular income also was reported as 0 for the same subjects.

V. Conclusion, Discussion, and Policy Implications

In terms of education, the gender gap still persists for the younger generation of modern-day China. The OCP may have partially alleviated the inequality through giving better education to only daughters, but young Chinese women still face disadvantages; the other implicit advantage of being the only daughter of the family is not overwhelmingly large enough to fully close the gender gap in the labor market. On the other hand, only daughters seem to be more active in the marriage market at earlier stages of life compared to their male counterparts, while only sons tend to be the opposite. Additional to other better-known social challenges related to inequality in China, inequality between men and women might still be another dimension that needs to be further resolved.

In terms of social inequality, there is another concern that may arise from these results. Only daughters being more educated, and at the same time being more active in searching for potential spouses, implies how assortative mating might become another obstacle to promoting intergenerational mobility; education is used as a signaling device for match-making, thus strengthening polarization between social classes. If inequality is inherited through education, such an intergenerational channel becomes harder to correct with classical policy tools, such as corrective property tax. The recent education reform taking place in China

might be an attempt to intervene in the inequality in education and invigorate intergenerational mobility, possibly altering the demographic structure through fertility as well. It is yet too early to assess the efficacy of the attempt, but some impacts are needed to ameliorate the multi-layered inequality pattern faced by the younger generation in China. [KIEP](#)