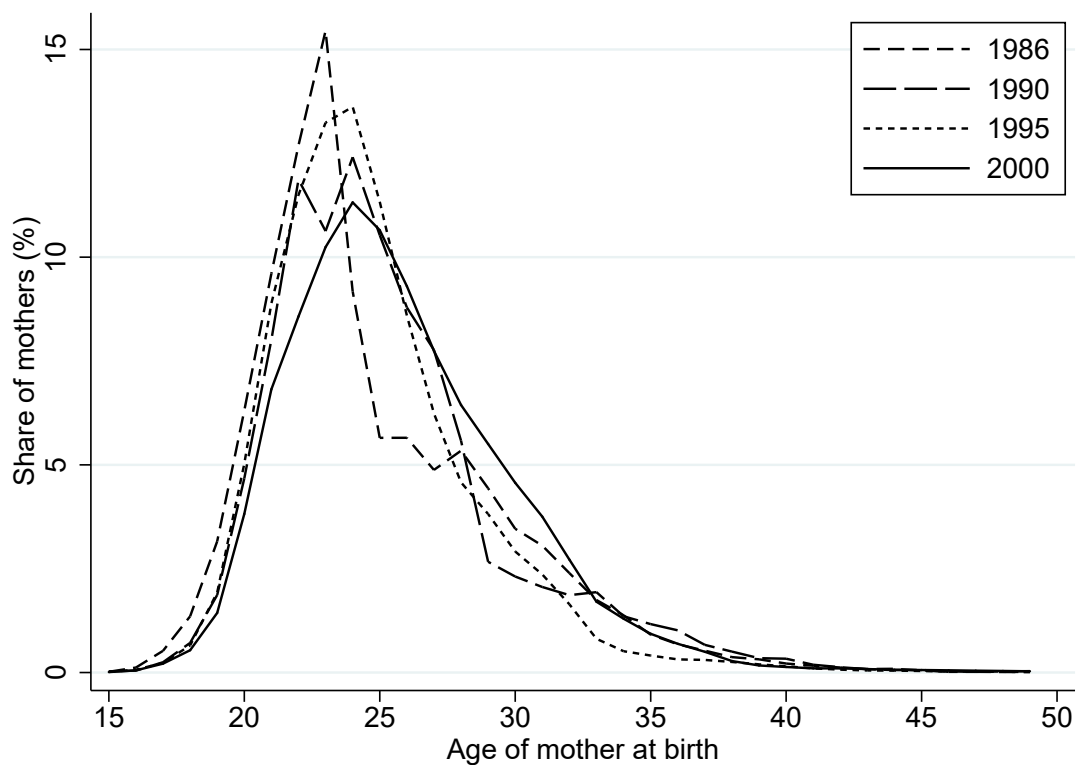


Family Size and Children's Education:
Evidence from the One-Child Policy in China

Online Supplementary Materials

Appendix A: Figures and Tables Cited in the Main Text

FIGURE A-1: Share of mothers giving birth by age of mother at birth, various years



Data source: China Population Statistics Yearbook (1988, 1991, 1996), and Tabulation on the 2000 Population Census of China. Own calculation.

Notes: This figure shows the share of mothers giving birth by age of mother at birth in 1986, 1990, 1995, and 2000.

TABLE A-1: OCP regulations and exemptions

Province	Regulation	Date of Release	Date of Implementation
Beijing	Interim Provisions of Beijing on Population and Family Planning	10/12/1979	11/01/1979
	Regulations of Beijing on Population and Family Planning	01/15/1991	06/01/1991
	Regulations of Beijing on Population and Family Planning (revision)	05/14/1999	05/14/1999
Tianjin	Document 6 (1979)	--/--/1979	--/--/1979
	Document 85 (1979)	--/--/1979	--/--/1979
	Decision on Encouraging late childbearing and Controlling the Second Birth	04/17/1981	04/17/1981
	Regulations of Tianjin on Population and Family Planning	11/02/1988	01/01/1989
	Regulations of Tianjin on Population and Family Planning (revision)	03/09/1993	03/09/1993
	Regulations of Tianjin on Population and Family Planning (revision)	04/15/1994	07/01/1994
	Regulations of Tianjin on Population and Family Planning (revision)	07/30/1997	07/30/1997
Hebei	Document 122 (1979)	07/--/--/1979	07/--/--/1979
	Interim Provisions of Hebei on Family Planning	04/05/1982	05/01/1982
	Report of Conference on Family Planning in Hebei	08/04/1984	08/04/1984
	Regulations of Hebei on Population and Family Planning	03/20/1989	03/20/1989
	Regulations of Hebei on Population and Family Planning (1st revision)	09/02/1994	09/02/1994
	Regulations of Hebei on Population and Family Planning (2nd revision)	09/03/1997	09/03/1997
Shanxi	Interim Provisions of Shanxi on Family Planning	09/07/1979	10/01/1979
	Provisions of Shanxi on Family Planning	06/29/1982	12/01/1982
	Notice on the Implementation of "Provisions of Shanxi on Family Planning"	11/28/1986	01/01/1987
	Regulations of Shanxi on Population and Family Planning	09/22/1989	01/01/1990
	Regulations of Shanxi on Population and Family Planning (revision)	04/06/1999	10/01/1999
Inner Mongolia	Document 143 (1982)	06/15/1982	06/15/1982
	Interim Provisions of Inner Mongolia on Population and Family Planning	12/08/1988	12/08/1988
	Regulations of Inner Mongolia on Population and Family Planning	10/15/1990	10/15/1990
	Regulations of Inner Mongolia on Population and Family Planning (1st revision)	11/17/1995	11/17/1995
	Regulations of Inner Mongolia on Population and Family Planning (2nd revision)	11/29/1999	11/29/1999
Liaoning	Document 131 (1979)	06/16/1979	06/16/1979
	Supplementary Provisions on Issues of Family Planning	04/03/1980	04/03/1980
	Supplementary Provisions on Issues of Family Planning	06/24/1982	06/24/1982
	Opinions on Improving Regulations on Population and Family Planning	--/--/1985	--/--/1985
	Regulations of Liaoning on Population and Family Planning	05/28/1988	05/28/1988
	Regulations of Liaoning on Population and Family Planning (1st revision)	09/25/1992	09/25/1992
	Regulations of Liaoning on Population and Family Planning (2nd revision)	09/27/1997	09/27/1997

TABLE A-1: OCP regulations and exemptions (cont'd)

Province	Regulation	Date of Release	Date of Implementation
Jilin	Document 299 (1979)	09/26/1979	09/26/1979
	Document 111 (1984)	08/18/1984	08/18/1984
	Interim Provisions on Family Planning	04/20/1985	05/01/1985
	Regulations of Jilin on Population and Family Planning	07/21/1988	07/21/1988
	Regulations of Jilin on Population and Family Planning (revision)	09/11/1993	10/01/1993
Heilongjiang	Regulations of Jilin on Population and Family Planning (revision)	11/14/1997	11/14/1997
	Document 263 (1979)	--/--/1979	--/--/1979
	Notice on Accelerating Economic and Cultural Construction in Minority Areas	--/--/1981	--/--/1981
	Document 10 (1983)	--/--/1983	--/--/1983
	Regulations of Heilongjiang on Population and Family Planning	12/13/1989	02/01/1990
Shanghai	Regulations of Heilongjiang on Population and Family Planning (revision)	05/21/1994	07/01/1994
	Regulations of Heilongjiang on Population and Family Planning (revision)	12/18/1999	02/01/2000
	Provisions on Family Planning	09/01/1979	09/01/1979
	Regulations of Shanghai on Population and Family Planning	10/11/1990	10/11/1990
	Regulations of Shanghai on Population and Family Planning (revision)	08/02/1993	09/01/1993
Jiangsu	Regulations of Shanghai on Population and Family Planning (revision)	10/30/1996	10/30/1996
	Interim Provisions on Family Planning	07/31/1979	07/31/1979
	Regulations of Jiangsu on Population and Family Planning	10/28/1990	10/28/1990
	Regulations of Jiangsu on Population and Family Planning (revision)	06/16/1995	06/16/1995
	Regulations of Jiangsu on Population and Family Planning (revision)	07/31/1997	07/31/1997
Zhejiang	Document 108 (1979)	--/--/1979	--/--/1979
	Interim Regulations of Zhejiang on Population and Family Planning	03/04/1982	03/04/1982
	Regulations of Zhejiang on Population and Family Planning	02/04/1985	02/04/1985
	Regulations of Zhejiang on Population and Family Planning (revision)	12/29/1989	01/03/1990
	Regulations of Zhejiang on Minority Population and Family Planning	09/11/1990	09/15/1990
Anhui	Regulations of Zhejiang on Population and Family Planning (revision)	09/28/1995	09/28/1995
	Document 38 (1979)	04/09/1979	04/09/1979
	Interim Provisions of Anhui on Implementing Family Planning	05/09/1981	05/09/1981
	Regulations of Anhui on Population and Family Planning	08/17/1984	12/01/1984
	Regulations of Anhui on Population and Family Planning (revision)	10/31/1988	12/01/1988
Fujian	Regulations of Anhui on Population and Family Planning (revision)	08/30/1992	08/30/1992
	Document 32 (1979)	06/01/1979	06/01/1979
	Notice on Family Planning Work	03/08/1982	03/08/1982
	Interim Provisions of Fujian on Minority Family Planning	07/14/1984	07/14/1984
	Regulations of Fujian on Population and Family Planning	04/29/1988	07/01/1988
	Regulations of Fujian on Population and Family Planning (revision)	06/28/1991	07/10/1991

TABLE A-1: OCP regulations and exemptions (cont'd)

Province	Regulation	Date of Release	Date of Implementation
Jiangxi	Several Provisions of Jiangxi on Family Planning (trial)	04/24/1981	04/24/1981
	Interim Provisions of Jiangxi on Problems of Family Planning Work	01/18/1983	01/18/1983
	Interim Provisions of Jiangxi on Problems of Family Planning Work (revision)	11/04/1985	11/04/1985
	Regulations of Jiang on Population and Family Planning	06/16/1990	09/01/1990
	Regulations of Jiang on Population and Family Planning (revision)	06/30/1995	09/01/1995
	Regulations of Jiang on Population and Family Planning (revision)	06/20/1997	20/06/1997
Shandong	Interim Provisions of Shandong on Family Planning	03/31/1980	03/31/1980
	Interim Provisions of Shandong on the Second Birth	05/10/1984	05/10/1984
	Regulations of Shandong on Population and Family Planning	07/20/1988	07/23/1988
	Regulations of Shandong on Population and Family Planning (revision)	10/14/1996	10/14/1996
Henan	Interim Provisions of Henan on Family Planning	07/-/-/1981	07/-/-/1981
	Regulations of Henan on Population and Family Planning	04/12/1990	07/01/1990
Hubei	Document 140 (1979)	09/-/-/1979	09/-/-/1979
	Document 82 (1981)	06/13/1981	06/13/1981
	Document 33 (1984)	07/26/1984	07/26/1984
	Regulations of Hubei on Population and Family Planning	12/19/1987	03/01/1988
	Regulations of Hubei on Population and Family Planning (revision)	12/01/1991	12/01/1991
	Regulations of Hubei on Population and Family Planning (revision)	03/28/1997	03/28/1997
Hunan	Document 58 (1979)	05/26/1979	05/26/1979
	Provisions of Hunan on Family Planning	05/10/1982	05/10/1982
	Document 20 (1987)	06/06/1987	06/06/1987
	Regulations of Hunan on Population and Family Planning	12/03/1989	01/01/1990
	Regulations of Hunan on Population and Family Planning (revision)	08/03/1999	08/03/1999
Guangdong	Regulations of Guangdong on Population and Family Planning	02/02/1980	02/02/1980
	Regulations of Guangdong on Population and Family Planning (revision)	05/17/1986	06/01/1986
	Regulations of Guangdong on Population and Family Planning (revision)	12/24/1992	12/24/1992
	Regulations of Guangdong on Population and Family Planning (revision)	09/18/1998	09/18/1998
Guangxi	Provisions of Guangxi on Problems of Family Planning Work	11/06/1979	11/06/1979
	Interim Provisions of Guangxi on Family Planning	11/25/1982	11/25/1982
	Regulations of Guangxi on Population and Family Planning	09/17/1988	01/01/1989
	Regulations of Guangxi on Population and Family Planning (revision)	11/26/1994	11/26/1994
Hainan	Regulations of Hainan on Population and Family Planning	03/11/1989	10/09/1989
	Regulations of Hainan on Population and Family Planning (revision)	11/25/1995	11/25/1995

TABLE A-1: OCP regulations and exemptions (cont'd)

Province	Regulation	Date of Release	Date of Implementation
Chongqing	Regulations of Chongqing on Population and Family Planning	09/13/1997	01/01/1998
Sichuan	Document 177 (1980)	08/04/1980	08/04/1980
	Document 64 (1984)	07/01/1984	07/01/1984
	Regulations of Sichuan on Population and Family Planning	07/02/1987	07/02/1987
	Regulations of Sichuan on Population and Family Planning (revision)	12/15/1993	12/15/1993
Guizhou	Regulations of Sichuan on Population and Family Planning (revision)	10/17/1997	10/17/1997
	Interim Provisions of Guizhou on Family Planning	06/16/1979	06/16/1979
	Interim Provisions of Guizhou on Family Planning (Revision)	03/15/1982	03/15/1982
	Trial Regulations of Guizhou on Family Planning	07/16/1987	01/01/1988
Yunnan	Regulations of Guizhou on Population and Family Planning	07/24/1998	07/24/1998
	Document 157 (1979)	-/-/-/1979	-/-/-/1979
Tibet	Regulations of Yunnan on Population and Family Planning	12/22/1990	04/01/1991
	Interim Provisions of Tibet on Family Planning	05/08/1992	05/08/1992
Shaanxi	Document 101 (1979)	07/01/1979	07/01/1979
	Interim Provisions of Shaanxi on Family Planning	04/30/1981	05/01/1981
	Regulations of Shaanxi on Population and Family Planning	07/25/1986	07/31/1986
	Regulations of Shaanxi on Population and Family Planning (revision)	03/03/1991	03/03/1991
Gansu	Regulations of Shaanxi on Population and Family Planning (revision)	08/02/1997	08/02/1997
	Document 152 (1979)	07/14/1979	07/14/1979
	Document 105 (1982)	03/16/1982	03/16/1982
	Interim Provisions of Gansu on Minority Family Planning	02/05/1985	02/05/1985
Qinghai	Regulations of Gansu on Population and Family Planning	11/28/1989	01/01/1990
	Regulations of Gansu on Population and Family Planning (revision)	09/29/1997	09/29/1997
	Interim Provisions of Qinghai on Family Planning	05/31/1982	05/31/1982
	Regulations of Qinghai on Population and Family Planning	04/17/1986	04/17/1986
Ningxia	Regulations of Qinghai on Population and Family Planning (revision)	02/28/1992	04/01/1992
	Interim Regulations of Ningxia on Family Planning	08/18/1982	08/18/1982
	Interim Provisions of Ningxia on Family Planning	08/28/1986	08/28/1986
	Regulations of Ningxia on Population and Family Planning	12/28/1990	01/15/1991
Xinjiang	Interim Provisions of Xinjiang on Minority Family Planning	04/23/1988	07/01/1988
	Regulations of Xinjiang on Population and Family Planning	08/15/1991	07/01/1992

Notes: Dates of release and dates of implementation are reported in month/day/year format. Regulations that are irrelevant for our analysis are not listed.

Appendix B: The Importance of Different Household Characteristics and OCP Regulations and Exemptions for OCP Coverage

This appendix provides information on the frequency distribution of Chinese households in our 2000 census data that have been more, respectively less, subjected to OCP fertility restrictions during the prime fertility years of mothers. Table B-1 tabulates, for all households in which mothers are aged 35 to 50 in the census year 2000, the respective fractions of households (in percent) that have been subjected to OCP restrictions zero to fifteen years during mothers' prime fertility years.¹ In the literature, two pieces of household information and corresponding exemption clauses are often used to construct a household policy variable for OCP coverage, household ethnicity and household Hukou type (or agricultural background) (Qian, 2009; Li et al., 2011; Liu, 2014). Table B-1 considers first each of these dimensions in isolation for defining a measure of the OCP coverage of households (in columns (2) and (3)) and then compares the two resulting distributions of OCP coverage intensity across households² to the distribution that results when information on both of these household characteristics and respective province-level OCP introductory dates and exemptions are considered (column (4)). In this way, one can gauge the respective importance of each of these two dimensions for obtaining a suitable measure of the actual OCP coverage of households in empirical applications. Two major findings emerge from Table B-1. First, the distribution of OCP coverage intensity for *mother agricultural* in column (3), which uses only information on household agricultural Hukou status and exemption regulations for such type of households, is very close to the coverage distribution in column (4) that results when one uses "full" (i.e. *complete*) household and policy exemption information. The distribution for *mother minority* that results when only information on household ethnicity and corresponding exemption regulations are considered (column (2)) differs in contrast quite markedly from the one in column (4). These findings may come at little surprise, given that 80% of the Chinese population has an agricultural background, but only 10% is from a minority. Information on the agricultural Hukou status of households, but not information on their ethnicity, is hence indispensable for constructing a measure of household OCP coverage that does justice to the actual OCP restrictions faced by the overwhelming majority of the Chinese population. Second, about 44% of households are classified as being covered

¹Households in which a child was born before 1965 are dropped to exclude potential adoptees and stepchildren and avoid other forms of measurement error in the number of children.

²Both of these distributions take into account province-specific introductory dates of OCP regulations as well as respective exemptions of relevance for the particular dimension considered.

by OCP restrictions throughout the entire fifteen years of female prime fertility, when only information on household ethnicity and corresponding OCP exemptions are considered (see last-but-one entry in column (2)). This figure is more than twice as large as the corresponding figure for the complete measure of OCP coverage (column (4)). Taken together, both findings illustrate that severe mis-measurement (i.e. mis-classifications) may result when household agricultural Hukou information is disregarded even though full use is made of the information we collected on province-specific OCP introductory dates and respective household exemptions from OCP regulations.

TABLE B-1: Sources of OCP coverage and exemptions at household level (in %)

Fertile years: (1)	Source of exemption:		
	mother minority (2)	mother agricultural (3)	complete (4)
0	2.76	6.58	7.85
1	0.37	2.00	2.18
2	0.79	3.05	3.53
3	0.29	3.39	3.44
4	1.52	6.33	6.25
5	2.38	10.18	9.78
6	3.85	12.14	11.82
7	4.70	10.90	10.61
8	5.34	4.88	4.78
9	5.51	5.42	5.32
10	5.64	3.17	3.12
11	6.00	3.29	3.21
12	5.94	2.75	2.71
13	5.41	2.60	2.56
14	5.14	2.62	2.57
15	44.34	20.70	20.29
	100.00	100.00	100.00

Notes: The table shows the respective fractions of households (in percent) that have been subjected to OCP restrictions zero to fifteen years (column 1) during mothers' prime fertility years for all households in the census year 2000 in which mothers are aged 35 to 50 and no child is older than 35. Columns (2) and (3) construct measures of OCP coverage of households using only ethnicity information, respectively agricultural Hukou information. Column (4) provides an encompassing measure of OCP coverage that uses information on both ethnicity and agricultural Hukou.

OCP treatment measures used in the literature, however, are dichotomous (not continuous) and ignore the heterogeneity in the introduction and modification of OCP regulations at provincial level as well as the variation across households (in calendar time) in the female fertile life span, given their focus on children instead of mothers to define OCP treatment. To assess the performance of such dichotomous measures, we generate different dummy variables for OCP treatment, based on child characteristics, that ignore provincial variations in OCP policy regulations and exemptions. The first such binary, *child minority*, equals

1 if a child was born after 1979 and is of Han ethnicity, and 0 otherwise. This treatment indicator hence only takes ethnicity and year of birth information of children into account and considers all children born after 1979 that are of Han ethnicity to be from households that are always covered by OCP regulations.³ The second dummy variable we construct, *child agricultural*, takes value 1 if a child was born after 1979 and has a non-agricultural background, and 0 otherwise, i.e. this indicator considers all non-agricultural children born after 1979 to come from households that are always restricted in their fertility by OCP regulations. Finally, we combine both of these measures in a third binary variable, *child minority agricultural*, which is equal to 1 if a child was born after 1979, is of Han ethnicity, and has a non-agricultural background (and 0 otherwise). Mothers of such children are hence considered to be subjected to OCP restrictions during their entire fertile years. We tabulate in Table B-2 correlation coefficients between these child-based dichotomous measures of OCP treatment and the afore-used continuous mother-based (but restricted) OCP treatment variables *mother minority* and *mother agricultural* (now assigned to each child), as well as our encompassing mother-based OCP treatment intensity measure *complete* (again now assigned to each child) that takes full account not only of mothers' fertile span of age, but also the complex structure of time-varying OCP regulations and exemptions for mothers with an agricultural background and/or ethnic minority status. The picture that emerges from these correlations is clear. Dichotomous single-dimension child-based measures of OCP treatment (*child minority* and *child agricultural*) correlate not only far from perfectly with their respective mother-based equivalent measures of OCP treatment intensity that do take females' fertile span of age into account. What is more important, they correlate even less, and far less, with our mother-based encompassing measure of OCP treatment intensity that takes full account of mothers' fertile span of age, ethnicity, and agricultural background, as well as provincial OCP regulations and exemptions that restricted female fertility. This also holds true for the dichotomous measure *child minority agricultural* which makes use of both agricultural Hukou and ethnicity information. In short, the disregard of the complex conglomerate of OCP rules and exemptions in dichotomous restricted child-based OCP treatment variables in use in the literature gives rise to severe mis-measurement of the actual degree to which women were restricted in their fertility behavior by the OCP. Such mis-measurement may entail significant bias.

³This dummy variable is identical to *born1979 Han* discussed in Section 4.1.

TABLE B-2: Correlations between dichotomous and continuous OCP treatment variables for children

	mother minority	mother agricultural	complete
child minority	0.5852		0.2319
child agricultural		0.4784	0.4519
child minority agricultural			0.4735

Notes: The table tabulates correlation coefficients between different measures of OCP coverage. The continuous variable *mother minority* considers the fertile age span of mothers and information on provincial OCP introduction dates and exemptions for ethnic minorities (see Table 1), and the continuous variable *mother agricultural* the fertile age span of mothers and information on provincial OCP introduction dates and exemptions for mothers with an agricultural background. The continuous variable *complete* makes full use of information on the fertile age of mothers and province-specific OCP regulations and exemptions (i.e. the OCP measure we designed and use in our later analysis). *child minority* is an indicator variable that takes value 1 if a child was born after 1979 and is of Han ethnicity (and 0 otherwise). *child agricultural* is an indicator variable that equals 1 if a child was born after 1979 and has a non-agricultural background (and 0 otherwise). Finally, *child minority agricultural*, is an indicator variable that takes value 1 if a child was born after 1979, is of Han ethnicity, and has an agricultural background (and 0 otherwise).

Appendix C: Examples on the Construction of the Policy Variable

Using the information on the OCP regulations and exemptions shown in Table 1 and the construction formula of the policy variable discussed in Section 3.2, other researchers can generate this new and continuous OCP measure if they have access to data on females' birth year, residence place (province), ethnicity and Hukou type (agricultural or non-agricultural), which are usually available from census or survey data for China. Now, we show some examples about how this variable can be exactly generated.

Example 1: Woman *A* was born in 1955 in Beijing. She is Manchu (ethnic minority with a national population more than 10 million) and has an agricultural Hukou. She entered fertile age in 1976, three years before the introduction of the OCP in Beijing. There were no exemptions for minority and agricultural women from Beijing. Therefore, during *A*'s prime fertile age (21–35), she was not covered by the OCP for three years (1976–1978) and subject to the policy for 12 years (1979–1990). The share of fertile years constrained by the OCP is 0.8 ($= 12/15$). In our analysis, all her children are assigned with the same value of the OCP coverage intensity, because they are from the same household.

Example 2: Woman *B* was born in 1955 in Heilongjiang. She belongs to an ethnic group that has a national population less than 10 million, and has a non-agricultural Hukou. She entered fertile age in 1976, three years before the introduction of the OCP in Heilongjiang. There were exemptions for minority people from 1981 to 2000. Therefore, during *B*'s prime fertile age (21–35), she was not covered by the OCP for 13 years (1976–1978 and 1981–1990) and subject to the policy for two years (1979–1980). For *B*, the share of fertile years constrained by the OCP is 0.133 ($= 2/15$).

Example 3: Woman *C* was born in 1955 in Shandong. She is Han, and has an agricultural Hukou. She entered fertile age in 1976, four years before the introduction of the OCP in Shandong. There were exemptions for agricultural people from 1986 to 2000. During her prime fertile age (21–35), she was not covered by the OCP for nine years (1976–1979 and 1986–1990) and subject to the policy for six years (1980–1985). Therefore, the share of fertile years constrained by the OCP is 0.4 ($= 6/15$). According to the enlarged prime fertile age (21–40), she was not covered by the OCP for 14 years (1976–1979 and 1986–1995) and subject to the policy for six years (1980–1985). So the share of fertile years constrained by the OCP is 0.3 ($= 6/20$).

The STATA dofile “Policy variable.do” provides detailed codes on how to generate this variable.

Appendix D: Other Robustness Checks

In the main text we discussed several robustness checks, i.e. the restriction of the estimation sample to different sub-groups of children (first borns, respectively younger children) and its extension to children of mothers of any ethnicity (Han and non-Han). In this appendix, we introduce three other robustness checks.

Excluding mothers who no longer live in province of birth

As argued in Section 3.4, preference-driven selective migration of mothers to provinces less stringent in OCP regulations poses a potential threat to identification in our regression setup. The scale of any such endogenous cross-province migration in our data, however, if indeed present at all, is quite limited at best. For only 3.6% of children in our estimation sample are from households with mothers who, at the time of the census in the year 2000, no longer reside in the province in which they were born. Nevertheless, as a robustness check, we re-estimated our baseline model of column (6) in Table 3, excluding from the estimation sample children of mothers who reside in a province that is not their province of birth. Compared to our baseline results, however, the estimated coefficient on siblings size remains negative, statistically significant, and of similar magnitude (see column (2) in Table D-1). This suggests that our results do not suffer from potential bias caused by preference-driven selective endogenous migration of mothers to provinces that are less stringent in their OCP regulations.

Excluding mothers who are never and/or fully constrained by the OCP

Mothers who are never or fully covered by OCP fertility restrictions during their fertile years may be different from mothers who are subjected at least partially to such restrictions.⁴ Our estimation sample, however, includes all mothers, irrespective of their degree of exposure to (the treatment of) the OCP. As a consequence, the second-stage coefficient estimate on child quantity (number of siblings) captures an average effect across all women that exploits variation in OCP coverage both at the extensive and intensive margin. Mothers who are never or fully covered by OCP fertility restrictions during their fertile years, however, are not exposed to any variation in policy when fertile. Treatment (full coverage) and no treatment (no coverage at all) of these mothers is hence exclusively determined by a combination of province of residence and age, a combination that may have a direct effect on child education,

⁴In our estimation sample, 4.08% of households (accounting for 4.14% of all children) are never covered by the OCP, while 7.21% of households (housing 5.76% of all children) are fully covered by OCP fertility restrictions.

TABLE D-1: 2SLS estimates of the effect of sibling size on the post-compulsory education of a child in households with mothers still residing in their province of birth

	Baseline	No Change in Province of Residence
	(1)	(2)
2nd stage		
number of siblings	−0.17*** (0.04)	−0.18*** (0.04)
1st stage		
OCP	−0.33*** (0.04)	−0.32*** (0.04)
mother age	Yes	Yes
province dummies	Yes	Yes
mother education	Yes	Yes
father education	Yes	Yes
child age	Yes	Yes
F-statistic	68.10	64.84
mean of child quality	0.1524	0.1528
observations	67,953	65,513

Notes: Column (1) reproduces our baseline results from column (6) in Table 3. Column (2) reports results from re-estimating our baseline model of column (6) in Table 3 for a restricted sample of children whose mothers still live in their respective province of birth. The dependent variable in the second stage of the 2SLS regressions is a binary indicator for the enrollment in (or completion of) post-compulsory education of a child. The dependent variable in the first stage of the 2SLS regressions is the number of siblings of a child. All regressions control for mother age in three groups (35-40, 41-45, 46-50), province fixed effects, post-compulsory education of mothers and fathers, and child age in five groups (15-19, 20-23, 24-27, 28-31, 32-35). *, **, *** denote statistical significance at the 10%, 5% and 1% level. Standard errors are clustered at the household level and reported in parentheses.

invalidating our instrument.

To gauge the relevance of such concerns, we re-estimated our baseline 2SLS specification of column (6) in Table 3 using three different restricted estimation samples. The first excludes mothers who were never covered by the OCP during their fertile years, the second excludes mothers who were completely covered by OCP restrictions during their fertile years, and the third excludes mothers who were either never or fully covered.⁵ Table D-2 reports estimates from these regressions of our two key coefficients, the first-stage coefficient on our IV and the second-stage coefficient on our child quantity measure. As is evident, both are still negatively signed and highly statistically significant. The first-stage coefficient estimate of our IV turns out even somewhat larger in absolute magnitude when we drop households that are fully covered by the OCP during mothers' prime fertility years.

⁵The first of these restricted samples of mothers only considers variation in the intensity of OCP coverage across mothers who are ever covered by the OCP.

TABLE D-2: 2SLS estimates of the effect of sibling size on the post-compulsory education of a child by degree of OCP coverage of households

	Baseline	OCP $\in(0,1]$	OCP $\in[0,1)$	OCP $\in(0,1)$
	(1)	(2)	(3)	(4)
2nd stage				
number of siblings	-0.17*** (0.04)	-0.18*** (0.04)	-0.18*** (0.04)	-0.21*** (0.04)
1st stage				
OCP	-0.33*** (0.04)	-0.34*** (0.04)	-0.43*** (0.05)	-0.45*** (0.05)
mother age	Yes	Yes	Yes	Yes
province dummies	Yes	Yes	Yes	Yes
mother education	Yes	Yes	Yes	Yes
father education	Yes	Yes	Yes	Yes
child age	Yes	Yes	Yes	Yes
F-statistic	68.10	73.29	67.26	69.15
mean of child quality	0.1524	0.1530	0.1505	0.1511
observations	67,953	65,139	64,036	61,222

Notes: Column (1) reproduces our baseline results from column (6) in Table 3. Columns (2) to (4) report results from re-estimating our baseline model of column (6) in Table 3 for different restricted estimation samples. Column (2) excludes mothers (and their children) from the estimation sample that are never restricted by the OCP during their prime fertility years, column (3) excludes mothers that are throughout (fully) restricted during their years of prime fertility, and column (4) excludes mothers that are either never or fully restricted by OCP fertility regulations. The dependent variable in the second stage of the 2SLS regressions is a binary indicator for the enrollment in (or completion of) post-compulsory education of a child. The dependent variable in the first stage of the 2SLS regressions is the number of siblings of a child. All regressions control for mother age in three groups (35-40, 41-45, 46-50), province fixed effects, post-compulsory education of mothers and fathers, and child age in five groups (15-19, 20-23, 24-27, 28-31, 32-35). *, **, *** denote statistical significance at the 10%, 5% and 1% level. Standard errors are clustered at the household level and reported in parentheses.

Prime fertility age 21-40 and mothers older than 40

Our baseline estimation sample covered children of post-compulsory schooling age (fifteen years or older) of mothers who are aged at least 35 at the time of the 2000 census. Furthermore, we assumed women to be of prime fertility age between 21 and 35. In two further sensitivity tests, we probed the robustness of our findings to variations in these ranges, i.e. in the minimum age of mothers (on the census date) for considering them in the analysis, and in the upper age limit for defining the prime fertile age span of a woman.

First, and maintaining our definition of female prime fertile age (i.e. 21–35), we restricted our focus to children of mothers who are 40 years of age or older on the census date (instead of 35, as in our baseline setting). By keeping the 15-year fertility age span unchanged, the measure of individual OCP treatment intensity of mothers remains identical to the one we used in our baseline specification. Considering older mothers (as of the census date), reduces sample size from 67,953 to 55,304. Re-estimating our baseline model on this smaller sample produces an estimated effect of OCP coverage intensity on sibling size that is still negative

and even larger in magnitude than our baseline first-stage estimate reported in column (6) of Table 3 (see column (2) in Table D-3). The second-stage result still indicates a sizable trade-off between sibling size and the post-compulsory education of a child. The likelihood of a child to be enrolled in (or have completed) post-compulsory education increases by $-0.70 \times (-0.11) = 0.077$ percentage points if OCP coverage intensity of a mother changes from 0 (no coverage) to 1 (complete coverage). This is a sizable effect, given that the share of children in our estimation sample with some post-compulsory education is only 0.162.

TABLE D-3: 2SLS estimates of the effect of sibling size on the post-compulsory education of a child for prime fertility age 21-40 and mothers older than 40

	Baseline	Mothers Aged 40 ⁺	Mothers Aged 40 ⁺ & Fertile Age 21-40
	(1)	(2)	(3)
2nd stage			
number of siblings	-0.17*** (0.04)	-0.11*** (0.03)	-0.17*** (0.04)
1st stage			
OCP	-0.33*** (0.04)	-0.70*** (0.07)	-0.70*** (0.09)
mother age	Yes	Yes	Yes
province dummies	Yes	Yes	Yes
mother education	Yes	Yes	Yes
father education	Yes	Yes	Yes
child age	Yes	Yes	Yes
F-statistic	68.10	110.91	63.38
mean of child quality	0.1524	0.1621	0.1621
observations	67,953	55,304	55,304

Notes: Column (1) reproduces our baseline results from column (6) in Table 3. Columns (2) and (3) report results from re-estimating our baseline model of column (6) in Table 3. Column (2) considers children of mothers who are 40 years of age or older on the census data (instead of 35, as in our baseline setting), while maintaining the 15-year fertility age span and the baseline measure of mothers' OCP coverage intensity. Column (3) expands, in addition, the maximum number of years considered for defining the prime fertile age span of mothers from 15 to 20, adjusting also our measure of mothers' OCP coverage intensity in line with this change. The dependent variable in the second stage of the 2SLS regressions is a binary indicator for the enrollment in (or completion of) post-compulsory education of a child. The dependent variable in the first stage of the 2SLS regressions is the number of siblings of a child. All regressions control for mother age in three groups (35-40, 41-45, 46-50), province fixed effects, post-compulsory education of mothers and fathers, and child age in five groups (15-19, 20-23, 24-27, 28-31, 32-35). *, **, *** denote statistical significance at the 10%, 5% and 1% level. Standard errors are clustered at the household level and reported in parentheses.

Second, and in addition to considering only women who are 40 years or older on the census date (as in column (2) of Table D-3), we expanded also the maximum number of years we consider for defining the prime fertile age span of a mother from 15 to 20 years. Considering women to be of prime fertility when aged 21 to 40, we also adjusted in line with this change our measure of mothers' OCP coverage intensity. Although still bounded between zero and one, its value for a particular woman may now be different, as we expanded the years in which women are considered fertile. Re-estimating our baseline 2SLS specification of column (6) in Table 3 produces results that are qualitatively identical to those of our baseline

model (see column (3) in Table D-3). The estimated first-stage coefficient on our IV and the estimated second-stage coefficient on our child quantity measure are both still negatively signed and highly statistically significant. As in column (2) of Table D-3, the first-stage coefficient estimate of our IV turns out considerably larger in absolute magnitude than in our baseline specification. The estimated second-stage coefficient of sibling size, however, is again very close in value to our baseline estimate.