ORIGINAL MANUSCRIPTS

Spousal Bargaining Over Care for Elderly Parents in China: Imbalances in Sex Ratios Influence the Allocation of Support

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Online Appendix

1. Collective Model with Support for Elderly Parents

In the collective model (Chiappori, 1988, 1992), household bargaining takes place between two actors over the allocation of household income Y to individual private consumption q_h and q_w, and a public good Q, with a vector of prices p. A common form of private consumption is individual leisure, L_h and L_w. An example of a public good is children's wellbeing.

Assuming each spouse has one elderly parent, we include the utility of one's elderly parent as an additional exclusively consumed good. Thus, each spouse cares about his or her own mother but not for the spouse's parent. Indexing husband and wife with $i = h$ or w, let us assume the utility of each parent is twice continuously differentiable, strictly increasing, and strictly concave in q_m^i, her private consumption; q_i, her child's individual consumption; L_i, her child's amount of leisure time; and c_i, the amount of time her child spends supporting her net of any support she provides to her child, such as grandchild care, which can be positive or negative. For example, parents often take care of grandchildren. Spouse utility is then $U_i(q_i, L_i, U_m^i(q_m^i, c_i, q_i, L_i), Q)$.

Husband and wife allocate household income to the consumption bundle $\{q_h, q_w, L_h, L_w, c_h, c_w, q_m^h, q_m^w, Q\}$. Let total household income (Y) equal the sum of spouse income y_h and y_w, and when the couple lives with the husband's mother ($j = t$), her income y_m^h. Otherwise, when the couple lives on their own ($j = a$), the husband's mother does not pool her income with theirs. In China, because it is rare for the wife's parents to live with the couple, this possibility is not modelled.

Since the husband's mother only pools her income with the couple's when she lives with them, her participation constraint is only relevant in this circumstance ($j = t$). Her utility from living with her son and daughter-in-law, and accepting the consumption bundle they choose must be at least as great as her reservation utility $\bar{U}_m^h$, which is a function of her own income (y_m^h). Implications derived from this model are the same irrespective of whether this constraint binds.

With this participation constraint, the parent is an active decision-maker. The Lagrange multiplier on this participation constraint is equivalent to the Pareto weight in a collective model where parents also bargain with children (Ham and Song, 2014).

Predictions are derived from first order conditions on the amount of support provided to each parent (c_h and c_w). For husbands and wives, how much time to spend supporting their parents involves a trade-off between the indirect utility from providing such support and the utility from leisure or wage income, $w_h l_h$ and $w_w l_w$. Time constraints reflect this trade-off.

The central assumption of the collective model is that allocation decisions are Pareto efficient:

$$\max_{\{q_h^j, q_w^j, c_h^j, c_w^j, q_m^{hj}, q_m^{wj}, Q^j\}} U_h(q_h^j, L_h^j, U_m^h(q_m^{hj}, c_h^j, q_h^j, L_h^j), Q^j) + \mu^j(R) U_w(q_w^j, L_w^j, U_m^w(q_m^{wj}, c_w^j, q_w^j, L_w^j), Q^j) \tag{A1}$$

subject to:

$$\begin{aligned} & p(q_h^j + q_w^j + q_m^{hj} + q_m^{wj} + Q^j) \le Y^j \\ & = y_h^j + y_w^j + (D=0, j=a; D=1, j=t) \cdot y_m^h \\ & = w_h l_h^j + w_w l_w^j + (D=0, j=a; D=1, j=t) \cdot y_m^h \end{aligned} \tag{A2}$$

$$\begin{aligned} & l_h^j + L_h^j + c_h^j \le T \\ & l_w^j + L_w^j + c_w^j \le T \end{aligned} \tag{A3}$$

$$U_m^h(q_m^{ht}, c_h^t, q_h^t, L_h^t) \ge \bar{U}_m^h(y_m^h) \tag{A4}$$

The Pareto weight μ is a continuously differentiable function of spouses' non-labour incomes and distribution factors (Blundell et al., 2005). The latter influence outcomes only through the decision process and do not affect individual preferences over consumption. In this case, the distribution factor is the sex ratio at marriage (R).

For $j = a,t$, let $V^j = U_h(q_h^{j*}, L_h^{j*}, U_m^h(q_m^{hj*}, c_h^{j*}, q_h^{j*}, L_h^{j*}), Q^{j*}) + \mu^j(R^j) U_w(q_w^{j*}, L_w^{j*}, U_m^{wj*}(q_m^{wj*}, c_w^{j*}, q_w^{j*}, L_w^{j*}), Q^{j*})$,

where $\{q_h^{j*}, q_w^{j*}, L_h^{j*}, L_w^{j*} q_m^{hj*}, q_m^{wj*}, c_h^{j*}, c_w^{j*}, Q^{j*}\}$ is the optimum consumption bundle determined by the household maximisation problem for $j = a$ or t. The household then determines whether to live with the husband's mother:

$$V^* = \max\{V^a, V^t\} \tag{A5}$$

Budget and time constraints yield the full income budget constraint:

$$\begin{aligned} & p(q_h^j + q_w^j + q_m^{hj} + q_m^{wj} + Q^j) \le \\ & w_h(T - c_h^j - L_h^j) + w_w(T - c_w^j - L_w^j) + (D=0, j=a; D=1, j=t) \cdot y_m^h \end{aligned} \tag{A6}$$

This is similar to a standard set-up of the collective model. In addition to the standard results from a collective model with two exclusive goods and one public good (Blundell et al., 2005), first order conditions imply:

Proposition 1: *As a woman's bargaining power (μ^j) increases*:

(i) *Time spent supporting her husband's mother (c_h^j) declines*

and/or

(ii) *Time spent supporting her own mother (c_w^j) rises.*

Proof. With λ^j being the Lagrange multiplier on Equation (A6) and ρ being the Lagrange multiplier on Equation (A4), first order conditions on c_h^j and c_w^j imply:

$$\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^j} = \lambda^j w_h + \rho \frac{\partial U_m^h}{\partial c_h^j} \tag{A7}$$

$$\mu^j \frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^j} = \lambda^j w_w \tag{A8}$$

When $\rho = 0$, that is, the participation constraint of the husband's mother is not binding, combining these two conditions yields:

$$\frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^j}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^j}} = \mu^j \frac{w_h}{w_w} \tag{A9}$$

Equation (A9) indicates that the marginal rate of substitution (MRS) between support provided to each parent equals the ratio between the spouses' wages, weighted by μ^j.

Let us assume this MRS is functionally independent from quantities of other goods, namely, adult children's consumption, leisure, and parents' consumption. For $i = h,w$, let $U_m^i(q_m^{ij}, c_i^j, q_i^j, L_i^j) = U_m^i(c_i^j, v(q_m^{ij}, q_i^j, L_i^j))$. By definition, c_h^j and c_w^j are weakly separable from Q, and $\{q_m^{hj}, c_h^j, q_h^j, L_j^j\}$ are strongly separable from $\{q_m^{wj}, c_w^j, q_w^j, L_w^j\}$. This additional assumption of weak separability of c_i^j from q_m^{ij}, q_i^j, and L_i^j allows us to restrict the analysis to focus on c_h^j and c_w^j without examining other goods (Deaton and Muellbauer, 1980; Browning and Meghir, 1991).

Equation (A9) implies that holding wages constant, increasing μ^j would raise the numerator and/or decrease the denominator. Then, c_h^j decreases and/or c_w^j increases.

Now we show this holds when $\rho > 0$, where Equation (A7) and Equation (A8) imply:

$$\left(\frac{\frac{\partial U_m^h}{\partial c_h^j}}{\frac{\partial U_m^w}{\partial c_w^j}}\right)\left(\frac{\frac{\partial U_h}{\partial U_m^h} - \rho}{\frac{\partial U_w}{\partial U_m^w}}\right) = \mu^j \frac{w_h}{w_w}$$

The utility of each child is increasing in the utility of the child's parent, $\frac{\partial U_h}{\partial U_m^h} > 0$ and $\frac{\partial U_w}{\partial U_m^w} > 0$. Since the terms on the right-hand side (RHS) are non-negative, the RHS is non-negative, and the left-hand side (LHS) is also non-negative. As the adult child's utility is increasing in the support provided to the child's parent, $\frac{\partial U_m^h}{\partial c_h^j} > 0$ and $\frac{\partial U_m^w}{\partial c_w^j} > 0$, the first term on the LHS is positive. Since the denominator of the second term on the LHS is also positive, the numerator must be non-negative, and $\frac{\partial U_h}{\partial U_m^h} - \rho \geq 0$. Thus, $\rho \leq \frac{\partial U_h}{\partial U_m^h}$, and q_m^{ij} and q_i^j by separability. Thus, if μ^j increases, $\frac{\partial U_m^h}{\partial c_h^j}$ rises and/or $\frac{\partial U_m^w}{\partial c_w^j}$ declines. By diminishing marginal utility, this implies that c_h^j declines and/or c_w^j rises when μ^j increases. *Q.E.D*.

From Proposition 1, since μ is an increasing function of the sex ratio R, we test whether the likelihood of supporting the husband's (wife's) parents is negative (positive) with respect to R.

We also test whether R is positively related to the likelihood of couples living on their own rather than living with the husband's mother, namely:

Proposition 2: *Since the wife cares more about her mother than her husband's mother, in equilibrium, the decision to co-reside with the husband's mother is a result of the wife's lower bargaining power*:

$$\mu^a > \mu^t$$

Proof. Let us assume that time supporting the husband's mother is greater when the couple lives with her than when they live alone, and time spent supporting the wife's mother is lower when the couple lives with the husband's mother than it would be when they live on their own:

$$c_h^t > c_h^a \text{ and } c_w^t < c_w^a.$$

By diminishing marginal utility,

$$\frac{\partial U_m^h}{\partial c_h^a} > \frac{\partial U_m^h}{\partial c_h^t} \text{ and } \frac{\partial U_m^w}{\partial c_w^a} < \frac{\partial U_m^w}{\partial c_w^t}$$

Multiplying both sides by $\frac{\partial U_h}{\partial U_m^h}$ and $\frac{\partial U_w}{\partial U_m^w}$ yields:

$$\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^a} > \frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^t}$$
$$\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^a} < \frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^t}$$

Combining these inequalities:

$$\frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^a}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^a}} > \frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^t}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^t}}$$

This inequality and Equation (A9) imply:

$$\mu^a > \mu^t$$

Since this inequality holds under Equation (A9), and since Equation (A9) holds when $\rho = 0$, we have shown this inequality to hold when the participation constraint of the husband’s mother is not binding.

Now we show it also holds when $\rho > 0$. With separability, Equation (A7) and Equation (A8) imply:

$$\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^j} > \lambda^j w_h$$
$$\frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^j}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^j}} > \mu^j \frac{w_h}{w_w} \tag{A10}$$

Rearranging terms yields:

$$\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^j} > \mu^j \frac{w_h}{w_w}\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^j}.$$

Under the assumption $c_h^t > c_h^a$ and $c_w^t < c_w^a$, by diminishing marginal utility:

$$\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^t} < \frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^a} \text{ and } \frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^t} > \frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^a}$$

Combining inequalities:

$$\frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^a}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^a}} > \frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^t}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^t}} \tag{A11}$$

By Equation (A4), $\frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^a}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^a}} > \mu^a \frac{w_h}{w_w}$ and $\frac{\frac{\partial U_h}{\partial U_m^h}\frac{\partial U_m^h}{\partial c_h^t}}{\frac{\partial U_w}{\partial U_m^w}\frac{\partial U_m^w}{\partial c_w^t}} > \mu^t \frac{w_h}{w_w}$. Combining these inequalities with Equation (A5):

$$\mu^a > \mu^t$$

Since $\mu^a > \mu^t$ would hold if and only if $R^a > R^t$, we test this proposition by examining whether the partial derivative of the likelihood of the couple living with the husband's parents with respect to R is negative.

2. Tables

Table A1. Summary statistics of regressors

Variable	Obs	Mean	SD	Min	Max
Variables from Population Census					
Male sex ratio	1682	104.8	12.3	76	159
Female sex ratio	1652	104.0	11.6	70	153
Male placebo sex ratio	1325	142.3	28.3	56	242
Female placebo sex ratio	1105	132.9	27.6	54	249
Average education of women (2000)	1683	3.7	0.5	3	6
Average education of men (2000)	1653	4.0	0.5	3	6
Number of younger women	1683	261.4	200.5	12	891
Number of younger men	1669	284.3	213.0	8	1444
Number of older women	1683	209.4	161.1	12	891
Number of older men	1671	238.0	174.5	10	1190
Size of competing male cohorts	1682	2144.9	1516.0	173	7068
Size of competing female cohorts	1652	2160.3	1584.9	54	9827
Male birth cohort size	1683	241.1	179.2	17	818
Female birth cohort size	1671	243.3	188.6	4	1199
Variables from CLHLS (Elderly Respondents)					
Male respondent = 1, female respondent = 2	1690	1.5	0.5	1	2
Widowed respondent = 1	1690	0.5	0.5	0	1
Per capita annual income (ln)	1646	7.8	1.0	4	10
Urban = 1, Rural = 2	1690	1.6	0.5	1	2
Variables from Adult Child Supplement to the CLHLS (SFDC)					
Degree of famine exposure for men	1690	2.3	5.6	0	29
Degree of famine exposure for women	1690	2.3	5.5	0	29
Male year of birth	1690	1953.7	8.4	1935	1968
Female year of birth	1684	1955.9	8.4	1932	1981
Wife's mother alive = 1 (father not widowed)	1681	0.6	0.5	0	1

(*continued*)

Table A1. (*Continued*)

Variable	Obs	Mean	SD	Min	Max
Relative income difference at marriage (ln)	1597	0.5	0.9	2	8
Husband's number of older brothers	1690	0.8	1.0	0	7
Husband's number of younger brothers	1690	0.7	1.0	0	6
Husband's number of older sisters	1690	0.9	1.1	0	7
Husband's number of younger sisters	1690	0.8	1.1	0	6
Husband has no brother = 1	1690	0.2	0.4	0	1
Husband has no sister = 1	1690	0.2	0.4	0	1
Mean sex ratio of brothers (= 0 if none)	1566	77.9	47.1	0	161
Mean sex ratio of sisters (= 0 if none)	1564	82.8	43.7	0	159
Wife's number of older brothers	1682	0.9	1.0	0	7
Wife's number of younger brothers	1682	0.9	1.0	0	6
Wife's number of older sisters	1682	0.7	1.0	0	7
Wife's number of younger sisters	1682	0.8	1.0	0	8

Notes: The sample is based on matched respondents in the 2002 CLHLS and male respondents (in first marriage) in the 2002 SFDC. Population variables are based on birth year and province, and residence type, using the 1982 Chinese census. Population average education levels were derived from the 2000 census.

Table A2. Summary statistics of dependent variables

Variable	Obs	Mean	SD	Min	Max
Variables from CLHLS (Elderly Respondents)					
Elderly Talks Most Frequently to Son	1690	0.29	0.46	0	1
Son/wife are Primary Care-Providers	1689	0.63	0.48	0	1
Parent lives with adult child	1690	0.62	0.49	0	1
Per Capita Household Income	1685	5,187.09	5,779.52	200	120000
Variables from Adult Child Supplement to the CLHLS (SFDC)					
Adult Daughter (Wife) Helps Her Father	1690	0.18	0.39	0	1
Adult Son (Husband) Helps His Father	1690	0.50	0.50	0	1
Male labour supply (hours per week) (ln)	1451	3.77	0.51	0	5
Female labour supply (hours per week) (ln)	1593	3.25	0.85	1	5
Male labour supply (hours per week)	1451	48.07	18.07	1	140
Female labour supply (hours per week)	1593	32.30	24.95	0	115
Husband Completed Primary School	1690	0.82	0.38	0	1
Wife Completed Primary School	1690	0.73	0.45	0	1
Husband's Self-Reported Health	1690	1.93	0.72	1	5
Wife's Self-Reported Health	1690	2.02	0.69	1	5
Education of Husband's Father	1645	1.75	1.09	1	7
Education of Wife's Father	1593	1.64	1.10	1	7
Education of Husband's Mother	1646	1.29	0.77	1	7
Education of Wife's Mother	1588	1.31	0.81	1	7
Relative Income at Marriage	1471	1.77	3.98	0	100
Net transfers from husband's parents	790	(999.13)	2,207.29	–16100	10400
Net transfers from wife's parents	691	(729.05)	1,393.84	–14000	4900

Notes: The sample is based on matched elderly respondents in the 2002 CLHLS and male respondents in the 2002 SFDC (in their first marriages).

Table A3. Determinants of sample selection of sons into SFDC

	Sampled = 1 (Logit regressions)		
Sex Ratio	–0.005	–0.008	–0.007
	(0.007)	(0.010)	(0.009)
Avg. Female Education		–0.815*	–0.874**
		(0.431)	(0.444)
Number Younger Women		0.001*	0.001
		(0.001)	(0.001)
Number Older Women		0.002	0.002
		(0.002)	(0.002)
Size of Competing Cohorts		0.000	0.000
		(0.000)	(0.000)
Same-Sex Birth Cohort Size		0.000	–0.001
		(0.003)	(0.003)
Degree of Famine Exposure		–0.362***	0.362***
		(0.081)	(0.080)
Elderly Respondent is Widowed = 1		0.180***	–0.178***
		(0.044)	(0.037)
Elderly Respondent is Female = 1		–0.005	–0.006
		(0.048)	(0.044)
Education level: Elementary			–0.510***
			(0.197)
Education level: Jr. High School			–0.189
			(0.191)
Education level: Sr. High School			0.014
			(0.134)
Education level: Tech Secondary			0.321
			(0.260)
Education level: Junior College			0.139
			(0.243)
Education level: Undergraduate			–0.224
			(0.281)
Education level: Graduate			0.485
			(1.014)
Observations	3,481	3,481	3,472

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Robust standard errors in parentheses, clustered by urban/rural and province of birth. Additional controls include: urban/rural dummy, birth province and year fixed effects, and interaction terms between the urban/rural dummy and all fixed effects.

Table A4. Female sex ratio effects hold when controlling for matching or sibling variables

	Elderly Respondent Talks Most to Son		Son & Wife Provide Care		Wife Helps Her Father	
Female Sex Ratio	–0.014	–0.009	–0.041	–0.030	0.031	0.034
	(0.013)	(0.010)	(0.015)	(0.014)	(0.015)	(0.016)
Robust P	0.248	0.376	0.007***	0.030**	0.043**	0.032**
Wild P	0.346	0.466	0.018**	0.048**	0.112	0.084*
Age Difference Between Spouses	0.068***		0.017		0.024	
	(0.024)		(0.041)		(0.040)	
Education Difference Between Spouses	–0.037		0.027		–0.066	
	(0.062)		(0.071)		(0.059)	
Wife's Number of Older Brothers		–0.115**		0.055		–0.251***
		(0.050)		(0.064)		(0.088)
Wife's Number of Younger Brothers		0.102		0.125*		–0.009
		(0.119)		(0.073)		(0.086)
Wife's Number of Older Sisters		–0.008		0.143*		–0.146
		(0.044)		(0.076)		(0.099)
Wife's Number of Younger Sisters		–0.024		–0.124***		0.110*
		(0.068)		(0.038)		(0.064)
Number of Observations	1,476	1,606	1,471	1,602	1,345	1,508

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1 Logit regressions with robust standard errors in parentheses, clustered by urban/rural dummy and birth province. Additional covariates are included as in Model 4 in the article.

Table A5. Male sex ratio effects continue to hold when controlling for matching or sibling variables

	Elderly Respondent Talks Most to Son		Son & Wife Provide Care		Wife Helps Her Father	
Male Sex Ratio	–0.030	–0.041	–0.030	–0.027	0.040	0.034
	(0.016)	(0.021)	(0.013)	(0.015)	(0.016)	(0.013)
Robust P	0.065*	0.049**	0.025**	0.067*	0.010**	0.008***
Wild P	0.190	0.188	0.028**	0.080*	0.060*	0.072*
Age Difference Between Spouses	0.015		–0.001		0.059**	
	(0.026)		(0.032)		(0.029)	
Education Difference Between Spouses	0.010	0.054	0.008		–0.049	
	(0.053)	(0.059)	(0.058)		(0.072)	
Husband's Number of Older Brothers				0.074		–0.258*
				(0.104)		(0.156)
Husband's Number of Younger Brothers		0.129		–0.008		–0.074
		(0.115)		(0.106)		(0.081)
Husband's Number of Older Sisters		0.076		0.152***		0.027
		(0.083)		(0.054)		(0.074)
Husband's Number of Younger Sisters		–0.039		–0.039		–0.020
		(0.111)		(0.110)		(0.100)
H Has Brother*Mean Sex Ratio of H's Brothers		–0.002		–0.003		0.001
		(0.015)		(0.008)		(0.009)
H Has Sister*Mean Sex Ratio of H's Sisters		0.001		–0.004		0.001
		(0.012)		(0.009)		(0.009)
Num. Obs.	1,515	1,486	1,519	1,486	1,490	1,446

Notes: *** p < 0.01, ** p < 0.05, *p < 0.1 Logit regressions with robust standard errors in parentheses, clustered by urban/rural dummy and birth province. Additional covariates are included as in Model 4 in the article.

Table A6. Sensitivity tests: including income-related regressors does not affect estimates

	Elderly Respondent Talks Most to Son		Son & Wife Provide Care		Wife Helps Her Father	
	Male Ratio	Female Ratio	Male Ratio	Female Ratio	Male Ratio	Female Ratio
Sex Ratio	–0.027	–0.011	–0.032	–0.030	0.025	0.029
	(0.015)	(0.011)	(0.012)	(0.015)	(0.014)	(0.018)
Robust P	0.063*	0.303	0.075*	0.049**	0.073*	0.104
Wild P	0.110	0.364	0.158	0.058*	0.196	0.212
Household Income per Capita of CLHLS Respondent (ln)	0.021	0.184*	0.050	0.056	0.159	0.101
	(0.114)	(0.108)	(0.087)	(0.086)	(0.118)	(0.103)
Relative Income when 1st Married (ln)	–0.023	0.015	0.087	0.142	0.026	0.038
	(0.118)	(0.120)	(0.142)	(0.152)	(0.292)	(0.214)
Num. Observations	1,419	1,372	1,419	1,370	1,365	1,271

Notes: *** p < 0.01, ** p < 0.05, *p < 0.1 Logit regressions with robust standard errors in parentheses, clustered by urban/rural dummy and birth province. Additional covariates are included as in Model 4 in the article.

Table A7. Sensitivity tests: placebo sex ratios and different sub-samples

	Parent Talks Most to Son	Son & Wife Provide Care	Wife Helps Her Father	Parent lives with child (non-surveyed sons)
Adult Child Respondents with No Children Under Age 10				
Male Sex Ratio	–0.014	–0.035	0.048	n/a
	(0.012)	(0.016)	(0.016)	n/a
Robust P	0.252	0.026**	0.003**	n/a
Wild P	0.232	0.112	0.038**	n/a
Num. Observations	1,437	1,438	1,386	n/a
Female Sex Ratio	–0.003	–0.045	0.039	n/a
	(0.010)	(0.013)	(0.017)	n/a
Robust P	0.763	0.001***	0.026**	n/a
Wild P	0.804	0.012**	0.078*	n/a
Num. Observations	1,384	1,378	1,283	n/a
Placebo Sex Ratios				
Placebo Male Sex Ratio	0.009	0.000	0.004	0.004
	(0.006)	(0.006)	(0.005)	(0.005)
Num. Observations	1,323	1,325	1,316	1,670
Placebo Female Sex Ratio	0.005	–0.003	0.001 [a]	n/a
	(0.006)	(0.010)	(0.005)	n/a
Num. Observations	1,080	1,080	997	n/a
All observations for which the corresponding placebo ratios are non-missing				
Male Sex Ratio	–0.050	–0.028	0.025	–0.024
	(0.022)	(0.013)	(0.014)	(0.012)
Robust P	0.027**	0.024**	0.084*	0.044**
Wild P	0.120	0.038**	0.170	0.112
Female Sex Ratio	0.011	–0.036	0.015 [a]	n/a
	(0.013)	(0.011)	(0.012)	n/a
Robust P	0.379	0.001***	0.223	n/a
Wild P	0.402	0.010**	0.284	n/a

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1 [a] Logit regressions could not be estimated for this smaller sample due to lack of convergence; instead, reported estimates are based on probits. Note that for the main regressions reported earlier, estimates are similar when a probit is used instead. Robust standard errors in parentheses, clustered by urban/rural and province of birth. Same samples and regressors as in main regressions (Model 4 in the article) unless otherwise noted.