

Consumption at old age and life time labor supply in rural China

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January 30, 2014
Netspar Pension Workshop, Amsterdam

Rural China

- No pension system.
- Consumption at old age financed by savings and transfers from children.
- In rural China, boys play an important role.
- This paper:
 - exploit natural experiments and show that gender composition of children affects life time labor supply
 - formulate a life cycle model and use it to quantify the value to having a boy and to simulate the effect of the introduction of a pension system
 - our explanation: having no boy akin to a negative wealth shock that affects labor supply over the entire life cycle.

One child policy

- Introduced in 1979, with the objective to slow down population growth.
- Some rural families negatively affected, because they had to rely on having at least one boy to run the family (farming) business.
- Led to selective abortions: naturally 104 boys per 100 daughters, increased to 111 in 2010.
- Policy was adapted so that families in rural China could have a second child if first one was a girl.

Related literatures

- Consumption choice.
- Female labor supply.
- Retirement choice and its effects.
- Relationship between female labor supply and changes in preferences and education over time, and geographic proximity to parents.

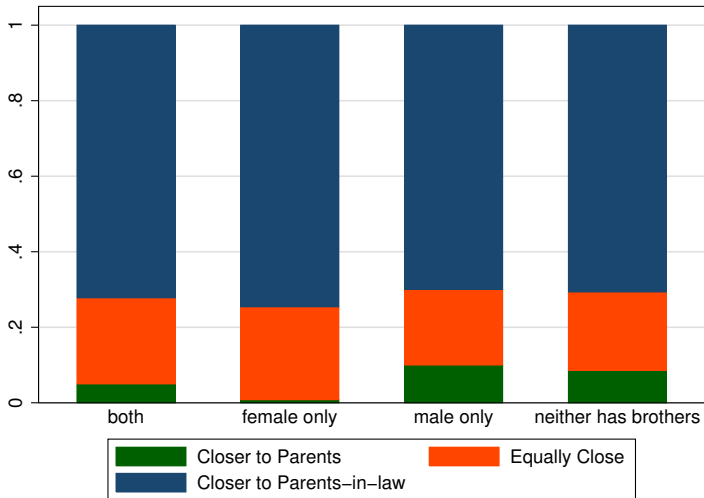
Institutional environment

- Rapid growth: average real wage increased by 202 percent between 1992 and 2007; higher pay for basic labor.
- Date of marriage not really a choice. 80 percent of women married by the age of 25.
- First child born soon after that. 60 percent of the couples have a first child within 2 years. One child policy.
- Education is always good: no evidence for quantity-quality tradeoff in our data; also not in favor of better education for boys.
- *Hukou* registration system restricts location choice; not an option to move to a city.
- Consequently, in our favor, main choices of a couple are labor supply and consumption.

China Health and Nutrition Survey

- On-going longitudinal survey conducted by the Carolina Population Center.
- Neighborhoods/villages primary sampling units, drawn from 9 provinces in the eastern part of China, representative within each province.
- Initial wave 1989, 3,795 households in the beginning. Data until 2009. Total number of observations is 12,119.
- Information on joint labor supply and income. All household members interviewed.
- Restrict attention to women younger than 52 when first interviewed, married at least once. Complete fertility history.
- Use CPI at province level.

Relative distance to parents and to parents-in-law (rural female)



	urban households		rural households	
	mean	std.	mean	std.
age of the female	37.68	11.38	38.46	12.51
number of household members	3.96	1.35	4.32	1.54
total number of children given birth to	1.65	0.83	2.25	1.09
total real income (female)	7715.11	11035.61	5611.88	10754.33
real income from formal jobs (female)	4663.97	9487.19	1571.54	5883.43
total hours per week (female)	35.83	31.68	33.95	31.94
hours per week on formal job (female)	20.67	22.94	8.99	19.07
total real income (male)	10374.65	15789.51	7869.70	16314.43
real income from formal jobs (male)	7653.71	14948.95	3785.45	12402.75
total hours per week (male)	39.43	31.76	39.86	33.20
hours per week on formal job (male)	24.87	24.05	14.61	22.40
obs.	4757	4757	12119	12119

Notes: Number of household members excludes members who moved out and reside in another household (even in the same neighborhood). All real income measures are normalized to 2008 CNY using the CPI at the province level. Formal jobs are defined as occupations with formal contracts, which includes contracted farm work, but excludes household farming activities. Total number of children ever given birth to excludes abortion and mortality at childbirth.

rural

birth year	num. children	ratio boys to girls	income wife	hours wife	income husband	ho husband	obs.
1940-1949	2.986	1.034	3377.859	18.865	4478.345	31.827	585
1950-1959	2.213	1.104	4615.263	30.788	6129.566	35.204	1078
1960-1969	1.639	1.194	9547.486	39.342	13820.278	45.554	1306
1970-1979	1.335	1.254	13504.898	39.748	17021.266	49.721	898
total	2.044	1.146	7761.377	32.186	10362.364	40.576	3867

urban

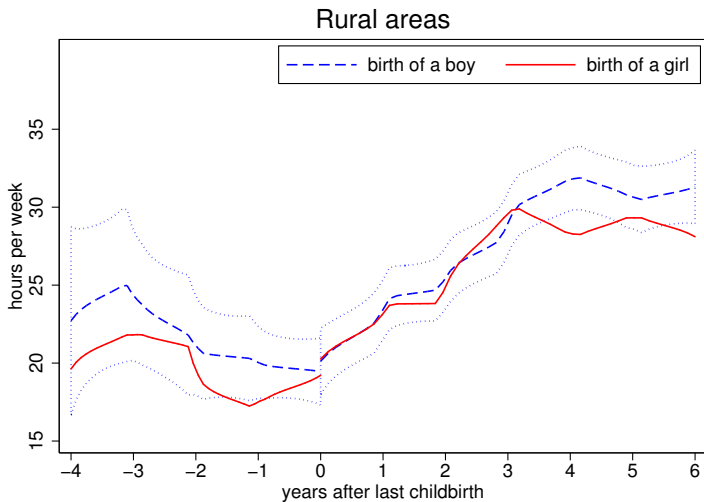
birth year	num. children	ratio boys to girls	income wife	hours wife	income husband	ho husband	obs.
1940-1949	2.137	1.198	4846.925	23.815	5397.337	26.844	255
1950-1959	1.531	1.008	6121.065	33.990	7364.580	37.646	652
1960-1969	1.235	1.062	12566.483	34.579	15522.146	39.760	753
1970-1979	1.149	0.986	17027.676	39.141	22207.025	44.749	375
total	1.513	1.063	10140.537	32.881	12622.772	37.250	2035

Notes: This table is produced using data for individuals between age 35 and 45. The number of children and related indicators are computed by taking the maximum, while the income and hours measures are computed from the mean over all waves of surveys. The number of household members excludes members who moved out and reside in another household. All real income measures are normalized to 2008 CNY using the CPI at the province level. Formal jobs are defined as occupations with formal contracts. This includes contracted farm work, but excludes household farming activities. The total number of children ever given birth to excludes abortion and mortality at childbirth.

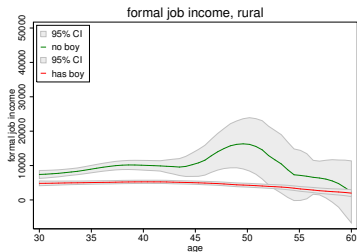
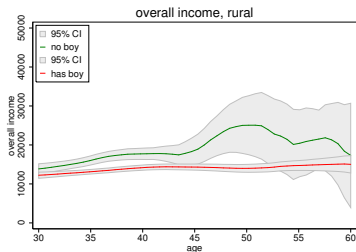
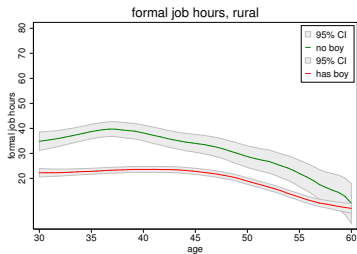
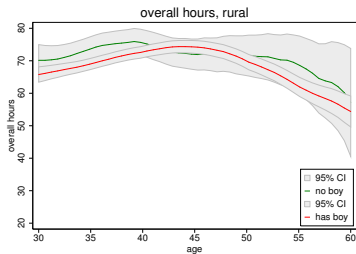
The effect of gender composition on labor supply

- Fertility choice, selective abortion.
- Gender composition and number of children is a choice.
- “Endogeneity problem” because those who benefit most from boys decide to have more children or perform selective abortion (from second child onwards).
- Exogenous variation:
 - timing of the introduction of the one child policy (3 groups: married before 1975, between 1975 and 1985, after 1985, after 2000)
 - gender of the first child provides exogenous variation (52.3 percent of first born children are male).

Labor supply around childbirth



Family lifetime labor supply and income

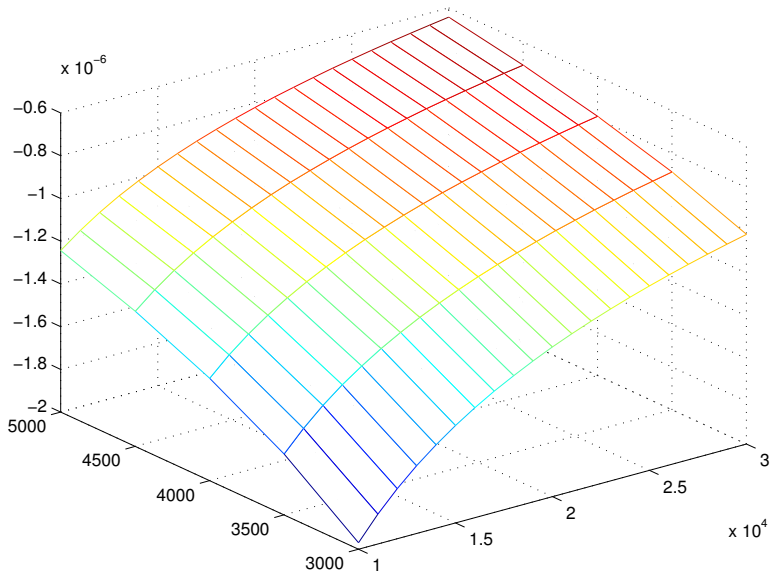


	First: Number of Children	First: No Boy	Total Hours	Total Income	Formal Hours	Formal Income
45<age<60	0.135 (0.165)	0.303*** (0.062)	18.122** (7.185)	2417.528 (2718.451)	-0.404 (4.526)	897.945 (2006.604)
Gender first born	0.312*** (0.018)	0.362*** (0.007)				
marriedbefore75	0.570*** (0.034)	-0.027** (0.013)				
marriedbefore85	0.413*** (0.037)	-0.104*** (0.014)				
marriedafter00	-0.382*** (0.101)	0.108*** (0.038)				
numberchildren			-3.004 (2.787)	860.698 (1054.560)	-11.238*** (1.756)	-1828.200** (778.416)
No Boy			5.323 (3.841)	-190.401 (1453.235)	10.737*** (2.420)	1615.925 (1072.695)
45<age<60*No Boy			36.663*** (9.709)	14123.201*** (3673.796)	23.396*** (6.117)	8589.034*** (2711.785)
age>60*No Boy			101.852*** (37.284)	5650.237 (14107.110)	26.808 (23.489)	-1171.733 (10413.058)
45<age<60*Nr. Child			-10.418*** (2.608)	-2046.889** (986.860)	-2.821* (1.643)	-1001.049 (728.444)
age>60*Nr. Child			29.809*** (11.121)	-3687.239 (4207.767)	14.236** (7.006)	-1412.466 (3105.932)
cohort dummies	Yes	Yes	Yes	Yes	Yes	Yes
year dummies	Yes	Yes	Yes	Yes	Yes	Yes
province dummies	Yes	Yes	Yes	Yes	Yes	Yes
obs.	11970	11970	11970	11970	11970	11970

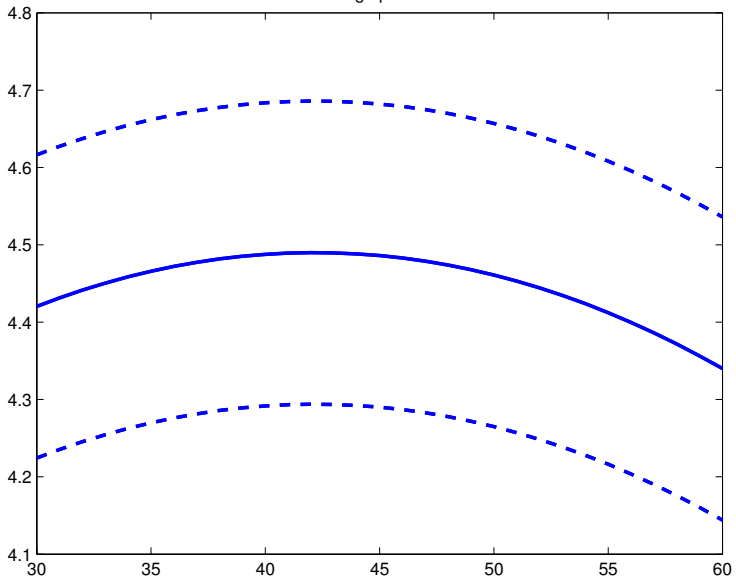
Notes: We select couples who i) reside in rural areas, for which ii) the income for both the wife and the husband are observed, and iii) where the wife is aged above 30. The number of children and whether there is a boy, and their interactions with age and age squared, are instrumented by gender of the first child, whether the household has an ethnic minority, whether the couple was married before 1985 or before 1975, or married after 2000, and their interactions with age and age squared.

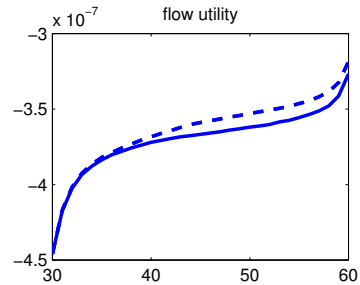
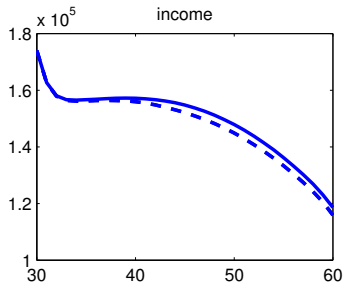
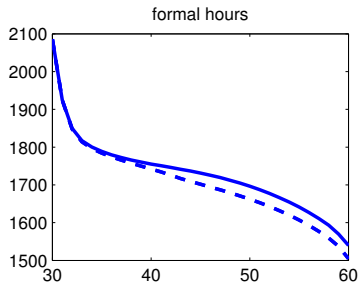
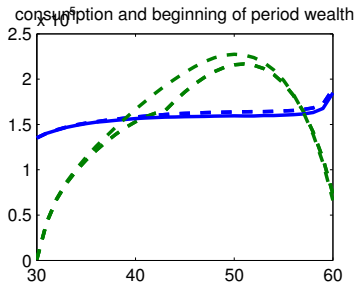
A structural life cycle model

- Allows us to quantify the value of having at least one boy.
- Unitary model, utility depends on consumption and leisure, from age 45 onwards.
- Boy provides parents with extra utility when they are old. Comes from either monetary transfers, or helping them with their daily activities, or the like.
- Generates income effect and therefore affects labor supply.
- Policy simulation: introduction of a pension system.



wage profile

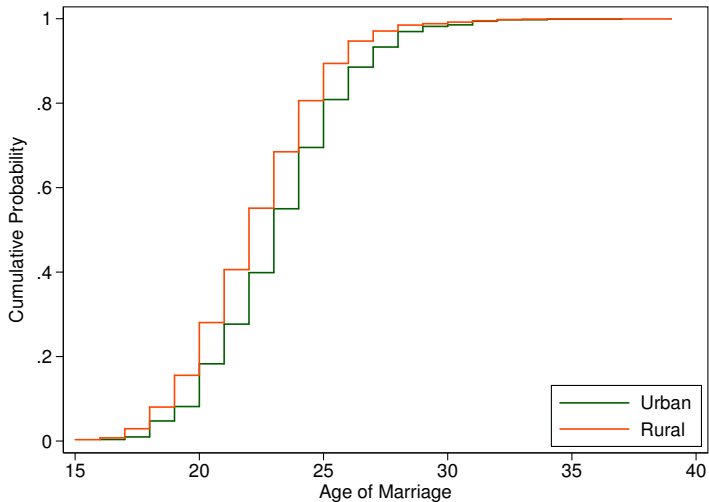




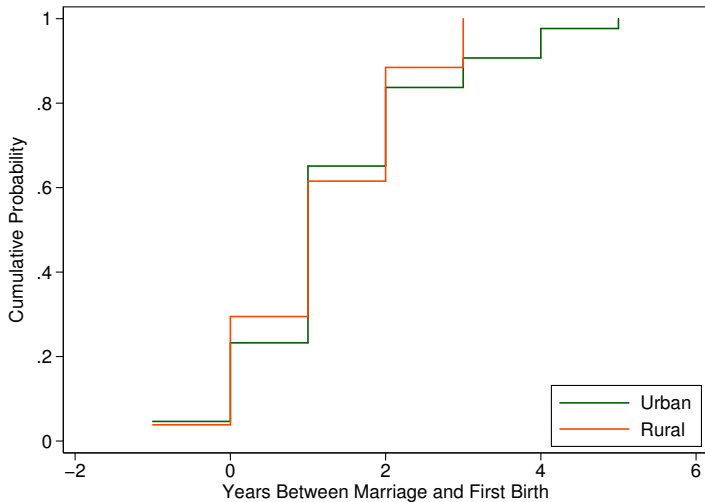
Summary and conclusions

- In rural China, gender composition of children has an effect on labor supply.
- Significantly higher if no boy.
- Our explanation: daughters leave the family, while boys stay with their parents and provide for them.
- More generally, gender akin to a large wealth shock—can also occur in western societies, for example when there is a financial crisis. Here, we can study the effects in isolation of effect on changed labor market conditions.

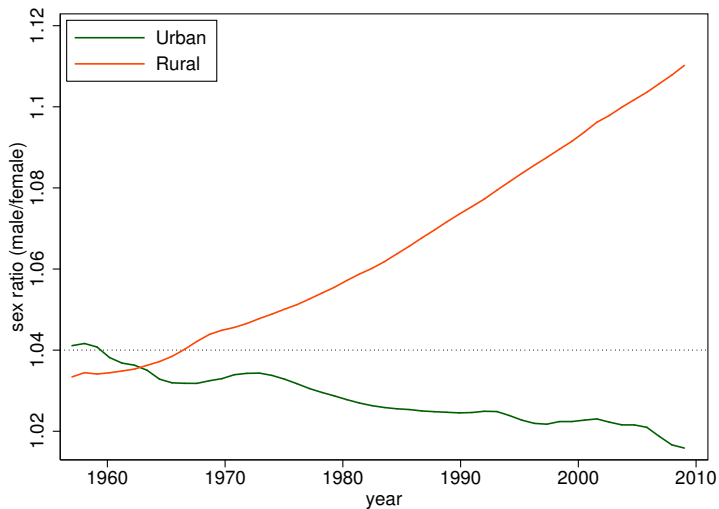
Age of wife at time of marriage



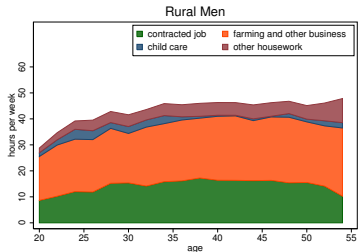
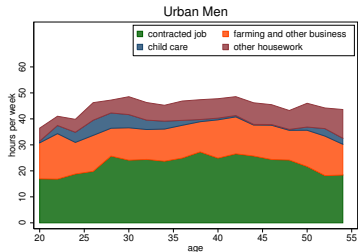
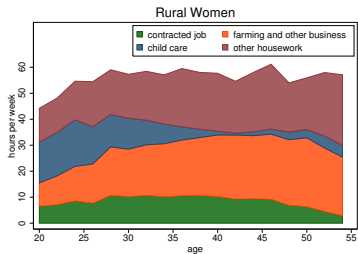
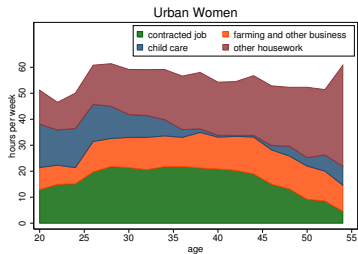
Timing of first birth



Sex ratio over time



Time use of husbands and wives



Time use of husbands and wives

