
Altruism and Exchange Motives in Education Investment for Children: Evidence from Pension Reform in Urban China

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Context and Motivation

- Provision of human capital by parents constitutes an intergenerational transfer.
- Family economic conditions may influence expenditure on children's education, thence children's education attainment.
 - Parents are **altruistic** toward their children, but if faced with credit constraint, poor family invest less in children's education than the optimal amount. (Becker and Tomes 1984, Becker and Murphy 1988, Lillard and Willis 1994 etc.)
 - Parents may have **exchange** motives in their investment in children's human capital if it is motivated by the amount of transfers and services anticipated from children.
(Willis 1980, Srinivasan 1988, Jensen 1990, Raul 1991, Lillard and Willis 1996, Raut and Tran 2005 etc.)

Context and Motivation (cont.)

- Old age support in developing countries
 - Family support is still by far the most important means of old-age provision.
 - Old-age provision through private savings for retirement is also an option.
 - Social security in the form of pension plans provides a formal old-age support.
- Access to social security program has different implications to parents' investment in children's education under different theoretical framework
 - the altruistic framework predicts an increase in the investment
 - the exchange framework predicts a decrease in the investment

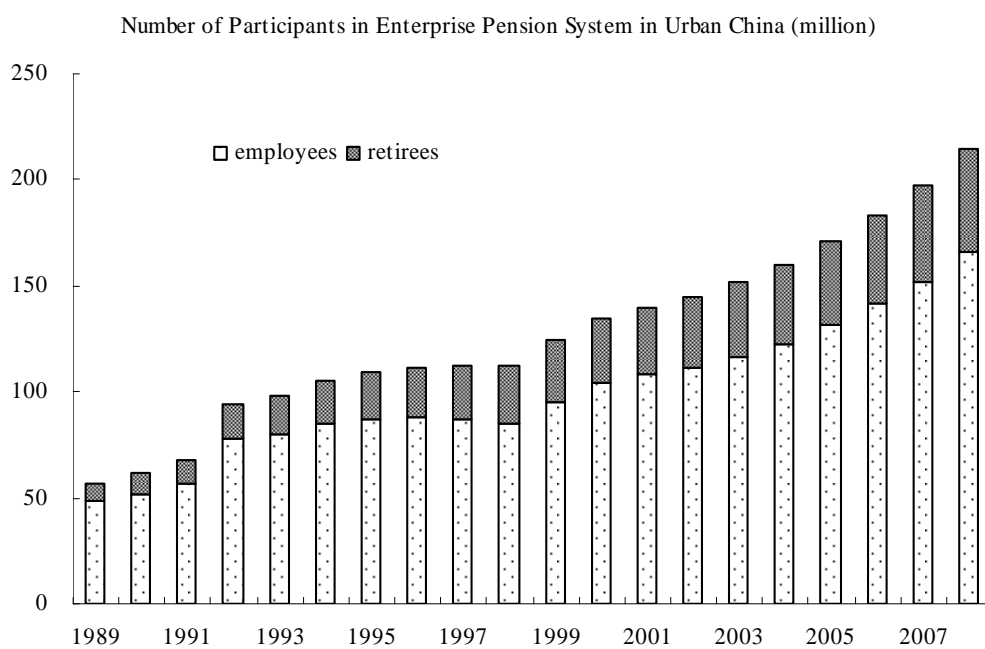
What do we do in this paper?

- In this paper, we look at education expenditure for children age 18 and younger in urban China and ask whether family education expenditure is affected by parent's access to pension coverage.
- Depending on the data and identification strategy, we find that family increases investment in children's education by 12 percent to 32 percent when a parent is covered by pension program.
- The identification relies on the heterogeneities in pension reform implementation across cities and across employer ownerships.

Pension Reform in China

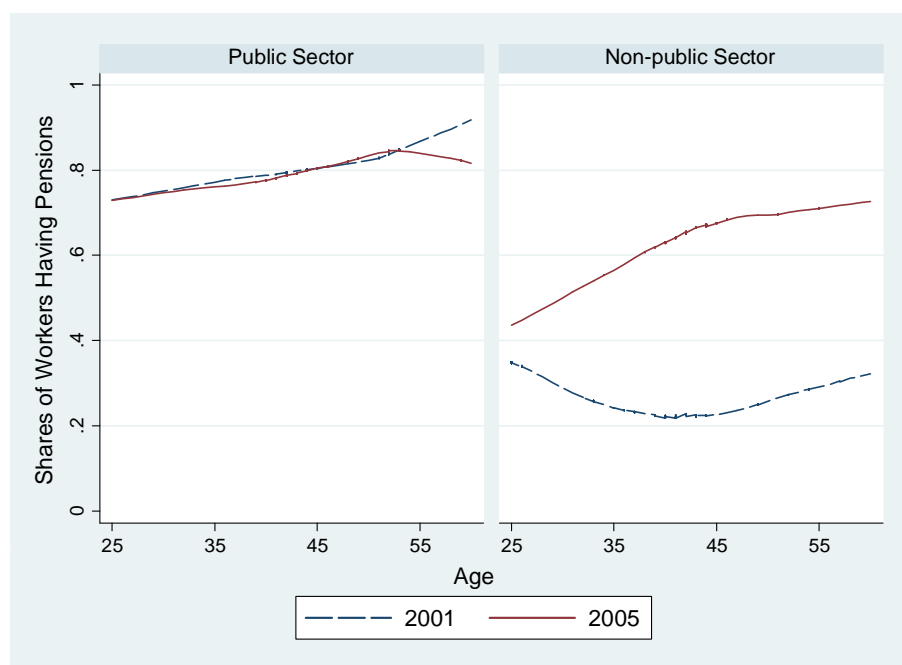
- The old pension system was enterprise-based and covered only the employees in the state and urban collective sectors.
- The recent pension reform since 1997 is characterized by consolidating pension pools (State Council 1997) and expanding pension coverage to non-public sectors (State Council 1999).
- The implementation of the pension reform has not been uniform across the country.

Pension Reform in China (cont.)



Source: NBS (2009) China Statistical Yearbook, China Statistic Press.

Pension Reform in China (cont.)



Source: CULS 2001 and 2005

Empirical Framework

- We estimate the following equation:

$$E_{ij} = \beta_0 + \beta_1 P_{ij} + X_{ij}'\alpha + H_{ij}'\gamma + c_j + \varepsilon_{ij}$$

- We use two identification strategies in the estimation.
 - With two pooled cross section data, we use the difference in the impact of pension reform on employees in the public sector and non-public sector during the four year period of 2001-2005 as instrument variables for parent's pension coverage.
 - With a cross section data in 2005, we use the average pension coverage obtained from the 2005 Census (0.95% of the population) for each cell of age group/ gender/education/employee ownership /city as instrument variables for parent's pension coverage

Data

- China Urban Labor Survey 2001, 2005
 - Five cities: Xian, Shanghai, Shenyang, Wuhan and Fuzhou
 - Two cross section data
 - Information on education expenditure, household demographic characteristics, parents labor supply
- Census 2005 (0.95% of the population)
 - Individual demographics: age, gender, education
 - Ownership type of individual's current employer
 - Information on basic urban residence pension coverage

Descriptive Statistics

	2001		2005	
Education expenditure per child (log)				
___Average	6.858	(1.044)	7.51	(0.941)
___Daycare	7.138	(1.420)	7.796	(0.754)
___Primary school	6.355	(0.913)	7.05	(0.923)
___Junior high school	6.764	(0.792)	7.272	(0.779)
___Senior high school	7.592	(0.856)	8.104	(0.770)
Mother has pensions	0.551	(0.498)	0.664	(0.473)
Father has pensions	0.682	(0.466)	0.739	(0.440)
Either mother or father has pensions	0.782	(0.413)	0.829	(0.377)
Either mother or father is in non-public sector	0.236	(0.425)	0.467	(0.499)
Age	12.706	(3.997)	12.785	(4.175)
Gender	0.505	(0.500)	0.507	(0.500)
Daycare	0.098	(0.298)	0.083	(0.276)
Primary school	0.352	(0.478)	0.333	(0.472)
Junior high school	0.306	(0.461)	0.261	(0.440)
Senior high school	0.243	(0.429)	0.323	(0.468)
Number of siblings	0.079	(0.278)	0.085	(0.279)
Mother's age	39.603	(5.229)	40.307	(5.577)
Father's age	42.004	(5.247)	42.858	(5.667)
Mother's years of schooling	11.156	(2.617)	11.444	(2.424)
Father's years of schooling	11.558	(2.979)	11.759	(2.548)
Mother had rural Hukou before age 16	0.207	(0.405)	0.144	(0.351)
Father had rural Hukou before age 16	0.151	(0.359)	0.134	(0.341)
Household income per capita (log)	8.732	(0.790)	8.890	(0.668)
Number of observations	741		693	

First Stage Regression Results (CULS 2001, 2005)

	Total	Boys	Girls
Parent(s) in non-public sector × Year 2005	0.047 (0.082)	0.138 (0.121)	0.154 (0.132)
Parent(s) in non-public sector × Year 2005 × Shanghai	0.107 (0.107)	0.243 (0.165)	0.017 (0.175)
Parent(s) in non-public sector × Year 2005 × Wuhan	0.224 (0.104)**	0.348 (0.163)**	0.203 (0.163)
Parent(s) in non-public sector × Year 2005 × Shenyang	0.003 (0.110)	0.167 (0.170)	0.309 (0.213)
Parent(s) in non-public sector × Year 2005 × Fuzhou	0.191 (0.096)*	0.196 (0.142)	0.240 (0.153)
F Statistics	4.58	1.18	4.35
F probability	0.000	0.318	0.001
Over-ID Test: Hansen J Statistic	1.789	3.898	5.400
Chi-Square Probability	0.774	0.420	0.248
Number of Observations	1,385	700	685

Investment on Children's Education (Age 5-18): CULS 2001 and 2005

	Total		Boys		Girls	
	OLS	IV	OLS	IV	OLS	IV
Parent(s) having pensions	0.014 (0.014)	0.120*** (0.031)	0.017 (0.017)	-0.066 (0.039)	0.002 (0.016)	0.099 (0.061)
Parent(s) in non-public sector	-0.018*** (0.004)	-0.040*** (0.003)	-0.015 (0.012)	0.004 (0.017)	-0.023* (0.013)	-0.042*** (0.013)
Year 2005	0.118*** (0.010)	0.126*** (0.007)	0.114*** (0.009)	0.102*** (0.016)	0.122*** (0.014)	0.128*** (0.013)
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Household income per capita (log)	0.015 (0.009)	0.021*** (0.006)	0.019 (0.012)	0.014 (0.016)	0.016 (0.013)	0.023** (0.010)
Number of observations	1,385	1,385	700	700	685	685

## First Stage Regression Results (CULS 2005 and Census 2005)

	Total	Boys	Girls
Age/education/ownership type/city specific pension coverage for men	-0.069 (0.076)	-0.029 (0.117)	0.279 (0.109)**
Age/education/ownership type/city specific pension coverage for women	0.156 (0.077)**	0.024 (0.118)	0.166 -0.111
F Statistics	3.760	1.06	0.93
F probability	0.024	0.35	0.398
Over-ID Test: Hansen J Statistic	0.369	0.019	0.128
Chi-Square Probability	0.543	0.891	0.723
Number of Observations	581	293	288

## Investment on Children's Education (Age 5-18): CULS 2005 and Census 2005

	Total		Boys		Girls	
	OLS	IV	OLS	IV	OLS	IV
Parent(s) having pensions	0.020 (0.014)	0.322** (0.155)	0.031 (0.020)	0.446 (10.338)	-0.001 (0.024)	0.071 (0.193)
Parent(s) in non-public sector	-0.006 (0.019)	-0.016 (0.024)	-0.028 (0.023)	0.045 (0.519)	-0.002 (0.039)	-0.006 (0.055)
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Household income per capita (log)	0.022*** (0.005)	0.025*** (0.007)	0.022*** (0.007)	0.022** (0.009)	0.055*** (0.013)	0.055*** (0.017)
Number of observations	581	581	293	293	288	288

Conclusions

- Estimates using CULS 2001 and 2005 show that parent access to pension increases education expenditure by 12 percent. Using CULS 2005 and Census 2005, we estimate an increase of education expenditure by 32 percent.
- Complementary analyses provide similar results: parent investment in education of their children is largely driven by altruistic motives.
- Provides additional argument for development of safety nets in urban and rural areas.