



### **Retirement Patterns in China**

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### Motivation

- China is experiencing unprecedented aging
  - The old –age dependency ratio is projected to clime from the current 10% to 40% by 2050
- However, with low per capita income and underdeveloped political and financial institutions, China faces challenges on how to deal with the aging problem
- One relevant debate is whether to extend the urban retirement age
- To answer the question, the first important step is to describe the retirement patterns in China and understand the underlying mechanisms

# Goals of the Paper

- Describe Patterns of retirement in China using the newly-collected nationally representative dataset
- Explain urban/rural difference in retirement patterns

# Data: China Health and Retirement Longitudinal Study (CHARLS)

- HRS-type survey
- Biennial panel
- Cover people aged 45 and older
- Multi-stage PPS random sampling
  - Counties, Villages, Households, Persons
- Pilot survey in 2008: Zhejiang and Gansu
- Baseline survey in 2011-2012: 10,281 households, 17,766 respondents
  - 150 counties in 28 provinces
  - Tibet, Hongkong, Macau and Taiwan were excluded
  - Hainan and Ningxia had no counties sampled

# Village sampling frame

- Software for mapping/listing (Charls-GIS)
  - Use google earth map as base
  - Edit for changes
  - Complete listing of dwellings within a building
  - GPS reading along with pictures
- Advantage
  - Less burden
  - Easy location of sample households
  - Easy quality control
- Web: <a href="http://charls.ccer.edu.cn/">http://charls.ccer.edu.cn/</a>

### **Questionnaire Structure**

- Demographics
- Family structure/transfer
- Health status and functioning
- Biomarkers
- Health care and insurance
- Work, retirement and pension
- Income and consumption
- Assets (individual and household)
- Community survey
- Policy survey

### CHARLS 2011-2012 Sample Size and Response Rate

	Total	Rural	Urban
Assigned households	23,590	10,675	12,915
Age eligible rate(%)	62.17	72.03	53.49
Response rate(%) (cv complete)	88.65	93.34	84.2
Sample Households	10,703	6,206	4,497
Response rate(%) (roster complete)	85.16	91.08	79.11
Sample Households	10,281	6,056	4,225

# **Key Concepts**

#### Retirement

- If one is not active in any of these economic activities: farming, employed, self-employed and unpaid family business, and other employments (includes part-time job).
- Processed Administrative retirement
  - If "yes" to the question "Have you completed retirement procedures (including early retirement) or internal retirement?"

# The Retirement Patterns

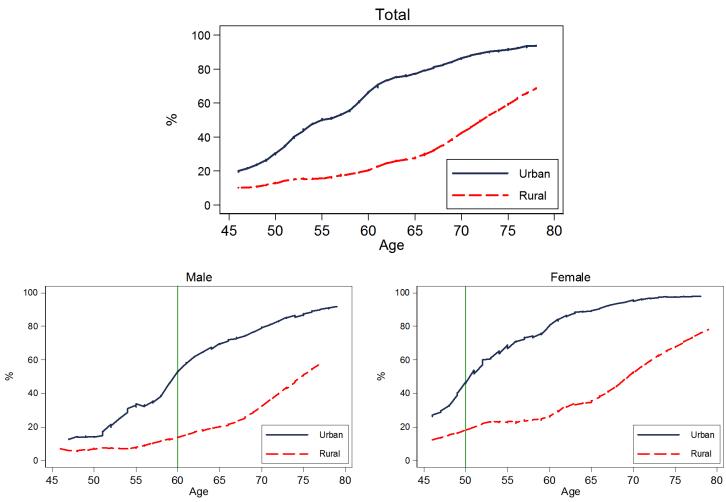
Table 1: Retirement Rate by Hukou, Gender and Age (%)

	Total		Male		Female	
Age_Group	Urban	Rural	Urban	Rural	Urban	Rural
45_50	22.4	10.5	13.2	6.2	30.6	14.1
50_55	40.9	15.2	23.1	7.7	57.4	22.3
55_60	53.2	16.7	34.3	10.0	73.4	23.0
60_65	73.4	24.5	63.1	17.1	85.4	31.7
65_70	80.8	30.3	72.6	21.9	92.2	38.5
70_75	88.8	50.1	81.9	40.3	97.5	60.3
75_80	93.0	66.6	89.7	57.9	97.1	74.7
80+	97.5	83.7	96.6	77.4	98.6	87.9
Total	59.9	25.3	50.3	18.2	70.3	31.9
OBS	3,845	13,461	2,006	6,431	1,838	7,020

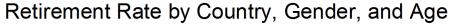
- Urban workers retire much earlier than rural ones
  - Urban workers reach high retire rate from age 50-60
  - Large fraction of rural workers remain working even over 70
- This urban/rural distinction exists for both men and women but is more prominent for women

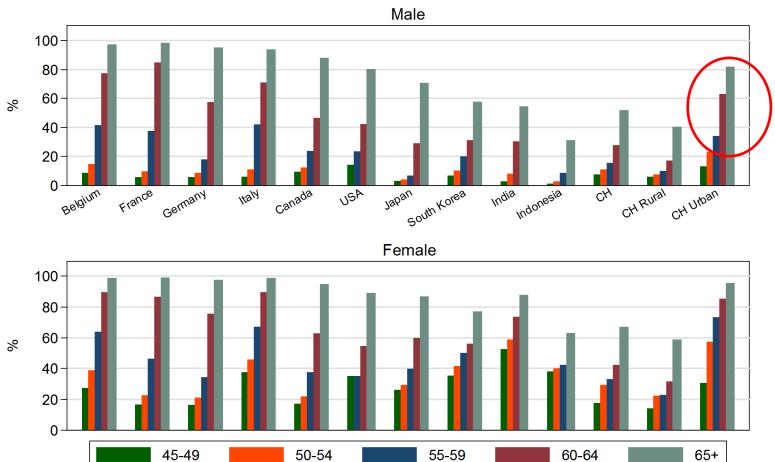
• More detailed age pattern shows the same thing:





### **International Perspective:**

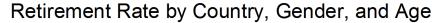


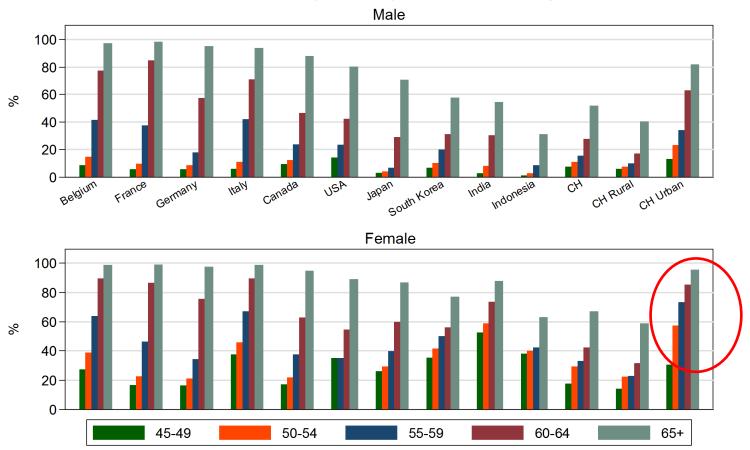


Data for China comes from CHARLS, data for other countries come from "An Aging World: 2008", issued by NIA of NIH, U.S. Department of Health and Health Services

 Urban Chinese men retire not only earlier than other developing countries, but also developed countries such as U.S., South Korea and Japan, and is similar to Western Europe

### International Perspective

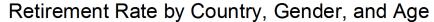


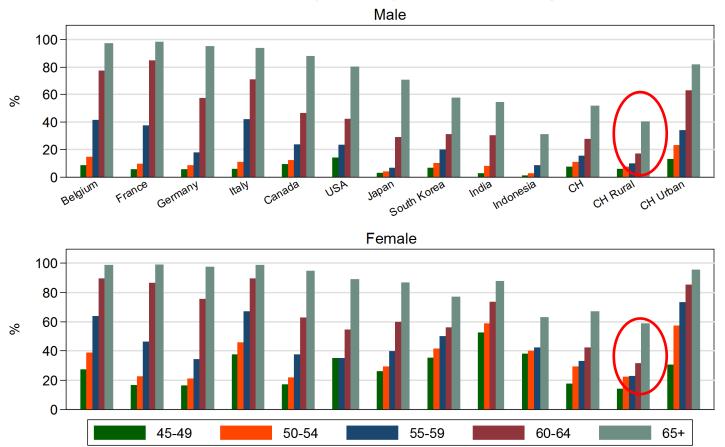


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Urban Chinese women retire even earlier than Western European women

### International Perspective





Data for China comes from CHARLS, data for other countries come from "An Aging World: 2008", issued by NIA of NIH, U.S. Department of Health and Health Services

 Rural Chinese retire late, with retirement age much lower than that in other countries, except for Indian and Indonesian men

### Why do urban and rural Chinese behave so differently?

- Retirement policy
- Social security
- Economic resources
- Support from children

Hypothesis 1: Retirement policy

# **Retirement Policy**

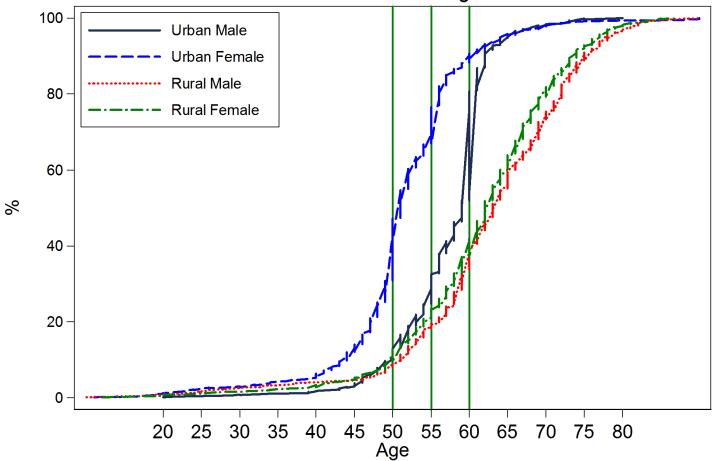
- Retirement system established in the 1950s
  - Initially only covered government employees and urban workers in state-own enterprises
  - Later (1997) required to cover all urban enterprises
  - Retirement age:
    - Man: 60
    - Women: 50 for manual workers, 55 for cadres

Table 2: Processed Administrative Retirement Rate (%)

	Total		Male		Female	
Age_Group	Urban	Rural	Urban	Rural	Urban	Rural
45_50	7.1	0.3	4.2	0.2	9.8	0.3
50_55	31.4	1.3	7.5	0.7	53.7	1.9
55_60	45.6	1.2	28.7	1.2	63.7	1.1
60_65	67.7	2.1	77.5	3.6	56.6	0.6
65_70	73.7	2.8	83.9	4.6	59.7	1.0
70_75	79.8	3.5	91.3	5.7	65.2	1.2
75_80	76.4	3.7	89.7	6.5	60.2	1.2
80+	72.2	4.0	86.4	9.7	54.3	0.3
Total	49.5	1.7	50.0	2.6	48.9	0.9
OBS	3,845	13,461	2,006	6,431	1,838	7,020

Administrative retirement is mainly an urban amenity

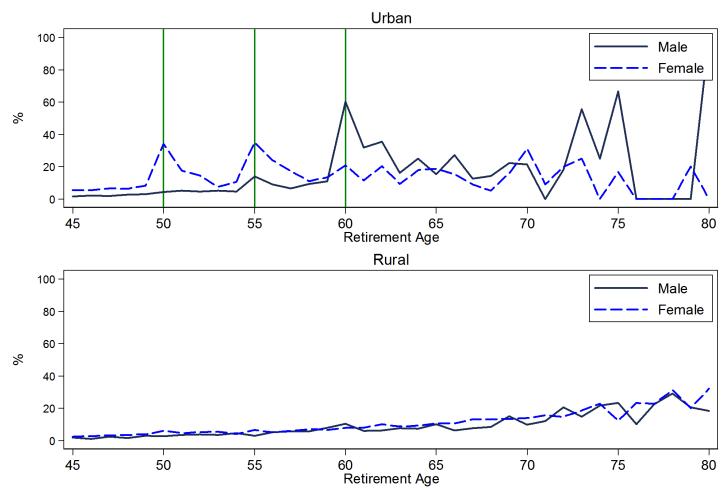
# Cumulative Retirement Rate by Retirement Date of Retirees Above Age 60



Retirement jumps at mandatory retirement ages

• More clear if we look at hazard rates of retirement:

#### Retirement Hazard Rate of Retirees



- Retirement hazard rates have spikes:
  - Urban men at 60, women at 50 and 55
  - None for rural people

# How to Explain the Spikes?

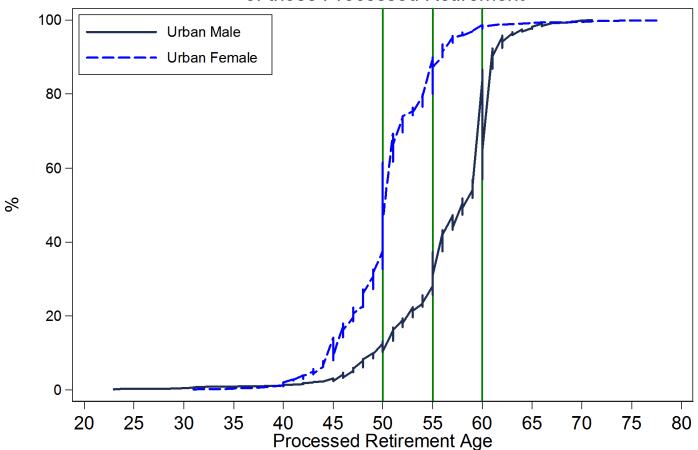
- U.S.:
  - Pension incentive impacts labor supply
  - No mandatory policy

- China:
  - No economic penalty from retirement policy
  - Mandatory policy forces one to leave job

# Early Retirement

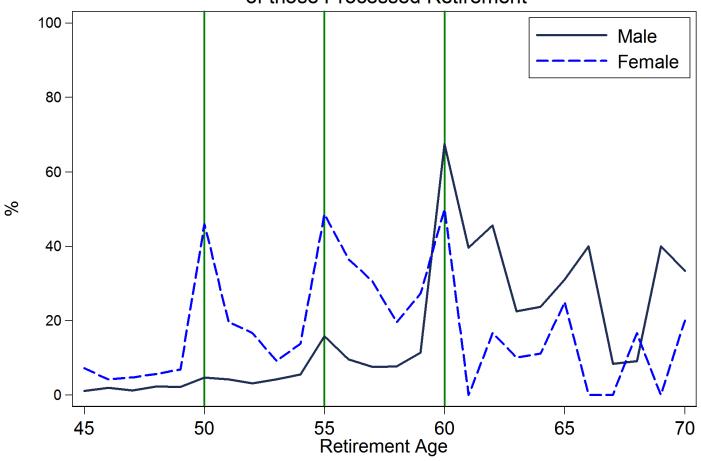
- Non-state sector less likely to enforce mandatory retirement policy
- "Early retirement" is enforced in certain cases
  - Jobs that are dangerous, harmful to health or extremely onerous
  - Civil servants who have worked for 30 years and are within
     5 years of the retirement age
- "Internal retirement"
  - A practice in the 1990s when many firms experienced financial difficulties
  - Firms let redundant workers retire before the normal retirement age at the firms' expenses, and turn to the Social Insurance Administration for retirement pensions after reaching the normal retirement age

# Cumulative Processed Retirement Age of those Processed Retirement



- The jumps are sharper if we look at the rate of processed retirement
- Early retirement exists

# Processed Retirement Hazard Rate of those Processed Retirement



The spikes of hazard rates are also sharper

Table 3: Mechanisms of "Early Retirement" (%)

Mechanism	Total	Male	Female
1 I have 30 years of job experience, which is enough for early retirement.	8.61	8.81	8.26
2 My work unit belonged to the category of high-risk and hard manual labor and thus was eligible for offering early retirement	6.62	4.66	10.09
3 My work unit was restructuring / bankrupt, so it offered early retirement	18.21	16.58	21.1
4 Due to poor health	41.06	48.7	27.52
5 Due to family reason	6.95	3.63	12.84
6 Other	18.54	17.62	20.18

Table 4: Meachnisms of Internal Retirement (%)

	Total	Male	Female
1 I have 30 years of job experience, which is enough for internal retirement.	11.45	12.84	8.77
2 My work unit was restructuring / bankrupt so offered internal retirement	29.52	28.44	31.58
3 Due to poor health	16.27	16.51	15.79
4 Due to family reason	3.01	1.83	5.26
5 Other	39.76	40.37	38.6

Table 5: Re-Employment Rate of those Processed Retirement (%)

	То	Total Male Fe		Male		nale
Age_Group	Urban	Rural	Urban	Rural	Urban	Rural
45_50	47.1	71.4	71.4	100.0	37.8	50.0
50_55	28.0	74.1	31.6	71.4	27.6	75.0
55_60	23.9	65.6	38.5	75.0	16.8	56.3
60_65	21.4	68.1	29.8	80.0	8.0	0.0
65_70	16.8	53.8	24.0	59.4	2.8	28.6
70_75	10.3	40.0	15.0	41.4	1.9	33.3
75_80	5.7	16.7	7.1	20.0	3.2	0.0
+08	1.8	10.0	1.3	10.5	2.6	0.0
Total	17.9	51.5	22.6	53.6	12.8	46.2
OBS	1,869	231	985	166	884	65

- A large share of those who processed retirement get paycheck in addition to pension
  - May be an important incentive for early retirement

Hypothesis 2: Pension coverage, generosity and embedded incentives

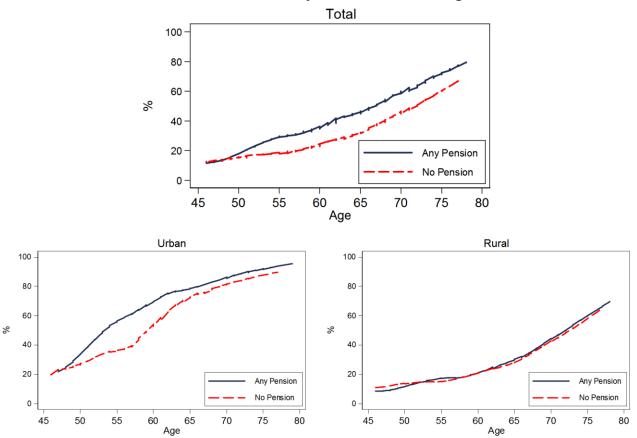
Table 6: Pension Type and Coverage (%)

Pension Type	Urban	Rural	Total
Worker's Pension	38.1	2.9	10.7
Firm's Pension	18.6	8.0	4.8
Government or Institutions' Pension	21.0	2.1	6.3
Other Pension	17.7	38.7	34.0
Pension Subsidy to the Oldest Old	0.5	1.7	1.4
New Rural Social Pension Insurance	1.5	27.2	21.6
Urban Residents' Pension	8.1	0.4	2.1
Residents' Pension	2.3	8.0	1.1
Rural Pension	0.9	10.1	8.0
Conmmercial Pension	1.3	0.7	0.9
Other Pension	4.1	0.9	1.6
Any Pension	70.2	41.2	47.6

- Pension coverage is much higher in urban areas
  - The urban are mainly covered by worker's pension
  - The rural mainly the newly implemented rural pension, which is much less generous

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#### Retirement Rate by Pension Coverage



- The retirement rate of urban people covered by any pension is higher than those who are not
- The difference in rural is trivial
- Two potential reasons:
  - Mandatory retirement for urban
  - Pension incentive in the urban is stronger

Table 5-2: Pension Income of the Retired with at Least one Pension (Unit: Yuan/Month)

	То	otal Male Female		Male		Male Fei		nale
Age_Group	Urban	Rural	Urban	Rural	Urban	Rural		
45_50	1162	122	2204	20	954	160		
50_55	1341	369	1312	0	1344	402		
55_60	1562	473	1656	388	1532	490		
60_65	1799	208	2146	260	1412	185		
65_70	1856	214	2028	344	1628	136		
70_75	1802	282	1972	404	1551	185		
75_80	1919	225	2031	388	1723	94		
80+	2249	220	2712	451	1413	81		
Total	1771	238	2073	369	1490	160		
OBS	1758	1445	835	501	923	943		

• Pension is much more generous among urban residents

Table 6 Premiun	OINKPP	(Unit: Yuan/Year)
Premium	Freq.	Percent
<=100	1,716	72.28
(100, 200]	247	10.4
(200, 300]	123	5.18
(300, 400]	56	2.36
(400, 500]	113	4.76
>500	119	5.01
Total	2,374	100

(I Init. Vivon /Voor)

Table 6 Dramium of NDDD

- The incentive embedded in the rural pension is poor, so rural people tend to choose the pension plans with lowest premiums
  - Low capability of accumulation, will result in low payment in the future

# Hypothesis 3: Economic resources

### Measure of Economic Resources

- Per-capita consumption expenditure (PCE)
  - Smoothed over life cycle
- Later may incorporate asset measures

Table 7: DCE by Hukou Condor and Aga

13,461

Table 7: PCE by Hukou, Gender and Age				(Unit: Yuan/	Year)	
	To	otal	M	ale	Female	
Age_Group	Urban	Rural	Urban	Rural	Urban	Rural
45_50	11,302	6,570	11,270	6,612	11,333	6,521
50_55	8,990	6,042	8,913	6,403	9,067	5,703
55_60	9,590	4,872	9,419	4,859	9,773	4,886
60_65	9,974	4,569	9,867	4,813	10,113	4,337
65_70	9,219	4,028	8,399	3,963	10,373	4,092
70_75	9,651	3,548	9,074	3,438	10,378	3,664
75_80	8,182	3,549	8,438	3,651	7,867	3,453
80+	8,878	3,286	10,355	3,347	7,114	3,244
Total	9,733	5,034	9,558	5,112	9,930	4,960

2,006

6,431

PCE is much larger in urban areas

3,845

OBS

7,020

1,838

# Hypothesis 4: Support from Children

Table 10: Fraction of Receiving Transfer from Children (%)

	Total		Retired		Unretired	
_Age_Group	Urban	Rural	Urban	Rural	Urban	Rural
45_50	1.8	9.5	3.3	11.4	1.5	9.3
50_55	6.5	20.0	8.3	24.1	5.6	19.3
55_60	12.6	32.2	12.5	36.6	13.1	31.4
60_65	20.1	39.9	19.5	41.3	22.5	39.6
65_70	22.4	39.2	20.8	45.0	30.0	37.0
70_75	20.5	36.1	20.2	34.7	27.5	37.6
75_80	18.3	32.0	18.9	33.0	18.8	30.1
<del>80+</del>	11.4	17.1	10.6	16.4	50.0	21.1
Total	13.1	27.4	15.7	31.9	9.8	26.0
OBS	3,845	13,461	2,255	3,382	1,509	9,966

Rural elderly are indeed more likely to receive transfer from their children

Table 10\_1: Mean Net Transfer from Children (Yuan/Year)

	Tot	ta1	Ret	ired	Unre	tired
Age_Group	Urban	Rural	Urban	Rural	Urban	Rural
45_50	-339.6	36. 5	-19.6	936.0	-395.4	-63.5
50_55	-182.5	54.2	215.3	-177.7	-456.6	91.7
55_60	-230.4	897.9	-206.7	2028.5	-232.7	671.9
60_65	-2372.3	1637.9	-1837.5	2919.6	-3937.3	1235.5
65_70	-599.5	1713.8	-708.0	2796.9	-264.9	1265.9
70_75	1487. 1	1662.3	1692.4	1983.0	296.0	1234.4
75_80	576.3	3817.7	607.8	5302.3	459.4	863.7
80+	724.8	696.7	445.2	756. 2	11825.0	425. 1
Total	-380.8	990.9	-171	2233	-685.6	574.3

- Urban elderly more likely to provide transfer to their children
- Rural elderly more likely to receive transfer from their children

Additional Evidence: Expectation on Elderly Support

Table 10: Expected Support Type

	Total		Ma	ıle	Female	
	Urban	Rural	Urban	Rural	Urban	Rural
Children	23.4	80.9	19.7	78.0	27.3	83.6
Savings	3.4	4.2	3.2	4.9	3.7	3.6
Pension or salary	69.5	8.8	74.0	10.2	64.6	7.5
Other	3.8	6.1	3.1	7.0	4.5	5.3

- Urban elderly mainly expect pension or salary for support
- Rural elderly mainly expect reliance on children

# Regressions on Retirement

Urban					Rural			
VARIABLES	IC	Pension	PCE	Child	IC	Pension	PCE	Child
Female	0.214***	0.180***	0.173***	0.170***	0.121***	0.126***	0.126***	0.125***
Age45_49 (Reference)	<u>)</u>							
Age50_54	0.177***	0.133***	0.125***	0.112***	0.035***	0.018	0.018	0.012
Age55_59	0.320***	0.229***	0.231***	0.212***	0.060***	0.042***	0.045***	0.037***
Age60_64	0.526***	0.344***	0.345***	0.311***	0.140***	0.124***	0.129***	0.117***
Age65_69	0.619***	0.428***	0.429***	0.382***	0.198***	0.179***	0.181***	0.162***
Age70_74	0.678***	0.465***	0.476***	0.428***	0.377***	0.359***	0.365***	0.346***
Age75_79	0.733***	0.517***	0.519***	0.463***	0.531***	0.496***	0.496***	0.477***
Age80+	0.783***	0.563***	0.577***	0.519***	0.659***	0.633***	0.639***	0.630***
<u>Iliterate (Reference)</u>								
Literate	0.038	0.003	-0.001	0.001	-0.001	-0.004	-0.006	-0.002
Primary	0.059**	-0.004	-0.010	-0.005	0.004	0.006	0.006	0.006
Junior or Above	0.086***	0.012	0.002	0.009	0.020*	0.014	0.014	0.014
Widowed	-0.007	0.023	0.029	0.031	0.100***	0.106***	0.107***	0.109***
Divorced or Never								
Married	0.037	0.040	0.032	0.047	0.170***	0.211***	0.211***	0.142***
Self Reported Health								
Poor or Very Poor	0.125***	0.123***	0.124***	0.128***	0.136***	0.136***	0.137***	0.135***
No Pension Income Received (Reference)								
Pension Income 0-1000		0.129***	0.134***	0.130***		-0.018	-0.014	-0.018
Pension Income > 100	0	0.232***	0.226***	0.233***		0.171***	0.152***	0.165***

Pension income is more important for retirement in the urban areas,
 and it is only important in rural areas when the amount is large enough

# Regressions on Retirement (Continued)

Urban						Rural			
VARIABLES	IC	Pension	PCE	Child	IC	Pension	PCE	Child	
PCE Quintile 1 (Refere	nce)								
PCE Quintile 2			0.059*	0.055			-0.006	-0.002	
PCE Quintile 3			0.090***	0.087***			0.013	0.010	
PCE Quintile 4			0.051	0.052*			0.002	-0.001	
PCE Quintile 5			0.093***	0.089***			0.034**	0.033**	
Number of Children				0.020***				0.007**	
Any Help from Childre	n			0.021				-0.010	
No Transfer Received	(Reference)								
Transfer from children	0-2000			0.012				0.013	
Transfer from Children	> 2000			0.025				0.079***	
Expect Support by Savings (Reference)									
Expect Support by Children									
Expect Support by Pension									
Expect Support by Other									
Observations	3,753	3,077	2,804	2,736	13,310	9,975	9,680	9,453	
R-squared	0.322	0.301	0.307	0.313	0.245	0.244	0.246	0.253	

- PCE is more important in retirement decision in urban areas, only important for extremely high group
- Number of children matters for both urban and rural elderly, but the effect is larger for the urban
- Amount of child transfer is more important for rural elderly

### **Conclusions**

- The retirement patterns are very different in urban and rural China
  - Urban elderly retire at surprisingly low age
  - Rural elderly remain working even at very old age
- The retirement patterns are partly driven by the following mechanisms
  - Mandatory retirement policy in the urban areas
  - Rural pension of low coverage, less generosity, disincentive
  - Lower rural family economic resources
  - More reliance of rural elderly on child support that has lower sufficiency
- Policy implications
  - Extend retirement age in urban
  - Improve rural pension

# **Future Work**

- Add Wealth measures
- Decomposition

# Thank You!