



## Inequality of household saving and money habits in China

### Abstract

**Background:** In this study, I aimed to explore if there is difference in household saving and money habit among Chinese citizens with different occupation and place of residence.

**Methods:** Data from the of China Health and Retirement Longitudinal Study (CHARLS) in year 2015 was used. CHARLS includes a nationally representative sample of Chinese residents aged 45 and older. Multivariate Logistic Regression Model was used to evaluate saving and cash percentage by place of residence, occupation, and hukou status.

**Results:** Results showed that compared with urban residence, people living in rural areas are less likely to have above average saving. Compared with Agricultural employment, Non-agricultural occupations also have higher saving. Furthermore, people with urban hukou have higher saving than those with rural hukou.

**Conclusion:** Inequality of household saving and money habits exist between urban and rural China, as well as between people with agricultural and non-agricultural occupations.

**Keywords:** inequality; household saving ; money habit ; Logistic regression

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### I. Introduction

In this study, I aimed to explore if there is difference in household saving and money habit among Chinese citizens with different occupation and place of residence.

### II. Study Methods:

#### 2.1 Data

Data of a nationally representative sample from the China Health and Retirement Longitudinal Study (CHARLS) was used. CHARLS is a follow up study of a national representative sample of Chinese residents aged 45 and older. The baseline wave I survey was conducted in 2011 and included about 10,000 households and 17,500 individuals nationwide. The individuals were then followed up every two years.

For this study, the most recent follow up data from CHARLS was used, which is its wave 4 data in year 2015. Participants with missing data on variables of interest were excluded from this analysis. The final analysis included 10,955 participants. 50% were males and 50% were females.

#### 2.2 Variables

##### 2.2.1 saving

Participant were asked “How much cash is held by you and your spouse at home?”, “What is the total amount of deposits you are currently holding in financial institutions ( eg: bank ) ?”

A variable “cash” and “deposit” were created based on the answers. These are the measures of saving.

A measure of money habit is also created, by using the following percentage:

Cash/(cash+deposit). This reflects the habit of keeping cash at home instead of depositing in financial institutes like banks.

A “total\_saving” variable was created by summing up cash and deposit.

Meanwhile, a binary variable indicating if the participant had “above average saving”:

1=above/equal the national average

0=below national average

They were also asked about government bonds, stocks, funds. However, the reported proportion were below 1%. Therefore, they were not included in this study.

2.2.2

Hukou

Participants were asked about their hukou. Hukou is the Chinese governmental household registration).

Place of residence

Participants were asked their residence and asked “Was it village or city/town?” with the following answer options:

1. Main city zone
2. Combination zone between urban and rural areas
3. The town center
4. ZhenXiang area
5. special area
6. Township central
7. Village

Occupation.

This is based on the question “Which of the following category did your job belong to?”

1. Own agricultural production and business activities
2. Agricultural employment
3. Non-agricultural employment
4. Non-agricultural self-employment
5. Unpaid household business help
6. Army using coal for cooking

2.2.3 Other variables

We adjusted for the effect of potential confounders, including the following:

- Age: it is a continuous variable
- Gender
- Education: it is grouped into four levels: 0='illiterate'; 1='primary school education or below'; 2='middle school to 3-yr college education'; 3='4-yr college education or above'
- Marital status was categorized into two types: 0=“married/cohabitating”, and 1=“separated/Divorced/Widowed/never married”.

**2.3 Statistical Analysis**

Logistic regression analysis is used. It is a type of generalized linear regression for analyzing relationship between a set of explanatory variables and a binary outcome variable.

In this study, the outcome is if the participant had “above average saving”. The model is:

$$\ln(\text{odds of outcome event}) = \ln(P/P-1) = b_0 + b_1 * X_1 + b_2 * X_2 + \dots + b_n * X_n$$

P is the probability of an event, and is convertible with odds.  $X_1, X_2, \dots, X_n$  are explanatory variables.  $b$  is regression coefficient for a specific X. The main output from Logistic Regression included regression coefficients  $b$ , and Odds Ratio (OR). OR can be calculated from  $b$ , with  $OR = e^b$ .

- If the coefficient,  $b$ , is positive,  $OR = e^b$  will be larger than 1. This means that the explanatory variable is related to higher odds of event.
- If the coefficient,  $b$ , is negative,  $OR = e^b$  will be less than 1. This means that the explanatory variable is related to lower odds of event.

I use 0.05 as statistical significance level. This means that if the P-value of a variable is less than 0.05, there is statistically significant relationship between place of residence and lung disease.

**III. Results:**

**3.1 Descriptive results**

*Total saving by occupation by place\_residence*

Descriptive statistics by group

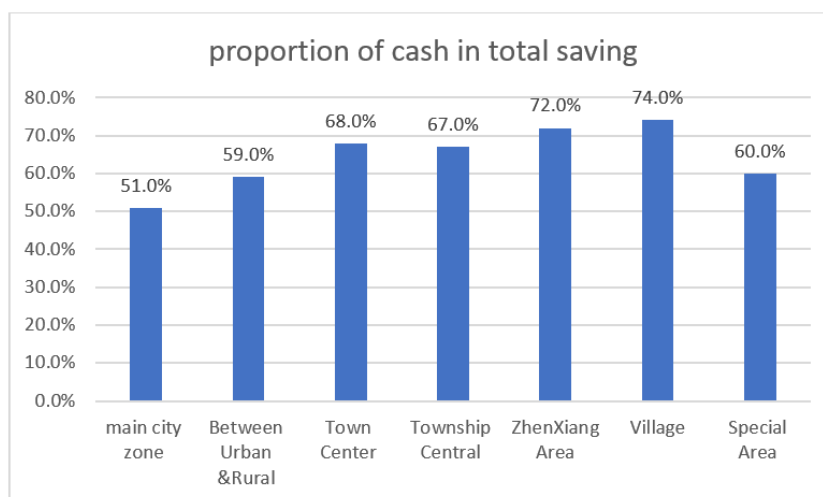
group: main city zone

vars	n	mean	sd	median	trimmed	mad	min	max	range
skew									
kurtosis									
X1	1 1302	41365.4	136581.6	4775	17347.75	7079.41	0	3002000	3002000 1
	2.05	210.98							
		se							
X1	3785.18								

```

group: Between Urban &Rural
  vars  n    mean      sd median trimmed  mad min  max  range sk
ew kurtosis      se
X1     1 428 25617.17 78316.74   2000 9985.72 2960.75   0 1001000 1001000 7.
92     80.85 3785.58
-----
group: Special Area
  vars  n    mean      sd median trimmed  mad min  max  range skew
kurtosis      se
X1     1 43 23417.81 47683.15   4200 11970.46 6226.92   0 230000 230000 3.13
9.86 7271.61
-----
group: Town Center
  vars  n    mean      sd median trimmed  mad min  max  range sk
ew kurtosis      se
X1     1 531 17574.67 60144.58   1500 5859.29 2223.9   0 1002000 1002000 10.
24    144.13 2610.05
-----
group: Township central
  vars  n    mean      sd median trimmed  mad min  max  range skew k
urtosis      se
X1     1 139 11120.23 22026.6   1000 5578.87 1482.6   0 120000 120000 2.72
7.8 1868.27
-----
group: Village
  vars  n    mean      sd median trimmed  mad min  max  range
skew kurtosis
X1     1 7140 10226.69 35646.81   800 3283.1 1186.08   0 1020000 1020000 1
1.76 228.95
      se
X1 421.86
-----
group: ZhenXiang Area
  vars  n    mean      sd median trimmed  mad min  max  range s
kew kurtosis
X1     1 265 42985.89 492666.8   800 4236.91 1186.08   0 8001000 8001000 1
5.91 253.9
      se
X1 30264.28
  
```

*Cash percentage by place of residence*



**Total saving by occupation**

Descriptive statistics by group

group: Agricultural Employment

	vars	n	mean	sd	median	trimmed	mad	min	max	range	s
X1	1	5331	9744.21	35816.82	700	3075.46	1037.82	0	1020000	1020000	1
	3.15	277.17	490.55								

-----

group: Army

	vars	n	mean	sd	median	trimmed	mad	min	max	range	sk
X1	1	185	41779.49	105960.8	4000	18720.97	5930.4	0	1002000	1002000	5.
	47	38.96	7790.39								

-----

group: Non-agricultural Employment

	vars	n	mean	sd	median	trimmed	mad	min	max	range
X1	1	1858	38764.56	220122.6	3505	13638.77	5196.51	0	8001000	8001000
	27.56	940.96								
		se								
X1		5106.72								

-----

group: Non-agricultural self-employ

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	205	21514.22	53635.47	2500	9990.61	3684.26	0	502000	502000	5.49
		37.83	3746.06								

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group: Own Agricultural Biz

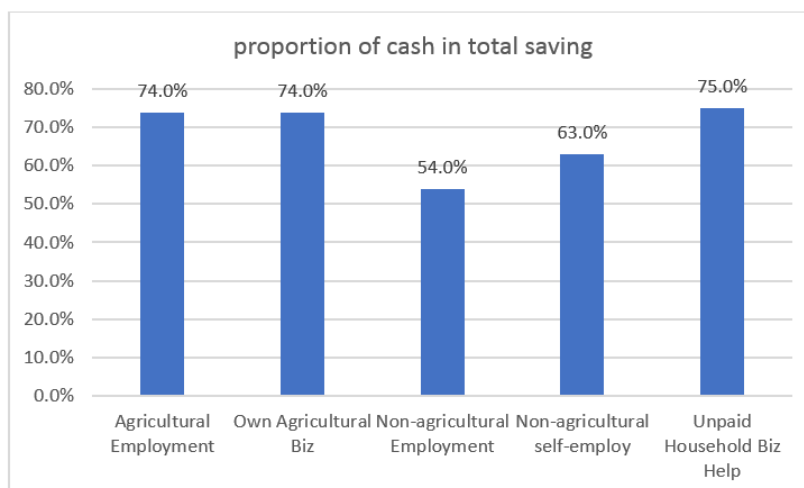
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	2154	10751.09	32889.35	1000	3582.96	1482.6	0	510000	510000	8.03
		93.71	708.65								

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group: Unpaid Household Biz Help

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	ku
X1	1	104	14702.45	34761	1100	5838.75	1604.91	0	203000	203000	3.63	
		14.66	3408.6									

**Cash percentage by occupation**

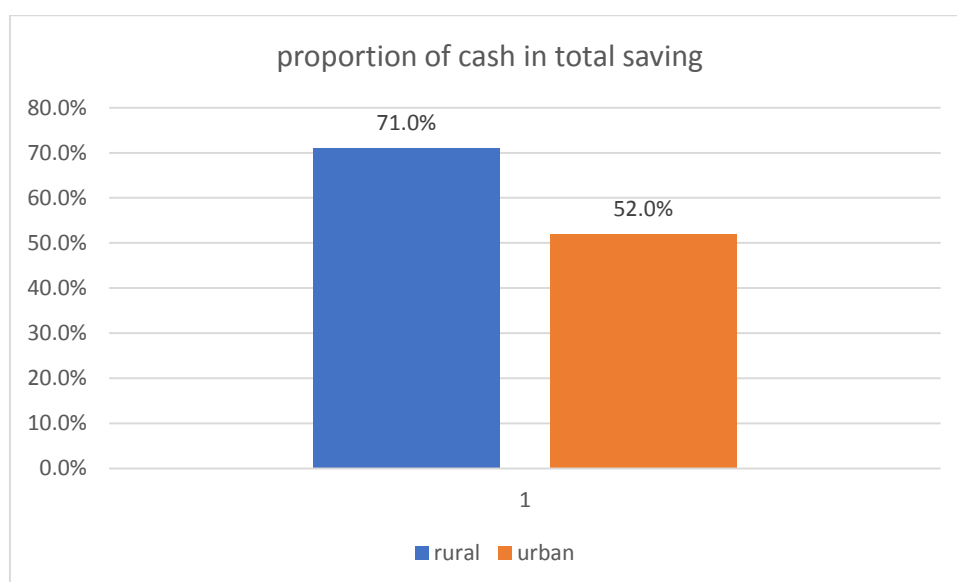


*Total saving by hukou*

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group: rural
  vars  n    mean      sd median trimmed  mad min  max  range skew
  kurtosis  se
X1     1 2736 10513.5 33206.58   800 3301.64 1186.08   0 510000 510000 7.28
      72.78 634.84
-----
--
group: urban
  vars  n    mean      sd median trimmed  mad min  max  range skew
  kurtosis  se
X1     1 529 39147.18 350233   5000 12806.66 7413   0 8001000 8001000 22.22
      501.87 15227.52
    
```

*Cash percentage by hukou*

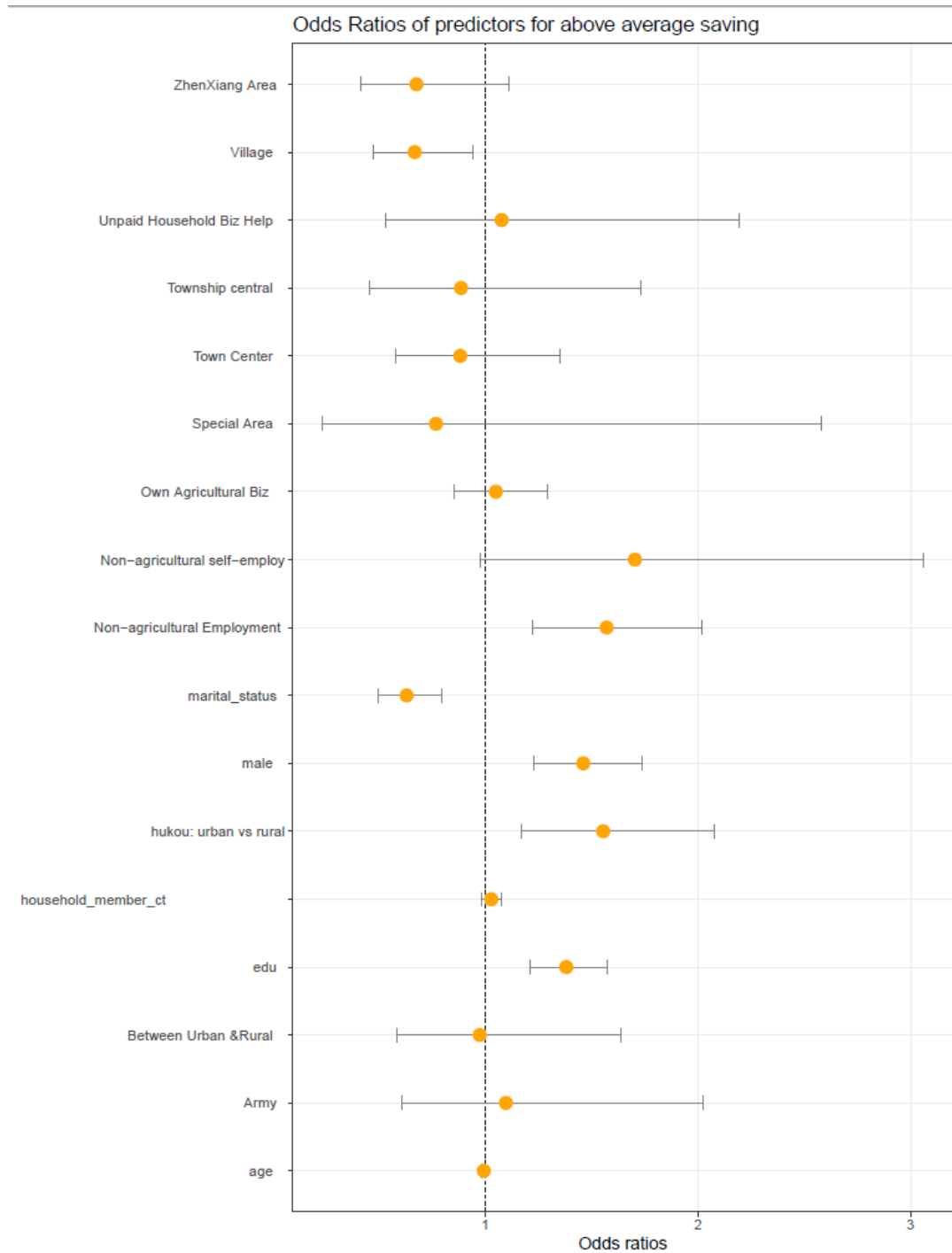


**3.2 Results from Logistic Regression Model**

The results of Odds Ratios were summarized in tables 1.

Odds Ratios from Logistic regression				
	OR	2.50%	97.50%	significance level
age	0.992	0.983	1.001	
male	1.46	1.229	1.736	***
edu	1.38	1.211	1.572	***
<b>marital_status</b>				
Separated/Divorced/Widowed vs. married	0.629	0.496	0.796	***
<b>Place of residence</b>				
reference: Urban				

Between Urban & Rural	0.973	0.586	1.635	
Special Area	0.767	0.234	2.579	
Town Center	0.881	0.577	1.348	
Township central	0.885	0.456	1.731	
Village	0.667	0.47	0.942	*
ZhenXiang Area	0.675	0.411	1.109	
<b>Occupation</b>				
reference: Agricultural employment				
Army	1.096	0.604	2.025	
Non-agricultural Employment	1.57	1.224	2.016	***
Non-agricultural self-employ	1.703	0.977	3.058	.
Own Agricultural Biz	1.049	0.851	1.291	
Unpaid Household Biz Help	1.076	0.529	2.192	
household_member_ct	1.027	0.981	1.074	
hukou: urban vs rural	1.554	1.166	2.076	**



Results showed that compared with urban residence, people living in rural areas are less likely to have above average saving. Compared with Agricultural employment, Non-agricultural occupations also have higher saving. Furthermore, people with urban hukou have higher saving than those with rural hukou.

#### IV. Discussions

Results in this study are largely consistent with previous findings. For example, Jan-Philipp Dueber, in his thesis “Inequality and Saving Behavior in Rural and Urban China”, concluded that the urban-rural income gap seems to be pretty constant over time.<sup>1</sup> He also found that urban income is about 50 percent higher than rural income.

Another report also stated that “Inequality of household saving and assets in China is much more serious than previously thought”.<sup>2</sup>

## **V. Conclusion**

Inequality of household saving and money habits exist between urban and rural China, as well as between people with agricultural and non-agricultural occupations.

## **References**

- [1]. Dueber, J.-P. Inequality and Saving Behavior in Rural and Urban China. (University of Zurich, 2012).
- [2]. Gan, L. *Findings from the China Household Finance Survey*. (2012).