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Living Arrangements of the Elderly in China and Their Depressions

Jie Xiong

Jinan University, Guangzhou, China
Email: jay5yaj@outlook.com

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Abstract

We study the living arrangements and consequences for depression of the elderly in China using data from the CHARLS in 2013 and 2015. It uses pooled regression and Two-way FE model to analyze the depression of elderly between different living arrangements. We study people in the sample age sixty and older, find that different living arrangements affect life depression of elderly, and compared to living with one or more grown children, elderly respondents living nearby grown children have least depression, especially in the same village or neighborhood. We believe that with the development and progress of society, elderly living with their children will not make the elderly more satisfied with their lives.

Keywords

Living Arrangements, Depression of Elderly Life, CHARLS2013-2015

1. Introduction

Since 2000, China has faced ageing population, and the population of "baby boomers" born in the 1950s entered the old age period in turn, forming an increase in the elderly population peak. At the end of 2016, the population aged 60 and over reached 230 million (16.7% of the total population), of which the population aged 65 and over reached 150 million (10.8% of the total population). But according the 6th national population census in China it showed that the number of people aged 60 and over reached just 13.26% of the total population. In the short six years, the population aged over 60 rose 3.44 percentage points. Compared with the sixth census, the population aged 65 and above also increased by 1.93 percentage points[1].

In addition, in addition, family planning policies that began in the 1970s pro-

[1]National Bureau of Statistics of the People' s Republic of China, 2016.

duced lower fertility rates. With the improvement of living standards, elderly live longer. The data released in 2017 for the Chinese people' s average life expectancy is 76.34 years old, 73.64 for men and 79.43 for women. The average life expectancy of Chinese people has increased by 1.51 and 3.39 years respectively compared with that in the past five years and ten years ago[2]. The two key factors of the family planning policy and the extension of the average life expectancy have contributed to the change in the age structure of our population. Among them, the issue of aging is particularly prominent. China and almost all developed countries in the world and many emerging market countries have experienced or are experiencing an aging population. China is the most populous country in the world, and the elderly population is also the largest in the world. At present, China is undergoing a transformation of its social structure, the need for comprehensive deepening of reforms and the building of a comprehensive society to become a well-off society. At the same time, economic growth has entered a new normal and the population is aging [1].

In this context, the life of the elderly has become a widespread concern of the society. As an important aspect of the lives of the elderly, different living arrangements will affect the quality of elderly lives.

Researches on living arrangements and the quality of elderly lives are mainly life satisfaction and health. Some scholars believe that living with children has a positive effect on the elderly [2] [3] [4] [5] [6]. But other scholars believe that living with children has an opposite effect on the quality of elderly life, living with children reduces the mental health of the elderly [7] [8] [9] and increases the degree of depression. Living with their children will also decline the cognitive level of elderly [10].

The impact of different living arrangements on the lives of the elderly has not yet reached a unified conclusion. Under the background of the increasingly severe ageing of China, there is great significance to analyze the impact of different living patterns on the lives of the elderly. This article examines one aspect of the quality of life—the degree of depression, and examines the degree of depression in older people under different living arrangements and gives suggestions for improving the quality of lives of the elderly.

2. Data, Variables, and Model

2.1. Data, Variables

The data used in this paper comes from the China Health and Retirement Longitudinal Study [11], which uses data from both the 2013 and 2015 national follow-up surveys. Since the study of this paper is about the relationship between the living arrangements of depression of the elderly, we excluded the sample of respondents aged below 60. In addition, previous literature has shown that the living habits and lifestyles of the elderly are greatly different because of age. Therefore, the article selected samples that were older than 80 years old. In addi-

[2]China statistical yearbook 2017.

tion, some statistical information on living information is missing and some samples with missing the information are excluded.

The Depression Scale is one of the scales that reflects people's mental state in reverse and is considered to have sufficient reliability and validity [12].

The dependent variable of this article is depression. The independent variable is living arrangements. According to the questionnaire[3], we divide living arrangement into four different aspects: 1) Co-residence, if the respondents live with at least one of the children. In this paper, we set Co-residence as the control group. 2) Near-residence, if the respondents live alone but with at least one of the children in the same or adjacent dwelling or courtyard only. 3) Neighborhood-residence, if the respondents live alone but with at least one of the children in another household in their permanent address's village or neighborhood only. 4) In-city-residence, if the respondents live alone but with at least one of the children in another village or neighborhood only. 5) Out-city-residence, if the respondents live alone but with at least one of the children in another city only.

Previous literature studies have shown that individual characteristics such as age, gender, marital status, household registration, education, number of alive children, number of deceased children, and other factors such as income, housing, assets, self-care ability, and other factors all affect the life satisfaction of elderly [13] [14] [15] [16] [17]. For example, Kim and Moen (2001) [14] believes that in addition to health and income are important factors affecting the well-being of older people, participation in social activities.So we add these as control variables. We take logarithm of income and assets. All variables can details in the **Table 1**.

2.2. Model Settings

2.2.1. Pooled Regression

Pooled Regression assumes that all individuals have exactly the same regression Equation [18]:

$$y_{it} = \alpha + x_{it}'\beta + z_i'\delta + \varepsilon_{it}$$

Among them, x_{it} do not include constant items. It is called mixed regression, because all the two periods of data can be put together, and the OLS regression can be performed like cross-sectional data.

2.2.2. Two-Way FE Model

Considering that the sample is panel data, the Two-way FE model is used to control the influence of time and regional factors on the estimation results. The fixed-time effect can solve the problem of missing variables that do not change with the individual but change over time. Regional fixed effects are mainly controlled to the provinces, which can solve the missing variables that do not change with time and with the region. Two-way fixing can solve the above two problems at the same time. Assuming the model is [19]:

[3]China health and retirement longitudinal study follow-up questionnaire 2013 (2015).

Table 1. Detail of variables.

Variables		Descriptions
Dependent variable		
	Depression	Assignment 10 - 40, the greater the value, the more depressed
Independent Variable		
	Arrangement	Co-residence (Set as Baseline)
		Near-residence
		Neighborhood-residence
		In-city-residence
		Out-city-residence
Control Variables		
	Age	Age(60 to 80)
	Gender	1 = Male, 0 = Female
	Married	1 = Yes, 0 = No
	HuKou	1 = Urban, 0 = Rural
	Education	From 1 to 11 mean Illiterate to Ph.D.
	A-Children	Num of Alive Children
	D-Children	Num of Died Children
	Income	Wage and Pension
	House	Household Own the House :1 = Yes, 0 = No
	Assets	Cash and Deposits in financial institutions
	ADL	The Greater the Poor Self-care Ability
	Health	3 = good, 2 = fair, 1 = poor
	Insurance	1 = Health Insurance, 0 = No

$$y_{it} = x_{it}'\beta + z_i'\delta + \gamma S_{wave} + \eta C_{province} + u_i + \varepsilon_{it}$$

In this equation, γS_{wave} and $C_{province}$ are unobservable variables at the time and regional level, respectively. We let $\Phi_t = \gamma S_{wave}$ and $\Pi_p = C_{province}$, we get

$$y_{it} = x_{it}'\beta + z_i'\delta + \Phi_t + \Pi_p + u_i + \varepsilon_{it}$$

So, we can think Φ_t as a unique period intercept and interpret it as the effect of period t on the interpretation of *y*. we can think Π_p as a unique period intercept and interpret it as the effect of "provincial" effect.

3. Analysis of Data

3.1. Description Statistical of Data

3.1.1. Dependent Variable

From the statistical results in Table 2, the average depression of Co-residence was 18.57, and the average depression level of In-city-residence was 17.76. Just from the statistical results, we find that living apart from children reduced the

Table 2. Statistical description of depression.

index	Depression					
	Co-	Near	Neighborhood	In-city	Out-city	All
Mean	18.57	18.18	18.06	17.76	18.33	18.26
S.D	6.42	6.27	6.18	5.98	6.05	6.25
Min	10	10	10	10	10	10
Max	40	40	40	40	40	40
N	6216	1037	3220	2595	1344	14412

degree of elderly depression, and the farther away elderly live, the more obvious the effect will be.

3.1.2. Independent Variables

The majority living arrangement of the elderly is Co-residence in the sample. It is a slightly higher proportion in 2015 than 2013 and has 14,412 samples in two years, accounting for 43.13%. Near-residence ratio is not high, has 1037 samples, accounting for 7.2%; Neighborhood-residence has 3220 samples, account for 22.34%. In-city-residence has 2595 samples, accounting for 18.01%. Out-city-residence has 1344 samples, accounting for 9.33%. As shown in **Table 3**.

3.1.3. Control Variables

There are a total of 14,412 samples that meet the requirements. Some of the variables are missing. The average age of the sample was 66.99 years old; among the gender, men accounted for 49.9%, which was lower 0.2% than women; most of them were rural households, and only 39.9% were from urban households. The details are shown in **Table 4**.

3.2. Empirical Analysis

This section mainly analyzes the depression of the elderly between different living arrangements. In the basic model 1), we find that compared with the baseline group, Near-residence and Neighborhood-residence can reduce the depression of the elderly. In model 2), we add control variables and found that the results are similar to model 1). After controlling time and province, the coefficient becomes smaller but the result is still robust. Through the three models, we believe that the elderly and children living in close quarters, communities, or villages can significantly reduce the degree of depression, and the neighboring residents have the best effect (**Table 5**).

4. Conclusion and Suggestion

Rapid economic growth, demographic ageing and changing family preferences in China have altered the traditional living arrangements of older adults, possibly intergenerational relations and compromising their wellbeing. This paper

Table 3. Statistical description of living arrangements.

Type	Year 2013		Year 2015		All	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
Co-	2788	41.76	3428	44.32	6216	43.13
Near	534	8	503	6.5	1037	7.2
Neighborhood	1604	24.02	1616	20.89	3220	22.34
In-city	1205	18.05	1390	17.97	2595	18.01
Out-city	546	8.18	798	10.32	1344	9.33
total	6677	100	7735	100	14412	100

Table 4. Statistical description of control variables.

Variables	N	Mean	S.D	Min	Max
Age	14,412	66.999	5.4098	60	80
Gender	14,412	0.5080	0.4999	0	1
HuKou	14,412	0.3986	0.4896	0	1
Education	14,192	3.0398	1.9055	1	10
Married	14,411	0.8350	0.3711	0	1
Assets	14,026	6.5454	3.0799	0	15.895
Income	14,350	5.9148	3.7166	0	12.724
A-Children	14,412	3.1574	1.4336	0	10
D-Children	14,412	0.1871	0.5361	0	6
ADL	14,328	6.5945	1.5925	6	24
House	14,204	0.8531	0.3532	0	1
Health	14,405	1.9237	0.7020	1	3
Insurance	14,412	0.8744	0.3311	0	1

selects the CHARLS survey data to examine the effect of residential patterns of people over the age of 60 and less than 80 years old on depression in China. My study is important because very little research has looked at this issue in the extant literature.

The conclusions drawn are: 1) Different living patterns will affect the degree of depression in the elderly. The mode of influence is mainly achieved through the sense of happiness of the elderly. 2) Through different models, the results we obtained are more robust. Therefore, the conclusion of this paper is that the sharing of the elderly and children does not necessarily improve their life satisfaction. 3) We also have other discoveries. First, age can increases depressions, in other words, the older people are, the more depressed people are. Second, there is a gender difference in the degree of depression. Women are more depressed than Men. We also can see that the higher the degree and more assets people have the less depressed.

Table 5. Empirical analysis.

	(1)	(2)	(3)
	Description		
	Base Model	Pooled Model	FE Model
Near	−0.369*	−0.450**	−0.384**
	(0.21)	(0.19)	(0.19)
Neighborhood	−0.491***	−0.481***	−0.299**
	(0.14)	(0.13)	(0.13)
In-city	−0.798***	−0.113	−0.0630
	(0.15)	(0.14)	(0.13)
Out−city	−0.246	0.107	−0.00900
	(0.19)	(0.18)	(0.17)
Age		1.175***	1.041***
		(0.24)	(0.22)
Age 2		−0.009***	−0.008***
		(0.00)	(0.00)
Gender		−1.155***	−1.258***
		(0.11)	(0.10)
HuKou		−0.832***	−0.793***
		(0.12)	(0.11)
Education		−0.228***	−0.195***
		(0.03)	(0.03)
Married		−1.030***	−0.942***
		(0.16)	(0.13)
Assets		−0.172***	−0.155***
		(0.02)	(0.02)
Income		−0.038***	−0.040***
		(0.01)	(0.01)
A-Children		0.112**	0.0460
		(0.04)	(0.04)
D-Children		0.686***	0.559***
		(0.11)	(0.09)
ADL		0.792***	0.783***
		(0.05)	(0.03)
House		−0.173	−0.131
		(0.14)	(0.14)
Year			√
Province			√
N	14412	13402	13402
r2	0.0030	0.248	0.265
F	8.450	170.6	210.3

Notes: 1) Standard errors in parentheses *p < 0.1, **p < 0.05, ***p < 0.01. 2) Due to article length limit, we do not report results of constant items in sheet.

In response to our conclusions, the policy suggestions given are: First, adult children live together with the elderly and have always thought that they are considered to be examples of old-style support. However, with the development and progress of society, the lifestyle of the elderly has long since changed. Living with children does not necessarily make the elderly happier. Therefore, we believe that we should give the elderly their own living space. For children, it is not a reflection of filial piety to arrange for the elderly to live with them. Children should be given more greetings, more contacts and more visits. Second, there are many factors affect the degree of elderly depression, like age and Hukou, so we should give more care to older people and people who live in rural of China.

This article still has many shortcomings. First the research in this article is from the perspective of the elderly. The information contained in the children does not contain the effect of controlling children's characteristics on the degree of depression in the elderly. In addition, this article does not consider the elderly own preference for living. Second, the study of this paper shows that residential arrangements will affect the degree of depression of the elderly, but do not know how living arrangements affect the elderly depression. Therefore, in the following studies, children's factors and old people's living preferences can be considered. And we should find out how living arrangements affect the elderly depression then we can really solve the elderly depression.

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