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The Characteristics of Population Aging and Its Impact on Economy in China

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Abstract: There has been much debate on the issue of aging population in relation to urbanization. The debate in Chinese context has been drawing particular attention. Analysis and comparison of data drawing from China's Six National Census and World Population Prospect has shown that aging problem of China has four unique features including early occurrence, higher rate of aging population, differences between urban and rural areas and correspondence to small family size. A further analysis of these four features has indicated that China's aging has much higher negative impact on the global economic growth than any other country in the world. During 2010-2100, several indicators measuring population aging rise rapidly and stay on the high level for a long time. If the paper switches China's population structure in 1960-2005 with data in 2005-2050, GDP per capita would seem probably decrease by 1.23 percent. Therefore it needs to be paid attention to and solved. This paper aims to help people better understand this issue and raise the public awareness of its severity.

Key words: population aging; characteristics; impact; economy; China
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1. Introduction

The aging problem is connected with the approaching of urbanization. It was born in the European countries and Japan, and then appeared in countries like America and Australia, which were all highly developed.

Although China is not a developed country yet, the level of aging problem in China is the same as in developed countries. Since 1970s, the aging structure in China began to change. The proportion of old people in the society was gradually increasing. In 1996, the proportion of the elder in China was just a step to the standard of aging society. It is generally believed that China has turned into the aging society in 2000, which has been more than 10 years.

It is worth analyzing its unique status quo and characteristics. China has finished the sixth national census and the United Nations Population Division also issued on World Population Prospects amendments, the latest data has provided a wealth of material for the study of China's population aging and related issues. This paper puts emphasis on analysis and comparison to estimate the potential impact on economic growth of the aging population.

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2. Methods and Results

This part aims to analyze and compare the data to find out the results.

Since population aging is a macro phenomenon, data in this paper are mainly based on China's national census and World Population Prospects. The main method is comparison. Five tables have been listed below, covering several representative indexes compared with different nations, to find out the characteristics in China and the potential impact on economy.

Table 1 Proportion of Older People and GDP per Capita in Different Nations (United Nations, 2013)

Nation	Percentage of 60 or older (%)			GDP per capita (dollar in 2010)		
	1960	2000	2010	1960	2000	2010
Japan	5.7	17.2	23.0	8369	40167	43118
Germany	11.5	16.3	20.8	—	36517	40164
Italy	9.5	18.3	20.3	10450	34832	33761
U.S.	9.2	12.4	13.1	17169	43890	46616
China	4.0	7.0	8.9	186	1740	4434

The first characteristic is early occurrence. Table 1 shows the proportion of older people and GDP per capita in different nations. The paper puts China and the "oldest" four countries, Japan, Germany, Italy and the United States, which has the largest national economy together. Most western developed countries entered aging society before industrialization or modernization has been achieved. However, in accordance with criteria for the classification of the World Bank, China was still a low-income country when it entered aging society. If comparing the same stage of GDP per capita, there was a large gap between China and other countries.

Table 2 Population Aging Rate Comparison in Different Nations (Wu Cangping, 1999)

Nation	Reaching year of the percentage of 65 or older		Years
	7%	14%	
Japan	1970	1996	26
UK	1930	1975	45
Germany	1910	1975	66
Sweden	1890	1975	85
France	1865	1980	115
China	2000	2025 (prospection)	25

The second characteristic is higher population aging rate. To measure the speed of population aging, there are two commonly used standards: the proportion of older people's growth points in a certain period; the time that proportion of older people has risen from one to another proportion. Table 2 shows some representative countries and the time that the proportion of the population aged 65 or older increased from 7% to 14% used: France took 115 years, Sweden with 85, Germany with 66, Britain with 45. According to our estimates, China will use about 25 years, the rate which is the highest.

Table 3 Aging Level Comparison in Urban and Rural Areas[1]

Year	Percentage of 0~14		Percentage of 15-64		Percentage of 65 or older	
	Urban areas	Rural areas	Urban areas	Rural areas	Urban areas	Rural areas
2000	18.42%	25.52%	75.16%	66.98%	6.42%	7.50%
2005	16.60%	21.95%	74.91%	68.50%	8.49%	9.55%
2010	14.08%	19.16%	78.12%	70.78%	7.80%	10.06%

The third characteristic is differences between urban and rural areas. Since the urban areas have better living conditions and higher health care level, the lifespan is expected to be longer. Also, due to the differences in different policies and the rural and urban population desires, in theory, the degree of aging in rural areas should be lower than that of urban areas. But in recent years, a large number of Chinese rural workers have moved to cities and towns, with children and the elderly in the countryside left. The degree of aging appears higher in rural areas than in urban situations. It can be seen from Table 3, in 2000, 2005 and 2010, the proportions of elderly population in China in rural areas were higher than in urban areas.

Table 4 The Average Number of People in Chinese Families[2]

Year	The average number of people	The average number of people in urban areas	Year	The average number of people	The average number of people in urban areas
1953	4.33	—	1990	3.96	3.50
1964	4.43	—	2000	3.44	3.13
1982	4.41	—	2010	3.10	2.87

The last characteristic is correspondence to small family size. According to China's sixth national census, in 2010, the average population per household was 3.10 people. A lower number of that of urban per household was only 2.87 (see Table 4). Small family size brings gradual weakening of traditional family support functions, and the population aging also adds pressures to the pension system.

Table 5 The Effects of Population Aging on GDP per Capita Growth Rate (Zheng Wei, Lin Shanjun, Chen Kai, 2014, p. 20)

Nation or region	Growth rate of GDP per capita from 1960-2005 in reality (%)	Growth rate of GDP per capita from 1960-2005 in aging situation (%)	Changes (%)
Total	1.84	1.75	-0.09
OECD	2.8	2.1	-0.7
China	6.08	4.85	-1.23
Singapore	5	3.4	-1.6
Hong Kong	5	3.7	-1.3

Population aging has impact on economy. From Table 5, it can be seen that if China is put in the aging situation, the GDP per capita in 1960-2005 would be lower than that in reality, which means aging population has negative impact on economic growth, and the possible reasons will be discussed as follows.

3. Discussion

According to the data, population aging has potential impact on economy, which is believed to lower the economic growth. The reasons may be various. This paper lists three possible ones here that the author thinks the most important.

[1] Data from: China's sixth national census; China's fifth national census; 1% of the national population sample survey in 2005.
[2] Data from: China's sixth national census.

To begin with, there will be less labor in China with aging problem getting worse. If population keeps aging, the old people will increase and the working-age people will decrease relatively. Labor is one of the most significant factors to increase the fertility, which is related to economic growth directly.

In addition, government has taken more economic pressures. According to MHRSS[3], the money our government has spent for financial pension subsidies increased from RMB 614 billion yuan to 3,019 billion yuan per year, and the number of retired people who get protection increased from 4,103,000 to 8,041,000. China doesn't have a strong economic base. Too many old people will bring much burden to the government.

Finally, it will also lower China's international status. It is obvious that when aging problem gets worse, demographic bonus will decrease and fertility will decline. These will all affect the economy, which corresponds with the international status.

4. Conclusions and Suggestions

This paper mainly analyzes some data from China's sixth national censes and World Population Prospects data by the UN. By comparison, the paper finds that there are four typical characteristics in China, which are early occurrence, higher aging rate, differences between urban and rural areas and correspondence to small family size. It also finds relationship between population aging and economic growth.

After paying attention to the aging problem in China, the paper can draw a conclusion easily that this problem needs to be coped with.

Some suggestions are listed as follows. The government could make some more policies like encouraging people to raise children and so on. It has been put into practice and maybe its effects can be seen shortly after. In addition, improving the welfare system is another way. It can be learnt from some western countries like Germany or Sweden. They already have wonderful welfare systems. What's more, the government should strengthen the advertisement of the aging problem, advocating the whole society to assist the elder.

To sum up, the aging problem in China is still very severe. Everyone should pay attention to this problem. It is everyone's responsibility to create a harmonious society for the elder and respect them. If rational policy can be made and the science and technology level can be improved, it is hopefully able to solve this problem finally.

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[3] Short for the Ministry of Human Resources and Social Security.