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Analysis of the Current Situation of the Aging Population and Differential Economic Impacts between China and Japan

Jingyi Wang*

Jinan University, Joint College of Birmingham University, Xingye Avenue, Guangzhou, China

**Corresponding author: Jingyi Wang*

Abstract

Given that aging has become a common problem faced by China and Japan in terms of development paths, this article conducts a differentiated comparative analysis of the current situation and economic impact of aging in China and Japan. Both countries have gone through specific aging stages and will continue to experience aging with increasing and negative population growth. China has the largest elderly population, whereas Japan has the deepest degree of aging and a greater proportion of elderly people. In terms of economic impact, population aging has a detrimental effect on the quality of economic expansion in both countries, whereas interacting with technological innovation has a positive effect. The impact on consumption and the industrial structure has both positive and negative effects, which strongly influences the development of the tertiary industry. Finally, China can actively draw on Japan's experience to promote technological innovation, postpone retirement, and guide elderly consumption to counteract the detrimental influence of aging on the development of both China and Japan.

Keywords

aging population, China, Japan

1. Introduction

1.1 Research Background and Significance

At present, China is in an important stage of transitioning from a "demographic dividend" to a "talent dividend", and the influence of population growth on total factor productivity has undergone a shift to negative. China and Japan are important countries for economic growth in Asia, as are two countries with prominent aging issues. Japan has been facing severe aging problems for decades and has richer experience in dealing with aging issues. The relevant experience in Japan shows that the rapid aging rate and the existing social system and economic structure have created sharp contradictions, affecting the balance and stability of the economic system. China's aging population is similar to Japan's aging population but also has its own characteristics due to different national conditions and family planning policies. On this basis, this article performs a comparative analysis of the common problems of aging in China and Japan as the research main line, determines the impact of aging on different aspects of the economy, and thus addresses the challenges of aging issues. In regard to this study, the significance of its comparative analysis of population ageing in China and Japan is demonstrated in the following main ways. First, the negative population growth in both countries

has led to ageing becoming an endogenous factor that constrains economic development and microeconomic subject selection. However, existing research lacks an in-depth understanding of the issue of population aging. This study contributes to the future economic development of China and Japan in the context of aging. Second, both China and Japan face some common problems in the process of population aging, and their cultural attributes are similar. Compared with China, Japan started its aging process earlier, and its aging process and policy research have strong reference significance for China.

1.2 Literature Review

Chinese scholars pay more attention to the economic impact and pension security issues related to aging. Cai Fang noted that population aging constrains economic growth from both the supply and demand sides. First, the peak of the working-age population will weaken the demographic dividend, and second, the peak of the total population will lead to a decline in social demand (Cai, 2021). However, this does not mean that the demographic dividend will completely disappear. The structural problems of economic growth and employment will gradually surpass the overall problem and become the main contradiction. Ma Xiaohe noted that the growth of the elderly population will increase the number of people who only consume wealth, and aging before becoming rich has become an important mechanism for the downwards trend of China's economy (Ma, 2023). Hiraoka Gongyi noted that Japan's aging population has led to elderly poverty, but providing a minimum living guarantee level of pension can help alleviate elderly poverty, which has led to a slight decrease in Japan's elderly poverty rate since the 21st century. Hirahara Yukihiro discovered that since 2010, there has been an increase in fertility in the central areas of Japan's three major metropolitan areas, with cities replacing rural areas as childcare spaces for young people. Yasuda Takashi noted that it is difficult for the elderly population to generate tax revenue for the local area and that the inability of rural areas with heavy financial burdens to provide support for the elderly population has suppressed the migration of elderly people to rural areas.

Existing domestic and foreign research shows that Chinese and Japanese literature focuses mostly on economic development and social phenomena. Japan's aging process is faster than that of China, exposing more problems. The Japanese literature on aging issues in Japan includes some issues that have not been fully addressed in Chinese research. However, most of these studies focus on the aging status and impact of each country, and relatively few studies have analysed the differences in the current situation and impact between the two countries. On this basis, this article adopts the research ideas of literature analysis and comparative analysis, focusing on the differences in the current situation of aging and economic impact between China and Japan, to supplement existing research results.

2. The Current Status of Ageing in China and Japan

2.1 China

According to census data from the National Bureau of Statistics of China, as shown in Table 1, the average annual population growth rate in China has continued to decline from 1990--2020. The average annual growth rate in 2020 was only 0.53%, which was approximately one-third of that in 1330.

Table 1: Annual average population growth rate of China from 1990--2020

Census Years	1990	2000	2010	2020
Average Annual Growth Rate	1.48%	1.07%	0.57%	0.53%

The gender composition of the population in Table 2 shows that the gender ratio of China's population has been steadily decreasing from 1990--2020, although there is still some gap from a 1:1 male--to-female ratio. The situation of more males than females has improved.

Table 2: Gender composition of the Chinese population from 1990--2020 (10000 persons)

Census Years	National Population			Sex Ratio (Female=100)
	Both Sexes	Male	Female	
1990	113368	58495	54873	106.60%
2000	126583	65355	61228	106.74%

2010	133952	68685	65287	105.20%
2020	141178	72334	68844	105.07%

Table 3 shows that the total number of elderly people in China doubled compared with that in 2000 and 2020. Since 1990, the proportion of the elderly population in China has steadily increased, and the rate of increase has significantly accelerated since the beginning of the century. According to international standards, the proportion of the elderly population in China reached over 7% in 2000, approaching the threshold of 14% for an aging society in 2020 and increasing from approximately 7% to 13.5%. It took China 20 years, which is in line with the basic law that the later the development of aging, the faster the aging process. Overall, China has shifted from mild aging to moderate aging. According to the 2020 Seventh National Population Census, China has a high proportion of people aged 45--65, making it the country with the largest elderly population in the world.

Table 3: Age composition of the Chinese population from 1990--2020

Census Years	Proportion of Population by Age Group to National Population			
	0-14	15-19	60+	65+
1990	27.69%	63.74%	8.57%	5.57%
2000	22.89%	66.78%	10.33%	6.96%
2010	16.60%	70.14%	13.26%	8.87%
2020	17.95%	63.35%	18.70%	13.50%

2.2 Japan

According to census data from the National Bureau of Statistics of Japan, Japan began aging as early as 1970, with long-term coexistence of a low birth rate, an aging population, and negative population growth. However, Japan's total fertility rate has remained above 1.30 for a long time, with a high proportion of elderly people aged 75 and above. As shown in Tables 4 and 5, the total population of Japan in 2020 was approximately 121 million, a negative growth of 3.818 million compared with 2010. Among them, approximately 35.336 million people were aged 65 and above, with the elderly population accounting for 28.1%. In fact, the proportion of the elderly population in Japan reached 7.06% in 1970, and the population has become an aging society. In 1995, it exceeded 14.50% and became an aging society. In 2005, the proportion of the elderly population rose to 20.09% and entered the United Nations standard superaging society. From 1970--2020, the number and proportion of the elderly population in Japan steadily increased, with the proportion of the elderly population in 2020 being approximately four times greater than that in 1970.

Table 4: Total population of Japan from 1990--2020

Census Years	1990	2000	2010	2020
Japanese Population	123,611,167	126,925,843	128,057,352	126,146,099

Table 5: Number and proportion of the elderly population in Japan from 1970--2020

Census Years	The number and proportion of the elderly population in Japan		
	All ages	65+	Percentage of population aged 65 and above
1970	104665171	7393292	7.06%
1995	125570246	18260822	14.54%
2005	127767994	25672005	20.09%
2020	126146099	35335805	28.01%

Taking the comparison of population pyramids in 1990 and 2020 as an example, the population aged 20--44 years in Japan accounted for a relatively high proportion of the population in 1990 and was the main population. In 2020, the proportion of elderly people in Japan's population structure was relatively high, and these people were mainly aged 45--74 years. Affected by fluctuations in the birth population queue, the main population is gradually aging (see Figure 1 and Figure 2).

Figure 1: Population pyramid of Japan in 1990

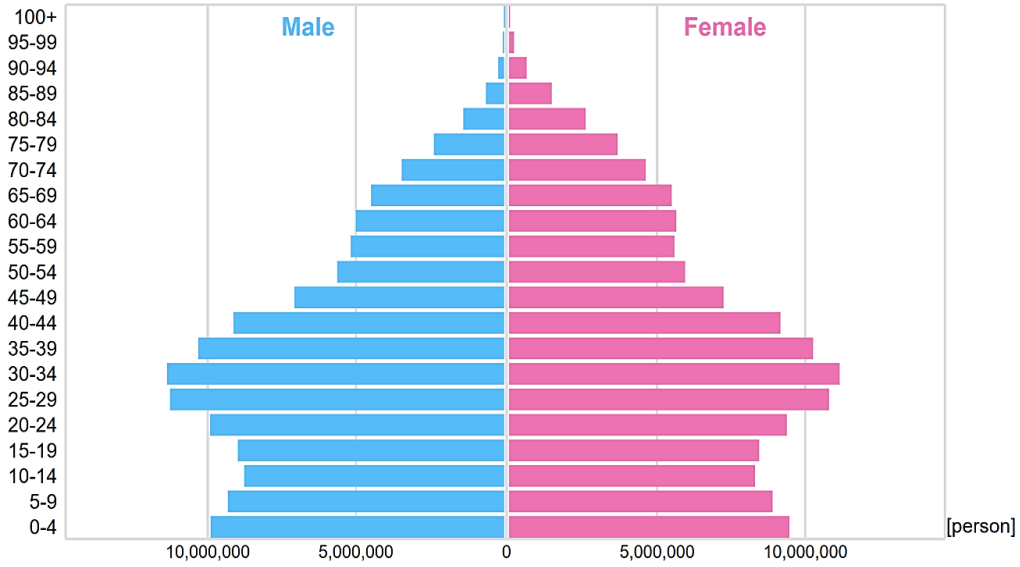
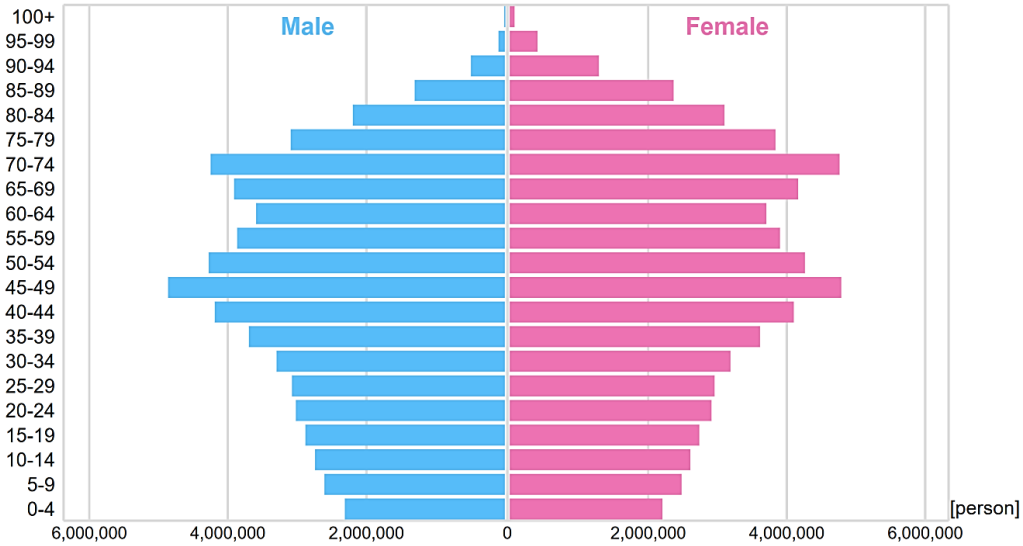


Figure 2: Population pyramid of Japan in 2020



2.3 Comparative Analysis

The most basic commonality between the ageing situation in China and Japan is that the population transition in both countries has not stopped, and there is still a long way to go before the population structure is relatively stable. The two factors of fertility and lifespan have long accompanied the demographic transition of modern countries. Combining these two factors, Japan has experienced aging, with a faster growth rate in the elderly population than in the total population, and aging, with an increase in the elderly population and negative population growth. Japan has temporarily experienced a peak in the number of elderly people, which is manifested in the coexistence of negative population growth and negative elderly population growth in the short term. China and Japan will continue to experience an aging population with increasing and negative population growth, and the proportion of the elderly population will continue to rise. The prominent manifestation of the aging situation in China and Japan is that China has the largest elderly population, whereas Japan has the deepest degree of aging and a relatively high proportion of elderly people.

3. Comparison of the economic impact of aging in China and Japan

3.1 The Impact on the Quality of Economic Growth

First, by sorting out the relevant rankings of various provinces in China and prefectures in Japan, Table 6 shows that for both countries, a high degree of population aging has a negative effect on the quality of economic growth.

Table 6: Regional ranking of the aging population and economic growth quality in China and Japan

Area	Population aging rankings	Economic growth rankings	Area	Population aging rankings	Economic growth rankings
Beijing	25	1	Hokkaido	24	8
Tianjin	7	4	Aomori	19	37
Hebei	15	23	Iwate	11	27
Shanxi	23	29	Miyagi	41	15
Nei Menggu	18	18	Akita	1	18
Liaoning	5	17	Chevron	7	26
Jilin	14	15	Fukushima	25	21
Heilongjiang River	22	10	Ibaraki	36	14
Shanghai	19	2	Tochigi	40	11
Jiangsu	3	6	Gunma	33	19
Zhejiang	17	8	Saitama	42	5

Second, with reference to Zhang Fengfeng et al.'s work on how population aging and technological innovation impact the quality of economic growth, dynamic panel data from 11 provinces in China and 11 prefectures and counties in Japan, and the method of constructing a systematic GMM model, it can be concluded that the exchange effect of population aging and technological innovation has a positive effect on the quality of economic growth (Zhang and Deng, 2019). There are two main reasons for this: on the one hand, technological innovation helps to buffer the challenges of population aging. The aging population problem is forcing technological innovation, which may become an important economic growth point for China and Japan in the future. Japan actively utilizes technological innovation to address economic challenges, especially the social problems caused by an aging population. Japan's goal is to be the first to prove that innovation can promote output growth even if the population decreases. On the other hand, compared with China, Japan's technological innovation plays a prominent role in enhancing the social participation of the elderly population, improving their health level, and increasing their chances of secondary employment, indirectly buffering the challenges of population aging.

3.2 The impact on consumption and the industrial structure

Population aging has a greater impact on labor supply, consumption demand, and the consumption age structure in the short to medium term, and this impact has both positive and negative effects on consumption and the industrial structure.

Through qualitative analysis, on the one hand, the consumption demand of the elderly population is generally lower than that of the young population. Although the consumption level increases with increasing per capita income, increasing population aging leads to a decrease in the speed of improvement in the consumption level. Population aging has an adverse effect on the improvement of the consumption level and consumption ratio (Mao et al., 2013, Zhang and H., 2011). Yu Xiao reported that population aging has different impacts on total consumption demand at different stages of development. The initial stage of population aging has a positive effect on consumption demand, the midterm stage has a negative effect, and the late stage has a zero effect (Yu and Sun, 2012).

On the other hand, there are significant differences in consumption structure among different age groups, and consumption age is a key factor in consumption structure. The aging of the population age structure has

made elderly consumers an important consumer group. Compared with the younger population, the elderly population has a greater demand for services than for goods. With increasing population aging, the proportion of consumption expenditures on living materials has decreased, whereas the proportion of consumption expenditures on healthcare, spiritual culture, and other areas has increased (J., 2004, Cha and Zhou, 2011). This leads to changes in the structure of consumer demand, driving changes in industrial composition and thus affecting the industrial structure. The aging industry is most positively affected by population aging, which involves primary, secondary, and tertiary industries, with tertiary industry being the main industry. Therefore, improving the population ageing level is conducive to promoting the development of tertiary industry (Yi, 2015, Wang et al., 2015).

Moreover, by referring to the research of Wang Wei et al. on population aging and the upgrading of household consumption structure, as well as the quantitative analysis method of Yan Gaihong et al. on the impact of population aging on consumption structure, it is concluded that population aging has a positive effect on the overall consumption level of both countries, but the magnitude of the effect varies (Wang and Liu, 2017, Yan and Hu, 2022).

4. Conclusion

Japan's population is moving towards "aging" at a very rare rate, with the deepest degree of aging and a relatively high proportion of elderly people. Compared with Japan, although China's aging population is not as advanced as Japan's is, China's society is rapidly aging, with a large population and the characteristic of aging before becoming wealthy, and it has the largest elderly population. For both China and Japan, a high degree of population aging has a negative impact on the quality of economic growth. The interaction between population aging and technological innovation has a positive effect on economic quality growth. On the one hand, increasing population aging not only leads to a decrease in the speed of consumption level improvement but also has adverse effects on the increase in the consumption level and consumption ratio. On the other hand, increasing population aging is conducive to promoting the development of tertiary industry and enhancing the overall consumption level of both countries.

China and Japan should seize development opportunities; vigorously promote technological innovation, especially in industries such as medical, health, nursing, and information and communication; and strengthen the ability of technological innovation to respond to the challenges of an aging population society. On the other hand, a proactive approach is needed to address the opportunities and challenges of population aging—enhancing elderly health and motivating their participation in social events and secondary employment. In addition, breaking the inherent consumption concept of elderly individuals, to enable them to enjoy consumption, the government can standardize the pension security system, increase pension security funds, and increase the income of elderly individuals. At the same time, the social system will increase the supervision of the aging industry and address ethical issues that may arise during the integration of medical and elderly care services, such as improving the construction of personalized care mechanisms, vigorously promoting the healthy development of the aging industry, alleviating the burden of social elderly care, and ensuring that the basic rights and well-being of the elderly are maximally protected. However, at present, the methods used to research the impact of aging on the economy in this article are still mainly qualitative analysis, and the quantitative relationship between the two has not been analysed. In the future, in-depth analysis can be conducted by constructing econometric models.

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Conflicts of Interest

The authors declare no conflict of interest.

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