

Analysis of the Impact of Population Aging on the Economy and Countermeasures —— Take China as an Example

Jian Ning *

New Oriental Academy, Beijing, China

* Corresponding Author Email: 20203768@stu.hebmu.edu.cn

Abstract. Since the reform and opening up, China's population aging has gradually deepened, and nowadays, population aging has become one of the most concerned issues for China's economic development. Therefore, the research theme of this paper is the current situation and development trend of population aging in China and specifically analyzes the impact of population aging on economic development in terms of labor supply, employment, and investment. The research methods of this paper are literature analysis and data analysis. It is found that the proportion of China's aging population in the total population is already greater than 16.7%, and it will accelerate in the future. And the rise of the aging population has different degrees of negative impacts on labor supply, employment, and investment, and has an inhibitory effect on economic development. Therefore, this paper suggests that in the face of the challenge of population aging, the state can increase the investment in human capital, encourage enterprises to innovate, and improve production performance through new technologies. Rational use of the demand generated by aging, and the development of the service industry to increase employment.

Keywords: Population aging, employment, investment.

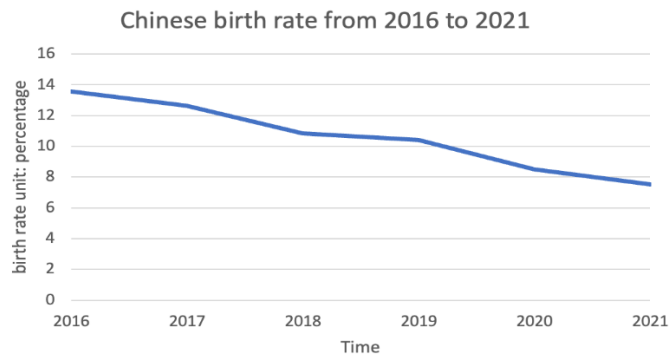
1. Introduction

From the recent history of national development, when the economic and social development of a country reaches a certain level, the fertility rate and mortality rate of the country will decline, and the life expectancy will be prolonged, which ultimately leads to the aging of the country's population. When the aging of a country's population gradually increases, economic development will be slowed down because of the problems caused by aging, such as the lack of labor force and the increase of social security pressure. Nowadays, developed countries in the world such as Japan and South Korea are facing the pressure of economic development caused by population aging. In China, since the reform and opening-up policy, the economy has been developing rapidly, but the fertility rate has been decreasing, and in this process, the aging of China's population has gradually become obvious. By the end of 2022, China's elderly population aged 65 and above totaled 209.78 million, accounting for 16.7% of the total population, and this figure is still rising. Against this environmental background, population aging in China has become a concern for middle-aged and young people in China about future economic development. This study uses literature analysis and data analysis to analyze the current situation and future trends of population aging in China, and to study the impact of population aging on the future development of China's economy, the challenges and opportunities it brings, and the positive measures to cope with population aging.

2. The Current Situation and Trend of Population Aging in China

2.1. The Current Situation of the Chinese Population Aging

According to the Ministry of Civil Affairs of the People's Republic of China's "Statistical Bulletin on the Development of Civil Affairs, 2022", at the end of 2022, there were 209.78 million population over 65 years of age in China which was 16.7% of the total population [1]. To explain this phenomenon, this study analyses the birth rate from 2016 to 2021.



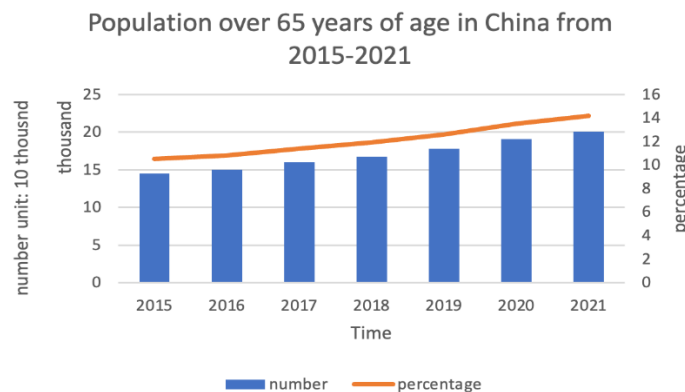
Data from: <http://www.stats.gov.cn/sj/ndsj/2022/indexch.htm>

Figure 1. Chinese birth rate from 2016 to 2021.

In Figure 1, the birth rate from 2016 to 2021 shows a decreasing trend, decreasing from 13.57% in 2016 to 7.52% in 2021 [2]. This trend helps us understand the current situation of the Chinese population aging. The lower number of new babies born causes a higher proportion of the aging population in the total population. The main reason for this decrease in birth rate is the change in public thinking. The Chinese economy has developed very fast in the past twenty years, and the goal named “Comprehensive Well-off Plan” was realized in 2020. The issue of poverty was solved. Following the development of Smart Manufacturing, Biotechnology, and Information Technology, people’s living quality increased salient, and their lifestyles changed completely, too. The traditional idea of having kids for the security of parents’ old age was abandoned by people. Instead, people started to focus on their own lives, pursuing self-improvement in education, personal growth, and enjoyment of life. In addition, the development of modern industry makes the demand for physical labor. Mental labor becomes the major of social labor rather than physical labor. Therefore, people don’t need to one more birth to the need of labor demand of families. In summary, the change in people’s minds and the development of society make the birth rate decline, and aggravate the aging of the population [3].

2.2. The trend of the Chinese population aging

In the review of past years about Chinese aging population tendency, there is an obvious tendency about huge increment in population over 60 years of age. “The proportion of the population over 60 years of age in China was over 60% in 1999, moreover, the proportion of the population over 65 years of age in China was over 7%. After this, at the end of 2016, there were 231 million population over 60 years of age in China, which is about 16.7% of the Chinese population. In the prediction, there will be over 300 million aging population in 2025, over 400 million aging population in 2033, and arrive at the peak of about 487 million aging population in 2053. At that time, China will have a one-quarter aging population in the world” [4].



Data from: <http://www.stats.gov.cn/sj/ndsj/2022/indexch.htm>

Figure 2. Population over 65 years of age in China from 2015-2021.

In Figure 2[2], there is an increasing slope of the aging population and the percentage of the aging population in the total population of China from 2015 to 2021. The increment of aging population every year from 2015-2021 is increasing. From 2015 to 2016, the increment number is 5.13 billion, but from 2020 to 2021, the increment number is 9.92 billion. The number almost is double. The reasons for the rising tendency of increment aging population in China are the lower and lower birth rate and the more people who were born before 1960 become the aging population. The past population aging pattern shows an aging tendency, and there are some predictions about China's future aging population: from 2000 to 2050, the global aging population proportion will increase by 12 percent. In comparison, the Chinese aging population proportion will increase by 24 percent. In another hand, in the comparison of the time needed to increase the proportion of the population over 65 years of age from 7% to 14%, Frensh's, the United States and the United Kingdom's times are 115 years, and more than 40 years respectively. However, China only used 23 years [4].

In conclusion, China will still have the maximum number and speed in the increment of the aging population in the future.

3. The Impact of Aging Population on China's Economy

3.1. The Impact of Population Aging on the Workforce



Data from: <https://data.stats.gov.cn/easyquery.htm?cn=C01&zb=A0401&sj=2022>

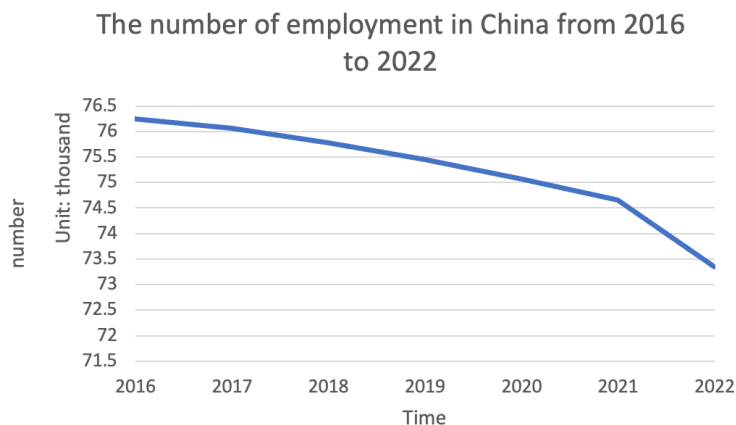
Figure 3. The number of laborers in China from 2015 to 2022.

The most obvious impact of population aging on the workforce is decreasing the number of labor. Following the Chinese population aging, the labor in China declined from 2015 to 2022. In Figure 3 [5], there is an obvious decreasing tendency in the number of laborers in China. The number of laborers in China decreased from 800.91 million to 768.63 million. The main reason for this tendency is population aging and a lower total fertility rate. Therefore, the current situation is more aging population and lower newborns to replenish the population supply gap. This means that the size of China's school-age labor force is gradually decreasing, and the shortage of labor supply will be a serious problem in the future because the gap is gradually becoming bigger. In addition, the average age of the labor population also increases following the population aging. From 1985 to 2019, the average age of the labor population rose from 32.25 to 38.80 years nationwide, from 31.99 to 39.05 years in rural areas, and from 33.03 to 38.63 years in urban areas. But the population aging is also a good thing, the average years of schooling of the labor force also increases following the population aging. According to the National Bureau of Statistics, the national average number of years of schooling for the population aged 15 and over will reach 9.9 years in 2020, 0.7 years higher than in 2012 [6]. Moreover, according to the analysis of the National Bureau of Statistics's China Population and Employment Statistics Yearbook, between 1985-2017, the average number of years of schooling in the labor force increased from 6.23 to 10.19 years. These indicate that the average education level of China's labor force is showing a significant upward trend, and also represents the rising quality of the labor force as a whole, which in turn leads to rising productivity. In summary, there are three main impacts of the Chinese population aging on the workforce. First, the Chinese population aging makes

the number of laborers decrease, and this may hurt the supply shortage of labor. Second, the average age of the Chinese labor force increases, therefore, the Chinese population aging also makes the Chinese labor force present an aging tendency. Third, following the population aging, the quality of the Chinese labor force increases because of the significant increase in the average years of schooling of the labor force population [7].

3.2. The impact of population aging on employment

Chinese population aging has a positive and negative effect on employment. On the positive side, first, although the aging population isn't seen as labor, nowadays, following the elongation of life expectance, more scholars suppose that there are more and more healthy and knowledgeable aging people. Therefore, these healthy and knowledgeable aging people can be seen as labor again to extend the demographic dividend. By coming back to work, it alleviates the pressures of an aging population. Second, following the population aging, the old people also provide more demand for the tertiary sector of industry like gastronomy and travel, and services for the elderly. This additional demand on markets provides more jobs, and these new jobs also provide for the aging population. On the negative side, first, following the Chinese population aging, the life expectancy becomes longer but the total fertility rate becomes lower. These factors cause a decrease in labor and a decrease in employment.



Data from: <https://data.stats.gov.cn/easyquery.htm?cn=C01&zb=A0402&sj=2022>

Figure 4. The number of employment in China from 2016 to 2022.

In Figure 4, there is a decreasing tendency of employment from 2016 to 2022. The employment decreased from 762.45 million in 2016 to 733.51 million in 2022. The lower fertility rate causes lower new labor, and population aging causes the decline of original labor. Second, from the perspective of substitution, the rework of the aging population will bring competition to youngsters. Re-employment of older people can have an impact on the employment of young people, competing with them for jobs. Competition with young people, resulting in fewer employment opportunities.

All in all, population aging hurts employment. This is mainly reflected in the decline in the physical health of the elderly, their lack of creative ability, and their difficulty in adapting to the employment situation. From another perspective, population aging will also cause job vacancies, a serious shortage of labor, and a reduction in the number of employed people; a large number of older people will be laid off but younger employees will not be able to cope with their current jobs, and a certain amount of time will be needed for a period of integration and transition, which will hurt employment [8].

3.3. The impact of population aging on investment

Capital accumulation is an essential element of economic growth and investment is the means of Savings, on the other hand, are fundamental to investment. According to the theory of life-cycle consumption, population structure affects savings and consumption. A large proportion of the population structure of the elderly leads to a decrease in social savings and an increase in consumption.

It can be seen that population aging changes the proportion of output devoted to consumption and savings and therefore affects investment [9]. Chinese population aging affects investment through its effects on saving. Population aging causes the increasing aging population proportion of the total population, and in the opposition, it makes the proportion of the youth population lower. These two changes have different effects on investment.

For the increased proportion of the aging population, the higher proportion of old people can have positive effects on saving. The oldest people in China don't have financial burden for their kids. And most old people in China are more likely to save their income because of the traditional idea of money. In China, the traditional idea is that people should save as much money as possible as they can to prepare for possible big problems in life in the future. To this traditional idea, the aging population in China helps increase savings.

For the decreased proportion of the youth population, this change has negative effects on investment. Compared with old people, young people are more likely to choose to invest their assets. In addition, because of the financial burden of supporting families and fixing demands for houses, young people are more willing to choose to invest their assets. Therefore, the decrease in youth population proportion will decrease the investment from the youth population.

On the other hand, population aging also has negative effects on investment by its effects on labor and public expense. For the effects on labor, population aging makes the supply of labor decrease, and this causes the costs of labor to increase. The operators of corporations are more likely to choose to decrease the cost of operation, and this decrease in cost can be an investment of corporations. For the effects on public expense, a higher proportion of the aging population will increase the cost of old age security spent by the Chinese government. This increasing cost of old age security makes the spend on infrastructures decrease which decreases the government's investments [10].

4. Conclusion

This study finds that China's aging population currently accounts for a high percentage of China's total population and is still on a rapid upward trend. This current situation and rising trend is due to the increase in life expectancy and the decline in the total fertility rate. People's demand for newborns decreases coupled with the traditional idea of having children to prevent old age no longer dominating young people to let the willingness to have children decline, gradually aggravating the aging of the population. The impact of population aging on economic growth is mainly reflected in the labor force, employment, and investment.

Population aging will lead to a decrease in the labor force, the average age of the labor force increases, but with the development of society, the general education level of the Chinese labor force increases.

In terms of the impact on employment, population aging leads to a decline in the number of employed people, but the demand for services brought about by aging also brings more jobs.

As for investment, the impact of population aging on investment is two-fold. On the one hand, an increase in the number of elderly people will increase savings. On the other hand, the decline in the proportion of young people will lead to a decrease in investment, and the increase in the number of elderly people will also increase the government's expenditure on the livelihood security of the elderly population, thus affecting the government's budget for investment in the construction of infrastructure, etc. For enterprises, the aging of the population makes the cost of employing people rise, and to maintain the original profit, enterprises will reduce the amount of investment.

Finally, based on the current situation of aging in China and the trend of aging in the future, this paper suggests that the state should increase its investment in human capital and encourage enterprises to innovate and improve production performance through new technologies. At the same time, it takes advantage of the demand brought by aging to rationally develop the service industry to increase jobs.

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