



Analysis of China's Current Situation of Population Aging and Its Impact on the Economy

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Abstract. With the development of Chinese society, the current situation of China's aging population is more and more serious, which attracts people's attention. China's aging acceleration is manifested by the large size of the elderly population, the proportion of the total population is getting higher and higher, the growth rate is accelerating year by year, and the elderly dependency ratio is increasing, the total fertility rate is low, the average life expectancy is long and other phenomena, which seriously affects the sustainable development and progress of the Chinese economy. Aging not only restricts the development of labor force, causes the shortage of labor resources, reduces labor productivity, but also affects the change of social and economic structure, adjusting industrial structure especially the pension industry. The increase of pension demand has also caused a great burden for government expenditure and social service, which restricts the development of our economy. This paper analyzes the influence of aging on the economy from the current situation and characteristics of the population aging.

Keyword: population aging · current situation · characteristic · economic impact

1 Introduction

As birth and death rates decrease and life expectancy increases, the number and proportion of older people worldwide continue to rise. Consequently, population aging has emerged as a pervasive developmental trend across populations globally, posing a significant challenge that all nations must confront.

China is currently facing the challenge of having the largest aging population in the world. Since it entered an aging society in 1999, China's aging process has progressed rapidly, making it one of the countries with the highest number of elderly citizens and the fastest aging rate worldwide. The latest data from the National Bureau of Statistics in 2022 indicates that China's population over 60 is 280.04 million, accounting for 19.8% of the total population, and the population over 65 years old is 209.78 million, accounting for 14.9% of the total population. As time progresses, China's aging trend will only become more severe.

It is worth noting that China did not experience population aging when it was highly developed and had a perfect economic level and social security. As a result, many issues

have arisen, such as “aging before getting rich” and “aging before urbanization,” which severely restrict China’s economic development. According to data, China’s economic growth has slowed in recent years. Since the reform and opening up, factors such as the demographic dividend that played a vital role in the early stage of China’s economic development are gradually losing effectiveness due to low birth rates and a shortage of young labor force. As expenditure on pension services, medical care, and other social security continues to rise, China’s long-term sustainable economic growth also faces a more complex situation.

The current state of population aging in China is concerning and has profound adverse effects on the long-term development of the country’s economy, posing significant challenges to the labor market and burdening society as a whole. Therefore, it is imperative to analyze the impact of population aging on the economy of China. To this end, a scientific inquiry is necessary to examine the influence of population aging on China’s social and economic development, identify the underlying causes of the issues, and devise practical solutions to alleviate the challenges of population aging and prevent its further exacerbation.

2 Analysis of the Current Situation of Population Aging

2.1 The Current Situation of Population Aging

When analyzing the current population aging in China, attention must be given to the country’s population age structure, dependency ratio, birth rate, and average life expectancy. In the following paragraphs, we will provide a brief overview of the current population aging in China from these perspectives.

China’s Population Age Structure

The age structure of China’s population has experienced considerable changes due to the enhancement of social and economic development, improvements in living standards, and the implementation of the family planning policy. According to the international criteria for classifying population age structure, a population with less than 4% of individuals aged 65 years and above is considered as young, 4% to 7% are categorized as growth, and those with a proportion above 7% are considered as aging. To illustrate these changes, Fig. 1 presents the age structure of China’s population and the distribution of individuals in each age group from 1960 to 2021 [1].

China’s population age structure changes over time due to various factors such as socio-economic conditions and internal population structure. The characteristics of China’s population age structure have varied over different periods.

Initially, the age structure was characterized as young with a low median age and a low proportion of older people, and a high proportion of young people. However, since the 1970s, the median age has gradually increased, and the proportion of young people has declined, indicating a transition from the young to the growing age structure. By the Fourth National Census in the 1990s, China’s population age structure had entered the typical growth age structure and was gradually transitioning towards the aging age structure.

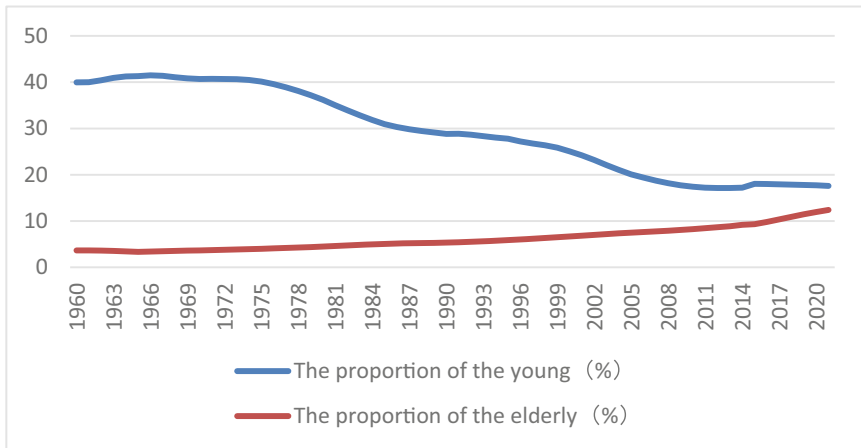


Fig. 1. The proportion of China's population age structure from 1960 to 2021

With time and economic development, China's young population has decreased further, and the original adult population has gradually aged, leading to a severe proportion of older people. The population pyramid has transitioned from being bottom-heavy and narrowing towards a more even distribution to top-heavy and narrow at the bottom. The latest national census data in 2021 showed that the proportion of people aged 65 and above in China's population had reached 14.2%, an increase of 5.2% from the previous census. The analysis of the population age structure indicates that China has become a seriously aging society.

Regarding projecting the future aging trend in China, some scholars have employed the cohort component method to make predictions. By analyzing the age structure of the total population, it is suggested that China's population will continue to age like the current trend. The population pyramid will exhibit a shrinking bottom and middle, while the top will experience significant expansion [2]. As a result, the proportion of children and working-age individuals in the total population is expected to decrease gradually. In contrast, the proportion of elderly individuals will continue to increase, further deepening the degree of aging in the population.

Population Dependency Ratio

The population dependency ratio, in addition to population age structure, is a crucial term for analyzing population aging. It pertains to the proportion of non-working-age individuals to working-age individuals in the total population. It is one of the critical indicators employed to gauge the influence of a country's population age structure on economic development. The reduction in the dependency ratio is linked to the demographic dividend. When a country's dependency ratio is relatively low, it is in the demographic dividend phase and has favorable population conditions for economic growth. The dependency ratio encompasses two components: the child dependency ratio and the elderly dependency ratio. The child dependency ratio pertains to the proportion of children (aged 0–14) to the working-age population (aged 15–64). In contrast, the elderly dependency ratio pertains to the proportion of the elderly population (aged 65 and above)

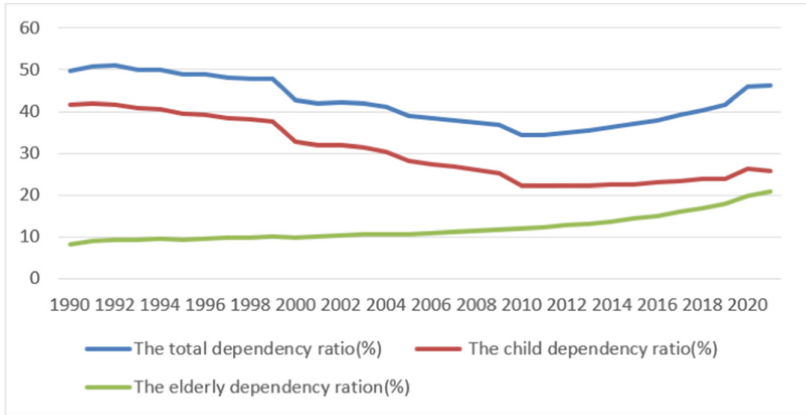


Fig. 2. Changes of the child and elderly dependency ratio from 1990 to 2021

to the working-age population. The dependency ratio is the sum of the two. The following Fig. 2 shows the changes of child dependency ratio and elderly dependency ratio from 1990 to 2021 [1].

During the period of strict family planning in China, the one-child policy significantly impacted the birth rate, leading to a decrease in the child dependency ratio, which refers to the ratio of children to the working-age population in the total population. Although the comprehensive two-child policy implemented in recent years has resulted in a slight increase in the child dependency ratio, the overall trend remains downward. According to the latest data, the child dependency ratio dropped to 25.6% in 2021 [3]. On the other hand, the elderly dependency ratio has increased steadily each year and shows an overall upward trend. With the gradual development of the economy and improvements in various conditions such as medical and health care and social security systems, the latest data shows that the elderly dependency ratio rose to 20.8% [3] in 2021, far exceeding the average level of many middle and high-income countries. The significant increase in this data indicates that there are more elderly dependents to be supported by every hundred working-age population, creating a heavier burden that cannot be ignored.

Overall, the combined influence of changes in the child dependency ratio and the elderly dependency ratio has led to a “decline-then-rise” trend in China’s total dependency ratio. As the population aging process in China advances, the declining trend of the population dependency ratio has reversed in the past decade, changing from a decline to an increase. Although there has been a reversal in this data, the overall relatively low population dependency ratio and the downward trend suggest that China’s current population dividend will gradually decrease. This trend will inevitably significantly impact macroeconomic development, mainly through its impact on the labor market.

China’s Total Fertility Rate

China’s total fertility rate is relatively low and serves as an essential and meaningful indicator in analyzing population-related issues. The total fertility rate provides a direct comparison of the fertility rate of women with the same age structure and indicates the actual number of children born to women. According to the universal international

standard value, the total fertility rate needs to reach at least 2.1 to achieve the standard population replacement level. However, according to calculations based on data from China's Bureau of Statistics, the total fertility rate in 2022 has fallen below 1.1 [3], which is lower than that of almost all countries in the world, including Japan, which is known for its low birth rate and aging population and is even lower than Europe and the United States by more than 50%. The low fertility rate signals a problematic situation.

The total fertility rate is an essential and meaningful indicator in the analysis of demographic issues. Suppose the total fertility rate remains relatively low and maintains a downward trend. In that case, China's population growth will continue to decline and may even reach a negative growth rate, as witnessed in 2022. The China Population Project' on Report done by the Yuwa Population Research of the National Bureau of Statistics predicts that without effective birth policies, the number of births in China will drop to 7.73 million by 2050 and 3.06 million by 2100, only a quarter of India's projected population. The continued decline in the total population will accelerate the aging of the people in first-tier cities, resulting in numerous social problems and ultimately making elderly care services challenging in China. This situation will also negatively affect the country's economic development, causing it to fall into a vicious cycle.

Average Life Expectancy

The average life expectancy of Chinese people is expected to continue increasing, as it has been in recent years. Average life expectancy is a critical metric calculated by considering the mortality rates of different age groups. It represents the average number of years a group of people born at the same time can expect to live if they experience the same mortality rates at each age over a certain period. This indicator is a significant reflection of the overall health level of a population. Based on the analysis of official data in China's Statistical Yearbook, life expectancy has been increasing steadily. According to the 2022 Statistical Yearbook by the National Bureau of Statistics, the average life expectancy in China rose to 77.93 years in 2020. Given the current economic level, social system, and medical conditions, life expectancy is anticipated to continue to increase, resulting in lower mortality rates and an increasing number of elderly individuals. This trend is likely to continue and is inevitable. Fig. 3 shows the trend curve of average life expectancy in China from 1980 to 2020 [3].

3 Characteristics of China's Population Aging

The following is a summary of the current situation of China's aging population and an analysis of the four major trends in the development of aging.

3.1 Large Elderly Population

China's elderly population constitutes a significant proportion of the global older people and is projected to remain the largest globally. From 1964 and 2020, the population of individuals aged 65 and above in China increased rapidly, from 14.8% to 25.6% of the world's elderly population. This indicates that every fourth older person in the world is Chinese. Experts estimate that by 2025, China's elderly population will reach 207.25 million, and by 2050, it will surge to 374.22 million, ensuring that China continues to maintain the largest elderly population globally [4].

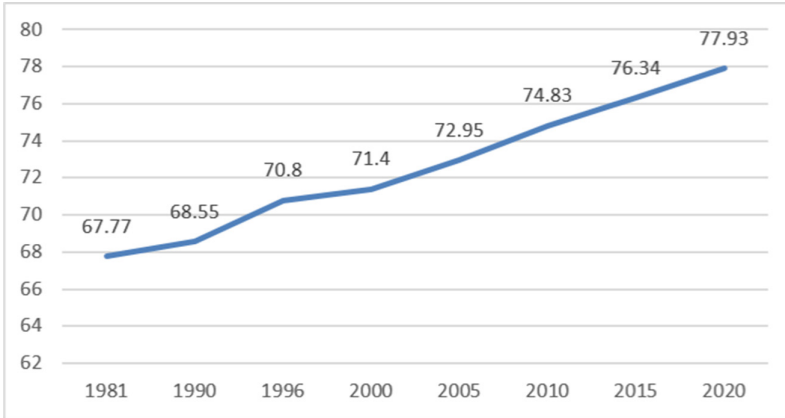


Fig. 3. China's average life expectancy from 1980 to 2020

3.2 Rapid Aging Rate

China's rapid aging poses a significant challenge that will only worsen in the future if left unaddressed. The demographic dividend brought about by the second baby boom in China between 1962 and 1975 is gradually diminishing. These newborns are now reaching old age or even the late stages of life. Consequently, experts predict that China's aging population will increase rapidly over the next three decades. In 1999, China entered the aging society stage, with the proportion of elderly individuals exceeding 7%. By 2021, this proportion had surged past 14%, indicating that China had entered a phase of profound aging in just over 20 years. This pace of aging is astonishing compared to many developed countries that took longer to cross the aging threshold, such as France (115 years), Switzerland (85 years), and the UK (47 years).

3.3 Great Challenges in Family Care Services and Security

To further classify the elderly population in China, it is helpful to divide those aged 65 and above into two groups: those below 80 and those over 80. Generally speaking, the former group has better health and is more independent, while the latter group has poorer health and requires more care, leading to more societal challenges. According to data from the Seventh National Census, the population of those aged 80 and above in China has reached 35.8 million, accounting for 2.54% of the total population. Scholars predict that the absolute size of China's elderly population above 80 years old is accelerating, even faster than the growth rate of the elderly population. This population is projected to exceed 50 million in 2032, over 100 million in 2048, and eventually climb to 109 million in 2050 [5].

Under such circumstances, a significant issue exists: many disabled, elderly individuals can be found among those aged 80 and above. They usually encounter various health problems and are incapable of taking care of themselves without the support and assistance of others. Moreover, there are also numerous empty-nest elderly individuals and older people living alone among those aged 80 and above who face various

issues, such as the absence of offspring to support them. Nowadays, home-based care for older people has been significantly weakened. Firstly, the increase in life and work pressures has put tremendous economic pressure on adult children, who cannot always fully shoulder the financial responsibility of caring for their elderly parents. As a result, it is virtually impossible for most families to provide sufficient economic resources to support older people and ensure their livelihoods. Secondly, even if adequate financial resources are available, parents and children frequently live apart due to the development trend of urbanization and modernization. In addition to the lack of material resources, the elderly generation also lacks spiritual companionship and support, such as proper care and emotional support, exacerbating the problem of migrant workers' separation from their parents. The above issues present significant challenges to ensuring elderly care and guaranteeing the welfare of families in our country.

3.4 Aging Before Getting Rich

China's average GDP currently approaches the minimum development limit of developed economies, while its aging level has already surpassed its average. Despite the economy being barely able to catch up with developed countries, the rate of population aging is much higher than theirs. China's aging population is growing at an alarming rate, and the country's economic development cannot keep pace with this trend. This disparity between development and aging puts double pressure on China, leading to developmental problems and an increased burden on its people.

In contrast, developed economies such as Japan, the United States, and France were in a much better economic condition when they entered the aging society stage. They had various well-established social security systems, unlike China's current situation, which is relatively poor. These developed countries have ample financial resources to solve the elderly care problems, whereas China currently lacks the necessary financial resources to address its elderly care problem fully.

4 The Impact of Population Aging on Economic Development

4.1 Population Aging Restricts the Development of the Labor Force

(1) Population aging leads to a shortage of labor resources in China.

Population aging will affect China's labor supply. Studies have shown that a decrease in the dependency ratio and an increase in the proportion of the working-age population are beneficial for economic growth [6], known as the demographic dividend, which is also a crucial source behind China's rapid economic development since the reform and opening up policy.

During the demographic dividend phase, a decline in the birth rate and a steep drop in the ratio of children to working-age adults resulted in a relatively productive labor force and a reduced burden of caring for dependents. This era constituted a golden age of national socio-economic development. However, with the increase of elderly population, the advantage of low-cost labor dissipated, and the number of working-age adults decreased significantly. The resulting scarcity of labor resources

impeded the provision of an adequate workforce for enterprise production and development. This inevitably led to a decline in the output of production and the total supply level of society, consequently exerting a significant impact on the economy and exacerbating the economic pressure on social development.

(2) Population aging affects China's labor productivity.

Population aging will likely lead to a decline in labor productivity due to an increase in the age of the working population. The transformation of labor productivity can be analyzed at two levels: the proficiency of ordinary workers and the level of intelligent technology. Middle-aged and elderly workers possess work experience acquired over a decade or more of production, which enables them to have a certain degree of functionality in production. However, social development often requires new technological upgrades that can impact and shock the original experience-based methods. Moreover, there is an age difference in labor productivity [7]. Aging workers are slower to acquire new knowledge than their younger counterparts, which can impede productivity growth.

Three reasons have been identified based on an analysis of factors contributing to a decrease in labor productivity due to the aging of human capital. Firstly, physical and mental abilities tend to decline with age, reducing labor capacity and causing difficulty keeping up with socioeconomic development. Secondly, elderly workers often have inferior physical and other qualities compared to younger workers. Thirdly, young people generally possess more energy and creativity than older people and are more willing to innovate, thus often generating excellent results. Consequently, population aging is expected to impede future labor productivity growth significantly.

4.2 Population Aging Affects Changes in the Economic Structure

(1) The impact of China's aging population on changes in the consumption structure.

With the aging population, residents' consumption patterns have changed. Older people have experienced a shift in their consumption needs due to an increase in their population and retirement from the workforce. As older people emphasize their physical health needs, such as hygiene and healthcare, their demand for various goods and services, including housing, education, culture, entertainment, food, clothing, transportation, and housing, will alter. This shift will decrease the demand for capital-intensive goods while increasing the demand for labor-intensive services and products.

In addition, aging will lead to a rise in the preference for healthcare spending among residents. According to surveys, 73.6% of the elderly population have varying degrees of illness, which results in significant expenditure on treatment, health care, and medical care. This trend is increasing, and in other developed countries, healthcare spending accounts for 6% of GDP, whereas China's healthcare spending is relatively low at 4.7%. This is primarily due to the free government-funded medical policy that China has had in place for a long time, with most residents' medical expenses being borne by the government. However, China has initiated specific reforms and innovations in medical regulations and systems, transitioning from the

previous “fully free” system to the current medical social insurance system, in which the state, companies, and individuals share medical and healthcare expenses. This reform and innovation will significantly increase household health spending, alter the spending structure of older people, and shift their spending toward the health sector.

Furthermore, social aging impacts the increase in service projects on the spiritual and cultural levels in the consumption structure. During the industrial development stage, material goods dominated people's consumption due to low productivity. However, in today's knowledge-based economy era, people emphasize the enjoyment of spiritual and cultural aspects, constantly improving their quality of life. This is especially true for older people with ample free time and relatively abundant funds after retirement. They will focus more on spending in spiritual and cultural areas to enrich their spiritual world and enhance and satisfy their spiritual level.

(2) **The impact of China's aging population on industrial structural adjustment.**

As China's population ages, adjustments and plans must be made in the country's industrial structure layout better to meet older people's specific material and spiritual needs.

The market mechanism will guide social resources to shift towards developing industries such as elderly living supplies, health care products, medical equipment, senior universities, and tourism, especially in the later stages of the elderly population, the stage of advanced aging. Consumer economics suggests that when the number of elderly people reaches a certain level, the “sunshine industry” - the elderly industry - providing consumer products and services suitable for older people will flourish and have tremendous development potential. This will influence the future social production structure and consumption concepts and become a strong driving force for adjusting the market industry structure and transforming development.

The demand for the tertiary industry will significantly increase with social development. Adjusting the industrial layout of social and economic growth and promoting the reasonable transfer of labor force is essential for facilitating the transfer of surplus labor force from agriculture and animal husbandry to the tertiary industry, completing the industrial transformation and upgrading employment. In the tertiary sector, promoted by population aging, the employment cost and capital allocation in services such as communities and families are low, which will absorb many idle labor forces during this industrial transformation. Currently, in capitalist countries, the service mentioned above by industry practitioners generally accounts for more than 50% of the tertiary industry, while in China, it only accounts for about 20%. From this comparative data, we can judge that these employment directions' development prospects are extensive. Vigorously promoting the community, family, and personal service industry is in line with the trend of social development, which is beneficial to accelerating the transfer of labor force industries, promoting industrial transformation and upgrading, and is also helpful to China's sustainable economic growth.

4.3 Population Aging Increases the Burden of the Government Expenditure

The rapidly increasing aging population has significantly increased social security costs for older people, imposing a substantial economic burden on the government.

In the future, expenditures for elderly care are projected to maintain a relatively stable growth trend. Among these, medical expenses and pension insurance are vital areas of government expenditure in an aging society. China has long implemented “universal medical insurance” and a long-term policy of entirely free medical care, leading to substantial pressure on the government’s healthcare expenditures. Thus, as the proportion of elderly individuals increases, the government and society must allocate more funds towards elderly care to provide adequate support and services. This places a more significant burden on society and service providers.

5 Conclusion

In conclusion, China’s aging population presents a significant challenge to its economy and society. As the number of elderly people increases, the pressure on social security systems such as retirement pensions and healthcare will continue to mount. The labor market will also face challenges as the working-age population shrinks. To address these issues, the government needs to take proactive measures to encourage childbirth, extend the retirement age, and increase pension levels. At the same time, promoting technological innovation, improving education levels, and expanding openness can help improve the quality and efficiency of economic development, better adapt to the challenges of an aging society. Failure to address this demographic challenge in a timely and effective manner could have long-term negative implications for China’s social and economic stability.

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