

# *The Impact of Population Aging on Economic Growth*

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**Abstract:** Population ageing is a global phenomenon that is now affecting many countries. For China, the main cause of population ageing was the early baby boom, which, despite the Government's family planning policy, had had little effect. At the same time, advances in health care leading to longer life expectancy and declining birth rates have also exacerbated population ageing. Population aging also has economic implications, such as labor shortages, shifting consumption patterns, and increased government social welfare spending. This study examines the overall impact of population aging on economic growth with a focus on China. The introductory section explores the definition, status and development trends of China population aging and the world. The study then focuses on population aging in China, including the proportion of the elderly population, the rapid growth of population aging in China, and particular aspects of China's population aging pattern. The study highlights the significant economic impacts of aging, such as a declining labor force, rising social security costs, and changes in consumption behavior. By assessing these issues, the study attempts to make recommendations that are consistent with the current aging situation in China.

**Keywords:** Population aging, economic impact, China.

## 1. Introduction

### 1.1. Research Background and Definition of Population Aging

Population aging is the process by which the percentage of old people—generally those sixty years of age or older—increases in a nation or area. Human life expectancy has significantly increased because of improvements in living standards and worldwide health. These developments are mostly responsible for this trend. This demographic change is partly due to the significant drop in fertility rates throughout this period. Globally, a lot of nations are going through or have already reached the stage of population aging, which is thought to be an inevitable byproduct of social growth. The older population is sometimes described as persons aged 65 years or over. The Economic and Social Council of the United Nations published Population Aging and Its Socio-Economic Consequences in 1957, which marked the beginning of the field's inquiry into this subject. By its definition, a country (or region) has entered an aging society when the share of the total population who is 65 years of age or older exceeds 7%. In addition to changes in demographic patterns, aging trends have complex and long-term implications for socioeconomic systems [1,2].

## 1.2. The Current Situation and Population Aging Development Trend

The rate of global population aging differs by region and country. According to figures issued by China's National Bureau of Statistics, there were 28,040,000 people in China aged 60 and up at the end of 2022, accounting for 19.8% of the total population. Of these, 209,780,000 were 65 years or older, accounting for 14.9% of the population. China's senior population has grown in number and proportion since 2000, when 7% of the country's population reached the age of 65 and entered an aging society. The trend toward advanced aging is also becoming increasingly visible, and the rate of population ageing continues to accelerate [3]. However, the United Nations Economic and Social Council's 2023 World Social Report projects that the number of people 65 and older would have more than doubled by the middle of this century. Furthermore, projections from the National Health Commission indicate that by 2035, there will be more than 400 million people in the old population—more than 30% of the overall population—who will also be approaching the advanced stages of aging. This pattern suggests that in the upcoming decades, the share of the world's population aged 60 or over will continue to rise [4].

For instance, China's aging issue has gained prominence following decades of strong economic growth. According to the results of the 7th National Population Census, which were issued by the National Bureau of Statistics in May 2021, not only did the elderly population proportion exceed 10% and reaching 13.5% for the first time, but it also grew by a staggering 4.63 percentage points, indicating that the population is aging faster [5]. Additionally, a large percentage of the population is old in wealthy nations like Germany and Japan. The aging population trend is expected to persist and pick up speed, posing a variety of complex difficulties that nations must confront and resolve.

## 1.3. The Profound Impact of Population Aging on Economic Growth

An aging population can lead to economic slowdowns and labor shortages. As the labor force participation rate falls, labor productivity may also drop, reducing the potential for economic growth. For instance, a decline in the labor force caused Japan to undergo a "lost decade" in the late 1990s [6].

Population aging will likewise increase fiscal and social security pressures on Governments. As the population ages, the government is spending more on social security benefits like healthcare and pensions. This could result in higher fiscal deficits and have an impact on public investment in other areas.

Population aging leads to a shift in consumption patterns. Compared to younger generations, the elderly have a different consumption structure, frequently prioritizing necessities like healthcare, medical attention, and lifestyle services. This will direct the shift of the manufacturing sector to the tertiary industry in the economic structure. The aging population's consumption demands will propel the growth of the global health business [7].

Population aging also affects investment and savings rates. As a result of the elderly's propensity to consume retirement assets and cut down on savings to maintain their standard of living, there may be a decline in the country's savings rate, which has an impact on the capital supply and investment rates. Meanwhile, the aging of the population will hurt long-term investments, which would stifle economic growth.

## 1.4. Exploration Content

This article intends to explore the far-reaching impact of population aging on China's economic growth through literature review and data analysis. Specific research content includes analyzing the current situation of population aging, such as the proportion and growth rate of the elderly population, and the characteristics of China's population aging trend. As well as the impact of population aging

on economic growth, including the decrease of labor supply, the change of consumption structure, and the increase of social security pressure. Finally, corresponding coping strategies and suggestions are put forward for China's current situation.

## **2. Analysis of the Present Situation of Population Aging in China**

In recent years, the problem of the aging population in China has become increasingly severe, becoming one of the important challenges for social and economic development. The elderly population proportion is increasing day by day, and its growth rate is showing an accelerating trend. From the perspective of data statistics and research analysis, China's aging population presents characteristics of fast speed, large scale, and uneven regional distribution.

### **2.1. Elderly Population Proportion**

According to the National Bureau of Statistics, the population aged 60 and above in China has reached 280 million, accounting for approximately 19.8% of the total population as of the end of 2022. Compared with 14.3% of 193.9 million people in 2010, this proportion has increased by 5.5 percentage points, indicating a serious deterioration of China's aging problem [3,8]. Particularly the elderly population sixty years of age and over, whose numbers are increasing quickly, are predicted to account for thirty-one percent of all elderly persons by 2050, or 31.3% of 430 million people [9].

### **2.2. Growth Rate of Elderly Population**

Many countries in the world are facing serious aging problems, and China is one of them. Since the 1980s, the birth rate has dramatically dropped since the family planning policy was put into place, also the low birth rates problem and aging have gradually become prominent. Based on data from the National Health Commission, the number of senior people in China is predicted to peak at 487 million by 2050, constituting 34.9% of the total population of the nation. According to this ratio, one in three individuals is elderly, and China is among the nations with the greatest rates of population aging worldwide [10,11].

Furthermore, take Guangdong Province as an example. According to data from the Guangdong Provincial Institute of Population Development. From 13.3% in 2010 to 18.7% in 2021, the share of the population over 60 years old is rising quickly and by 2050 is anticipated to reach 37.2%. This suggests that the share of senior citizens in the overall population is rising quickly. This rapid growth trend not only puts enormous pressure on social security systems such as healthcare and elderly care but also poses a serious threat to the economy's ability to develop sustainably [12].

### **2.3. Characteristics of China's Unique Aging Population Trend**

#### **2.3.1. Rapid and Large-scale**

China's aging population exhibits large-scale and rapid changes when compared to many capitalist nations. It is projected that by 2050, the proportion of Chinese nationals aged 60 or older will be close to 490 million, or around 34.9% of the country's total population [10,11]. The supply of public services and the distribution of social resources will be under tremendous pressure due to the size of the aging population. Additionally, as the population ages, there is a decrease in the total number of people of working age, which lowers the effective labor supply and lessens the engine of economic growth.

### 2.3.2. Significant Urban-rural Differences

The overall age in rural China tends to be greater than in urban areas. The main reason for this difference is the phenomenon of “left-behind elderly”-those left behind by young migrant workers. In 2010, the proportion of citizens over 60 years of age in China's rural areas to the total population was 14.98 percent, 3.3 percentage points higher than the urban population's level of aging. In addition, the elderly people proportion in rural areas is expected to exceed 30 percent by 2033 and to reach 38 percent by 2050. Compared with urban areas, rural areas are aging more deeply, and older people face greater challenges [13]. This means that rural communities need more assistance and funding in areas such as health care and elder care.

### 2.3.3. Increased Pressure on Family Elderly Care

As a result of China's population planning program, many families now only have one kid, and when these youngsters grow up, they will be under a lot of pressure to take care of their parents on their own as they age. There are 180 million lone children in China, according to statistics. Given that one only child must provide for four elderly people, these only children will have to deal with the "4-2-1 family structure" with three generations of grandparents and grandchildren. Only children face significant financial and psychological strain because of this family structure, particularly as their parents get older and need more care.

Furthermore, when these only children become parents, their offspring are frequently also only children because only-child families are typically small. This implies that these only children will have to shoulder the burden of raising their children in addition to being responsible for the sole support of four elderly persons in the ensuing decades. Many children experience extreme strain and setbacks in their lives because of this combined load [14,15].

### 2.3.4. Aging Population's Uneven Regional Distribution

China's aging problem is characterized by uneven regional distribution. The percentage of senior citizens is higher in the economically developed regions of the eastern coast and central China, and slightly lower in the western and northeastern regions. The influx of many young laborers has led to an extremely low degree of population aging in the core areas and an increasing degree of population aging from the coast to the interior [16].

## 2.4. Chart Description

Table 1 is a chart of the proportion and growth trend of China's elderly population.

Table 1: The percentage of senior citizens in China.

Year	Population aged 60 and above (in billions)	percentage of the population over 60 years old relative to the total population (%)
2010	1.78	13.26
2015	2.12	15.7
2020	2.55	18.1
2022	2.67	18.9
2030*	4.00	28.0
2050*	4.9	35.0

Date from: National Bureau of Statistics

Table 1 presents the main growth pattern in China over the last 10 years concerning the number and percentage of individuals 60 years of age and older. Between 2010 and 2022, the old population increased from 178 million to 267 million, which increased its percentage of the total population from 13.26% to 18.9%. According to projected growth, the number of senior citizens is expected to increase further, reaching 400 million and 490 million by 2030, respectively, and accounting for 28% and 35% of the total population. These data suggest that China's aging population will only get worse, creating more challenges for the nation's social and economic development.

### **3. The Effects of Aging Populations on Economic**

#### **3.1. Decrease in Labor Supply**

Leads to a decline in labor productivity and further affects economic growth. Specifically, as the elderly population increases, the number of available laborers in the labor market decreases, and enterprises are forced to hire older workers whose physical functions and ability to accept new technologies are in a state of decline, thus reducing labor productivity. However, older workers have accumulated a wealth of experience and skills in the workplace, but as they retire, they lose this valuable knowledge and skills. This is particularly true in technology-intensive and experience-dependent industries. For example, older specialists in manufacturing, healthcare, and engineering may have difficulty finding younger successors with equivalent skills and experience when they retire, resulting in productivity and innovation in these industries [17]. The decline in labor supply also results in an increase in labor costs. When the labor market is tight, employers have to raise wage levels to attract and retain employees. This phenomenon is particularly evident in some labor-intensive industries. For example, in industries such as manufacturing and service industries, due to the high dependence on labor, the rise in labor costs will cause the cost of production to rise for enterprises, thus affecting their competitiveness and profitability [18].

#### **3.2. Changes in Consumption Structure**

The impact of population aging on China's economy is both opportunities and challenges. The increase in the proportion of the elderly population leads to a rise in the demand for healthcare. On the one hand, this trend has greatly contributed to the booming healthcare industry. Elderly people's demand for medical treatment, nursing care, and healthcare products has increased dramatically due to the increase in health problems, which directly promotes the rapid growth of the market segments of medical services, rehabilitation care, health management, and geriatric healthcare products, making the healthcare industry one of the important engines of China's economic growth [19].

Coupled with this, the shift in the consumption pattern of the elderly population has also brought new growth points in several areas. The pursuit of higher quality of life and health status among the elderly has prompted them to favor highly nutritious and easily digestible products in their food choices, with a significant increase in demand for nutritional supplements and functional foods. At the same time, their pursuit of spiritual and cultural life should not be ignored, and culture and entertainment, travel and tourism, leisure and health care, and other consumer areas have ushered in new development opportunities. For example, in Japan, the consumption expenditure of the elderly on tourism and leisure activities has been increasing, driving the development of related industries [20].

### **3.3. Increased Pressure on Social Security**

With the increase in the elderly population, the demand and pressure on the social security system, such as pension, medical care, and social welfare, also intensifies. The government needs to invest more resources to meet the basic needs of the elderly, which may put a burden on the fiscal budget.

The increase in pension expenditure is one of the main sources of pressure on social security. An increase in the elderly population means an increase in the number of pensioners, while a decrease in the working-age population means a decrease in the number of pensioners contributing. This imbalance between revenues and expenditures presents a significant obstacle for the sustainability of pension systems. For example, in Europe, the pension systems of many countries are under great financial pressure, forcing governments to take measures such as delaying the retirement age and increasing the contribution rate to maintain the normal operation of the pension system [18].

## **4. Coping Strategies and Suggestions for Population Aging on Economic Growth**

### **4.1. Promote Delayed Retirement Policy**

Delayed retirement is one of the effective means to cope with the decrease in labor supply. By extending the career of workers, the issue of a labor shortage in the community can be alleviated to a certain extent. However, the implementation of this policy needs to consider the health conditions and labor intensity of workers. At the same time, it should be accompanied by corresponding workplace adaptation measures to ensure that older workers can continue to work efficiently.

### **4.2. Promote Technological Innovation and Automation**

Technological innovation and automation can make up for the decline in productivity brought about by the decrease in labor supply. The government should increase investment in research and development of new technologies and encourage enterprises to apply automation technology more often in the production process. This will not only help improve productivity but also create new jobs. However, the promotion of automation also needs to consider the impact on low-skilled labor, and the government should provide appropriate retraining and career transition support.

### **4.3. Adjusting the Social Security System**

To cope with the increased burden of social security, the government should consider reforming the existing pension and healthcare systems. Extending the number of years of contribution, increasing the contribution rate, and adjusting the pension payment standard are common countermeasures. It can also reduce the pressure on public finance by establishing a multi-level pension security system and encouraging personal savings and commercial insurance.

### **4.4. Promoting the Senior Consumer Market**

The rise in the number of old people brings about a shift in consumption demand. The Government and enterprises can develop and promote products and services suitable for the elderly population, such as health-care products, senior tourism, and smart homes, thereby stimulating the consumption potential of the elderly and boosting economic growth.

## **5. Conclusions**

The impact of population aging on economic growth is far-reaching and complex. As the proportion of elderly people rises, the decrease in labor supply becomes a major constraint on economic growth.



The decrease in the annual supply of labor directly affects the balance of supply and demand in the labor market, and increases labor costs, which in turn negatively affects the productivity and economic competitiveness of enterprises. In addition, population aging has triggered changes in the consumption structure, with the demand for medical, health, and elderly care services increasing among the older age groups, while the demand in traditional consumption areas may be declining, a structural shift that also affects the overall dynamism of the economy to a certain extent.

Pressure on social security systems is likewise a major challenge posed by population aging. As the elderly population grows and the pressure on pension health-care expenditures grows, Governments will need to face fiscal pressures and make policy adjustments to ensure the sustainability of their social security systems. These issues, if not handled properly, could have long-term negative impacts on economic growth.

Despite the many challenges posed by population aging, they can be mitigated to some extent through appropriate policy interventions and innovative initiatives. Delaying the retirement age, increasing the labor force participation rate, promoting technological innovation, and restructuring the social security system are all effective strategies for coping with population aging. In addition, responding to the requirements for consumption of the elderly population and developing industries related to them provide new impetus for economic growth. Through comprehensive measures and active responses, the sustainability of economic growth can still be ensured.

## Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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