



The Impact of China's Aging Population on Economic Growth

Shien Yuan¹

¹ Yancheng Jingshi Experimental School, Yancheng, China
yuanshien0718@gmail.com

Abstract. China is experiencing the world's largest and fastest population aging process. Aging poses a systematic challenge to economic growth through the contraction of the labor supply, the transformation of consumption structure, and the transmission of social security pressure. It is urgent to explore the transformation path of the "longevity economy." This study focuses on the three dimensions of labor supply shrinkage and efficiency decline, the release of silver economy momentum, and the pressure on the social security system. By combining the pilot cases of community elderly care, the innovation path of the silver economy is analyzed; through the research method of quantitative evaluation of the effectiveness of social security reform through policy text, it is concluded that the labor shortage caused by aging forces the intelligent upgrading of industries, and the increase in the contribution rate of the silver economy partially offsets the decline of traditional momentum. Still, the expansion of social security expenditure may compress productive investment.

Keywords: Case Study, Policy Evaluation, Labor Supply, Silver Economy, Social Security Pressure.

1 Introduction

Population aging reflects an upward trajectory in the elderly demographic weight, fueled by dual forces: youth cohort contraction and senior cohort expansion. Internationally, the demographic transition to an aging society occurs when the 60+ cohort reaches 10% or the 65+ group attains 7% of the total population. Moderate aging refers to the proportion of the population aged 60 and above exceeding 20% or the proportion of those aged 65 and above exceeding 14%.

Since the 1990s, China's aging process has accelerated. In 1999, against the backdrop of global aging, China's population aging process also showed a unique development trend. China has the largest elderly population in the world, accounting for one-fifth of the world's total elderly population.

According to data released by the National Bureau of Statistics, by the end of 2021, there were 267.36 million people aged 60 and above in China, accounting for 18.9%, of which 200.56 million were aged 65 and above, accounting for 14.2% [1,2]. With 310 million citizens aged 60+ (22%) and 220 million aged 65+ (15.6%) recorded by end-2024, China has transitioned into a moderately aging society. This demographic

shift's sheer magnitude and pace are defining features of this new stage. The sheer size of China's elderly cohort surpasses the combined populations of most nations across the globe [1]. In the coming ten years, this demographic (aged 60+) will see a net annual growth exceeding 10 million individuals. Projections indicate that by 2040, individuals aged 65 and over will constitute over 20% of China's total population. Concurrently, a pronounced trend towards advanced aging is emerging: the cohort aged 80 and above is expanding at an annual rate of 5%, expected to surpass 74 million by the same year [2].

China's aging population has brought about problems such as increased pressure on social security, a shrinking labor force, and rising dependency ratio, a declining savings rate, and an imbalance between investment and consumption. At the same time, the vast potential and institutional innovation of the silver economy also provide opportunities for the sustainable development of China's economy. The silver economy has enormous development potential in many fields, such as elderly care services, medical care, and senior tourism, and institutional innovation may include improving the elderly care security system and encouraging social capital to participate in the elderly care industry. China's population aging has significant characteristics. Its basic features can be summarized as large scale, rapid speed, complex structure, regional imbalance, and aging before getting rich. An aging society will bring a significant influence on China's social and economic growth, and this impact is dual. In the short term, it will exacerbate challenges such as labor shortages and social security pressure. In contrast, in the long term, it will promote the rise of the silver economy and industrial upgrading. 2025-2035 is the "critical window period" for coping with aging. It is necessary to transform pressure into the driving force for high-quality development through technological innovation, institutional empowerment, and industrial transformation.

This study will reveal the dynamic mechanism of the impact of aging on the economy from three aspects: population aging's impact on labor supply, as well as on the market size and supply chain coordination within the silver economy. It will analyze how population aging affects economic growth potential through labor supply, savings rate, consumption structure, and innovation vitality. It will also evaluate the market size and industrial chain synergy of the triggering industry, identify key development bottlenecks, analyze current social security pressures, and propose effective solutions.

2 The Direct Impact of Population Aging on China's Economy

2.1 Population Aging and Labor Supply

The labor force population has shown a significant downward trend since 2019, and by 2022, the labor force population will be 768.63 million. In 2022, the proportion of China's population aged 60 and above will be 19.8%, and it is expected to exceed 30% in 2035. At the same time, changes in the age structure of the workforce have also had a significant impact on industrial production efficiency, further exacerbating the challenges posed by an aging population to economic growth. This trend has directly led to labor shortages in industries such as manufacturing and services. For example, electronic assembly companies in the Yangtze River Delta region have generally had a 20%

labor shortage in recent years [3]. In terms of the age structure of the labor force, the proportion of workers aged 45 and above increased from 18% in 2000 to 37% in 2022, and industries intensive in manual labor are facing pressure of declining labor productivity [4]. According to a case study of an automotive parts company, the average productivity of older employees is 14% lower than that of younger employees, but their job stability is 23% higher. This contradictory characteristic has prompted the company to adjust its production organization method [5]. In terms of savings rate, the urban household savings rate was 32% in 2010, but it dropped to 25% in 2022, which is negatively correlated with the increase in the aging rate [6]. However, the opposite trend is evident in rural areas. In some counties and districts in Sichuan, the savings rate of farmers aged 60 and above has increased by 8 percentage points compared with ten years ago. This is closely related to the increase in income from land transfer and the improvement of the pension security system [7]. The scale of pension financial products has increased from RMB 1.2 trillion in 2015 to RMB 8.7 trillion in 2022, but product homogeneity has resulted in actual coverage of less than 30% [8]. This structural contradiction has become an obstacle in the process of converting savings. The decline in the savings rate of urban households may affect the ratio of consumption and investment and promote consumption upgrading, but it may also lead to insufficient capital accumulation and affect the potential for economic growth. Although the increase in the savings rate in rural areas will help increase capital accumulation in rural areas, farmers need to save to cope with future pension risks. In 2022, the return on entrusted investment of pension insurance funds was 1.8 percentage points lower than that of the social security fund as a whole [9]. The dual changes in the labor market and capital market have caused the total factor productivity growth rate to drop from 4.7% in 2008 to 2.1% in 2022, with age structure factors contributing 37% of the decline [9]. In terms of urban-rural differences, the elderly dependency ratio in rural areas exceeds that in urban areas, but the economic development level and medical security facilities in rural areas obviously cannot meet the standards of cities. The imbalance in urban and rural development reflected by this will be exacerbated.

2.2 The Synergistic Effect of China's Aging Population on the Market Size and Industrial Chain of the Silver Economy

As China's aging population trend continues to increase, the silver economy, as a national strategy to cope with an aging population, has shown remarkable vitality, and its industry scale has shown a rapid growth trend. The market size of China's silver economy is expected to reach 1.39 trillion yuan in 2025 and is expected to exceed 2 trillion yuan by 2027 [10]. As the market size of the silver economy continues to expand, the synergy effect of its industrial chain is becoming increasingly prominent. According to data from the National Bureau of Statistics, the scale of consumption among the elderly will exceed 7 trillion yuan in 2022, of which the elderly care services market will account for the majority of the share [11]. As a result, the State Council issued a series of relevant policy measures, including financial and fiscal support and talent team building.

There is a synergistic effect in each link of the elderly care service industry chain, and this feature is reshaping the traditional economic structure. The construction of

elderly communities has not only driven the production of medical devices but also spawned the development of the residential aging-friendly renovation industry. For example, the sales volume of a certain brand of smart bracelets in 2023 will be accounted for by elderly users, accounting for 42%. The combination of housekeeping services and telemedicine has formed a new service model. In the Beijing pilot project, the coverage rate of cooperation between community hospitals and housekeeping companies has reached 65%. However, the synergy of the industrial chain still faces the problem of regional development imbalance. The degree of informatization of elderly care institutions in the eastern region is generally 20 percentage points. The number of insured persons exceeded 50 in three months. Some companies are trying to integrate resources across fields. For example, a health management project launched by an insurance group and a pharmaceutical company exceeded 500,000 user registrations in the first quarter [8]. This industrial linkage effect not only creates jobs but also promotes technological innovation. For example, the research and development of aging-friendly smart homes has obtained 12 patent authorizations [7].

However, the silver economy still faces challenges and problems. First, the policy system still lacks coherence. At present, there is no unified top-level design and decision-making deployment, resulting in fragmentation in the process of promotion in various places [10]. In addition, the proportion of government funding in this regard is not high. In many places, the procedures for approving the use of nursing homes are particularly complicated and require a long wait. This situation resulted in a decrease of 2.1 million beds in nursing homes across the country last year, and many elderly people could not find suitable nursing homes to live in. Second, at the market level, the degree of scale is low, and the industrial chain has not yet been formed, resulting in many industries not providing adequate services, not accurately grasping the service needs of the elderly, and a low scale of clustering. The industrial chain is not extended enough in secondary fields such as medical care, nursing, rehabilitation, and education, and cannot form effective coordination, resulting in low efficiency in resource allocation and serious waste of resources, which restricts the overall development potential of the industry [10]. In many community hospitals and nursing homes, each is responsible for its affairs. More than 60% of communities do not fully combine the two services of medical care and elderly care. The use of technology products among the elderly is not ideal. For example, the use rate of devices such as smart bracelets and emergency call devices is less than 20%, and remote consultation services have not reached the expected usage. The lack of a systematic and coherent policy system and the low degree of scale at the market level will seriously restrict the sustainable development of China's silver economy. If these problems are not solved in time, the silver economy will find it difficult to fully play its role in driving economic growth. To change these situations, can start from several aspects. Government departments can give enterprises more preferential treatment. For example, after Beijing raised the subsidy standard for nursing homes, corporate investment increased by more than 40%. Different methods should be used for different groups of people, such as building high-end retirement communities for the elderly in cities with good conditions. The mutual assistance elderly care centers piloted in Zhejiang have expanded the service coverage by more than half. It is

also important to learn from foreign experience. Japan has achieved good results in using robots to take care of the elderly, which can save 30% of labor costs.

2.3 The Market Size and Industry Chain Synergy Effects of China's Aging Population on the Economy of Silver

As extent trend of China's aging population become more serious, changes in the population structure have led to the working-age population decreases, the "one decrease and one increase" situation has increased the pressure of the pension insurance fund. The adjustment of pension benefits is also an important factor in aggravating the expenditure pressure. At the same time, the adjustment of pension benefits has also aggravated the expenditure pressure to a certain extent. The adjustment of pension benefits needs to take into account factors such as rising prices and economic development, which are closely related to changes in the labor market and economic growth against the background of population aging. The confluence of these factors critically undermines the pension insurance fund's sustainability. Against an aging population backdrop, soaring expenditure growth vastly outpaces revenue increases, leading to diminished fund accumulation and potential deficits. Such pressures not only jeopardize the system's long-term stability but also erode public confidence in future pension disbursements. The sustainability of the pension insurance system has been seriously affected. Against the background of population aging, the growth rate of pension insurance fund expenditure far exceeds the growth rate of income, and the accumulation of funds has slowed down and may even result in a deficit. This may cause insured people to worry about their ability to pay pensions [12]. The continued growth in medical needs of the elderly has brought unprecedented pressure to the medical insurance system. The elderly generally have health problems such as frequent chronic diseases and a high risk of disability. Their per capita medical expenditure is much higher than that of people in other age groups, further increasing the expenditure burden of pension insurance funds.

To meet these challenges, a series of measures needs to be taken. By delaying the retirement age, the number of contributors can be increased to mitigate the fund pressure. Meanwhile, the medical insurance system needs to strike a balance between the level of protection and financial sustainability. It is necessary to ensure that the elderly have access to necessary medical services while preventing the risk of the fund bottoming out. This requires us to improve the medical insurance financing mechanism, promote the optimal allocation of medical resources, and strengthen health management to reduce medical demand [11]. Only by taking multiple measures can build a medical insurance system that is compatible with an aging society. Delaying the retirement age may face pressure from the job market and resistance from workers; establishing a multi-level pension insurance system requires improving relevant policies and systems to increase residents' enthusiasm for insurance participation; the medical insurance system needs to strike a balance between the level of protection and financial sustainability, and it needs to take into account various factors and make scientific and reasonable decisions. To overcome these difficulties and challenges, the government, enterprises and society need to work together.

3 Conclusion

China's aging population has reshaped the labor supply pattern, created new opportunities for the silver economy, and increased social security pressure. In terms of labor supply, the tightening of labor supply directly pushes up labor costs, weakens the international competitiveness of traditional labor-intensive industries, and forces companies to turn to technology-intensive upgrades. For the silver economy, the silver economy spawned by aging is becoming a new growth engine. However, the current supply is still dominated by basic services, and supply-side structural reforms need to be deepened. Aging has increased the pressure on pension and medical expenses. The pilot of the delayed retirement policy has been launched. It is important to achieve full coverage following the level of national economic development.

China's aging population has multi-dimensional impacts on social and economic development, and has become a long-term, fundamental factor that has profoundly affected economic development. In the short term, aging will continue to have a suppressive effect on the growth of the economy, while in the long term, structural reforms can achieve transformation. It requires cooperation and continuous efforts among various entities.

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