The Impact of Population Aging on Economic Growth: A Case Study of China

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Abstract. China's population is ageing rapidly. It will enter an ageing society in 2000, enter a moderate ageing society in 2021, and enter a severe ageing population in 2035. Compared with other countries, China's time from ageing to moderate ageing is shorter. This will have a profound impact on economic development, social governance, etc., and is a major event related to the modernization process. Therefore, this study discusses the reasons and trends for the rapid ageing of China's population, and analyses the challenges posed by population ageing. Taking China as an example, it reflects the challenges faced by countries with an ageing population in the whole world. The main purpose is to explore the impact of population ageing and population ageing on China's economic growth caused by China's unique system, and I will give two specific suggestions based on the current situation of population ageing. The main research method adopted in this paper is descriptive analysis. The main finding of this study is that ageing has a negative impact on growth through labour supply, and there is the potential of a "silver-haired economy". Eventually, a possible key policy revelation will be put forward.

Keywords: Population aging, Economic growth, Chinese population, Labour supply, Policy response.

1. Introduction

China is experiencing an unprecedented demographic transformation, which is characterized by the accelerated ageing of the population. At the end of 2024, the national elderly population aged 60 and above was 310.31 million, accounting for 22.0%, of which the elderly population aged 65 and above was 220.23 million, accounting for 15.6% [1]. The most important social problem facing China is population ageing. Population ageing is one of the important problems that China's social development needs to face at a certain stage today, which will bring challenges to economic development [2]. This accelerated ageing has brought far-reaching challenges to China's sustainable economic growth, and such a phenomenon requires academic research and policy attention.

The relationship between ageing and economic growth is caused by a variety of ways. The reduction of labour supply has the most direct impact. In 2023, the world's eight major economies caused enterprises to shorten operating hours or reject orders due to labour shortages, resulting in GDP losses of 0.5% to 1.5% of the economies [3]. This shows that the reduction in the number of labour will reduce the national output. At the same time, the increase in the proportion of the elderly population will increase the expenditure on government pensions and health care subsidies, which will put pressure on fiscal sustainability. The key is that although the older labour force has richer experience, some literature shows that there may be a potential decline in entrepreneurial activities and technology adoption, and the ageing of the population has an inhibitory effect on the digital transformation of enterprises. The mechanism test found that the ageing of the population hinders the digital transformation of enterprises by reducing the ability of digital technology innovation, reducing digital transformation subsidies and increasing the excess tax burden [4]. The problems are analyzed caused by the ageing of the population and think about whether the emergence of elderly-oriented services and the "silver-haired economy" can provide opportunities to meet these challenges.

Nowadays, although many countries around the world have conducted a lot of research on the ageing of the population, China's unique institutional environment, such as the household registration system, the legacy impact of fertility policies, etc., I will conduct a specific background analysis.

Existing research often only focuses on independent mechanisms. Therefore, this article will deeply explore the main ways that population ageing affects China's economic growth. Secondly, put forward some efficient and feasible solutions. In the end, I will think about how policy measures can make full use of ageing-related opportunities while avoiding risks.

2. Literature Review

The ageing of the population of different countries depends on different factors. International research shows that there are significant differences between different countries. In a developed economy like Japan, even in the most optimistic scenario, the GDP growth rate will become negative by the 1990s. By 2100, Japan's GDP may drop to the improvement of the level of productivity in the 1970s, which cannot offset the GDP contraction caused by the ageing of the population [5]. This shows that the ageing of the population obviously inhibits economic growth. However, it is worth noting that the Nordic countries have performed outstandingly in promoting the education policy of lifelong learning. By building relevant indexes, the importance of lifelong learning policies to the integration of the labour market is emphasised. This highlights the regulatory effect of the policy.

In China, the ageing phenomenon is becoming more and more serious because of its unique institutional factors. First of all, mobility barriers related to the household registration system exacerbate the mismatch between labour companies in different regions, thus aggravating the negative impact of the ageing of inland provinces on productivity. Secondly, the labour shortage caused by ageing has led enterprises to adopt automated production. At the same time, the ageing of the labour force hinders the improvement of skills.

3. Population aging in China: Trends and Characteristic

China's population structure has undergone great changes. By the end of 2024, the national elderly population aged 60 and above was 310.31 million, accounting for 22.0%, of which the elderly population aged 65 and above was 22.23 million, accounting for 15.6% [1]. It is estimated that by 2054, the proportion of the elderly population over 60 years old in China will jump to more than 40% of the super-ageing society [6].

There are several differences between the ageing process in China and the ageing process in other regions. First of all, there is a serious imbalance in regional development. Northeast China is facing ageing problems due to population outflow and low fertility, while Guangdong Province benefits from the inflow of a large number of young people. I think this difference needs to be dealt with by the formulation of targeted local policies. Secondly, the one-child policy from 1979 to 2015 artritisely accelerated the decline in the fertility rate, resulting in an inverted pyramidal population structure in China. Therefore, the challenges brought about by the ageing of China's population are caused by many factors, and there is an urgent need for macroeconomic readjustment.

4. Impacts in the Chinese Context

The first impact is supply of anorchia’s working-age population peaked in 2014 and has been decreasing since then due to the increasing ageing of the population. This has reduced the growth rate of GDP in some areas with a high degree of ageing population. At the same time, the ageing of the labour force has also hindered the improvement of productivity. The utilization rate of technology for workers over the age of 50 is 23% lower than that of the group under the age of 35.

The second impact is financial burden. Public pension expenditure soared from 2.7% of GDP to 4.1%, and 10 provinces have had pension deficits (National Bureau of Statistics, 2024). By 2040, ageing will increase social security costs by 6.4% of GDP, crowding out infrastructure and R&D investment. This "squeezing out effect" is most serious in old industrial areas - welfare expenditure in Heilongjiang currently accounts for 38% of fiscal revenue, compared with only 12% in Guangdong.

The last impact is silver economy. The report shows that China's ageing rate exceeds that of middle and high-income economies, and it is expected to enter a super-ageing society around 2030. It is estimated that at present, the scale of China's silver economy is about 7 trillion-yuan, accounting for about 6% of GDP. By 2035, the scale of silver economy is expected to reach 30 trillion-yuan, accounting for 10% of GDP. It is emphasized that the expanding elderly population has become an increasingly important consumer group in economic development, and the silver-haired economy has ushered in Broad development space.

5. Future Suggestions Based on the Current Situation of Ageing Population

In the face of the increasingly severe situation of population ageing, in order to effectively alleviate the negative impact of it and achieve sustainable economic and social development, the following suggestions are put forward.

5.1. Systematically Promote the Healthy Ageing Strategy

The four major areas of action for healthy ageing are changing cognitive attitudes, developing communities suitable for the elderly, providing people-oriented integrated health services, and providing long-term care [7]. This shows that the government should significantly increase investment in primary health services, especially community health centres. The focus is on carrying out free or low-cost early screening projects for common chronic diseases in the elderly, such as cardiovascular diseases, diabetes, arthritis and cognitive disorders, and supporting the implementation of lifestyle intervention plans, such as nutrition counselling, ageing exercise courses, smoking cessation and alcohol limitation support. The goal is to delay the occurrence of disease, reduce disability, and maintain the function of the elderly. Secondly, the elderly have a huge demand for rehabilitation services [8], so a team of general practitioners, nurses, social workers and pharmacists can be established at the community level. Use electronic health files and e-medicine technology to provide continuous and personalized management solutions for the elderly with one or more chronic diseases. And carry out regular follow-up visits, medication management, and complication monitoring.

5.2. Actively Develop the Silver-Haired Economy

With the ageing of the population becoming a major trend, key measures such as flexible retirement, anti-age discrimination legislation, and lifelong learning are effective in improving the participation rate of elderly labour [9]. Therefore, legislation should be made to prohibit age discrimination, eliminate age discrimination and re-evaluate the importance of the value of elderly employees [10]. Reform the remuneration system and promotion mechanism and promote evaluation criteria based on ability and performance. Enterprises are encouraged to implement flexible retirement systems, such as phased retirement, re-employment and flexible work arrangements, such as flexible working hours, remote working, and project-based work, which is conducive to meeting the desire of the elderly with different health conditions and family care needs to continue working. Secondly, some literature emphasizes the continuous contribution of the elderly to the labour market and social participation [11]. Therefore, some "age-atited" positions can be created to identify and develop those that require rich experience, social wisdom, patience and meticulous quality and relatively low physical requirements [10]. For example, corporate consultants, community mediators, museum interpreters, non-profit organization management, quality supervision, etc.

6. Conclusion

Research shows that population ageing has a net negative effect on economic growth, which is mainly due to the contraction of the labour force and the intensification of fiscal pressure, and this negative impact exceeds the 0.3% growth contribution of the silver economy under the current policy framework. It is worth noting that there are significant regional differences in the economic impact of ageing: Northeast China is most obviously dragged down by ageing, and the annual GDP growth rate is facing a downward pressure of 2.4%, while coastal areas have effectively alleviated the growth caused by ageing through the application of automated technology and foreign labour absorption. Loss.

Facing the multiple challenges brought about by the ageing of the population, policy formulation needs to build a systematic response framework from multiple dimensions. In the field of the labour market, we should steadily promote the gradual delayed retirement policy and give priority to the implementation in high-skilled fields in combination with the characteristics of the industry, so as to give full play to the experience advantages of senior technical talents. At the same time, in view of the skill iteration pressure faced by workers over 45 years old, by setting up special skill renewal subsidies, it will help adapt to the needs of industrial upgrading and enhance the overall vitality of the labour market. In terms of financial sustainability, it is necessary to focus on optimising the pension architecture and promoting the transformation of a single-pillar pension model into a multi-pillar pension model. For example, through policy guidance, the enterprise annuity coverage rate gradually increases from the current 7% to 30%, and the source of pension security funds should be broadened. For the activation of the silver economy, we should further break down industry access barriers, relax investment restrictions on people's nutrition service institutions for the elderly, and encourage social capital to participate in the supply of elderly care services. At the same time, through incentive policies such as tax reduction and deduction of R&D expenses, enterprises should be guided to increase R&D investment in ageing-friendly technologies and products and promote Deep integration of old industries and digital technology. At the level of regional coordination, in view of the regional differences in population mobility and the degree of ageing, it is necessary to accelerate the establishment of a unified national cross-provincial pension coordination mechanism, balance the income and expenditure pressure of interregional pension funds, and improve the regional coordination ability to cope with ageing.

There are two main limitations in the current research. First, at the data level, the analysis of the micro-mechanism of enterprise productivity affected by ageing still needs to rely on a more refined micro-data set, and it is difficult to fully analyse the impact of existing macro data; Second, because of insufficient time, I use second-hand information in the whole paper, and it is difficult to achieve in-depth analysis, which It may limit the dynamic explanation of the impact on the ageing economy to a certain extent. If I have the opportunity to talk about this topic again in the future, I will make improvements.

The study finally believes that although the challenge of ageing in China is inevitable, it is not impossible to cope with. Through strategic investment and institutional innovation in the field of human capital, it is expected that the downward pressure brought about by the transformation of the population structure will be transformed into a driving force for sustainable growth.

References

[1] Wang, P.: The decline in total population has narrowed, and the quality of the population continues to improve. China Economic Net (2025).

[2] Xue, J.: Research on Population Aging in China. Economic Management Press, Beijing (2024).

[3] Anu, M., Olivia, W., Sven, S., Chris, B.: Help wanted: The long-term labor tightening trend by country (2024).

[4] Pengmian, W., Tao, Z.: Impact of population aging on corporate digital transformation strat-egies: An empirical investigation based on population census data from various provinces in China (2024).

[5] Honjo, K., Goni, K., et al.: Long-term projections of economic growth in the 47 prefectures of Japan: An application of Japan shared socioeconomic pathways. 7 (2), 9-10 (2021).

[6] United Nations, Department of Economic and Social Affairs, Population Division: World Population Prospects 2022: Summary of Results. United Nations Publications, New York (2022).

[7] WHO: Decade of Healthy Ageing: Baseline Report: Plan of Action. WHO Press, Geneva (2020).

[8] Cieza, A., Causey, K., Kamenov, K., Hanson, S. W., Chatterji, S., Vos, T.: Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet 396 (10267), 2006-2017 (2021).

[9] OECD. Retaining Talent at All Ages, Ageing and Employment Policies, OECD Publishing, Paris (2023).

[10] van Dalen, H.P., Henkens, K., Schippers, J.: Productivity of older workers: Perceptions of employers and employees. Population and Development Review 36 (2), 309–330 (2010).

[11] Foster, L., Walker, A.: Active and successful aging: A European policy perspective. The Gerontologist 55 (1), 83–90 (2015).