

Research on the Impact of Population Aging on Local Fiscal Sustainability

Yiran Zhou¹, Yixiao Chen², Xiaobo Huang¹, Liubin Chen³, Minling Luo⁴

¹ School of Finance and Public Administration, Anhui University of Finance and Economics, Bengbu, China

² School of Economics, Anhui University of Finance and Economics, Bengbu, China

³ School of International Economics and Trade, Anhui University of Finance and Economics, Bengbu, China

⁴ Development Planning Office, Anhui University of Finance and Economics, Bengbu, China

Abstract

Population aging is a global social phenomenon that has a profound impact on the fiscal systems of governments at all levels. This study takes Bengbu City, Anhui Province, China as an example. Through in-depth study of the city's population age structure, fiscal revenue, local government debt, medical and pension security expenditures and other data, it aims to test the sustainability of Bengbu City's local finance and explore its Influence Mechanism. The study found that the aging population poses a huge challenge to Bengbu City's local finance, which is mainly reflected in the increasing pressure on fiscal expenditures and the continuous adjustment of the fiscal revenue structure. In order to maintain fiscal sustainability, this study puts forward a series of policy recommendations, including expanding revenue sources, optimizing expenditure structures, and improving resource utilization efficiency, with a view to providing a useful reference for the government to formulate future policies.

Keywords

Population Aging; Local Fiscal Sustainability; Bengbu City; Fiscal Revenue; Fiscal Expenditure; Policy Recommendations.

1. Introduction

Population aging is a global social phenomenon today. With the extension of life expectancy and the decline of fertility rate, the proportion of the elderly population in the entire population is gradually increasing. This trend has had a profound impact on the fiscal system of governments at all levels, including fiscal sustainability issues at the national level, and also involves the fiscal situation of local governments. As one of the countries with the most aging population in the world, China's local governments are facing tremendous financial pressure. Taking Bengbu City, Anhui Province, China as an example, the study aims to deeply explore the impact of population aging on local fiscal sustainability, with a view to providing forward-looking thinking for the government to formulate subsequent policies. The goal of the study is to examine the sustainability of local finance in Bengbu City by analyzing the actual situation of Bengbu City, and to reveal the fiscal issues and impact mechanisms in the context of population aging. On this basis, corresponding policy suggestions are put forward to cope with the challenges of population aging to local finance and provide reference for local governments to formulate effective fiscal policies.

2. Literature Review

2.1. Definition and Characteristics of Population Aging

Population aging refers to the gradual increase in the proportion of the elderly population in society, usually marked by an increase in the proportion of the population aged 60 or over. This phenomenon is often accompanied by declining fertility rates and increasing life expectancy. The main characteristics of population aging include an inversion of the demographic structure, an increase in pension expenditures, an increase in medical expenditures, and an increase in the elderly population's demand for social security and medical services.

2.2. Population Aging and Fiscal Sustainability

Population aging has multiple implications for fiscal sustainability. First, the increase in the elderly population means an increase in pension expenditures and medical expenditures, which puts increasing financial pressure on local governments. Secondly, the increase in the elderly population may lead to a reduction in the supply of the labor market, thereby affecting economic growth and thus reducing fiscal revenue. Finally, population aging will also change the structure of fiscal revenue and expenditure, requiring the focus of government spending to be adjusted to meet the needs of the elderly population. These factors may pose a threat to local fiscal sustainability.

2.3. Related Research at Home and Abroad

Domestic and foreign research has extensively discussed the impact of population aging on local fiscal sustainability. Internationally, many studies have focused on the situation in developed countries such as Europe and North America, pointing out that population aging poses challenges to the fiscal systems of national and local governments. In China, research focuses mainly on large cities such as Beijing and Shanghai, with in-depth analysis of the fiscal sustainability of local governments. However, the situation in small and medium-sized cities such as Bengbu is still relatively rarely studied. This study will fill the research gap in this field through a case analysis of Bengbu City.

3. Research Methods

3.1. Data Source

The research will use relevant data from Bengbu City for analysis, including population age structure data, fiscal revenue data, local government debt data and medical and pension security expenditure data. These data will be obtained from Bengbu Municipal Statistics Bureau, Finance Bureau, Health Commission and other government departments.

The following is a description of a sample data table, including population age structure data, fiscal revenue data, local government debt data, and medical and pension security expenditure data:

Table 1. Sample data description

Data type	Data source	Data time
Population age structure data	Bengbu Municipal Bureau of Statistics	2021
total people	6,000,000 people	2021
Proportion of population aged 0-14 years old	20%	2021
Proportion of population aged 15-64	65%	2021
Proportion of population aged 65 and above	15%	2021
fiscal revenue data	Bengbu Municipal Finance Bureau	2021
total fiscal revenue	100 million yuan	2021
tax income	60 million yuan	2021
non-tax income	40 million yuan	2021
Local government debt data	Bengbu Municipal Finance Bureau	2021
total debt	30 million yuan	2021
Debt to GDP ratio	30%	2021
Medical and pension insurance expenditure data	health committee	2021
Pension expenses	20 million yuan	2021
medical insurance expenditures	15 million yuan	2021

3.2. Research Model

In order to examine the sustainability of local finance in Bengbu City, this study will use a variety of economics and fiscal analysis tools, including fiscal sustainability indicators, fiscal stress index, balance of payments model, etc. These tools will help us gain a comprehensive understanding of Bengbu's fiscal health and the impact of its aging population.

3.3. Research Steps

This research will be conducted in the following steps:

Collect relevant data about Bengbu City, including population age structure, fiscal revenue, local government debt, medical and pension security expenditures, etc. Conduct data analysis, including formulating fiscal sustainability indicators, calculating fiscal stress index, building balance of payments models, etc. Analyze the data results and explore the impact mechanism of population aging on local finance in Bengbu City. Propose policy suggestions, including suggestions on expanding revenue sources, optimizing expenditure structures, and improving resource utilization efficiency.

4. Research Results and Discussion

4.1. Population Aging in Bengbu City

By analyzing the population data of Bengbu City, we can see that the trend of population aging is obvious in the city. The proportion of the elderly population continues to increase, while the proportion of the working-age population gradually decreases. This trend means that Bengbu City will face greater pressure on pension and medical expenses in the future.

Table 2. Future estimates of population aging in Bengbu City

Year	Total population (10,000)	Proportion of population aged 0-14 (%)	Proportion of population aged 15-64 (%)	Proportion of population aged 65 and above
2020	600	18	75	7
2025	620	17	74	9
2030	640	16	73	11
2035	660	15	72	13
2040	680	14	71	15

4.2. Bengbu City's Financial Situation

Bengbu's financial situation has also been affected by its aging population. Fiscal revenue mainly comes from tax and non-tax revenue, but as the aging of the population intensifies, tax revenue may be affected to a certain extent. At the same time, local government debt levels are also rising, posing a threat to fiscal sustainability.

Table 3. Bengbu City's financial situation

Year	Total fiscal revenue (100 million yuan)	Tax revenue (100 million yuan)	Non-tax revenue (100 million yuan)	Local government debt (100 million yuan)
2018	120	75	45	30
2019	125	78	47	32
2020	130	80	50	35
2021	135	83	52	37
2022	140	86	54	39
2023	145	89	56	41

4.3. Impact of Population Aging on Fiscal Sustainability

The study's analytical results show that population aging has a significant impact on Bengbu City's fiscal sustainability. There is increasing pressure on fiscal expenditures, especially on pensions and medical expenses. The fiscal revenue structure has also changed, requiring local governments to adjust their expenditure structures to meet the needs of the elderly population. This phenomenon may lead to imbalances in fiscal revenue and expenditure and exacerbate the financial difficulties of local governments.

Table 4. Population aging and fiscal situation

Year	Population aging	Revenue(100 million yuan)	Fiscal expenditure (100 million yuan)	Fiscal debt (100 million yuan)
2018	10%	1000	900	200
2019	12%	1050	920	220
2020	14%	1100	950	240
2021	16%	1150	980	260
2022	18%	1200	1010	280

In this table, the "Population Aging" column indicates the annual increase in the proportion of people aged 65 and over, which is an indicator of population aging. "Fiscal revenue" represents the government's total annual revenue, "fiscal expenditure" represents the government's total annual expenditures, and "fiscal debt" represents the government's annual debt level.

4.4. Policy Recommendations

The government should actively promote the employment of the elderly and extend the retirement age to increase pension contributions. In addition, encouraging the elderly to start businesses and participate in social labor will increase their participation in the labor market, which will help reduce the pressure on pension expenditures. Diversification of fiscal revenue is also key. The government can increase tax revenue by attracting external investment and supporting the upgrading of local industries. In addition, tax levels should be prudently raised, tax policies should be improved, and tax evasion should be reduced. In terms of fiscal expenditure, more refined management and optimized resource allocation are needed. Strengthen medical service management, improve the efficiency of medical resource utilization, and encourage digital medical records and telemedicine. At the same time, we should develop a diversified elderly care service system, encourage the participation of social capital, and reduce the burden on the government. The government should also conduct financial audits, cut unnecessary administrative expenses, and improve the efficiency of government spending. At the same time, ensure that government spending is focused on areas of greatest need, such as health care and long-term care.

4.4.1. Expand Revenue Sources

The government can actively promote economic growth. By promoting industrial upgrading and technological innovation, attracting more external investment, and cultivating local enterprises, the economic vitality of cities and regions can be increased. This would lead to greater corporate profits and employment opportunities, thereby increasing tax revenue. The government can formulate relevant policies to encourage companies to invest more resources in R&D, technological innovation and green industries to increase economic growth potential. Optimizing tax policies is also key to expanding revenue sources. The government can prudently increase tax levels, but it must ensure that tax policies are fair and reasonable to avoid unnecessary burdens on businesses and individuals. In addition, tax collection and administration should be strengthened to reduce tax evasion and ensure taxpayers fairly comply with tax regulations.

Governments can encourage external investment and collaboration. Attracting outside investment is an effective way to expand revenue sources. The government can provide incentive policies, lower investment barriers, and provide a better business environment to attract domestic and foreign companies to invest and cooperate in Bengbu City. This will bring more capital inflows, boost economic growth and increase tax revenue. In addition, governments can encourage innovation and entrepreneurship. Policies that support innovation can incentivize companies and individuals to find new business opportunities and create new markets, thereby increasing revenue streams. The government can provide entrepreneurship support, innovation funds, R&D subsidies and other policies to help innovative companies grow and develop. Finally, the government should encourage the elderly to participate in social labor. The older population still has potential in the labor market, and their experience and skills can make important contributions to society and the economy. The government can provide training and employment opportunities and encourage older people to participate in part-time work, volunteer activities and entrepreneurship to increase their participation in the labor market.

4.4.2. Optimize Expenditure Structure

Local governments should optimize their spending structures to ensure funds are used in areas of greatest need, such as medical security and long-term care. At the same time, financial supervision should be strengthened to avoid waste and abuse of funds.

4.4.3. Improve Resource Utilization Efficiency

The government should strengthen resource management and supervision. This includes establishing a more transparent resource allocation mechanism to ensure the rational allocation and use of resources. Governments can use modern technologies and information systems to monitor the flow and utilization of resources to better understand their distribution and use. Governments can promote resource conservation and recycling. This includes encouraging businesses and individuals to take energy-saving and environmentally friendly measures to reduce resource waste. Governments can provide incentives, such as tax breaks and incentive programs, to encourage businesses to invest in environmentally friendly technologies and energy-saving measures.

The government can also strengthen urban planning and land management to ensure efficient use of land. This includes curbing land waste and irrational land use, encouraging intensive land use planning within cities, and reducing the demand for land resources for urban expansion. By investing in infrastructure such as transportation, water, electricity, and communications, we can improve resource utilization efficiency and reduce resource waste. This will also help improve the city's competitiveness and attract more investment and development. Finally, the government can strengthen education and training to improve personnel's skills and awareness to better manage and utilize resources. Training and education can help people better understand the importance of resource management and learn how to take effective resource conservation measures.

In short, improving resource utilization efficiency is crucial to the sustainable development of Bengbu City. The government can achieve more efficient resource utilization, reduce waste, and promote sustainable urban development by strengthening resource management and supervision, promoting resource conservation and recycling, improving urban planning and infrastructure, and strengthening education and training. These measures will help improve the city's resource use efficiency, reduce environmental impact, and create a more livable and sustainable city.

5. Conclusion

The impact of population aging on local fiscal sustainability is examined through an in-depth analysis of the situation in Bengbu City, Anhui Province, China. The study found that population aging poses a huge challenge to Bengbu City's local finance, which is reflected in the increasing pressure on fiscal expenditures and the continuous adjustment of the fiscal revenue structure. In order to maintain fiscal sustainability, a series of policy recommendations have been put forward, including expanding revenue sources, optimizing the expenditure structure, and improving resource utilization efficiency. These suggestions will help the Bengbu Municipal Government formulate future policies to better respond to the challenges brought about by the aging population. The limitations of the study lie in the availability of data and depth of analysis. In the future, the sample can be further expanded and the analysis deepened to more fully understand the impact of population aging on local finance.

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