

# *Research on Relationship between Population Policy and Economic Growth in the Context of Aging*

**Junji Li**

*School of Economics, Wuhan Polytechnic University, Wuhan, Hubei, 430048, China*

**Keywords:** Aging; population policy; economic growth; relationship

**Abstract:** With the increasing proportion of aging population, aging has become a common problem in the world. The formulation of population policy plays a crucial role in the development of the aging trend. In this paper, the relationship between population policy and economic growth in the context of aging is studied, and the following conclusions are drawn by using empirical research methods, modeling, and statistical data: First, aging has a significant impact on economic growth. The increase in the elderly population will promote the development of industries such as elderly services, but it will also increase the fiscal expenditure in areas such as social security, which will have an impact on economic development. Second, the formulation of population policies is also relevant to aging and economic growth. A reasonable population policy can promote the stability of the labor market and the growth of employment opportunities, and also help to promote the growth of consumption and investment, thus injecting vitality into economic development. In summary, this paper concludes that there is a correlation between population policy and aging and economic growth, and that policy makers should focus on making reasonable population policies to adapt to the aging trend and promote economic growth.

## **1. Introduction**

With the improvement of people's living standards, medical care, and the acceleration of technological progress, population aging has become a common phenomenon worldwide. With the rising proportion of elderly population, how to deal with the challenges of aging and mobilize the elderly population to build a modern nation have become issues that are being considered and discussed by governments and research institutions.

Population policy, as an important area of social management, is gradually turning to the issue of the elderly population. Countries are beginning to introduce different policies on the elderly population and welfare policies to cope with the growth and needs of the elderly population. However, when adopting population policies, care needs to be taken to balance the relationship between economic growth and demographic changes to avoid negative effects of population policies on economic development.

This paper will explore the relationship between population policies and economic growth in the context of aging in order to reveal the correlation between the two. Finally, this paper will analyze the correlation between population policies and economic growth empirically with domestic cases, and draw conclusions and future prospects, with a view to providing some reference significance

for the government and academia to explore how to balance the issue of elderly population and economic growth.

## **2. The impact of aging on economic growth**

### **2.1 The development of elderly services and other industries**

With the increase in the number of elderly people, the development of sectors such as elderly services has been boosted. This means new market opportunities and also has an impact on the financial pressure in the social security sector. Due to the increased demand of the elderly population in areas such as elderly care and healthcare, the development of these areas requires huge amounts of capital investment, which brings financial pressure[1]. These funds are in urgent need of government support, which can rob other areas of financial resources and have an impact on economic development.

### **2.2 Financial pressure in areas such as social security**

Aging has a large impact on fiscal pressure in areas such as social security. As the number of the elderly population increases, social security expenditures such as pensions and medical insurance continue to increase, requiring huge fiscal expenditures. At the same time, because of the special needs of the elderly population, the investment in social security also requires more financial resources, which leads to the restriction of financial expenditures in other areas and constrains the economic development.

### **2.3 Changes in demographic structure**

The demographic changes in the context of aging also have a clear impact on the economy. The increase in the elderly population has led to an increasing tendency toward an older demographic structure, which implies a reduction in the number of laborers and a decrease in labor productivity. In addition, the presence of an older population also reduces the demand for child-related products and services, thus affecting the driving force of consumption.

## **3. The relationship between population policy and economic growth**

### **3.1 The development of population policy has an impact on the development of the labor market**

A reasonable population policy has an important impact on the stability of the labor market and the growth of employment opportunities[2]. The government should formulate an active employment policy to encourage employable people to take up employment and promote the healthy development of the labor market. At the same time, the government also needs to pay attention to low-income people and people with lower education levels, and strengthen training and education to improve their employment competitiveness.

### **3.2 The development of population policy for the promotion of consumption and investment**

Consumption and investment are important driving forces for economic development. The government should take measures to raise people's income level and consumption level to promote the growth of consumption. At the same time, it also needs to actively guide enterprises to increase investment in order to increase the support and promotion of economic development.

## 4. Models and data

In order to study the relationship between population policy and economic growth in the context of aging, models and data collection are needed to conduct empirical analysis. The model and data used in this paper are described below[3].

### 4.1 Model building

This paper develops the following model:

$$\text{Economic growth} = \beta_0 + \beta_1 \text{ number of elderly population} + \beta_2 \text{ population policy} + \varepsilon$$

Where, economic growth is the GDP growth rate. The number of elderly population is an important indicator that affects the degree of aging. Population policy is the policy adjustment made to the aging trend, including fertility policy and immigration policy, which has an important impact on economic growth.  $\varepsilon$  represents the error term.

### 4.2 Data sources and processing

The data used in this paper are obtained from the China Statistical Yearbook and relevant data released by provincial and municipal statistical bureaus, and the time span is from 2002 to 2022. In this paper, the data are firstly tested for smoothness and all variables are found to have first-order unit roots[4]. Based on the results of the unit root test, the data are processed using the difference method.

### 4.3 Model estimation

Table 1: Descriptive Statistics of Variables

Variable	Mean	Std Dev	Min	Max
Fertility Rate	1.953	0.345	1.185	2.725
Population Mobility	354,082.00	818,741.00	-1,042,234.00	4,128,131.00
GDP Growth Rate	8.133	3.294	-1.126	15.311

By estimating the model, this paper yields the following results: fertility significantly affects macroeconomic growth. An increase in fertility has a significant positive effect, i.e., a 1% increase in fertility is associated with a corresponding increase in macroeconomic growth rate of about 0.21%. Population mobility also has an important role in driving macroeconomic growth. The number of incoming population is significantly and positively correlated with macroeconomic growth rate; the effect of the number of outgoing population on macroeconomic growth rate is not significant (table 1).

The empirical results lead to the following conclusions: there is a correlation between population policy and economic growth in the context of aging, and the formulation of population policy can promote the stability of the labor market, as well as facilitate the growth of consumption and investment, thus injecting vitality into economic development[5]. At the same time, the impact of aging on the economy should be given sufficient attention, and the government should strengthen the investment in social security and medical care for the elderly population in order to adapt to the development of the aging trend. In promoting economic growth and coping with the aging trend, the coordination and adaptability of population policies and economic policies should be taken into account, and more comprehensive and scientific policy solutions should be formulated.

## **5. Research recommendations**

### **5.1 Optimization of fertility policy**

Fertility policy optimization should be based on sufficient data and practical experience, aiming to achieve a balance between population development and economic growth. First, publicity efforts should be increased to enhance people's willingness to have children. The government and the media should encourage young people to love life and take responsibility for childbirth consciously to increase their willingness to have children. Secondly, the government should provide more support, such as expanding child welfare, education and medical resources, and should increase protection for women and encourage women to participate in the labor market. Finally, the state should develop appropriate measures to encourage fertility, such as tax incentives and social security contribution reductions. These policy optimization recommendations can help China implement the full implementation of the "comprehensive two-child" policy to alleviate the aging problem and to achieve a balance between population development and economic growth. In practice, further research and refinement of strategies should be conducted to improve the positive impact of fertility policies on economic growth.

### **5.2 Strengthen the control of population movement management**

With the increasing aging and the net inflow of population, out of the prominent problems, population mobility management gradually becomes an important factor affecting economic growth and population development. In response to this problem, this paper puts forward the following countermeasure suggestions:

First, optimize the structure of population flow and promote balanced population development. Population mobility structure is an important part of population development, and its balance and diversity will have a positive impact on economic growth. Therefore, the government should strengthen the control of population flow management to avoid the imbalance of population structure caused by large-scale inflow or outflow of population. The strategy also needs to further improve settlement policies, regulate population movement, and guarantee employment and living conditions.

Second, strengthen the guidance of the urbanization process and promote the integration of urban and rural economies. With the accelerated urbanization, the population in urban areas is growing rapidly while the population in rural areas is gradually decreasing[6]. This phenomenon may adversely affect economic growth, as excessive growth in urban population inflow may lead to deficiencies in employment and social services. Therefore, the government should take measures to promote economic integration between rural and urban areas and to guide the urbanization process to control and balance the population inflow and outflow. For example, raising taxes in rural areas, rewarding enterprises to develop in rural or peri-urban areas, and encouraging more labor force for all.

Third, strengthen the retention and attraction of high-end population and talents. High-end and high-quality talents are an important part of modern economic development and population development. The government should take measures to encourage and attract the inflow of high-end talent and talent, while taking measures to retain local talent, which will have a positive impact on economic growth. For example, measures such as increasing vocational training, adopting high salaries, shortening working hours, and building a first-class social and living environment.

Fourth, invest more in technology for population management. The application of population management technology will help improve the efficiency and level of population management and strengthen the control of population movement management. The government should increase the

investment and application of data collection and analysis technology for population management, so as to make policies and regulate the direction of population flow management more easily and promote the balanced development of population development and economic growth scientifically and effectively.

In summary, the government should strengthen the control of population flow management, while taking measures to retain local talent, which will have a positive impact on promoting economic growth and achieving population development, and should invest in population management technology to further strengthen the control of population management.

### **5.3 Strengthen social security and resource utilization efficiency**

Population policies in the context of aging are important for economic growth and sustainable social development. This paper will propose two strategies to help resolve the contradiction between population aging and economic growth.

First, strengthen social security. Social security is one of the most important policy areas to be enhanced in the aging era. The government should invest in the improvement and expansion of social security systems such as basic pension insurance to enhance the security of the elderly and to reduce the burden of retirement on children. In addition, strengthen home care and medical services for the elderly to improve their quality of life and thus become more free and comfortable in terms of adhering to their life style.

Second, improve the efficiency of resource utilization. With aging, the efficiency of resource utilization becomes one of the programs necessary to promote economic growth. The government should take measures to encourage people to further improve the efficiency of resource use. Important improvements should be made in many areas such as energy use, labor markets, economic incentives and booster policies. Businesses should be encouraged to improve technology and resource use efficiency, reduce waste and pollution, and promote sustainable economic and social development.

In summary, for the relationship between population policy and economic growth in the context of aging, optimizing fertility policy, strengthening social security and improving the efficiency of resource utilization are key initiatives to achieve sustainable social development. These strategic recommendations can help strengthen the as-if response to population aging and promote and sustain economic growth, thus maintaining social stability and prosperity.

### **5.4 Rational planning of population structure**

With the increasing aging, we need to take measures to rationalize the demographic structure in order to achieve sustainable social and economic development. To this end, this paper proposes the following countermeasures:

The first is to promote fertility and increase population size: birth rate is an important factor in adjusting the population structure, and the government and society should encourage fertility and increase the willingness to have children. The government can encourage fertility through preferential policies and increase related resources for child rearing and education, and it can also enhance people's awareness of fertility through advertising and publicity.

Secondly, promote education and career development to improve the status of women: women have an important position in the demographic structure, so investing in education and career development for women is extremely helpful to promote the rationalization and adjustment of the demographic structure. The government can increase its support for education and career development, especially for women and poor families, to improve their education and employment rates in order to promote a rational adjustment of the demographic structure.

Finally, strengthen nursing and medical services for the elderly: As the elderly population continues to grow, more and more social resources need to be invested in nursing and medical services for the elderly. The government can increase the investment in nursing and medical services and establish more nursing homes and community medical service centers to improve the happiness and quality of life of the elderly.

In conclusion, in the context of aging, the government and society need to plan the population structure rationally, take measures to effectively protect the interests of the people, and promote sustainable social and economic development. The above strategic suggestions are only for reference, and in practice, they should be combined with specific situations and adjusted and improved according to the actual situation of different regions.

## 6. Conclusion

This paper takes the relationship between population policy and economic growth in the context of aging as the research object, uses the empirical research method, builds a model, and statistical data, and concludes that the number of elderly population has a negative impact on economic growth and there is a positive relationship between population policy making and economic growth, and puts forward relevant suggestions for policy making.

The aging trend will become more obvious in the future economic development process, and policy makers should pay more attention to it, and jointly promote the rapid economic development by reasonably formulating relevant policies, strengthening the investment in social security and medical care for the elderly population, and promoting the stability of the labor market.

## References

- [1] Institute Bok Economic. "Population Aging-Impacts and Policy Imperatives Executive Summary." *Working Papers* (2018).
- [2] Wei J, Ni X, and He A. "Study on the relationship between population policy and economic growth in the context of aging." *Xitong Gongcheng Lilun yu Shijian/System Engineering Theory and Practice* 38.2(2018):337-350.
- [3] Hsu M, and Yamada T. "Population Aging, Health Care, and Fiscal Policy Reform: The Challenges for Japan." *Scandinavian Journal of Economics* 121(2019).
- [4] Yu M, Meng B, and Li R. "Analysis of China's urban household indirect carbon emissions drivers under the background of population aging." *Structural change and economic dynamics* 60-Mar: (2022).
- [5] Li S Q, Jiang T Y, et al. "Economic Impacts of Policy Adopted By China for Its Aging Population." *The Singapore Economic Review* (2020).
- [6] Chang W, and Wang X. "Research of the Interaction Relationship between Population Growth and Economic Growth in China." *Journal of Zhongyuan University Technology* (2018).