

Research on the Macroeconomic Impact of Fertility Policies and Population Mobility

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Abstract: Fertility policy and population mobility have been important factors affecting demographics and macroeconomics. Using an empirical approach, this paper investigates the effects of fertility policy and population mobility on macroeconomics. It is found that fertility policy has significant effects on population growth, age structure and economic development, while population mobility significantly affects employment, industrial structure, urban development and economic growth. Moreover, the effects of policy effects are mainly manifested in the short term. Therefore, in order to achieve rationalization of the population structure and promote economic development, reasonable fertility and population mobility policies are needed to promote a benign population structure and sustainable economic development.

1. Introduction

With the advancement of modernization, China's population structure, fertility behavior and population mobility levels have changed dramatically, in addition to having a significant impact on the macroeconomy. Therefore, it is extremely important to study the impact of fertility policy and population mobility on macroeconomics. Currently, with the deepening of the aging population structure and the increasing employment pressure, the rational adjustment of fertility policy and the promotion of population mobility have become one of the hot topics for policy makers and researchers. This paper adopts an empirical approach to comprehensively and thoroughly explore the impact of fertility policy and population mobility on macroeconomics, aiming to promote the rational adjustment of population structure and sustainable economic development.

2. Literature Review

Ulrike points out that fertility policy clearly has an impact on population structure and fertility. As for population mobility, its impact on the economy is even more significant. Possible influences include migration or occupational relocation, which can lead to technological and cultural exchange and promote investment, thus driving economic growth. In addition, population mobility affects employment and influences fiscal revenues. Domestic researchers also believe that fertility policies and population mobility have a significant impact on the economy[1]. Their findings show that fertility policies lead to problems such as population aging and lower birth rates, which affect economic development, while population mobility affects the balance between urban and rural

economies and the supply and demand structure of the labor market. Thus, it can be seen that both fertility policy and population mobility have important effects on economic development. The macroeconomic impacts of fertility policy and population mobility are mainly as follows Table 1.

Table 1: The macroeconomic impacts of fertility policy and population mobility

Macroeconomic Impacts of Fertility Policies and Population Mobility	Data
Population Aging Level	In 2019, the proportion of China's elderly population aged 65 and above exceeds 14%, and will be on the rise in the future
Occupational structure and labor supply and demand	There is a labor surplus in the eastern coastal region and a labor shortage in the western and central regions
Size of the national economy	China has become the world's second largest economy
Population growth rate	In 2019, China's population growth rate is 0.3%, having reached the inflection point of the demographic dividend
Birth and death rates	In 2019, the birth rate in China is 10.48 per 1,000 and the death rate is 7.02
Consumption level and consumption structure	With the increasing aging of the population, the consumption structure will be directed from the young to the elderly
Social Security System	As the population ages, the social security system will face greater pressure to bear the burden
Economic development and social stability	The regulation of fertility policy and population movement will have an important impact on economic development and social stability

3. Data sources and model selection

3.1 Research Methodology

After considering the feasibility of the study and the quality of data collection, we adopt the following methodology. (1) Measurement of fertility policy variables: We use data related to family planning policies from different periods and calculate the results to measure the impact of China's family planning policies on population growth. (2) Measurement of population mobility variables: We use publicly available data on urbanization rates, traffic classes, etc. to measure trends and characteristics of urban systems and population mobility. (3) Macroeconomic de-measurement: We use macroeconomic growth data from the National Population Census and the National Bureau of Statistics, as well as financial and economic data from cities to measure the relationship between population, urbanization, and the economy. (4) Data processing: We use time series models for data processing and analysis to empirically analyze the macroeconomic impact of fertility policies and population mobility.

3.2 Model Selection

The data used in this paper are from the National Bureau of Statistics of China and provincial development committees. We selected data for the period from 2012 to 2022, including total population, birth rate, data related to family planning policies, GDP, employment rate, and urbanization rate. We use ARIMA model for empirical study. ARIMA model can handle time series data and predict future trends[2].

4. Empirical results

4.1 Macroeconomic Impacts of Fertility Policies

We measure fertility policy variables using an ARIMA model and incorporate them into a macroeconomic model. The empirical results show that fertility policy has a significant impact on population growth and age structure. The gradual decline in the birth rate and the decrease in the productive age population after the implementation of the family planning policy also have a negative impact on the economy. At the same time, the labor market supply and demand mechanism has also changed due to the deepening of population aging.

4.2 Macroeconomic impact of population mobility

We measured population mobility variables using data such as urbanization rate and transportation class, and incorporated them into the macroeconomic model. The empirical results show that large-scale population mobility has a variety of effects on the urbanization process and social security. In terms of employment and industrial structure, population mobility has a significant adjustment effect. In addition, population mobility also has an impact on urban size and fiscal revenue.

4.3 Joint Impact of Fertility Policy and Population Mobility on Macroeconomics

We include both fertility policy and population mobility variables in the macroeconomic model for empirical analysis. The empirical results show that the effects of the policy effects are mainly captured in the short run[3]. At the same time, the policy effects have different effects on different aspects of economic variables. For example, the policy effect plays a more significant positive role in employment, while on the fiscal side, the policy may have a negative impact.

5. Research recommendations

5.1 Develop a flexible and targeted fertility policy

Developing a flexible and targeted fertility policy can better meet the needs of different regions and groups and promote reasonable population growth and restructuring. The formulation of a fertility policy requires consideration of many factors, such as economic, social, and cultural factors.

First of all, different fertility policies need to be formulated to meet the needs of different regions according to China's geography, regional economic development level, social and cultural traditions, and other factors. For example, in urban areas with relatively good economic conditions, fertility policies can be relaxed to encourage young couples to have children, while in economically backward rural areas, appropriate loosening measures can be taken to relax fertility restrictions and provide encouragement and subsidies to enhance residents' willingness to have children.

Second, different fertility policies need to be formulated according to the demographic structure and aging level. In regions with negative population growth and a clear trend of aging, the government can encourage young couples to have children through appropriate measures such as increasing fertility incentive policies and reducing the burden of childbirth. In contrast, in areas with too high fertility rates, restrictive measures such as strengthening family planning management, raising awareness of contraception, and providing residents with more comprehensive information on fertility can be taken to control population numbers.

In addition, the impact of changes in population structure on fertility policies needs to be taken into account. As China's population ages, the government needs to appropriately increase the coverage of social security policies such as pension insurance and medical insurance, and appropriately lower the retirement age in order to better meet the needs of the elderly[4].

To sum up, a flexible and targeted fertility policy can better meet the needs of different regions and groups and guarantee the healthy development and structural adjustment of the population.

5.2 Promote the movement of people from rural areas to urban areas

With the continuous development of cities and rapid economic growth, the movement of people from rural areas to urban areas has become increasingly common. This shift is related to people's pursuit of quality of life and opportunities, as well as the declining income from land. Therefore, in order to facilitate the movement of people from rural areas to urban areas, the following measures need to be taken:

First, strengthen infrastructure development. Transportation routes from rural areas to urban areas need to be further improved and improved. At the same time, the construction of public facilities, such as schools, hospitals, commercial centers and recreational facilities, should be accelerated to meet the needs of urbanization.

Secondly, improve the education level. Education is an important way to cultivate talents and improve skills. In order to promote the movement of people from rural areas to urban areas, we need to strengthen the educational environment and investment in educational resources in rural areas, improve the level of teaching and skills training in rural schools, and encourage rural youth to go out of the countryside and improve their vocational skills.

Then, appropriate policies should be formulated. In response to the actual situation of population movement from rural areas to urban areas, the government should formulate a series of appropriate policies to attract talents, support farmers' entrepreneurship, and promote rural economic development. These policies should give full play to the market mechanism and attract the rural population to join urban construction with the help of market forces under the policy guarantee.

Then, improve the social security system. The social security system in rural areas needs to be improved to meet the needs of the urbanization process. The government should increase social security subsidies and establish a unified standard for urban and rural social security systems to provide better social security for the movement of people from rural areas to urban areas, and also encourage these people to live and work in cities.

Finally, strengthen information transmission and propaganda. Information transmission and propaganda are important tools to promote the movement of people from rural areas to urban areas. The government and social organizations should strengthen information transmission and propaganda to convey the opportunities and advantages of cities to rural areas, so that rural residents can understand the development and opportunities in cities and enhance their confidence and motivation to move to urban areas.

In conclusion, in order to promote the movement of people from rural areas to urban areas, there is a need to strengthen infrastructure development, improve education levels, formulate appropriate

policies, improve social security systems, and enhance information transfer and propaganda. Only by making the best use of urban and rural resources can we promote sustainable economic development and social harmony and stability.

5.3 Improve the social security system to reduce the risk of population mobility

Population mobility is a common phenomenon in today's society, with important impacts on employment, industry, education, and healthcare. In the accelerating urbanization process, more and more people are flocking to cities to seek work and living opportunities, which also includes a considerable portion of migrant workers. However, this population movement also brings various problems, such as inadequate social security system and unequal social welfare, especially some low-skilled workers tend to face life difficulties more easily and are easily treated as vulnerable groups. Therefore, it becomes especially important to improve the social security system to solve the problems of population mobility and reduce the negative impact of population mobility on the economy and society.

Establishing a sound social security system is the key to improving livelihood protection. For population mobility, the establishment of a protection system is even more far-reaching. The social security system should serve all residents and mobile populations so that they can enjoy basic benefits such as medical care, education, and pensions equal to those of residents in the region[5]. This will not only promote social equity and improve the quality of life of the mobile population, but also attract more talent inflow and promote sustainable economic development.

To ensure that the mobile population enjoys equal social security benefits, a unified social security system should be established and coordination of the cross-regional protection system should be strengthened. Through financial transfer payments, cross-regional integration and other measures to optimize policies, the coverage of basic pension, medical and unemployment insurance systems should be expanded to provide appropriate protection and benefits for all populations. In addition, the improvement of information disclosure and service channels related to social security can also increase the mobility population's knowledge and trust, thus helping to promote interaction between the mobility population and local governments and create a more open social governance environment.

In conclusion, improving the social security system is the key to reducing the risk of population mobility. Based on the establishment of a unified social security system, there is a need to strengthen cross-regional coordination of protection and complementary integration of various types of welfare resources to provide more equitable and high-quality protection services for all residents and the mobile population[6]. Such measures can promote population mobility and enhance the mobile population's sense of security and social integration while ensuring social harmony and sustainable economic development.

5.4 Increase encouragement for women and families

Increasing incentives for women and families can boost fertility rates, accelerate demographic restructuring, and promote sustainable economic and social development. The specific analysis below is as follows:

First, the importance of women's work should be emphasized. As an important labor resource, women should be treated equally and respected. The government can take some incentives, such as providing free childcare services, establishing a more flexible work system, and lowering the barriers faced by women in professional work, in order to allow women to strike a balance between career and family.

Second, there should be a focus on family care and attention. The family is the most basic social

unit and the most important reproductive unit. In order to encourage young couples to have children, the government should take measures such as raising family income levels, lowering the cost of childbirth, and providing infant and child care services in order to give more support and assistance.

In addition, the government can also advocate the concept of universal retirement and living together, and establish various forms of family service organizations to provide customized and diversified services for families, such as household chores and childcare, in order to increase the quality of family life and enhance young couples' willingness to have children.

In summary, encouraging female employment and supporting family care can increase the income of families and individuals, improve fertility intentions, promote demographic adjustment and fertility rate, and lay a solid foundation for sustainable economic and social development.

6. Conclusions

The empirical study in this paper shows that both fertility policy and population mobility have important effects on macroeconomics. In this paper, we propose some corresponding suggestions and measures for the impact of fertility policy and population mobility on macroeconomics. For fertility policies, we argue that flexible and targeted policies should be formulated to meet the needs of different regions and populations and to promote reasonable population growth and structural adjustment, depending on local and individual circumstances. At the same time, it should increase incentives for women and families, emphasize women's work, promote the development of family care services, and encourage young couples to have children in order to increase fertility and promote demographic restructuring. In response to population mobility, the government should gradually relax the household registration system and encourage the free movement of labor and talent to inject new momentum into economic development. At the same time, it should accelerate the integrated development of urban and rural areas, provide equal employment, education, medical and other public service facilities for urban and rural residents, promote the equitable development of urban and rural residents, and facilitate the process of urbanization. Overall, fertility policy and population mobility are important factors in formulating macroeconomic and population development strategies, and a combination of measures and policies is needed to enhance coordination, promote the transformation and adjustment of economic and social structures, and promote sustainable economic development.

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