

The Effect of Population Aging on Foreign Direct Investment

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Abstract:

Since the implementation of economic reforms and the opening up of China, it has relied on low labor costs and preferential policies to successfully enhance its technological capabilities and economy. However, in recent years, the aging of our population has intensified, the demographic dividend period is ending, and foreign direct investment has declined significantly. The communique of the third plenary session of the 20th Central Committee of the communist party of China pointed out the need to improve the system of support and services for population development. Combined with current studies, though many studies believed population aging has a negative influence on foreign direct investment the various mechanisms and factors affecting them are still very diverse, and have not been able to form a unified theoretical framework. This paper will sort out the existing studies and make suggestions on the theoretical framework for future research and governmental decision-making.

Keywords: population aging, foreign direct investment, social impacts

1. Introduction

Population aging refers to the shift in the distribution of a country's population towards old age. The concept of demography Transition Theory was first introduced by Adolf Landry in 1909, which describes a demographic transition from high fertility and high mortality to low fertility and low mortality. Nowa-

days, population aging gradually turns to evolved into a global problem, and the United Nations regards aging as a global trend. In this global aging trend, declining fertility plays a leading role [1]. Population aging in China has begun since 1999 and has brought about a demographic transition, demonstrating a rapid trend just as Figure 1 shows.

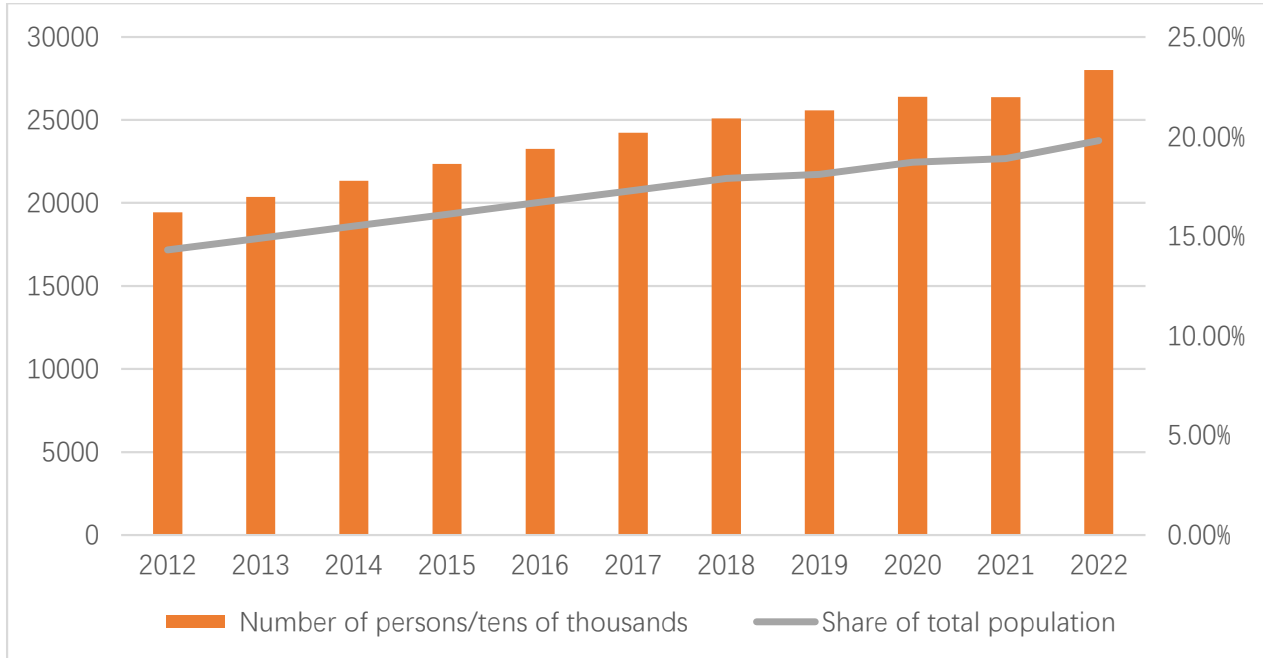


Fig.1 Changes in population growth and aging in China, 1999-2022 [2]

After the seventh national population census, some studies suggest that the size of the elderly population will exceed 400 million in 2050-2070, while the share of the working-age population in the total population declines from close to 70 percent in 2020 to less than half by the end of the twenty-first century. As shown in Figure 2, the dependency ratio of the working-age population aged 15-64 rises to 85 by 2060, and the dependency ratios under different scenarios at the end of the 21st century reach 87, 103, and 140, respectively, significantly exceeding the de-

mographic dividend threshold of a dependency ratio of 50 [3].

Foreign direct investment (FDI) is an economic activity in which a foreign investor invests within the economy of a receiving country to acquire lasting management rights. Increasing FDI is an important element of China’s open-door strategy, and some scholars believe that the spillover effect or external effect of FDI is the most important channel for spreading modern technology [4].

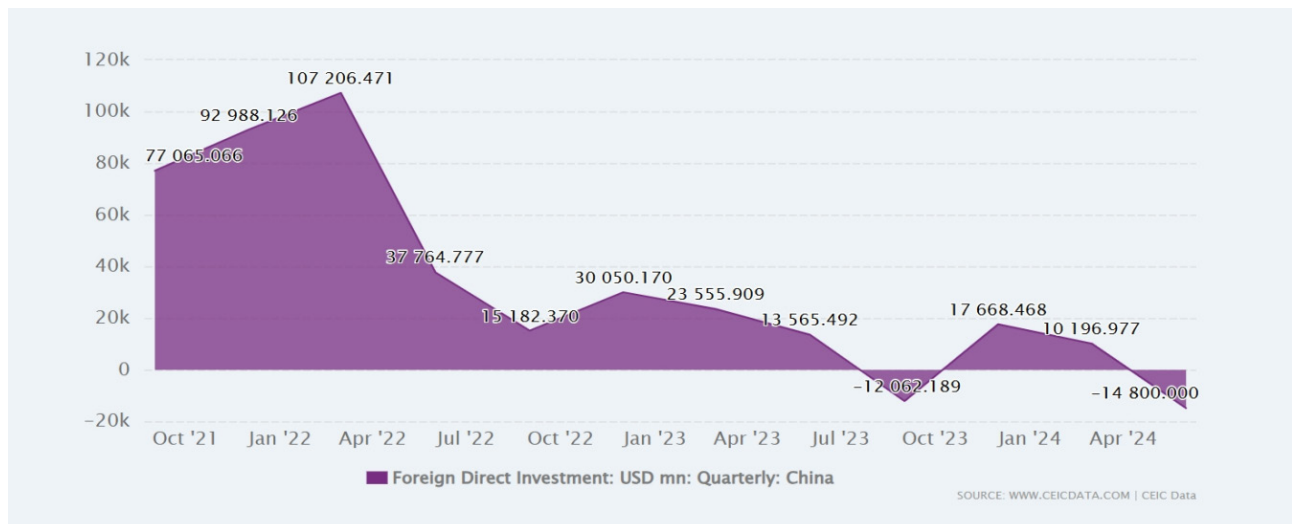


Fig. 2 Changes in the amount of FDI in China in recent years [5]

However, affected by a variety of factors, China is currently facing a sharp decline in foreign direct investment

(FDI), China’s FDI has been in a steady growth phase until 2022, but after 2022 a sharp decline in 2023 year-

on-year increase of -13.68%, the first quarter of 2024 is to reach -24%, such a sharp decline only appeared in the U.S. subprime mortgage crisis. Goldman Sachs also mentioned the problem of capital outflow from China in an analytical report, arguing that the main reason for the decline in foreign investment is “a reduction in direct investment superimposed on an outflow of reinvested profits”. Some scholars believe that the downturn in consumer demand in China’s domestic market has affected the profits of foreign enterprises operating in China, reducing the expectations of foreign capital for investment profits. At the same time, the continuous interest rate hike in the United States is also the main reason for the decline of China’s FDI, of course, international political factors can not be ignored as part of the reason.

Population structure is of great significance to social development, and many scholars at home and abroad have studied the impact of population aging on social development. Moreover, some scholars have examined the effects of population aging on FDI, but most of the studies focused on individual factors, while few have studied the complete theoretical framework. Therefore, this paper will try to construct a theoretical framework for the impact of population aging on FDI, based on the existing research to sort out the factors and mechanisms of its impact. It will provide suggestions on the theoretical framework for government policies.

2. The Factors of Population Aging and FDI

2.1 Factors Affecting Society as a Result of Population Aging

2.1.1 Openness of Trade

Based on the fact that the dependent population tends to spend more on non-traded goods, such as education and health services, than the working-age population, this implies that as the population ages, the demand for non-traded goods will increase, leading to an increase in the allocation of resources from traded goods to non-traded sectors, and ultimately a decrease in the supply of and demand for traded goods, which will lead to a decrease in the openness of trade. Fukumoto and Kinugasa’s study confirmed the effect of this mechanism of action [6]. Joseph’s study found that a relatively large proportion of the working-age population increased bilateral exports, while an increase in the proportion of the elderly population decreased bilateral trade [7].

2.1.2 Economic growth rate

Maestas et al. through a study of the United States, found

that rapid population aging will slow economic growth, with GDP per capita declining by 5.5 percent for every 10 percent increase in the proportion of the population over 60 years of age. One-third of the decline is due to slower employment growth; two-thirds is due to slower labor productivity growth. Labor compensation and wages fall accordingly [8].

2.1.3 Exchange rate

Population aging increases the demand for these non-traded social goods (e.g., health care, elderly care services), which are usually not involved in international trade and whose prices are mainly influenced by domestic supply and demand, thus leading to a relative increase in their prices. This change in demand and resource allocation pushes up the prices of non-traded goods relative to traded goods, which leads to an increase in the real exchange rate (RER). Giagheddu and Papett confirmed this mechanism and eventually found a general equilibrium effect of a 0.1% appreciation in the RER following a 1% rise in the dependency ratio [9].

2.1.4 Infrastructure

Jäger and Schmidt found that in aging societies, public investment tends to decline due to the influence of older voters, even though the return on public capital is quite high [10], the lower public investment will lead to a decrease in the availability of public facilities. At the same time, an aging society tends to allocate public investment to facilities that are needed by the elderly, such as geriatric services, rather than to facilities that facilitate transportation, communication, etc.

2.1.5 Inflation Rate

Katagiri et al. by constructing an Overlapping Generations (OLG) model, find that the offsetting effect of population aging on the current price level is driven in two ways: economic impacts: contraction of the tax base and increase in social expenditures caused by population aging reduces fiscal surpluses and leads to inflation. Political impact: Governments may be inclined to adopt policies to mitigate price changes to help older persons. If the means of transferring funds directly to older persons are limited, deflation may become an effective strategy, as older persons usually hold large nominal assets. Further analysis of these two factors suggests that in a situation dominated by declining birth rates, governments tend to maintain their solvency and therefore generate inflation, providing more social spending for the elderly [11].

2.1.6 Human Capital

Some scholars have found that the aging trend of population and the level of human capital accumulation show an

inverted U relationship, which is caused by changes in the age structure of the population so that in some industries and occupations with a certain degree of technical content, the group of workers with more vocational experience increases, and at the same time, families and individuals are more active in investing in human capital and so on; however, the positive effect of the above factors is subject to the law of the human life cycle [12].

2.2 Various Determinants of FDI

This paper draws on the determinants of FDI summarized by Kok and Acikgoz [13], based on which the determinants of FDI are appropriately screened in light of the impact of population aging.

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2.2.1 Openness of Trade

Openness of trade is a key factor in the attractiveness of developing countries in terms of FDI. Donghui et al further demonstrated that increased trade openness increases FDI inflows in both the short and long term [14].

2.2.2 Economic Growth Rate

A high economic growth rate usually implies an increase in market demand, which provides more investment opportunities and profits for foreign investors, while a fast-growing economic environment is usually accompanied by a higher rate of return on investment, which attracts foreign investors to invest to obtain higher returns. Basu and Hakraborty based on the panel cointegration test and causality test found that there is a bidirectional causality between economic growth and FDI in 23 developing countries during the period 1978 to 1996 [15].

2.2.3 Exchange Rate

By devaluing the national currency, exchange rate changes make domestic goods more price competitive in international markets and attract foreign investment in local production for export. At the same time, currency depreciation reduces the cost of foreign-currency-denominated investments, so that foreigners can buy local assets and resources at lower prices. Yuqing pointed out that a country's exchange rate policy plays a key role in its FDI boom. The depreciation of a country's currency increases its competitiveness in attracting FDI, especially for countries like China, which are mainly export-oriented FDI [16].

2.2.4 Infrastructure

Shah demonstrated the importance of the availability of

infrastructure in the host country in increasing its attractiveness to overseas investors through factors such as telephone density. It is also found that the assessment of the impact of infrastructure is usually more consistent when different estimation methods are applied to infrastructure. This implies that its benefits or impacts are not prone to large fluctuations due to changes in estimation methods, which shows the significant positive impact of infrastructure on foreign direct investment [17]. Kok also confirmed the significant impact of infrastructure on FDI through factors such as electricity consumption [13].

2.2.5 Inflation Rate

Sayek's study confirms a mechanism of the effect of inflation on FDI: inflation erodes the purchasing power of income, which then reduces investor utility, causing distortions in the net return on investment and labor; therefore, as inflation rises, the net return on investment falls. This makes inflation have a negative impact on FDI [18].

2.2.6 Human Capital

Li found that human capital plays a positive role in attracting FDI to China and there is heterogeneity in the impact of human capital on FDI, when the level of human capital is at a low stage, its role in attracting FDI is weak. When the level of human capital is in the middle stage, its role in attracting FDI is the strongest. However, when the level of human capital is in the high stage, its role in attracting FDI decreases [19].

3. Mechanisms of population aging on FDI and their implications

By analyzing trade openness, economic growth rates, exchange rates, rates of inflationary change, and infrastructure, the study found that population aging generally has a negative impact on these factors and that the negative impact on these factors is transmitted to FDI, making a country less attractive to foreign investors.

The analysis of human capital reveals an inverted U-shaped relationship between population aging and FDI, and an inverted U-shaped relationship between FDI and foreign direct investment, which draws a simple model between population aging and FDI, revealing that controlling for the premise that other factors remain unchanged, there is an inverted W-shaped relationship between population aging and FDI, which ultimately still has a dampening effect on FDI. Thus, it can be seen that population aging has a dampening effect on FDI in all aspects (see Table 1).

Table 1. Summary of key factors

Population aging	Influence factor	determining factor	FDI
-	Openness of trade	Openness of trade:-	-
-	Economic growth rate	Economic growth rate:-	-
+	Exchange rate	Exchange rate:+	-
Declining birth rate dominates: Inflation	Inflation rate	Inflation rate: +	-
Inverted “U” curve	Human capital	Human capital: Inverted “U” curve	Inverted “W” curve
-	Infrastructure	Infrastructure:-	-

Notes: - represents inhibit and + represents promote.

4. Conclusion

This paper studies the impact of population aging on foreign direct investment, using comparative analysis to obtain the six factors of openness, economic growth rate, exchange rate, infrastructure, inflation rate of change, and human capital. Through the analysis, it is obtained that population aging has an overall inhibitory effect on foreign direct investment. This paper enriches the research content of this field by studying the relationship between population aging and foreign direct investment and provides a more basic theoretical framework, which provides possible theoretical guidance for future research and possible theoretical references for governmental decision-making. However, the scope of the current study is still relatively small, and future research can continue to expand the field from other factors, and also study the endogeneity between these factors, to build a more complete theoretical framework.

In conjunction with Table 2, to address the impact of population aging on FDI, the first step is to address the root causes of the problem by implementing policies to further encourage childbearing, such as providing childcare subsidies, expanding public childcare services, improving work-family balance, improving education and vocational training, and enhancing employment prospects and economic security for young people, to encourage young people to have children. Secondly, there is a need to invest in health and long-term care services and improve services for older persons: expanding the coverage and quality of health services for older persons, including preventive health care, treatment, and rehabilitation services, will avoid an over-representation of future social and public investment in public services for older persons and reduce exchange rate appreciation due to shortages of non-tradable commodities. Finally, employment and social participation of older persons should also be promoted: policies should be put in place to encourage older persons to con-

tinue working, such as flexible working hours and partial retirement programs. Creating an environment conducive to the social participation of older persons enhances their social connections and quality of life. Utilizing the human capital of older persons to extend the “old age dividend”

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