

# Research on the impact of pension finance on social security improvement under the background of population aging

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## Abstract

China's population is aging rapidly, with the proportion of people aged 60 and over continuing to rise. Projected to enter a stage of severe aging by 2035, traditional pension models are struggling to meet demand, and the pension security system faces numerous challenges. As a key measure to address aging, pension finance and its coordinated development with social security are attracting considerable attention. This article analyzes the current status and trends of aging globally and in China, as well as the challenges it presents. It also explains the current status and shortcomings of China's pension finance and social security systems, and proposes pathways for improving their coordinated development, including building a multi-tiered pension finance system and optimizing the social security system. This article aims to provide recommendations for improving the pension security system to address aging and enhance the well-being of seniors.

## Keywords

Population aging, pension finance, social security improvement.

## 1. Introduction

### 1.1. Research Background

With economic and social development, people's living conditions and healthcare levels have continued to improve, and life expectancy has continued to rise. Coupled with a decline in fertility rates due to factors such as changing fertility preferences, the proportion of middle-aged and elderly people in the population has continued to rise. Population aging has become a key feature of Chinese society now and for a long time to come. According to data from the National Bureau of Statistics, the proportion of people aged 60 and above in China has increased from 11.03% in 2005 to 21.10% in 2023. According to the United Nations' classification of population aging, China has transitioned from a mildly aging society to a moderately aging society. It is estimated that by 2035, the elderly population will exceed 400 million, entering a stage of severe aging<sup>[1]</sup>.

Against the backdrop of an aging population, the traditional model of providing for the elderly, centered around intergenerational family exchange, can no longer meet the growing demand for care. This increasingly prominent issue urgently requires proactive responses through increased investment in pension assets, the development of a multi-tiered pension security system, and the diversification of the pension industry. At the same time, my country's pension security system faces numerous challenges, including growing pressure on basic pension insurance revenue and expenditure, a significant funding gap, uneven coverage of enterprise and occupational annuities, and low penetration of the individual pension market. Against this backdrop, the development of pension finance, a key strategic measure to address population aging, is crucial for improving social security.

## 1.2. Current research status at home and abroad

### 1.2.1. Current status of foreign research

Foreign scholars began their research on population aging, pension finance, and social security relatively early and have achieved fruitful results. In this area, they have conducted in-depth forecasts of aging trends and analyzed their impacts. For example, research conducted by the United Nations has tracked and predicted the long-term trends in global population aging, noting that population aging will place significant pressure on the economies, societies, and social security systems of various countries.

In the field of pension finance, research on pension systems is relatively mature. For example, in terms of pension financial product innovation, foreign financial institutions have developed a variety of financial products suitable for seniors, such as reverse mortgages. Related research has explored the market demand, risk characteristics, and promotion strategies of these products.

Regarding social security improvements, international research focuses primarily on optimizing the social security system through pension finance. For example, some European countries have reformed their pension systems, introducing more market-based mechanisms to increase pension investment returns and enhance the sustainability of social security. Furthermore, research is also focusing on the synergy between pension finance and social welfare policies to improve the living standards of the elderly<sup>[2]</sup>.

### 1.2.2. Current status of domestic research

In recent years, domestic scholars have increasingly researched population aging, pension finance, and social security. Within this area, extensive research has examined the characteristics, development trends, and economic and social impacts of my country's aging population. For example, it has been noted that my country's aging population is characterized by a large elderly population, rapid growth, and uneven development, which will have profound impacts on economic growth, the labor market, and social security.

In the area of pension wealth finance, the study focused on the innovation of pension financial products and the improvement of service quality, pointing out that my country's current pension financial products are homogenized and that service levels need to be improved urgently. In the area of pension industry finance, the study analyzed the difficulties and high costs of financing for the pension industry and proposed the need to diversify financing channels and increase financial support for the pension industry.

In terms of improving social security, domestic research has primarily explored how to alleviate social security pressures and enhance the security of the elderly through the development of pension finance. For example, research suggests improving social security by improving pension systems, innovating pension financial products and services, and promoting the coordinated development of pension services and the pension industry.

### 1.2.3. Review of Research Status

While research both domestically and internationally has yielded fruitful results on population aging, pension finance, and social security, some shortcomings remain. Foreign research findings are often based on their own economic, social, and institutional contexts, limiting their applicability to China. While domestic research has provided in-depth analysis of China's specific circumstances, it has been less thorough in examining the micro-mechanisms of pension finance's impact on social security improvements, and empirical research is relatively scarce. Furthermore, further research is needed on how to build a more effective mechanism for the coordinated development of pension finance and social security. Building on existing research, this study will utilize a variety of research methods to conduct an in-depth analysis of

the impact of pension finance on social security improvements, aiming to provide more targeted recommendations for improving China's pension security system<sup>[3]</sup>.

## **2. Current Status and Trends of Population Aging**

### **2.1. Current Status of Global Population Aging**

#### **2.1.1. Aging Degree and Distribution**

At present, the trend of global population aging is becoming increasingly obvious. According to relevant statistics from the United Nations, as of 2023, the proportion of the global population aged 65 and above has reached 9.3%, an increase of 2.5 percentage points from 20 years ago. In terms of geographical distribution, the degree of aging varies significantly in different countries and regions. Developed countries generally have a high degree of aging. For example, the proportion of the elderly population aged 65 and above in Japan is as high as 29.1%, Italy is 23.6%, and Germany is 22.9%. These countries have long entered a deep aging stage, and the proportion of the elderly population in the total population is far higher than the world average. In developing countries, although the aging process started late, it is faster. For example, in China, Brazil, Indonesia and other countries, the size of the elderly population is rapidly expanding and the proportion continues to rise.

#### **2.1.2. Characteristics of Aging in Major Developed Countries**

Japan's aging population is characterized by rapid growth, profound severity, and significant ageing. Since entering an aging society in the 1970s, the proportion of elderly people in Japan has increased at an alarming rate, making it one of the most aging countries in the world in just a few decades. Furthermore, the proportion of the elderly (80 years and older) in Japan's population continues to rise, placing higher demands on elderly care services and medical care. Some European countries, such as Sweden and Norway, have developed relatively comprehensive welfare-based pension systems over the course of long-term social development. However, the aging of their populations has left these countries facing increasing pressure on social security spending and labor shortages. Despite these generous welfare policies, maintaining the sustainability of these systems in an aging society presents a significant challenge.

The aging process in the United States is relatively gradual, and its pension security system is diverse, including government-led social security programs, employer-provided pension plans, and individual retirement savings. However, as the elderly population grows, the United States also faces problems such as an imbalance in pension income and expenditure and insufficient pension security for some groups<sup>[4]</sup>.

### **2.2. Current Status of my country's Aging Population**

#### **2.2.1. Size and proportion of the elderly population**

According to data from the seventh national census and subsequent data released by the National Bureau of Statistics, by the end of 2024, my country's elderly population aged 60 and over will reach 310 million, accounting for 22% of the national population. Since my country officially entered an aging society in 2000, the size of the elderly population has continued to grow rapidly, and its proportion has continued to increase. Compared with 2010, the number of elderly people aged 60 and over in my country increased by more than 72 million in 2020, and the proportion increased by 5.44 percentage points. In 2024, compared with 2020, the elderly population increased by approximately 20 million, further increasing its proportion, indicating that the pace of population aging in my country is accelerating.

### 2.2.2. Forecast of the development speed and trend of aging

China's population is aging at a rate far exceeding the global average. In the 30 years from 1990 to 2020, the proportion of people aged 65 and over in China rose from 5.6% to 13.5%, while the global average only rose from 6.2% to 9.3% during the same period. According to current projections, by around 2035, China's population aged 60 and over will exceed 400 million, accounting for over 30% of the population, entering a stage of severe aging. Around 2050, the elderly population will peak, accounting for nearly 35%. Over the coming decades, China's population will be aging on a large scale, at a rapid pace, and at a higher rate of aging, placing enormous pressure on economic and social development and the social security system.

### 2.2.3. Regional differences in aging

There are significant regional disparities in my country's aging population. From an urban-rural perspective, the degree of aging in rural areas is generally higher than in urban areas. Due to the large-scale migration of young and middle-aged rural laborers to cities, the number of elderly people left behind in rural areas has increased, resulting in a relatively high proportion of the elderly population in rural areas. For example, according to the 2020 census data, the proportion of rural residents aged 60 and above in some central and western regions exceeded 25%, while the proportion of elderly people in the central urban areas of some major cities was relatively low. From a regional perspective, the degree of aging is relatively high in the eastern coastal areas, such as Shanghai, Jiangsu, and Zhejiang. These areas have developed economies, better medical and health care facilities, longer life expectancy, and a lower natural population growth rate, resulting in a higher proportion of elderly people. While the degree of aging in the central and western regions is relatively low, the pace of aging is accelerating with economic development and population mobility.

## 3. Challenges posed by an aging population

### 3.1. Impact on economic growth

Population aging leads to a decrease in the labor supply and a decline in the proportion of the working-age population, which in turn impacts economic growth momentum. As the elderly population increases, there is a relative shortage of young workers in the labor market, leading to rising labor costs for businesses and potentially reducing the competitiveness of some industries. Furthermore, the consumption preferences and structure of the elderly differ from those of younger people, with decreased demand for some traditional consumer sectors and increased demand for specific areas such as elderly care services and healthcare. This could affect the pace of economic restructuring and industrial upgrading. Furthermore, aging may also lead to a decline in the savings rate, hampering capital accumulation and, in turn, negatively impacting economic growth.

### 3.2. Pressure on the social security system

With regard to pension insurance, the growing elderly population has led to a surge in the number of pension recipients, while the number of contributors has decreased, increasing the pressure on the basic pension insurance fund. Some regions are already experiencing a deficit between current revenue and expenditure. In the long term, without reform, the pension gap will widen further, threatening the sustainability of the pension insurance system.

In terms of medical insurance, the elderly have higher rates of illness, a greater demand for medical services, and increased medical expenses. The aging population has led to a rapid increase in medical insurance fund expenditures, placing a heavy burden on the medical insurance system. At the same time, the elderly's demand for special protections such as long-term care insurance is becoming increasingly prominent, but China's relevant protection systems are still imperfect and unable to meet this growing demand.

### **3.3. Impact on social services and family care functions**

In terms of social services, the growing elderly population has significantly increased demand for elderly care facilities and caregivers. Currently, my country's elderly care service institutions are insufficient in number, service quality varies widely, and there is a shortage of professional caregivers, making it difficult to meet the diverse service needs of the elderly. In terms of community-based elderly care services, facility construction lags behind, and service offerings are limited, failing to provide adequate support for elderly people living at home.

Regarding the role of family care in providing elderly care, the increasing trend of smaller families and declining birthrates has increased the burden of providing elderly care. The younger generation, facing work and life pressures, struggles to fully care for the elderly, leading to a gradual weakening of the traditional family care model. Furthermore, increased population mobility has led to an increase in children living apart from their parents, further diminishing the effectiveness of family care.

## **4. Current Development Status of my country's Pension Finance**

### **4.1. Development and Current Status of the Pension System**

China's pension system has gradually developed into a three-pillar system, with basic pension insurance as its foundation, supplemented by enterprise annuities and occupational annuities, and individual pensions as a new growth driver. The first pillar, basic pension insurance, continues to expand its coverage. By the end of 2024, the number of participants in basic pension insurance nationwide will reach 1.06 billion, essentially achieving full coverage of the statutory population. The accumulated balance of the basic pension insurance fund has increased annually, but it also faces pressures on revenue and expenditure. With the aging of the population, the problem of pension income not covering current expenditure has become more prominent in some regions. For example, in old industrial bases such as the Northeast, the gap between pension income and expenditure is large due to the relatively large number of retirees and slow growth in the number of contributors.

The development of the second pillar, enterprise annuities and occupational annuities, has achieved some success. Occupational annuities now cover all government agencies and public institutions, and the number of enterprise annuities established, their scope of coverage, and the size of their accumulated funds have all expanded. By the end of 2023, the accumulated funds for enterprise annuities nationwide will reach 2.8 trillion yuan, covering approximately 30 million employees. However, enterprise annuity coverage is primarily concentrated in large state-owned enterprises and businesses in some economically developed regions, while participation by small and medium-sized enterprises is relatively low, resulting in uneven development.

The third pillar, the individual pension system, officially launched its pilot program in 2022 and is currently operating smoothly in multiple cities and regions. This system provides residents with policy incentives, such as tax breaks, to encourage them to save for retirement. However, market penetration of individual pensions remains low, and awareness and participation in individual pensions need to be further enhanced. By the end of 2024, the number of individuals with individual pension accounts reached 61.3 million, but the proportion of actual contributors was low. Factors such as certain barriers to entry and insufficient publicity and promotion have constrained its development.

### **4.2. Supply of pension financial products and services**

In recent years, China's pension wealth financial market has steadily developed, with financial institutions such as banks, funds, insurance companies, and trusts actively developing and establishing a standardized and diversified pension product system. Regarding pension savings,

many banks have launched specialized pension savings products with relatively high interest rates and flexible maturities, which have gained favor among some elderly customers. Pension wealth management products are also continuously expanding, featuring longer maturities, relatively low risks, and relatively stable returns. By the end of 2024, the outstanding value of pension wealth management products will reach 1.2 trillion yuan . However, compared with the huge demand in the pension market, the overall scale is still immature, and problems such as insufficient product supply and uneven service quality persist.

In terms of commercial pension insurance, insurance companies have launched a variety of commercial pension products, such as annuities and whole life insurance. Some products also offer value-added services such as access to retirement communities. However, commercial pension insurance accounts for a relatively low proportion of China's insurance market, and product innovation needs to be strengthened . There is a severe shortage of dedicated health insurance products for the elderly.

In the pension fund sector, target-date funds and target-risk funds, among other types, are rapidly developing. These funds dynamically adjust asset allocations based on investors' age and risk preferences, providing individuals with long-term retirement investment solutions. However, investor education regarding pension funds still needs to be strengthened, as some investors lack understanding of the risk-return characteristics of fund products.

In terms of elderly financial services, financial institutions are constantly exploring innovations. Some banks have set up elderly service areas in their branches, providing elderly -friendly service facilities and personalized financial services; some insurance institutions have introduced convenient service measures such as remote video underwriting and door-to-door contract signing. However, overall, banks and insurance companies have

## **5. The Current Situation and Shortcomings of my country's Social Security System**

### **5.1. The structure and operational effectiveness of my country's social security system**

My country's social security system, centered on "guaranteeing basic needs, providing a safety net, and promoting equity," has formed a multi-tiered, broad-based institutional framework comprised of three pillars: social insurance, social assistance, and social welfare. Social insurance, a core component, encompasses basic pension insurance, basic medical insurance, unemployment insurance, work-related injury insurance, and maternity insurance. By 2024, participation in basic pension insurance will exceed 95%, and basic medical insurance will cover 1.36 billion people, creating the world's largest social safety net.

In terms of operational results , urban employee pension insurance and urban and rural resident pension insurance have achieved full coverage of the system, and pensions have been raised for 20 consecutive years. In 2024, the average monthly pension for enterprise retirees nationwide will reach 3,800 yuan, effectively alleviating the income risk of the elderly group; by coordinating urban and rural residents' medical insurance and promoting outpatient mutual insurance reform, the reimbursement rate of hospitalization expenses has stabilized at around 70%, and major disease insurance covers all insured persons, reducing the economic burden brought by the disease; the urban and rural minimum living security, support for extremely poor people and other systems have significant bottom-line functions. In 2023, the national minimum living standard will reach an average of 722 yuan per month, and a total of more than 40 million people in need will be assisted<sup>[5]</sup>.

## 5.2. Imbalances in urban and rural social security and regional social security

Social security fairness still needs to be improved, with urban-rural and regional disparities in protection becoming prominent shortcomings. The average monthly pension for urban employee pension insurance (approximately 4,500 yuan in 2023) is 2.5 times that for urban and rural residents (approximately 1,800 yuan), and the per capita funding for urban and rural residents' medical insurance (approximately 960 yuan) is only 21% of that for employee medical insurance (approximately 4,500 yuan). This disparity stems from the institutional fragmentation of the urban-rural dual structure. Rural residents have limited contribution capacity and low levels of protection. Social security transition issues for migrant workers during urbanization (such as the cumbersome transfer and continuation of pension insurance) further exacerbate inequality. Economically developed regions (such as Guangdong and Jiangsu) have substantial pension fund surpluses, while provinces experiencing population outflows (such as Heilongjiang and Jilin) have widening funding gaps. Even though the national pension insurance pooling and adjustment plan will reach 210 billion yuan in 2023, it will still be difficult to fully address regional disparities. The distribution of medical resources is also imbalanced, with 6.5 beds per 1,000 people in the eastern region compared to only 4.2 in the western region, resulting in lower quality of care for the elderly in less developed regions. This imbalance not only weakens the redistributive function of social security, but also exacerbates welfare exclusion during population mobility, which is inconsistent with the goal of common prosperity.

## 6. Improve the path for the coordinated development of pension finance and social security

### 6.1. Policy recommendations for building a multi-level pension finance system

Pension finance is an important supplement to social security and requires policy guidance to build a coordinated development system of the "three pillars":

First, strengthen the sustainability of the first pillar, promote national coordination of pension insurance, unify the contribution base and benefit standards, enrich the fund pool through fiscal subsidies and transfer of state-owned capital (1.68 trillion yuan has been transferred in 2023); establish a dynamic payment mechanism, adjust the contribution rate according to the population structure, and explore the "nominal account system" to alleviate payment pressure. The second is to expand the coverage of the second pillar, implement tax incentives for corporate annuities and occupational annuities (such as pre-tax deduction of part of corporate contributions within 8% of the total salary), and encourage small and medium-sized enterprises to participate through collective annuity plans; include flexible employment personnel in the second pillar, allow them to voluntarily participate in insurance as individuals, and break the restrictions on occupational identity.

The third is the market vitality of the third pillar, expanding the pilot scope of the individual pension system (expanded to 36 cities in 2024), raising the annual contribution cap (from 12,000 yuan to 20,000 yuan), and setting differentiated tax incentives (such as "first subsidy, then payment" for middle- and low-income groups); guiding financial institutions to develop diversified products, such as pension savings, pension wealth management, commercial pension insurance, etc., to meet the needs of different risk preferences.

### 6.2. Reform Directions for Optimizing the Social Security System

Social security systems need to be reformed to enhance their adaptability and address the challenges of an aging population:

First, reform the pension insurance system, establish a normal pension adjustment mechanism, link it to price increases and economic growth, and ensure the purchasing power of the elderly; improve the mechanism for determining pension insurance benefits for urban and rural residents, and raise the basic pension standard (the national minimum standard in 2024 is 98 yuan per person per month, and it is recommended to be raised to 200 yuan within 5 years).

The second is to reform the medical security system, expand the scope of medical insurance payment, and include outpatient medication for chronic diseases in the elderly and rehabilitation nursing services into the unified fund payment; promote the payment reform based on Diagnosis Related Groups (DRGs) to control the unreasonable growth of medical expenses; establish a national unified system of long-term care insurance, implement "individual payment + financial subsidy + medical insurance unified allocation" for financing, and give differentiated subsidies based on disability levels.

The third is to reform the social assistance system, establish a dynamic adjustment mechanism that links the minimum living standard with per capita disposable income, expand the scope of support for people in extreme poverty (such as including elderly people living alone over 80 years old); through government purchase of services, provide free home care, meal assistance and other services to elderly people in need to reduce the burden on families.

### **6.3. Mechanism Design to Promote the Integration of Pension Finance and Social Security**

To achieve synergy between pension finance and social security, it is necessary to build a multi-dimensional integration mechanism:

First, an information sharing mechanism will be established to establish a national unified elderly care service information platform, integrate social security, medical and financial data, and provide "one-stop" services for the elderly (such as checking pensions with social security cards and purchasing elderly care financial products); promote data connection between financial institutions and social security departments, and realize the coordinated management of personal pension accounts and basic pension insurance accounts.

The second is the product linkage mechanism, which encourages the linkage between commercial pension financial products and social security benefits. For example, the balance of an individual pension account can be used to offset long-term care insurance premiums. Residents who purchase commercial pension insurance are allowed to deduct additional premiums when calculating personal income tax (such as a maximum of 5,000 yuan per year), thereby increasing the attractiveness of the product.

The third is the service coordination mechanism, whereby financial institutions cooperate with nursing homes to develop combination products such as "retirement community + insurance" and "travel retirement + financial management" to provide the elderly with an integrated "housing + finance + service" solution; the government guides financial institutions to set up retirement financial service points in the community and provide door-to-door services by subsidizing rents and reducing taxes and fees.

Establishing a long-term security system to cope with an aging population

long-term protection system needs to go beyond a single system and form a pattern of coordinated efforts of "policy + market + society":

First, coordinate population policies and optimize fertility support policies (such as extending maternity leave and providing childcare subsidies) to alleviate the pressure of future labor shortages on social security funds; attract the influx of young and middle-aged population through household registration system reform, balance the regional population structure, and enhance the sustainability of social security funds.

The second is the coordinated development of industries, incorporating the elderly care industry into the country's strategic emerging industries, and supporting the construction of elderly care institutions and community elderly care facilities through special bonds, REITs and other financial instruments; cultivating the smart elderly care industry, encouraging the development of elderly health monitoring equipment, intelligent nursing robots, etc., to reduce manual care costs.

The third is to involve social forces and promote the "time bank" model, encouraging volunteers to provide services to the elderly, which can be exchanged for elderly care services of the same length in the future; guiding enterprises and social organizations to establish elderly care charity funds to subsidize poor elderly people to purchase elderly care financial products or services to make up for the shortcomings of social security<sup>[6]</sup>.

## 7. Conclusion and Outlook

First, my country's social security system has achieved "wide coverage", but in the context of an aging population, problems such as insufficient supply of medical and long-term care insurance and imbalance between urban and rural areas have become prominent. It is difficult to meet the diverse needs of the elderly by relying solely on basic insurance.

Second, as an important supplement to social security, pension finance can effectively improve the security level of the elderly and alleviate the pressure on social security funds through the construction of a multi-level system (three-pillar pension insurance, commercial pension products, etc.).

Third, the coordinated development of pension finance and social security is the key path. It is necessary to use policy guidance to build a multi-level pension finance system, optimize the social security system, and design an integration mechanism to form a protection pattern of "basic protection, strong supplementation, and wide coverage."

Fourth, to cope with population aging, we need to build a long-term system, combining population policies, industrial development, social participation and other dimensions to achieve the transformation of pension security from "survival type" to "development type", and ultimately enhance the sense of gain and happiness of the elderly group.

Looking ahead, as reforms deepen, the synergistic effects of pension finance and social security will gradually emerge, but we need to be vigilant against issues such as financial risks and institutional fairness, and ensure the sustainable development of the system by continuously improving policies and strengthening supervision.

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