International Journal of Management Science Research, Vol.8, Issue 6, (Jun) 2025
ISSN 2536-605X
DOI: 10.53469/ijomsr.2025.08(06).10

Research on Pension Financial Innovation in the Context of the Silver Economy: Evidence from Japan

Benshuai Zhang

Liaoning University of International Business and Economics, Dalian, Liaoning, China

Abstract: ***Against the backdrop of the accelerating global aging population, this paper takes the innovative practice of pension finance diversification in Japan as the research object, providing certain reference ideas for pension innovation in China. It explores the construction system of multi-level pensions in Japan in the era of silver economy. Research suggests that through the market-oriented operation of pensions and the expansion of the system, Japan has achieved an increase in the returns of public pensions and the activation of private savings, thus creating a new driving force for economic development. The diversification and innovation of pensions in Japan have a significant correlation with the risk preferences of the Japanese people. However, due to the large differences in the risk preferences of the people, there is an imbalance in the innovative coverage of pensions. Drawing on Japan's development experience in diversified pension innovation, China should form a more complete system in aspects such as tax incentives for the third pillar and technological innovation in pensions, fully draw on Japan's experience, and provide effective financial ideas for the sustainable development of China's pensions.***

Keywords: Pension Japanese model Financial technology.

1. INTRODUCTION

The world has now entered an aging society. The proportion of the elderly population aged 65 and above has exceeded 18% globally. Although there are still a large number of newborns in some regions, major countries around the world are already facing the serious threat of aging. The traditional pay-as-you-go pension system has already faced a severe test. Some countries and regions have carried out diversified innovations in the collection and payment mechanisms of pensions [1]. For instance, Japan, a severely aging country with an aging rate exceeding 35%, has a financial innovation system that holds typical reference value for the development of China's pension system. However, at present, most of the research on the pension financial innovation system in Japan focuses on single-point studies, lacking comprehensive macro perspective considerations. Moreover, the existing research results are rather scattered and lack a sufficient degree of systematicness. As shown in Table 1, Japan's elderly care industry has achieved systematic development results after rapid development.

Table 1: Summary of Japanese pension financial data.

Translation	Context
Total Pension Assets	Includes financial assets + elderly care industry value
Equity Assets	Primarily stocks and equity investments
Alternative Assets	Infrastructure, real estate, commodities
Low-Interest Environment	Japan's prolonged near-zero rate policy
Government Pension Investment Fund	Japan's ¥226 trillion national pension fund

Based on this, this paper draws on the theory of institutional change and adopts the case analysis method to systematically sort out the process of pension reform in Japan from 2001 to 2024, and analyze the process of Japan forming a diversified pension system and entering an innovative mechanism. This paper analyzes the joint innovation model of government guidance and market-driven in the process of pension innovation in Japan, so as to further enrich the comparative study of pension finance in the East Asian cultural circle and provide experience references from other countries for China to initiate the optimization of the individual pension system.

2. THE INFLUENCE MECHANISM OF THE SILVER ECONOMY DEVELOPMENT ON THE MACROECONOMY

The development of the silver economy triggered by population aging is profoundly reshaping the global

economic landscape. Population structure is a direct variable of economic development, and the silver economy will exert all-round influences on the operation of the macroeconomy through multiple channels of action.

2.1 Population Structure Changes

The continuous increase in the aging population rate will cause a structural contraction in the labor market, with a significant decline in the proportion of the working population, directly weakening the supply of production factors [2]. The economy will respond to this change by different means such as improving labor productivity or delaying retirement. Meanwhile, the life cycle theory of economic development emphasizes that changes in population structure will also cause significant changes in the population savings rate, and this will alter the mechanism of capital formation. The high savings tendency of middle-aged and young people gradually weakens, while the preventive savings demands such as medical care of middle-aged and young people increase, resulting in an inverted U-shaped evolution trend in the savings changes of the national economy. Compared with the inverted U-shaped evolution mechanism of savings, in terms of consumption structure, people over 60 years old have significantly increased their expenditure on healthcare, which accounts for more than 40% of their total personal expenditure. This rigid demand has driven the overall consumption of individual consumers to shift towards inelastic goods and services, and the proportion of elastic consumption has generally declined [3].

2.2 Adjustment of Industrial Structure

To meet the demands of an aging population, the economic sector has gradually formed cross-industry industrial clusters, giving rise to a silver economy. Among them, the average annual growth rate of the market for elderly care and nursing services is over 15%. The silver economy involves a variety of emerging business forms such as elderly education, elderly-friendly tourism and culture, and elderly-friendly buildings [4]. Traditional service industries are also transforming their development models by actively adapting to the development of the silver economy. The financial industry is developing elderly-friendly products such as pension wealth management and reverse mortgage, while the retail industry is establishing special zones for elderly goods and opening convenient service channels, thus forming a business model that is friendly to the elderly. This transformation is not only a new driving force for stimulating macroeconomic growth, but also an inevitable development direction for extending the traditional industrial chain to the service end, which can further drive the development and upgrading of the industry. It can be said that the silver economy itself is one of the important driving forces for economic development, and an important driver for the development of a service-oriented society and the transformation of government functions into services [5].

2.3 The Pressure of Finance and Social Security

Although the silver economy is constantly developing, it has also led to a continuous increase in the proportion of public pensions in GDP in reality. In some developed countries, the proportion of public pension expenditure in GDP has exceeded 10%, and the fiscal sustainability is facing serious challenges. At present, most countries around the world adopt the pay-as-you-go system to support pensions, and the imbalance between the proportion of contributing workers and benefit recipients is constantly intensifying [6]. This phenomenon is particularly evident in our country. The increased burden of social security contributions for the younger generation may dampen their enthusiasm for labor, while the expansion of medical expenditures for the elderly group also compresses the space for fiscal policy. By 2025, global spending on elderly care is expected to account for more than 60% of global medical expenses, which forces the social security system to undergo structural reforms to adapt to the pressure of finance and social security.

3. THE MAIN MEASURES OF PENSION FINANCIAL INNOVATION IN JAPAN

3.1 The Innovation of the Financial System Framework

In 2001, Japan launched the "Defined Contribution Pension Act" (DC Act), breaking through legislation to improve the structural system of pension financial development. This law confirmed the legal status of DC plans for the first time, incorporating both corporate and individual pensions into a dual-track operation mechanism, allowing employees to independently choose their investment portfolios and bear the corresponding risks of financial pensions. In 2016, the coverage of Japan's individual DC program gradually expanded to include civil servants and housewives. The number of insured people increased to 1.5 million in 2016 and to 3.47 million in 2024. It can be said that the third pillar formed by the DC plan has become an important growth pole for the

development of Japan's financial industry. In terms of public pensions, the Government Pension Investment Fund (GPIF) manages a fund scale of over 200 trillion yen through a market-oriented operation mechanism, and the government has achieved relatively high long-term returns by increasing the proportion of equity assets. Through this institutional design of mandatory savings combined with voluntary replenishment, the Japanese government has, to a certain extent, met the basic pension needs of the masses and also stimulated the vitality of private savings. In 2024, the assets under management of the government's GPIF reached a new high of 248 trillion yen [7].

3.2 Product Innovation Practice

Financial institutions in Japan have developed a wide range of pension financial instrument products to meet the differentiated financial needs of the public in terms of retirement. The Japanese government automatically adjusts the debt allocation ratio of shareholders based on the retirement age. By 2024, this allocation will account for 37% of the asset allocation in the DC plan and has become the default investment option for most investors [8]. Meanwhile, the government allows the elderly to exchange their property rights for lifetime annuities through reverse mortgage loans. This approach, in conjunction with the heritage inheritance products developed by trust institutions, converts the housing resources in the hands of the elderly into pensions, achieving housing-based elderly care. In addition, the Japanese government has been constantly exploring tax incentives and has formed a trust-scale industry for pension funds. In 2024, the fund size of this account had reached 13.800 trillion yen, with a relatively high average annual growth rate. This significantly enhanced the willingness of young people to participate in pension savings. These diversified financial products, through risk stratification and term matching, effectively connected the supply and demand sides of pension funds and improved the vitality of social capital participation in it.

3.3 Regulatory Supporting Reform

Through the supporting reforms of the regulatory system, the Japanese government has further strengthened the disclosure of pension financial products, especially the disclosure of information volatility, the disclosure of fee structure rate, etc., and forced sales institutions to make reasonable evaluations of these indicators. In 2014, the Japanese government also strengthened the regulatory support for DC products in terms of institutional construction, forming a synergy effect. Among them, the upper limit combination of individual contribution years has a clear design. This design can not only prevent excessive tax avoidance of pensions but also encourage young people to hold pensions for a long time. Meanwhile, the Ministry of Health, Labour and Welfare of Japan has established a DB/DC plan conversion mechanism to encourage enterprises to change the type of pension. And during the change process, it is necessary to obtain the consent of the employees through voting to ensure a smooth transition of the system. This incentive-compatible regulatory framework of the Japanese government can not only control the systemic risks in the development of pension finance, but also retain the space for market innovation [9].

4. ANALYSIS OF THE ADVANTAGES AND DISADVANTAGES OF JAPAN'S PENSION FINANCIAL SYSTEM

4.1 Analysis of the Advantages of Japan's Pension System

The financial system of pensions in Japan has established an institutional framework and risk control model, achieving organic coordination among multi-level subjects. This system in Japan has relatively accurately divided the responsibilities of the government, the market and individuals. It ensures the stability of intergenerational transfer payments through the pay-on-receive system. At the same time, it has added occupational annuities as the second pillar and adopted a mixed model of fixed payment banks and fixed contribution types. It not only retains the characteristics of traditional welfare, but also introduces individual choice rights. At the same time, personal savings accounts are regarded as the third pillar to stimulate the willingness of autonomous pension savings. A functionally complementary model has been formed among the first, second and third pillars. The public portion provided by the government can effectively support the basic elderly care of the elderly population. The occupational portion provided by enterprises can be effectively replaced through smooth income. The savings of the individual portion can meet the differentiated needs of the elderly [10]. This approach, which not only guarantees the basics but also mandates supplementation and is highly flexible, can alleviate the persistent pressure faced by a single system and enhance the sustainability of Japan's pension system. Meanwhile, Japanese pensions have achieved effective counter-cyclical regulation in terms of asset management and risk control through a refined operation system. The system hedges the risks of market investment by dynamically adjusting the

equity-bond ratio, and can avoid pension risks through strict ESG screening standards.

4.2 The Predicament of Japan's Pension Financial System

The financial diversification development of pension funds in Japan actually faces resistance in multiple directions. The conservative tendency of family asset allocation is the biggest resistance among them. Currently, the public is overly dependent on cash-like assets. In fact, under the long-term economic downturn, the public has formed a defensive savings habit, and there is a widespread risk aversion mentality among the public. This actually has a rather obvious conflict with the investment logic of long-term rights and interests required by pension financial products. Meanwhile, although innovative tools such as life cycle funds have to some extent changed the current way of financial allocation, these tools also lower the decision-making threshold for Japanese citizens in investment through automated asset rebalancing. In fact, they still find it difficult to shake the deposit culture that has long been formed among Japanese citizens. The deposit culture has long dominated in Japan, making it difficult for the assets of pensions to achieve effective appreciation. It is difficult for pension funds to achieve a closed loop of investment in the capital market. More importantly, financial institutions are forced to reduce the development of equity products to cater to the preferences of Japanese national customers and instead invest more funds in low-risk allocation products. This distortion of the market makes it difficult for the third-pillar individual accounts to exert a more effective compound interest effect, and ultimately weakens the sustainability of the third-pillar system in dealing with longevity risks.

Meanwhile, the institutional coverage of Japan's diversified pension financial system is actually unbalanced and not comprehensive. Structural exclusion is widespread. For instance, the occupational annuity system incentivizes enterprises to supplement individual pensions through tax incentives, but the conditions for such supplementary pensions are rather cumbersome. Small and medium-sized enterprises are reluctant to participate in such incentive plans due to cost calculation. Although the individual DC plan can theoretically make up for the insufficiency of government and enterprise pensions, the process of opening an individual account is relatively complicated, the contribution rules are also rather complicated, and the interface for investment selection is also rather complicated. In fact, it has formed an invisible threshold for groups with low financial literacy. This institutional exclusion leads to vulnerable groups being unable to enjoy more adequate protection under the existing system, and they can only rely on the national pension with a continuously declining replacement rate for their old age. The vulnerability of vulnerable groups to elderly care can be solidified through intergenerational transmission. When the elderly group in informal employment falls into poverty, their children are often forced to choose the same unstable career path, which further aggravates the cost in terms of elderly care.

5. IMPLICATIONS OF JAPAN'S PENSION FINANCE INNOVATION FOR THE DEVELOPMENT OF CHINA'S PENSION FINANCE

5.1 Optimization Design at the Institutional Level

The Chinese government needs to establish a stepped incentive system at the institutional level, design differentiated deduction ratios for people of different income groups, and enhance them through the improvement of marginal effects. The participation of high-income groups in the pension system strengthens the fiscal subsidy mechanism for low-income groups. Through this differentiated deduction method, it further covers more people, encourages the long-term holding of pensions and curbs short-term arbitrage behaviors. Through the continuous optimization of tax incentives in the third pillar, a more complete pension system will be formed. Social security funds across the country should gradually relax the allocation ratio of alternative assets, increase the categories of strategic assets related to infrastructure, green bonds, etc. Local governments should also establish a negative list mechanism in the management of pensions. Moreover, the whitelist mechanism should be relaxed to form a dynamic management and risk control signal for financial institutions, raise the upper limit of equity assets, and at the same time increase cross-border investment channels and prudently open up corresponding investments to achieve risk diversification of global assets.

5.2 Develop Market Entities

Establish a life-cycle oriented investor education system, integrate pension planning into the national financial literacy education curriculum, and use an online and offline dual-track model to lower the cognitive threshold. Focus on cultivating a long-term holding view of wealth and display the evolution paths of asset allocation for different age groups through visualization tools. Insurance institutions can leverage their actuarial advantages to

develop hybrid products featuring "guaranteed returns + floating dividends", while asset management institutions offer customized life-cycle funds. Both parties can achieve data sharing and risk sharing through the interconnection of account systems. Constantly improve the Settings and functions of personal pension accounts, and support the development of savings, wealth management, insurance and other products with pension attributes. Financial institutions should also gradually increase the innovation and provision of financial products related to elderly care, and deeply consider how to match the supply and demand of highly personalized personal elderly care planning with the product system of financial institutions. Starting from the overall personal planning, a fund flow map from the perspective of "social accounts, enterprise annuities, personal pensions, old-age health insurance, and other funds for the elderly" from the personal or family generational perspective is constructed to make customers' lives more stable and manageable. During the pension collection stage, explore a combined payment plan of "annuity insurance + regular investment in funds" to balance the demands for liquidity and returns.

5.3 Promote the Inclusive Development of Pensions

Promote the development of inclusive insurance and the third pillar of old-age insurance, enhance individuals' ability to plan their retirement wealth, and build financial solutions for elderly care services that are suitable for different stages of retirement. With the state's inclusion of pension finance in the "five major articles" and the continuous introduction of a series of policies and measures, individuals' acceptance of the concept of pension planning has been constantly increasing. From the perspective of retirement life, it presents a three-stage retirement life with changes in physical condition, namely: in the vigorous stage, more than half choose to age at home and are accompanied by a clear willingness to travel and live. In the semi-disabled stage, home-based elderly care remains the mainstream. During the stage of disability and dementia, institutional elderly care has become the mainstream choice. With the gradual deepening of population aging, local governments have begun to provide high-quality and low-cost insurance products for "agriculture, rural areas and farmers", "small and micro enterprises", specific groups, etc., and have gradually rolled out the long-term care insurance system, which is established in response to the basic social service needs in the stage of disability and dementia. However, capable individuals who consider and plan their own and their elderly family's retirement economic accounts within a longer-term framework can better arrange their own and their family's retirement wealth planning, thereby helping themselves and their families lead a stable life.

6. CONCLUSION

From the perspective of the development implications of Japan's experience for our country, the collaborative design of the DC-type pension and the NASA system has effectively enhanced the efficiency of financial asset allocation for Japanese families. Meanwhile, GPIF and investment strategies also indicate that public pensions have the potential to achieve preservation and appreciation through market-oriented operations. But at the same time, the problem of insufficient coverage of pension financial innovation among employees of small and medium-sized enterprises in Japan is also quite prominent. The Chinese government should pay more attention to the inclusiveness of the pension system in terms of institutional innovation. In the future, China should fully combine the special national condition of "aging before getting rich" in the innovation of pension finance, further strengthen the diversified operation of rural pension accounts and the application of financial technology in the exploration of the pension system, and form a path of integrated development.

REFERENCES

[1] Tomi P.K. Koski, Iiro Nerg, Mirka Hintsanen, Marko Korhonen, Jouko Miettunen, Leena Ala Mursula. Temperament and risk of disability pensions in early middle age: A 22-year follow-up study of the northern Finland birth cohort 1966 [J]. Journal of Psychosomatic Research, 2025, 195 112172-112172.
[2] Xingchun Peng, Shiqi Fan. Asset allocation for a DC pension plan with dynamic attention [J]. Finance Research Letters, 2025, 82 107513-107513.
[3] Tamara Fioroni. Sustainability of pension systems in the presence of population aging and elderly labor supply [J]. Economic Modelling, 2025, 150 107127-107127.
[4] Omar Vásquez Duque. Unbundling ESG for Fiduciary Integrity: An Empirical Analysis on the Representativeness of ESG Pension Investment Legislation [J]. Journal of Law and Empirical Analysis, 2025, 2 (1): 60-76.
[5] Li Lei, Du Mengfei, Zeng Zhiyao. Analysis of the Concepts and Relationships of Silver Economy, Elderly Care Industry, and Silver Age Consumption: Based on the Analytical Framework of "Subject - Content - Policy" [J] Finance and Economics Theory and Practice, 2025, 46 (03): 57-66.

[6] Huang Yingfei, Zhao Dawei, Tian Zongbo, Pan Haoyu. Constraints, Tool Application and Implementation Path of China's Financial Support for the High-Quality Development of the Elderly Care Industry [J] Southwest Finance, 2025, (04): 29-43.
[7] Zuo Meiyun, Guo Ruifang. The Development Status of the Smart Elderly Care Industry Abroad and Its Implications for China [J]. New Finance, 2025, (02): 14-20+32.
[8] Zhu Wenpei, Zhou Yuxuan. China's Elderly Care Industry Finance: Development Status, International Experience Reference and Promotion Path [J]. Southwest Finance, 2025, (01): 3-14.
[9] Ba Shusong, Gong Shuhao, Li Nina, Li Chenglin. Analysis of the "Inflection Point" of China's Elderly Care Industry Development: Typical Facts Based on Multiple Case Studies [J] Southwest Finance, 2024, (04): 74-86.
[10] Zheng Yan, Zhang Hongzhuo. International Experience and Implications of Fiscal and Taxation Policies Supporting the Development of Pension Finance [J]. Journal of Financial Development Research, 2023, (11): 38-45.