The Adjustment Effect of Pension Finance on Elderly Poverty: A Fair Perspective Based on Welfare Economics

Haiyu Liu

College of Economics, Bohai University, Jinzhou, 121007, China

lhy24001018@bhu.edu.cn

Abstract. At present, the global aging population is accelerating, and the problem of elderly poverty is becoming increasingly prominent. Due to factors such as labor outflow and unequal distribution of medical resources, the incidence of poverty in rural areas is significantly higher than that in urban areas. Therefore, this study is based on the perspective of welfare economics, aiming to systematically explore the mechanisms and effects of pension finance on elderly poverty. Research shows that pensions can directly alleviate elderly poverty and improve income distribution through income transfer payments and indirect behavioral incentives. In 2025, China's pension policy will tilt towards the middle and low-income groups, allowing them to receive higher income pensions. However, there are still fairness issues in terms of regional distribution, urban-rural coverage, and policy coordination, especially in terms of regional discrimination in rural social pension insurance. Improving the national unified mechanism for pension finance, optimizing rural resource allocation, and strengthening policy coordination are key paths to enhancing the poverty reduction effect of pension finance.

Keywords: Silver economy, elderly poverty, welfare economics.

1. Introduction

Currently, China is experiencing the largest and fastest aging population process. According to data from the National Bureau of Statistics, the proportion of people aged 65 and above in China will reach 15.8% in 2024, indicating that China has fully entered an aging society [1]. Against this backdrop, the problem of elderly poverty has become increasingly prominent and has become an important factor hindering common prosperity.

Pension finance is a core tool for alleviating elderly poverty, which directly or indirectly affects the income level and welfare access of the elderly population through the income redistribution system. In 2025, the Ministry of Human Resources and Social Security and the Ministry of Finance issued the "Notice on Adjusting the Basic Pension for Retirees in 2025", which clearly stipulates that starting from January 1, 2025, the basic pension will be increased for retirees who have completed the retirement (employment) procedures according to regulations and received basic pension every month before December 31, 2024. The overall adjustment level is 2% of the monthly average basic pension for retirees in 2024. This continues the policy changes of continuously adjusting pensions in China since 2005 and reflects the high importance that the country attaches to the basic living security of retirees [2].

Welfare economics has laid a solid theoretical foundation for exploring the poverty reduction effects of pension finance. Its core lies in the principles of fairness and maximizing overall welfare, mainly reflected in three key points: inclusiveness, distributive justice, and incentive compatibility. At present, China's pension adjustment adopts a composite model of "fixed amount adjustment, linked adjustment, and appropriate tilt", which is the specific practice of these key points [3]. Fixed amount adjustment can enable all retirees to receive the same amount of increase, which has a significant income improvement effect on groups with lower initial pension levels, reflecting the principle of fairness; The linkage adjustment should reflect the incentive mechanism of "more contributions, more rewards" and "long-term contributions, more rewards", and should be linked to the years of contribution and basic pension level of retired personnel themselves; For elderly retirees and retirees from remote and difficult areas, the adjustment level can be appropriately increased. People must

continue to ensure that the basic pension for retired military personnel who have been resettled to work locally and have participated in basic pension insurance is not lower than the average level of basic pension for retired personnel in local enterprises. People must adhere to incentive and restraint mechanisms, reasonably determine specific adjustment methods, and demonstrate the value orientation of distributive justice [4].

In this context, this study is based on the perspective of welfare economics, systematically sorting out the adjustment effect of pension finance on elderly poverty, which has important theoretical value and practical significance. At the theoretical level, this helps to enrich and develop the research paradigm of income redistribution theory in the field of pension finance, and deepen the understanding of the poverty reduction mechanism of pension. At the practical level, it can provide an empirical basis and policy reference for optimizing pension policy design, improving resource allocation efficiency, and promoting social equity and justice. The research objectives of this article are threefold: firstly, to analyze the direct and indirect mechanisms by which pensions alleviate elderly poverty; Secondly, to evaluate the fairness and controversy surrounding the redistribution effect of pension funds; Thirdly, to propose policy recommendations to optimize the pension financial system and enhance the poverty reduction effect.

2. Theoretical basis: Equity theory of welfare economics

2.1. Welfare Economics

Welfare economics originated in the early 20th century, when Pigou first systematically expounded relevant theories in his 1920 book "Welfare Economics". Later, it was further developed and improved by scholars such as Samuelson, Pareto, and Arrow [5]. Its core viewpoint is that social welfare is not only determined by the total economic output, but also by the fair distribution of resources among members of society. Welfare economics, as an important branch of modern economics, regards the efficiency of social resource allocation and the fairness of income distribution as core topics for discussion. This provides solid theoretical support for analyzing the poverty reduction effect of the pension system. In the field of elderly care, it is very important to fairly allocate financial resources for the elderly. With the continuous development and changes of welfare economics, although research paradigms are constantly evolving, improving overall social welfare has always been the ultimate concern of theoretical system. As an important income redistribution mechanism in modern society, the design and implementation of the pension system are deeply rooted in the theoretical foundation of welfare economics. Take basic pension insurance as an example. With its redistribution mechanism, it allows workers of different income levels to receive certain economic support in old age, effectively narrowing the wealth gap to a certain extent. According to the theory of welfare economics, the government should actively intervene in the pension financial market, formulate scientific and reasonable policies, ensure that pension financial resources are tilted towards the elderly population who need them the most, and thus achieve a Pareto optimal social welfare state.

2.2. Income Redistribution Theory and Pension Adjustment Mechanism

According to the income redistribution theory in welfare economics, the pension system is an important manifestation of it, which improves income distribution and enhances overall social welfare through intergenerational and group transfer payments. Mo pointed out that quota adjustments reflect horizontal fairness, while linkage adjustments reflect incentive compatibility [6]. Taking basic pension insurance as an example, this composite model can enable low-income individuals to obtain a higher actual adjustment ratio, effectively forming a progressive redistribution effect.

2.3. Balancing Fairness and Efficiency

The design of the pension system still faces a difficult balance between fairness and efficiency. Overemphasizing fairness may weaken work enthusiasm, while excessive pursuit of efficiency may exacerbate elderly poverty. According to Barber's economic theory, the pension system must find a

balance between social solidarity and individual responsibility [7]. The current pension system in our country attempts to balance dual goals through a triple combination adjustment method: the fixed amount adjustment and the tilt towards the elderly and remote areas reflect the principle of fairness, while the linked adjustment reflects the incentive effect on long-term and high base contributions. Zheng Wei pointed out that this adjustment method is compatible with China's pension insurance benefits calculation and distribution method, which can not only appropriately take care of retirees with low pension levels, but also encourage insured persons to pay long-term and extra contributions, promoting the long-term sustainability of the system [2].

2.4. Social Welfare Function and Pension Policy Evaluation

The social welfare function provides a theoretical tool for evaluating the overall welfare effects of pension policies as shown Table 1. This study measures the impact of pension policies on total social welfare by adding up the utility levels of different groups and quantifying the social welfare function; Sen's ability theory has expanded the connotation of poverty, and pension has a multidimensional empowering effect on improving the health and social participation of the elderly [8].

Table 1. The relationship between core theories of welfare economics and pension poverty reduction

Welfare Economics Theory	Core connotation	Reflected in poverty reduction through pension schemes
Income redistribution profit	Improving income inequality through transfer payments	The cumulative effect of pension quota adjustment on low-income groups
Balancing fairness and efficiency	Balance between social equity and individual motivation	Quota adjustment ensures fairness, linkage adjustment reflects efficiency
Social welfare function	Maximizing the total social utility	Pension reduces the incidence of poverty

3. The poverty reduction effect of pension

3.1. Direct Effect: Income Security and Poverty Alleviation

Pensions can directly alleviate elderly poverty by providing a stable source of cash. Mo's research reveals that since continuous adjustments to pensions in 2005, the average monthly pension for enterprise retirees has doubled by 2012 [6]. In rural areas, although the basic pension level is limited, it constitutes the main source of income for low-income elderly families and can effectively prevent the phenomenon of "poverty caused by aging". According to China Health and Retirement Longitudinal Study (CHARLS) data, public transfer payments have reduced poverty rates by about 10% and Gini coefficient by about 7%, with pension contributions being the most prominent [9]. However, there are differences in its poverty reduction effect between urban and rural areas, with a stronger effect in urban areas. This phenomenon actually stems from the institutional treatment gap between employees and residents' pension insurance.

The adjustment plan for 2025 continues the policy of tilting towards middle and low-income groups, adopting a composite model combining quota, linkage, and tilt, which enables low-income groups to obtain a higher actual adjustment ratio. The Gini coefficient continues to shrink, reflecting an improvement in income distribution [2,6].

3.2. Indirect Effects: Behavioral Incentives and Multidimensional Poverty Alleviation Effects

In addition to its direct income security function, a pension also alleviates elderly poverty through various indirect mechanisms.

Firstly, pension funds will affect intergenerational transfer. After receiving a pension, the financial support for children will decrease, but overall welfare will be improved due to a stable income. Secondly, a pension can enhance the ability to pay for medical expenses. The new rural cooperative medical scheme has increased the utilization probability of outpatient services for insured elderly by 8% and effectively covered the expenditure on common chronic disease drugs. Wang Yanyan et al.

found that rural pension significantly improves the multidimensional poverty alleviation quality of elderly families, including health and living standards [10]. Thirdly, pension funds alter life cycle savings behavior; According to the survey, pension coverage reduces the proportion of preventive savings in households by 5% -10%, which helps to unleash consumption potential and create a favorable macro environment for poverty alleviation [6].

3.3. The Poverty Reduction Effect of Pension: Overall Effectiveness and Structural Differences

Pensions can significantly reduce elderly poverty as a whole, which is particularly important for rural elderly people. Based on CFPS data, Zhang Dongling and others have confirmed that rural pensions have "fairness" and can improve the quality of poverty alleviation to a certain extent [10].

However, there are structural differences in the poverty reduction effect of pensions. The gap between urban and rural areas is obvious, and the benefits of employee pension insurance are higher, so the poverty reduction effect is stronger in urban areas; There is also regional discrimination within rural areas, and the policy effects in the eastern region are significantly better than those in other regions, which actually reflects the spatial heterogeneity of pension poverty reduction [10].

4. Controversy over the Fairness of Pension Adjustment for Elderly Poverty

4.1. Divergent Effects of Redistribution: Moral Hazard and Reverse Regulation of National Coordination

The national pooling of pension insurance aims to promote regional equity and service equalization through inter-provincial fund adjustments. However, the effectiveness of its implementation and the fairness of redistribution have sparked discussions in the academic community. Zeng and Ye pointed out that the national pooling system implemented from January 2022 has induced moral hazard among local governments in practice, resulting in a decrease of 1.53 and 10.3 percentage points in the collection rates of surplus provinces and deficit provinces, respectively, reflecting a weakening of local collection incentives and a greater reliance on central adjustment in deficit provinces, while neglecting the localization and income increasing measures of funds [7].

Compared with the situation without moral hazard, this system tends to exhibit reverse regulation in dimensions such as surplus, benefits, and contributions [7]. To address this challenge, it is urgent to establish incentive and restraint mechanisms for local governments, and to promote fund collection reforms to strengthen collection responsibilities, curb reverse dependence, and enhance the redistributive fairness and policy effectiveness of the overall system.

4.2. Fairness of Institutional Coverage

The pension system has formally eliminated the institutional differences in coverage fairness between urban and rural elderly residents' pension insurance. However, substantive fairness is far from being achieved and still faces systemic challenges at the urban-rural, regional, and group levels.

Firstly, although institutional barriers have been broken down, there is still a huge gap in the treatment level between employee pension insurance and resident pension insurance, which is rooted in the differences in financing mechanisms and treatment determination methods. In fact, it is a continuation of China's long-standing urban-rural dual structure. What is more noteworthy is that this gap further affects the policy effectiveness at the regional level. As revealed by the research of Wang and Zhang, rural social pension insurance not only widens the gap in poverty alleviation quality between mixed families and elderly families, but also has regional "discrimination", with stronger policy effects on the poverty alleviation quality of elderly families in the eastern region, reflecting regional discrimination related to local fiscal capacity and economic development level, resulting in serious inequality of the same system in different regions [10]. In addition, this urban-rural basic difference and regional differentiation ultimately exacerbate the unequal benefits between groups. The current method of combining quota adjustment, linkage adjustment, and appropriate tilt has the

intention of redistribution, but due to differences in initial treatment levels, those with high pension bases still benefit more in absolute value from linkage adjustment, resulting in a sustained relative gap. At the same time, preferential policies targeting special groups may result in different treatment of retirees with similar conditions due to regional differences in implementation, leading to new inequalities.

4.3. Lack of Policy Coordination: Integration Challenges of Multi level Pension

Alleviating elderly poverty cannot rely solely on basic pension insurance, but also on the coordinated efforts of multi-level pension financial systems. However, there is currently a lack of coordination in China's pension finance policies, which weakens the overall effectiveness of pension adjustments for elderly poverty. The uneven development of the three pillars and insufficient policy coordination have constrained the overall effectiveness of poverty reduction. In addition, there is a lack of effective connection between pension insurance and other anti-poverty policies. The study compared the redistributive effects of social assistance programs and pensions for extremely poor households, low-income households, and five guarantee households, revealing that these programs have a high degree of progressivity, but there is insufficient coordination and cooperation between different policies. In practice, the linkage mechanism between pension insurance, social assistance, social welfare and other policies is not perfect, and information sharing is insufficient, which may result in duplicate investment of anti-poverty resources or blind spots in coverage, affecting the overall effectiveness of policies.

Thirdly, there is insufficient coordination between pension finance, industrial policies, and population policies. To fundamentally alleviate the problem of elderly poverty, it is inseparable from the healthy development of the aging industry, continuous increase in human capital investment, and optimization and adjustment of birth policies. However, there is currently a clear phenomenon of departmental segmentation in policy-making, making it difficult to form a policy synergy. For example, the development of the elderly care service market cannot keep up with the growing demand of the elderly population, and the continuous rise in medical care costs has reduced the actual purchasing power of pensions, which has constrained the effectiveness of pensions in alleviating elderly poverty.

5. Conclusion

This article systematically analyzes the mechanism, effectiveness, and controversies of pension finance in adjusting elderly poverty from the perspective of fairness in welfare economics. Research has found that pensions can effectively alleviate elderly poverty and improve income distribution patterns through direct income transfer payments and indirect behavioral incentives. In 2025, China's pension policy will continue to tilt towards the middle and low-income groups, achieving progressive pension distribution through a triple mechanism of "quota adjustment + linkage adjustment + appropriate tilt", allowing low-income groups to obtain higher actual adjustment ratios. Empirical research has shown that public transfer payments reduce poverty rates by about 10% and Gini coefficients by about 7%, with pensions having the greatest poverty reduction effect. However, there are still controversies over the fairness of the pension system in terms of inter-provincial redistribution, urban-rural coverage, and policy coordination. Rural social pension insurance exhibits "regional discrimination", and the poverty alleviation effect of elderly families in the eastern region is significantly better than in other regions. The national pooling of pension insurance may lead to moral risks for local governments, and even reverse adjustment phenomena in some dimensions, which constrain the overall effectiveness of pensions in alleviating elderly poverty.

Based on the research findings, this article proposes the following policy recommendations: Firstly, the design of the pension system should be optimized to enhance the fairness of redistribution. On the one hand, will continue to improve the basic pension level of urban and rural residents' pension insurance and narrow the urban-rural gap. On the other hand, need to improve the pension adjustment

mechanism, increase the proportion of fixed amount adjustments, and strengthen protective adjustments for low-income groups. Secondly, strengthen the coordination of multi-level pension financial policies and enhance the overall effectiveness of elderly poverty governance. Promote the coordinated development of basic pension insurance, enterprise annuity, and personal pension, strengthen the connection between pension insurance and social assistance policies such as subsistence allowance and assistance for extremely poor people, and form a policy synergy. At the same time, will promote the integrated development of pension finance, aging industry, health services and other fields, and enhance the actual purchasing power of pension funds and the quality of elderly life. Thirdly, improve the nationwide incentive and restraint mechanism for pension insurance to prevent moral hazards. In response to the potential decrease in local government's enthusiasm for collecting funds caused by national pooling, a sound performance evaluation mechanism should be established to incentivize local governments, especially in provinces with gaps, to strengthen fund collection and management. At the same time, parameter reforms should be introduced to improve the long-term balance of pension insurance funds.

Future research can further explore the relationship between pension and intergenerational poverty transmission, the application of digital technology in pension finance, and the comparative reference of pension finance systems under different cultural backgrounds. With the continuous deepening of China's aging population, optimizing the pension financial system based on the perspective of welfare economics has increasingly important strategic significance for alleviating elderly poverty and promoting common prosperity.Alleviating elderly poverty cannot rely solely on basic pension insurance, but also on the coordinated efforts of multi-level pension financial systems. However, there is currently a lack of coordination in China's pension finance policies, which weakens the overall effectiveness of pension adjustments for elderly poverty.

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