

Research on the Integration Path of Timebank and Pension Finance

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Abstract: As China's population ages, the pension market faces growing supply-demand imbalances, inadequate infrastructure, and resource shortages. The limitations of the traditional community pension model urgently need addressing, and timebank, a community-based mutual pension approach, has gained attention. This study proposes integrating pension finance with timebank to balance public welfare and profitability, fostering community support and resource optimization in the pension industry. By reviewing relevant literature and examining the "Impossible Trinity" issue, this paper explores viable paths for combining pension finance with timebank and provides a theoretical foundation for aligning pension services with financial resources.

1. Introduction

With the profound changes in social structure and population aging, the traditional pension service model is facing many challenges. How to improve the quality of elderly care services while meeting multi-dimensional needs has become a practical problem that needs to be solved urgently.

1.1. The Practical Dilemma and the "The Impossible Trinity" of Elderly Care Services

With the rapid aging of China's population, the existing pension service system faces significant challenges in addressing the diverse needs of residents. The interplay between service quality, coverage, and cost-effectiveness creates a "Triple Constraint," making it difficult to improve service quality while ensuring broad coverage and controlling costs. This conflict severely limits the optimization and development of elderly care services, highlighting the urgent need for innovative.

1.2. The integration path of "timebank" and financial innovation

In the context of community governance innovation, "timebank", as a mutual aid-based pension service mechanism, is gradually regarded as a potential solution to solve the limitations of the traditional pension model. By capitalizing service time and exploring the integration of "timebank" and financial innovation, it not only provides a new idea for the sustainable development of elderly care services, but also provides a practical path for the optimal allocation of resources and community symbiosis and integration.

2. Theoretical framework

In the current pension service system, the integration of timebank and pension finance has attracted more and more attention, but there are still shortcomings in related research.

2.1. Review existing research

In recent years, studies on timebank theory have primarily examined its role in fostering community-based elderly care, highlighting its capacity to promote intergenerational support and social cohesion. However, in China, challenges such as an incomplete social security system and regional disparities hinder its effective implementation in elder care. Meanwhile, research on pension finance focuses on addressing the economic challenges of an aging population, but lacks detailed analysis on balancing public welfare and market operations. This creates a clear research gap, particularly in the integration of timebank and pension finance for sustainable development.

2.2. Summarize relevant theoretical concepts

The core of the timebank theory is to store and exchange it in the form of "time money" by encouraging individuals to invest their idle time resources in helping the elderly.^[1] This theory embodies the application of social exchange theory, which realizes the rational allocation of resources through service exchange, so as to enhance the spirit of mutual assistance in the community.

The theory of pension finance covers many fields such as pension finance, pension service finance and pension industry finance, aiming to ensure the economic security of the elderly through financial instruments.^[2] The study highlights that while pension finance aims to meet the basic needs of the elderly, gaps in financial service availability and inclusiveness leave middle- and low-income groups underserved. Integrating timebank with pension finance offers a new approach to addressing these issues.

2.3. Theoretical framework

Based on the theoretical framework of the integration of timebank and pension finance, this study explores how to improve the well-being of the elderly through the combination of the two. The framework mainly includes the following aspects:

1) Balance between public welfare and marketization: Analyze how the public welfare characteristics of timebank are combined with the market demand of pension finance to achieve the optimal allocation of resources.

2) Improvement of Community Mutual Aid Capacity: To explore the role of timebank mechanism in enhancing community mutual aid ability and improving the quality of elderly care services.

3) Policy support and risk management: Research on how to establish a sound policy support and risk management mechanism to promote the effective implementation of the integration framework and ensure the sustainable development of elderly care services.

Through the above theoretical framework, this paper aims to provide practical theoretical support and practical guidance for the optimization of China's pension service system, promote the deep integration of timebank and pension finance, and achieve a higher level of social welfare.

3. The integration path of timebank and pension finance

3.1. The integration path of "timebank" mechanism and pension finance empowered by digital economy

In view of the unique challenges of China's aging society, the application of the traditional pension financial model faces significant limitations. The strategic solution is to integrate the "timebank" mechanism into the pension finance with the help of the empowerment of the digital economy, so as to promote the structural optimization and deepening of the supply side of the pension financial services.^[3] "Timebank" constructs a framework for the exchange of non-monetized services for the elderly through the accumulation and exchange of "time money", and the digital economy driven by the wide application of Internet, mobile payment, Internet of Things and artificial intelligence technology has brought new development opportunities for the integration of timebank model and pension financial services.

Research shows that strengthening digital infrastructure and technological innovation is key to transforming pension finance into a more digital, networked, and intelligent system. Timebank can expand services and improve efficiency via digital platforms. To support this, financial institutions must develop multidisciplinary talent and integrate pension finance knowledge into regulations to drive financial model innovation and high-quality product development. Digital technology in this integration also enables personalized financial services tailored to elderly needs, while tools like mobile banking and credit apps expand reach. Additionally, China has developed age-friendly apps to simplify interfaces and enhance user experience for seniors.

3.2. The operation mechanism and industrial chain construction of the symbiosis system of time and wealth

In the process of promoting the integration of "timebank" and pension finance, the innovative layout of the industrial chain plays a decisive role.^[4] The two fusion products conceptualized in this study are the timebank pension fund and the pension financial time bond, although these two fusion products have not yet been realized, their operation ideas indicate the potential structure and direction of the future development of the time wealth symbiosis system.

The operation mechanism of the "Timebank Pension Fund" involves three core dimensions: portfolio management, integral linkage mechanism and pension economic security.^[5] The fund management entity implements an asset management strategy by investing raised funds in low-risk financial instruments to ensure safety. The fund's performance will be linked to the time point system, allowing point values to adjust dynamically with fund returns, thereby enhancing participants' rights. Ultimately, the investment returns provide additional financial support for the elderly, supplementing their pension income and improving their economic security in later life.

The operation mechanism of the "pension financial time bond" includes three key components: point securitization, trading market construction, and income distribution. Through point securitization, time points are converted into tradable time bonds, enhancing their liquidity and market value. These bonds are traded on specific financial platforms, providing liquidity for holders. Importantly, the yield of time bonds is tied to market interest rates, ensuring stable fixed income for investors and increasing the product's attractiveness.

The industrial chain plans to build a coherent industrial chain with the "timebank pension fund" and "pension financial time bond" as the axis, comprehensively covering multiple dimensions such as asset optimal allocation, flexible circulation of points, financial product innovation and quality assurance of pension services, and build a dynamically balanced and self-reinforcing closed-loop ecosystem.^[3] From the upstream capital collection and point generation, to the product refining and

marketing in the midstream, to the downstream service delivery and value realization, the entire industrial chain design aims to achieve the precise docking of financial resources and pension needs, in order to provide strong support for the innovation and development of China's pension industry.

3.3. Construct a collaborative model of government and society to promote the deep integration of time and wealth

As China advances in promoting the coordinated growth of wealth and time, it is extremely necessary to establish a collaborative governance model driven by both the government and society.

The government should not only use legislative means to consolidate the legal basis of the timebank to ensure policy supply, but also enhance fiscal subsidies and increase tax incentives to provide financial support for the mutual aid elderly care system. At the same time, it is essential for the government to increase the salaries of elderly service personnel and activate the enthusiasm of service supply by guiding the sinking of resources.

At the social level, community residents and relevant neighborhood committees should raise public awareness and acceptance of the concept of timebanking by organizing public welfare activities, and the development of such activities is conducive to enhancing the cultural identity and enthusiasm of the society for the mutual care model. It is worth noting that the extensive participation of social forces, as the cornerstone of the sustainable development of Timebank, plays a pivotal role in the development of building a pension financial service system with national participation and mutual benefit. To present the overall framework of this research more clearly, the research roadmap is shown in Figure 1.

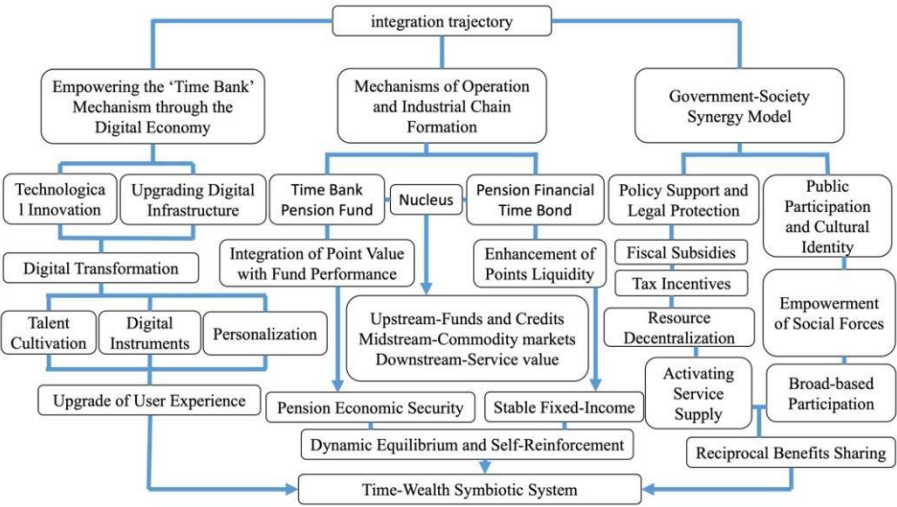


Figure 1: Research Roadmap

4. Results and Discussion

4.1. Results

This study thoroughly examines the theoretical framework, operational pathways, and industrial ecosystem for integrating timebank and pension finance. It concludes that this integration strategy is not only theoretically viable but also practically effective in addressing China’s aging population. The timebank effectively leverages idle community resources through mutual aid, while pension finance optimizes resource allocation using market-driven approaches. Together, they form a “time and wealth symbiosis system,” significantly enhancing the efficiency and quality of pension services while meeting the diverse needs of the elderly. To further promote this integration, the study suggests

launching two innovative financial products: the “timebank pension fund” and the “pension financial time bond.” These products aim to facilitate resource recycling and comprehensive industrial chain development, injecting new vitality into the pension financial market.

4.2. Discussion

The integration of the timebank model and pension finance is a complex process requiring a governance framework that combines policy support and public participation. In light of ongoing social development and aging population challenges, the government is expected to implement measures like legislation, fiscal subsidies, and tax incentives to ensure robust support for this integration. This will enhance participation and benefits for the elderly, fostering a positive societal environment. It is anticipated that numerous stakeholders will actively engage in this process, promoting societal harmony and delivering tangible benefits. With continued innovation and collaboration, contributions from the academic community can create a win-win situation for social and economic benefits, supporting a sound and harmonious aging society.

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