

A Review of “Time Bank” Mutual Pension Model Based on Big Data: Status Quo, Challenges and Prospect

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Abstract

In the context of the accelerating pace of Chinese population ageing, in order to correctly understand and actively respond to the current population ageing situation, and to help solve the present and future pension problems faced by Chinese families, in order to relieve the pressure of family support for the aged and the security pressure of the institution for the Aged in China, this paper summarizes the development status, Operation Mode and service characteristics of Time Bank at home and abroad, in particular, the "Time Bank" mutual pension model in China's policy support, exchange system, technical support, cognitive level, team building and other aspects of the main problems of a more in-depth study and analysis, in order to promote the healthy development of China Time Bank Mutual Assistance Pension model, the author puts forward the countermeasures and the "Internet +" solution under big data. At the same time, it summarizes and implements the practical scheme of constructing nursing students to participate in the time bank mutual assistance voluntary service for the aged, more conducive to China time bank mutual pension model of high-quality, high-level and sustainable development.

Keywords: Time bank, ageing population, mutual pension, literature review.

1. Introduction

The data from the 7th national census reveals a significant demographic shift in China, with individuals aged 65 and above now constituting 13.50% of the total population, marking a 4.63percentage point increase from the 6th national census [1].As you can see in Figure 1, the speed of Chinese population ageing has increased significantly, signaling China's imminent transition into a moderately aged society and its trajectory toward becoming heavily and extremely aged [2]. Confronted with the deepening challenges of aging demographics, including inadequate preparedness and financial security for old age, as well as the constraints faced by children in balancing the care of elderly parents with their own familial and professional responsibilities, the strains on elderly welfare, the diminishing role of family care, and the scarcity of elderly care personnel are becoming increasingly pronounced. These mounting issues are highlighting the inadequacies of traditional elderly care models, posing formidable challenges [3]. In recent years, in response to the pressing shortage of elderly care resources, the innovative “time bank” mutual assistance elderly care model has emerged as a viable solution, gradually gaining visibility and accruing practical experience. After combing the relevant literature of “Time Bank Mutual Pension”, it is found that there are still some problems in China's time bank mutual pension model, in particular, the implementation of China's “Internet plus pension” initiative [4] is still in the state of the art technology means is not advanced, technology application is not in-depth and in the volunteer team exposed the lack of specialization. “Internet plus” is helpful to promote information sharing and resource management of time bank mutual pension model, and professional nursing service is more helpful to promote the sustainable development of time bank mutual pension model. The current situation, challenges and prospects of time bank mutual pension model based on big data are

reviewed in order to provide reference for the healthy and orderly development of time bank mutual pension model in China.

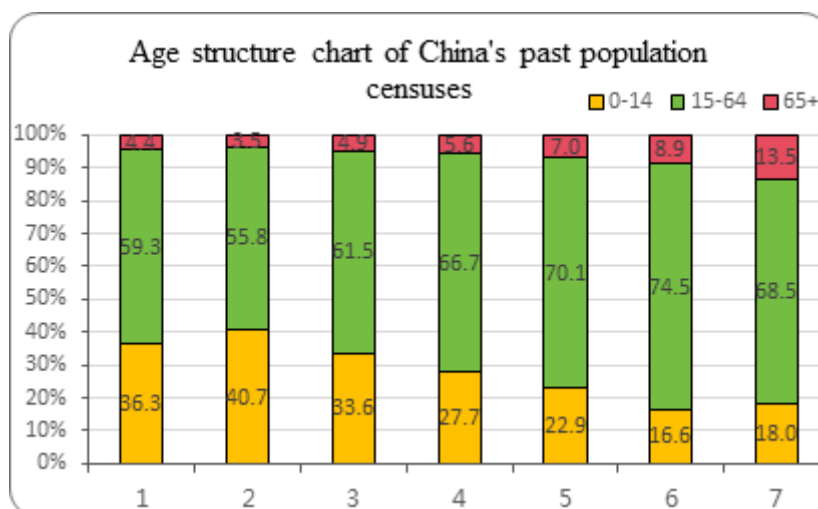


Figure 1 Age structure chart of China's past population censuses

1.1 Time bank

The embryo of “time bank” emerged in Japan, with the concept pioneered and disseminated worldwide by the American scholar Edgar Cahn in the mid-1980s [5]. Regarded as a form of volunteerism, time bank distinguishes itself from conventional volunteer undertakings by introducing a compensated dimension. Volunteers accrue service hours by assisting others, converting these earned hours into “time-based currency” deposited within the time bank. When needed, individuals can redeem their stored time credits for corresponding service durations. This quasi-banking operational framework revolves around the exchange of time rather than currency [6-8]. The advent of the time bank concept has garnered significant acclaim within the Western philanthropic domain. Since the establishment of the first time bank in the United States in 1990, this model has proliferated across over 300 communities in more than 30 countries. Presently, over 1000 akin organizations resembling “time banks” have been established globally [9].

1.2 Time bank mutual assistance elderly care model

Introduced into China, time bank emerges as a novel form of mutual elderly care, serving as a significant supplement to the country’s eldercare framework. This model, bolstered by community foundations, strategically engages individuals aged between 50 to 70, in good health, along with younger freelance professionals, as volunteer service providers. Operating on principles of reciprocal aid, it offers compensated volunteer services to the elderly—those advanced in age, disabled, or semi-disabled—accumulating services through hours rendered. Through this approach, volunteers not only provide immediate assistance but also amass temporal reserves for their own future retirement [10]. This quintessential application of voluntary service within the realm of eldercare not only fosters communal unity but also effectively mitigates challenges within the eldercare landscape[11], addressing the prevailing difficulties associated with a scarcity of eldercare resources.

2. Development Status of Time Bank

2.1 International development status of time banks

Time bank has garnered widespread implementation worldwide, acclaimed as an effective approach to alleviating the challenges posed by an aging population. The operational models of time banks in the United States, Japan, and the United Kingdom stand out as the most mature and representative.

2.1.1 Time banks in the United States

Edgar Cahn espoused the perspective of valuing the elderly as assets rather than financial liabilities. Consequently, the time banks in the United States initially revolved around eldercare before expanding to encompass other age demographics. Within this landscape, the Older Volunteer Service Bank and the Elder Plan [12] epitomize the current epitomes of time banks. The Older Volunteer Service Bank engages early retirees as volunteers to furnish temporary caregiving services to the elderly or solitary individuals within the community. Over time, it diversified its services in alignment with the actual needs of the elderly population. On the other hand, the Elder Plan serves as a pioneering institution in preventing age-related ailments, focusing on cultivating healthy lifestyles among the elderly [13, 14]. To ensure service quality, volunteers undergo unified training arranged by the state alongside other relevant training regimens. Presently, there exist over 500 registered time banks with a membership exceeding 37,000 individuals in the United States [15].

2.1.2 Time banks in Japan

Japan stands out as one of the countries facing the most severe challenges of population aging. In response to this demographic shift, the Japanese government has actively promoted time bank, enacting relevant laws and providing substantial financial support to ensure the standardized and smooth operation of time banks [16]. Within Japan, VLN (Voluntary Labor Network) and NALC (Nippon Active Life Club, a Japanese activity club) [17] represent exemplary initiatives in the realm of time bank. Both organizations are dedicated to enriching the lives of the elderly and enhancing the quality of life by offering volunteer services. VLN primarily mobilizes homemakers to assist elderly individuals in need, discovering a notably significant mutual aid effect among the elderly recipients [17]. On the other hand, NALC comprises mostly individuals aged 50 and above, either male or in spousal pairs, known for its diverse cultural organizational structure. It regularly hosts a series of lectures closely tied to the interests of the elderly and provides various consultation services. Moreover, NALC has established a center for elderly welfare research serving as a foundation for the government in formulating pertinent policies related to elderly care [18].

2.1.3 Time banks in the United Kingdom

The time banks in the United Kingdom are designed to reconstruct supportive community networks based on reciprocal assistance. Encouraged and guided by the government, they have experienced rapid development, with over 300 mutual care elderly time banks currently in operation [19]. The first time bank in the UK was established in the late 1990s, primarily to provide caregiving and support services for the elderly, individuals with disabilities, and those facing functional limitations in self-care. The members are predominantly retired seniors, aiming to foster intra-generational mutual aid among the elderly. With the continual expansion of these institutions, many young individuals have also joined the initiative. In some regions, joining a time bank has been incorporated as a social practice course for high school students, encouraging the exchange of time between the young and the elderly to facilitate intergenerational assistance [13].

2.2 Development of time banks in China

Towards the end of the 20th century, the concept of time banks was introduced to China, primarily applied in the realm of elderly care services. In 1998, the first “time bank” in China was established in the Tilanqiao Sub-district of Hongkou District in Shanghai, marking the institutionalized development of time banks in China. Subsequently, pilot initiatives were launched in various regions including Songyuli in Panjiayuan, Chaoyang District in Beijing, Shouxing Building Community in Guangzhou, Hangzhou in Zhejiang Province, Nangang District in Harbin, Gulou District in Jiangsu Province, and Xiaozheng Street Community in Tianxingqiao Sub-district, Shapingba District in Chongqing [20, 21]. Tailoring their approaches to local contexts, the effectiveness of time banks varied, with many experiencing operational setbacks and gradually fading from public view. In recent years, as the depth of aging in the population continues to increase, time banks have once again become a focal point of social attention [22].

2.2.1 Zhaoyuan time bank in Nanjing

In 2005, the Zhaoyuan Community Residents’ Committee in Nanjing established the “time bank”, tailored to the community’s characteristics, primarily devoted to addressing the service needs of elderly individuals, people with

disabilities, and other vulnerable groups [23]. This “time bank” instituted a time currency system encompassing arbitration, dispute resolution, external coordination, credit assessment, and supplementary mechanisms related to time currency. It categorizes members into honor levels based on recorded service durations, offering corresponding material and spiritual rewards. Moreover, a time currency credit system was established, allowing members to overdraft time currency through three methods: depositing collateral, familial guarantee systems, and system guarantee mechanisms [24]. Failure to timely repay time currency results in the system imposing interest penalties on the individuals’ collateral. If a member exits the time bank system due to special circumstances, compensatory measures are provided [25]. As of August 2012, the registered members of the Zhaoyuan Community “time bank” in Nanjing exceeded 1200, comprising mostly retired seniors and university student volunteers, with accumulated service hours surpassing 18,000[26].

2.2.2 Nansha time bank in Guangzhou

In 2013, with the support of the district government, the Nansha time bank in Guangzhou was officially established. This project primarily adopts a government procurement service model, offering services such as housekeeping, legal assistance, elderly companionship, childcare, and health counseling, catering to the daily needs of the elderly. By employing methods of mutual selection and mutual evaluation, the community’s public welfare services are ensured to be fair and orderly. Additionally, volunteer service data is transparently shared in real-time, allowing for public oversight [27]. In 2017, the “Community Elderly Meal Distribution” project was launched, offering meal services to all eligible individuals aged 60 and above in the entire district. By June 2018, the Nansha time bank had engaged 20 businesses, formed 37 community volunteer service teams, involved 386 volunteers in community service, and completed assistance for 1,160 persons with disabilities, 2,840 instances of community elderly care services, 13,231 instances of cultural and educational services, and 1,686 instances of convenience services [28].

2.2.3 Shanghai time bank

With strong support from the Pudong New Area government and the Civil Affairs Bureau in Shanghai, the Shanghai time bank was established in 2014. In collaboration with the Happiness No.9 E-commerce company, they formed a philanthropic O2O model, establishing volunteer centers nationwide, combining online and offline approaches [29] to encourage volunteers to provide care services for the elderly. Online, volunteers with experience in philanthropy register as members, selecting tasks or posting philanthropic service content. Through a unique time currency exchange system, they convert service time into time currency for electronic storage, transfer it to those who assist them, or exchange it for needed items in a gift store [30]. Offline, volunteers provide physical services, leveraging the support of the Happiness No.9 E-commerce company in Shanghai to integrate various social resources, extending care for empty-nest elderly individuals to hundreds of domestic urban communities. This initiative aims to involve more individuals in the time bank mutual eldercare, enhancing the sense of well-being among community residents [31-33].

3. Challenges in the “Time Bank” Mutual Assistance Elderly Care Model in China

Domestic instances of time banks in China have been acknowledged by scholars for their commendable explorations. However, in comparison to the more matured development of time banks abroad, the progress of time banks in China has been relatively sluggish. Constrained by factors such as policy environment, institutional support, information platforms, and evaluation systems, there are pressing issues that require immediate attention. These include the lack of policy and financial support, imperfections in the service time exchange system, the absence of a national-level information management platform, low awareness among volunteers, and inadequacies in the development of service teams, as is shown in Figure 2.

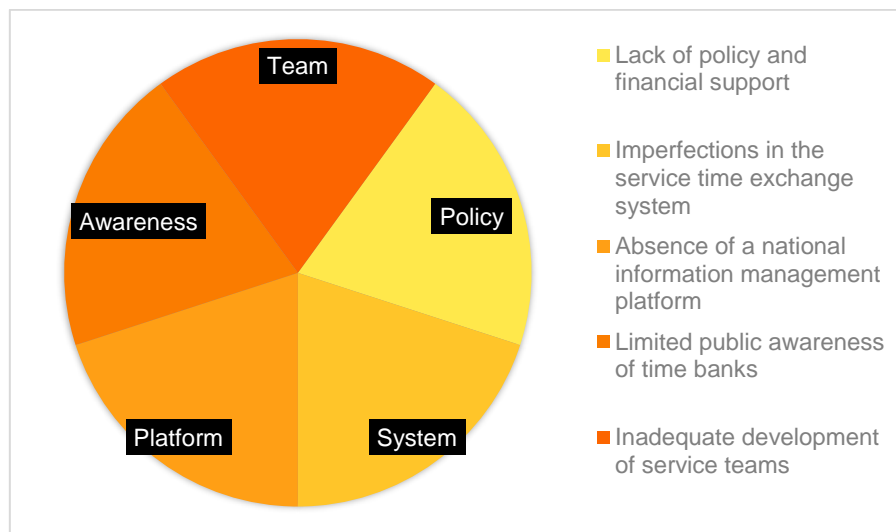


Figure 2 Problems with China's time bank

3.1 Lack of policy and financial support

The remunerative nature of the mutual elderly care services in time banks necessitates the provision of relevant policies and legal safeguards by the state [34]. Simultaneously, to achieve sustained operation of time banks, adequate and stable financial support is crucial. Time banks in foreign countries benefit from comprehensive legislative protection, robust policy support, and recognition, with donations and collaborations coming from individuals, businesses, foundations, and government agencies, ensuring a more stable funding source [35, 36], which serves as a valuable model for China to draw inspiration from. Currently, time banks in China are still in the phase of local exploration, with divergent practices in different regions. Existing policies at the macro level only vaguely mention the promotion of mutual elderly care services [37]. The absence of a comprehensive policy support system that specifically regulates the operation of the “time bank” mutual eldercare model, encompassing legal regulations, safety policies, and risk assessment policies, has hindered the development of time banks [38]. Additionally, the limited financial support from the Chinese government and unsustainable public donations are constraints that impede the practical implementation and growth of time banks.

3.2 Imperfections in the service time exchange system

Across various regions, time banks for mutual eldercare have yet to establish a unified normative conversion standard and assessment criteria for defining service content, quality, technical content, labor intensity, and service duration [39]. The majority of time banks calculate service duration in hours. Using the satisfaction levels of the service parties and the quality of service as evaluation standards may lead to an imbalance in the exchange of high-quality and low-quality services, undermining the fairness and scientific nature of the “time bank” mechanism [40]. In such cases, volunteers capable of providing high-quality services may tend to engage in simpler daily tasks, potentially creating a vicious cycle that could lead to the phenomenon of “bad money driving out good”.

3.3 Absence of a national information management platform

In China, the initiation of time banks for mutual elderly care began relatively late, resulting in a lack of a unified information platform and a comparatively lagging level of information technology in management and services [34]. While the volunteer service platforms of time banks in various regions share similar functions, the lack of data interoperability restricts their usefulness to their respective service areas. In a society marked by frequent population mobility, once a “depositor” relocates to another community, the stored time credits essentially become void. Moreover, many “time banks” in different regions operate independently at the community level, limiting volunteer services to a relatively fixed area with characteristics of small scope and exclusivity. In the event of retirement or relocation of community managers, a time bank may face the risk of discontinuation [41].

3.4 Limited public awareness of time banks

Although the “time bank” model has been introduced and developed in China for over two decades, its inception in China occurred later compared to other nations. Furthermore, its implementation has been confined to specific regions, hindering widespread adoption. Additionally, the lack of robust government support, effective promotional strategies, and comprehensive application of time banks at all levels has resulted in limited impact, leaving many elderly individuals and even university students with little awareness of this concept [35, 42]. The delayed payment of labor contributions, resembling credit-like products, currently lacks strong institutional backing and legal safeguards. Furthermore, with most operations entrusted to community neighborhood committees, which often lack authoritative governance and managerial capacity, along with insufficient public trust, widespread skepticism has emerged, leading to low levels of trust and limited sense of acceptance among the general population.

3.5 Inadequate development of service teams

3.5.1 Low professionalization among volunteers

Presently, volunteers engaged in mutual elderly care services through time banks in China primarily consist of young and healthy individuals within the community. They mainly offer simple or routine caregiving tasks, with limited service content and projects. The majority have not received formal training and are unable to attain a high level of professionalism in short-term training sessions. This hinders their ability to meet the spiritual and deep-seated professional service needs of elderly individuals in the community, including those who are advanced in age, disabled, or ill [43]. As the population continues to age, relying predominantly on young elderly individuals for service provision in time banks will lead to unsustainable development [3].

3.5.2 Insufficient number and low management level of community management teams

At present, the implementation of time banks heavily relies on community support. Community managers, in addition to their existing responsibilities, have taken on the additional task of managing time banks. However, their lack of professional competence limits the development of time banks. They are unable to dedicate their full attention to enhancing the management and service levels of time banks, posing challenges to the operational management of these entities [44].

4. Strategies to Promote the Development of Time Banks (See Figure 3)

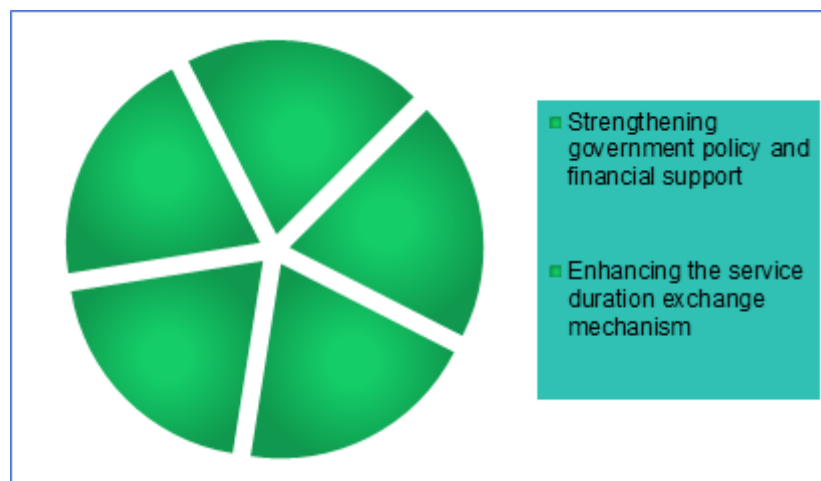


Figure 3 Development measures

4.1 Strengthening government policy and financial support

In terms of policy backing, government entities at all levels and relevant departments can propose practical and feasible policies addressing the issues of aging populations and elderly care challenges. They can meticulously outline the service duration, content, and nature of time banks, further refining complementary legal frameworks.

This clarifies the legitimate status of time banks in China, ensuring their compliant operation and standardized management. Regarding financial support, the government should consider establishing dedicated funding and mobilizing resources through multiple channels to ensure the continued existence of existing time banks in China and systematically propel the healthy development of time banks nationwide.

4.2 Enhancing the service duration exchange mechanism

The remuneration requirements of the “time bank” should uphold fairness and equity during services and exchanges. Currently, in China, where there is no unified standard for volunteer service grading and exchange coefficients in time banks, According to the state has issued the “Basic norms of social welfare institutions for the elderly,” the relevant requirements. This can be coupled with the operational realities of local time banks to determine the grading and exchange criteria for different service types [22].

4.3 Accelerating nationwide information technology development

To expedite the standardization of nationwide exchange criteria, it is imperative to leverage network information systems for seamless nationwide storage and exchange. Drawing inspiration from the operational model of traditional monetary banks, a unified “time currency” could be issued nationwide, allowing for institutionalized and standardized management to overcome the current practical barriers hindering the circulation of time currency [40]. Learning from the experience in Shanghai, establishing a time bank Online-to-Offline (O2O) platform based on the “Internet+” model could foster both online and offline development. By incorporating blockchain technology, this approach can address deficiencies arising from system instability, leakage of member information, and discrepancies in settlements [45, 46]. This initiative is poised to facilitate the expeditious realization of seamless storage and exchange processes.

4.4 Broadening public awareness and encouraging nationwide engagement

The actions taken are intricately linked to cognition; when individuals grasp the essence of the time bank model and hold a favorable attitude towards it, their willingness to participate increases significantly [47]. According to Chen Chunhui’s research involving 2,858 nursing students in Nanchong on their awareness and willingness to engage in the mutual support elderly care model of time banks, results indicated that after being informed about this model, 90% of the students were willing to partake in time bank volunteer services. Therefore, to propel the continued progression of time banks, it is imperative to first enhance public awareness and intensify both online and offline promotional efforts. Subsequently, at the governmental and community levels, fostering positive guidance, enhancing individual self-awareness, and cultivating trust are essential to encourage voluntary engagement in service activities. Implementing additional incentives, continuously bolstering the volunteer base, attracting participation from younger demographics, and fostering the sustainable development of time banks are vital steps to undertake.

4.5 Enhancing volunteer capabilities and strengthening service team development

Research has indicated [48] that nursing students possessing medical expertise who volunteer to serve the elderly can significantly contribute to the well-being of the elderly, both physically and mentally. Therefore, the establishment of diverse training programs focusing on elderly care knowledge and skills is crucial to elevate the professional service levels of volunteers. This approach ensures that the elderly receive tangible assistance in basic daily care as well as complex professional care, thereby eliminating formalism. Introducing assessment and evaluation mechanisms for volunteer services, free from subjectivity, ensures fair and impartial evaluations. In addition to volunteers, addressing shortcomings in the capabilities of the management team can involve providing targeted training to staff members, empowering them to effectively fulfill their roles.

5. Conclusion

Against the backdrop of a deepening aging population, China is actively exploring the concept of time banks as a means to rally societal support and alleviate the strains of elderly care. However, challenges persist during the implementation phase. To drive the advancement of time banks, it is crucial to draw inspiration from successful international models, expedite the rollout of pertinent policies and systems, harness the potential of information

technology, broaden public awareness, and bolster the development of time bank volunteer teams. Volunteers stand at the forefront of elderly care services, and the quality of their service directly impacts the overall service standards. To elevate volunteers' service proficiency, crafting tailored training programs aligned with the specific needs of the elderly is imperative. Notably, nursing students play a vital role within the volunteer cohort, offering sustained and specialized nursing care to the elderly. Therefore, establishing practical frameworks for nursing students to participate in time bank mutual support elderly care volunteer services can propel time banks towards a trajectory of high-level efficacy and long-term sustainability.

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