

# Research on Countermeasures for the Sustainability Risks of China's Pension Funds

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**Abstract:** As China experiences an intensifying aging population trend, the sustainability risks associated with the income and expenditure of pension funds are increasingly highlighted. These challenges include widening gaps between income and expenditures, imbalances in funding pillars, and exacerbated regional developmental disparities. The efficacy of current reform policies reveals certain limitations. This thesis suggests reforming the pension system using principles of behavioral economics, specifically through "nudging". By exploiting individual behavioral inertia, the implementation of an automatic registration scheme combined with the "Save More Tomorrow" mechanism can mitigate feelings of deprivation. The establishment of an electronic pension account system is proposed to motivate individual contributions and investment behaviors. Moreover, transforming tax deferment policies from tax incentives to direct subsidies is recommended to reduce the government's additional tax burden and enhance individual satisfaction.

**Keywords:** Pension Fund Income and Expenditure Risks; Behavioral Economics; Nudge Incentive Mechanisms

In 2024, China will enter a phase of moderate aging, with over 14% of the population aged 65 and above. As the issue of an aging population intensifies, the sustainability risks associated with pension income and expenditure will become a significant challenge for China during the "14th Five-Year Plan" and beyond. There is an urgent need to draw on international experience and adopt new policy perspectives, such as behavioral economics, to expand the scale of pension savings and improve the pension system in China.

## 1. Prominent Pension Issues in China,

### Facing Sustainability Risks

#### 1.1 The Growing Gap in Income and Expenditures, Declining Surpluses in Urban Enterprise Employee Pension Funds

According to the "China Pension Actuarial Report 2019-2050" released by the Chinese Academy of Social Sciences' World Social Security Research Center in 2019, the current surplus of the national urban enterprise employee basic pension fund is projected to turn into a deficit by 2028, continuously expanding thereafter. The cumulative surplus is expected to peak in 2027 and reach its lowest point by 2035; by 2050, the cumulative deficit of the basic pension fund for employees is projected to reach 42.73 trillion yuan (Liu Xueliang, 2014). Furthermore, since 2008, pension levy income has accounted for 80% of the basic pension insurance income, with fiscal subsidies covering about 20%, increasing the fiscal pressure due to significant funding gaps.

#### 1.2 Imbalance in the "Three Pillars," Overreliance on the Fiscally Supported Basic Pension Pillar

China has established a three-pillar pension system consisting of basic pensions, occupational pensions, and personal pensions. As of the end of 2018, China's pension reserves amounted to 7.8 trillion yuan, accounting for only 8.6% of GDP; in contrast, U.S. pension reserves stood at 27.8 trillion U.S. dollars, representing 135.6% of GDP. Moreover, the structural proportions of China's three pension pillars were 74.7%, 25.3%, and 0.0%, respectively; in the U.S., these figures were 10.2%, 58.1%, and 31.75%. Compared to the U.S., China's overall pension scale is smaller, and its structure is imbalanced. The first pillar has a large proportion, the second pillar is underdeveloped, and the third pillar is still being promoted. In contrast, in developed countries like the U.S., the second and third pillars have become the main sources of

pension income, alleviating the burden on the development.  
basic pensions and achieving balanced

**Table 1. Comparison of the Size and Structure of the Three-Pillar Pension Systems in China and the USA (as of the end of 2018)**

Country	Category	First Pillar	Second Pillar	Third Pillar	Total
China	Scale (trillion USD)	5.09	1.48	0.00007	5.57007
	Proportion of Pension Assets	77.47%	22.53%	0%	100%
	Proportion of GDP	5.65%	1.64%	0%	7.3%
USA	Scale (trillion USD)	2.82	16.15	8.81	27.78
	Proportion of Pension Assets	10.15%	58.14%	31.71%	100%
	Proportion of GDP	13.76%	78.8%	42.99%	135.55%

Data Sources: Ministry of Human Resources and Social Security Statistical Bulletin; Investment Company Institute USA.

maintaining a 9% return rate in the fund pool to sustain balance.

## 1.2 Diversified Pension Income and Expenditure Risks Across Provinces and Cities, With some Areas Having Less than One Year Of Pension Surplus Available

Currently, China has basically achieved provincial-level coordination of pension funds. However, there are significant differences among provinces in terms of economic development level, severity of aging, urban employee employment levels, and average wage levels. This has led to increasing pension income and expenditure risks in some regions. In some provinces and cities, the surplus of basic pension funds for urban employees can only cover a short period, and the pressure on fiscal payments and subsidies continues to rise.

## 2. Current Policy Measures are Insufficient and Struggle to Balance Equity and Efficiency

### 2.1 The Transfer of State-Owned Capital can only Achieve a Small Reduction in Pension Contribution Rates with Higher Transfer Ratios

In 2017, China transferred 10% of state-owned and state-controlled corporate and financial institution equities to compensate for the basic pension fund shortfall. According to estimates (Jing Peng, Zheng Wei, 2019), from 2021 to 2050, maintaining a balance of pension fund income and expenditures will be challenging at a 16% basic pension insurance contribution rate with a 10% rate of state capital transfer. If the basic pension insurance contribution rate needs to be further reduced by 2.1 percentage points in the future, the state capital transfer ratio would need to be increased to 30% while

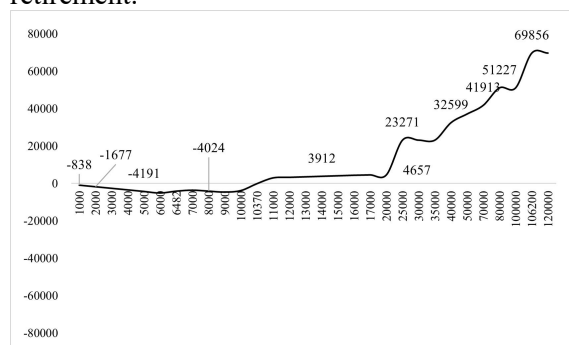
### 2.2 Delaying the Retirement Age Can Only Postpone the Imbalance in Pension Income and Expenditures for A Limited Period

According to calculations by the Chinese Academy of Social Sciences' World Social Security Research Center (2019), without implementing a delayed retirement plan, the pension fund's current surplus would turn negative by 2028. Adopting a delayed retirement policy would postpone the appearance of the funding gap to 2030 and the exhaustion of the fund to 2042. However, delaying retirement cannot fundamentally alleviate the pressure on pension payments.

### 2.3 Tax-deferred Commercial Pension Insurance Offers Limited Benefits to Low And Middle-Income Groups

In 2018, China piloted the third pillar of pensions in Shanghai, Fujian Province, and Suzhou Industrial Park, exploring a tax-deferred commercial pension insurance plan that exempts taxes on pension contributions and investment earnings while imposing taxes at withdrawal. Using an annuity model that considers the time value of money, the study calculates the total tax savings of purchasing versus not purchasing the plan (Figure 1). Residents earning below the "break-even point" of 10,370 yuan/month (using Shanghai as an example) enjoy limited tax benefits from purchasing tax-deferred pension insurance, with tax savings increasing with income. If the pilot policy scenario were expanded nationally, in 2019, the top 20% of national residents by income had an average disposable income of 6,367 yuan/month. Based on the break-even point of 10,370 yuan/month (equivalent to a disposable income of 8,270

yuan/month), tax-deferred pension insurance benefits primarily the top 20% income group, exacerbating income inequality after retirement.



**Figure 1. Tax Savings from Purchasing Tax-Deferred Pension Insurance by Different Pre-Tax Income Levels**

Note: The horizontal axis represents individual pre-tax salary, and the vertical axis represents the tax savings from purchasing tax-deferred pension insurance. Negative values indicate additional taxes paid, while positive values represent tax savings.

### 3. Enhancing Individual Pension Savings Incentives to Achieve Sustainable Account Balances

#### 3.1 Establish an Automatic Registration System to Increase Pension Contribution Rates

According to mainstream behavioral experimental theories (Madrian et al., 2001), only 20% of people join a pension plan after working for three months, with the proportion gradually increasing to 65% over the next 36 months. After implementing an automatic registration system, the proportion of new employees joining the pension plan rises to 90%, reaching 98% within 36 months. Automatic registration produces two effects: people quickly decide to participate, and the number of final participants increases. In the U.S., automatic registration has been proven effective in increasing participation rates during the implementation of fixed pension contribution plans. China could draw on this experience and adopt automatic registration for pension contributions, setting a default enrollment for residents eligible for the second and third pillar pensions. Those who do not wish to participate must submit a written application, and the automatically deposited pension funds are returned to their personal

accounts.

#### 3.2 Establish a "Save More Tomorrow" Mechanism to Eliminate Feelings of Deprivation

Following the behavioral economics "Save More Tomorrow" plan (Richard H. Thaler & Shlomo Benartzi, 2004), this mechanism links the growth of Chinese residents' wages to the increase in pension contribution amounts, ensuring that insured individuals no longer feel that they are receiving less money over time, nor do they perceive the increased contributions as a loss. Once residents join the pension plan, their contribution amounts automatically increase. This scheme, used in conjunction with the automatic registration system, can achieve high participation rates and increase contribution amounts. This study's pension theory model calculations show that, compared to a 6% contribution rate of tax-deferred commercial pension insurance, the "Save More Tomorrow" plan only requires a lower initial contribution rate, such as 3%, which then increases by a certain percentage of the wage growth rate, such as 80%. Assuming a wage growth rate of 5%, the contribution rate the second year would be  $3\% \times (1 + 5\% \times 80\%)$ , and the third year would be  $3\% \times (1 + 5\% \times 80\%)^2$ , and so on. With a lower contribution rate and without reducing current and future disposable income, this significantly increases people's willingness to contribute and the contribution rate. At a salary level of 10,000 yuan, after retirement, an individual will receive an additional 2,314 yuan per month, and the contribution amount will increase by 17.33%. If the increase in the proportion of contributors is also considered, the enhancement could be even greater.

#### 3.3 Establish a Pension Electronic Account System to Clarify Individual Retirement Planning

Currently, China's pension funds are not fully reflected in personally convenient electronic accounts. At the psychological incentive level, people cannot see the clear structure of their pension contributions, nor can they determine if the amounts they have contributed will suffice for retirement living. This lack of clarity leads to reduced motivation and awareness to save adequately for retirement. It is recommended to explore the establishment of a

pension electronic account system, enabling individuals to monitor the increases and decreases in their pension funds, understand whether their contributions are sufficient for retirement, and determine how much more they need to contribute to achieve their desired retirement living standard. This electronic account would be nominal, only allowing withdrawals when eligibility conditions for pension collection are met. The pension electronic account system should clearly display personal short-term and medium-to-long-term cash flows, and continue to track statistics according to the individual's city and employer, strengthening positive feedback about pension funds and motivating personal pension savings.

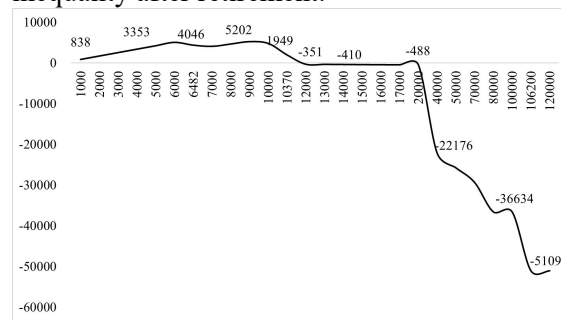
### 3.4 Improve Occupational and Corporate Pension Systems to Strengthen Personal Retirement Security

Currently, China's second pillar, comprising occupational and corporate pensions, is not mandatory, and the establishment of such pensions is a voluntary action by employers. This leaves individuals' second pillar pensions without sufficient institutional protection. It is suggested to establish management methods for occupational and corporate pensions, defining eligible participants and contribution ratios; improve the information disclosure system for occupational and corporate pensions by labor protection departments or industry associations, enabling job seekers to understand how employers implement management of these pension systems and enhancing transparency in the employment market.

### 3.5 Replace Tax Deferrals with Direct Subsidies to Increase Individuals' Sense of Gain

Optimize China's third pillar tax-deferred commercial pension insurance policy by replacing tax deferrals with direct subsidies. Direct subsidies mean that the government would provide residents with the tax relief they would have received from purchasing tax-deferred pensions as a direct subsidy upon retirement. Using an annuity model that considers the time value of money, calculations comparing the effects of tax deferrals and direct subsidies show that direct subsidies significantly reduce government costs compared to tax deferrals. As shown in Figure

2, as income increases, the government's additional tax cost turns from positive to negative. In the high-income range [20,000, 120,000], implementing subsidies equivalent to tax deferrals reduces government costs. It is recommended to use the tax relief from the higher-income groups to subsidize the middle and lower income groups, attracting them to join the third pillar individual pension insurance plan and improving income inequality after retirement.



**Figure 2. Additional Government Tax Costs with Direct Subsidies**

Note: The horizontal axis represents pre-tax salary, and the vertical axis shows the additional government tax costs associated with direct subsidies compared to tax deferrals (negative values indicate cost savings for the government).

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