The Investment Trend of Pension Insurance from Chinese Middle-class Families under Aging Situations

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Abstract:

It seems that pension insurance, a method that could alleviate individual pressure, is extremely import for Chinese elders because aging is intensifying these days. The aging in China in 2029 will reach 18.19%~23.20%, and this proportion would be as 19.05%~25.94% in 2034 based on mathematic model. The Chinese old-age security system consists of three parts: basic old-age insurance, enterprise and occupational annuity, and commercial old-age insurance. The middle-class households have a great impact on the Chinese economic growth and social stabilities. Persons from middle-class families have certain economic foundation and strong sense of risk and financial management, and they also have high degree of recognition of commercial pension insurance. The author analyzed the current situations of pension insurance consumption by Chinese middle-class families, and further predicted their investment trend in pension insurance in future. This paper's results would not only provide one of optimization strategies for asset arrangement of middle-class families, but also supply some suggestions for the insurers how to optimize the marketing of commercial pension insurance products.

Keywords: Middle-class families; Pension insurance; Consume; Aging; Investment trend.

1. Introduction

In the past 20 years, the natural growth rate in China has manifested generally a dwindling trend, even some national fertility policies were slightly regulated or completely changed by Chinese government. Remarkably, the rate of the natural growth is lower than the natural death in 2022. At the same time, the number of populations over 65 years has gradually increased, especially in 2014[1]. In China, the family pension is the most important pension model due to filial piety is the core traditional culture. Unfortunately, the pressure from family pension is increasing under the situations of family structure reorganization, fertility rate decline, etc.

The concept of middle-class is affected by income,

occupation, and education etc. The "Hurun Report" nominated that families an annual income between 200,000 ~1,500,000 yuan after tax was thanked to be the middle-class families in Tier-1 cities in China. This paper here cited a family who has an annual income between 200,000 ~720,000 yuan after tax is the middle-class based on the views put forward in the "White Paper on Personal Pension Security in China". Due to the large range of annual incomes, these families are further categorized into low-middle-class (annual income 200,000 to 360,000 yuan), middle-class (annual income 360,000 to 480,000 yuan) and high-middle-class (annual income 480,000 to 720,000 yuan) [2].

The middle-class households have a significant effect on Chinese economic growth and social stability, so this population was selected to study. This paper investigated the investment trend of pension insurance from middle-class families through analyzing authoritative data. This paper used literature research method and mathematic modeling. This paper's results would not only provide one of optimization strategies for asset arrangement of middle-class families, but also supply some suggestions for the insurers how to optimize the marketing of commercial pension insurance products.

2. Methods

2.1 Data sources

The authoritative data including the total number of populations, the natural birth, death, growth rate, the total number of populations with over 65-year-old, and dependency ratio of the elderly population in each year, was collected from literatures including the *China Statistical Yearbook*. The author also collected data associated with participations in pension insurance, their salaries, expenditure and pension insurance cost, and the establishment and balance of enterprise annuity through the statistical bulletin from the Ministry of Human Resources and Social Security from 2014 to 2023. Finally, the commercial pension insurance consumption of middle-class families was collected from the *White Paper on China's Personal Pension Security*, which was jointly released by AIA Life Insurance and Fudan University, as well as the *White Paper on China's Family Risk Protection System*, which was jointly released by Great Wall Life Insurance and PBC School of Finance, Tsinghua University.

2.2 Methodologies

2.2.1 Literature research method

The authoritative data from associated literatures were

collected, and the current situations on pension insurance consumption from middle-class families was analyzed thereafter.

2.2.2 Mathematic modeling

The time series regression model was constructed with ARIMA, and the auto.arima function was used to automatically confirm the model parameters with the smallest AIC value. The forecast function is used to predict the data in the 10 times after the given time point, and the base plot is used to display the predicted value, confidence interval, actual value and test value respectively.

2.2.3 Classification analysis method of pension insurance

The Chinese pension insurance is divided into two categories: social basic and commercial pension insurance, respectively. The social pension insurance is further divided into the basic pension insurance for urban employees and the social pension insurance for urban and rural residents (combined the New Rural Pension Insurance and the Urban Residence Insurance to establish a unified basic endowment insurance system for urban and rural residents) [3]. Most of the middle-class family members in China have purchase and pay social security (including basic Old-Age Insurance) accordance with law. Individual who participates in the basic pension insurance and pays aid continuously for 15 years when they will receive the basic pension monthly [4]. Enterprise and occupational annuity are supplementary pension systems in China, and there are differences in the participants, and insurance conditions et al.

At present, there is no unified definition of commercial pension insurance in China. However, no matter which form of traditional pension insurance, including participating, or universal pension insurance, exclusive commercial pension insurance, etc., the core is that according to the insurance contract, the policyholder pays the premium, and the insurer pays it in installments (annual or monthly, etc.) in the case of the insured in a state of survival.

3. Results

3.1 The aging trend in China

Based on the Statistical Year-book of China released by the National Bureau of Statistics, the populations' aging of Chinese from 2003 to 2022 was showed in Table 1.

Based on the above data, a mathematic model was established, and this model is used to predict aging in China in future (blue line). It seems that the aging in China in 2029 will reach 18.19%~23.20%, and this proportion would be

as 19.05%~25.94% in 2034 (see Fig. 1), suggesting that China would be an aging country in the coming future. At the same time, China is also against a problem of getting old before rich, resulting in an increase in the burden of middle-class families.

Table 1. Statistics on the aging of Chinese from 2003 to 2022

Year	Total number (ten thousand)	Birth rate (‰)	Death rate (‰)	Natural growth rate (‰)	Total number of over 65-year-old (ten thousand)	Over 65-year-old / total numbers (%)	Dependency ratio of the elderly (%)
2003	129227	12.41	6.40	6.01	9692	7.5	10.7
2004	129988	12.29	6.42	5.87	9857	7.6	10.7
2005	130756	12.40	6.51	5.89	10055	7.7	10.7
2006	131448	12.09	6.81	5.28	10419	7.9	11.0
2007	132129	12.10	6.93	5.17	10636	8.1	11.1
2008	132802	12.14	7.06	5.08	10956	8.3	11.3
2009	133450	11.95	7.08	4.87	11307	8.5	11.6
2010	134091	11.90	7.11	4.79	11894	8.9	11.9
2011	134916	13.27	7.14	6.13	12277	9.1	12.3
2012	135922	14.57	7.13	7.43	12777	9.4	12.7
2013	136726	13.03	7.13	5.90	13262	9.7	13.1
2014	137646	13.83	7.12	6.71	13902	10.1	13.7
2015	138326	11.99	7.07	4.93	14524	10.5	14.3
2016	139232	13.57	7.04	6.53	15037	10.8	15.0
2017	140011	12.64	7.06	5.58	15961	11.4	15.9
2018	140541	10.86	7.08	3.78	16724	11.9	16.8
2019	141008	10.41	7.09	3.32	17767	12.6	17.8
2020	141212	8.52	7.07	1.45	19064	13.5	19.7
2021	141260	7.52	7.18	0.37	20056	14.2	20.8
2022	141175	6.77	7.37	-0.60	20978	14.9	21.8

Data source: *China Statistical Yearbook-2023* (National Bureau of Statistics).
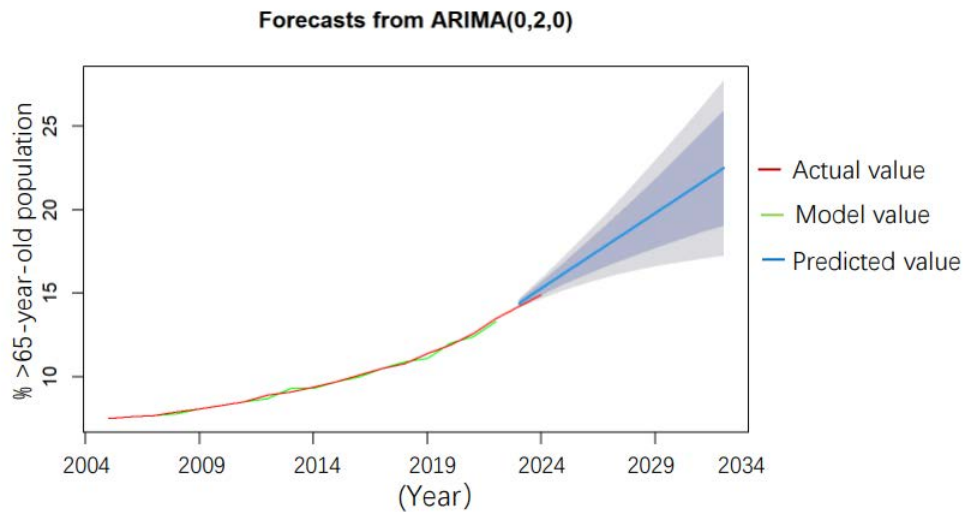

Fig. 1 The Forecast chart of the aging trend of Chinese populations

3.2 The participations and the cost of pension insurance

The Social Insurance Law of People's Republic of China (amended in 2018) was passed in 2010. All employees must enroll in the basic old-age insurance system, at the same time, the employers and the employees must jointly make basic old-age insurance contributions according to the requirements of this low. The owner of a private or individually owned enterprise that does not employ any labors, Persons who are not covered by the basic old-age insurance system and who are employed in any other flexible form, might be choose to participate in the basic old-age insurance system, and the insured shall pay the basic old-age insurance premium [4]. According to the statistical bulletin released by the Ministry of Human Resources and Social Security of P.R. China from 2014 to 2023, this paper showed the participants in social pension as shown in Table 2.

Table 2. The number of participants in social pension insurance from 2014 to 2023

Year	The total numbers of participation (ten thousand)	The total numbers of participation from towns (ten thousand)	The total numbers of participation from urban and rural residents(ten thousand)
2014	84232	34124	50107
2015	85833	35361	50472
2016	88777	37930	50847
2017	91548	40293	51255
2018	94293	41902	52392
2019	96754	43488	53266
2020	99865	45621	54244
2021	102871	48074	54797
2022	105307	50355	54952
2023	106643	52121	54522

Data source: statistical bulletin released by the Ministry of Human Resources and Social Security of PRC.
In 2018, Circular of the State Council on the establishment of a central adjustment system for basic pension insurance funds for enterprise employees, proposing the implementation of a central adjustment system for the pension insurance fund [5]. From the statistical bulletin, we here sorted out the basic situation of the income and social pension insurance costs, as shown in Table 3. It seems that the income and the basic pension insurance costs are not optimistic. Based on data from *China Pension Actuarial Report* (2019~2050), the current balance is deficit and would expand in 2028 [6].

Table 3 The social pension insurance costs and persons' income from 2014 to 2023

Year	Annual pension benefits (100 million yuan)			Annual pension benefits from towns(100 million yuan)			Annual pension benefits from urban and rural residents (100 million yuan)		
	Income	Expenditure	Balance	Income	Expenditure	Balance	Income	Expenditure	Balance
2014	27620	21100	35645	25310	21755	31800	2310	1571	3845
2015	32195	27929	39937	29341	25813	35345	2855	2117	4592
2016	37991	34004	43965	35058	31854	38580	2933	2150	5385
2017	46614	40424	50202	43310	38052	43885	3304	2372	6318
2018	55005	47550	58152	51168	44645	50901	3838	2906	7250
2019	57026	52342	62873	52919	49228	54623	4107	3114	8249
2020	49229	54656	58075	44376	51301	48317	4853	3355	9759
2021	65793	60197	63970	60455	56481	52574	5339	3715	11396
2022	68933	63079	69851	63324	59035	56890	5609	4044	12962

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2023	76691	68369	78173	70506	63757	63639	6185	4613	14534

The source of data: statistical bulletin (Ministry of Human Resources and Social Security of P.R. China)

The Chinese office from State Council General notice on printing issue the measures on occupational annuities in state organs and institutions, requires state organs and institutions and their staff to establish a supplementary old-age insurance system [7]. In 2017, the government promulgated the *Measures for Enterprise Annuities* in Order No. 36, which supports those enterprises and their employees establish additional supplementary pension insurance [8]. Table 4 showed the operation of enterprise annuity accounts and funds in China from 2014 to 2023. It seems that the number of enterprise annuity households is gradually increasing, but the participation rate is generally low.

3.3 The current pension insurance consumption by middle-class family

3.3.1 The retirement anxiety from middle-class families

With demographic changes and social transformation, elderly care, child support and education, car and housing loans, and changes in retirement age have deteriorated the anxiety of middle-class families. According to the research of the White Paper on China's Personal Pension Security (2023), we confirmed that factors such as age composition, work unit, and income will finally affect the anxiety level of middle-class families.

Table 4. The situation of enterprise annuity from 2014 to 2023

Year	The numbers of enterprise annuities(ten thousand)	enterprise annuities(100 million yuan)	
		Scale of investment operations	balance(100 million yuan)
2014	7.33		7689
2015	7.55		9526
2016	7.63		11075
2017	8.04		12880
2018	8.74		14770
2019	9.6		17985
2020	10.5	1.29	
2021	11.75	2.61	
2022	12.80	2.87	
2023	14.17	3.19	

Source of data: statistical bulletin issued by the Ministry of Human Resources and Social Security of PRC.

(1) The age of middle-class family members affects pension anxiety

According to survey, the anxiety index of 30-year-olds in the middle class is 2.32, that of 40-year-olds is 2.74, and that of 50-year-olds is 2.71 [2]. In the 30-year-old group, the maintenance expenditure of the elderly is smaller, the pressure of raising children is relatively small, and the anxiety index is lower. The 40-year-old group has the highest anxiety about pension, because many elders need support and diversified education of their children. However, thee retirement anxiety from 50-year-olds is decreased slightly because they have more stable and sufficient savings and other financial products to implement retirement planning.

(2) Work types of middle-class family members affects pension anxiety

In China, the state-owned enterprises (SOEs) had the lowest level of anxiety (index,2.52), the foreign-funded enterprises have the highest level of concern (index, 3.01), and other persons (private enterprises, self-employed, joint ventures, and freelancers, etc.) had an anxiety index between 1.96 and 2.60 [2]. The anxiety index from state-owned enterprises is very low just because they might have stable income and better welfare. On the other hand, the middle-class people who work in foreign-funded enterprises have the highest degree of pension anxiety just because there is great competition among foreign companies, strong job mobility, and reducing salary after retirement.

(3) Income relates to pension insurance consumption

To families with an annual income between 20-360,000 yuan, the value of existing pension financial products is 2.1, while the values of pension financial for families' products with an annual income of 36-480,000 yuan and 48-720,000 yuan are 2.29 and 2.34, respectively [2] Middle-class families will spend more time and energy to plan for old-age care in future and to guarantee their life quality in future.

3.3.2 Demand diversified for commercial pension insurance products

The basic pension insurance is limitation to people's demands these days. The enterprise annuity is unsatisfied, so middle-class families would purchase commercial pension insurance. Some studies have found that middle-class families have varying degrees of concern about insufficient social security, increased medical expenditure, and asset depreciation [2]. Pension insurance, pension savings insurance, pension dividend insurance, pension term life insurance, pension universal insurance and other insurance contents are quite different. For the pension financial, 72.4% of the middle class prefer to purchase it due to "capital preservation, low risk, and can provide a certain amount of cash flow for the pension on a regular basis"; Nearly half (48.6%) of the respondents chose to purchase the products with "additional health management, medical and other services"; When choosing personal pension products, the pension insurance has become the first choice for this group of people, and its purchase preference (62.7%) for middle class, and higher than other types of personal pension products. According to the survey, persons chose the minimum annualized guaranteed return of 2-3% [2]. According to the *White Paper on China's Family Risk Protection System* (2023), the number one demand of middle- and high-net-worth individuals for high-quality pension is wealth and resources [9].

4. Conclusion

The Chinese old-age security system is established on the insurance of old-age, and also supplemented by enterprise and occupational annuity, and connected with commercial old-age insurance. There are a wide range of persons involved in basic pension insurance. As of March 2024, 1.07 billion populations are have participated in the basic pension, an increase of 14.34 million annually. However, there are hidden concerns about the financial sustainability. Government should take measures to improve the pension gap as soon as possible. Collectively, the "wide coverage, low security" social basic pension can provide relatively stable expectations, and middle-class families are willing and able to continue to invest. There is a big

difference between enterprise and occupational annuity. The administrative department should increase publicity, improve tax policies, and optimize the transfer and continuation of enterprise annuities, to enhance the continuous expand of the enterprise annuity system, so that more enterprises can build households so that middle-class families have better pension supplements. The Middle-class families have certain economic foundation and strong sense of risk and financial management, they have high degree of recognition of commercial pension insurance. Insurers should customize personalized pension insurance products according to the demographic structure, occupational composition, income and other conditions of middle-class families. Combined with advanced technologies such as artificial intelligence (AI), we will open new business areas in combination selection, scheme design, sales and service models, so that commercial pension insurance can achieve diversified and high-quality development. Due to the long investment cycle of pension assets, the demand for the safety and value preservation and appreciation of assets is extremely high, so the insurers must continue to improve their strength and create a good corporate image. Due to the limited data collection, the generality of the analysis conclusions in this paper has certain limitations. Hopefully the data collection method will be further improved, and the data sources will be expanded to enable in-depth analysis.

References

[1] National Bureau of Statistic, China Statistical Yearbook-2023. China Statistics Press. 2023

[2] Zhu, Huoyun and Alan Walker. Pension System Reform in China: Who Gets What Pensions?. Social Policy & Administration, 2018, 52(7): 1410–24.

[3] Zeng Jiang. Measurement of the Operation Efficiency of the Basic Endowment Insurance System for Urban and Rural Residents in China: Based on the Two-Stage Network DEA Model. Social Security and Administration Management, 2023, 4(6): 040607.

[4] Yiwen Wu and Sung-Nam Lee. A Study on the Beneficiary System of Insurance Law of the People's Republic of China. Business Law Review, 2018, 32(2): 191–215.

[5] Xiaran, Zhang. The Strategies for the Sustainability of China's Basic Pension Insurance System in the Digital Economy. Innovative Trends in International Business and Sustainable Management, Springer Nature, 2023.

[6] China Pension Actuarial Report 2019-2050. China Labour and Social Security Publishing House. 2019.5

[7] Petrovic, Dimitrije, et al. Risk Factors and Preventive Measures for Occupational Diseases in Dental Technicians. Vojnosanitetski Pregled, 2013, 70(10): 959-63.

[8] Daniel Ajiga, et al. Designing Cybersecurity Measures for Enterprise Software Applications to Protect Data Integrity. Computer Science & IT Research Journal, 2024, 5(8): 1920–41.

[9] Great Wall Life Insurance, Tsinghua PBCSF. White Paper on China's Family Risk Protection System (2023). http://ciprc. pbcsf.tsinghua.edu.cn/info/1015/1082.htm. 2023-4-23.