Research on Household Financial Asset Allocation Based on Population Aging

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Abstract: With the intensification of population aging, household financial asset allocation is facing new challenges. This paper analyzes the trend of population aging and its impact on the financial market, and discusses the relative changes of high risk assets and low risk assets in household financial asset allocation, and how to allocate assets according to households' risk appetite and investment goals. This paper reviews and analyzes relevant literature at home and abroad, and uses the data of China Household Finance Survey (CHFS) from 2015 to 2019 to explore the impact of population aging on household financial asset allocation.

***Keywords*:** population aging, household asset allocation, household wealth structure, risk management

1. Introduction

With the acceleration of population aging, more and more families are faced with the problem of providing for the elderly. In this case, the research on household financial asset allocation becomes particularly important. However, due to the uncertainty of the financial market, the changes of policies and regulations, and the differences in personal investment levels, it is very difficult to scientifically allocate household financial assets. In this context, population aging will have a huge impact on household financial asset allocation. Therefore, this paper aims to explore the impact of population aging on family financial asset allocation, deeply explore the relationship between population aging and family asset allocation, and propose help for the financial stability and improvement of the quality of life of the elderly.

2. Literature review

As China's population aging becomes more and more serious, the advantages of China's demographic dividend gradually weaken. Du Yang[1] explains that China is about to enter an era of accelerated aging through his research. In such a macro context, Yu Jingwen [2]found that the higher the proportion of elderly people in the family, the lower the intention and proportion of the family to participate in stock or fund investment.Zhou Huijun et al[3]. also found the impact of the health status of middle-aged and elderly people on the investment decisions of household liquid risk assets and illiquid risk assets. Based on the above literatures[4], this paper further analyzes the influence of many factors brought by population aging on household asset allocation from various aspects.Meanwhile, it also refers to the influence and countermeasures of population aging on household financial asset allocation by CAI Liang[5] and the influence of China's population Aging on household risk financial asset allocation by Liu Jiahui.Combined with the relevant suggestions on household asset allocation, and compared with the current social situation, this paper further studies the impact of population aging on household financial asset allocation.

3. Data, variables and models

3.1 Variable Selection

3.1.1 Explained variables

This paper divides financial products into high risk financial assets and low risk financial assets according to the risk of financial products, and takes whether households hold high risk financial assets and whether they hold low risk financial assets as explained variables. According to the CHFS questionnaire, high-risk financial assets are defined as stocks, bonds, financial derivatives, gold, wealth management products, loans, non-RMB assets and other financial products. If a household holds one or more high-risk assets, the value is 1. Similarly, low-risk financial assets are defined as demand deposits and time deposits, and the value of low-risk assets is 1 when households hold one or more. This paper examines the effects of population aging on the changes of household assets from these two types of risk assets.

3.1.2 Explanatory variables

The core explanatory variable of this paper is population aging, which is defined in this paper as being more than or equal to 60 years old, and the definition of population aging is to count the number of elderly people by whether the age of the head of household meets the standard of elderly population. The number of households headed by an elderly population is 1, and the number of households headed by a non-elderly population is 0.

3.1.3 Control variables

According to the factors affecting family assets summarized in previous literatures, this paper selected the health condition of the elderly, social endowment insurance receipt, family population size, family market participation, net assets, and urban and rural areas as control variables.

3.2 Descriptive statistics of variables

After excluding the samples of missing or refusing to answer key variables and 0 household financial assets, a total of 34,182 samples remain. The descriptive statistics of relevant variables are shown in Table 1. Among them, the social endowment insurance and family population size are taken as units, and the net assets are treated with logarithms. It can be seen from the data in the table that households holding high-risk financial assets and low-risk financial assets account for 22.5% and 16.5% of the total sample, respectively, which is in line with the overall situation of Chinese residents' preference for savings.

Table 1. Descriptive statistics of variables

	(1)	(2)	(3)	(4)	(5)
	N	mean	sd	min	max
Low-risk asset	34,182.0	0.165	0.372	0.0	1.0
High-risk assets	34,182.0	0.225	0.418	0.0	1.0
The head of the household is an elderly person	34,182.0	0.416	0.493	0.0	1.0
Time savings	34,182.0	0.800	0.400	0.0	1.0
Current savings	34,182.0	0.174	0.379	0.0	1.0
Stock	34,182.0	0.059	0.235	0.0	1.0
Bond	34,182.0	0.008	0.092	0.0	1.0
Financial derivatives	34,182.0	0.001	0.023	0.0	1.0
Financial products	34,182.0	0.068	0.251	0.0	1.0
Non-renminbi assets	34,182.0	0.002	0.045	0.0	1.0
Gold	34,182.0	0.003	0.052	0.0	1.0
Loan	34,182.0	0.144	0.351	0.0	1.0
Other assets	34,182.0	0.001	0.024	0.0	1.0
Market participation	34,182.0	0.067	0.251	0.0	1.0
Health	34,182.0	0.393	0.488	0.0	1.0
Social endowment insurance	34,182.0	1.453	0.498	1.0	2.0
Family size	34,182.0	3.082	1.541	1.0	15.0
Urban and rural	34,182.0	0.355	0.478	0.0	1.0
Net assets	34,182.0	12.151	3.976	-17.062	21.465

3.3 Model Selection

When analyzing the impact of population aging on household asset allocation, this paper constructs the following regression model:

$$highriskinvestment_{it} = \alpha + \beta old_{it} + X_i\gamma + C_i + \mu_i$$

$$lowriskinvestment_{it} = \alpha + \beta old_{it} + X_i\gamma + C_i + \mu_i$$

Among them, $highriskinvestment_{it}$ is the high-risk assets held by family i in period t; $lowriskinvestment_{it}$ is the low-risk

assets held by family i in period t; old_{it} is the head of household i in period t; X_i is the control variable, C_i is the missing variable, and μ_i is the residual term.

4. Empirical result

Table 2 reflects the impact of population aging on household asset allocation. In columns (1) and (2), OLS models are used to estimate the impact of aging on the holding of high-risk assets and low-risk assets. According to column (1), OLS model is used to estimate the estimated coefficient of population aging on household holdings of high-risk assets is -0.013, which is significant at 1% significance level. This indicates that the increasing aging of the population will significantly reduce the number of households holding high-risk assets. The estimated coefficient for column (2) is -0.001, indicating that population aging does not significantly change household holdings of low-risk assets.

Table 2. Influences of population aging on household asset allocation

	(1)	(2)		(1)	(2)
	High risk OLS	Low risk OLS		High risk OLS	Low risk OLS
The head of the household is an elderly person	-0.013***	-0.001		(0.012)	(0.002)
	(0.005)	(0.002)	Non-renminbi assets	0.084	0.006
Healthy	0.003	-0.001		(0.102)	(0.004)
	(0.002)	(0.001)	Gold	0.040	0.004
Social endowment insurance	-0.014***	-0.001		(0.091)	(0.003)
	(0.005)	(0.003)	Loan	0.777***	-0.019***
Family size	-0.000	-0.001*		(0.006)	(0.002)
	(0.001)	(0.000)	Other assets	0.233	0.001
Time savings	0.025***	0.063***		(0.178)	(0.005)
	(0.002)	(0.004)	Net assets	0.002***	-0.000***
Current savings	-0.050***	0.903***		(0.000)	(0.000)
	(0.002)	(0.006)	Market participation	0.223***	0.099***
Stock	0.477***	-0.015***		(0.010)	(0.006)
	(0.013)	(0.003)	Urban and rural	-0.018***	-0.001
Bond	0.359***	-0.008***		(0.002)	(0.001)
	(0.054)	(0.002)	province	Controls	Controls
Financial derivatives	0.012	0.001	Year	Controls	Controls
	(0.212)	(0.005)	Constant	0.174**	-0.090***
Financial products	0.456***	-0.009***		(0.071)	(0.020)
Observations	22,379	22,379			
R-squared	0.845	0.942			

At the same time, this paper divides the respondents' risk attitudes into risk preference and risk aversion groups, and conducts regression analysis for each group respectively, in order to verify the heterogeneity of population aging on household asset allocation. This paper constructs an interaction term between the number of elderly family members and risk preference, and the estimated results are shown in Table 3. It can be seen from column (1) that the estimated coefficient of interaction between elderly population and risk appetite on household high-risk assets is 0.076, which is significant at 1% significance level. It can be seen from column (3) that the estimated coefficient of the interaction term between the elderly population of a household and risk appetite on household low-risk assets is 0. It can be seen that for households that prefer high-risk assets, population aging promotes the change of high-risk assets, but does not have much impact on low-risk assets.

5. Conclusion

Through the in-depth exploration of this paper, it is found that under the influence of population aging, families are more inclined to choose low-risk assets to ensure stable income and quality of life after retirement. The reason for this is that households' needs and preferences for financial products change as they age. The elderly have a lower risk tolerance and pay more attention to the liquidity and preservation ability of assets. Therefore, they are more inclined to choose low-

risk assets, such as savings deposits and government bonds, in order to ensure their income after retirement and meet the expenditure needs of daily life. The aging of the population has a negative effect on household investment in high-risk assets. With the growth of age, families' risk tolerance of assets gradually decreases, and they pay more attention to the security and preservation ability of assets.

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