Risk and Financial Management; Vol. 6, No. 1; 2025
ISSN 2690-9790 E-ISSN 2690-9804
https://doi.org/10.30560/rfm.v6n1p89

The Impact of Digital Financial Literacy on Older Households' Pension Financial Asset Allocation—Evidence from China

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Received: April 18, 2025 Accepted: May 22, 2025 Online Published: May 26, 2025

Abstract

With the population aging, the importance of pension finance has become increasingly prominent. However, Chinese elderly households' participation in the pension finance market is relatively low, with a single asset allocation structure. Based on data from the China Household Finance Survey, this paper examines the impact of digital financial literacy on the allocation of Pension financial assets of elderly households. The study found that increased digital financial literacy significantly promotes older households' participation in the pension finance market, allocation of commercial pension insurance, and a more diversified portfolio of financial assets. In addition, digital financial literacy influences older households' pension financial asset allocation behavior by increasing their financial accessibility and enhancing social interactions. The study also found that digital financial literacy contributes more strongly to allocating financial assets for retirement in older urban households.

Keywords: digital financial literacy, pension financial asset allocation, Elderly households

1. Introduction

With the arrival of an aging society, the importance of pension finance has become increasingly prominent. On the one hand, according to the life cycle theory, pension financial products stabilize the future income expectations of families by smoothing the family life cycle income, thus reducing the financial vulnerability of the family(Yi et al,2025). On the other hand, pension financial products can weaken the incentives for households to save excessively to cope with the risks of old age(He et al., 2008), and their wealth effect may further unleash the consumption potential, thus helping to boost domestic demand in the country's economy.

Currently, developed countries such as the United States and Germany have evolved into a three-pillar pension finance system primarily based on personal pensions. In this system, personal pensions refer to financial assets designed for retirement purposes, characterized by significant tax incentives, broad coverage, and a wide variety of investment options. Similarly, in China, for example, the aging of the population to China's current pension security system has brought enormous pressure, resulting in the urgent need for China's pension security system to the transition to a multi-level, but for the individual pension system has just begun to exist, "account opening hot, contributions cold" phenomenon.

Due to the influence of traditional Chinese concepts, the wealth allocation of Chinese households has long been characterized by obvious conservatism, with a large amount of funds concentrated in low-risk assets such as savings. According to the China Pension Finance Survey Report 2023, as many as 71.2% of the people in the sample survey carry out pension wealth reserves through bank deposits, followed by 32.65% of those who configure commercial pension insurance, 25.23% of those who configure bank wealth management, while 14.9% of those who configure funds, 3.89% of those who configure trust products, and the degree of participation in this kind of high-risk products is not high. Even 5.96% of people do not have a sense of pension wealth reserve. This phenomenon reflects the limited investment channels and low risk appetite of residents, and also highlights the reality that the development of the third pillar of China's pension finance is lagging. Due to the insufficient development of the third pillar of pension, such as personal pension and commercial pension insurance, it is unable to effectively guide residents to long-term and diversified accumulation of pension wealth, resulting in a single structure of family asset allocation, which makes it difficult to resist inflation and realize wealth appreciation, and thus exacerbates the residents' concern about future pension security. This inefficient allocation model, which relies excessively on savings, not only restricts the growth potential of residents' wealth but also limits the development of the capital market, which is not conducive to the healthy development of the economic system as a whole.

The outbreak has accelerated the pace of the popularization of the digital economy, while the development of digital financial inclusion not only breaks the limitations of physical space, making financial services more convenient, and significantly improves the processing efficiency and accuracy of financial services through digital means. However, groups in the long-tail market are often still deficient in financial knowledge, risk awareness, and digital skills, and when faced with rapidly iterating and innovating digital financial products and services, they are more susceptible to the impact of the digital divide, technological financial exclusion, and cyber financial fraud(Morgan et al，2019).

Compared with existing research, academic attention to pension finance has increased. Still, most studies have focused on examining the current status and shortcomings of pension finance models at the macroeconomic level, with fewer in-depth studies of household pension finance asset allocation at the micro level. Second, while existing research has focused on the impact of financial literacy on household economic behavior, digital financial literacy can also change household economic behavior with the development and spread of the digital economy(Prasad & Meghwal，2018). Therefore, this paper explores the relationship between residents' digital financial literacy and the allocation of pension financial assets among elderly households.

2. Theoretical Analysis and Research Hypotheses

Behavioral finance theory posits that psychological and emotional factors significantly influence investors' actions in financial markets. This runs counter to the fundamental assumptions of optimal investment decision models. Key manifestations of this discrepancy include investors' risk attitudes, the concept of mental accounting, and a tendency towards overconfidence. These observed patterns are collectively termed cognitive biases(Kahneman & Tversky，1979). Setiawan et al (2022) identified digital financial literacy as the ability of investors to know about digital financial products and services, awareness of digital financial risks, and the ability to control and manage financial activities effectively through digital skills, thereby enhancing their financial well-being. Van Rooij et al (2012) found that investors' financial literacy mitigates their cognitive bias towards wealth management, not only by increasing their likelihood of participating in risky financial markets, but also by raising their awareness of retirement planning, such as purchasing some pension financial assets. Tony et al (2020) found that investors with digital financial skills can effectively reduce financial exclusion due to the digital divide, enabling the long tail to participate more effectively in digital financial activities and improving the availability of financial assets for households to allocate to retirement. The availability of financial assets to households. Wu & Zhang (2024) find that increased investor risk tolerance significantly increases the proportion of household allocation to Pension financial assets.

In summary, investors have digital financial literacy specifically in terms of knowing the financial sector, skills to engage in digital financial activities, and the ability to recognize digital financial risks. On the one hand, the more digitally financially literate households are, the more cognizant they are of the pension finance market and retirement planning, and the more inclined they are to allocate pension finance assets; On the other hand, digital financial literacy makes it easier for older households to access Pension financial assets through digital financial services, given their limited income. Therefore, we propose Hypothesis 1.

Hypothesis 1: Increased digital financial literacy has a positive impact on pension financial asset allocation of older households.

Asymmetric information is prevalent in financial markets, leading to greater uncertainty in the financial decision-making process faced by households and constraining the possibilities for older households to participate in financial markets and to achieve an optimal allocation of financial assets for old age. On the one hand, Liu & Ju(2025) find that digital finance breaks through the time and space constraints of traditional finance and significantly reduces the cost of households' access to financial information. Lu & Wei (2021) found that the elderly significantly lag in their acceptance and proficiency with digital tools, leading to a distinct phenomenon of digital financial exclusion within this demographic. From an information economics standpoint, enhancing digital financial literacy is fundamentally about accumulating household human capital. This process directly influences families' access to financial services by lowering the costs of information search, overcoming cognitive limitations, and breaking down technological barriers(Tony et al，2020).According to the life cycle theory, individuals' preferences for saving, consumption, and investment change across different stages of their lives. For elderly families characterized by limited income, their investment strategy tends to prioritize capital preservation and risk avoidance when allocating Pension financial assets. Digital finance promotes financial inclusion, thereby reducing the financial exclusion that investors may face due to limited capital. With the digitization of financial transactions, the barriers to accessing financial services are progressively lowered, enhancing financial accessibility for elderly households.

Elderly families with higher levels of digital financial literacy can improve their access to financial services through the use of digital financial services. This, in turn, influences their behavior in allocating assets for retirement. According to the portfolio theory(Markowitz, 1952), expanded financial accessibility allows elderly families to transcend geographical limitations and minimum investment requirements. This enables them to access retirement financial instruments like target-date funds and long-term care insurance, thereby achieving risk diversification and ensuring a stable consumption pattern over time. Therefore, we propose Hypothesis 2.

Hypothesis 2:Financial accessibility mediates the impact of digital financial literacy on pension financial asset allocation of older households.

Digital financial literacy, which refers to an individual's ability to effectively use digital financial tools and services, is closely related to social interaction. Yang et al (2025) found that digital financial services further promote household financial asset allocation by expanding investors' social and economic interactions. Individuals with higher digital financial literacy effectively use digital channels for financial information and transactions, overcoming traditional financial service limitations and engaging in a wider financial network and social connections. For instance, they can engage with investment communities, share financial knowledge, and interact with diverse individuals online, broadening their social network. Therefore, enhancing digital financial literacy fosters wider social engagement.

Social interaction significantly influences elderly families' Pension financial assets allocation, playing a crucial role in reducing information asymmetry and improving decision-making. Wu & Liu (2024) found that social interaction can provide elderly families with diverse information channels. Elderly people can communicate with their children, relatives, and community members to learn about different Pension financial assets, the evolution of financial market trends, and policy changes, compensating for their insufficient information-gathering capabilities. Lu & Tang(2019) found that social interaction significantly increases the likelihood and degree of household participation in the pension plan. Therefore, we propose Hypothesis 3.

Hypothesis 3: Social interaction mediates the impact of digital financial literacy on pension financial asset allocation of older households.

3. Methodology and Data

3.1 Data Sources

This paper utilizes the micro survey data from the 2017 and 2019 China Household Finance Survey (CHFS), sourced from a nationwide sampling survey by the Research Center for Household Finance at Southwest University of Finance and Economics. The data is nationally and provincially representative.

The raw data were filtered as follows: (1)For the focus on elderly families in this study, only household samples with householders aged between 55 and 90 were retained. (2) Samples with negative total household income and negative total household assets are excluded. (3) Samples with outliers or extreme data values are removed to maintain sample integrity and continuity. (4) Continuous variables are winsorized at the 1% to 99% range to reduce the bias caused by sample outliers. In conclusion, the study gathered unbalanced panel data from 2017 and 2019, comprising 25,363 household samples.

3.2 Variables

The explanatory variable in this paper is digital financial literacy (DFL). The study selects questions from the China Household Finance Survey (CHFS) that encompass financial knowledge, digital financial skills, and digital financial risk identification. Firstly, referring to the research of Prasad & Meghwal(2018), this paper measures financial knowledge using questions on interest rate calculation, inflation calculation, and risk assessment. At the same time, referring to the research of Van Rooij et al. (2012), two dummy variables are set for this questions: whether the answer is correct and whether the answer is direct (answering "I don't know" or "I can't calculate" is considered an indirect answer). Secondly, Financial behavior is assessed by determining whether respondents have stock accounts, funds, and credit cards. Digital financial skill is assessed by determining their use of internet financial products, online lending for business and personal needs like housing and vehicles, and mobile payment adoption. Lastly, Digital financial risk identification is based on residents' perceived risks related to stocks, funds, and internet financial products. The above indicators are measured using factor analysis to assess the level of residents' digital financial literacy.

The dependent variable in this study is the allocation of pension financial assets among elderly households. Due to the preliminary stage of China's pension system, it is difficult to obtain data that can represent the situation of China's pension financial assets allocation. According to the Life Cycle Theory, the biggest difference between pension financial assets and ordinary financial assets lies in the fact that pension financial assets are aimed at

achieving retirement planning, coping with longevity risk, and maintaining the living standards of the elderly. Therefore, this paper will examine the elderly household's pension financial asset allocation from two aspects: Commercial pension insurance participation and Financial asset diversification. In terms of commercial pension insurance participation, this paper examines two aspects: "whether elderly households hold commercial pension insurance " and "the logarithm of the premiums paid by elderly households."Household financial asset diversification is typically assessed using two methods. Firstly, financial assets are categorized into deposits, stocks, funds, bonds, financial derivatives, financial investment products, and other financial assets. For each type of financial asset, holding it is scored as 1, not holding it as 0, and the sum of the scores represents the total number of financial asset types held. Secondly, the Diversification Index is used to measure the diversification of elderly households' financial asset allocation, calculated as follows:

$$DI\_index_{it} = 1 - \sum_{j=1}^{N} \omega_j^2 , \ \ if \ N > 0 \tag{1}$$

Here, N is the number of financial asset types, and w_j is the proportion of the j-th type of financial asset held by the i-th household in period t relative to the total financial assets held by that household.

3.3 Baseline Model

To verify the impact of digital financial literacy on the pension financial asset allocation of elderly households, we initially employ the following Probit model:

$$prob(Insurance_{it} = 1) = \Phi(\alpha + \beta DFL_{it} + \gamma X_{it} + \varepsilon_{it}) \tag{2}$$

Secondly, due to the limited participation of elderly households in financial markets, the sample suffers from a relatively severe truncation issue. Therefore, this paper employs the following Tobit model to estimate the impact of digital financial literacy on the extent of commercial pension insurance participation and the degree of diversification in investment financial assets among elderly households.

$$Insurance\_premium_{it} = \alpha + \beta DFL_{it} + \gamma X_{it} + \varepsilon_{it} \tag{3}$$

$$Num\_fin_{it} = \alpha + \beta DFL_{it} + \gamma X_{it} + \varepsilon_{it} \tag{4}$$

$$DI\_index_{it} = \alpha + \beta DFL_{it} + \gamma X_{it} + \varepsilon_{it} \tag{5}$$

Here, $Insurance_{it}$ is a binary dummy variable indicating whether the i-th household purchased commercial pension insurance in period t. $Insurance\_premium_{it}$ represents the logarithm of the annual premium paid by the i-th household for commercial pension insurance in period t. Num_fin_{it} represents the number of types of financial assets held by the i-th household in period t. DI_index_{it} represents the degree of diversification in the types of financial assets held by the i-th household in period t. DFL_{it} represents the level of digital financial literacy of the i-th household in period t, as measured in the previous section. X represents control variables.

4. Empirical Results

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics of the variables used in this study. From Table 1, it can be observed that the mean value of digital financial literacy is 0.503 with a standard deviation of 0.585, indicating that the overall level of digital financial literacy among Chinese residents remains relatively low, and there is a significant disparity in digital financial literacy levels. Secondly, regarding the dependent variable, only about 2.5% of households in the survey sample participated in commercial pension insurance, and the insurance premium expenditures exhibited a typical "long-tail" distribution. Most households had no commercial pension insurance expenditures, while a small number of households had relatively high expenditures. These phenomena indicate that the participation level of Chinese elderly households in the retirement financial market is relatively low. Furthermore, the survey sample shows that the elderly household holds nearly two types of financial assets on average, indicating a preference for relatively safe single-asset structures in financial asset allocation. This finding aligns with the actual situation of household asset management in China. To precisely identify the relationship between the explanatory variables and the dependent variable, we selected 19 control variables encompassing three dimensions: household head characteristics, family characteristics, and regional economic conditions, which were then incorporated into the model analysis. Additionally, the empirical results in this paper retain a maximum of three decimal places, with rounding applied according to the standard rounding rules.

Table 1. The Descriptive Statistics of Variables

VarName	Obs	Mean	SD	Min	Max
DFL	30896	0.503	0.585	0.000	3.708
Insurance	30896	0.025	0.155	0.000	1.000
Insurance_premium	30896	0.178	1.172	0.000	12.388
Num_fin	30896	1.991	1.286	0.000	9.000
DI_index	30896	0.199	0.223	0.000	0.836
fin_Accessibility	30896	1.112	1.288	0.000	25.545
Social_Interaction	30896	1.629	0.726	0.000	4.206
Age	30896	66.385	7.907	55.000	90.000
Age_square	30896	44.694	10.885	30.250	81.000
Gender	30896	0.758	0.429	0.000	1.000
Marriage	30896	0.821	0.383	0.000	1.000
Health	30896	2.910	1.018	1.000	5.000
Edu	30896	2.936	1.392	1.000	9.000
Registration	30896	1.594	0.734	1.000	4.000
Size	30896	2.564	1.365	1.000	15.000
Oldr	30896	0.610	0.412	0.000	1.000
Childr	30896	0.037	0.105	0.000	0.833
House	30896	0.601	0.490	0.000	1.000
Business	30896	0.068	0.252	0.000	1.000
ln_total_income	30896	10.403	1.344	6.217	12.936
ln_total_asset	30896	12.413	1.870	7.194	15.980
ln_total_debt	30896	2.196	4.275	0.000	13.017
non_fina	30896	0.838	0.230	0.000	1.000
Ln_gdp	30896	11.073	0.391	10.450	11.990
Ln_pop	30896	5.822	1.004	2.140	8.000
Fin_dev	30896	18.036	4.742	10.780	30.290

4.2 Benchmark Regression

Table 2 presents the Benchmark regression results of digital financial literacy on the pension financial asset allocation of elderly households. The first column of Table 2 shows that the marginal effect coefficient of digital financial literacy on the probability of elderly households participating in commercial pension insurance is 0.012, which is statistically significant at the 1% level, indicating that elderly households with higher digital financial literacy are more likely to participate in the retirement financial market. The second column of Table 2 shows that the coefficient of digital financial literacy on the extent of elderly households' participation in commercial pension insurance is 4.097, which is also statistically significant at the 1% level, indicating that improving digital financial literacy among elderly households is conducive to enhancing their participation in the pension insurance market. The third column of Table 2 presents a positive regression result of digital financial literacy on the number of types of financial assets held by elderly households, with a coefficient of 0.843. The fourth column shows a positive regression result of digital financial literacy on the degree of diversification of financial assets held by elderly households, with a coefficient of 0.117. Both are robust at the 1% statistical level, indicating that elderly households with higher digital financial literacy, due to their improved cognitive ability in understanding the digital economy and financial knowledge, have increased the diversification of their financial assets. In summary, the findings confirm Research Hypothesis H1.

Table 2. Empirical Result of Benchmark Regression

	Commercial Pension Insurance Holding Status		Diversification of Financial Assets	
	(1)	(2)	(3)	(4)
	Insurance	Insurance_premium	Num_fin	DI_index
DFL	0.012***	4.097***	0.843***	0.117***
	(0.029)	(0.487)	(0.012)	(0.004)
Control	Yes	Yes	Yes	Yes
PseudoR^2	0.1112	0.0741	0.1818	0.2819
N	30896	30896	30896	30896

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively (the same below). Numbers in parentheses are robust standard errors. The Probit model reports estimates of marginal effects (dy/dx) (the same below).

4.2 Endogeneity Test

Following existing literature, this paper selects the average digital financial literacy of other households in the same community (excluding the focal household itself) as the instrumental variable for the core explanatory variable. Households can enhance their digital financial literacy through community interactions and exchanges, but the digital financial literacy of other households in the community does not affect the pension financial asset allocation of the focal household. Therefore, this instrumental variable satisfies the requirements of relevance and exogeneity.

Table 3. Result of Endogeneity Test

	(1)	(2)	(3)	(4)
	Insurance	Insurance_premium	Num_fin	DI_index
	IV-Probit	IV-Tobit	IV-Tobit	IV-Tobit
DFL	0.22**	4.783***	0.574***	0.074***
	(0.106)	(1.745)	(0.04)	(0.012)
Control	YES	YES	YES	YES
N	30896	30896	30896	30896
		Wald test		
chi2(1)	86.15	41.47	50.36	13.94
Prob>chi2	0.000	0.000	0.000	0.000
The regression results of the first stage of the instrumental variable				
The average digital financial literacy of other households in the community			0.562***	
			(0.01)	
The F-statistic of the first stage			1014.83	

4.3 Mediation Effect Test

This paper refers to a study by Yin & Zhan(2018), which measures the financial accessibility of households through the average number of bank accounts opened by all sample households in each village or community. The first column of Table 4 shows that the regression coefficient between residents' digital financial literacy and household financial access is 0.11, which is statistically significant at the 1% level. This indicates that improving residents' digital financial literacy can help the elderly better adapt to the financial environment, thereby more actively participating in financial activities and enhancing the financial access of elderly households. Columns 2 to 5 of Table 4 show that the regression coefficients of financial access on the allocation of pension financial assets by

elderly households are 0.006, 1.642, 0.078, and 0.009, respectively, all of which are statistically significant at the 1% level. This indicates a positive correlation between the improvement of financial access for elderly households and their allocation of pension financial assets. Meanwhile, after incorporating the mediating variable into the model, the regression coefficient of residents' digital financial literacy decreases, indicating the presence of a partial mediating effect of financial access for elderly households as a mediating variable. Thus, research hypothesis H2 is supported.

To test the robustness of the mediation effect results, this paper further conducted a Bootstrap test for the mediation effect with 1,000 random samples. As shown in Table 3, the 95% confidence intervals of the indirect effects do not include zero, and the p-values are all statistically significant at the 1% level, indicating that the mediating effect of financial access for elderly households exists and the results of research hypothesis H2 are robust.

Table 4. Test results for the mediating effect of finance Accessibility

	(1)	(2)	(3)	(4)	(5)
	fin_Accessibility	Insurance	Insurance_premium	Num_fin	DI_index
DFL	0.11***	0.012***	4.086***	0.84***	`0.117***
	(0.01)	(0.002)	(0.487)	(0.012)	(0.004)
fin_Accessibility		0.006***	1.642***	0.078***	0.009***
		(0.001)	(0.258)	(0.006)	(0.002)
_Cons	-75.729***	-7.343	-7.991***	-0.4	0.043
	(5.422)	(17.841)	(1.1085)	(0.525)	(0.163)
Control	YES	YES	YES	YES	YES
N	30896	30896	30896	30896	30896
Pseudo R^2/R^2	0.5805	0.1112	0.0743	0.1837	0.2828
Bootstrap test		P value：0.000 95% Confidence Interval：[0.018,0.0274]	P value：0.000 95% Confidence Interval：[0.001,0.002]	P value：0.000 95% Confidence Interval：[0.008,0.013]	P value：0.000 95% Confidence Interval：[0.001,0.002]

As the digital era unfolds, families are engaging in a broader array of social interactions beyond traditional offline social networks. Therefore, drawing on the research of Li et al. (2019), this study constructs a comprehensive social interaction index using the logarithms of expenses for weddings and funerals, holiday gift money, transportation costs, and communication fees, based on Factor Analysis. The first column of Table 5 shows that the regression coefficient between residents' digital financial literacy and family participation in social interactions is 0.179, which is statistically significant at the 1% level, indicating that the enhancement of digital financial literacy significantly strengthens the level of family social interaction. Columns 2 to 5 of Table 5 display that the regression coefficients of family participation in social interactions on the allocation of pension financial assets by elderly households are 0.007, 1.721, 0.19, and 0.056, respectively, all of which are statistically significant at the 1% level, demonstrating that social interaction significantly promotes the allocation of pension financial assets by elderly households. Based on the aforementioned results, research hypothesis H3 is validated. This study further conducts a Bootstrap test for the mediating effect, with 1,000 random samples set. The results indicate that the coefficients are significant and the 95% confidence intervals of the indirect effects do not include zero, demonstrating the existence of a mediating effect of social interaction participation among elderly households. Consequently, the findings of research hypothesis H3 are robust.

Table 5. Test results for the mediating effect of social interaction

	(1)	(2)	(3)	(4)	(5)
	Social_Interaction	Insurance	Insurance_premium	Num_fin	DI_index

DFL	0.179***	0.011***	3.798***	0.805***	0.106***
	(0.007)	(0.002)	(0.49)	(0.012)	(0.004)
Social_Interaction		0.007***	1.721***	0.19***	0.056***
		(0.002)	(0.449)	(0.01)	(0.003)
_Cons	-4.465	-6.132	-61.762**	0.201	0.05
	(3.775)	(17.751)	(31.519)	(0.523)	(0.162)
Control	YES	YES	YES	YES	YES
N	30896	30896	30896	30896	30896
Pseudo R^2/R^2	0.3592	0.1144	0.0754	0.1855	0.2932
Bootstrap test		P value：0.000 95% Confidence Interval：[0.001,0.002]	P value：0.000 95% Confidence Interval：[0.002,0.011]	P value：0.000 95% Confidence Interval：[0.03,0.038]	P value：0.000 95% Confidence Interval [0.005,0.007]

4.4 Heterogeneity Analysis

Influenced by China's urban-rural dual structure, uneven resource distribution leads to disparities between urban and rural households in accessing pension financial assets or information. Therefore, this paper divides the sample into urban and rural samples to examine the relationship between residents' digital financial literacy and the allocation of pension financial assets by elderly households in both urban and rural areas. Additionally, to investigate the differences in the impact on different groups, this study also conducts a Fisher test. The research findings are presented in Tables 6 and 7.

Table 6. Result of Heterogeneity Analysis

	(1)	(2)	(3)	(4)
	Insurance		Insurance_premium	
	urban	rural	urban	rural
DFL	0.015***	0.006**	4.338***	3.169**
	(0.002)	(0.003)	(0.543)	(1.23)
Control	YES	YES	YES	YES
N	18789	11687	18789	11687
Pseudo R^2	0.1123	0.1013	0.0757	0.0539
Fisher's Exact Test Empirical p-value	0.087*		0.104	

Table 7. Result of Heterogeneity Analysis

	(1)	(2)	(3)	(4)
	Num_fin		DI_index	
	urban	rural	urban	rural
DFL	0.921***	0.564***	0.122***	0.123***
	(0.014)	(0.024)	(0.004)	(0.009)
Control	YES	YES	YES	YES
N	18789	11687	18789	11687
Pseudo R^2	0.1839	0.1396	0.3206	0.2113
Fisher's Exact Test Empirical p-value	0.000***		0.443	

The results indicate that digital financial literacy has a promotional effect on the allocation of pension financial assets by elderly households, regardless of whether they are from urban or rural samples. Moreover, the

promotional effect is more pronounced for urban households. This paper speculates that the possible reasons are as follows: First, urban digital infrastructure and financial services are more developed, providing the elderly with greater opportunities to engage with digital finance. An enhanced digital financial literacy can more directly assist them in utilizing digital platforms to compare, select, and purchase pension products. Second, the high cost of living and uncertainty of retirement expectations in cities motivate residents to plan for retirement more actively, including the allocation of commercial insurance. Improved digital financial literacy enables them to better understand products, assess needs, and make investments, thereby more actively configuring their pension assets.

5. Conclusions

This paper utilizes data from the 2017 and 2019 China Household Finance Surveys to investigate the impact of digital financial literacy on the allocation of pension financial assets by elderly households. The research findings indicate that: Firstly, digital financial literacy has a significant positive impact on the allocation of pension financial assets by elderly households. Specifically, households with higher levels of digital financial literacy are more inclined to participate in the pension financial market, allocate commercial pension insurance, and possess a more diversified portfolio of financial assets. To address potential endogeneity issues, this paper conducts an instrumental variable test, further validating the robustness of the research conclusions. Secondly, this paper explores two potential mechanisms through which digital financial literacy promotes the allocation of pension financial assets by enhancing the financial accessibility of elderly households and strengthening social interactions. This indicates that improved digital financial literacy helps elderly households better adapt to the financial environment. Finally, the results of the heterogeneity analysis show that the promotional effect of digital financial literacy on the allocation of pension financial assets is stronger for urban elderly households.

References

He, L., Feng, J., & Sato, H. (2008). The impact of pension insurance reform on household savings rate: Empirical evidence from China. *Economic Research Journal*, *43*(10), 117–130.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*(2), 263–291. https://doi.org/10.2307/1914185

Li, D., Ding, J., & Ma, S. (2019). The impact of social interaction on household participation in commercial insurance—An empirical analysis based on data from the China Household Finance Survey. *Journal of Financial Research*, *(7)*, 96–114.

Liang, L., & Ju, Z. (2025). Digital finance and retirement planning: The role of information cost reduction and trust enhancement channels. *Economic Modelling*, *144*, Article 106989. https://doi.org/10.1016/j.econmod.2024.106989

Lu, J., & Wei, X. (2021). Analytical framework, concepts, and pathways for addressing the digital divide among the elderly—From the perspectives of digital divide and knowledge gap theories. *Population Research*, *45*(3), 17–30.

Lu, T., & Tang, N. (2019). Social interactions in asset allocation decisions: Evidence from 401(k) pension plan investors. *Journal of Economic Behavior & Organization*, *159*, 1–14. https://doi.org/10.1016/j.jebo.2019.01.009

Markowitz, H. M. (1952). Portfolio selection. *The Journal of Finance*, *7*(1), 77–91. https://doi.org/10.2307/2975974

Morgan, P. J., Huang, B., & Trinh, L. Q. (2019). The need to promote digital financial literacy for the digital age. In *Realizing education for all in the digital age* (T20 Report, pp. 40–46).

Prasad, H., & Meghwal, D. (2018). Digital financial literacy: A study of households of Udaipur. *Global Journal of Advanced Research*, *4*(5), 201–209.

Setiawan, M., Effendi, N., Santoso, T., Dewi, V. I., & Sapulette, M. S. (2022). Digital financial literacy, current behavior of saving and spending, and its future foresight. *Economics of Innovation and New Technology*, *31*(4), 320–338. https://doi.org/10.1080/10438599.2020.1792596

Tony, N., Desai, et al. (2020). Impact of digital financial literacy on digital financial inclusion. *International Journal of Scientific and Technology Research*, *9*(1), 1911–1915.

van Rooij, M. C. J., Lusardi, A., & Alessie, R. J. M. (2012). Financial literacy, retirement planning and household wealth. *The Economic Journal*, *122*(560), 449–478. https://doi.org/10.1111/j.1468-0297.2012.02501.x

Wu, X., & Liu, B. (2024). Does social interaction influence the allocation of pension financial assets among

residents?—From the perspectives of the socio-interactive economic decision-making model and the I-C-I model. *Wuhan Finance*, *(12)*, 65–72+88.

Wu, Y., & Zhang, M. (2024). Financial literacy, risk attitude, and individual pension participation behavior. *Journal of Northwest University (Philosophy and Social Sciences Edition)*, *54*(3), 148–159.

Yang, J., Shi, J., & Xu, L. (2025). Effect of digital finance on household financial asset allocation: A social psychology perspective. *The North American Journal of Economics and Finance*, *78*, Article 102427. https://doi.org/10.1016/j.najef.2024.102427

Yi, X., Lai, K., Li, J., et al. (2025). Pension insurance policy reform and financial vulnerability of elderly households: Empirical evidence based on CHFS. *Finance Theory and Practice*, *46*(1), 27–35.

Yin, Z., & Zhang, H. (2018). Financial accessibility, internet finance, and household credit constraints—An empirical study based on CHFS data. *Journal of Financial Research*, *(11)*, 188–206.