

# The Impact of Attention to Financial Information on Households' Commercial Endowment Insurance Purchase Decisions — Based on CHFS Data

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**Abstract.** In the context of China's increasingly aging population, commercial endowment insurance has become an important support for multi-level endowment security system, but its family participation rate has been low for a long time. Based on the mixed cross-section data of CHFS from 2015 to 2019, this paper adopts two-way fixed effect model to systematically examine the impact of financial literacy represented by attention to financial information on whether households purchase commercial endowment insurance. The empirical results show that attention to financial information significantly improves the probability of household insurance participation, and it is still robust after controlling the characteristics of household head, household economic status and two-way fixed effects. After multiple robustness tests such as shrinking the sample, replacing the fixed effect and changing the estimation model, the conclusions remain unchanged. Heterogeneity results show that the positive effect is more significant in rural and eastern regions, but relatively limited in urban and central and western regions. Risk preference is a significantly positive moderating effect on the insurance participation decision. The mechanism analysis further reveals that attention to financial information promotes households to make insurance participation decisions by improving financial knowledge level and risk identification ability. Therefore, the article suggests building the differentiated financial education system, strengthening the construction of financial infrastructure, and improving the institutional environment to enhance residents' long-term confidence in participation.

**Keywords:** Attention to financial information, Commercial endowment insurance, Family insurance decision, Two-way fixed effects.

## 1. Introduction and Literature Review

### 1.1. Introduction

As a core part of the social security system, endowment insurance plays a fundamental role in coping with population aging, ensuring residents' quality of life in their old age, and maintaining social equity and stability. In recent years, there has been a continuous growth trend in the size of China's endowment insurance market, but the family participation rate is still insufficient, which is closely related to residents' insufficient awareness of endowment insurance products and limited decision-making ability, and has become a key bottleneck restricting the high-quality development of the endowment security system.

Academics have widely focused on the influence of financial literacy on households' financial decision-making. Among them, as an important proxy variable of financial literacy, "attention to financial information" reflects individuals' willingness and ability to actively acquire and interpret financial knowledge, and its mechanism of action on pension insurance decision-making is special. The long-term and complex characteristics of endowment insurance products require families to have continuous information processing ability, while the difference in attention to financial information may directly lead to the differentiation of families in the purchase decision of endowment insurance.

Although the existing research has confirmed the positive impact of financial literacy on household insurance participation, there is still a gap in the research on the relationship between "attention to financial information" and "whether the family buys endowment insurance." Based on this, this paper

focuses on the relationship between the two and carries out empirical analysis. The marginal contribution is mainly reflected in three aspects: First, financial literacy is manipulated into "attention to financial information" to more accurately capture the influence of individual financial knowledge acquisition behavior on endowment insurance decisions and make up for the generality of financial literacy measurement in existing studies. Secondly, this paper focuses on the pension insurance, a type of insurance with long-term attributes, and reveals the unique role of information factors in its decision-making process, which is different from the research perspective of general commercial insurance. Thirdly, by examining the binary choice of whether to purchase pension insurance, this paper provides a micro behavioral explanation for understanding the phenomenon of "limited participation" in the pension insurance market and provides a more targeted basis for policy making to enhance the level of residents' pension security.

## 1.2. Literature Review

With the aggravation of population aging, the importance of endowment insurance in family endowment planning has become increasingly prominent. In recent years, many scholars have conducted numerous studies concerning the association between financial literacy and choices regarding pension insurance. However, there is still a gap in the research on how financial literacy affects household pension insurance decisions.

On the basis of the survey data of the Retirement Preparedness Index of Chinese residents in 2018 conducted by Tsinghua University and Tongfang Global Insurance, Zhou and Wu observed that an individual's financial literacy level is positively correlated with the quality of their pension preparations: the higher it is, the lower their reliance on the government, and the greater the likelihood that they will take out commercial pension insurance. This shows that a significant role is played by financial literacy in promoting individuals' active pension preparation and commercial pension insurance purchase decisions [1]. From the perspective of cultural concepts, Zheng and Xu used CHFS 2015 data to find that traditional family concepts would inhibit the participation of urban residents in commercial endowment insurance, while the enhancement of financial literacy would help alleviate this phenomenon. This shows that financial literacy can not only directly affect the pension insurance decision but also have an indirect impact on the decision by changing cultural concepts [2].

In international research, taking the data of China's Household Finance Survey as a basis, Yang explored the effect that digital financial literacy exerts on the allocation of pension financial assets among elderly households, and found that the improvement of digital financial literacy significantly promoted the participation of elderly households in the pension financial market, increased the allocation of commercial pension insurance, and made the portfolio of financial assets more diversified [3]. Shulin et al. studied the significance of financial literacy in affecting the participation decision of China's new rural endowment insurance Plan (NRPP) and found that financial literacy exerts a positive effect on improving rural households' participation in NRPP, boost their participation that is both long-term and dynamic, and choose a higher level of pension contribution [4]. Liu et al. analyzed farmers' insurance participation from the perspective of financial literacy, and the results showed that financial literacy significantly promoted farmers' insurance participation and the types of participation [5].

In addition, based on the China Longitudinal Social Survey on Aging (CLASS) data, Han et al. found that financial literacy improved the willingness among the elderly to purchase endowment insurance, and children's cognition of pension responsibility could also positively regulate this relationship [6]. Ajemunigbohun and Azeez took university teachers in public higher education institutions in Lagos State as the research object and found that financial literacy and retirement planning have a significant positive impact on the demand for life insurance [7]. Guo et al. used data from the China Household Finance Survey (CHFS) to find that financial literacy is positively correlated with household participation in commercial insurance, and education level and trust toward commercial insurance also significantly affect market participation [8]. Based on Chinese survey data,

Chen and Chen found that individuals' overconfidence in financial literacy would promote their retirement planning behavior, while insufficient financial literacy would inhibit retirement planning [9]. He , using data from the 2015 China Household Finance Survey (CHFS), found that risk-averse households would reduce their demand for life insurance, while the increase of financial knowledge would significantly increase the participation and depth of family life insurance [10].

Although foreign studies generally agree that financial literacy significantly and positively affects retirement planning and the accumulation of wealth, there is relatively little research in this field in China. The existing research is mostly based on the survey data of some regions, and the sample is not representative enough. In addition, when discussing the influencing factors of commercial pension insurance, the key variable of financial literacy is often ignored. In view of this, this paper intends to use the data of China Household Finance Survey (CHFS) hosted by the China Household Finance Survey and Research Center of Southwestern University of Finance and Economics to deeply analyze the impact of financial literacy on Chinese residents' commercial endowment insurance decisions. The purpose is to further promote the progress of commercial endowment insurance in China and provide a beneficial supplement to the existing research.

## 2. Research Design

### 2.1. Data sources

The data utilized in this study are derived from the China Household Finance Survey (CHFS), which is carried out by the Survey and Research Center of China Household Finance at Southwestern University of Finance and Economics. As a national sampling survey project, CHFS covers most regions in Chinese mainland, using multi-stage stratified random sampling to guarantee the sample's representativeness in terms of geographical distribution, urban-rural structure, and income level, and the data authority has been widely recognized by the academic community.

The survey is updated every two years, and this study selects the data of 2015, 2017 and 2019, with a combined sample size of about 20,000 observations. The core basis for selecting the data of the above years is as follows: The three questionnaires all record variables such as family members' occupation types, pension insurance purchase status and financial information acquisition behavior in detail, which are highly matched with the core issues of "attention to financial information" and "whether the family purchases endowment insurance." In addition, the CHFS database contains rich information such as household demographic characteristics and assets and liabilities, which can provide comprehensive control variable support for the study and further ensure the rigor of the analysis.

### 2.2. Model design

This research adopts a two-way fixed effect model for analyzing the impact of financial literacy on family endowment insurance decisions, and the model is constructed as follows:

$$FL_{it} = \alpha + \theta PEI_{it} + \lambda control_{it} + \mu_i + \tau_t + \varepsilon_{it} \quad (1)$$

In the above equation, the subscript  $i$  represents the respondent household and  $t$  represents time.  $FL_{it}$  represents whether the  $i$  household purchases endowment insurance at time  $t$ ;  $PEI_{it}$  represents whether the  $i$  household has financial literacy at time  $t$ ;  $control_{it}$  is a series of control variables;  $\alpha$  is the intercept term,  $\mu_i$  is the family fixed effect  $\tau_t$  is the year fixed effect, and  $\varepsilon_{it}$  is the error term.  $\theta$  represents the effect of financial practitioners on the family endowment insurance decision, with a positive coefficient representing a positive effect and otherwise an inhibitory effect.

### 2.3. Variable description

Explained variable, Endowment insurance purchase decision ( $FL$ ): binary variable, the value of 1 means that the family has purchased commercial endowment insurance, and 0 means that it has not.

This variable directly reflects the willingness of households to participate in pension insurance and is the core indicator for studying pension financial decisions.

Core explanatory variable, financial literacy (*PEI*): binary variable, with the value of 1 indicating that a family member has financial literacy, and 0 indicating that no family member has financial literacy.

Control Variables, Age (*age*): continuous variable, measured by the actual age of the household head. Health status (*health*): ordered categorical variable, which is graded from 1 to 5 (1= very poor, 5= very good) according to the self-rated health status of the household head. Marital status (*marriage*): binary variable, with 1 indicating married and 0 indicating unmarried (including divorced, widowed, etc.). Gender (*gender*): binary variable, with 1 for male and 0 for female. The economic situation of the household (*income*) is represented by the logarithm of the total assets of the household. The descriptive statistics of the variables are shown in Table 1.

**Table 1.** Descriptive Statistical Analysis.

| VarName  | Obs   | Mean    | SD      | Min     | Max     |
|----------|-------|---------|---------|---------|---------|
| FL       | 27537 | 0.8779  | 0.3274  | 0.0000  | 1.0000  |
| PEI      | 18344 | 0.0896  | 0.2856  | 0.0000  | 1.0000  |
| age      | 27536 | 54.3643 | 12.8630 | 2.0000  | 99.0000 |
| health   | 27536 | 2.0631  | 1.2136  | 0.0000  | 5.0000  |
| marriage | 27537 | 0.8844  | 0.3197  | 0.0000  | 1.0000  |
| gender   | 27537 | 0.7960  | 0.4030  | 0.0000  | 1.0000  |
| income   | 26788 | 10.6122 | 1.3697  | -1.8938 | 16.3106 |

### 3. Empirical Research

#### 3.1. Benchmark regression

The results of the benchmark regression are shown in Table 2. It reports on the impact of financial literacy (*PEI*) on the endowment insurance purchase decision (*FL*). In Column (1), the core explanatory variable *PEI* is the sole inclusion, with year and region fixed effects controlled, and the results indicate that *PEI*'s coefficient is 0.027, which is significantly positive at the level of 5%, indicating that the improvement of financial literacy significantly increases the probability of households purchasing endowment insurance. After further adding control variables, for instance, the characteristics of the household head and the household economic status in Column (2), the coefficient of the core explanatory variable *PEI* remains 0.027 and is significant at the level of 5%, indicating that the positive impact exerted by financial literacy on the pension insurance decision is robust. In general, the adjusted R-squared of the model is 0.088, and the F values pass the significance test, indicating that the model setting is reasonable to some extent.

**Table 2.** Benchmark Regression.

|              | (1)                 | (2)                 |
|--------------|---------------------|---------------------|
|              | FL                  | FL                  |
| PEI          | 0.027**<br>(0.011)  | 0.027**<br>(0.011)  |
| age          |                     | 0.001*<br>(0.000)   |
| health       |                     | 0.012***<br>(0.004) |
| marriage     |                     | 0.020<br>(0.015)    |
| gender       |                     | -0.022**<br>(0.010) |
| income       |                     | 0.010***<br>(0.003) |
| _cons        | 0.893***<br>(0.001) | 0.723***<br>(0.047) |
| <i>N</i>     | 18317               | 17208               |
| F            | 6.067               | 5.598               |
| Year fixed   | √                   | √                   |
| Family fixed | √                   | √                   |
| r2_a         | 0.088               | 0.088               |

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , regression clustering to the family level, the same below.

### 3.2. Robustness test

The robustness check results regarding the impact of financial literacy (*PEI*) on the endowment insurance purchase decision (*FL*) are reported in the table, the reliability of the benchmark conclusion is verified in three different ways, and these results are presented in Table 3.

Column (1) is tested by narrowing the sample scope, and the coefficient of the core explanatory variable *PEI* is 0.034, which exhibits significant positivity at the 5% level and aligns with the direction of the benchmark regression, indicating that financial literacy's positive impact on the pension insurance decision is not interfered by the sample selection scope.

Column (2) uses the province fixed effect to alleviate the endogeneity problem, and the coefficient of *PEI* is 0.032, which exhibits significant positivity at the 1% level, the absolute value of the coefficient is greater than that of the benchmark regression, indicating that the impact of financial literacy is stronger after correcting the endogeneity bias.

After changing the estimation model in Column (3), the coefficient of *PEI* is 0.156 and significant at the level of 1%, which further supports the conclusion that the improvement of financial literacy will increase the probability of households purchasing endowment insurance.

**Table 3.** Robustness tests.

|                   | (1)                 | (2)                 | (3)                  |
|-------------------|---------------------|---------------------|----------------------|
|                   | FL                  | FL                  | FL                   |
| PEI               | 0.034**<br>(0.016)  | 0.032***<br>(0.007) | 0.156***<br>(0.051)  |
| _cons             | 0.736***<br>(0.064) | 0.534***<br>(0.025) | -1.470***<br>(0.126) |
| <i>N</i>          | 9871                | 17766               | 17766                |
| F                 | 6.480               | 48.598              |                      |
| Control variables | √                   | √                   | √                    |
| Year fixed        | √                   | √                   | √                    |
| Family fixed      | √                   | √                   | √                    |
| Province fixed    | ×                   | √                   | ×                    |
| r2_a              | 0.120               | 0.114               |                      |

## 4. Heterogeneity Analysis

### 4.1. Urban-Rural distribution

The urban-rural dual structure serves as a significant feature of China's economic and social development, and there exist notable discrepancies between urban and rural residents with regard to income level, social security coverage and financial literacy. These differences may lead to the different characteristics of the influence of financial literacy on decisions concerning pension insurance in urban and rural households. Therefore, this study conducts a heterogeneity analysis of the sample based on the urban-rural classification to ascertain whether the impact of financial literacy on pension insurance decisions differs among different residence groups.

Column (1) in Table 4 presents the sample regression results at the rural household level, with the coefficient of financial information attention (*PEI*) being 0.023 and significantly positive at the level of 10%. This shows that the improvement of financial literacy has significantly promoted the decision of rural households to purchase endowment insurance. This may be due to the relatively weak old-age security system in rural areas and limited access regarding financial information, so the marginal role of financial literacy is easier to emerge. Therefore, the improvement of attention to financial information can significantly enhance the willingness of rural households to purchase endowment insurance. Column 2 shows the sample regression results at the urban household level, and the coefficient of *PEI* is 0.019, which fails the significance test. This indicates that financial literacy does not have a significant impact on the pension insurance decisions of urban households. The pension insurance decisions of urban households may be more influenced by other factors, such as the high coverage rate of social pension insurance, the improvement of unit benefits, and the ease of information access in financial markets. These factors may replace the role of financial literacy, making the direct impact of attention to financial information on endowment insurance purchase decisions weak.

### 4.2. Geographical location

There exist notable gradient differences in the level of economic development and financial market development among the eastern, central and western regions of China. The sample, in this study, is split into the eastern, central, and western regions according to the provinces to deeply analyze the regional heterogeneity of the impact of financial literacy on pension insurance decisions. The regression results are exhibited in Table 4.

Table 4 includes Columns (3), (4), and (5), which respectively represent the regression results of the western, central, and eastern regions, the regression results show that the influence coefficient of financial literacy on pension insurance decision-making is the highest in the eastern region (0.044), and is significantly positive at the 5% level of significance; The central region is the second (0.017), but not significant; It is lowest and insignificant in the western region (0.006). This regional variation may reflect several factors:

First of all, the financial market in the eastern region is mature, information dissemination is efficient, and residents have a strong financial awareness. In the eastern region, financial literacy can more effectively promote insurance participation decisions through accurate acquisition of pension product information and understanding of long-term pension planning. In contrast, the central region is in the stage of economic transition, and the financial market and financial infrastructure are gradually improving but have not reached the level of the eastern region, and the role of financial literacy has not been fully released. The financial market development in the western region lags behind, the financial infrastructure is insufficient, and the channels for financial literacy to transform into endowment insurance decisions are relatively limited. The financial market in the western region is lagging behind, the financial infrastructure is insufficient, and the channels for financial literacy to be transformed into pension insurance decisions are relatively limited, and families may rely more on traditional pension methods than commercial pension insurance.

### 4.3. Moderating effects

This study further examines the effect of moderating variables on the relationship between financial literacy and pension insurance decisions. Columns (6) and (7) of Table 4 show the results of the moderating effect, and the moderating variables are the regression results of "whether to hold a credit card" and "personal risk preference" as the moderating variables respectively. The coefficient of the core explanatory variable in Column (6) is 0.024, which is significant at the level of 10%, indicating that financial literacy itself still has a positive influence on purchasing endowment insurance. The coefficient of the moderating variable (tiaojie1) is 0.021, which is not significant, indicating that credit card ownership does not significantly strengthen financial literacy, possibly because the correlation between credit card uses and endowment insurance decision is weak. In Column (7), the coefficient of the core explanatory variable is 0.005, which is not significant. The coefficient of the moderating variable (tiaojie2) is 0.014, which is significant at the level of 1%, indicating that families with higher risk preference are more inclined to purchase endowment insurance, and the direct effect of financial literacy is covered by the dominant effect of risk preference, that is, risk preference may be a more critical driving factor for decision-making.

To sum up, there is significant heterogeneity in the impact of financial literacy upon pension insurance decision-making: the effect is significant in rural and eastern regions, but not significant in urban and central and western regions; In the moderating effect, risk preference has a stronger direct impact on pension decision-making than financial literacy, while credit card ownership does not significantly strengthen the role of financial literacy.

**Table 4.** Heterogeneity analysis.

|                   | (1)      | (2)      | (3)      | (4)      | (5)      | (6)      | (7)      |
|-------------------|----------|----------|----------|----------|----------|----------|----------|
|                   | FL       | FL       | FL       | FL       | FL       | FL       | FL       |
| PEI               | 0.023*   | 0.019    | 0.006    | 0.017    | 0.044**  | 0.024*   | -0.005   |
|                   | (0.013)  | (0.020)  | (0.024)  | (0.021)  | (0.020)  | (0.013)  | (0.016)  |
| tiaojie1          |          |          |          |          |          | 0.021    |          |
|                   |          |          |          |          |          | (0.020)  |          |
| tiaojie2          |          |          |          |          |          |          | 0.014*** |
|                   |          |          |          |          |          |          | (0.005)  |
| _cons             | 0.682*** | 0.789*** | 0.740*** | 0.767*** | 0.668*** | 0.728*** | 0.726*** |
|                   | (0.060)  | (0.079)  | (0.087)  | (0.096)  | (0.079)  | (0.047)  | (0.047)  |
| N                 | 10353    | 6499     | 3631     | 4994     | 5853     | 17006    | 17190    |
| F                 | 4.382    | 1.149    | 0.840    | 1.801    | 3.824    | 5.190    | 6.024    |
| Control variables | √        | √        | √        | √        | √        | √        | √        |
| Year fixed        | √        | √        | √        | √        | √        | √        | √        |
| Family fixed      | √        | √        | √        | √        | √        | √        | √        |
| r2_a              | 0.085    | 0.091    | 0.058    | 0.100    | 0.118    | 0.088    | 0.087    |

## 5. Conclusions and Recommendations

Based on the CHFS mixed cross-section data from 2015 - 2019, this paper uses the two-way fixed effect model, takes "attention to financial information" as the proxy variable of financial literacy, and systematically examines its impact on the household commercial endowment insurance purchase decision. The empirical results show that: first, attention to financial information significantly positively promotes households to participate in commercial endowment insurance, and it is still robust after controlling household head characteristics, household economic status and two-way fixed effects; Second, the promotion effect is more prominent in rural and eastern regions but relatively limited in urban and central and western regions. Third, risk preference has a significantly positive moderating effect on purchase decisions, while credit card ownership does not significantly strengthen the marginal effect of financial literacy. Drawing on the research conclusions, this paper proposes the following policy recommendations.

First, this study suggests building a differentiated financial education system and promotion system. In view of the relative lack of financial information channels in rural areas, the government should rely on village committees, grass-roots financial institutions and digital platforms to carry out easy-to-understand pension insurance knowledge popularization activities.

Second, the article suggests strengthening the construction of financial infrastructure and narrowing the regional development gap. The central and western regions should speed up the layout of financial networks, the popularization of mobile payment and the construction of credit system to reduce the transaction cost of households participating in commercial endowment insurance.

Third, the moderating function of individual characteristics such as risk preference should be played. In the process of product design and marketing, insurance institutions should strengthen the identification and classification of customers' risk preferences and accurately match the product types.

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