

An Empirical Study on the Impact of Financial Literacy on Family Commercial Life Insurance Participation

Xiuya Tian

School of Business, Nanjing Normal University, Nanjing, 210023, China

Abstract

Based on the panel data of China household Finance Survey in 2013, 2015, 2017 and 2019, this paper uses a qualitative choice model to explore the impact of financial literacy on the breadth and depth of family commercial life insurance participation. The results show that financial literacy has a significant positive impact on the breadth and depth of family commercial life insurance participation. The education level, health status, family size and total assets of the head of household have certain promoting effects on family commercial life insurance participation. Further analysis of the influencing mechanism shows that the risk attitude of household head is an important channel through which financial literacy influences family commercial life insurance participation.

Keywords

Financial Literacy; Commercial Life Insurance; Qualitative Choice Model.

1. Introduction

In recent years, commercial life insurance, as a financial product with both guarantee and investment function, has attracted the attention of the majority of residents. Buying commercial life insurance families can not only avoid risks to a certain extent, but also meet the growing investment and financial needs of families.

The participation in family commercial life insurance is a kind of financial decision-making behavior. What decisions are made by families are affected by their financial literacy. At present, Chinese residents generally lack financial literacy, which may make it difficult for families to accurately measure the benefits and risks, thus leading to low participation in family commercial life insurance.

Therefore, this paper aims to study the impact of financial literacy on the participation of family commercial life insurance, and what the impact mechanism is, which is of certain significance to enhance the financial literacy of Chinese residents and promote the development of commercial life insurance in China.

2. Literature Review

2.1. Research on Financial Literacy

In recent years, more and more scholars have paid close attention to financial literacy. Noctor and Strading believe that financial literacy is the ability of people to use their financial knowledge to make decisions about the use and management of funds [1]. Most scholars commit to studying the impact of financial literacy on household asset selection. Lusardi (2008) believes that financial literacy significantly affects families in making the optimal financial decisions [2]. Both Choi (2011) and Chu (2016) found that higher financial literacy helped investors choose less risky portfolios [3], [4].

2.2. Research on Family Commercial Insurance Participation

Many scholars have found that the influencing factors of family business insurance participation can be roughly divided into demographic characteristics and family characteristics. Art Goldsmith (1983) found that the education, occupation and income had a significant impact on premium expenses [5]. Showers et al (1994) believe that the age of household heads, household population size and household income will positively affect family insurance needs [6]. Albouy (2001) believes that the more family income and assets, the more participation in home business insurance [7]. Lin et al (2017) concluded that improving financial literacy increases the family's willingness to participate in life insurance [8].

In conclusion, there are abundant studies on the impact of financial literacy on family asset selection, but little literature focuses on the impact of financial literacy on family commercial life insurance participation. Therefore, this paper with the micro subject as the research object, in 2013,2015,2017 and 2019 four China family financial survey panel data, using qualitative selection model to explore the financial literacy family commercial life insurance participation breadth and depth, and further analyze the influence mechanism, aims to enhance our residents financial literacy and promote the further development of commercial life insurance in China.

3. Data Source and Variable Selection

3.1. Data Sources

The data used in this paper were derived from four panel data in CHFS2013,2015,2017 and 2019 with a sample size of 30,052.

3.2. Variable Selection

3.2.1. Explained Variable

There are two explanatory variables : whether the family participates in commercial life insurance, if the family participates in commercial life insurance, own takes 1, or 0. The other explanatory variable is the participation of family commercial life insurance which is measured by the premiums paid by families last year. This variable is represented by cost.

3.2.2. Explanatory Variable

The explanatory variable in this paper is the financial literacy which is represented by *fin_literacy*. This paper measures financial literacy based on three questions in the CHFS questionnaire about interest rate calculation, inflation expectations, and investment risk perception. The metric is constructed using the iterative master factor method.

3.2.3. Intervening Variable

The mediation variable in this paper is the householder risk attitude. Using the relevant questions in the CHFS questionnaire, the answer of the householder was assigned, "unwilling to take any risk", "slightly low risk, slightly low return items", "average risk, average return items", "slightly high risk, slightly higher return items", "high risk, high return items" were assigned 1-5, respectively.

3.2.4. Controlled Variable

The control variables selected in this paper include demographic characteristic variables and household characteristics. Specifically including: age: the age of the head of the household; age2: The ared of age was introduced because the effect of age on family insurance decisions may not be linear, then divide the square of the age by 100; gender: if the householder is male, gender takes 1, otherwise 0; education: the literacy level of the householder was asked in the CHFS questionnaire, The value of "no school" is assigned 0, "primary school" 6, "middle school" 9, "high school / technical secondary school / vocational high" 12, "college / vocational" 15,

“university undergraduate” 16, “master” 19, “doctoral” 22; marriage: Married and remarried people were assigned 1 and 0 in other cases; health: The answers of “very good”, “good”, “general”, “bad” and “very bad” are worth 1-5 respectively; work: if the head of the household works in an organization or institution, work 1, otherwise 0. size: total population in the household; asset1: total assets of the family; debt1: total household debt; rural: rural families take 1, and urban families take 0.

3.3. Descriptive Statistics

Table 1. Descriptive statistics of the variables

VARIABLES	N	mean	sd	min	max
own	30052	0.039	0.194	0	1
cost	30052	405.563	4942.78	0	514000
fin_literacy	30052	-0.063	0.545	-0.715	1.820
risk	30052	2.255	1.671	1	6
age	30052	56.667	12.976	2	102
age2	30052	33.796	14.873	0.040	104.040
gender	30052	0.807	0.395	0	1
education	30052	8.372	3.924	0	22
marriage	30052	0.878	0.327	0	1
health	30052	2.96	1.09	1	5
work	30052	0.058	0.235	0	1
size	30052	3.561	1.726	1	19
asset1	30052	711078.647	1296614.258	1299	9811000
debt1	30052	33912.284	110783.85	0	1500000
rural	30052	0.492	0.5	0	1

In the sample of families selected in this paper, families buying commercial life insurance accounted for about 3.900%, indicating that the probability of holding commercial life insurance in China is low, and there is a lot of room for improvement in the penetration rate of commercial life insurance in China. The average financial literacy is negative, indicating that the financial literacy of Chinese residents is very low and needs to be enhanced urgently.

4. Empirical Results and Analysis

4.1. The Basic Regression

The impact of financial knowledge on the breadth and depth of home business life insurance engagement was examined using the Probit and Tobit models, as shown in Table 2 below.

It can be seen from Table 2: financial literacy has passed the significance test of 1% level, and the coefficient is positive, indicating that financial literacy has a positive impact on the breadth and depth of family commercial life insurance participation.

In the Probit and Tobit models, both household age and age square items passed the 1% significance test, with significantly positive household age and significantly negative age square items, indicating that household commercial life insurance participation increases first and then decreases as households age. The improvement of the education level of household holders promotes the participation of family commercial life insurance. Furthermore, the study found that the healthier the household head, the more household population, assets and liabilities, the more likely they are to participate in home business life insurance. Head of household working in the public sector will reduce the breadth and depth of home business life insurance participation.

Table 2. Results of the Probit and Tobit model regression

MODEL	Probit Model	Tobit Model
VARIABLES	own	cost
fin_literacy	0.023*** (0.003)	349.316*** (35.401)
age	0.006*** (0.001)	56.270*** (10.841)
age2	-0.007*** (0.001)	-65.382*** (10.241)
gender	-0.005 (0.003)	-21.214 (44.897)
education	0.003*** (0.000)	35.218*** (5.893)
marriage	0.007 (0.005)	121.874* (66.476)
health	-0.002* (0.001)	-94.205*** (16.264)
work	-0.012*** (0.005)	-123.503** (61.372)
size	-0.005*** (0.001)	-1.354 (11.691)
asset1	6.23e-09*** (8.11e-10)	8.55e-05*** (1.12e-05)
debt1	9.69e-09 (8.51e-09)	4.47e-04*** (0.000)
rural	0.001 (0.003)	-100.478** (39.527)

Note: *, **, *** are significant at 10%, 5%, and 1%, respectively; the estimated marginal effect is reported in the table; the numbers in parentheses are the standard error of coefficients. similarly, hereinafter.

4.2. Intermediary Effect Test

Table 3. Results of the mediation effect test

MODEL	Probit Model	Regression Model	Probit Model	Tobit Model	Regression Model	Tobit Model
VARIABLES	own	risk	own	cost	risk	cost
fin_literacy	0.023*** (0.003)	0.078*** (0.023)	0.023*** (0.003)	349.316*** (35.401)	0.078*** (0.023)	6,704.980*** (662.549)
risk			0.001* (0.001)			567.984*** (208.527)

As can be seen from Table 3 above, the gradual return of causality is significant at 1%, indicating that financial literacy will affect the breadth and depth of household commercial life insurance participation by affecting the risk attitude.

5. Endogeneity Test

Financial literacy may have endogenous problems, which can lead to biased regression results. To solve the endogenous problem, the instrumental variable selected in this paper is the degree

of household attention to economic and financial information, expressed by attention. Using the IV-Probit and IV-Tobit models, respectively, the estimated results are shown in Table 4 below. The F values estimated in the first stage are all much greater than 10, and the p-values are all 0, indicating that there is no weak tool variable problem. The Wald values passed the significance test at the 1% level, and the coefficient of financial literacy remained significantly positive at the 1% level.

Table 4. Endogeneity test results

MODEL	IV-Probit		IV-Tobit	
Stage	1	2	1	2
VARIABLES	fin_literacy	own	fin_literacy	cost
attention	-0.111***		-0.113***	
	(0.000)		(0.000)	
fin_literacy		0.834***		19672.410***
		(0.000)		(0.000)
Control variables	controlled	controlled	controlled	controlled
F value	795.260		868.270	
Prob>F	0.000		0.000	
Wald Chi2(1)		17.620		25.430
Prob>chi2		0.000		0.000

6. Robustness Test

To make the conclusions more reliable, the following methods are also used for the robustness test.

First, change the way that financial literacy is measured. Using three questions: interest rate calculation, inflation expectation and investment risk cognition, assume that the respondents answer a correct question as 1, add up the number of correct answers to these three questions to obtain new financial knowledge, and then conduct a regression test.

Second, since family members over a certain age may be excluded from the coverage, the sample size of household holders over 65 years was excluded and the Probit and Tobit regression was repeated.

The test results are shown in Table 5 below. The regression results of each variable are basically consistent with the regression results, so the regression results are robust.

Table 5. Robustness test results

Test Method	Test Method 1		Test Method 2	
MODEL	Probit Model	Tobit Model	Probit Model	Tobit Model
VARIABLES	own	cost	own	cost
fin_literacy_2	0.009***	147.792***		
	(0.002)	(20.942)		
fin_literacy			0.027***	397.872***
			(0.004)	(53.669)
age	0.006***	54.315***	0.008***	118.073***

	(0.001)	(10.801)	(0.002)	(28.547)
age2	-0.007***	-64.254***	-0.010***	-133.534***
	(0.001)	(10.206)	(0.002)	(30.575)
gender	-0.005	-27.088	-0.003	11.310
	(0.003)	(44.962)	(0.005)	(70.035)
education	0.004***	42.216***	0.004***	62.916***
	(0.000)	(5.892)	(0.001)	(9.807)
marriage	0.008*	129.870*	0.008	202.486*
	(0.005)	(66.488)	(0.008)	(110.819)
health	-0.002*	-95.880***	-0.001	-115.282***
	(0.001)	(16.267)	(0.002)	(25.410)
work	-0.012**	-114.535*	-0.016***	-225.954**
	(0.005)	(61.466)	(0.006)	(88.193)
size	-0.006***	-4.065	-0.008***	-39.673*
	(0.001)	(11.669)	(0.002)	(21.443)
asset1	6.75e-09***	9.31e-05***	7.28e-09***	1.25e-04***
	(8.11e-10)	(1.12e-05)	(1.27e-09)	(1.80e-05)
debt1	8.88e-09	0.000434***	1.60e-08	0.001***
	(8.55e-09)	(0.000110)	(1.18e-08)	(0.000)
rural	-0.002	-139.433***	-0.001	-112.873*
	(0.003)	(39.241)	(0.004)	(61.020)

7. Conclusion and Revelation

This paper empirically examines the impact of financial literacy on the breadth and depth of family commercial life insurance participation by using the Probit model and the Tobit model, respectively.

The conclusion is as follows: Financial literacy has a significant positive impact on the breadth and depth of family commercial life insurance participation. The education level, health status, family size and total assets of the head of household have certain promoting effects on family commercial life insurance participation. Further analysis of the influencing mechanism shows that the risk attitude of household head is an important channel through which financial literacy influences family commercial life insurance participation. Furthermore, the robustness test was performed in various ways, all of which verified the reliability of the conclusions.

Based on the above conclusions, the following enlightenment is obtained: First, enhance the financial literacy of residents to play the positive impact of financial literacy on the participation of family commercial insurance. Second, enhance the residents' awareness of insurance, improve the possibility of families to buy commercial life insurance. Third, increase investment in education and promote the growth of total household income and total assets to strengthen the breadth and depth of household business life insurance holdings.

References

- [1] Noctor, M., and Strading, R. Financial literacy: A Discussion of Concepts and Competences of Financial Literacy and Opportunities for Its Introduction into Young People's Learning[R]. London : Report National Westminster Bank, National Foundation for Education Research, 1992.
- [2] Lusardi, A., and Tufano, P. Debt Literacy, Financial Experience, and Over indebtedness[J]. Journal of Pension Economics and Finance,2015,14(4):332-368.
- [3] Choi, J.J., Laibson, D., and Madrian, B.C.\$100 Bills on the Sidewalk: Suboptimal Investment in 401(k) Plans[J]. Review of Economics and Statistics,2011,93(3):748-763.
- [4] Chu, Z. Financial Literacy, Portfolio Choice and Financial Well-Being[J]. Social Indicators Research, 2016, 132(2):799-820.
- [5] Art Goldsmith. Household Life Cycle Protection: Human Capital versus Life Insurance.[J]. The Journal of Risk and Insurance , Mar., 1983, Vol. 50, No. 1 (Mar., 1983), pp. 33-4.
- [6] Showers V E, Shotick J A. The Effects of Household Characteristics on Demand for Insurance: A Tobit Analysis [J]. Journal of Risk and Insurance, 1994, 61.
- [7] Albouy, Francois-Xavier, Blagoutine, et al. Insurance and Transition Economics: The Insurance Market in Russia. [J]. Geneva Papers on Risk & Insurance Issues & Practice, 2001.
- [8] Lin C, Hsiao Y J, Yeh C Y. Financial literacy, financial advisors, and information sources on demand for life insurance [J]. Pacific-Basin Finance Journal, 2017, 43:218.