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What is the Role of Financial Literacy Playing in the Happiness of Farmer: Evidence from 2019 CHFS

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Abstract

Based on the 2019 CHFS (China Household Financial Survey), our paper empirically explores whether farmers' financial literacy will affect their happiness. We find that financial literacy can effectively improve the happiness of farmers. The reason is that financial literacy can improve farmers' availability of financing to expand current consumption and prevent the adverse effects induced by financial participation. In addition, to confirm the above conclusions, the 2SLS was used for the endogeneity test, and the robustness test was also carried out with the variable replacement and PSM.

Keywords

Financial Literacy; Farmer's Happiness; PSM.

1. Introduction

"The great goal of all human efforts is to achieve happiness." The pursuit of happiness has been the ultimate goal of all individual efforts and social development, which does not differ from nationality, culture, or ideology. However, like most economies in the world, the "Easterlin paradox" (Easterlin, 1974) also appeared in China with the rapid economic development, that is more apparent in rural areas. The happiness of farmers is directly related to the quality of social development and the long-term stability of the country. So, the happiness of farmers is a significant research topic.

Most scholars agree that finance can improve the welfare of urban residents by smoothing consumption and allocating resources across time horizons. But it is not certain that finance will improve farmers' happiness in China. Financial literacy involves the ability of farmers to use financial products to improve their welfare and plays a very important role in the impact of financial products on farmers' happiness. However, the existing researches on the financial literacy of Chinese farmers seldom pay attention to its impact on the happiness of farmers. In view of this, this paper verifies the impact of farmers' financial literacy on their happiness. This is of enlightening significance for improving the welfare of farmers and other vulnerable groups, and also contributes to the construction of an inclusive financial system.

The rest of our paper is structured as follows. The second chapter is a literature review, sorting out the research literature on financial literacy and farmers' happiness. Chapter three is about hypothesis. The fourth chapter introduces the data, variable selection and empirical model used in this paper. The fifth chapter is the empirical results; The sixth chapter summarizes the research of this paper.

2. Literature References

Happiness is the self-evaluation of the life quality, that is the comprehensive evaluation of their life satisfaction and various aspects. There are abundant theories to explain personal happiness, such as value theory, judgment theory, expected value theory, goal theory, personal-situation interaction theory, self-determination theory (Deci&Ryan, 1985). So far,80% of scholars adopt

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the Licort five-scale to measure happiness (Ferguson et al.,2015). And scholars have proved that this measurement method is effective enough not to affect authenticity and comparability (Conceicao& Bandura, 2011). Almost many demographic variables such as gender, age, income, and health status have significant impacts on happiness (Wang Shilong, 2020). While household characteristics are also important factors to happiness (Djankov et al. 2018). In addition, macroeconomic variables such as economic growth, income gap, inflation, and unemployment rate also significantly affect residents' happiness (Paul&Guilbert,2013; Deaton, 2012). In addition, studies show that the number of children in a family, Internet application, and other factors also have an impact on subjective well-being (Hughes,2018).

Financial literacy is defined as the ability of individuals to implement rational assessments and rational decisions in allocating and managing wealth, which can directly affect the financial behavior of residents and the efficient use of financial resources (Noctor,1992). There has much research proving that financial literacy promotes an individual's financial behavior well-being (Awais et al.,2016). Currently, research on financial literacy has been extended to the field of rural finance, but still focuses on exploring the relationship between financial literacy and financial behavior (Jappelli&Padula,2013).

A review of the above literature shows that there is little literature that explores whether financial literacy improves the well-being of farm households from the demand side. It so happens that this question is the primary issue that needs to be clarified for the promotion of digital inclusion in rural areas and the ultimate question for financial authorities to promote digital inclusion in rural areas. Given this, our paper delves into the question of whether financial literacy improves the well-being of farm households.

3. The Research Hypothesis

Combining the existing theories and studies related to financial literacy and happiness the research hypotheses will be listed in this section.

First, the financial literacy of farms helps them to better utilize vested financial products (Boatman & Evans, 2017), which can greatly alleviate the financing constraints and financial exclusion of farms. So, the farmer can obtain sufficient cash flow to support smoothing consumption across periods and expanding total consumption in the long run. Second, financial literacy can enhance farmers' development expectations and address the short-term financial constraints faced in development (Fernandes et al., 2014). Farmers' financial literacy can increase their risk tolerance and thus better capture good future development opportunities (Drexler et al., 2014). Finally, the financial literacy of farmers can reduce the financing costs, improve risk management, and curb irrational financial behaviors (Sabri&Maurice, 2010). Farmers with high financial literacy can better manage risk and allocate assets, thus enhancing the happiness of farmers (Awel&Azomahou, 2015). Otherwise, financial literacy constitutes the human capital of farmers, which can increase self-confidence and security (Gui et al, 2021). From the above analysis, the following research hypothesis can be derived.

Hypothesis: the financial literacy of farmers can increase their happiness.

4. Data and Method

4.1. Data Source

The data used in our study are derived from the 2019 "China Household Finance Survey" by CHFS (China Household Finance Survey and Research Center). CHFS uses the three-stage, stratified, proportional to population size (PPS) sampling method to select samples nationwide.

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4.2. Model Construction

To empirically test the research hypothesis, we construct the following Oprobit model.

$$O\,\Pr\,obit\left(happiness\right)=\alpha_0+\alpha_1 Fl+\sum\beta_j X_j+\varepsilon \quad (1)$$

Where happiness is the explanatory variable; Fl is the explanatory variable financial literacy in our paper; and Xj is the control variable. If the coefficient of α1 is significant, the research hypothesis will be proved.

4.3. Variable Description

Explained variables: Happiness is the explained variable. We use the questions about happiness (In general, do you feel happy now? 1. very happy, 2. happy, 3. average, 4. unhappy, 5. very unhappy"). If "1" was selected, the value was assigned to 5; if "2" was selected, the value was assigned to 4; if "3" was selected, the value was assigned to 3; if "4" is selected, the value is assigned to 2; if "5" is selected, the value is assigned to 1, so the variable is discrete.

Explanatory variables: financial literacy and government trust. we use a combination of four questions on financial literacy from the questionnaire, which relate to the sample's financial calculation ability, inflation perception, risk perception, and financial market knowledge. The Cronbach's alpha of the value assigning according to the four questions above was 0.831, the KMO value was 0.732, Bartlett's test was significant, and the component matrix loadings of each rotation were greater than 0.70. Therefore, it is reasonable to use the questions as a factor analysis. Then we calculate the Fl.

Control variables: To obtain more accurate regression results, we introduce the following control variables. We introduce the Gender, Age, Education, Health, and Marriage of farmers. Meanwhile, the household characteristics such as Income, Asset, Debt, and Pay are added to the regression. Otherwise, the Esaias (Ecological environment satisfaction) and Ed (Development expectation) are also considered.

5. Empirical Results

5.1. Descriptive Statistics

Table 1. Statistical description of the results

Variables	Average	Standard	Minimum	Median	Maximum	Obs
Happiness	1.98	0.52	1	2.522	5	7568
Fl	0.001	0.65	-1.168	0.02	1.478	7568
Gender	0.54	0.67	0	1	1	7568
Age	42.92	12.11	22	48	67	7568
Education	7.02	3.90	0	6	22	7568
Health	3.42	0.96	0	2	4	7568
Marriage	0.64	1.38	0	1	1	7568
Income	3.66	3.24	0	3.44	58.31	7568
Asset	42.64	90.48	0.24	19.46	765.52	7568
Debt	3.52	8.29	0	0	87	7568
Pay	5.51	9.37	0.52	2.92	68.37	7568
Esatis	2.62	1.10	1	3	4	7568
Ed	3.38	2.15	0	2	4	7568

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The descriptive statistics of the variables used in our paper are shown in Table 1 below. We find that the mean value of farmers' happiness is 1.98 and the mean value of financial literacy is 0.001, which indicate that both the happiness and the financial literacy of farmer is low.

5.2. Baseline Regression

Table 2. Baseline results

	(1)	(2)	(3)	(4)
	Oprobit	Oprobit	2SLS	OLS
Varibles	Happiness	Happiness	Happiness	Happiness
Fl	0.087***	0.071***	0.084*	0.065***
	(3.088)	(2.794)	(1.731)	(2.598)
Gender	0.031**	0.046**	0.045*	0.046**
	(2.196)	(2.300)	(1.895)	(2.196)
Age	-0.047***	-0.049***	-0.049***	-0.049***
	(-5.101)	(-9.119)	(-7.494)	(-8.243)
Education	-0.001	-0.003	-0.002	-0.002
	(-0.208)	(-0.600)	(-0.352)	(-0.520)
Health	0.105***	0.116***	0.102***	0.104***
	(5.292)	(0.394)	(3.214)	(7.254)
Marriage	0.054***	0.066***	0.062***	0.063***
	(6.512)	(8.668)	(6.888)	(6.685)
Income	0.041***	0.035***	0.040***	0.031***
	(3.782)	(4.253)	(2.572)	(5.235)
Asset	0.000**	0.000**	0.000***	0.000**
	(2.143)	(2.339)	(2.906)	(2.253)
Debt	-0.024**	-0.029**	-0.003***	-0.002**
	(-2.069)	(-2.232)	(-2.749)	(-2.144)
Pay	-0.002*	-0.003*	-0.002	-0.003*
	(-1.713)	(-1.813)	(-0.982)	(-1.715)
Esatis	0.195***	0.195***	0.191***	0.195***
	(6.360)	(4.400)	(-5.048)	(4.702)
Ed	0.123**	0.164**	0.204**	0.158**
	(2.166)	(2.222)	(2.307)	(2.205)
Region control	No	Yes	Yes	Yes
Pseudo R2	0.040	0.040	0.051	0.046
Observations	7568	7568	7568	7568
The firstatge F value			177.046	
Afl			0.240***	
			(11.682)	

Note: *, **, *** indicate significant at the 10%, 5%, and 1% levels, respectively; t-value are in parentheses, as are the tables that follow.

The baseline regressions are shown in Table 2. The coefficients of financial literacy in columns (1)-(2) are significantly positive, which proves the research hypothesis. The above baseline

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regression results may have endogeneity problems due to measurement errors or omitted variables. We use the instrumental variables to test the endogeneity of the baseline regressions. In this part, Afl (the financial literacy of farm households in the same village except for the sample) is used as the instrumental variable in the 2SLS model. we use the IV-probit model, the results are listed in Table 2 (3) below. The coefficients of Afl in the first stage regression results are significant, and the coefficient of other variables are consistent with the baseline regression. Meanwhile, the F-value is greater than 15. Therefore, the baseline regression is significant considering the endogenous issues.

In addition, we use the OLS method to verify the robustness. The regression results are shown in Table 2 (4), and the results of the following regression and the coefficients of the core variables in the regression results are consistent. So, the baseline regression results are considered to be consistent.

5.3. Analysis based on PSM

This part adopts the propensity score matching method to verify the above-mentioned bias reduction of the observed data. As shown in Table 3, the results are consistent with the baseline regression regardless of the matching method. The matched regressions show that the happiness of farmers in the high financial literacy group is higher compared to the low financial literacy group, and is significant at the 1% level. Combined with the results of the instrumental variables regression, this demonstrates that the baseline regression results are robust.

Table 3. Analysis results of PSM

Matching method	Processing group	Control group	Standard	ATT	t
Neighborhood Matching (1:1)	4.122	4.516	0.058	-0.082***	-3.43
Neighborhood Matching (1:3)	4.122	4.516	0.054	-0.081***	-3.78
Radius Matching	4.122	4.502	0.047	-0.083***	-3.67
Marten's matching	4.122	4.512	0.042	-0.082***	-3.58

6. Conclusion

Based on the 2019 CHFS (China Household Finance Survey and Research Center) survey data, we explore whether financial literacy improves the happiness of farm households with the Oprobit model. we prove that financial literacy really can improve the happiness of farmers.

According to the findings, we can deduce the following policy indication. First, it is necessary to embed financial education into the cultural construction of rural residents and promote financial knowledge popularization education in rural areas and communities. Secondly, combined with the Internet and other new media, financial knowledge education is carried out in a more popular and easy way to improve their risk tolerance and investment ability which can help accumulate the agricultural investment. Finally, financial education is important to make the farmer utilize the finance better and effectively promote their happiness.

Conflicts of Interest

Authors have no conflicts of interest to disclose.

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