Financial literacy and household financial resilience

Taixing Liu[a], Miaomiao Fan[b], Youwei Li[c], Pengpeng Yue[b, *]

[a] *Business School, Beijing Technology and Business University, Beijing 100048, China*

[b] *School of Economics, Beijing Technology and Business University, Beijing 100048, China*

[c] *University of Hull, Cottingham Road, Hull, HU6 7RX, UK*

Abstract

Rising uncertainty has drawn researchers' attention towards households' anti-risk capacities. Using data from the China Household Finance Survey covering 2019 to 2021, this study investigates the impact of financial literacy on household financial resilience. We measure household financial resilience by analyzing inter-period variations in liquid assets pre- and post-Covid-19, coupled with constructing a sensitivity index. Our analysis indicates that financial literacy significantly enhances financial resilience through the wealth effect and risk mitigation effect. This study highlights the critical role of financial literacy in mitigating risks and accelerating recovery from financial disturbances.

Keywords

Financial literacy; Household financial resilience; Wealth effect; Risk mitigation effect

JEL classification: D10; G50; G53; I31

1. Introduction

The outbreak of the Covid-19 pandemic has significantly intensified academic focus on household resilience and anti-risk capacity. Resilience is characterized by the capacity to withstand risks and recover from shocks (Van Der Vegt et al., 2015), and prevent poverty following various shocks (Barrett & Constas, 2014; Ciss´e & Barrett, 2018). Research on household resilience encompasses a wide range, including financial, developmental, poverty-related, energy, and psychological resilience. Among these, financial resilience is paramount in counteracting shocks, reflecting the ability to manage unexpected economic challenges (Sakyi-Nyarko et al., 2022; Clark & Mitchell, 2022). Recent studies highlight the significance of measuring and identifying the determinants of financial resilience (Salignac et al., 2019; Sakyi-Nyarko et al., 2022;

Kass-Hanna et al., 2022). Motivated by these studies, our research aims to deepen and enrich understanding in the field of household financial resilience.

Household financial resilience is recognized as a dynamic concept that refers to a household's capacity to withstand negative economic shocks over time (Barrett & Constas, 2014; Ciss´e & Barrett, 2018). The literature typically employs two approaches to measure this variable. Qualitative indicators are used to reflect a household's resilience against financial disturbances (Lusardi et al., 2021; Sakyi-Nyarko et al., 2022; Clark & Mitchell, 2022), focusing on aspects like subjective judgments in accessing emergency funds or the manageability of current debt levels according to respondents. Alternatively, objective measures are employed, using actual values rather than subjective judgments, like savings and indebtedness (Salignac et al., 2019; Kass-Hanna et al., 2022). Despite offering valuable insights, both approaches come with significant drawbacks. Qualitative indicators may suffer from a lack of precision and biases due to subjective factors, such as personality and preferences. Objective indicators address these biases but often encounter challenges related to endogeneity in empirical analyses, owing to the multifaceted factors involved. The common challenge for both approaches is discrepancies in indicator weights, with no literature conclusively determining which is more effective (Ainuddin & Routray, 2012), and the contradiction of using static measures to depict a dynamic concept (Salignac et al., 2019).

Recent studies have aimed to clarify the determinants of household financial resilience. Pomeroy et al. (2020) found that the absence of access to formal financial services impedes households' ability to effectively manage financial adversity, while financial inclusion plays a pivotal role in mitigating vulnerabilities and enhancing financial resilience. Sakyi-Nyarko et al. (2022) provided evidence emphasizing the positive impact of formal accounts and savings on strengthening financial resilience. Clark & Mitchell (2022) observed that the receipt of stimulus checks correlated with greater financial resilience. Lusardi et al. (2021) and Klapper & Lusardi (2020) proposed that financial literacy enhances financial resilience, while their studies lacked

empirical support and an in-depth exploration of mechanisms, particularly during economic shocks. Kass-Hanna et al. (2022) investigated the impact of digital and financial literacy on resilience-enhancing behaviors such as savings, borrowing, and risk management, but did not provide a precise measurement of financial resilience, nor did they assess its impact in the context of economic disturbances. Our study distinguishes itself by developing a dynamic indicator for assessing financial resilience and systematically exploring the impact of financial literacy on financial resilience amidst economic disturbances.

This study adopts a new approach, drawing inspiration from research in regional economics (Martin, 2012; Holl, 2018; Faggian et al., 2018). This approach facilitates the evaluation of household financial resilience by analyzing inter-period variations in household liquid assets pre- and post-macroeconomic shocks. A household showing a liquidity growth rate surpassing the national average in such periods exemplifies greater resilience. Liquid assets are essential, not only covering daily expenses but also offering essential liquidity during emergencies. Furthermore, these assets act as a direct indicator of a household's financial stability during economic shocks (Bufe et al., 2022). Through this new approach, the study overcomes limitations in existing research on financial resilience indicators, offering a dynamic measure of household financial resilience.

Financial literacy significantly influences financial decision-making (Grohmann, 2018), financial well-being (Choung et al., 2023; Kass-Hanna et al., 2022), and risk-taking behaviors (Korkmaz et al., 2021). Research exploring the impact of financial literacy on financial resilience, particularly in the context of economic disturbances, is limited. Although Lusardi et al. (2021), Klapper & Lusardi (2020), and Kass-Hanna et al. (2022) recognize the critical role of financial literacy in enhancing financial resilience, their studies fall short in examining the measurement of financial resilience and investigating its causality and underlying mechanisms. Our study seeks to fill these gaps by developing a dynamic approach to measure financial resilience and providing strong evidence for causality that previous studies have largely neglected.

Using data from the China Household Finance Survey (CHFS) from 2019 to 2021, our study investigates the impact of financial literacy on household financial resilience. We explore the underlying mechanisms, concentrating on the wealth effect and risk mitigation effect, by analyzing their impact on portfolio returns, employment status, entrepreneurial activities, insurance coverage, and savings behaviors. Our results demonstrate that financial literacy increases property and business income, expands insurance coverage, elevates precautionary savings, and decreases unemployment numbers, thus enhancing financial resilience. The robustness of our baseline results is confirmed through the application of instrumental variable estimation methods and adjustments to the definitions of key variables, underscoring the robustness and reliability of our conclusions.

This study contributes to the literature in several ways. First, we develop a financial resilience indicator that reflects a household's capacity to withstand negative economic shocks over time, according closely with the dynamic concept of financial resilience. This approach overcomes the limitations of static measures that evaluate a household's financial resilience at a single point in time (Salignac et al., 2019; Sakyi-Nyarko et al., 2022; Clark & Mitchell, 2022). Salignac et al. (2019) emphasized the shortcomings of static measures and the significance of a dynamic measure of financial resilience. We adopt inter-period variations in liquid assets pre- and post-macroeconomic shocks as a measure of household financial resilience, thus bridging the gap between its definition and concept. Second, existing studies have not directly demonstrated the causal relationship between financial literacy and household financial resilience, nor have they comprehensively explored the underlying mechanisms, according to Klapper & Lusardi (2020) and Lusardi et al. (2021). Our research fills this gap by offering empirical evidence that financial literacy enhances household financial resilience, and clarifying the mechanisms through both the wealth effect and risk mitigation effect.

2. Methodology

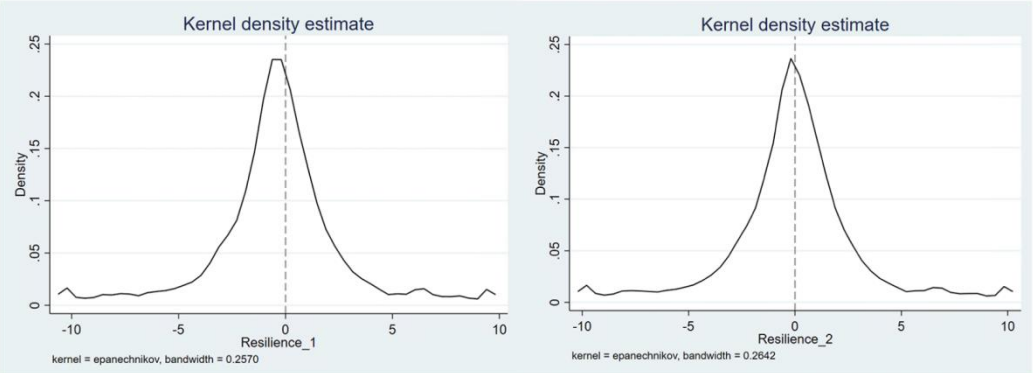
2.1. Data and variables

We use the China Household Finance Survey (CHFS) data from 2019 to 2021 to investigate the relationship between financial literacy and household financial resilience. The CHFS is a national sampling survey conducted by the Survey and Research Center for China Household Finance. The survey collects detailed information on assets, debt, income, consumption, insurance, human capital, financial literacy, and subjective evaluation. We control for the impact of Covid-19 pandemic on financial resilience by using the Chinese provincial cumulative confirmed cases data as of July 1, 2021.

The dependent variable is household financial resilience. Referring to Martin (2012) and Faggian et al. (2018), who measured regional economic resilience through inter-period variations in employment and constructed a sensitivity index, we measure household financial resilience through inter-period variations in liquid assets compared to the national average, pre- and post-Covid-19. The formula is as follows:

$$F\,\mathrm{Re}\,silience_{i,\Delta t} = \left[ln\left(Liquid_{i,2021}\right) - \ln\left(\mathrm{Liquid_{n,2021}}\right)\right] - \left[\ln\left(\mathrm{Liquid_{i,2019}}\right) - \ln\left(\mathrm{Liquid_{n,2019}}\right)\right] \quad (1)$$

We employ two calibers of liquid assets. The broad caliber includes overall financial assets, including cash, deposits, financial products, stocks, funds, derivatives, etc. The narrow caliber consists solely of cash and deposits. Figure 1 shows the distribution diagram of financial resilience based on these two calibers of liquid assets.



(a) Wide caliberfinancial resilience (b) Narrow caliberfinancial resilience

Figure1: The distribution of wide and narrow caliber financial resilience

The variable of interest is financial literacy. Referring to Korkmaz et al. (2021), we develop an index using the factor analysis method, based on questions about inflation, interest rates, and financial information. We standardized the financial literacy index at the county level.

The control variables include age, age squared, gender, marital status, years of education, health score, engagement in social medical insurance and social endowment insurance, family size, the percentages of children under 16 and of the elderly over 60, logarithmic income, community per capita income, number of Covid-19 confirmed cases per million people at province-level as of July 1, 2021, we conducted a logarithmic transformation, and the province-fixed effect. Table 1 reports summary statistics for variables used in our analyses.

Table 1: Summary Statistics

This table shows summary statistics of the main variables.

	Obs.	2019		2021		Mean diff.
		Mean	S.D.	Mean	S.D.	
Financial Literacy	11,516	0.3931	0.367	0.4979	0.3482	0.1048
Resilience_1	11,516			-0.3544	3.1528	
Resilience_2	11,516			-0.0509	3.1688	
Cumulative Cases	11,516			2.7865	1.0214	
Age	11,516	56.0696	13.0029	57.1648	13.0719	1.0952
Age-sq/100	11,516	33.1287	14.5541	34.3868	14.9155	1.2581
Male	11,516	0.7685	0.4218	0.6956	0.4602	-0.0729
Married	11,516	0.8657	0.341	0.8566	0.3505	-0.0091
Education	11,516	9.2139	4.0295	9.3801	4.0039	0.1662
Health	11,516	3.2616	0.9994	3.3815	0.999	0.1199
Medical Insurance	11,516	0.9473	0.2235	0.9383	0.2405	-0.009
Endowment Insurance	11,516	0.834	0.3721	0.8372	0.3692	0.0032
Family Size	11,516	3.1687	1.5467	3.1408	1.5511	-0.0279
Child	11,516	0.1063	0.1647	0.0955	0.1583	-0.0108
Elderly	11,516	0.3461	0.4097	0.3765	0.4143	0.0304
Total Income	11,516	85,609.35	95,936.87	88,756.24	113,209.1	3,146.89
Per Capita Income	11,516	31,639.42	28,292.21	31,928.06	25,600.56	288.64

2.2. Model

We establish the following difference model to investigate the impact of financial literacy on household financial resilience.

$$FResilience_{i,\Delta t} = \alpha + FLiteracy_{i,\Delta t}\beta + X_{i,\Delta t}\gamma + Z_{c,\Delta t}\delta + \eta_p\psi + \varepsilon_{i,\Delta t} \quad (2)$$

Where i denotes a household, c denotes a community, p denotes a province, and t denotes a year. Δt represents the difference in each variable between 2021 and 2019, capturing the inter-period variations.$\mathrm{FResilience}_{i,\Delta t}$represents the difference in inter-period variations of liquid assets between a household and the national average. $\mathrm{FResilience}_{i,\Delta t}$ represents inter-period variations in the financial literacy of a household i. $X_{i,\Delta t}$ represents inter-period variations in head- and household-level control variables. $\mathrm{Z}_{c,\Delta t}$ represents inter-period variations in community-level control variables. η_p represents the provincial fixed effect and the cumulative confirmed case of the Covid-19 pandemic. $\varepsilon_{i,\Delta t}$ is an error term.

In addition, we employ the fixed effect model to assess the robustness of Eq.2. The formula of Eq.3 is as follows:

$$Liquid_{i,t} - \mathrm{Liquid}_{n,t} = \alpha + FLiteracy_{i,t}\beta + X_{i,t}\gamma + Z_{c,t}\delta + \mu_i + \lambda_t + \varepsilon_{i,t} \quad (3)$$

$Liquid_{i,t}$ represents the liquid assets of household i in year t. $Liquid_{n,t}$ denotes the liquid assets at the national average in year t. μ_i and λ_t correspond to the household- and year-fixed effects, respectively. The definitions of other variables remain consistent with those in Eq.2.

3. Results

3.1. Benchmark results

Using Eq. 2, we estimate the impact of financial literacy on household financial resilience. Table 2 presents the baseline results. Columns (1) and (2) measure financial resilience using wide- and narrow-caliber liquid assets, respectively. The findings indicate that financial literacy significantly enhances household financial resilience. The outcome from column (1) shows that a 0.1 increase in financial literacy results in

a 9.57% increase in the growth rate of liquid assets compared to the national average. Columns (3) and (4) employ the fixed effect model, incorporating household and year dummies. The results consistently demonstrate that financial literacy enhances financial resilience.

Table 2: Financial literacy and household financial resilience

This table shows the results of the impact on financial resilience of financial literacy. *, **, and *** indicates significance level at 10%, 5%, and 1%, respectively.

	(1) Resilience_1	(2) Resilience_2	(3) Liquid_1	(4) Liquid_2
Financial literacy	0.9571***	0.9564***	0.9733***	0.9714***
	(0.0824)	(0.0823)	(0.0841)	(0.0838)
Age	−0.0228	-0.0376*	-0.0221	-0.0382*
	(0.0223)	(0.0224)	(0.0226)	(0.0227)
Age Squared	0.0127	0.0269	0.0123	0.0278
	(0.0207)	(0.0208)	(0.0212)	(0.0212)
Male	0.0132	0.0172	0.0131	0.0158
	(0.0652)	(0.0658)	(0.0663)	(0.0669)
Married	0.4037***	0.3582***	0.4158***	0.3706***
	(0.1242)	(0.1256)	(0.1273)	(0.1286)
Education	0.0314**	0.0305**	0.0314**	0.0309**
	(0.0144)	(0.0144)	(0.0146)	(0.0147)
Health	0.1320***	0.1354***	0.1308***	0.1349***
	(0.0311)	(0.0312)	(0.0317)	(0.0318)
Medical Insurance	0.6102***	0.6106***	0.5966***	0.5963***
	(0.1178)	(0.1179)	(0.1196)	(0.1200)
Endowment Insurance	0.3436***	0.3351***	0.3298***	0.3198***
	(0.0804)	(0.0804)	(0.0815)	(0.0815)
Family Size	0.0337	0.0287	0.0061	0.0002
	(0.0340)	(0.0338)	(0.0349)	(0.0347)
Child	0.0066	0.0677	0.0570	0.1272
	(0.3275)	(0.3271)	(0.3332)	(0.3329)
Elderly	-0.1612	-0.1465	-0.1385	-0.1210
	(0.1763)	(0.1768)	(0.1799)	(0.1800)
Total Income	0.0980***	0.0926***	0.1703***	0.1704***
	(0.0195)	(0.0194)	(0.0255)	(0.0252)
Per Capita Income	-0.0057	0.0029	0.0768	0,0702
	(0.0247)	(0.0253)	(0.0611)	(0.0612)
Cumulative Cases	0.1180	0.1473		
	(0.1384)	(0.1405)		
Constant	-1.8625***	-1.7013***	-17.2996***	-16.5626***

	(0.6261)	(0.6301)	(0.9060)	(0.9068)
Province	Yes	Yes		
Household			Yes	Yes
Year	Yes	Yes	Yes	Yes
N	11,516	11,516	23,032	23,032
R-sq	0.033	0.032	0.033	0.041

3.2. Mechanism results: wealth effect

The baseline results demonstrate the positive impact of financial literacy on enhancing financial resilience. Further research is required as the investigation of the mechanism in the context of the economic disturbances proves inadequate. Our exploration aims to elucidate the mechanism by analyzing how diversifying income streams and reducing losses are closely linked to financial resilience against economic disturbances.

Financial literacy can alleviate the negative impact of adverse economic disturbances through the wealth effect. It facilitates the comparison and understanding of financial products (Li et al., 2020), as well as to actively adjust investment portfolios (Bianchi, 2018), thus helping to prevent property loss and seize efficient investment opportunities. Financial literacy can help individuals manage financial risks during market fluctuations. Additionally, financial literacy facilitates access to debt with lower credit costs (Disney & Gathergood, 2013). Financial knowledge supports households in formulating financial plans for business activities (Garc´ıa-P´erez-de-Lema et al., 2021), significantly reducing the adverse impact of unanticipated economic disturbances. Moreover, households with higher financial literacy exhibit enhanced cognitive and social communication skills, potentially assisting individuals in maintaining job market presence amidst an unfavorable economic situation.

The primary categories of household income encompass wage, agricultural and business, property, and transfer income. We investigate the wealth effect of financial literacy across various income sources, with findings presented in Table 3. We assess property income by examining investment diversification and calculating returns on portfolios of varying risks. We assess wage and business income by analyzing the

number of unemployment and operating profit of business activities, respectively. We found that financial literacy fosters investment diversification, enhances the returns of low- and medium-risk financial assets and the operating profits of enterprises, and decreases unemployment. Therefore, the wealth effect is critical in enhancing financial resilience through financial literacy.

Table 3: Mechanism test: wealth effect

This table shows the results of the impact on various categories of financial assets, including the return of low-, medium-, and high-risk financial products, along with the profit of business activities, and the number of unemployed. *, **, and *** indicate significance level at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial literacy	0.0338***	0.0564**	0.0383**	-0.0128	0.0649**	-0.0398**
	(0.0099)	(0.0239)	(0.0167)	(0.0188)	(0.0298)	(0.0199)
Age	0.0151***	-0.0158**	0.0078	-0.0140**	-0.0186**	0.0030
	(0.0036)	(0.0068)	(0.0071)	(0.0060)	(0.0076)	(0.0063)
Age Squared	-0.0146***	0.0151**	-0.0078	0.0119**	0.0164***	-0.0016
	(0.0033)	(0.0059)	(0.0066)	(0.0059)	(0.0060)	(0.0057)
Male	0.0001	-0.0127	-0.0112	-0.0136	0.0004	0.0256
	(0.0105)	(0.0235)	(0.0198)	(0.0202)	(0.0264)	(0.0158)
Married	0.0069	0.0555*	-0.0353	-0.0197	0.0000	-0.0226
	(0.0160)	(0.0325)	(0.0375)	(0.0221)	(0.0426)	(0.0286)
Education	-0.0024	0.0033	0.0030	-0.0024	-0.0045	-0.0061*
	(0.0016)	(0.0030)	(0.0029)	(0.0028)	(0.0047)	(0.0034)
Health	0.0043	0.0073	0.0098	-0.0092	-0.0123	0.0009
	(0.0036)	(0.0086)	(0.0073)	(0.0078)	(0.0110)	(0.0076)
Medical Insurance	0.0120	-0.0384	0.0058	0.0031	0.0326	-0.0439
	(0.0106)	(0.0274)	(0.0180)	(0.0178)	(0.0407)	(0.0277)
Endowment Insurance	0.0115	-0.0061	0.0021	-0.0181	-0.0614**	-0.0622***
	(0.0075)	(0.0158)	(0.0171)	(0.0150)	(0.0299)	(0.0197)
Family Size	0.0037	-0.0056	0.0086	0.0036	-0.0120	0.1905***
	(0.0037)	(0.0084)	(0.0077)	(0.0067)	(0.0136)	(0.0107)
Child	0.0162	0.1010	-0.1015	-0.2407***	0.2102	-0.3691***
	(0.0451)	(0.1304)	(0.0661)	(0.0806)	(0.1321)	(0.0841)
Elderly	-0.0052	-0.0448	0.0306	0.0231	0.0335	0.3315***
	(0.0222)	(0.0463)	(0.0670)	(0.0429)	(0.0457)	(0.0442)
Total Income	0.0082	0.0028	0.0100	0.0001	0.0063	-0.0056
	(0.0054)	(0.0108)	(0.0128)	(0.0110)	(0.0160)	(0.0048)

Per Capita Income	-0.0019	0.0160	0.0162	0.0089	0.0660***	-0.0048
	(0.0050)	(0.0162)	(0.0143)	(0.0121)	(0.0238)	(0.0054)
Cumulative Cases	0.0179	-0.1261***	-0.1998***	-0.0975**	0.0397	0.0149
	(0.0207)	(0.0410)	(0.0451)	(0.0443)	(0.0374)	(0.0330)
Constant	-0.0931	10.8829***	9.5420***	8.8575***	10.6983***	0.0840
	(0.0985)	(0.2278)	(0.2173)	(0.2073)	(0.3148)	(0.1473)
Province	Yes	Yes	Yes	Yes	Yes	Yes
N	11,516	11,516	11,516	11,516	11,516	11,516
R-sq	0.010	0.009	0.013	0.007	0.012	0.068

3.3. Mechanism results: risk mitigation effect

Recent studies indicate that risk management behaviors are crucial for building resilience (Kass-Hanna et al., 2022). Financial literacy may facilitate risk management decisions through precautionary saving and insurance participation. Precautionary saving is pivotal in absorbing and resisting the adverse impacts of financial stressors, with the accumulation of emergency funds amidst shocks being considered a vital factor (Sakyi-Nyarko et al., 2022; Kass-Hanna et al., 2022). Financial literacy enhances the accumulation of emergency funds, promotes financial stability (Babiarz & Robb, 2014), and aids in resisting negative impacts from adverse shocks. Insurance serves as another effective tool to mitigate risks by transferring the potential loss to the insurance companies through pre-risk locking. Financial literacy may promote participation in commercial insurance by assisting individuals in comparing insurance products and clarifying the associated risks and responsibilities (Pomeroy et al., 2020).

We investigate the risk mitigation effects through commercial insurance participation and precautionary saving motives, with the results shown in Table 4. The dependent variables in columns (1) and (2) are the proportion of and the dummy variable for commercial insurance participation, respectively. The dependent variable in column (3) concerns the precautionary saving motive, which is quantified by the proportion of cash and deposits in financial assets. The findings reveal that financial literacy significantly contributes to commercial insurance participation and strengthens the motivation for precautionary saving. The results demonstrate that financial literacy

promotes better risk management behaviors.

Table 4: Mechanism test: risk mitigation effect

This table shows the results of the impact on commercial insurance participation and precautionary saving motives of financial literacy. *, **, and *** indicates significance level at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)
	Insurance proportion	Insurance participation	Precautionary saving
Financial literacy	0.0207***	0.0305***	0.0810**
	(0.0060)	(0.0101)	(0.0378)
Age	-0.0007	-0.0016	-0.0311***
	(0.0017)	(0.0031)	(0.0119)
Age Squared	-0.0000	0.0006	0.0337***
	(0.0016)	(0.0028)	(0.0107)
Male	0.0002	-0.0027	0.0197
	(0.0054)	(0.0090)	(0.0312)
Married	-0.0084	-0.0187	-0.0645
	(0.0092)	(0.0146)	(0.0599)
Education	-0.0006	-0.0011	0.0056
	(0.0009)	(0.0016)	(0.0062)
Health	-0.0004	-0.0014	-0.0002
	(0.0023)	(0.0038)	(0.0146)
Medical Insurance	-0.0025	0.0171	0.0896*
	(0.0078)	(0.0128)	(0.0536)
Endowment Insurance	0.0043	0.0050	-0.0076
	(0.0053)	(0.0087)	(0.0371)
Family Size	-0.0012	0.0263***	-0.0178
	(0.0025)	(0.0045)	(0.0157)
Child	0.0116	0.0060	-0.0057
	(0.0268)	(0.0453)	(0.1575)
Elderly	-0.0599***	-0.0728***	0.0329
	(0.0138)	(0.0221)	(0.0813)
Total Income	-0.0001	-0.0016	-0.0068
	(0.0022)	(0.0036)	(0.0094)
Per Capita Income	0.0015	0.0024	0.0079
	(0.0022)	(0.0036)	(0.0119)
Cumulative Cases	-0.0013	0.0018	0.0179
	(0.0124)	(0.0192)	(0.0629)
Constant	-0.0002	-0.0147	-0.1251
	(0.0539)	(0.0873)	(0.2901)
Province	Yes	Yes	Yes
N	11,516	11,516	9,909
R-sq	0.007	0.012	0.009

4. Robustness tests

4.1. Instrumental variable approach

Referring to Korkmaz et al. (2021), we use the average financial literacy levels of other households within the same community as the instrumental variable. A valid instrumental variable must satisfy two crucial criteria simultaneously: the relevance between the instrumental variable and the endogenous variable, and the instrumental variable's exogeneity. The instrumental variable selected for our analysis fulfills these criteria. First, households within the same community engage in social interactions, which establish a significant link between the financial literacy levels of a given household and those of other households within the same community. Therefore, the requirement of relevance is satisfied. Second, the financial literacy of other households within the same community is unlikely to directly impact a given household's financial resilience or its capacity to withstand economic disturbances, thereby meeting the requirement of instrumental variable's exogeneity. The first and last two columns of Table 5 employ the two-stage least squares approach (TSLS) and the combined fixed effect and instrumental variables method (FE-IV), respectively. The results of Table 5 confirm the robustness of the baseline results.

Table 5: Robustness check: instrumental variable approach

This table shows the results of the impact on financial resilience of financial literacy using the instrumental variable approach. *, **, and *** indicates significance level at 10%, 5%, and 1%, respectively.

	(1) Resilience_1	(2) Resilience_2	(3) Liquid_1	(4) Liquid_2
Financial literacy	2.0604***	2.0260***	2.9594***	2.8968***
	(0.6509)	(0.6504)	(0.7389)	(0.7399)
Age	-0.0263	-0.0411*	-0.0306	-0.0464**
	(0.0225)	(0.0227)	(0.0234)	(0.0234)
Age Squared	0.0164	0.0305	0.0210	0.0362*
	(0.0209)	(0.0210)	(0.0218)	(0.0217)
Male	-0.0046	-0.0001	-0.0231	-0.0193
	(0.0669)	(0.0673)	(0.0701)	(0.0705)
Married	0.4252***	0.3792***	0.4362***	0.3906***
	(0.1248)	(0.1262)	(0.1296)	(0.1308)
Education	0.0248*	0.0240	0.0210	0.0208

	(0.0147)	(0.0148)	(0.0152)	(0.0152)
Health	0.1259***	0.1296***	0.1187***	0.1232***
	(0.0318)	(0.0319)	(0.0330)	(0.0330)
Medical Insurance	0.5715***	0.5730***	0.5335***	0.5352***
	(0.1204)	(0.1205)	(0.1247)	(0.1249)
Endowment Insurance	0.3329***	0.3249***	0.3038***	0.2947***
	(0.0814)	(0.0813)	(0.0837)	(0.0835)
Family Size	0.0273	0.0223	-0.0035	-0.0090
	(0.0343)	(0.0341)	(0.0356)	(0.0353)
Child	-0.0352	0.0277	-0.0038	0.0683
	(0.3324)	(0.3316)	(0.3442)	(0.3428)
Elderly	-0.1293	-0.1159	-0.1157	-0.0990
	(0.1769)	(0.1772)	(0.1843)	(0.1839)
Total Income	0.0962***	0.0908***	0.1595***	0.1596***
	(0.0207)	(0.0205)	(0.0266)	(0.0263)
Per Capita Income	-0.0038	0.0049	0.0245	0.0197
	(0.0254)	(0.0259)	(0.0668)	(0.0666)
Cumulative Cases	0.2125	0.2390		
	(0.1486)	(0.1503)		
Constant	-2.3012***	-2.1277***	-16.9925***	-16.2630***
	(0.6698)	(0.6727)	(0.9452)	(0.9427)
Province	Yes	Yes		
Household			Yes	Yes
Year	Yes	Yes	Yes	Yes
N	11,457	11,457	22,944	22,944
R-sq	0.016	0.017		

4.2. Changing the definition of key variables

Referring to Faggian et al. (2018), we measure financial resilience through constructing a new sensitivity index. The formula is as follows:

$$FResilience = (\frac{Liquid_{i,2021}}{Liquid_{n,2021}})/(\frac{Liquid_{i,2019}}{Liquid_{n,2019}}) \quad (4)$$

We reassess the impact of financial literacy on financial resilience. Columns (1) and (2) of Table 6 show that financial literacy has significantly enhanced household financial resilience. Besides, we aggregate the number of correct answers about financial literacy to reassess the impact of financial literacy. Columns (3) and (4) of Table 6 reveal that financial literacy significantly enhances household financial resilience, thereby confirming the robustness.

Table 6: Robustness check: Changing the definition of key variables

This table shows the results of the impact on financial resilience of financial literacy by changing the definition of key variables. *, **, and *** indicate significance levels at 10%, 5%, and 1%, respectively.

	(1) Resilience_1	(2) Resilience_2	(3) Resilience_1	(4) Resilience_2
Financial literacy	0.6743***	0.6560***	1.2324***	1.6273***
	(0.0874)	(0.0878)	(0.2065)	(0.2765)
Age	-0.0199	-0.0347	0.0167	-0.0294
	(0.0223)	(0.0225)	(0.0708)	(0.0996)
Age Squared	0.0096	0.0238	-0.0412	-0.0083
	(0.0208)	(0.0209)	(0.0634)	(0.0888)
Male	0.0217	0.0258	0.0818	0.2240
	(0.0654)	(0.0660)	(0.1662)	(0.2226)
Married	0.3959***	0.3505***	0.1726	0.0994
	(0.1249)	(0.1264)	(0.3460)	(0.4692)
Education	0.0340**	0.0331**	0.0483	0.0572
	(0.0144)	(0.0145)	(0.0398)	(0.0522)
Health	0.1355***	0.1390***	0.2009***	0.2577***
	(0.0312)	(0.0313)	(0.0735)	(0.0996)
Medical Insurance	0.6322***	0.6328***	0.2642	0.3931
	(0.1182)	(0.1183)	(0.2522)	(0.3506)
Endowment Insurance	0.3482***	0.3399***	0.3570*	0.4438
	(0.0808)	(0.0807)	(0.2140)	(0.2909)
Family Size	0.0371	0.0322	0.2215**	0.3107**
	(0.0343)	(0.0340)	(0.0936)	(0.1253)
Child	0.0356	0.0967	-0.6235	-0.9924
	(0.3282)	(0.3281)	(0.9261)	(1.2381)
Elderly	-0.1698	-0.1552	0.1717	0.1403
	(0.1774)	(0.1779)	(0.5055)	(0.6837)
Total Income	0.0993***	0.0939***	0.1121*	0.2038***
	(0.0193)	(0.0193)	(0.0591)	(0.0612)
Per Capita Income	-0.0048	0.0038	-0.1311*	-0.1451
	(0.0245)	(0.0252)	(0.0779)	(0.0976)
Cumulative Cases	0.0609	0.0897	0.0170	0.1857
	(0.1386)	(0.1407)	(0.3826)	(0.4812)
Constant	-1.6135**	-1.4493**	3.3393*	2.7391
	(0.6267)	(0.6311)	(1.8257)	(2.2839)
Province	Yes	Yes	Yes	Yes
N	11,516	11,516	10,670	10,670
R-sq	0.026	0.025	0.011	0.010

5. Conclusion

Using data collected pre- and post-Covid-19 pandemic, this study investigates the impact of financial literacy on household financial resilience. Through analyzing inter-period variations in liquid assets and developing a sensitivity index, we demonstrate that financial literacy is critical in enhancing household financial resilience. Furthermore, we provide evidence for the mechanism through the wealth effect and risk mitigation effect. Our findings indicate that improving financial literacy contributes to strengthening financial resilience. However, a significant portion of the Chinese population exhibits limited financial literacy (Niu et al., 2020). Solely relying on individual efforts to enhance financial literacy may be inadequate, given the cognitive limitations and resource constraints faced by many. Consequently, it becomes crucial for the government to formulate and execute a comprehensive national strategy to improve financial literacy, involving various stakeholders in an endeavor to improve financial literacy levels community-wide.

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