Review of Economic Assessment

Homepage: https://www.anserpress.org/journal/rea

Digital literacy and farm household property income-Based on China Rural Revitalization Comprehensive Survey (CRRS) data

Shumin Wang [a], Caiping Qu [a,*]

[a] *Economic Research Center of the Upper Yangtze River, Chongqing Technology and Business University, Chongqing, China*

ABSTRACT

The long-term low level of residents' property income is not only detrimental to the wealth accumulation of farmers, but also aggravates the urban-rural income imbalance. This paper uses an empirical approach to explore the mechanism of digital literacy's impact on farm households' property income. The main findings of this paper are as follows: (1) Digital literacy and its sub-dimensions can significantly increase the level of farmers' property income, with the strongest contribution of digital information acquisition literacy. (2) Digital literacy has a greater boosting effect on the property income of farm households with low education level heads, low physical capital households, and villages with better economic development. (3) Digital literacy increases the property income of farm households mainly through expanding social capital and improving risk preferences. The innovation of this paper is to construct a digital literacy evaluation index system based on a micro perspective that fits the behavioral characteristics of farmers, and reveal the impact and mechanism of digital literacy and its sub-dimensions on farmers' property income. This study expands the theoretical research related to digital literacy and farmers' property income, and provides a scientific basis for the choice of strategies to enhance the digital literacy of the majority of farmers, which is important for promoting wealth accumulation of farmers and achieving common prosperity.

KEYWORDS

Digital Literacy; Property Income; Wealth Accumulation; Digital Economy

* Corresponding author: Caiping Qu
E-mail address: qucaiping20222@163.com

ISSN 2972-3515
doi: 10.58567/rea02030004

Received 22 September 2023, Accepted 10 October 2023, Available online 31 October 2023

1. Introduction

(Background) Farmers' income is an important indicator of the level of rural economic development and farmers' quality of life, and a key factor in promoting common prosperity. In recent years, China's farmers' income has maintained a relatively fast growth, but it also faces challenges such as slowing income growth, unreasonable income structure, and limited growth space (Jiang et al., 2021; Zhang et al., 2021; Li et al., 2022). Among them, property income, an important component of farmers' income, has been low for a long time, which not only restricts the growth of farmers' income, but also aggravates the income imbalance between urban and rural areas.The No. 1 document of the central government released in China in 2023 clearly pointed out that it is necessary to broaden the channels for farmers to increase their income and get rich, and give farmers more property rights and interests. Therefore, how to optimize the structure of farmers' income, especially to promote the growth of property income, is of great significance to steadily enhance farmers' wealth accumulation and promote the common prosperity of farmers in rural areas.

(Gap) In the digital era, digital technology has been widely integrated with various fields of economy and society (Luo et al., 2023).And the threshold of rural households to obtain property income has been relatively lowered, and resources are more abundant. However, how to accurately identify and seize opportunities and convert them into property gains is closely related to family digital literacy. Relevant studies show that human capital factors such as the education level, digital skills mastery level and financial literacy level of the head of a peasant household will have a direct or indirect impact on the property income of a peasant household (Feng & Guo, 2023; Zhang & Zhang, 2023). As an important part of human capital, digital literacy provides an effective way to promote the growth of farmers' property income. On the one hand, digital literacy can improve farmers' cognition level of digital technology and strengthen farmers' ability to participate in the financial market and benefit from it (Shan et al., 2022). On the other hand, farmers with high digital literacy have stronger resource information integration ability and are more likely to engage in non-agricultural employment, entrepreneurship and other behaviors (Wang et al., 2022; Tang et al., 2023). However, the existing literature rarely studies the impact of digital literacy on the property income of rural households, and rarely pays attention to the difference of the impact of digital literacy and its sub-dimensions on the property income of farmers with different characteristics. It is important to systematically explore the above questions in order to reasonably guide digital literacy to promote the growth of farmers' property income and improve the accumulation of wealth in farmers' households.

The objectives of this paper lies in three points: (1) Construct a digital literacy evaluation index system that is consistent with farmers' behavioral characteristics. (2) Analyze the impact and mechanism of digital literacy on farmers' property income using empirical analysis and whether there are differences in the impact of digital literacy sub-dimensions on farmers' property income and to explain the reasons from the theoretical level. (3) Propose targeted priorities in the process of improving farmers' digital literacy and to fully release the economic effects of digital literacy in order to promote common prosperity, we propose specific measures to enhance the digital literacy of farmers and to fully unleash the economic effects of digital literacy.

The core contribution of this paper has two aspects: (1) It innovatively puts forward the evaluation index system of digital literacy in the rural context. (2) Existing literature mostly focuses on the relationship between digital economy and residents‘income. Based on this, this paper discusses the impact and mechanism of digital literacy and its sub-dimensions on farmers' property income from a micro perspective, providing a specific path to promote farmers‘ wealth accumulation.

The paper is then structured as follows: Section 2 provides a literature review and summary of relevant studies; Section 3 analyzes and proposes research hypotheses in the context of relevant theories; Section 4 introduces empirical strategy; Section 5 conducts empirical analysis and explains the empirical results; Section 6 summarizes the research findings and makes policy recommendations.

2. Literature Review

2.1. Studies related to digital literacy

2.1.1. The meaning of digital literacy

Some scholars first defined digital literacy as "a literacy ability to understand digital information resources" (Alkalai,1994), and with the development and popularity of Internet technology, the connotation of digital literacy has been expanded and deepened. Lilian points out that digital literacy is a demonstration of certain cognitive and socio-emotional abilities, including five aspects of information recognition, information processing, information evaluation, information application and information creation (Liliana, 2022). Other scholars have analyzed the similarities, differences, and interrelationships among media literacy, information literacy, and digital literacy, and pointed out that digital literacy is a key competency that can facilitate individuals' success in social, economic, and cultural fields. Chinese scholars have also explored digital literacy from multiple perspectives, such as defining and analyzing digital literacy from different perspectives such as technical, cultural, and social levels. In general, scholars around the world have a relatively consistent understanding of the connotation of digital literacy, that is, digital literacy is a multi-dimensional, multi-level and diversified ability, including the ability of individuals to acquire, understand, evaluate, apply and create information in the digital environment, and with the development and popularization of Internet technology, the connotation of digital literacy has changed from shallow to deep, from single to multiple, from technology-oriented to human-oriented, with dynamic, comprehensive and open characteristics.

2.1.2. Measurement of digital literacy

Because digital literacy is a multidimensional, multilevel, and diverse competency, measuring it is a challenging task. Many institutions and scholars around the world have proposed a number of highly regarded digital literacy frameworks to guide digital literacy education and assessment. The Digital Literacy Framework for EU Citizens, version 2.2, published by the European Union (2022), divides digital literacy into five dimensions, including information and data, communication and cooperation, digital content creation, security, and problem solving, and each dimension is further divided into eight levels, from basic to advanced, forming a complete digital literacy assessment system. Chinese scholars Su Lanlan et al. explored the construction of a digital literacy assessment index system for farmers that includes four dimensions: digital general literacy, digital social literacy, digital creative literacy, and digital security literacy, which takes into account the actual needs and application scenarios of farmers in the digital environment from their own characteristics (Su & Peng, 2022). Wu et al. constructed a "shallow to deep" framework of farmers' digital literacy, including four dimensions: basic, application, innovation, and value, covering nine categories of literacy, aiming to reflect farmers' mastery and application of digital technology at different levels (Wu et al., 2023). Meanwhile, some scholars have also used the frequency of individuals' use of digital functions in the database to reflect digital literacy (Wang et al.,2022; Shan et al.,2022). Comparing the previous measures, it is found that the EU framework, although highly universal and authoritative, lacks a differentiated design for specific groups; the framework of Su Lanlan et al. and Wu Xiaolong et al. is closer to the actual situation of farmers, but lacks sufficient theoretical support and empirical testing; the method of Wang J. and Shan Depeng et al. is simpler and more practical, but ignores the multidimensional and multilevel characteristics of digital literacy (Wang et al.,2022; Shan et al.,2022).

2.2. Studies related to farmers' property income

Farmers‘ property income is an important indicator that reflects the level of social affluence and economic

development of a country or region. Based on the income source perspective, the property income of farmers refers to the cash or non-cash income obtained by farmers' households through the movable and immovable properties they own (Yang & Li, 2016) is the property yield income and capital gain income of individuals originating from financial assets and properties (Li & Wang, 2020). In addition, scholars have studied the factors that affect the level of property income of farm households, including land finance, taxation, real estate prices, and urbanization level (Xu et al., 2020; Jin,2013; Luo,2011; Yang & Zhao, 2022), Internet use, digital skills, and financial literacy of farm households (Feng & Guo, 2023; Zhang & Zhang, 2023). However, few studies have paid attention to the impact of digital literacy on the property income of rural households. In fact, digital literacy is the guarantee for individuals to participate in economic activities, and groups with low digital literacy level may be excluded from the market. Therefore, digital literacy is an important factor affecting farmers' property income, and the relationship between the two needs to be further explored.

2.3. Study on the correlation between digital literacy and farmers' property income

The existing literature provides an important theoretical and logical reference for the content of this paper. There are two main aspects: (1) The impact effect, which has been studied based on the adoption of digital technology by micro farmers and the digital economy perspective of macro environment, to explore its impact effect on farm household income. Among them, property income is an important component of farm household income, but the existing literature mostly focuses on the total income, business income and wage income of farm households (Zhang & He, 2020; Li, et al., 2022), and the research on property income is less and shallow. For example, the study by De-peng Shan et al. Shows that digital literacy has a significant contribution to the accumulation of property income of farmers, and this effect shows the characteristic of „poverty benefit", but there is no further analysis on the impact of each sub-dimension of digital literacy on the property income of farmers (Shan et al., 2022). (2) Regarding the influence mechanism, a large number of studies have found that the development of digital economy can improve and expand farmers' income channels by promoting non-farm employment and entrepreneurship and accelerating rural land transfer (Liu & Liu, 2020), which in turn has a positive impact on farmers' income level. The effect between the two shows regional and subgroup heterogeneity, and the promotion effect is more significant for farmers' income in relatively developed regions and groups lacking in human capital and weak in physical capital. A few scholars have explored the mechanism of the impact of the digital economy on the property income of farm households in terms of financial literacy, digital infrastructure construction, and institutional environment Liu & Liu, 2020; Qi & Chu, 2021). The above findings suggest that although academics have recognized the significant impact of digital literacy on farmers' income, digital literacy and farmers' property income are characterized as „the same research hotspot with little intersection". The lack of empirical studies on the interaction between the two makes it difficult for academics to gain scientific insight into their intrinsic patterns of action. It can be seen that the academic community has not yet fully explored the richer and more critical paths of digital literacy on farmers' property income, which is where the innovation and necessity of this research lies.

Existing studies provide important references for the advancement of this paper, but there is some room for expansion. First, existing studies have mostly studied the impact effects of digital technology or digital economy from the perspective of total farm household income. However, with the increase of total farm household assets and the diversification of forms, farm household property income has great potential for growth, so there is a need to strengthen the research on farm household property income. Second, early studies have mostly focused on the macroeconomic effects of the digital economy, and few scholars have investigated the inner dynamics of digital literacy and its sub-dimensions. As a key element and an important foundation for individuals to participate in digital life, digital literacy is an important guarantee for individuals to participate in digital economic activities. Studies based on macro perspective may weaken the explanatory power of research findings at the micro level due

to synthetic fallacies, so there is a need to strengthen research on the impact of digital literacy on farmers‘ property income. Third, the effect of digital literacy on farmers‘ property income needs to be further tested and the impact mechanism needs to be further explored. On the one hand, digital literacy can improve farmers‘ ability to use digital technology, which facilitates farmers‘ access to digital resources and helps them to improve their property income by expanding their income channels. On the other hand, based on the characteristics of farmers‘ vulnerable groups, digital literacy may increase farmers‘ risk aversion, which directly or indirectly restricts the growth of farmers‘ property income. In addition, the impact of different dimensions of farmers‘ digital literacy on farmers‘ property income needs to be further considered. Therefore, the effect of digital literacy on farmers‘ property income needs to be further explored to provide new evidence for a comprehensive review of the impact of the digital economy on farmers‘ income.

In addition, academics have not fully explored the impact of digital literacy on the property income of farm households. The marginal contributions of this paper include three aspects.First, it reveals the influence mechanism of digital literacy on farmers‘ property income based on the perspective of social capital and farmers‘ risk preference, which enriches the research on the mechanism of promoting farmers‘ property income; second, it provides new micro evidence to measure the influence effect of digital literacy on farmers‘ property income based on the data of China Rural Revitalization Comprehensive Survey. Third, based on the existing research, we verify whether there is a promoting effect of digital literacy on farmers‘ property income, and if there is a positive effect, then whether there is a difference in the effect of each dimension of digital literacy, and then propose suggestions for improving farmers‘ digital literacy in a targeted manner. These studies expand the research on the influencing factors related to farmers‘ property income and provide important references for promoting farmers‘ steady income increase through multiple channels and solidly advancing the policy goal of common prosperity.

3. Theoretical analysis and research hypothesis

3.1. The direct impact of digital literacy on the growth of farm household property income

Digital literacy can help farmers access digital resource information, develop market awareness, and discover economic opportunities in the market, thus promoting the growth of farmers' property income. First, due to the limitation of information channels, farmers face problems such as information asymmetry and information lag, while digital device operation literacy and digital technology application literacy, etc. can facilitate farmers to skillfully share resources, exchange information and collaborate through the Internet platform, and obtain various types of information in a timely and convenient manner, which is conducive to promoting farmers to achieve property income growth in asset allocation and market transactions. Second, as a disadvantaged group, farmers face multiple barriers due to the lack of human capital and professional knowledge and have a weak market awareness, while digital awareness literacy can improve farmers' understanding and cognitive level of the market, enhance their awareness and ability to make economic decisions in the context of the digital economy, and thus increase their property income. Third, most farmers lack the information and ability to identify economic opportunities, while rich digital resource acquisition literacy and keen digital awareness can help farmers capture market information, identify market demand, and enhance their sensitivity to potential economic opportunities in the market in a timely manner, thus promoting the growth of farmers' property income. In addition, since farmers are inherently conservative, the increase in digital literacy level may increase their sensitivity to market risks and reduce their risk appetite, thus directly or indirectly constraining the growth of farmers' property income, while at the same time, it may also increase their risk appetite, thus enhancing their financial market participation and increasing their property income, which is subject to further verification.

Therefore, this paper proposes the research hypothesis 1:

H1: Overall, digital literacy and its sub-dimensions can contribute to the growth of farmers' property income.

3.2. Digital literacy affects the important path of farmers' property income growth

3.2.1. Digital literacy affects property income by influencing farmers' social capital

Social capital is a social resource formed based on social networks, and Qi Yao classifies social capital into two types: bridging and ties (Yao et al., 2022), and its richness is mainly reflected in the amount of resources that social individuals can access and utilize in social networks. The increase in digital literacy enables farmers to make better use of digital technology and improves the convenience of socialization for farmers, enabling them to exchange and utilize more market opportunities and resources and expand their property income channels. Social networks formed by attaching to social media such as Twitter, Wechat, Weibo, WeChat, and QQ are considered as a kind of social capital, which is more effective than offline social capital in developing individual social networks through simple interactive behaviors (Yao et al., 2022; Wang et al., 2020; Wang, et al., 2020 ; Song & Li, 2023). And it can break through spatial restrictions and expand social boundaries (Wang , 2021), which not only can strengthen the interaction and communication between close social members such as family members (Liu et al., 2021), but also effectively develop farmers' weak relationships, broaden their access to social resources, and promote the accumulation of social capital, and individuals with rich social capital can guarantee their income to keep moving upward, and can alleviate the exclusion of individuals in society (Tang et al., 2023), which is conducive to promoting the growth of farmers' property income.

Therefore, this paper proposes the research hypothesis 2:

H2: The improvement of digital literacy helps to promote the accumulation of social capital of farm households, which in turn promotes the growth of property income of farm households.

3.2.2. Digital literacy affects farmers' property income by influencing farmers' risk preferences

The limitations of knowledge level and resources, social security and loan systems squeeze the opportunities for households to obtain property income through capital markets, which significantly affects household property income (Qin & Yang, 2021). Most farmers in China are limited by their cognitive level and generally choose a high savings and low investment approach to participate in financial markets. However, this approach is often not conducive to the appreciation of household wealth; on the contrary, holding risky assets is conducive to increasing farmers' financial property income (Pan et al., 2020). Generally,the increase in digital literacy level can help farmers improve their knowledge of the market, thus enhancing farmers' perceived usefulness and perceived ease of use of the market, improving their risk preferences, and making them more willing to participate in financial markets. This means that on the demand side, the availability of financial services to farmers is improved, and they not only have the opportunity to obtain low-interest loans for the purchase of production materials such as farm machinery and thus expand agricultural production, but also the easing of credit constraints helps increase the channels for farmers to increase their income and wealth, such as lowering the threshold for starting a business and increasing their motivation to start a business. In addition, farmers with higher risk appetite are more likely to choose entrepreneurship (Jiang et al., 2023), and those with higher digital literacy are more likely to pass lenders' qualification checks and obtain loans, thus improving farmers' entrepreneurial performance and increasing their property income (Hou et al., 2022). However, based on farmers' disadvantaged characteristics and individual differences, the increase in the level of market awareness may also accentuate their risk aversion characteristics more, thus reducing property income.

Therefore, this paper proposes the research hypothesis 3.1 and 3.2:

H3.1: Digital literacy helps to improve farmers' risk preferences, thus promoting farmers' property income growth.

H3.2: Digital literacy helps to increase farmers' risk aversion, thus inhibiting farmers' property income growth.

4. Empirical strategy

4.1. Data sources

The data used in this paper come from the national survey data of China Rural Revitalization Survey (CRRS) in 2020, which is fully representative. Firstly, based on the socio-economic development level, geographic layout and agricultural and rural development, the research team selected 10 sample provinces from the eastern, central, western and northeastern regions in the ratio of 3/1, including Guangdong, Zhejiang and Shandong provinces in the eastern region, Anhui and Henan provinces in the central region, Guizhou, Sichuan, Shaanxi and Ningxia Hui autonomous regions in the western region, and Heilongjiang province in the northeastern region. In the western region, Guizhou, Sichuan, Shaanxi, and Ningxia Hui Autonomous Region are included; in the northeast region, Heilongjiang Province is included. Second, the group divided all counties (cities and districts) in the sample provinces into five groups: high, medium-high, medium, medium-low, and low levels, mainly based on the GDP per capita level. Again, according to the sampling principle that the sample counties are similar, all townships (streets) in each county are sorted by GDP per capita and divided into three groups of high, medium and low, and one township is randomly selected from each group, i.e. three townships are selected from each sample county. Then, the sample villages were randomly selected according to the level of economic development, but since it was difficult to obtain per capita GDP data at the village level, all villages were divided into two groups of better and worse economic development according to the guidance of township governments and the economic development of villages, and one village was randomly selected from each group, i.e., two villages were randomly selected from each township. Finally, 12 to 14 households were randomly selected according to the equal distance sampling method based on the roster of farm households provided by the village committee. After the sampling was completed, the project team strictly implemented the research protocol, and the researchers conducted field research according to the protocol. In this paper, the relevant abnormal and missing observations were eliminated, and finally a sample of 3799 farm households was obtained.

4.2. Variable Settings

4.2.1. Dependent variable

In this paper, the total property income of farm households in 2019 is selected as the dependent variable, and the variable is naturally log-transformed to reduce heteroskedasticity interference in the property income variable. To ensure the accuracy of data measurement, the project team implemented a sound research program and a strict verification mechanism. First, the questionnaire clearly defined the relevant concepts and explained the questioning methods and accounting methods in the actual research process to guarantee the rigor of the questionnaire survey process. Secondly, the project team improved a number of data verification mechanisms, such as cross-checking by researchers, checking by supervisors and checking by data entry operators, to ensure the accuracy of data indicators.

4.2.2. Core explanatory variables

In this paper, we designed the index system from four dimensions: digital device operation literacy, digital resource access literacy, digital technology application literacy and digital awareness literacy, and finally screened out 21 measurement questions to measure the comprehensive level of financial literacy (see Table 1). Among them, digital device operation literacy refers to whether farmers use digital devices and the difficulty and length of using digital devices; digital resource access literacy refers to the proficiency of farmers in using digital devices and the availability and timeliness of digital resources; digital technology application literacy refers to whether farmers have good digital entertainment skills, digital social skills, digital learning skills, digital business skills, and whether they have ever Digital awareness literacy refers to whether farmers prefer to use digital methods to access and disseminate information, and whether they prefer digital payment, digital credit, and digital business.

Table 1. Digital literacy measurement framework.

Target layer	Standard Layer	Indicator layer	Corresponding questions	Indicator assignment
Digital Literacy	Digital equipment operation literacy	Whether to use digital devices	8-3 Do you use 4G/5G cell phones	Yes = 1, No = 0
		Level of difficulty in using digital devices	8-4 Do you have difficulty using the features of 4G/5G phones?	Take the value of 1, 2, 3, the larger the value means less and less difficulty
		Length of time using digital devices	8-5 Your average number of hours per day using 4G/5G phones (hours)	Time is logarithmic
	Digital resource access literacy	Are more proficient in using digital devices to access information	8-6 Whether to use smartphone devices for news browsing and other information acquisition functions	Please rank the top three daily uses of your cell phone function (in descending order). If the answer includes "news browsing", a value of 1 means that you are more proficient in using digital devices to obtain information
		Timeliness of digital information access	8-9 For the above focused information, its access to timely How about sex (single choice)	Take the value of 1, 2, 3, the larger the value means the more timely
		Availability of Digital Resources	8-12 If there is a daily need, can you yourself via mobile or the internet to obtain relevant information at any time (those who have land transferred and obtain information through the land network can = 1)	Take the value 1, 2, 3, the larger the value means the higher
			8-11 Do you think that the information you get through the Internet can meet your daily needs such as production and life?	The values 1, 2, 3, 4, 5, the higher the value means the more satisfied
	Digital technology application literacy	Availability of good digital entertainment skills	8-6 Whether to use smartphone devices for social activities such as microblogging and WeChat	Please rank the top three of your average daily usage of cell phone functions (from highest to lowest). If the answer includes "chatting and socializing (WeChat, Weibo, QQ, Zhihu, Douban, etc.)", the value is 1, which means you are more proficient in using digital devices to obtain information.
		Have good digital social skills	8-6 Whether to use smartphone devices for video, music, and other entertainment functions	Please rank the top three of your average daily usage of cell phone functions (from highest to lowest). If the answer includes "entertainment (games, live streaming, video, music, etc.)", the value is 1, which means you have good digital social skills
		Availability of good digital learning skills	8-6 Whether to use smartphone devices for learning and education and other activities	Please rank the top three daily average hours of use of your cell phone function (three in descending order). If the answer includes "learning and education", the value is 1, which means you have good digital learning skills
		Have good digital business skills	8-6 Whether to use smartphone devices for activities such as social activities such as product trading	Please rank the top three daily average hours of use of your cell phone function (from highest to lowest). If the answer includes "product trading", a value of 1 means that you have good digital business skills
			8-19 Does your family operate with products traded through the network	Yes = 1, No = 0
			8-22 Online sales experience, the time difference between 2019 and first online sales	Take logarithm
			8-25 Home Network Sales 2019 ($ million)	Take logarithm
		Have you ever paid for digital services	8-13 Have you ever paid a fee for a mobile app service	Yes = 1, No = 0
	Digital Awareness Literacy	Preference for digital access to information	8-16 In what ways do you most prefer the Village Council to deliver important information	Select "2=web-based means such as WeChat; 3=telephone SMS"; i.e., preference for digital means to obtain village information
		Preference for digital dissemination of information	14-9 Which method do you generally use to convey important information (multiple choices possible, in order of importance)	Select "2 = Mobile Web Report"; i.e., preference for digital dissemination of information
		Preference for digital payments	9-1 What is your family's preferred method of payment for agricultural products such as seedlings, fertilizer, and feed?	Select "2=WeChat; 3=Alipay Balance; 4=Ants or Jingdong White Stripe; 5=Cloud Flash or other mobile payment clients; 8=Online Banking Options"; that

			is, the preferred digital payment
		9-2 If your family is buying now or has recently purchased a vehicle (car, farm vehicle, etc.), the preferred payer What is the style?	Select "2=WeChat; 3=Alipay Balance; 4=Ants or Jingdong White Stripe; 5=Cloud Flash or other mobile payment clients; 8=Online Banking Options"; that is, the preferred digital payment
	Preference for digital credit	9-11 Where is the first place you consider borrowing money when you need it?	Select "4=Debit, Neteller, Microfinance etc. online credit;"; i.e., for preferring digital credit
	Preference for digital business	8-23 Willingness to sell your products online	Yes = 1, No = 0

In order to ensure the validity and reliability of the above measurement items, the reliability and validity of the measurement items were tested in this paper. the KMO value of the sample adequacy test for the 21 measurement items was 0.878, which indicated that the correlation between the measurement items was good; meanwhile, the significant p-value of the Bartlett's sphericity test statistic was 0.00, which indicated that the results of the factor analysis were valid.

4.2.3. Control variables

In this paper, based on the existing related studies, the characteristic variables at three levels of individual household head characteristics, household characteristics and village characteristics are included in the model to reduce the influence of omitted variables on the model estimation. Among them, household head characteristics include gender, age, age squared and years of education variables; household characteristics include family social relations and number of family members; village characteristics include whether the village is in the suburban area, village economic level and transportation conditions. Table2 demonstrates the descriptive statistical characteristics of the specific variables.

Table 2. Descriptive statistical characteristics of variables.

Variable Name	Variable Code	Meaning	Mean	Sd	minimum	maximum
Property income	Property	Total property income of farm households (yuan), taken as logarithm	2.579	3.755	0	13.50
Digital Literacy	Digital	Total digital literacy level	5.352	2.084	1	10
Gender	Gender	Male=1; Female=0	0.932	0.252	0	1
Age	Age	Age divided by 10	5.595	1.136	0.200	9.200
Age squared	AgeSquare	Age squared divided by 1000	3.259	1.272	0.004	8.464
Marital Status	Marri	Married = 1; unmarried, divorced, widowed = 0	0.916	0.277	0	1
Years of education	Edu	Not in school = 0; elementary school = 6; junior high school = 9; high school, junior college, vocational high technical school = 12; college specialist = 15; Undergraduate = 16	7.873	3.330	0	16
Family Social Relations	Status	Family members with village officials = 1, no = 0	0.155	0.362	0	1
Family size	Size	Number of family members	4.061	1.576	1	10
Is the village on the outskirts of town	Sub	Is the village located on the outskirts of town	0.211	0.408	0	1
Village Economic Conditions	Eco	Village disposable income per capita in 2019 (yuan), taken as log	9.436	0.726	1.099	12.49
Village transportation conditions	Tra	Distance from village council to county government (km), take logarithm	2.951	0.729	0.693	4.836

4.3. Model selection

To estimate the effect of digital literacy on the property income of farm households, the following model was constructed to test:

$$Property_i = \alpha_0 + \beta_0 Digital_i + \mu_0 X_i + \gamma_i \quad (1)$$

In equation (1), $Property_i$ denotes the property income situation of farm household i, Digital_i denotes the digital literacy level of farm household i, X_i denotes a series of control variables, including individual characteristics, household characteristics and village characteristics of farm households. α_0 is the intercept term, β_0 is the coefficient to be estimated in this paper; μ_0 is the parameter to be estimated, and γ_i is the random disturbance term.

5. Empirical results

5.1. Baseline Regression

The results of the OLS regression of the effect of digital literacy on farmers' property income are shown in Table 3, where models (1) to (3) are the results of controlling for three different dimensions of farmers' individual characteristics, household characteristics, and village characteristics, and model (3) is the estimated result with all control variables included. Models (4) to (7) are the estimation results with four different dimensions of digital device operation literacy, digital resource access literacy, digital technology application literacy, and digital awareness literacy as explanatory variables, with all control variables included.

From the OLS estimation results in Table 3, the estimated coefficients of digital literacy were positive in all regressions and all passed the test at the 1% significance level. This indicates that digital literacy can significantly increase the level of farmers' property income, and this result implies that digital literacy has a significant income increasing effect, which initially supports the research hypothesis.1 The estimated coefficients of digital device operation literacy and digital awareness literacy in model (4) and model (7) are positive but statistically insignificant; the estimated coefficients of digital resource access literacy and digital technology application literacy in model (5) and model (6) The estimated coefficients of digital resource access literacy and digital technology application literacy in models (5) and (6) were both positive and significant at the 1% level. This indicates that while digital device operation literacy and digital awareness literacy do not have a statistically significant effect on the level of farm household property income, digital resource access literacy and digital technology application literacy have a significant contribution to farm household property income. The reason for this phenomenon is that if digital device literacy and digital awareness literacy are not internalized as a "means of production" through digital work, then their impact on farmers' property income is limited. In contrast, digital resource literacy and digital technology literacy help farmers to gain access to economic opportunities and use digital technology for value creation, thus contributing to the increase of farmers' property income.

Among the control variables, farmers' years of education had a significant positive effect on property income with a significant level of 1%. Farmers with longer years of education also have higher levels of human capital, richer employment options, and greater access to and utilization of digital services, thus enhancing property income. There is no significant effect of household characteristics on property income. Regarding village characteristics, the three variables of whether the village is in a suburban area, village economic status, and village transportation status all have significant effects on property income. Among them, the direction of the effect of the village transportation status variable is inconsistent with expectations, probably because the improvement of transportation status promotes the movement of population, capital, and other factors to the central city, leading to

the polarization phenomenon and thus decreasing property income.

Table 3. Baseline Regression Results.

Variables and statistical parameters	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)
Digital	0.109***	0.108***	0.093***				
	(3.176)	(3.120)	(2.663)				
Opera				0.018			
				(1.212)			
Acquire					0.142***		
					(3.153)		
Apply						0.078**	
						(2.177)	
Aware							0.009
							(0.658)
Gender	-0.058	-0.061	-0.045	-0.056	-0.071	-0.053	-0.063
	(-0.240)	(-0.252)	(-0.187)	(-0.232)	(-0.295)	(-0.219)	(-0.261)
Age	0.129	0.111	-0.016	-0.034	0.003	0.046	0.040
	(0.352)	(0.302)	(-0.045)	(-0.091)	(0.008)	(0.124)	(0.107)
AgeSquare	0.203	0.217	0.317	0.291	0.283	0.236	0.210
	(0.613)	(0.652)	(0.948)	(0.856)	(0.850)	(0.710)	(0.632)
Marri	0.280	0.295	0.240	0.244	0.236	0.258	0.238
	(1.256)	(1.283)	(1.045)	(1.060)	(1.028)	(1.122)	(1.035)
Edu	0.089***	0.088***	0.076***	0.084***	0.076***	0.082***	0.086***
	(4.408)	(4.306)	(3.749)	(4.191)	(3.716)	(4.088)	(4.275)
Status		0.085	0.080	0.115	0.079	0.117	0.116
		(0.506)	(0.478)	(0.684)	(0.472)	(0.701)	(0.692)
Size		-0.013	-0.009	-0.002	-0.007	-0.006	0.000
		(-0.317)	(-0.209)	(-0.050)	(-0.159)	(-0.137)	(0.012)
Sub			0.338**	0.347**	0.343**	0.338**	0.351**
			(2.063)	(2.119)	(2.101)	(2.067)	(2.146)
Eco			0.440***	0.450***	0.433***	0.453***	0.450***
			(4.733)	(4.847)	(4.656)	(4.877)	(4.837)
Tra			-0.213**	-0.211**	-0.201**	-0.213**	-0.210**
			(-2.269)	(-2.244)	(-2.149)	(-2.269)	(-2.231)
_cons	0.653	0.748	-2.115	-1.821	-1.859	-2.148	-1.852
	(0.628)	(0.711)	(-1.494)	(-1.290)	(-1.318)	(-1.513)	(-1.310)
pro_con	Control	Control	Control	Control	Control	Control	Control
N	3799	3799	3748	3748	3748	3748	3748
Adjusted R2	0.074	0.073	0.086	0.084	0.086	0.085	0.084

*Notes: *, ** and *** indicate significant at the 10%, 5% and 1% levels, respectively, with t-values in parentheses in parentheses. Same below.*

5.2. Robustness test

First, the growth of farmers' property income is not only promoted by digital literacy, but also inversely affects the increase of digital literacy. Second, although this paper tries to control the important variables affecting farmers' property income in the model, there may still be endogeneity problems caused by omitted variables. To address the endogeneity issue, the benchmark model is revised in this paper.

5.2.1. Instrumental variable

In this paper, instrumental variables are introduced based on the OLS model to correct for potential

endogeneity problems using two-stage least squares method. Referring to relevant studies such as DHALIWAl et al. (2016), this paper selects the mean value of digital literacy water of other farmers in the same village other than the interviewed farmers as the instrumental variable. On the one hand, the digital literacy level of other farmers in the same village will affect the individual farmers' digital literacy level; on the other hand, the digital literacy level of other farmers will not directly affect the property income of the interviewed farmers. Therefore, theoretically, the instrumental variables selected in this paper satisfy the conditions of exclusivity and exogeneity and can be subjected to 2SLS regression. The results show that the first-stage F-statistic is greater than 10, rejecting the original hypothesis of weak instrumental variables and satisfying the condition of instrumental variable relevance. The results of the second stage show that digital literacy has a significant pull effect on farmers' property income when endogeneity is considered. According to the results of model (3), it is seen that digital literacy has a significant pull effect on the property income of farm households. In conclusion, the pull effect of digital literacy on farmers' property income is significant and the robustness of the findings is verified (see Table 4).

Table 4. Estimated results of instrumental variables of digital literacy on property income of farm households.

Variables and statistical parameters	Model (1)		Model (2)		Model (3)	
	Digital Phase I	Property Phase II	Digital Phase I	Property Phase II	Digital Phase I	Property Phase II
Digital		0.405***		0.414***		0.266*
		(2.956)		(2.915)		(1.822)
IV	0.445***		0.430***		0.422***	
	(16.078)		(15.622)		(15.052)	
_cons	2.624***	-0.858	2.658***	-0.802	1.507**	-2.686*
	(5.314)	(1.248)	(5.364	(1.270)	(2.301)	(1.803)
Hea_con	Control	Control	Control	Control	Control	Control
Fam_con			Control	Control	Control	Control
vil_con					Control	Control
pro_con	Control	Control	Control	Control	Control	Control
N	3,799	3,799	3,799	3,799	3,799	3,799
F-statistic	258.50		244.03		226.57	

5.2.2. Heckman two-stage method

Whether farmers are digitally literate or not is not random and may be influenced by their own characteristics, which may also affect farmers' property income, leading to possible self-selection bias in the model estimation. In order to mitigate the effects of self-selection bias on model estimation, this paper will use the Heckman two-stage method for robustness testing. In the first stage, this paper takes whether farmers have digital literacy (Master Digital) as the dependent variable and incorporates the control variables from the OLS model into the Probit model for estimation, using whether farmers reach the 40th percentile level of overall digital literacy as the criterion for determining whether they have digital literacy.

In the Heckman regression model, the second stage model will incorporate the inverse mills ratio (IMR) generated from the first stage selection model, and the results are shown in Table 5[1]. The results show that the coefficient of IMR is not significant, indicating that there is no significant problem of sample selection bias. Meanwhile, the results of the second-stage regression show that the coefficient of digital literacy remains significantly positive and the role of digital literacy on the enhancement of farmers' property income is further validated.

[1] To save space, the results reported for the control variables are omitted from Table 5 in the main text, and the specific results are shown in the Appendix.

Table 5. Heckman two-stage estimation results of digital literacy on property income of farm households.

Variables and statistical parameters	Model (1)		Model (2)		Models (3)	
	Select Model MasterDigital	Regression model Property	Select Model MasterDigital	Regression model Property	Select Model MasterDigital	Regression model Property
Digital		0.109***		0.109***		0.093***
		(3.162)		(3.121)		(2.639)
IMR1		-0.106				
		(-0.130)				
IMR2				-0.129		
				(-0.157)		
IMR3						-0.087
						(-0.108)
_cons	0.878	0.820	0.799	0.952	-0.034	-1.975
	(1.268)	(0.504)	(1.165)	(0.581)	(-0.045)	(-1.083)
Hea_con	Control	Control	Control	Control	Control	Control
Fam_con			Control	Control	Control	Control
Vil_con					Control	Control
Pro_con	Control	Control	Control	Control	Control	Control
N	3799	3799	3799	3799	3748	3748
R^2	0.244	0.077	0.256	0.077	0.261	0.091

5.2.3. Replacement of variable measure

First, whether farmers had participated in e-commerce training (Dig_edu1) was regressed as the core explanatory variable. Professional systematic education and training can effectively improve the willingness and degree of farmers to adopt new technologies and promote the accumulation of professional human capital in digital literacy. (Cao et al.,2005). In view of the limited formal digital training received by Chinese farmers at this stage, this paper mainly defines the situation of digital education for farmers from the participation level of digital-related training (such as computer training, e-commerce training, etc.). The results show that the core explanatory variable still has a positive effect on farmers' property income. Second, this paper regressed whether farmers had participated in cell phone training (Dig_edu2) as the core explanatory variable. The results all show that there is no significant change in the sign and significance level of the core variables, indicating that digital literacy has a significant positive effect on farmers' property income, which is consistent with the results of the benchmark model (see Table 6[2]). Based on the above analysis.

Table 6. Results of robustness tests based on replacement variables.

Variables and statistical parameters	Model (1)	Models (2)	Models (3)	Models (4)	Models (5)	Models (6)
Dig_edu2	0.342	0.335	0.369*			
	(1.630)	(1.595)	(1.769)			
Dig_edu1				0.504**	0.490*	0.559**
				(2.001)	(1.940)	(2.211)
_cons	1.099	1.185	-1.936	1.162	1.239	-1.862
	(1.069)	(1.139)	(-1.370)	(1.132)	(1.193)	(-1.319)
Hea_con	Control	Control	Control	Control	Control	Control
Fam_con		Control	Control		Control	Control
Vil_con			Control			Control
Pro_con	Control	Control	Control	Control	Control	Control
N	3799	3799	3748	3799	3799	3748
Adjusted R2	0.072	0.072	0.085	0.072	0.072	0.085

[2] To save space, the results reported for the control variables are omitted from Table 6 in the main text, and the specific results are shown in the Appendix.

5.3. Heterogeneity analysis

The previous section has confirmed that digital literacy has a positive effect on farm households' property income, but the impact effect of digital literacy may vary depending on the heterogeneity of farm households' groups. First, digital technology is a skill-biased technological advancement, and farmers' different levels of education may affect the effect of mastery of digital technology on their property income; second, farmers' household physical capital characteristics reflect farmers' initial wealth accumulation, which is a key factor affecting household property income (Qin & Yang, 2021), and differences in farmers' household physical capital may lead to different effects of mastering digital literacy on their property income; finally, the economic conditions of villages are associated with the construction of Internet infrastructure, and the relatively higher accessibility to digital devices in areas with good economic conditions may cause differences in the effects of digital literacy on the property income of farm households. Therefore, heterogeneity analysis based on education level, household physical capital and village economic conditions will be conducted in the following, and the results are shown in Table 7, Table 8 and Table 9.

5.3.1. Farmers' education level

In this paper, the education level of the household head is divided into two groups: low education level and high education level, where low education level indicates that the farm household receives. The regression model excluded the control variable of education level of the household head. The results show that digital literacy has a significant positive effect on the growth of property income of farmers with low education level, while the effect on property income of farmers with high education level does not pass the significance test (see Table 7[3]). Digital device literacy and digital awareness literacy had a positive but not significant effect on the property income of farmers, while digital resource access literacy and digital technology application literacy had a significant positive effect on the property income growth of farmers with low education level, while the effect on the property income of farmers with high education level did not pass the significance test. The possible reasons are that the information access channels and asset allocation knowledge reserve of farmers with low education level are relatively narrow, and digital literacy can significantly improve their information access ability and increase their investment knowledge reserve, thus promoting their property income growth, and digital device operation literacy and digital awareness literacy only affect farmers' practical ability and thinking state, and do not directly affect farmers' behavioral process, so their effects on farmers' The impact on farmers' property income is limited, while digital resource literacy and digital technology application literacy help farmers find economic opportunities hidden in the market and use digital technology to carry out production activities, thus increasing their property income. In contrast, the higher level of comprehensive knowledge base and digital literacy of highly educated farmers raises the threshold of property income growth, and access to information alone cannot have a significant impact on their economic decisions.

[3] To save space, the results reported for the control variables are omitted from Table7 in the main text, and the specific results are shown in the Appendix.

Table 7. Results of heterogeneity analysis based on education level.

Variables and statistical parameters	Models (1)	Models (2)	Models (3)	Models (4)	Models (5)	Models (6)	Models (7)	Models (8)	Models (9)	Models (10)
	L_edu	H_edu	L_edu	H_edu	L_edu	H_edu	L_edu	H_edu	L_edu	H_edu
Digital	0.106***	-0.032								
	(2.914)	(-0.276)								
Opera			0.020	0.011						
			(1.323)	(0.189)						
Acquire					0.165***	-0.010				
					(3.441)	(-0.075)				
Apply							0.090**	0.003		
							(2.324)	(0.032)		
Aware									0.018	-0.035
									(1.205)	(-0.983)
_cons	-1.882	-13.552**	-1.515	-13.439**	-1.564	-13.532**	-1.874	-13.513**	-1.552	-13.572**
	(-1.237)	(-2.576)	(-0.999)	(-2.549)	(-1.033)	(-2.570)	(-1.228)	(-2.569)	(-1.022)	(-2.583)
Hea_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Fam_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Vil_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Pro_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
N	3183	565	3183	565	3183	565	3183	565	3183	565
Adjusted R2	0.090	0.084	0.088	0.084	0.091	0.084	0.089	0.084	0.088	0.085
Differences between groups	chi2 (1) = 1.31 Prob>chi2 = 0.022		chi2 (1) = 0.02 Prob>chi2 = 0.892		chi2 (1) = 1.63 Prob>chi2 = 0.020		chi2 (1) = 0.65 Prob>chi2 = 0.042		chi2(1) = 1.90 Prob>chi2 = 0.168	

5.3.2. Household physical capital

With reference to existing studies and related household physical capital measures, and considering data availability, the household physical capital status is measured by "the area of the house base (square meters)", with the area of the house base below the 50th percentile defined as average household physical capital, and the area of the house base above the 50th percentile defined as rich household physical capital. Table 8 Table 8[4] The results show that digital literacy has a significant positive effect on the property income of farm households with average physical capital, but a significant positive effect on the property income of middle-aged farm households, and digital resource acquisition literacy, digital technology application literacy and digital awareness literacy have a significant positive effect on the property income of farm households with average physical capital. In contrast, digital literacy and its sub-dimensions have a positive but insignificant effect on the property income of farm households with different physical capital. This may be due to the fact that farm households with average physical capital have less initial capital, limited property income channels, and less value-added wealth from initial capital. Digital literacy, on the other hand, can enhance the digital skills of farm households, so that they can effectively use digital skills to obtain market information, expand income channels, improve their financial management ability, and contribute to wealth appreciation.

[4] To save space, the results reported for the control variables are omitted from Table 8 in the main text, and the specific results are shown in the Appendix.

Table 8. Results of the heterogeneity analysis based on household physical capital.

	(1) Gene_	(2) Higher	(3) Gene_	(4) Higher	(5) Gene_	(6) Higher	(7) Gene_	(8) Higher	(9) Gene_	(10) Higher
Digital	0.157***	0.022								
	(3.260)	(0.422)								
Opera			0.033	-0.001						
			(1.616)	(-0.042)						
Acq_					0.199***	0.084				
					(3.131)	(1.290)				
App_							0.120**	0.033		
							(2.425)	(0.626)		
Aware									0.035*	-0.015
									(1.813)	(-0.781)
Hea_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Fam_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Vil_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Pro_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
_cons	-1.418	-3.394	-0.740	-3.384	-0.931	-3.295	-1.285	-3.475	-0.905	-3.384
	(-0.730)	(-1.501)	(-0.383)	(-1.496)	(-0.482)	(-1.457)	(-0.659)	(-1.533)	(-0.467)	(-1.497)
N	1870	1878	1870	1878	1870	1878	1870	1878	1870	1878
Adjusted R2	0.092	0.100	0.089	0.100	0.092	0.100	0.090	0.100	0.089	0.100
Differences between groups	chi2 (1) = 1.89 Prob>chi2 = 0.041		chi2 (1) = 0.23 Prob>chi2 = 0.736		chi2 (1) = 1.57 Prob>chi2 = 0.016		chi2 (1) = 0.39 Prob>chi2 = 0.025		chi2 (1) = 1.67 Prob>chi2 = 0.082	

5.3.3. Village economic conditions

In this paper, the sample of farm households was divided into two groups according to the economic conditions of villages into average economic and better economic, and villages with Eco below the 50th percentile were defined as villages with average economic development, and villages with Eco above the 50th percentile were defined as villages with better economic development. Table 9[5] The results show that digital literacy has a significant pull on the property income of farm households in villages that are in the better economic development, while it has a positive but not significant effect on the property income of farm households in villages with average economic development, and digital resource access literacy and digital technology application literacy have a significant contribution to the property income of farm households in villages that are in the better economic development. This may be due to the fact that villages are relatively backward due to economic conditions, digital infrastructure accessibility and the atmosphere of using digital technology in villages need to be improved, and factor circulation costs are high, so digital literacy has limited impact on their property income. In contrast, villages with better economic conditions have relatively complete digital infrastructure and relatively lower factor circulation costs, and digital resource access literacy and digital technology application literacy can help farmers access and take advantage of more economic opportunities and promote property income growth.

[5] To save space, the results reported for the control variables are omitted from Table 9 in the main text, and the specific results are shown in the Appendix.

Table 9. Results of heterogeneity analysis based on economic conditions of villages.

	(1) Poor	(2) Better	(3) Poor	(4) Better	(5) Poor	(6) Better	(7) Poor	(8) Better	(9) Poor	(10) Better
Digital	0.018	0.112**								
	(0.402)	(2.100)								
Opera			-0.011	0.037						
			(-0.576)	(1.618)						
Acq_					0.050	0.167**				
					(0.880)	(2.389)				
App_							-0.011	0.118**		
							(-0.233)	(2.196)		
Aware									-0.010	0.013
									(-0.572)	(0.640)
Hea_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Fam_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Vil_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Pro_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
_cons	2.195	-5.556**	2.298	-5.286*	2.236	-5.273*	2.326	-5.768**	2.346	-5.268*
	(1.226)	(-2.028)	(1.290)	(-1.931)	(1.256)	(-1.928)	(1.296)	(-2.101)	(1.314)	(-1.923)
N	1847	1901	1847	1901	1847	1901	1847	1901	1847	1901
Adjusted R2	0.070	0.097	0.070	0.097	0.070	0.098	0.070	0.098	0.070	0.096
Differences between groups	chi2 (1) = 1.78 Prob>chi2 = 0. 048		chi2 (1) = 0.19 Prob>chi2 = 0. 657		chi2 (1) = 1.74 Prob>chi2 = 0. 031		chi2 (1) = 055 Prob>chi2 = 0. 027		chi2 (1) = 2.03 Prob>chi2 = 0. 360	

5.4. Mechanism analysis

According to the theoretical analysis above, digital literacy mainly affects farmers' property income by enhancing their social capital and influencing their risk preferences, and for this reason, this paper will empirically test the specific impact mechanism.

5.4.1. Social capital

Social capital refers to the benefits that social members obtain from various social structures and is rooted in the social relationship network (Zhang et al., 2008). It is an important resource for farmers to use their own social relationship network for production and management. Social network is an important guarantee for farmers to improve their income level. This paper examines whether digital literacy affects farmers' social network and thus improves their property income level based on the social network perspective. Referring to the index measurement method proposed by Liu et al. (2021), this paper selects the number of friends and relatives (Relation) that farmers can borrow 5,000 yuan or more as a measure of farmers' social network to verify the mechanism of digital literacy on farmers' property income.

The results show that digital literacy significantly contributes to the accumulation of social capital of farm households（see Table 10[6]）, probably because digital literacy can enhance the social skills of farm households, help them maintain social relationships in a low-cost and quick way, enrich the social resources of farm households relying on social networks, and promote the accumulation of social capital of farm households, which in turn promotes the growth of property income. All four sub-dimensions of digital literacy significantly contribute to the accumulation of social capital, with digital resource acquisition literacy playing the strongest role, digital technology

[6] To save space, the results reported for the control variables are omitted from Table 10 in the main text, and the specific results are shown in the Appendix.

application literacy and digital awareness literacy playing the second strongest role, and digital device operation literacy playing the lowest role. The strongest contribution of digital resource acquisition literacy may be due to the fact that social capital is considered as one of the resources that individuals possess, and the more resources they acquire, the more likely they are to form resource swaps and thus increase their social capital.

Table 10. Results of mechanism test of social capital.

	(1) Capital	(2) Property	(3) Capital	(4) Property	(5) Capital	(6) Property	(7) Capital	(8) Property	(9) Capital	(10) Property
Digital	0.775***	0.070*								
	(6.116)	(1.941)								
Capital		0.014***		0.014***		0.013***		0.014***		0.014***
		(2.922)		(3.106)		(2.841)		(3.016)		(3.107)
Opera			0.154***	0.008						
			(2.839)	(0.499)						
Acquire					1.043***	0.123***				
					(6.374)	(2.650)				
Apply							0.490***	0.066*		
							(3.753)	(1.794)		
Aware									0.210***	0.004
									(4.211)	(0.266)
Hea_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Fam_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
vil_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Pro_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
_cons	8.956*	-2.137	11.333**	-1.928	11.196**	-1.935	9.380*	-2.200	10.506**	-1.939
	(1.732)	(-1.474)	(2.190)	(-1.333)	(2.173)	(-1.339)	(1.804)	(-1.513)	(2.031)	(-1.340)
N	3616	3568	3616	3568	3616	3568	3616	3568	3616	3568
Adjusted R2	0.065	0.095	0.058	0.094	0.066	0.096	0.059	0.095	0.060	0.094

5.4.2. Risk preference

Risk preference is one of the key factors in economic decision making of farm households and has an important impact on farm households' property income. For this reason, this section introduces the "risky financial asset holding ratio" to examine the risk preferences of farmers. The results are shown in Table 11[7], digital literacy has a significant contribution to farmers' property income and can significantly improve farmers' risk preference, while risk preference has a contribution to farmers' property income and is significant at the 1% level. Except for digital device operating literacy, all other sub-dimensions of digital literacy have a significant positive effect on risk preference and farmers' property income. The reason for this is that with the rapid development of the digital economy, digital devices have gradually become popular and the digital divide brought about by the accessibility of digital devices tends to be filled, thus having little effect on farmers' behavior. However, in column (1), the coefficient of digital literacy is only 0.002, probably because, on the one hand, the characteristics of disadvantaged groups make farmers more sensitive to potential risks in the financial market, so they tend to be more conservative, which negatively affects farmers' risk preferences. On the other hand, digital literacy can improve farmers' knowledge of financial markets and positively affect their risk preferences. The empirical results show that the positive effect of digital literacy on farmers' risk preferences is greater than the negative effect, which is consistent with the actual expectation and verifies hypothesis 3.1.

[7] To save space, the results reported for the control variables are omitted from Table 11 in the main text, and the specific results are shown in the Appendix.

Table 11. Results of the mechanism test for risk preference.

	(1) Risk-pre	(2) Property	(3) Risk-pre	(4) Property	(5) Risk-pre	(6) Property	(7) Risk-pre	(8) Property	(9) Risk-pre	(10) Property
Digital	0.002***	0.117***								
	(2.734)	(3.131)								
Risk-pre		3.523***		3.623***		3.467***		3.564***		3.632***
		(3.979)		(4.092)		(3.914)		(4.024)		(4.099)
Opera			0.004	0.028*						
			(1.150)	(1.773)						
Acquire					0.003***	0.166***				
					(3.485)	(3.415)				
Apply							0.002**	0.093**		
							(2.476)	(2.425)		
Aware									0.001**	0.011
									(2.053)	(0.735)
Hea_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Fam_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
vil_con	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Pro_con_cons	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
	-0.038	-2.465	-0.044	-2.130	-0.038	-2.138	-0.045	-2.516	-0.040	-2.169
	(-1.245)	(-1.585)	(-1.427)	(-1.371)	(-1.251)	(-1.378)	(-1.485)	(-1.612)	(-1.315)	(-1.395)
N	3369	3320	3369	3320	3369	3320	3369	3320	3369	3320
Adjusted R2	0.021	0.096	0.023	0.094	0.024	0.096	0.022	0.094	0.022	0.093

6. Conclusion and Policy Implications

Improving digital literacy has become an important way to broaden the property income channel of farm households and also provides a reliable way for farm households to increase their property income and total income. This paper explores the intrinsic mechanism of digital literacy to promote the growth of farm households' property income, and examines the effect of digital literacy and its sub-dimensions on farm households' property income based on the data of the 2020 China Rural Revitalization Comprehensive Survey. The results show that (1) digital literacy significantly promotes the growth of farmers' property income, and the four dimensions of digital literacy have different degrees of positive effects on farmers' property income, and consistent conclusions can still be obtained after a series of robustness tests such as Heckman's two-step method and instrumental variables method. (2) In terms of heterogeneity analysis, digital literacy has a significant positive impact on the growth of property income of farm households with low education level, average physical capital households and farm households with better economic conditions in villages, among which, digital information acquisition literacy has the most significant impact, while digital device operation literacy and digital awareness literacy have a limited degree of impact on the property income of farm households with different characteristics. (3) The analysis of the impact mechanism indicates that digital literacy promotes the growth of farmers' property income mainly through promoting social capital accumulation and improving risk preferences. The policy implication of this paper is that under the promotion of important strategies such as "strong network country", "broadband China" and digital countryside, the Internet infrastructure has covered most of the rural areas in China, and the level of digital literacy has become a key factor in whether farmers can share the dividends of digital economy. The level of digital literacy has become a key factor for farmers to share the dividends of digital economy, and more attention should be paid to the positive impact of digital literacy on farmers' property income.

Based on the above research findings, this paper proposes the following recommendations from three perspectives. First, improve the quality of digital literacy education and focus on cultivating farmers' digital

information acquisition literacy. In the process of improving the construction of digital villages, the government can incorporate digital education into the rural basic education system, enrich the content of digital literacy cultivation, improve farmers' adaptability to different use scenarios of digital technology, enhance farmers' digital comprehensive skills, and focus on the digital information acquisition literacy dimension to lower the threshold of digital technology use. Second, actively improve the precise supply of policies to release the inclusive economic effects of digital literacy. Focus on key populations such as farmers with low education level, average material capital households and farmers with better economic conditions in villages, and guide the allocation of digital literacy training, digital information services and high-quality educational resources to key populations and regions, while also paying attention to digital technology application in non-key populations or regions, bridging the digital divide among different populations and regions, and promoting inclusive growth of the digital economy. Third, encourage farmers to actively use digital platforms to bring into play the income-generating effects of the digital economy. Accelerate the pace to enhance digital infrastructure coverage, improve the financial service guarantee system, and guide farmers to use digital platforms to socialize and obtain formal credit, lower the information threshold and capital threshold for farmers to carry out agricultural production or non-farm entrepreneurship, give full play to the multiple effects of digital literacy to promote the accumulation of social capital and improve farmers' risk appetite, and create basic conditions for the release of digital economy dividends.

Funding Statement

This research received no external funding.

Acknowledgments

Acknowledgments to anonymous referees' comments and editor's effort.

Conflict of interest

All the authors claim that the manuscript is completely original. The authors also declare no conflict of interest.

Appendix

A1. Descriptive statistical characteristics of variable.

Variable Name	Variable Code	Meaning	Mean	Sd	min	max	N	P25
Property income	Property	Total property income of farm households (yuan), taken as logarithm	2.579	3.755	0	13.50	3799	0.000
Digital Literacy	Digital	Total digital literacy level	5.352	2.084	1	10	3799	4.236
Gender	Gender	Male=1; Female=0	0.932	0.252	0	1	3799	1.000
Age	Age	Age divided by 10	5.595	1.136	0.200	9.200	3799	4.800
Age squared	AgeSquare	Age squared divided by 1000	3.259	1.272	0.004	8.464	3799	2.304
Marital Status	Marri	Married = 1; unmarried, divorced, widowed = 0	0.916	0.277	0	1	3799	1.000
Years of education	Edu	Not in school = 0; elementary school = 6; junior high school = 9; high school, junior college, vocational high technical	7.873	3.330	0	16	3799	6.000

		school = 12; college specialist = 15; Undergraduate = 16						
Family Social Relations	Status	Family members with village officials = 1, no = 0	0.155	0.362	0	1	3799	0.000
Family size	Size	Number of family members	4.061	1.576	1	10	3799	3.000
Is the village on the outskirts of town	Sub	Is the village located on the outskirts of town	0.211	0.408	0	1	3748	0.000
Village Economic Conditions	Eco	Village disposable income per capita in 2019 (yuan), taken as log	9.436	0.726	1.099	12.486	3748	9.110
Village transportation conditions	Tra	Distance from village council to county government (km), take logarithm	2.951	0.729	0.693	4.836	3748	2.442

A2. Descriptive statistical characteristics of variable.

	N	Mean	SD	Min	Max
Property	263	2.661	3.898	0.000	11.466
Digital	263	5.279	2.112	1.000	9.725
Age	263	5.592	1.318	1.600	8.900
AgeSquare	263	3.300	1.474	0.256	7.921
Marri	263	0.643	0.480	0.000	1.000
Edu	263	6.635	4.084	0.000	16.000
Status	263	0.095	0.294	0.000	1.000
Size	263	3.730	1.719	1.000	9.000
Sub	263	0.240	0.428	0.000	1.000
Eco	259	9.543	0.831	1.099	12.486
Tra	261	2.884	0.776	0.693	4.836

Notes: Summary statistics: N mean sd min max by (Gender), Gender=female proportions: 6.92%.

	N	Mean	SD	Min	Max
Property	3536	2.572	3.745	0.000	13.501
Digital	3536	5.357	2.082	1.000	10.000
Age	3536	5.595	1.122	0.200	9.200
AgeSquare	3536	3.256	1.256	0.004	8.464
Marri	3536	0.936	0.244	0.000	1.000
Edu	3536	7.906	3.137	0.000	16.000
Status	3536	0.159	0.366	0.000	1.000
Size	3536	4.086	1.563	1.000	10.000
Sub	3485	0.209	0.406	0.000	1.000
Eco	3489	9.428	0.717	1.099	12.486
Tra	3487	2.956	0.725	0.693	4.836

Notes: Gender = male proportions: 93.08%

	N	Mean	SD	Min	Max
Property	322	2.321	3.481	0.000	10.086

Digital	322	4.679	2.380	1.000	9.234
Age	322	5.843	1.491	0.200	8.800
AgeSquare	322	3.635	1.614	0.004	7.744
xingbie1	322	0.708	0.455	0.000	1.000
Edu	322	6.522	3.750	0.000	16.000
Status	322	0.081	0.273	0.000	1.000
Size	322	2.792	1.540	1.000	8.000
Sub	322	0.189	0.392	0.000	1.000
Eco	318	9.409	0.722	1.099	11.775
Tra	319	3.004	0.766	0.693	4.836

Notes: Summary statistics: N mean sd min max by (Marri), Marri=0 proportions: 8.48%.

	N	Mean	SD	Min	Max
Property	3477	2.602	3.779	0.000	13.501
Digital	3477	5.413	2.044	1.000	10.000
Age	3477	5.572	1.096	2.200	9.200
AgeSquare	3477	3.225	1.231	0.484	8.464
xingbie1	3477	0.952	0.214	0.000	1.000
Edu	3477	7.937	3.148	0.000	16.000
Status	3477	0.162	0.368	0.000	1.000
Size	3477	4.177	1.528	1.000	10.000
Sub	3326	0.213	0.409	0.000	1.000
Eco	3461	9.438	0.726	1.099	12.486
Tra	3461	2.947	0.725	0.693	4.836

Notes: Marri=1 proportions: 91.52%.

	N	Mean	SD	Min	Max
Property	334	2.160	3.564	0.000	10.597
Digital	334	3.857	2.090	1.000	8.695
Age	334	6.299	1.185	0.200	9.200
AgeSquare	334	4.108	1.403	0.004	8.464
xingbie1	334	0.832	0.374	0.000	1.000
Marri	334	0.823	0.382	0.000	1.000
Status	334	0.039	0.194	0.000	1.000
Size	334	3.695	1.768	1.000	9.000
Sub	334	0.147	0.354	0.000	1.000
Eco	328	9.396	0.686	1.099	12.486
Tra	333	3.141	0.739	0.693	4.836

Notes: Summary statistics: N mean sd min max by (Edu), Edu: 0 proportions: 8.79%.

	N	Mean	SD	Min	Max
Property	1166	2.446	3.643	0.000	13.501
Digital	1166	4.729	2.163	1.000	9.537
Age	1166	5.888	1.160	1.600	8.800
AgeSquare	1166	3.601	1.358	0.256	7.744
xingbie1	1166	0.932	0.253	0.000	1.000
Marri	1166	0.892	0.311	0.000	1.000
Status	1166	0.103	0.304	0.000	1.000
Size	1166	4.008	1.668	1.000	10.000
Sub	1166	0.196	0.397	0.000	1.000
Eco	1166	9.412	0.694	1.099	12.486
Tra	1181	3.021	0.746	0.693	4.836

Notes: Edu=6 proportions: 30.69%.

	N	Mean	SD	Min	Max
Property	1727	2.655	3.774	0.000	12.582
Digital	1727	5.745	1.850	1.000	9.931
Age	1727	5.376	1.008	1.300	8.900
AgeSquare	1727	2.991	1.090	0.169	7.921
xingbie1	1727	0.946	0.227	0.000	1.000
Marri	1727	0.939	0.240	0.000	1.000
Status	1727	0.175	0.380	0.000	1.000
Size	1727	4.152	1.502	1.000	10.000
Sub	1727	0.223	0.417	0.000	1.000
Eco	1682	9.419	0.758	1.099	12.486
Tra	1727	2.896	0.713	0.693	4.836

Notes: Edu=9 proportions: 45.46%.

	N	Mean	SD	Min	Max
Property	489	2.676	3.901	0.000	13.368
Digital	489	6.15	1.727	1.000	9.624
Age	489	5.446	0.994	2.300	8.100
AgeSquare	489	3.064	1.036	0.529	6.561
xingbie1	489	0.958	0.201	0.000	1.000
Marri	489	0.964	0.187	0.000	1.000
Status	489	0.255	0.436	0.000	1.000
Size	489	4.114	1.470	1.000	9.000
Sub	489	0.221	0.415	0.000	1.000
Eco	489	9.530	0.703	1.099	12.486
Tra	424	2.858	0.718	0.693	4.454

Notes: Edu=12 proportions: 12.87%.

	N	Mean	SD	Min	Max
Property	65	3.521	4.136	0.000	11.513
Digital	65	7.194	1.504	1.271	10.000
Age	65	4.218	1.015	2.400	7.500
AgeSquare	65	1.881	0.949	0.576	5.625
xingbie1	65	0.877	0.331	0.000	1.000
Marri	65	0.892	0.312	0.000	1.000
Status	65	0.354	0.482	0.000	1.000
Size	65	4.123	1.317	2.000	8.000
Sub	65	0.323	0.471	0.000	1.000
Eco	65	9.682	0.610	8.390	10.568
Tra	65	2.923	0.566	1.609	3.932

Notes: Edu=15 proportions: 1.71%.

	N	Mean	SD	Min	Max
Property	18	5.496	5.180	0.000	12.206
Digital	18	7.110	1.624	1.271	9.232
Age	18	3.628	0.987	2.300	6.600
AgeSquare	18	1.408	0.867	0.529	4.356
xingbie1	18	0.889	0.323	0.000	1.000
Marri	18	0.833	0.383	0.000	1.000
Status	18	0.222	0.428	0.000	1.000
Size	18	3.833	1.295	2.000	6.000
Sub	18	0.444	0.511	0.000	1.000
Eco	18	9.953	0.794	8.613	11.775
Tra	18	2.978	0.765	1.609	4.331

Notes: Edu=16 proportions: 0.47%.

	N	Mean	SD	Min	Max

Property	3211	2.558	3.732	0.000	13.368
Digital	3211	5.211	2.125	1.000	9.931
Age	3211	5.619	1.170	0.200	9.200
AgeSquare	3211	3.295	1.311	0.004	8.464
xingbie1	3211	0.927	0.260	0.000	1.000
Marri	3211	0.909	0.288	0.000	1.000
Edu	3211	7.583	3.260	0.000	16.000
Size	3211	4.046	1.593	1.000	10.000
Sub	3200	0.202	0.402	0.000	1.000
Eco	3212	9.435	0.731	1.099	12.486
Tra	3153	2.945	0.728	0.693	4.836

Notes: Summary statistics: N mean sd min max by (Status), Status= 0 proportions: 84.52%.

	N	Mean	SD	Min	Max
Property	588	2.693	3.882	0.000	13.501
Digital	588	6.121	1.645	1.000	10.000
Age	588	5.459	0.917	3.200	7.900
AgeSquare	588	3.064	1.013	1.024	6.241
xingbie1	588	0.958	0.201	0.000	1.000
Marri	588	0.956	0.204	0.000	1.000
Edu	588	9.107	2.692	0.000	16.000
Size	588	4.143	1.479	1.000	8.000
Sub	596	0.258	0.438	0.000	1.000
Eco	587	9.442	0.697	1.099	12.486
Tra	595	2.987	0.731	0.693	4.836

Notes: Status= 1 proportions: 15.48%.

	N	Mean	SD	Min	Max
Property	2990	2.434	3.677	0.000	13.368
Digital	2990	5.255	2.112	1.000	9.931
Age	2990	5.639	1.137	0.200	9.200
AgeSquare	2990	3.309	1.279	0.004	8.464
xingbie1	2990	0.934	0.248	0.000	1.000
Marri	2990	0.914	0.280	0.000	1.000
Edu	2990	7.709	3.254	0.000	16.000
Size	2990	3.983	1.577	1.000	10.000
Status	2990	0.146	0.353	0.000	1.000
Eco	3011	9.374	0.742	1.099	12.486
Tra	3023	3.088	0.649	0.916	4.836

Notes: Summary statistics: N mean sd min max by (Sub), Sub= 0 proportions: 78.70%.

	N	Mean	SD	Min	Max
Property	809	3.114	3.986	0.000	13.501
Digital	809	5.715	1.937	1.000	10.000
Age	809	5.429	1.119	2.300	8.600
AgeSquare	809	3.073	1.229	0.529	7.396
xingbie1	809	0.922	0.268	0.000	1.000
Marri	809	0.925	0.264	0.000	1.000
Edu	809	8.229	3.086	0.000	16.000
Size	809	4.354	1.539	1.000	10.000
Status	809	0.190	0.392	0.000	1.000
Eco	737	9.672	0.603	8.613	11.775
Tra	776	2.444	0.782	0.693	4.331

Notes: Sub=1 proportions: 21.30%.

A3. Estimated results of instrumental variables of digital literacy on property income of farm households.

Variables and statistical parameters	Model (1)		Model (2)		Models (3)	
	Digital Phase I	Property Phase II	Digital Phase I	Property Phase II	Digital Phase I	Property Phase II
Gender	-0.226**	0.003	-0.233**	0.005	-0.256**	-0.002
	(-2.04)	(0.01)	(-2.12)	(0.02)	(-2.32)	(-0.01)
Age	0.588***	-0.040	0.520***	-0.039	0.601***	-0.118
	(3.51)	(-0.11)	(3.12)	(-0.10)	(3.57)	(-0.31)
Agesquare	-1.200***	0.572	-1.125***	0.571	-1.209***	0.534
	(-7.97)	(1.53)	(-7.50)	(1.54)	(-7.98)	(1.41)
Marri	0.216**	0.221	0.059	0.286	0.067	0.235
	(2.12)	(0.97)	(0.57)	(1.23)	(0.64)	(1.02)
Edu	0.113***	0.051*	0.107***	0.051*	0.106***	0.056**
	(12.46)	(1.91)	(11.77)	(1.91)	(11.51)	(2.11)
Status			0.445***	-0.073	0.452***	-0.009
			(5.87)	(-0.40)	(5.91)	(-0.05)
Size			0.103***	-0.048	0.101***	-0.028
			(5.56)	(-1.08)	(5.43)	(-0.63)
Sub					0.009	0.308*
					(0.12)	(1.86)
Eco					0.101**	0.414***
					(2.37)	(4.34)
Tra					0.033	-0.225**
					(0.78)	(-2.39)
IV	0.445***		0.430***		0.422***	
	(16.08)		(15.62)		(15.05)	
Digital		0.405***		0.414***		0.266*
		(2.95)		(2.91)		(1.83)
_cons	2.624***	-0.858	2.658***	-0.802	1.507**	-2.686*
	(5.31)	(-0.69)	(5.36)	(-0.63)	(2.30)	(-1.80)
N	3,799	3,799	3,799	3,799	3,748	3,748
F-statistic	258.50		244.03		226.57	

A4. Heckman two-step estimation results of digital literacy on property income of farm households.

Variables and statistical parameters	Model (1)		Model (2)		Models (3)	
	Select Model	Regression model	Select Model	Regression model	Select Model	Regression model
	Master Digital	Property	Master Digital	Property	Master Digital	Property
Gender	-0.165	-0.053	-0.178	-0.055	-0.220*	-0.041
	(-1.392)	(-0.208)	(-1.491)	(-0.214)	(-1.779)	(-0.160)
Age	0.327	0.066	0.303	0.035	0.402*	-0.068
	(1.350)	(0.112)	(1.262)	(0.059)	(1.752)	(-0.118)
Age_s	-0.767***	0.283	-0.737***	0.314	-0.830***	0.383

	(-3.630)	(0.409)	(-3.528)	(0.452)	(-4.140)	(0.569)
Marri	0.168*	0.272	0.045	0.285	0.046	0.233
	(1.722)	(1.221)	(0.455)	(1.237)	(0.461)	(1.006)
Edu	0.085***	0.085**	0.080***	0.083**	0.080***	0.073*
	(10.031)	(2.173)	(9.386)	(2.104)	(9.160)	(1.884)
Status			0.444***	0.086	0.437***	0.081
			(5.569)	(0.495)	(5.426)	(0.467)
Size			0.078***	-0.013	0.079***	-0.009
			(4.563)	(-0.322)	(4.559)	(-0.213)
Sub					0.101	0.338**
					(1.335)	(1.962)
Eco					0.055	0.440***
					(1.551)	(5.093)
Tra					0.031	-0.213**
					(0.726)	(-2.263)
Digital		0.109***		0.109***		0.093***
		(3.162)		(3.121)		(2.639)
IMR		-0.106		-0.129		-0.087
		(-0.130)		(-0.157)		(-0.108)
_cons	0.878	0.820	0.799	0.952	-0.034	-1.975
	(1.268)	(0.504)	(1.165)	(0.581)	(-0.045)	(-1.083)
N	3799		3799		3748	
R2	0.244	0.077	0.256	0.077	0.261	0.091

A5. Results of robustness tests based on replacement variables.

Variables and statistical parameters	Model (1)	Models (2)	Models (3)	Models (4)	Models (5)	Models (6)
Dig_edu2	0.342	0.335	0.369*			
	(1.630)	(1.595)	(1.769)			
Gender	-0.071	-0.074	-0.057	-0.070	-0.073	-0.055
	(-0.291)	(-0.306)	(-0.235)	(-0.290)	(-0.304)	(-0.229)
Age	0.220	0.194	0.070	0.202	0.180	0.055
	(0.599)	(0.527)	(0.189)	(0.552)	(0.488)	(0.149)
Age_s	0.051	0.073	0.182	0.067	0.087	0.197
	(0.154)	(0.221)	(0.547)	(0.204)	(0.263)	(0.594)
Marri	0.305	0.304	0.248	0.287	0.286	0.228
	(1.367)	(1.318)	(1.080)	(1.282)	(1.241)	(0.993)
Edu	0.100***	0.098***	0.084***	0.100***	0.098***	0.085***
	(5.042)	(4.888)	(4.194)	(5.075)	(4.933)	(4.245)
Status		0.130	0.116		0.115	0.099
		(0.775)	(0.694)		(0.686)	(0.587)
Size		-0.002	0.000		-0.002	-0.000
		(-0.050)	(0.004)		(-0.054)	(-0.004)
Sub			0.353**			0.363**
			(2.156)			(2.218)
Eco			0.454***			0.453***
			(4.895)			(4.879)
Tra			-0.208**			-0.209**
			(-2.213)			(-2.223)
Dig_edu1				0.504**	0.490*	0.559**
				(2.001)	(1.940)	(2.211)
_cons	1.099	1.185	-1.936	1.162	1.239	-1.862
	(1.069)	(1.139)	(-1.370)	(1.132)	(1.193)	(-1.319)

N	3799	3799	3748	3799	3799	3748
R2	0.072	0.072	0.085	0.072	0.072	0.085

A6. Results of heterogeneity analysis based on education level.

Variables and statistical parameters	Model (1) L_edu	Model (2) H_edu	Model (3) L_edu	Model (4) H_edu	Model (5) L_edu	Model (6) H_edu	Model (7) L_edu	Model (8) H_edu	Model (9) L_edu	Model (10) H_edu
Digital	0.106***	-0.032								
	(2.914)	(-0.276)								
Gender	0.012	-0.028	-0.003	-0.023	-0.017	-0.025	0.007	-0.029	-0.008	-0.053
	(0.048)	(-0.038)	(-0.011)	(-0.031)	(-0.066)	(-0.034)	(0.026)	(-0.039)	(-0.030)	(-0.071)
Age	0.056	1.269	0.032	1.130	0.063	1.211	0.112	1.200	0.109	1.341
	(0.138)	(0.963)	(0.078)	(0.836)	(0.156)	(0.931)	(0.278)	(0.925)	(0.271)	(1.030)
Age_s	0.255	-0.945	0.230	-0.776	0.229	-0.869	0.176	-0.852	0.150	-1.049
	(0.712)	(-0.725)	(0.633)	(-0.581)	(0.641)	(-0.682)	(0.492)	(-0.671)	(0.420)	(-0.821)
Marri	0.148	1.154	0.152	1.142	0.141	1.149	0.164	1.149	0.139	1.162
	(0.618)	(1.449)	(0.637)	(1.433)	(0.592)	(1.443)	(0.686)	(1.443)	(0.581)	(1.462)
Edu	0.062**	0.534***	0.071***	0.532***	0.061**	0.533***	0.070***	0.532***	0.071***	0.529***
	(2.446)	(3.244)	(2.834)	(3.236)	(2.421)	(3.235)	(2.784)	(3.225)	(2.825)	(3.219)
Status	0.184	-0.189	0.223	-0.204	0.182	-0.198	0.228	-0.201	0.217	-0.162
	(0.975)	(-0.490)	(1.182)	(-0.535)	(0.964)	(-0.517)	(1.211)	(-0.527)	(1.144)	(-0.423)
Size	-0.008	-0.006	-0.000	-0.007	-0.006	-0.007	-0.003	-0.008	0.002	-0.005
	(-0.174)	(-0.047)	(-0.001)	(-0.053)	(-0.128)	(-0.059)	(-0.078)	(-0.062)	(0.055)	(-0.043)
Sub	0.395**	0.227	0.407**	0.223	0.401**	0.225	0.398**	0.225	0.412**	0.234
	(2.238)	(0.515)	(2.303)	(0.507)	(2.276)	(0.510)	(2.251)	(0.510)	(2.330)	(0.531)
Eco	0.404***	0.593**	0.415***	0.580**	0.398***	0.587**	0.418***	0.584**	0.411***	0.604**
	(4.119)	(2.099)	(4.222)	(2.059)	(4.057)	(2.070)	(4.259)	(2.079)	(4.183)	(2.147)
Tra	-0.208**	-0.048	-0.206**	-0.057	-0.195*	-0.052	-0.210**	-0.052	-0.209**	-0.041
	(-2.086)	(-0.177)	(-2.063)	(-0.209)	(-1.952)	(-0.192)	(-2.098)	(-0.192)	(-2.086)	(-0.152)
opera			0.020	0.011						
			(1.323)	(0.189)						
acquire					0.165***	-0.010				
					(3.441)	(-0.075)				
apply							0.090**	0.003		
							(2.324)	(0.032)		
aware									0.018	-0.035
									(1.205)	(-0.983)
_cons	-1.882	-13.552**	-1.515	-13.439**	-1.564	-13.532**	-1.874	-13.513**	-1.552	-13.572**
	(-1.237)	(-2.576)	(-0.999)	(-2.549)	(-1.033)	(-2.570)	(-1.228)	(-2.569)	(-1.022)	(-2.583)
N	3183	565	3183	565	3183	565	3183	565	3183	565
R2	0.090	0.084	0.088	0.084	0.091	0.084	0.089	0.084	0.088	0.085

A7. Results of the heterogeneity analysis based on household physical capital.

	(1) Gene_	(2) Higher	(3) Gene_	(4) Higher	(5) Gene_	(6) Higher	(7) Gene_	(8) Higher	(9) Gene_	(10) Higher
Digital	0.157***	0.022								
	(3.260)	(0.422)								
Gender	-0.017	-0.102	-0.035	-0.105	-0.055	-0.117	-0.038	-0.102	-0.067	-0.119
	(-0.050)	(-0.291)	(-0.103)	(-0.301)	(-0.162)	(-0.335)	(-0.113)	(-0.291)	(-0.199)	(-0.341)
Age	-0.179	0.117	-0.273	0.139	-0.140	0.100	-0.081	0.128	-0.108	0.138
	(-0.329)	(0.230)	(-0.494)	(0.272)	(-0.258)	(0.199)	(-0.148)	(0.253)	(-0.198)	(0.273)
AgeS_	0.447	0.208	0.468	0.170	0.371	0.237	0.310	0.200	0.313	0.155
	(0.916)	(0.448)	(0.939)	(0.363)	(0.763)	(0.515)	(0.637)	(0.436)	(0.644)	(0.339)
Marri_	0.008	0.362	0.042	0.360	0.012	0.361	0.038	0.371	-0.000	0.363
	(0.022)	(1.198)	(0.116)	(1.192)	(0.033)	(1.194)	(0.104)	(1.227)	(-0.001)	(1.201)
Edu	0.060**	0.093***	0.072**	0.095***	0.062**	0.088***	0.068**	0.094***	0.074**	0.098***
	(2.008)	(3.263)	(2.450)	(3.414)	(2.104)	(3.101)	(2.297)	(3.363)	(2.501)	(3.521)
Status	0.096	0.064	0.145	0.078	0.100	0.048	0.149	0.073	0.129	0.101

	(0.412)	(0.265)	(0.622)	(0.320)	(0.431)	(0.197)	(0.644)	(0.300)	(0.554)	(0.413)
Size	-0.003	0.020	0.004	0.025	0.001	0.016	0.001	0.020	0.009	0.031
	(-0.055)	(0.321)	(0.060)	(0.393)	(0.010)	(0.245)	(0.017)	(0.314)	(0.156)	(0.484)
Sub	0.175	0.592**	0.197	0.594**	0.188	0.592**	0.181	0.590**	0.197	0.595**
	(0.808)	(2.355)	(0.909)	(2.363)	(0.868)	(2.358)	(0.832)	(2.349)	(0.909)	(2.370)
Eco	0.457***	0.500***	0.466***	0.508***	0.444***	0.490***	0.471***	0.504***	0.458***	0.520***
	(4.119)	(2.883)	(4.189)	(2.935)	(3.991)	(2.832)	(4.237)	(2.917)	(4.119)	(2.999)
Tra	-0.304**	-0.098	-0.302**	-0.096	-0.279**	-0.096	-0.309**	-0.097	-0.309**	-0.091
	(-2.336)	(-0.715)	(-2.312)	(-0.702)	(-2.141)	(-0.707)	(-2.366)	(-0.709)	(-2.363)	(-0.668)
Opera			0.033	-0.001						
			(1.616)	(-0.042)						
Acq_					0.199***	0.084				
					(3.131)	(1.290)				
App_							0.120**	0.033		
							(2.425)	(0.626)		
Aware									0.035*	-0.015
									(1.813)	(-0.781)
_cons	-1.418	-3.394	-0.740	-3.384	-0.931	-3.295	-1.285	-3.475	-0.905	-3.384
	(-0.730)	(-1.501)	(-0.383)	(-1.496)	(-0.482)	(-1.457)	(-0.659)	(-1.533)	(-0.467)	(-1.497)
N	1870	1878	1870	1878	1870	1878	1870	1878	1870	1878
R2	0.092	0.100	0.089	0.100	0.092	0.100	0.090	0.100	0.089	0.100

A8. Results of heterogeneity analysis based on economic conditions of villages.

	(1) Poor	(2) Better	(3) Poor	(4) Better	(5) Poor	(6) Better	(7) Poor	(8) Better	(9) Poor	(10) Better
Digital	0.018	0.112**								
	(0.402)	(2.100)								
Opera			-0.011	0.037						
			(-0.576)	(1.618)						
Acq_					0.050	0.167**				
					(0.880)	(2.389)				
App_							-0.011	0.118**		
							(-0.233)	(2.196)		
Aware									-0.010	0.013
									(-0.572)	(0.640)
Gender	-0.113	-0.085	-0.124	-0.085	-0.120	-0.111	-0.120	-0.093	-0.122	-0.102
	(-0.346)	(-0.243)	(-0.381)	(-0.244)	(-0.366)	(-0.319)	(-0.367)	(-0.266)	(-0.373)	(-0.292)
Age	0.009	-0.175	0.066	-0.260	0.005	-0.141	0.020	-0.099	0.018	-0.117
	(0.020)	(-0.320)	(0.134)	(-0.472)	(0.010)	(-0.259)	(0.042)	(-0.182)	(0.037)	(-0.215)
AgeS_	0.144	0.596	0.066	0.642	0.151	0.547	0.116	0.514	0.113	0.477
	(0.328)	(1.206)	(0.147)	(1.277)	(0.347)	(1.113)	(0.267)	(1.046)	(0.259)	(0.971)
Marri_	0.027	0.447	0.035	0.438	0.021	0.440	0.032	0.475	0.036	0.412
	(0.092)	(1.269)	(0.121)	(1.244)	(0.073)	(1.249)	(0.112)	(1.346)	(0.125)	(1.169)
Edu	0.049*	0.100***	0.053**	0.108***	0.047*	0.099***	0.051**	0.106***	0.052**	0.112***
	(1.865)	(3.181)	(2.036)	(3.500)	(1.810)	(3.145)	(1.989)	(3.416)	(2.025)	(3.617)
Status	0.377*	-0.223	0.395*	-0.199	0.366*	-0.215	0.389*	-0.187	0.401*	-0.189
	(1.757)	(-0.876)	(1.845)	(-0.782)	(1.705)	(-0.845)	(1.820)	(-0.735)	(1.867)	(-0.743)
Size	-0.036	0.060	-0.030	0.066	-0.037	0.063	-0.032	0.059	-0.032	0.071
	(-0.691)	(0.942)	(-0.592)	(1.045)	(-0.715)	(0.995)	(-0.630)	(0.928)	(-0.620)	(1.120)
Sub	0.462*	0.298	0.469*	0.304	0.463*	0.306	0.467*	0.295	0.467*	0.314
	(1.911)	(1.304)	(1.940)	(1.327)	(1.917)	(1.339)	(1.933)	(1.290)	(1.934)	(1.374)
Eco	-0.018	0.711***	-0.022	0.730***	-0.021	0.706***	-0.022	0.735***	-0.020	0.732***
	(-0.162)	(3.128)	(-0.196)	(3.216)	(-0.185)	(3.107)	(-0.189)	(3.242)	(-0.174)	(3.212)
Tra	0.108	-0.102	0.119	-0.106	0.109	-0.094	0.115	-0.113	0.120	-0.110
	(0.801)	(-0.710)	(0.881)	(-0.736)	(0.808)	(-0.653)	(0.855)	(-0.785)	(0.887)	(-0.766)
_cons	2.195	-5.556**	2.298	-5.286*	2.236	-5.273*	2.326	-5.768**	2.346	-5.268*
	(1.226)	(-2.028)	(1.290)	(-1.931)	(1.256)	(-1.928)	(1.296)	(-2.101)	(1.314)	(-1.923)
N	1847	1901	1847	1901	1847	1901	1847	1901	1847	1901
R2	0.070	0.097	0.070	0.097	0.070	0.098	0.070	0.098	0.070	0.096

A9. Results of mechanism test of social capital.

	(1) Capital	(2) Property	(3) Capital	(4) Property	(5) Capital	(6) Property	(7) Capital	(8) Property	(9) Capital	(10) Property
Digital	0.775***	0.070*								
	(6.116)	(1.941)								
Gender	-0.049	-0.025	-0.107	-0.035	-0.248	-0.044	-0.155	-0.031	-0.107	-0.038
	(-0.055)	(-0.099)	(-0.120)	(-0.139)	(-0.279)	(-0.177)	(-0.174)	(-0.126)	(-0.120)	(-0.152)
Age	-3.262**	0.035	-3.430**	0.048	-3.064**	0.045	-2.764**	0.084	-2.774**	0.079
	(-2.427)	(0.094)	(-2.513)	(0.125)	(-2.283)	(0.118)	(-2.053)	(0.223)	(-2.061)	(0.209)
Age_s	2.594**	0.256	2.406*	0.206	2.223*	0.240	1.852	0.197	1.839	0.172
	(2.124)	(0.745)	(1.931)	(0.592)	(1.831)	(0.705)	(1.522)	(0.580)	(1.513)	(0.505)
Marri	-0.313	0.225	-0.320	0.225	-0.339	0.222	-0.184	0.242	-0.417	0.224
	(-0.372)	(0.955)	(-0.380)	(0.955)	(-0.404)	(0.942)	(-0.218)	(1.025)	(-0.496)	(0.948)
Edu	0.120	0.077***	0.184**	0.083***	0.124*	0.075***	0.180**	0.081***	0.175**	0.084***
	(1.612)	(3.668)	(2.503)	(4.036)	(1.673)	(3.590)	(2.454)	(3.912)	(2.381)	(4.074)
Status	2.795***	0.081	3.074***	0.108	2.844***	0.078	3.117***	0.105	2.901***	0.108
	(4.565)	(0.466)	(5.016)	(0.625)	(4.654)	(0.449)	(5.098)	(0.611)	(4.722)	(0.626)
Size	0.157	-0.023	0.211	-0.017	0.186	-0.022	0.196	-0.021	0.219	-0.016
	(1.045)	(-0.536)	(1.400)	(-0.395)	(1.238)	(-0.517)	(1.297)	(-0.506)	(1.457)	(-0.368)
sub	-0.524	0.314*	-0.449	0.324*	-0.476	0.315*	-0.473	0.314*	-0.412	0.327*
	(-0.871)	(1.861)	(-0.744)	(1.920)	(-0.792)	(1.873)	(-0.783)	(1.864)	(-0.683)	(1.937)
Eco	0.522	0.432***	0.617*	0.442***	0.479	0.424***	0.630*	0.442***	0.556	0.441***
	(1.531)	(4.517)	(1.804)	(4.615)	(1.404)	(4.426)	(1.844)	(4.620)	(1.625)	(4.607)
Tra	-0.142	-0.197**	-0.127	-0.194**	-0.057	-0.188**	-0.123	-0.197**	-0.163	-0.193**
	(-0.416)	(-2.056)	(-0.371)	(-2.024)	(-0.167)	(-1.968)	(-0.360)	(-2.054)	(-0.477)	(-2.017)
Relation		0.014***		0.014***		0.013***		0.014***		0.014***
		(2.922)		(3.106)		(2.841)		(3.016)		(3.107)
Opera			0.154***	0.008						
			(2.839)	(0.499)						
Acquire					1.043***	0.123***				
					(6.374)	(2.650)				
Apply							0.490***	0.066*		
							(3.753)	(1.794)		
Aware									0.210***	0.004
									(4.211)	(0.266)
_cons	8.956*	-2.137	11.333**	-1.928	11.196**	-1.935	9.380*	-2.200	10.506**	-1.939
	(1.732)	(-1.474)	(2.190)	(-1.333)	(2.173)	(-1.339)	(1.804)	(-1.513)	(2.031)	(-1.340)
N	3616	3568	3616	3568	3616	3568	3616	3568	3616	3568
R^2	0.065	0.095	0.058	0.094	0.066	0.096	0.059	0.095	0.060	0.094

A10. Results of the mechanism test for risk preference.

	(1) Risk-pre	(2) Property	(3) Risk-pre	(4) Property	(5) Risk-pre	(6) Property	(7) Risk-pre	(8) Property	(9) Risk-pre	(10) Property
Digital	0.002***	0.117***								
	(2.734)	(3.131)								
Risk-pre		3.523***		3.623***		3.467***		3.564***		3.632***
		(3.979)		(4.092)		(3.914)		(4.024)		(4.099)
Opera			0.004	0.028*						
			(1.150)	(1.773)						
Acquire					0.003***	0.166***				
					(3.485)	(3.415)				
Apply							0.002**	0.093**		
							(2.476)	(2.425)		
Aware									0.001**	0.011
									(2.053)	(0.735)
Gender	-0.004	0.203	-0.004	0.193	-0.004	0.167	-0.004	0.195	-0.004	0.182
	(-0.731)	(0.781)	(-0.686)	(0.742)	(-0.809)	(0.642)	(-0.702)	(0.750)	(-0.709)	(0.699)
Age	0.001	-0.166	0.001	-0.202	0.001	-0.140	0.002	-0.086	0.002	-0.086
	(0.087)	(-0.424)	(0.103)	(-0.510)	(0.141)	(-0.359)	(0.280)	(-0.220)	(0.281)	(-0.220)
AgeS_	-0.002	0.462	-0.001	0.451	-0.001	0.413	-0.003	0.355	-0.003	0.320
	(-0.240)	(1.297)	(-0.128)	(1.246)	(-0.206)	(1.169)	(-0.370)	(1.006)	(-0.414)	(0.904)
Marri_	-0.001	0.263	-0.001	0.259	-0.001	0.262	-0.001	0.280	-0.002	0.250

	(-0.260)	(1.060)	(-0.240)	(1.044)	(-0.241)	(1.057)	(-0.162)	(1.126)	(-0.326)	(1.006)
Edu	0.001***	0.071***	0.001***	0.080***	0.001***	0.072***	0.001***	0.079***	0.001***	0.083***
	(3.410)	(3.244)	(2.955)	(3.702)	(2.883)	(3.272)	(3.263)	(3.636)	(3.313)	(3.831)
Status	-0.003	0.118	-0.003	0.156	-0.003	0.125	-0.003	0.162	-0.003	0.161
	(-0.758)	(0.667)	(-0.960)	(0.880)	(-0.976)	(0.706)	(-0.758)	(0.918)	(-0.910)	(0.905)
Size	-0.000	-0.009	-0.001	-0.001	-0.001	-0.007	-0.000	-0.004	-0.000	0.004
	(-0.437)	(-0.210)	(-0.633)	(-0.021)	(-0.619)	(-0.153)	(-0.573)	(-0.097)	(-0.431)	(0.088)
Sub	0.006*	0.249	0.005	0.261	0.006	0.258	0.005	0.254	0.006*	0.268
	(1.659)	(1.436)	(1.590)	(1.499)	(1.618)	(1.487)	(1.597)	(1.461)	(1.658)	(1.545)
Eco	0.004*	0.481***	0.003	0.493***	0.003	0.475***	0.004*	0.500***	0.003*	0.496***
	(1.734)	(4.444)	(1.615)	(4.563)	(1.532)	(4.387)	(1.765)	(4.627)	(1.647)	(4.575)
Tra	0.001	-0.234**	0.001	-0.231**	0.001	-0.219**	0.001	-0.233**	0.001	-0.228**
	(0.544)	(-2.355)	(0.499)	(-2.321)	(0.637)	(-2.202)	(0.500)	(-2.338)	(0.473)	(-2.288)
_cons	-0.038	-2.465	-0.044	-2.130	-0.038	-2.138	-0.045	-2.516	-0.040	-2.169
	(-1.245)	(-1.585)	(-1.427)	(-1.371)	(-1.251)	(-1.378)	(-1.485)	(-1.612)	(-1.315)	(-1.395)
N	3369	3320	3369	3320	3369	3320	3369	3320	3369	3320
R2	0.021	0.096	0.023	0.094	0.024	0.096	0.022	0.094	0.022	0.093

References

Cao, J. M., Hu, R. F., & Huang, J. K. (2005). Technology extension and farmers' modified adoption of new technologies: Analysis of farmers' willingness to participate in technical training and adopt new technologies and its influencing factors. China Soft Science 06, 60-66. https://kns.cnki.net/kcms2/article/abstract?v=DxGmxfxkPoHD430tDxObFjSLDLQmJG-2fMhjnajfyQjYy-tilBnS6_wGYW7jXvZHZ2G0YvEN67Nexa20_vmkpyJOA6SfVA2MiNU7OX3oUtirW1ktXLVpY8csncfmVISV&uniplatform=NZKPT&language=CHS

Eshet-Alkalai, Y. (2012). Thinking in the Digital Era: a Revised Model for Digital Literacy. *Issues in Informing Science and Information Technology (IISIT)*, 9pp. 267-276

Feng, L. B., & Guo,D.J. (2023). The impact and mechanism of Internet use on farmers' income increase. *Zhejiang Social Science* 02, 25-35+155-156. https://doi.org/10.14167/j.zjss.2023.02.012

Gilster P. (1997). Digital Literacy. *New York: Wiley.* 25-48

Hou, G. Y., Hu, N. N., & Xiong, J. W. (2022). A study on the impact of digital inclusive finance on households' risky financial asset allocation behavior. *Hunan Social Science* 04, 44-51. https://kns.cnki.net/kcms2/article/abstract?v=f77bZMqd99Ix5bof1ZSkyf7BFS605Zm_ySCezYSWYd67RQQvaGCag5TeBsiXZg1DXnGykO-OYe2eMClZjEZ-e10u7auXkGzXQEMwTU2PUbVTjgb0G_2fH4YuBkVeUznrugnF5zV_Yf0=&uniplatform=NZKPT&language=CHS

Jiang, C. Y., Li, J. R., & Wang. Y. J. (2021). Characteristics, problems and future choices of farmers' income growth in China in recent years. *Journal of Nanjing Agricultural University (Social Science Edition)* 03,1-21. https://doi.org/10.19714/j.cnki.1671-7465.2021.0032

Jin, S. H. (2013). An empirical study of property income gap and its tax burden among urban residents in China. *Finance and Trade Economy* 11, 22-32. https://doi.org/10.19795/j.cnki.cn11-1166/f.2013.11.004

Jiang, Y. S., Zhu, H. Y., & Wang, T. (2023). Risk attitude and rural entrepreneurship: A comparison based on three risk preference measurement methods. *Journal of Southwest University for Nationalities (Humanities and Social Sciences Edition)* 02,51-6. https://kns.cnki.net/kcms2/article/abstract?v=f77bZMqd99LuTZaekSjZVW2zWhwZDis5s3IEKMndoESR__blLG80y4I33-EbSpGS-KmNBZHyv4eaAe4-DfU47m0JrjtSY3yNO2c-09zIaPeMyrjiAbTN_WjUCJShSBQ09VQ3wBTQf_w=&uniplatform=NZKPT&language=CHS

Li, L. L.,Mei, Y., & Zhang, Z. G.(2022). Internet penetration, market segmentation and farmers' business income. *Business Economics and Management* 07, 18-28. https://doi.org/10.14134/j.cnki.cn33-1336/f.2022.07.002

Luo, Q. F.,Zhao Q. F., & Qiu H.L. (2023). Digital skills and farmers' property income-based on China Rural Revitalization Comprehensive Survey (CRRS) data. *Contemporary Economic Management* 07, 54-62. https://doi.org/10.13253/j.cnki.ddjjgl.2023.07.007

Lilian A. (2022). Motivational beliefs, an important contrivance in elevating digital literacy among university students. *Heliyon* 12. https://doi.org/10.1016/j.heliyon.2022.e11913

Li, W., & Wang, J. (2020). Tax regulation of property income in China: deviation from equity and optimization orientation. *Taxation Research* 03, 22-28. https://doi.org/10.19376/j.cnki.cn11-1011/f.2020.03.003

Luo, F. Z. (2011). Factors influencing the property income of urban residents in China: An empirical study based on

provincial panel data in China. *Journal of Guangdong Administrative College* 06, 82-88. https://doi.org/10.13975/j.cnki.gdxz.2011.06.004

Liu, S., & Liu, M. (2020). Evaluation of financial environment, financial literacy and poor farmers' land policy expectations - based on survey data of 952 farm households in four provinces (autonomous regions) of Shaanxi, Gansu, Ningxia and Qinghai. *Ningxia Social Science* 03, 82-95. https://kns.cnki.net/kcms2/article/abstract?v=f77bZMqd99LwdkzRz-52jMJToP1vazgYv4Rtge_r7iclvKxVDJO_uFznIWViFS21KYrkgVemK8kRN5uUA64rDl6uDUMPG3cN-nRg6HwGs6XkI1iSNYXS65LutwOSEWpBRuDojT3hXtA=&uniplatform=NZKPT&language=CHS

Liu, W., Zhang, Y. L., & Wang, Y. (2021). Has digital inclusive financial development alleviated relative poverty? *Economic Management* 07,44-60. https://doi.org/10.19616/j.cnki.bmj.2021.07.003

Li, W, & Tian, S. Q. (2021). Financing channels and entrepreneurial decisions of urban and rural households. *Soft Science* 01, 108-114. https://doi.org/10.13956/j.ss.1001-8409.2021.01.17

Pan, S., Wei, J.G., & Hu, S. B. (2020). Internet finance and household formal credit constraint mitigation-a test based on risk preference heterogeneity. *Economic Review* 2020, No.223 (03):149-162. https://doi.org/10.19361/j.er.2020.03.14

Qi, J. D., & Chu, X. (2021). Employment effects of digital life: intrinsic mechanisms and micro evidence. *Finance and Trade Economics* 04, 98-114. https://doi.org/10.19795/j.cnki.cn11-1166/f.20210406.002

Qin, H. L., & Yang. (2021). Relocation compensation, Wealth Effect and Household property income: An Empirical Study based on CHFS data. *Shanghai finance*, 12, 20 to 34, https://doi.org/ 10.13910 / j.carol carroll nki SHJR. 2021.12.002

Su, L.L., & Peng, Y. L. (2022). Farmers' digital literacy, rural elite identity and rural digital governance participation. *Agricultural Technology Economics* 01, 34-50. https://doi.org/10.13246/j.cnki.jae.2022.01.004

Shan, D. P., Zhang, Y. Q., & Wang, Y. (2022). Farmers' digital literacy, property income and common wealth. *Journal of Central University for Nationalities (Philosophy and Social Sciences)* 03, 143-153. https://doi.org/10.15970/j.cnki.1005-8575.2022.03.011

Song, L.X., & Li, R. Y. M., (2023). The Cultivation Effect of Architectural Heritage YouTube Videos on Perceived Destination Image. *Buildings* 02. https://www.researchgate.net/publication/368530476_The_Cultivation_Effect_of_Architectural_Heritage_YouTube_Videos_on_Perceived_Destination_Image

Tang, D. Y., Li, J., & Wu, Y. (2023). The impact of financial literacy on household property income - a study based on the perspective of common wealth. *Contemporary Finance and Economics* 04, 55-67. https://doi.org/10.13676/j.cnki.cn36-1030/f.2023.04.003

Wu, X. L., & Wang, H. (2023). Farmers' digital literacy: framework system, driving effects and cultivation paths-an analytical perspective of competency quality theory. *E-Government* 08, 105-119. https://doi.org/10.16582/j.cnki.dzzw.2023.08.009

Wang, J., Cai Z. J., & Ji, X. (2022). Digital literacy, farmer entrepreneurship and relative poverty alleviation. *E-Government* 08, 15-31. https://doi.org/10.16582/j.cnki.dzzw.2022.08.002

Wang, J. C., Li, D., & Ma,S. (2020). A quasi-natural experiment on the impact of broadband construction on farmers' entrepreneurship based on the construction of "broadband villages". *Journal of Economics (Quarterly)* 01, 209-232. https://doi.org/10.13821/j.cnki.ceq.2019.04.10

Wang, T. F. (2021). Social change and social research in the digital age. *China Social Science* 12, 73-88, 200-201. https://kns.cnki.net/kcms2/article/abstract?v=f77bZMqd99L1LskfS_KgFPpurh7Z03B2erSUiSUVo4nkdWJYHPU1ve2fQvdZzOydP8IYIaoF6soGWepJ07pYpsiZ_JNnrobbgv22FKYYyjlCUOnVsRy784AzMIXm6G8linzV_5l7nQc=&uniplatform=NZKPT&language=CHS

Xu, K., Lu, Q. Q., & Xu, G. J. (2020). Land finance, real estate prices and property income gap. *Journal of Shanxi University of Finance and Economics* 03, 1-16. https://doi.org/10.13781/j.cnki.1007-9556.2020.03.001

Yang, H. N., & Li, S. L. (2016). Discussion on increasing farmers' property income in the process of urbanization. *Academic Exchange* 12, 129-134. https://kns.cnki.net/kcms2/article/abstract?v=f77bZMqd99JW-J-TjX6VeE6g4UT-Mp8BBeaV1_3Hn-OSFurroHtMDS2TXmTUIlQQQ4-HaQBHyTLJSCYfvgjWbHDcDH7Zj5r7oKucdDzp9JIVDWbbeWzDwbALCOrLn87WOprYH6y9EWo=&uniplatform=NZKPT&language=CHS

Yang, L., & Zhao, H.B. (2022). The theoretical logic and reality check of digital inclusive finance to help farmers increase their income. *Shandong Social Science* 04, 149-155. https://doi.org/10.14112/j.cnki.37-1053/c.2022.04.024

Yao, Q, Li, R. Y. M., & Song, L. (2022). Carbon neutrality vs. neutralité carbone: A comparative study on French and English users' perceptions and social capital on Twitter. *Frontiers in Environmental Science* 10, 969039.

https://doi.org/ 10.3389/fenvs.2022.969039

Zhang, G. L., & He, L. (2022). Land rights and farmers' property income growth. *Reform* 03,121-133. https://kns.cnki.net/kcms2/article/abstract?v=f77bZMqd99JjzaLbKgE8xxMqmZWxoUi2lJfAktuRFTI5TSAK7907B0AUsiQB8_aqv6RT18cJH8_c-VVsfgjOuiFrVxQZ5raBob3GZ_rzJyrovFDT8KmUcDDB8Xdsci5s992fWf9zCZQ=&uniplatform=NZKPT&language=CHS

Zhang, G. H., & Zhang, J. (2023). The impact of rural land transfer on farm household income: intrinsic mechanism and empirical test. *The Economist* 02, 120-128. https://doi.org/10.16158/j.cnki.51-1312/f.2023.02.005

Zeng, L. Y., & Li, R. Y. M. (2022). Construction safety and health hazard awareness in Web of Science and Weibo between 1991 and 2021. *Safety Science* 152: 105790. https://www.sciencedirect.com/science/article/abs/pii/S0925753522001291