Household Financial Literacy: A Literature Analysis and Review

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Abstract. With the continuous improvement of the financial market system and the increasing abundance of financial services, household financial literacy is increasingly important for optimizing household financial behavioral decisions and enhancing household financial well-being. In order to grasp the research progress and main content of household financial literacy, using 1,144 documents included in the "Web of Science" database from 2003 to the present (up to June 30, 2023) as the basis and CiteSpace software as the data analysis and processing tool, this study demonstrated the research field of household financial literacy through the keyword co-occurrence map and keyword clustering map of the Main topics. On the basis of further combing related literature, the study clarified the concepts, measurement methods, and influencing factors of financial literacy, as well as the role of financial literacy in influencing the financial decision-making behaviors of households in areas such as investment, credit, and entrepreneurship. Finally, it summarized and looked forward to the development of household financial literacy research.

Keywords: household; financial literacy; financial decision-making behaviors

1 Introduction

With improving financial markets, the abundance of financial services has enabled people to save, invest, take loans, and accumulate enough resources to handle their daily finances (Kelkar, 2010). Empirical evidence has repeatedly shown that financial literacy promotes the use of financial services (Chaulagain, 2015; Cole et al., 2011; Atkinson & Messy, 2013). Financial literacy is an important indicator of an individual's financial capability. In recent years, it has gradually received attention from Governments and scholars. This study analyzes statistically the literature on household financial literacy from 2003 to the present, which is included in the "Web of Science" database, in order to gain a comprehensive understanding of the progress and development of research on household financial literacy over the past 20 years and to provide a reference for future research on financial literacy. In addition, this study further deepens the understanding of household financial literacy by summarizing the

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relevant literature so as to provide a theoretical research contribution to enhance household financial literacy in different countries or regions.

2 Literature Analysis of Household Financial Literacy

Research on household financial literacy should first begin with two studies by B. Douglas Bernheim in 1995 and 1996. The studies found that households were generally unaware of their vulnerability in dealing with risk when faced with various types of financial assets (Bernheim, 1995), and further explored the impact of financial education on financial behavior based on household survey data (Bernheim, 1996). Early research on financial literacy did not attract much attention from the community until after the global financial crisis in 2008, when the developed countries, including the UK and the US, established national financial education strategies (Remund, 2010), and studies on financial literacy emerged. The topic of financial literacy is a relatively new concept, especially due to the limitations of data. The discussion of this topic has been limited to theoretical analysis and logical deduction. In recent years, against the backdrop of continuing demographic changes, growing imbalances between supply and demand in the labor market, and increasing financial vulnerability among households, the new situation has forced households to take the initiative to assume responsibility for their economic well-being and to consciously improve their personal financial literacy. It follows that it is imperative for both households and individuals to strive to improve their financial literacy. Against this background, it is meaningful to systematically sort out the progress and focus of research on household financial literacy and to carry out research in related areas.

2.1 Analysis of Total Publications

The total number of publications is an important indicator to observe the overall situation of relevant research in a certain field from a macro perspective, which can most intuitively present the dynamic change of relevant research. Figure 1 shows the trend of publications on the topic of "household financial literacy" in the database of "Web of Science" from 2003 to the present.

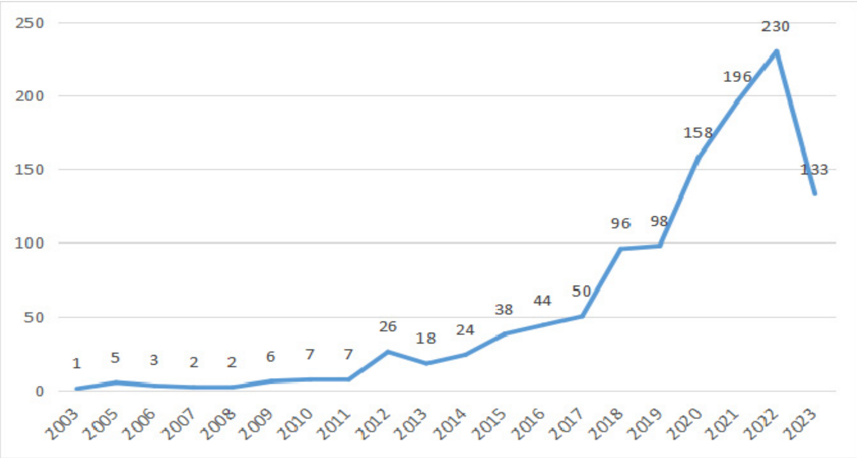

Fig. 1. Number of References for the period 2003-01-01 to 2023-06-30

As shown in Figure 1, between 2003 and 2017, the total number of articles published on household financial literacy was only 233, and so far in 2018, the number of articles published by scholars on this topic has seen a significant increase, with the number of articles reaching 911, which is nearly four times as much as the number of articles published in the previous 15 years, indicating that various countries and regions have paid more and more attention to the study of household financial literacy in the past five years. Generally speaking, although research on household financial literacy has started in the past 20 years, it is still lacking and has only attracted more and more scholars' attention in recent years, so there is still more space in the future, and the issue of financial literacy under the changes of financial policies in different countries and regions will continue to get much attention.

2.2 Keyword Analysis

Keywords are words that can intuitively indicate the core theme of the literature by highly summarizing and condensing the content of the literature, and by visualizing and analyzing the theme words and keywords of the relevant literature, it is possible to grasp the hot topics and changing trends of the research in this field as a whole.

2.2.1 Keyword Co-occurrence Analysis.

In this study, a keyword co-occurrence map was obtained by analyzing 1144 articles of literature (see Figure 2). In this case, the number of nodes N = 541 and the number of relevance lines E = 1092, which means that there are 541 different keywords co-occurring in 1144 documents, constituting 1092 relevance lines. And the density D = 0.0075 (<0.1) indicates that research in the area of household financial literacy is less centralized and "has not yet formed tight knowledge clusters".

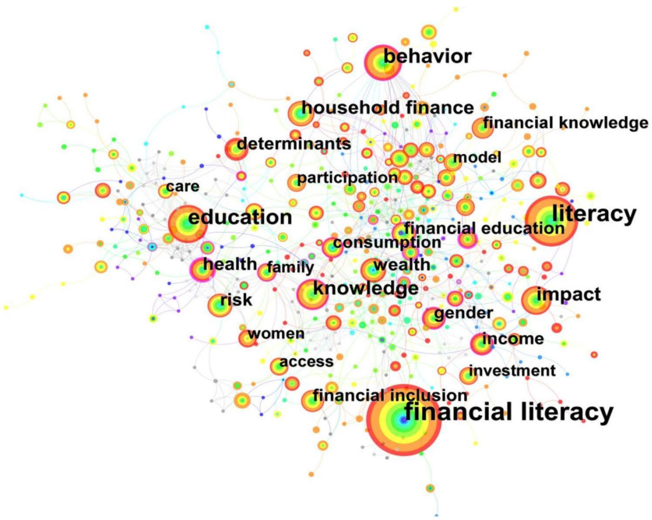

Fig. 2. Keyword Co-occurrence Map

Figure 2 shows that the largest number of studies centered on "financial literacy", "literacy", "education", "behavior," and "knowledge". "Behavior" and "knowledge" are the most numerous, and among the keywords with a frequency of more than 50 occurrences (the top 15 keywords in the frequency ranking), most of them are directly related to the elements related to "household financial literacy" (see Table 1). It can be seen that research on issues related to household financial literacy is less cross-fertilized with other disciplines, and there is a need to further enhance the diversification of the research field of household financial literacy. In addition to keyword occurrence frequency, Centrality is also an important indicator for keyword co-occurrence analysis, which represents the degree of association between multiple keywords. The larger the value of Centrality, the stronger the association between the keyword and other keywords and the stronger its mediating role. According to Table 1, the only keywords with centrality values above 0.1 are "behavior", "knowledge", "health" and "financial education". "financial education", "gender" and "income", and the centrality values of most keywords are less than 0.1 or even zero. The study shows that there is a wide variety of research topics in the area of household financial literacy, which further suggests that the cross-fertilization of related research areas needs to be strengthened.

Table 1. Frequency and Centrality of Keywords

No	Frequenc y	Centrality	Keywords
1	506	0.04	financial literacy
2	285	0.06	literacy
3	170	0.09	education

4	128	0.17	behavior
5	103	0.11	knowledge
6	99	0.04	impact
7	85	0.02	household finance
8	71	0.27	health
9	62	0.05	risk
10	61	0.04	wealth
11	60	0.03	determinants
12	55	0.01	financial inclusion
13	54	0.1	financial education
14	54	0.18	gender
15	54	0.11	income

2.2.2 Keyword clustering analysis.

In order to further grasp the hotspots and focuses of research on issues related to household financial literacy, this study analyzed the clusters, named the clusters with the help of the Log-Likelihood Ratio (LLR) algorithm, and selected the 10 categories with the highest number of keywords among them: #0-#9 (the smaller the number, the higher the degree of its clustering) to make a keyword clustering map (see Figure 3). Among them, the modularity Q = 0.7903 (>0.3) indicates that the clustering structure of the research on household financial literacy issues is significant and has a good clustering profile, while the weighted mean silhouette S = 0.9035 (>0.7) indicates that this clustering structure has a very high level of confidence.

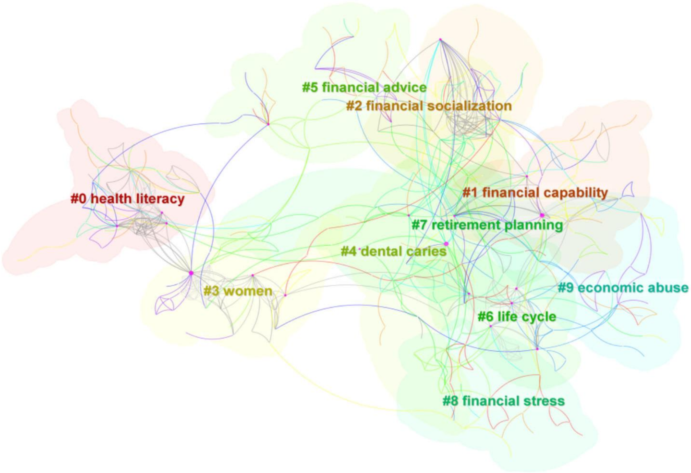

Fig. 3. Keyword Clustering Map

By further categorizing the clustering results, it can be determined that the focus areas of current research on household financial literacy issues are health literacy from the psychological perspective and financial capability, financial decision-making, and financial behavior from the household finance perspective[1]. Numerous empirical studies show that financial literacy is an important indicator of an individual's financial capability. Financial literacy enhances the financial capability of households and has a positive impact on promoting household financial decision-making and financial behavioral conduct[2]. Financial literacy has a significant impact on household consumption levels and consumption inequality (Dinkova et al., 2021; Koomson et al., 2021) and on the retirement plans of household members (Lusardi & Olivia, 2007). In addition, financial literacy has a positive impact on financial behaviors such as asset allocation choices (Lusardi et al., 2013), financial market participation (Van Rooij et al., 2011; Nguyen & Nguyen, 2020), financial decision-making (Guiso & Tullio, 2008), diversification of investments (Guiso & Jappelli, 1998), and the ability to make a profit. Jappelli, 1998), reducing over-indebtedness (Lusardi & Peter, 2009), and demand for credit (Lusardi & Peter, 2009; Stango & Jonathan, 2009).

3 Literature Review of Household Financial Literacy

From the perspective of household finance, the current literature on financial literacy focuses on the connotation of financial literacy and its measurement and evaluation[6], the influencing factors of financial literacy, and the relationship between financial literacy and financial decision-making behavior[3].

3.1 Definition of Financial Literacy

Noctor et al. (1992) first defined financial literacy as the ability of an individual or household to make informed decisions about the use and management of money. As research has continued to develop, the definition of financial literacy has been gradually expanded and refined[4]. Some scholars consider financial literacy to be the economic and financial knowledge that people must have in order to participate effectively in financial markets (Cutler & Devlin, 1996). Bowen (2002) defines financial literacy as an understanding of the financial terms and concepts that are necessary in the daily lives of US residents. In fact, financial knowledge, an important component of financial literacy, not only influences individuals' understanding of key financial concepts but also their financial behavior and household financial management skills, and financial education can help to improve individuals' financial knowledge (Hilgert & Hogarth, 2003). However, Moore (2003) argues that financial literacy is indistinguishable from financial capability and that personal financial literacy requires not only financial knowledge but also the ability to apply financial knowledge flexibly and correctly. Beverly and Burkhalter (2005) define financial literacy in terms of money management and argue that the knowledge and ability to manage one's money represent financial literacy. Hung et al. (2009) define financial literacy as the ability to use financial knowledge and skills to effectively manage financial resources for lifelong financial well-being. Lusardi et al. (2014) further define financial literacy as the ability to gather information and plan asset allocation so as to rationalize assets and liabilities as well as savings[13]. Overall, many scholars believe that financial literacy is reflected in two main areas: financial knowledge and financial skills. Furthermore, Atkinson and Messy (2012) innovatively define financial literacy in terms of financial knowledge, financial attitudes, and financial awareness, where multiple aspects of financial literacy are organically integrated to motivate individuals to make scientifically sound asset allocation decisions and ultimately reap the benefits of their financial decisions. In addition, INFE (International Network on Financial Education), the specialist agency for financial education established by the OECD (Organisation for Economic Co-operation and Development), pioneered a multi-country questionnaire on financial literacy in 2015, which also provides a broader definition of financial literacy: "A combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being."[10]

A comprehensive analysis of the relevant literature shows that at the beginning of the research, there were three main types of definitions of financial literacy: one that emphasized knowledge, another that emphasized skills, and a third that emphasized both knowledge and skills. As research progressed, other elements were added to the concept of financial literacy, which included elements other than cognition, such as awareness, attitudes, and behaviors, making the concept increasingly rich and three-dimensional, as shown in Table 2.

Table 2. Definition of Financial Literacy

Year	Scholars/Institutions	Definition
1992	Noctor et al.	The ability of an individual or household to make informed decisions about the use and management of money.
1996	Cutler & Devlin	The economic and financial knowledge that people must have in order to participate effectively in financial markets.
2002	Bowen	An understanding of the financial terms and concepts that are necessary in the daily lives.
2003	Hilgert & Hogarth	Financial knowledge.
2003	Moore	Financial knowledge and financial capability.
2005	Beverly & Burkhalter	The knowledge and ability to manage one's money.
2009	Hung et al.	The ability to use financial knowledge and skills to effectively manage financial resources for lifelong financial well-being.
2012	Atkinson & Messy	Financial knowledge, financial attitudes and financial awareness.
2014	Lusardi et al.	The ability to gather information and plan asset allocation.

2015	OECD/INFE	A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being.

3.2 Measurement of Financial Literacy

The measurement of financial literacy is an important foundation for successful financial literacy research (Huston, 2010; Remund, 2010). Yet, it is a fact that not only is there no agreed standard for defining financial literacy, but there is also significant variation in its measurement, which can generally be divided into two indicators: objective financial literacy and subjective financial literacy[7]. Objective financial literacy mainly reflects an individual's ability to apply financial knowledge in practice, while subjective financial literacy reflects an individual's self-perception and confidence in their own financial literacy level (Huston, 2010). Based on this, scholars have studied both subjective and objective levels of household financial literacy.

Objective financial literacy is key to understanding differences in the financial behavior of different individuals and is mainly expressed in terms of a number of standardized question-response situations on financial knowledge, financial investments, financial products, and financial services. Subjective financial literacy refers to an individual's subjective assessment of whether he or she will be able to complete a financial behavior before performing it, which is an upfront estimate and is strongly linked to the outcomes produced by an individual's financial behavior (Zhao, Qing, 2018). Subjective financial literacy mainly consists of an individual's subjective perceived level of financial literacy, such as financial attitude, financial awareness, or financial concern (OECD INFE, 2015; French & Mckillop, 2016; Zhao, Qing, 2018; Wu, Satellite et al., 2018; Li, Qinghai et al., 2018; Morgan & Long, 2020).

Most scholars' measures of financial literacy include basic financial knowledge and skills such as interest rates, inflation, and investment risk and have been extended to some extent depending on the needs of the study (Lusardi & Tufano, 2009; Lusardi & Mitchell, 2014). Overall, most current measures of financial literacy cover both objective and subjective financial literacy. Regarding the treatment of financial literacy question responses, most of the existing studies have used factor analysis methods to downscale and extract financial literacy indicators for empirical testing and analysis.

3.3 Influencing Factors of Financial Literacy

Scholars have examined the factors influencing levels of financial literacy from a number of perspectives, which can be broadly grouped into these categories:

Demographic characteristics are important factors that influence household financial literacy, including age, gender, education, and educational attainment (Lusardi & Mitchell, 2008; Delavande et al., 2008). First, the researchers found a hump-shaped pattern of financial literacy across the life cycle, i.e., financial literacy is highest among middle-aged people and lower among younger and older people (Lusardi & Mitchell, 2011; Wang, Yuxi, & Fan, 2015; Liu, 2018), i.e., consumers' financial literacy tends to increase and then decrease with age (He. Shengxuan, 2020). Second, while women are more cautious and conservative in their financial behavior than men, women's overall financial literacy is lower than that of men (Lusardi & Mitchell, 2008; Luo, H., & Xie, J. Y., 2020). In addition, in studies of the educational level factor, financial literacy levels differed significantly between educational levels, with financial literacy increasing with education (Wang, Y. X., & Fan, 2015); financial literacy levels were relatively higher among those who had received finance and economics courses while at university and lower among respondents who did not receive a university education (Hilgert et al., 2003; Lusardi & Mitchell, 2008). In addition to the individual's own factors, a spouse's high level of education and risk tolerance can also positively influence an individual's level of financial literacy (He, 2020). The financial literacy of parents also positively influences their children, as children of parents with higher levels of financial literacy also tend to have higher levels of personal financial literacy (Liao, Li, et al., 2019).

Household-level demographic and economic characteristics are also influencing factors more commonly used in academic research. The larger the household size, the higher the level of financial literacy of the head of the household (Ho, S.H., 2020). The nature of occupation has a significant effect on financial literacy, with employment in a finance-related occupational environment boosting residents' financial literacy (Sheng, Z., and Cai, T., 2021), with employed and self-employed people having higher levels of financial literacy than the unemployed, and financial literacy varying with income, with lower income groups having lower levels of financial literacy and financial literacy increasing with household income (Hung et al., 2009; Wang, Yuxi, & Fan, 2015), and higher levels of household wealth make them more likely to engage in financial activities, which contributes to financial literacy[9]. Households that own a home also have significantly higher levels of financial literacy than those that do not (Ho, 2020). In addition, the location factor of the household also affects the level of household consumer financial literacy; the level of consumer financial literacy in economically developed regions such as eastern China is significantly higher than in less developed regions in the west (Liu, 2018).

In addition to the above influencing factors at the household micro level, there are also external macro factors such as the level of external financial market activity, the maturity of the financial market, local education expenditure, the level of financial inclusion, the level of the local economy, and the level of financial instruments that have an impact on the level of financial literacy of residents. Survey data shows that people in backward areas, such as rural areas, have significantly lower levels of financial literacy than those living in urban areas (Lusardi, A., & Mitchell, O S, 2011)[8]. Social capital promotes people's participation in stock investment, from which it can be deduced that social capital can help raise residents' level of financial literacy (Bongomin, G. O. C., Ntayi, J. M., Munene, J. C., & Nabeta, I. N., 2016); credit constraints and financial exclusion reduce residents' desire to engage in financial investment behavior, thus reducing the likelihood that they will raise their own level of financial literacy (Simpson, W., & Buckland, J., 2009).

3.4 Financial Literacy and Household Financial Decision-making Behaviour

There is a significant positive relationship between financial literacy and financial decision-making behavior. Financial literacy enables households to make better financial decisions (Hilgert, Hogarth, & Beverly, 2003; Muller & Weber, 2010; Lusardi & Mitchell, 2007), and individuals with higher financial literacy tend to exhibit better financial behavior (Fernandes, D., Lynch Jr., J. G., & Netemeyer, R. G., 2014). Financial literacy is critical to the financial well-being of households and the economy as a whole. Existing research on financial literacy influencing household financial decision-making behavior focuses on these areas: investing, borrowing, and entrepreneurship[11].

Financial literacy affects household investment and borrowing. Letkiewicz J. C., Jonathan J., and Fox (2014) view financial literacy as a special kind of human capital, an ability that is particularly important in intertemporal choice, requiring the selection and analysis of various products based on one's financial knowledge in order to maximize one's own interests and enjoy maximum financial welfare. The reasons for the frequent outbreaks of financial crises in recent years are manifold, but scholars generally agree that one of the reasons for so many financial crises is the failure of financial decisions caused by the low financial literacy of the population. Financial crises have struck again and again as a result of numerous poor and even foolish financial decisions. Improving the financial literacy of the population is what prepares households to make informed decisions and have effective investment portfolios (Suede U. 2010). Financial literacy is more conducive for household investors to identify key information in the heterogeneous flow of information in financial markets and to make relatively accurate predictions and judgments about the risks and returns of financial products (Dohmen et al. 2010). On the other hand, a lack of financial literacy can discourage people from investing (Rooij et al., 2007), and even if they do invest, they may be more exposed to risk because their portfolios are not rich enough or even because the wrong investments are made (Guiso & Jappelli, 2009). Increased financial literacy can alleviate household credit constraints and lead to the formalization of household credit participation, with more financially literate households being more likely to improve their current standard of living through formal borrowing (Davidson, 2002). In terms of the choice of specific financing products, financially literate households are able to make reasonable expectations and choose financing products that are more appropriate for their household situation (Gathergood, 2012). At the same time, households with high financial literacy have access to a wider range of credit information and relatively lower financing costs (Huston, 2012). In addition, financially literate households tend to borrow rationally and are less likely to overfinance and default (Gerardi et al., 2010; Sevim et al., 2012).

Financial literacy has an impact on household entrepreneurship. First, entrepreneurship as a form of risky investment can have a direct exclusionary effect on households with low endogenous developmental dynamics and weak human capital. Financial literacy has a direct impact on individual financial market participation and allocation decisions to different types of assets, as well as on the overall utility of entrepreneurship, and therefore has a direct impact on entrepreneurial choices and the future entrepreneurial intentions of non-entrepreneurial households. Financial literacy can help entrepreneurs judge investment patterns, exercise rational entrepreneurial decision-making, and ensure the proper allocation of entrepreneurial resources. Second, financial literacy releases household demand for credit and alleviates credit constraints. Financial constraints on entrepreneurial activity are the primary constraint on residents' entrepreneurial activity (Karaivanov, 2012; Weng et al., 2022). Improving financial literacy can help households understand various lending information and policies, reducing cognitive biases and increasing the chances of successful borrowing (Akudugu et al., 2009; Cude et al., 2020), thus increasing their willingness to start a business. Third, it is beneficial for households to have the basic skills and qualities needed to carry out entrepreneurial activities (Oggero et al., 2020). Higher financial literacy enables households to make better use of financial instruments, develop more rational financial plans, and improve the current lack of investment opportunities[12], thus promoting their willingness to participate in market investments (Van Rooij et al., 2011; Yang et al., 2022) and to start their own businesses (Rugimbana & Oseifuah, 2010; Bilal et al., 2021) and enabling them to better manage and operate their entrepreneurial projects, reducing business risks and increasing the probability of entrepreneurial success.

To sum up, the impact of financial literacy on household financial decision-making behavior is substantial. An increase in household financial literacy contributes to income growth and wealth accumulation in low-income households[5], thus jumping up the income ladder (Lusardi & Mitchell, 2014; Wang Zhengbei et al., 2016). The pathways to income growth and wealth accumulation are multi-channel, such as financial management, credit participation, and entrepreneurship (He Xuesong & Kong Rong, 2019), improving the structure of household asset allocation and enhancing allocation efficiency (Wu Yu, 2016). At the same time, improved financial literacy plays an important role in ensuring the stability of the overall macro-financial system (Liu Bo et al., 2020).

4 Conclusion

At present, the attention to the field of household financial literacy has deepened year by year, and a lot of research results have already appeared. The research on financial literacy has gradually shifted from theoretical analyses to empirical research, and there is still some research space in the future. Overall, the study of household financial literacy is of great significance and will open up a new field of household financial research. It can be believed that more and more scholars will certainly participate in this field of research against the background of the rapid development of the global financial market, the continuous optimization and innovation of financial services, and the increasing complexity of financial products.

References

1. Ampudia M, Van Vlokhoven H, Żochowski D. Financial fragility of euro area households[J]. Journal of Financial Stability, 2016, 27: 250-262.
2. Borden L. M., et al. Changing college students financial knowledge, attitudes, and behavior through seminar family participation[J]. Journal of Family and Economic Issues, 2008, 29(1): 23–40.
3. Campbell J Y. Household finance[J]. The journal of finance, 2006, 61(4): 1553-1604.
4. Devlin S. J., Cutler N. E., Financial Literacy[J]. Journal of the American Society of CLU and CHFC, 2000, 50(4): 32–34.
5. French D., Mckillop D. Financial Literacy and Over-Indebtedness In Low-Income Households[J]. International Review of Financial Analysis, 2016, 48: 1-23.
6. Guiso L., Sodini P. Household Finance:An Emerging Field[J]. Handbook of the Economics of Finance: 2012: 1397–1533.
7. Huston S. The concept and measurement of financial literacy: preliminary results from a new survey on financial literacy assessment[J]. 2009.
8. Lusardi A, Mitchell O S. Financial literacy around the world: an overview[J]. Journal of pension economics & finance, 2011, 10(4): 497-508.-
9. Lusardi Annamaria, Michaud Pierre-Carl, Mitchell Olivia S., Optimal Financial Knowledge and Wealth Inequality[J]. The Journal of Political Economy, 2017, 125(2): 431-477.
10. Organization for Economic Cooperation and Development (OECD). 2015 OECD/INFE toolkit for measuring financial literacy and financial inclusion [EB/OL] (2015-03) https：//oecd.org/daf/fin/financial-education/2015_OECD_INFE_Toolkit_Measuring_Financial_Literacy.pdf.
11. Pak T. Financial Literacy and High-Cost Borrowing: Exploring the Mechanism[J]. International Journal of Consumer Studies, 2018, 42(3): 283-294.
12. Rooij M. V., Lusardi A., and Alessie R. Financial Literacy and Stock Market Participation[J]. Journal of Financial Economics, 2011: 449–472.
13. Spataro Luca, Corsini Lorenzo. Endogenous financial literacy, saving, and stock market participation[J]. Munich Personal Repec Archive, 2013(42): 13–31.