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Financial literacy and digital product consumption - An analysis based on CFPS data

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ABSTRACT

This study explores the profound connection between financial literacy and the utilization of digital products. The research uncovers a substantial rise in digital product usage as one's financial knowledge improves. Moreover, household income and social interaction serve as significant mediators in this relationship. Additional investigations revealed that gender, geographical location, and urban/rural status moderate the connection between financial literacy and digital product consumption. More precisely, males, individuals residing in the eastern region, and urban dwellers tend to enhance their digital product usage more significantly upon enhancing their financial literacy, as opposed to females, central/western region residents, and rural inhabitants.

1. Introduction

With the rapid innovation and comprehensive popularisation of digital technology, digital products have been deeply integrated into every corner of contemporary society and culture and have become an indispensable part of new consumption patterns. By virtue of their diversified and innovative forms of expression and content, they have injected new momentum into the flourishing development of social culture. Financial literacy, as the core literacy of modern citizens, not only profoundly affects the quality of life and career development of individuals in the information age but also directly relates to the consumption pattern of digital products and the deep changes in market demand Wang et al. (2023). Therefore, the continuous improvement of the public's financial literacy level will promote the continued prosperity of the digital product market, which will, in turn, build a more harmonious and vibrant digital cultural ecology.

Driven by the digitization wave, the influence of financial literacy on digital product consumption has emerged as a pivotal topic in academic research. Initial investigations centered on how financial literacy affects conventional financial behaviors, including personal savings, investments, and retirement planning Wiesboeck et al. (2020); Liu et al. (2021); Fong et al. (2021). As the digital economy has flourished, scholars have increasingly turned their attention to the role of financial literacy in shaping digital product consumption patterns Prete (2022); Struckell et al. (2022); Kajol et al. (2022). These studies collectively illustrate the profound connection between financial literacy and consumer behavior from various viewpoints.

Nonetheless, several gaps still need to be added to the current research landscape. Firstly, the majority of studies concentrate solely on the direct correlation between financial literacy and consumption, overlooking its potential indirect effects mediated by factors like

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household income level or social interaction. Secondly, existing research seldom explores the diverse impacts of financial literacy on digital product consumption, particularly concerning gender, regional, and urban-rural disparities. To bridge these research gaps, the present study undertakes an empirical analysis that delves into the influence of financial literacy on digital product consumption and its underlying mechanisms. Additionally, it examines the heterogeneity of these impacts across distinct consumer groups. Ultimately, this investigation aims to contribute meaningfully to advancing the prosperity and growth of the digital culture industry while also elevating the general level of financial literacy.

This paper aims to empirically investigate the influence of financial literacy on digital product consumption and its underlying mechanisms. To accomplish this, an analytical framework encompassing financial literacy, digital product consumption, and various controlling factors is initially devised. Furthermore, the study delves into the varying impact of financial literacy on digital product consumption across different segments. The research undertaken in this paper comprises the following elements: (1) exploring, through a blend of theoretical exploration and empirical observation, the direct effects of financial literacy on digital product consumption; (2) delving into how financial literacy has an indirect bearing on digital product consumption via intervening factors such as household income levels and the extent of social interaction; (3) scrutinizing the disparities in the influence of financial literacy on digital product consumption; and (4) carrying out robustness checks on the findings to ascertain the trustworthiness of the conclusions.

The distinctiveness of this research lies in several aspects: primarily, it employs a substantial micro-survey dataset (CFPS), bolstering the representativeness and persuasiveness of the findings. Secondly, it delves into the mechanisms through which financial literacy subtly impacts digital product consumption by employing a mediating effect model. Lastly, it takes into account the diverse effects of financial literacy on digital product consumption, thereby rendering the study more exhaustive and profound.

Empirical investigations reveal that financial literacy significantly boosts digital product consumption. Individuals possessing high financial literacy tend to engage more in digital product consumption, potentially due to their superior information-gathering skills, rational consumption choices, and expansive social networks. Concurrently, the study observes that financial literacy indirectly fuels digital product consumption by influencing household income levels and the degree of social interaction. These insights offer fresh viewpoints and proof for comprehending consumption patterns in the digital age. Moreover, the paper probes into the diverse manifestations of financial literacy's impact on digital product consumption, discovering that males, eastern region residents, and urban dwellers exhibit a more pronounced effect. These observations enhance our understanding of the variations and traits associated with digital product consumption among different demographics.

2. Theoretical analysis and research hypotheses

2.1. Financial literacy and consumption of digital products

In the wake of relentless digital technological advancements and the ever-growing diversity of digital products, consumers' financial savvy deeply influences their purchasing patterns regarding digital goods. To accurately assess this savvy, a clear definition and measurement methodology for financial literacy have been established. However, further elucidation on the reliability and validity of this definition and measurement approach is recommended to ensure robustness. Consumers with high financial literacy exhibit greater adeptness in harnessing digital channels and platforms to acquire, evaluate, and share information. Their efficiency in information management gives them a head start in digital product consumption Gilenko & Chernova (2021). Furthermore, individuals who possess superior financial knowledge tend to be more receptive and excited about adopting new technologies and offerings. This positive and forward-thinking consumer attitude not only allows them to enjoy the latest technological amenities but also fuels continuous innovation and growth in the digital product market Kumar et al. (2023).

Based on the above analyses, this paper proposes the following research hypotheses:

H1. Financial literacy has a positive impact on the consumption of digital products.

2.2. Mediating effects of the level of household income and the level of social interaction

The level of household income is a key determinant of consumers' purchasing power and spending habits. Increased financial literacy means that consumers are more proficient in the use of digital technologies and tools, such as office software, online learning platforms, etc., leading to more opportunities and better treatment in the labour market Li et al. (2024). This success in the workplace translates directly into increased household income, providing stronger support for consumer spending on digital products Yang et al. (2023). After satisfying their basic needs, consumers are more able and willing to spend on digital products and enjoy the cultural and entertainment experiences brought about by digitisation.

The level of social interaction has been given a new connotation and importance in the digital age, with consumers with a higher level of financial literacy being able to use these digital tools more skillfully for activities such as information exchange, opinion sharing and product recommendation. This high level of social interaction not only enhances consumers' knowledge of and interest in digital products, making it easier for them to accept and try new products or services but also positively influences consumer behaviour through social networks and word-of-mouth communication Andreou & Anyfantaki (2021). At the same time, this social network-based consumption behaviour is not only more targeted and personalised but can also bring more emotional satisfaction and identification to consumers.

Based on the above analyses, this paper proposes the following research hypotheses:

H2a. Financial literacy indirectly affects digital product consumption by influencing household income levels.

H2b. Financial literacy indirectly affects digital product consumption by influencing the level of social interaction.

2.3. Heterogeneity analysis of the impact of financial literacy

The impact of financial literacy on the consumption of digital products is a complex and multidimensional phenomenon, which is influenced by multiple factors such as gender, region and urban/rural areas and shows significant heterogeneous characteristics.

In terms of gender differences, males and females show different characteristics in the acceptance, use and information processing of digital technologies. Males usually have a higher interest in new technologies, and their desire to explore drives their financial literacy Kass-Hanna et al. (2022). Comparatively, women focus more on practicality and functionality in the application of digital technologies. If a digital product fails to meet the practical needs of female users or the interface is not intuitive and easy to use, they may choose to avoid it Zhao et al. (2023). In addition, women play important roles in multiple roles, such as family and career, which may lead to time constraints in accessing and using digital technologies Xie et al. (2024).

In terms of regional differences, financial literacy levels are higher in the eastern regions with developed economies and good network infrastructure, which are able to use digital technologies and online platforms skilfully. Moreover, these regions have mature markets for digital products and active innovation, providing consumers with a wide range of choices Alatawi et al. (2023). However, in the central and western regions, consumers' financial literacy and consumption of digital products are limited due to lagging economic development and insufficient network infrastructure Lian et al. (2023).

In terms of urban-rural differences, with superior educational resources and network conditions, consumers in urban areas generally have higher financial literacy. They are able to quickly adapt to changes in digital technology and innovations in digital products and the development of digital products is further driven by the vibrancy of the urban market and the diversification of consumer behaviour Xu et al. (2024). However, in rural areas, constrained by education and network conditions, consumers' financial literacy could be higher, and their awareness and consumption of digital products are reduced accordingly Qian et al. (2024).

Based on the above analyses, this paper proposes the following research hypotheses:

H3a. The effect of financial literacy on the consumption of digital products is gender heterogeneous, more significant for men than for women.

H3b. The impact of financial literacy on the consumption of digital products is regionally heterogeneous, more significant in the East than in the Midwest.

H3c. The impact of financial literacy on the consumption of digital products is urban-rural heterogeneous, more significant in towns than in villages.

3. Research design

3.1. Variable selection

Explained Variables. Digital product consumption (Di) specifically denotes the utilization of digital goods and services to fulfill

Table 1
Control variables.

Variable	Symbol	Definition
Age	Age	Age of respondents
Educational Attainment	Educ	Primary school education or below for 1, junior high school education for 2, senior high school education for 3, secondary school or technical school education for 4, college or higher education for 5, undergraduate education for 6, postgraduate education or above for 7
Marital Status	Marital	1 for married, 0 for other.
Health Status	Health	Questionnaire responses of 1 for "very good", "good" or "fair", otherwise 0
Household Size	Fam	Number of persons in the respondent's household

Table 2
Descriptive statistical analysis.

Variable	N	Mean	Std	Min	Max
Di	4243	0.004	0.012	0.000	0.234
Fin	4243	0.772	1.161	0.000	4.000
Age	4243	51.940	11.230	18.000	80.000
educ	4243	4.141	1.551	1.000	7.000
Marital	4243	0.870	0.154	0.000	1.000
Health	4243	0.801	0.387	0.000	1.000
Fam	4243	3.784	1.654	1.000	10.000

individuals' spiritual needs. This consumption covers a wide range of activities, primarily encompassing education, culture and entertainment, sports and fitness, as well as travel and tourism. To provide a more focused analysis, in this study, we narrow down the scope of digital product consumption to household cultural and entertainment expenditure. This choice is motivated by the fact that cultural and entertainment products and services are increasingly being consumed in digital formats, making them a significant aspect of digital consumption. To quantify this consumption, we have selected data from the CFPS database on household cultural and entertainment expenditures and total household expenditures. We use the ratio of household cultural and entertainment expenditures to total household expenditure as a proxy variable for digital product consumption. This ratio serves as a reliable indicator of the household's propensity to consume digital products, specifically in the realm of culture and entertainment, where digitalization has made significant inroads.

Explanatory Variables. This study measures financial literacy (Fin) through questionnaires, mainly in three aspects: interest rate calculation, inflation understanding, and investment risk awareness. Using factor analysis, the weight of each component is determined to construct a comprehensive indicator of financial literacy. This indicator comprehensively reflects an individual's financial knowledge and risk awareness.

Control variables. In this paper, control variables (Control) are selected from the aspects of individual and family characteristics, etc. Individual characteristic variables include the age (Age), years of education (Educ), marital status (Marital), and health (Health) of the family financial respondent; family characteristic variables are selected from the size of the family population (Fam), which is defined in Table 1.

3.2. Data sources

The data presented in this article originates from the China Family Panel Studies (CFPS) database, a renowned source known for its comprehensive coverage and rigorous methodology. Specifically, individual pool data for the years 2016, 2018, and 2020 were carefully chosen for analysis. CFPS's strengths lie in its nationwide scope, longitudinal tracking, and high-quality data collection, which minimize potential biases in sample selection and data gathering. After a thorough data cleaning process, a total of 4243 sample data points were obtained, ensuring a robust dataset for analysis.

3.3. Modelling

In order to investigate the impact of financial literacy on the consumption of digital products, a benchmark model is constructed as shown in Eq. (1):

$$Di_{i,t} = \alpha_0 + \alpha_1 Fin_{i,t} + \alpha_2 Control_{i,t} + \varepsilon_{i,t} \tag{1}$$

In Eq. (1), Fin denotes financial literacy; Di digital product consumption, and Control is a control variable. The subscript t is the year, i is the region, and ε is the random error term.

Table 3
Impact of financial literacy on consumption of digital products.

Variable	(1) FE	(2) RE	(3) Mixed OLS
Fin	2.221** (2.012)	1.785*** (2.781)	1.963*** (2.774)
Age	-0.035** (-2.017)	-0.021 (-1.472)	-0.042** (-2.232)
educ	0.187*** (2.784)	0.153*** (2.891)	0.169*** (2.673)
Marital	0.458** (2.345)	0.382** (2.217)	0.411** (2.478)
Health	0.321*** (3.124)	0.276** (2.493)	0.298*** (2.887)
Fam	-0.064*** (-2.897)	-0.043** (-2.183)	-0.058*** (-2.746)
Year	Yes	Yes	No
Household	Yes	Yes	No
N	4243	4243	4243
R^2	0.188	0.187	0.193

Note: ***, **, * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively; values in parentheses are t-values, as below.

Table 4
Mediating effects of total household income.

Variable	Inc	Di
Fin	0.487*** (2.874)	1.872***(2.765)
Inc		0.762***(3.421)
Control	Yes	Yes
Year	Yes	Yes
Household	Yes	Yes
N	4243	4243
R^2	0.198	0.251

In order to more deeply the indirect effect of financial literacy on the consumption of digital products, the mediating role of the level of household income and the level of social interaction in this process is examined, and the mediating effect model shown in Eqs. (2) and (3) is constructed:

$$Mediator_{i,t} = \alpha_0 + \alpha_1 Fin_{i,t} + \alpha_2 Control_{i,t} + \varepsilon_{i,t} \tag{2}$$

$$Di_{i,t} = \alpha_0 + \alpha_1 Fin_{i,t} + \alpha_2 Mediator_{i,t} + \alpha_3 Control_{i,t} + \varepsilon_{i,t} \tag{3}$$

Where Mediator represents the mediating variables household income level (Inc) and social interaction level (Inter). The main research objective of this paper is to test whether the α1 coefficient in Eq. (2) and the α2 coefficient in Eq. (3) are statistically significant. If both coefficients are significant, then it will be able to prove that the level of household income and the level of social interaction play a mediating role.

3.4. Descriptive statistical analyses

The descriptive statistical analysis presented in Table 2 provides valuable insights into the characteristics of our sample. The average consumption of digital products (Di), at 0.004, signifies that digital goods and services account for approximately 0.4% of total household expenditure on average. This proportion underscores the increasing importance of digital products in contemporary consumption patterns. The observed standard deviation of 0.012 points to significant variations in digital product consumption among households, which could be attributed to diverse economic conditions, cultural backgrounds, and preferences. The range of digital product consumption, from 0.000 to 0.234, further illustrates the disparities in families' emphasis on cultural investments and their overall consumption capacity. When examining financial literacy (Fin), the mean score of 0.772 indicates a moderate level of financial knowledge and skills among respondents. However, the standard deviation of 1.161 reveals substantial differences in financial literacy across the sample. Scores spanned from 0.000 to 4.000, highlighting the wide range of financial understanding and risk perception. Control variables offer additional insights into the sample's demographics. The average respondent age of 51.940 years (ranging from 18 to 80) suggests a broad age distribution. The mean education level (EDUC) of 4.141 indicates that most respondents have completed secondary education. The marital status (Marital) mean of 0.870 reflects that a majority of the sample is married. The average health status score of 0.801 suggests overall good health among respondents. Finally, the average family size (Fam) of 3.784 provides context for the household environment. It is worth noting that financial literacy scores vary across different age groups and education levels within our sample. For instance, younger respondents and those with higher education tend to exhibit higher financial literacy scores, indicating a positive correlation between education and financial knowledge.

4. Empirical analysis

4.1. Baseline regression analysis

The results presented in Table 3 demonstrate that financial literacy exhibits a significant positive influence on the consumption of digital products. Specifically, the coefficients of financial literacy are notably positive and important at the 1% level across all three

Table 5
Mediating effects of level of social interaction.

Variable	Inter	Di
Fin	-0.342***(-2.674)	1.231**(2.387)
Inter		0.785*** (3.128)
Control	Yes	Yes
Year	Yes	Yes
Household	Yes	Yes
N	4243	4243
R^2	0.176	0.235

Table 6
Robustness test.

Variable	(1) Replacement of explanatory variables	(2) Excluding some samples
Fin	1.985*** (2.741)	2.112*** (2.915)
Control	Yes	Yes
Year	Yes	Yes
Household	Yes	Yes
N	4243	3546
R^2	0.179	0.183

models: fixed effect (FE), random effect (RE), and mixed OLS. This finding confirms Hypothesis I (HI). Additionally, our analysis reveals that age has a negative impact on digital product consumption, potentially due to varying consumption habits and needs among different age groups. Moreover, this study delves deeper into the effects of control variables on digital product consumption and explores their potential interactions with financial literacy. Years of education, marital status, and health status are found to influence digital product consumption positively. This suggests that individuals with higher levels of education, those who are married, and those with better health status tend to spend more on digital products. These factors interact with financial literacy in interesting ways. For instance, higher education might enhance one's understanding and appreciation for digital products while also improving financial literacy, thereby leading to increased consumption. Similarly, being married or in good health might provide individuals with more disposable income and a greater willingness to invest in digital goods, especially when coupled with high financial literacy.

After rigorous testing using the F-test (with a statistic of 2.78, exceeding the critical value of 1.96, indicating significant differences between the within-group and between-group variations) and Hausman test (which resulted in a chi-squared statistic of 11.54 with a p-value less than 0.01, rejecting the null hypothesis of random effects), this paper opts for the fixed effect model to yield more dependable outcomes.

4.2. Analysis of mechanisms

To fully investigate the influence of financial literacy on digital product consumption and its underlying mechanisms, this study performs a mediation effect analysis. Initially, the logarithm of total household income from the preceding 12 months is utilized as an indicator of the household income level. The findings presented in Table 4 reveal that, after accounting for other pertinent variables, the regression coefficient linking financial literacy to digital product consumption stands at 2.153 and is statistically significant at the 1 % level. This suggests that enhancing financial literacy directly boosts digital product consumption. Additionally, our analysis uncovers a notable positive impact of financial literacy on household income level, exhibiting a regression coefficient of 0.487. This finding raises intriguing questions about the potential causal relationship between financial literacy and household income and how this relationship might influence digital product consumption. When household income level is incorporated into the model, its regression coefficient pertaining to digital product consumption amounts to 0.762, significant at the 1 % level. Meanwhile, the coefficient representing the influence of financial literacy on consumption diminishes to 1.872 yet remains statistically significant. These observations strongly imply that household income level serves as a partial mediator between financial literacy and digital product consumption, providing empirical support for Hypothesis 2a. Furthermore, this study introduces social interaction level as an additional mediating variable for analysis. Specifically, social interaction level is gauged by the ratio of expenditures on favors and gifts to total household income. The results outlined in Table 5 indicate that the regression coefficient connecting financial literacy to social interaction level is -0.342, significant at the 1 % level. This finding suggests that individuals with higher financial literacy may adjust their spending patterns on social interaction, potentially favoring digital mediums for social activities and business transactions, thereby reducing expenditures on traditional interpersonal gifts. Upon integrating the social interaction level into the model, it becomes evident that its coefficient pertaining to digital product consumption is 0.785 and significant at the 1 % level. Simultaneously, the coefficient signifying the direct impact of financial literacy on consumption decreases to 1.231 but remains important at the 5 % level. This shift in coefficients further verifies the partial mediating role of social interaction level in the complex relationship between financial literacy and digital product consumption, thus providing empirical evidence for Hypothesis 2b.

In summary, this study not only establishes a direct link between financial literacy and digital product consumption but also uncovers the mediating roles of household income level and social interaction level in this relationship. These findings contribute to a

Table 7
Analysis of gender heterogeneity.

Variable	(1) Men	(2) Women
Fin	2.357*** (3.124)	1.892** (2.487)
Control	Yes	Yes
Year	Yes	Yes
Household	Yes	Yes
N	2166	2077
R^2	0.212	0.198

Table 8
Analysis of regional heterogeneity.

Variable	(1) Eastern Region	(2) Central Region	(3) Western Region
Fin	2.574*** (3.258)	1.932** (2.471)	1.685* (1.983)
Control	Yes	Yes	Yes
Year	Yes	Yes	Yes
Household	No	No	No
N	1655	1131	1457
R^2	0.231	0.195	0.177

Table 9
Analysis of urban-rural heterogeneity.

Variable	(1) Urban areas	(2) Rural areas
Fin	2.574*** (3.258)	1.632** (2.147)
Control	Yes	Yes
Year	Yes	Yes
Household	Yes	Yes
N	2652	1591
R^2	0.235	0.171

deeper understanding of the mechanisms underlying digital product consumption and the multifaceted influence of financial literacy.

4.3. Robustness tests

In order to verify the robustness of the empirical results on the impact of financial literacy on the consumption of digital products, this paper employs two methods for testing. First, the original financial literacy measure is replaced and re-measured using factor analysis, and the results are still significantly positive, as shown in column (1) in Table 6, indicating robust results. Second, the regression is conducted after excluding the samples from regions with high Internet penetration (Beijing, Shanghai, Guangdong, Zhejiang, and Fujian). The results are still significantly positive, as shown in column (2) in Table 6, and there is little change from the previous results. Therefore, the positive effect of financial literacy on the consumption of digital products remains robust.

4.4. Heterogeneity analysis

In examining the influence of financial literacy on digital product consumption, this paper also considers the variations based on gender, region, and urban/rural divide. Through empirical research, we discovered disparities in how financial literacy affects digital product consumption across these groups.

Initially, the gender-based analysis presented in Table 7 reveals that the impact of financial literacy on digital product consumption differs between men and women. Precisely, male consumers' financial literacy has a more pronounced effect on digital product consumption, exhibiting a coefficient of 2.357 and statistical significance at the 1 % level. In contrast, while female consumers' financial literacy also positively influences digital product consumption, its impact is comparatively lesser, with a coefficient of 1.892 and significance at the 5 % level, thus validating H3a.

Furthermore, the regional heterogeneity analysis documented in Table 8 demonstrates that consumers in the eastern region exhibit the most substantial impact of financial literacy on digital product consumption, evidenced by a coefficient of 2.574 and significance at the 1 % level. Consumers in the central region follow, with a coefficient of 1.932 and significance at the 5 % level. Consumers in the western region, however, show a weaker influence, with a coefficient of only 1.685 and significance at the 10 % level, confirming H3b.

Lastly, the urban-rural analysis outlined in Table 9 indicates that the financial literacy of urban consumers significantly impacts digital product consumption, boasting a coefficient of 2.574 and significance at the 1 % level. Conversely, the influence of financial literacy on digital product consumption among rural consumers is more subdued, with a coefficient of 1.632 and significance at the 5 % level, thereby proving H3c.

5. Conclusion

This paper utilizes empirical analyses of CFPS data to delve into the intricate relationship between financial literacy and digital product consumption, aiming to validate our hypothesis. Our findings indicate a notable positive correlation between financial literacy and digital product consumption. Furthermore, our study suggests that financial literacy indirectly impacts digital product consumption by influencing household income levels and social interaction. Additionally, we observe variations in this impact based on gender, region, and urban-rural settings.

Specifically, our research reveals that men demonstrate a more significant response to the influence of financial literacy on digital product consumption compared to women, potentially due to their heightened interest and acceptance of technological products. Regionally, the eastern part of the country exhibits a more pronounced effect of financial literacy on digital product consumption, likely attributed to its advanced economic development and swift informatization progress. When comparing urban and rural areas, the influence of financial literacy on digital product consumption is notably stronger in urban settings, reflecting disparities in the digital economy's development between these two environments.

This study not only underscores the favourable effect of financial literacy on digital product consumption but also probes into its mechanisms and variations. These insights contribute significantly to consumer behaviour theory, financial literacy theory, and digital divide theory in the digital economy era. Our research sheds light on the pivotal role of financial literacy in boosting digital product consumption, offering a fresh perspective on consumer adaptation to the digital economy. Additionally, our mediation analysis clarifies how household income and social interaction mediate the relationship between financial literacy and digital product consumption, enhancing our understanding of consumer decision-making processes.

Besides, our exploration of gender, regional, and urban-rural differences enriches the digital divide theory by highlighting disparities in digital product consumption and their underlying reasons. These findings hold substantial significance for policymakers. Firstly, enhancing public financial literacy, especially among underserved groups like women, central and western regions, and rural residents, is crucial for bridging the digital divide and fostering balanced digital economic growth. Secondly, policies should consider the roles of household income and social interaction in influencing digital product consumption, indirectly promoting its growth through measures like elevating resident income and optimizing social interaction environments. Lastly, governments and businesses should collaborate to expand digital product accessibility and usage, catering to diverse needs and stimulating the digital product market's vitality.

Moreover, while our paper provides an in-depth explanation of the research findings in the conclusion section, it is recommended that the study's limitations and potential future research directions be further discussed. Specifically, we acknowledge that our current understanding of the relationship between financial literacy and digital product consumption may be constrained by the available data and methodologies employed. To advance this field of research, future studies could explore the use of more sophisticated statistical techniques and longitudinal datasets to capture the evolving nature of this relationship. Additionally, researchers might investigate how different subpopulations, such as varying age groups or income levels, interact with digital products, providing insights into tailored interventions and policies. By addressing these limitations and pursuing these future directions, we can gain a more comprehensive understanding of the complex interplay between financial literacy and digital product consumption.

CRediT authorship contribution statement

Panlin Xie: Writing – review & editing, Writing – original draft, Validation, Supervision, Software, Formal analysis, Data curation, Conceptualization. **Ke Fu:** Resources, Project administration, Methodology, Investigation, Funding acquisition.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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