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Financial Literacy Among Microfinance Borrowers: Its Importance and Determinants from a Household Survey in Cambodia

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Financial Literacy Among Microfinance Borrowers: Its Importance and Determinants from a Household Survey in Cambodia

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Abstract

Financial inclusion can play an important role in reducing poverty and improving people's living standards in developing countries. Microfinance has significantly contributed to financial inclusion in Cambodia, but issues like the high debt burden among borrowers, especially those with inadequate financial literacy, have emerged. Borrowers with inadequate financial literacy often underestimate loan repayments and borrow at high interest rates for consumption and other unproductive uses. Understanding the level of financial literacy and the factors that influence it among microfinance borrowers in Cambodia is important for policy making. Using data and information from a household survey in 2021, our study examines the financial literacy landscape among microfinance borrowers in Cambodia and explores the factors influencing their financial literacy levels, focusing on personal and household characteristics. The findings provide insights for enhancing financial literacy and financial inclusion in Cambodia. From our analysis, we confirm (1) the importance of financial literacy in reducing access to informal finance, (2) a positive correlation between years of general education and financial literacy, (3) an association between poor households and lower financial literacy, and (4) a positive relationship between higher social capital (the social network within a community) and higher financial literacy.

Key words: Financial literacy, Social capital, Microfinance

JEL classifications: G21, G5

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1. Introduction

According to Demirgüç-Kunt et al. (2017) and Park and Mercado (2018), financial inclusion, or the provision of access to financial services, can be a crucial strategy for reducing poverty and enhancing the quality of life in developing countries. Over recent decades, microfinance institutions (MFIs) have played a major role in fostering financial inclusion by offering small-scale financial services to those who lack access to such services. In 2022, Cambodia had a total of 59 commercial banks and nine specialized banks, along with a substantial number of financial institutions involved in microfinance services. According to data published by the National Bank of Cambodia (NBC 2023a), the composition of MFIs includes five deposit-taking microfinance institutions, 82 non-deposit-taking microfinance institutions, and 224 rural credit institutions. The aggregate loans disbursed by MFIs have experienced a significant surge, escalating from a few million US dollars (USD) in 1995 to about USD 9.5 billion in 2022. This amount represents around one-fifth of the total credit in Cambodia. Moreover, the number of borrower accounts associated with MFIs has reached an estimated figure of 2.1 million (NBC 2023a; 2023b).

While microfinance has significantly contributed to financial inclusion in developing countries, there has also been concern about certain challenges related to it. The burden of high debt levels carried by borrowers is one such issue, as highlighted in studies by Rosenberg et al. (2009), Schicks (2010), Liv (2013), and Green and Bylander (2021). This problem seems to be exacerbated among borrowers who do not possess adequate financial literacy, as shown, for example, by Samreth et al. (2021) in the case of Cambodia. It examines the relationship between debt level and financial literacy level among microfinance borrowers in some regions of Cambodia and finds that the lack of financial literacy among borrowers can be a factor leading to their high debt burden. This result emphasizes the importance of financial literacy in enhancing the role of microfinance in financial inclusion.

As explained by Lusardi and Mitchell (2014), the term “financial literacy” refers to an individual’s ability to comprehend and analyze economic information and use it to make appropriate financial decisions. In financial transactions, those who lack such literacy may underestimate their future loan repayment obligations. They may end up borrowing at exorbitantly high interest rates, and the borrowed funds may not be put to productive use.

Given the importance of financial literacy then, the current study aims to contribute to the literature by examining financial literacy among microfinance borrowers in Cambodia. A household survey was conducted in 2021 across 28 communes or Sangkats in the capital city,

Phnom Penh, and six other provinces in Cambodia for this purpose.¹ Our main objective is to improve our understanding of the financial literacy of microfinance borrowers in Cambodia.

From our analysis, we confirm, among other things, that (1) financial literacy is important in reducing access to informal finance; (2) there is a positive correlation between years of general education and financial literacy; (3) poor households have lower financial literacy; and (4) there is a link between higher social capital (the social network within a community) and higher financial literacy. These findings can have implications for policy measures to enhance financial literacy and promote more sustainable borrowing practices in the microfinance sector in Cambodia and other developing countries.

The remainder of this paper is organized as follows. Section 2 presents a literature review of the landscape of financial literacy and the factors affecting it. Section 3 provides an explanation of our household survey, including a description of the survey location and sample size. Section 4 explains household characteristics and socio-economic conditions, including household current loans. Section 5 presents the survey results on financial literacy, including an overview of financial literacy, self-perceived financial literacy, inflation-related financial literacy, interest rate-related financial literacy, and risk-related financial literacy. Section 6 analyzes the attributes of households that only having loans from informal sources. Section 7 provides the examination of factors affecting financial literacy, and Section 8 concludes the paper.

2. Literature review

The importance of financial literacy in enhancing the benefits of financial inclusion has attracted many studies examining its landscape and the factors affecting it in both developed and developing countries. For instance, in developed countries, Fox et al. (2005) argue that low financial literacy and poor family management contribute to high bankruptcy rates and high consumer debt levels among United States (US) citizens and stress the important role of financial education in improving financial literacy. Lusardi and Mitchel (2011) provide an overview of financial literacy in countries such as Germany, Japan, the Netherlands, New Zealand, Russia, Switzerland, and the US. Lusardi and Mitchell (2014) show theoretically that financial knowledge can enhance people's welfare. Using survey data, they also examine the landscape of financial knowledge by age, gender, ethnicity, income, and employment status in Germany, the Netherlands, Switzerland, and the US. Yoshino et al. (2017) examine the determinants of financial literacy in

¹ Cambodia's administrative regions consist of the capital city, Phnom Penh, and 24 other provinces (National Institute of Statistics, NIS, 2019). Phnom Penh is subdivided into Khans, which are further divided into Sangkats. Similarly, provinces are segmented into districts, which are then divided into communes. Consequently, Khans and districts operate at the same administrative level, as do Sangkats and communes.

Japan using data from a survey of 25,000 individuals conducted by the Bank of Japan. They find that educational level, income, age, and occupational status are the main determinants of financial literacy in Japan, and both financial literacy and general education levels positively and significantly affect savings behavior and financial inclusion.

For developing countries, Xu and Zia (2012) provide a literature review of the landscape of financial literacy and its impact in not only developed countries such as Germany, Italy, Japan, New Zealand, Sweden, Switzerland, and the US but also in Sub-Saharan African countries and Pakistan. Miller et al. (2015) analyze 188 papers on financial education interventions that aim to strengthen consumer financial knowledge and behaviors in countries such as the Dominican Republic, Brazil, Ghana, Indonesia, Kenya, Mexico, Pakistan, South Africa, and Vietnam. Their results overall show that intervention can positively impact savings behavior but not reduce loan defaults. Morgan and Trinh (2019) conducted an analysis of financial literacy in Cambodia and Vietnam. They show that, in the two countries, financial literacy is influenced by educational level, income, age, and occupational status, and both financial and general education are positively and significantly related to savings behavior and financial inclusion. Morgan and Trinh (2020) in turn investigate how financial literacy affects financial inclusion and people's savings behavior in Laos and reveal that higher financial literacy leads to higher savings in both formal and informal ways. Using data from a household survey, Finally, Samreth et al. (2021) show that a higher debt burden is associated with lower financial literacy among microfinance borrowers in Cambodia.

Our study contributes to the literature and differs from earlier studies on the study of financial literacy in Cambodia in several aspects. To confirm the importance of financial literacy, in addition to Morgan and Trinh (2019) and Samreth et al. (2021), we investigate the relationship between financial literacy on informal credit access. On the determination of financial literacy, our study considers factors affecting financial literacy in a broader dimension. Particularly, social capital, which is the social network among people in a community, is considered. Furthermore, in our examination of the importance and determinants of financial literacy, estimations addressing possible endogeneity issues are adopted. The findings from our study have implications for policy measures to enhance financial literacy and promote financial inclusion in Cambodia and other developing countries.

3. Household survey

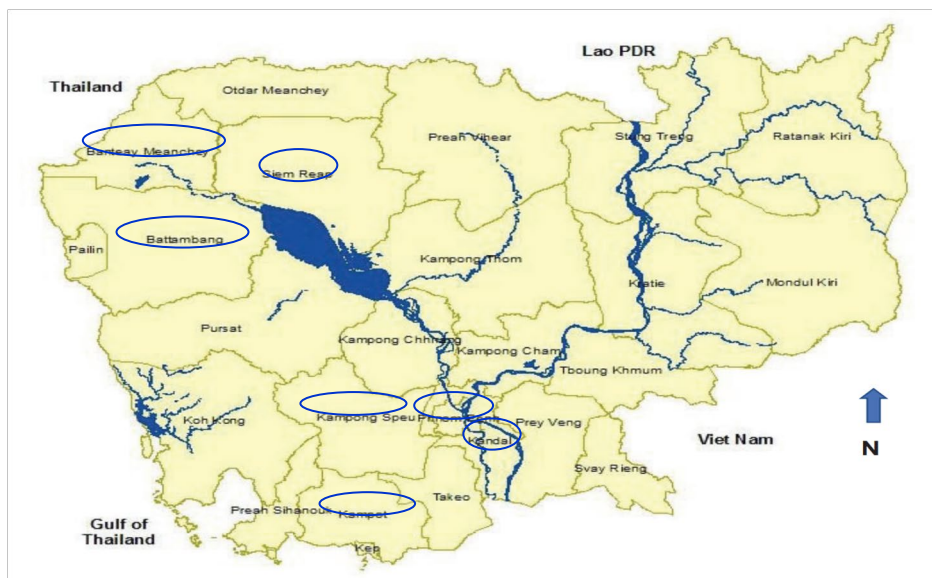
The primary objectives of this study are (1) to assess the significance of financial literacy by examining its relationship with access to informal credit, and (2) to analyze its determinants. The data for our analysis came from a household survey conducted between August 18 and September 20, 2021.

3.1. Survey location

The survey was conducted in Phnom Penh, the capital city, and six other provinces selected from four geographical zones of Cambodia. The six provinces are Banteay Meanchey, Battambang, Kampong Speu, Kampot, Kandal, and Siem Reap. Banteay Meanchey and Battambang are located in the Tonle Sap Lake zone; Kampong Speu is situated in the Plateau and Mountainous zone; Kampot is in the Coastal zone; Kandal is situated in the Plain zone; and Siem Reap is also located in the Tonle Sap Lake zone.

Two Khans and two Sangkats were selected at random from Phnom Penh. Two districts are chosen from each province: one is the capital district, and the other is the district with the highest MFI penetration rate, as reflected by the largest number of borrowers among all districts in the same province. Subsequently, one rural and one urban commune are selected randomly from each district. Figure 1 depicts the geographical locations of Phnom Penh and the provinces included in our survey.

Figure 1: Survey locations



Note: Circled locations are the capital city, Phnom Penh, and selected six provinces for the survey

Source: The map is taken from National Institute of Statistics (NIS) (2019).

3.2. Sample size

The sample size for the survey in each province is determined by considering its MFI penetration rate and its total population.² During the course of the fieldwork, after the selection of the target households, the interviewers proceeded to visit these households and conduct the survey with either the heads of the households or their spouses. The survey was conducted between August 18th and September 20th, 2021.

The survey yielded a total of 1,216 households, with an interview success rate of roughly 65%. The primary factors contributing to unsuccessful interviews were absence or unavailability of the respondents during the daytime and the refusal of targeted household members to cooperate in the survey. Table 1 illustrates the sample sizes obtained from the survey in Phnom Penh and selected provinces. It is important to acknowledge that the selection of our survey locations is based on the extent of microfinance outreach. The sample is not necessarily representative of the Cambodian population. Hence, it is advisable to exercise caution when interpreting the findings of this study.

Table 1: Survey locations and their sample sizes

Location	Sample size
Banteay Meanchey (Tonle Sap Lake)	173
Battambang (Tonle Sap Lake)	187
Kampong Speu (Plateau and Mountainous)	97
Kampot (Coastal)	121
Kandal (Plain)	150
Phnom Penh (Plain)	351
Siem Reap (Tonle Sap Lake)	137
Total	1,216

Source: Authors' household survey in 2021.

² Basically, we chose the survey locations, including Phnom Penh and selected provinces, based on their microfinance institution (MFI) penetration rates. The sample size for each location was determined by considering its relative population size.

4. Household characteristics and socio-economic condition

This section presents the characteristics of the survey households, their socio-economic condition, and their current loan status, utilizing data and information obtained from our survey.

4.1. Household characteristics

Table 2 presents the basic information of the survey households. From the table, it is seen that a significant share of survey households, approximately 75%, have male household heads and a considerable number of them have attained only elementary education, accounting for about 37% of the total sample size. This percentage substantially declines with higher levels, with a mere 3% of household heads having pursued advanced education. For the poverty level of survey households, about one-fourth of them have ID Poor status.³

Table 2: Basic household information

Description		Number	Percentage
Gender of household head	Men	909	74.8%
	Women	307	25.2%
Total		1,216	100%
Education of household head	No	176	14.5%
	Elementary	446	36.7%
	Lower secondary	306	25.2%
	Upper secondary	161	13.2%
	Higher education	37	3.0%
	Don't know	90	7.4%
Total		1,216	100%
ID Poor	Yes	323	27.0%
	No	893	73.0%
Total		1,216	100%

Source: Authors' household survey in 2021.

Table 3 provides an overview of the main occupations of survey household heads. The most prevalent occupation is that of a self-owned business, accounting for 25% of the sample. Following this are the household heads who work in other fields like construction, agriculture, and cleaning, which make up 18.5% of the sample. Farmers account for another significant share, at about 16%. There is a relatively low percentage of household heads in occupations such as

³ The ID Poor program was implemented in 2006 with the objective of identifying poor households in Cambodia as part of an initiative to alleviate poverty. Additional information regarding the ID Poor program in Cambodia can be found at: <https://www.idpoor.gov.kh> (accessed on August 17, 2023).

private company staff or public-school teachers, each below 2 percent. Unemployed household heads account for about 9 percent of the sample. The survey results indicate a diverse range of occupations, with a notable lean towards self-owned businesses.

Table 3: Main occupation of household heads

Main occupation	Number of household heads	Percentage
Unemployed	104	8.6%
Housewife	99	8.1%
Farmer	193	15.9%
Self-business	304	25.0%
Driver (Moto, PassApp, Car)	70	5.8%
Private company staff	23	1.9%
Garment and other factory worker	43	3.5%
Other worker (construction, agriculture, cleaner)	225	18.5%
Security guard	21	1.7%
Public school teacher	11	0.9%
Police/soldier/military policy	37	3.0%
Other public workers	10	0.8%
Other	73	6.0%
NA	3	0.2%
Total	1,216	100%

Source: Authors' household survey in 2021.

Table 4 illustrates the size and migration status of survey households. From the table, the average household size ranged from a minimum of one person to a maximum of 15 persons, with an average size of 4.5 persons per household. In terms of migration status, about 84% of the households have no members migrating to other places, while 8.7 percent report that they have at least one member migrating domestically. Households with at least one member migrating internationally account for 5.8 percent of the sample, and a smaller percentage, 1.6 percent, have both domestic and international migrating household members.

Table 4: Household size and migration status

Household size	Size
Max	15.0
Min	1.0
Average	4.5
Migration	Percentage of households
Domestic only	8.7%
International only	5.8%
Both domestic and international	1.6%
None	83.9%
Total households	1,216

Source: Authors' household survey in 2021.

4.2. Household socio-economic conditions

Table 5 presents data on household income and expenditure. The average past-month income for survey households is USD 1,074, with an average expenditure of USD 728. However, when adjusted to exclude revenue from loan repayments, rotating saving and credit associations (ROSCA or Tontine), inheritances, and borrowing for income and expenses related to purchasing a motorcycle or other vehicle, contribution to a ROSCA, and loan repayments for expenditure, the average values are \$428 for income and \$422 for expenditure.

Table 5: Household income and expenditure

Description	Past month Income (USD)	Expenditure per month (USD)
Average (including all)	1,074	728
Average (adjusted)*	428	422
Total households		1,216

*For income, this excludes revenue from loan repayments, rotating saving and credit association (ROSCA or Tontine), inheritance from deceased family members, and borrowing. For expenditure, this excludes purchasing motorcycles or other vehicles, ROSCA's contribution, and loan repayments.

Source: Authors' household survey in 2021.

Table 6 presents households' landholding status. The majority, about 77.1%, of survey households own housing compound land, with an average size of 0.1 hectares. Of these households, 17.2% have no land titles, 11.9% have soft titles (typically letters of possession from local commune authorities), and 56.6% have hard titles (officially issued by the Ministry of Land Management,

Urban Planning, and Construction's Land Department).⁴ Moreover, about 35% of households own other types of land, with an average size of 1.3 hectares. Among them, 18.5% lack a title; 15.3% have a soft title; and 57.5% have a hard title. According to our survey, about 17.8% of households do not own any land at all.

Table 6: Land holding status

Land holding	Housing compound land	Other land	None
Percentage of households	77.1%	35.0%	17.8%
Average land size (ha)*	8.7%	130.1%	-
Percentage of no title*	17.2%	18.5%	-
Percentage of soft title*	11.9%	15.3%	-
Percentage of hard title*	56.6%	57.5%	-
Total households	1,216		

* It is the percentage of households holding land. "Soft title" refers to a letter of possession of land normally issued by local authorities at commune level, and "hard title" is the land title officially issued by the Land Department of the Ministry of Land Management, Urban Planning, and Construction.

Source: Authors' household survey in 2021.

4.3. Household current loans

Table 7 presents the current loan status of the survey households. A significant 64.6% of these households reported that they had loans. Among the households with loans, 24.5% rely solely on informal loans, making up 34.3% of the total of 1,097 loans reported. On average, households with loans hold 1.3 loans from all sources and 0.5 loans per household are informal loans.

Informal loans are mainly used for buying personal assets and property such as motorcycles, agricultural input, and food consumption. From our survey, we also observe that reasons such as "non-requirement of collateral," "small loan size," and "rapid disbursement" were the main reasons for household borrowing from informal sources. It should be noted that informal sources encompass loans such as those from friends, family, money lenders, online platforms like Facebook, ROSCAs, and non-registered Self-Help groups.

When analyzing the loan amounts and terms, loans from informal sources average USD 1,212, carrying a monthly interest rate of about 6.03 percent and a fee rate of 0.14 percent. Loans from commercial banks are on average significantly higher at USD 8,053 but bear a lower monthly

⁴ For more detailed explanation of "soft title" and "hard title" of land in Cambodia, see <https://www.realestate.com.kh/guides/understanding-property-titles-in-Cambodia> (accessed August 17, 2023).

interest rate of 1.29 percent and a fee rate of 0.06 percent. The average loan size from MFIs is USD 6,500, with a 1.45 percent monthly interest rate and a 0.10 percent fee, implying a monthly effective interest rate of 1.55 percent. This monthly interest rate is very close to the legal ceiling rate of 18% per year, which has been in effect in Cambodia for microfinance loans since April 2017. The average loan size for MFIs in the current survey is higher than what Samreth et al. (2023) reported from a household survey in 2019.

Table 7: Current loans

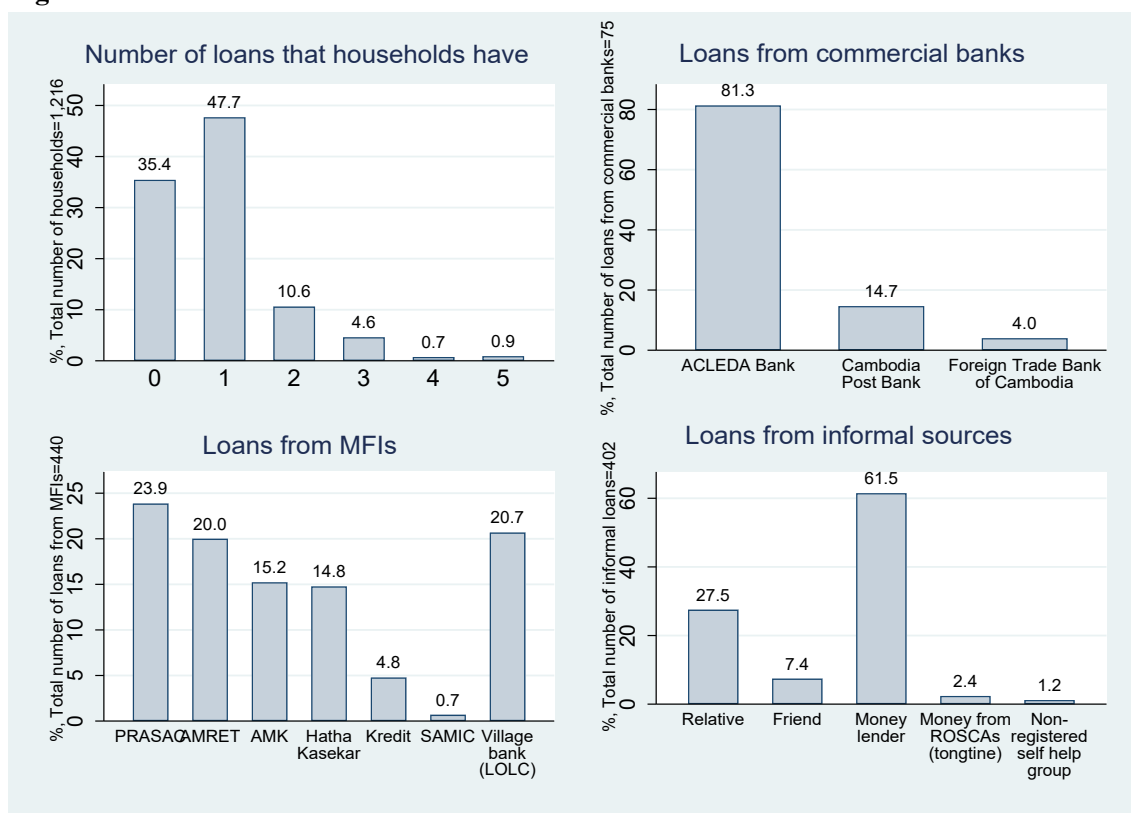
Loan procession	Percentage of households			
% of hhs having loans	64.6%			
- % of hhs with only informal loans among households having loans	24.5%			
% of informal loans in total number of loans (N=1,097)	34.3%			
Average number of loans per household among households having loans	1.3			
Average number of informal loans per household among households having loans	0.5			
Total number of hhs	1,216			
Loan amount, interest rate, etc.	Informal sources*	Commercial banks	MFIs	All sources
Average amount per loan (USD) among households having loans	1,212	8,053	6,500	5,087
Average interest rate per loan (monthly, %)	6.03%	1.29%	1.45%	3.20%
Average fee per loan (monthly, %)	0.14%	0.06%	0.10%	0.12%

*Informal sources include loans from relatives, friends, money lenders, rotating saving and credit associations (ROSCAs or Tontines), non-registered or non-legal lenders in SNS such as Facebook, and non-registered Self-Help groups.

Source: Authors' household survey in 2021.

Figure 2 allows a closer examination of the distribution of loans and shows that a significant proportion of households with active loans indicate that they have only one loan. However, the survey results also indicate that a significant fraction of households possessed two or more loans. The main providers of formal loans are the prominent deposit-taking MFIs in Cambodia, such as PRASAC and AMRET, and the primary provider of informal loans is the moneylender. The number of loans provided by commercial banks is rather limited in our survey, with around 80% of these loans originating from Cambodia's largest commercial bank, ACLEDA Bank.

Figure 2: Numbers of current loans and their sources



Source: Authors' household survey in 2021.

5. Financial literacy

5.1. Overview of financial literacy

In this section, we provide an overview of the financial literacy levels observed among the participants of our survey.

According to Lusardi and Mitchell (2014), “financial literacy” refers to the capacity to understand and analyze economic information and use it to make sound financial choices. The OECD/INFE's Toolkit (OECD 2022) approach is used to calculate financial literacy scores in our study. The Toolkit proposes an approach measuring three aspects of financial literacy: financial knowledge, financial behavior, and financial attitudes.

The current study focuses on financial knowledge questions contained within the Toolkit, due to data limitations. Specifically, two questions assess the survey respondent's knowledge of inflation; three questions evaluate the respondent's knowledge of interest rates; and two questions are designed to gauge the respondent's understanding of financial risk. The financial literacy score ranges from 0 to 7. In the case that a survey participant provides inaccurate responses to all

questions, the resulting score will be zero. In the case that a participant provides accurate responses to all questions, the resulting score will be 7.

The questions used to assess the respondent's knowledge of inflation and risk mainly consist of statement-type ones. The participants are asked to offer answers in the form of "true" or "false." The questions for assessing the respondent's knowledge of interest rates mainly involve calculation types, including compound interest rate calculations. In our study, to investigate the gap between self-evaluation and actual financial literacy score, we also ask a question regarding the survey respondent's self-perceived level of financial knowledge.

Table 8: Financial literacy score of survey respondents

Average financial literacy score	All	Women	Men
(Observations)*	(1,216)	(962)	(254)
Inflation aspect (Full score: 2)	1.13 (Full score: 2)	1.13 (Full score: 2)	1.14 (Full score: 2)
Interest rate aspect (Full score: 3)	1.53 (Full score: 3)	1.51 (Full score: 3)	1.61 (Full score: 3)
Risk aspect (Full score: 2)	1.47 (Full score: 2)	1.47 (Full score: 2)	1.47 (Full score: 2)
Overall average score (Full score: 7)	4.13 (Full score: 7)	4.11 (Full score: 7)	4.21 (Full score: 7)
Average self-perceived level (1=very low to 5=very high)	2.42 (1=very low to 5=very high)	2.43 (1=very low to 5=very high)	2.41 (1=very low to 5=very high)

*For self-perceived ones, the number of observations is 1,121 for all, 887 for women, and 234 for men.

Source: Authors' household survey in 2021.

The financial literacy scores of survey respondents from our household survey are presented in Table 8. They illustrate three dimensions of financial knowledge, namely inflation, interest rate, and risk, and each is assigned a maximum score of 2, 3, and 2, respectively. The average scores are 1.13 for inflation, 1.53 for the interest rate, and 1.47 for the risk aspects. From the table, although the results for inflation and risk are almost the same for both genders, male respondents exhibit a slightly higher score (1.61) than female respondents (1.51) in terms of the interest rate aspect. The overall mean score, on a scale of 1 to 7, is 4.13 and the average score for female respondents is 4.11, while male respondents exhibit an average score of 4.21.

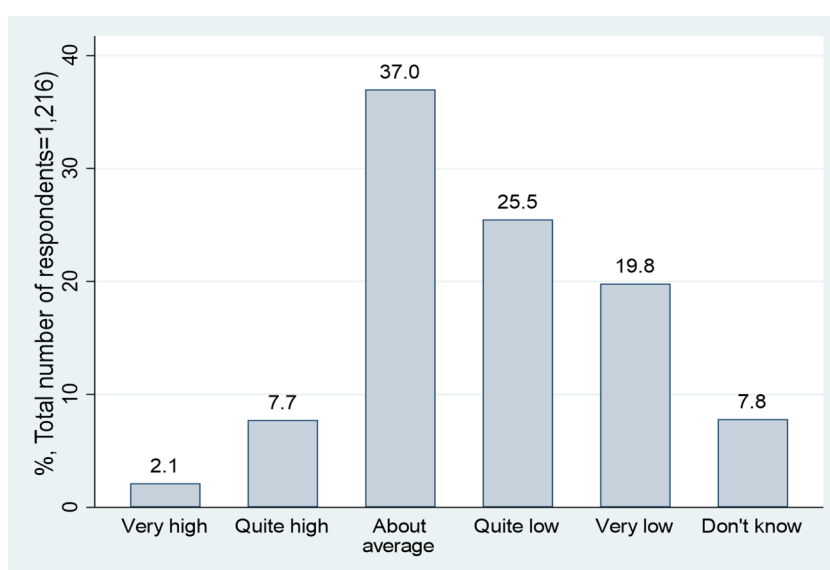
The average self-perceived level of financial knowledge, as measured on a scale ranging from 1 (indicating a very low level) to 5 (indicating a very high level), is 2.42. There is no significant difference between genders in terms of self-perceived ratings, with female and male respondents showing a mean score of 2.43 and 2.41, respectively.

5.2. Self-perceived financial literacy

Figure 3 illustrates the distribution of the self-perceived financial literacy score. We asked the question “could you tell me how you would rate your overall knowledge about financial matters compared with other adults in Cambodia?”

From the figure, about 47% of respondents answered that they thought they had an average or higher level of financial knowledge compared to other adult persons in Cambodia. Another 46% of the respondents said that they had a low or very low financial knowledge level compared to other adult people in Cambodia.

Figure 3: Self-perceived financial literacy



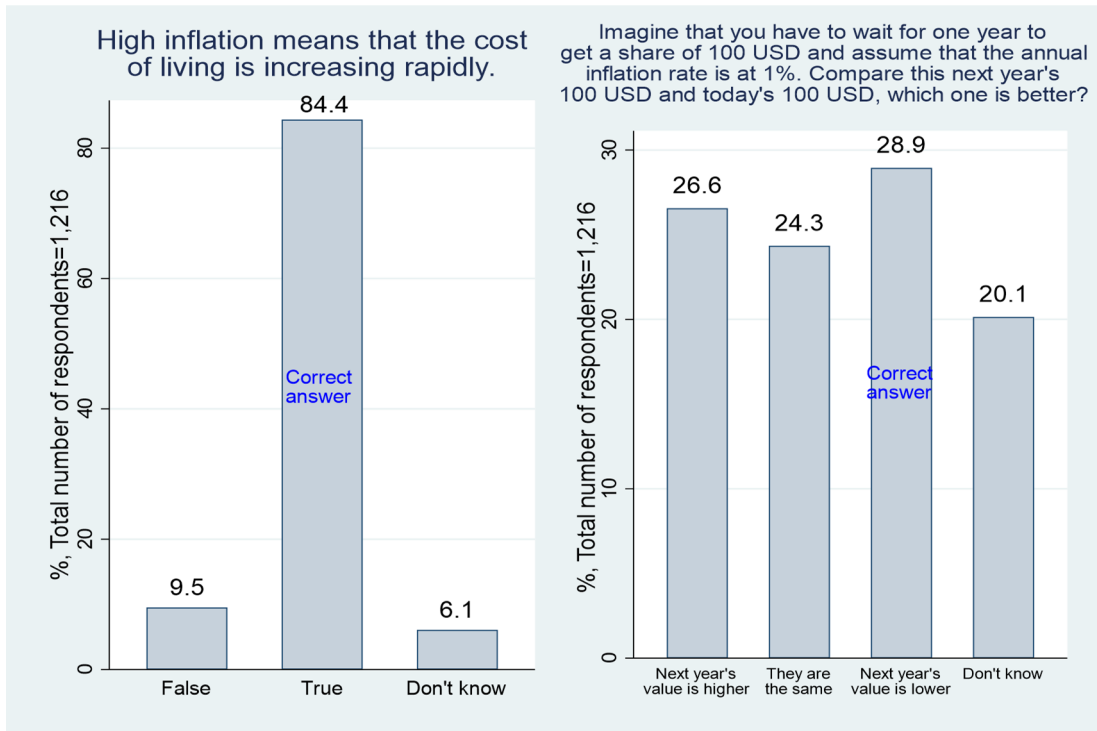
Source: Authors' household survey in 2021.

5.3. Inflation-related financial literacy

For inflation-related financial literacy, we asked respondents to judge whether a statement is true or provide an answer to it. We asked the respondents two specific questions. One required them to determine whether the statement “*high inflation indicates a rapid increase in the cost of living*” is true or false. Another inflation-related financial literacy question asked, “*Imagine that you must wait a year to receive a share of \$100 and that the annual inflation rate is 1%. Compare USD 100 in one year to USD 100 today; which is better?*” Figure 4 demonstrates the results for these

questions. From the figure, approximately 84% of respondents provided the correct answer for the first question. But only about 29% of respondents provided the correct answer for the second question.

Figure 4: Inflation-related financial literacy



Source: Authors' household survey in 2021.

5.4. Interest rate-related financial literacy

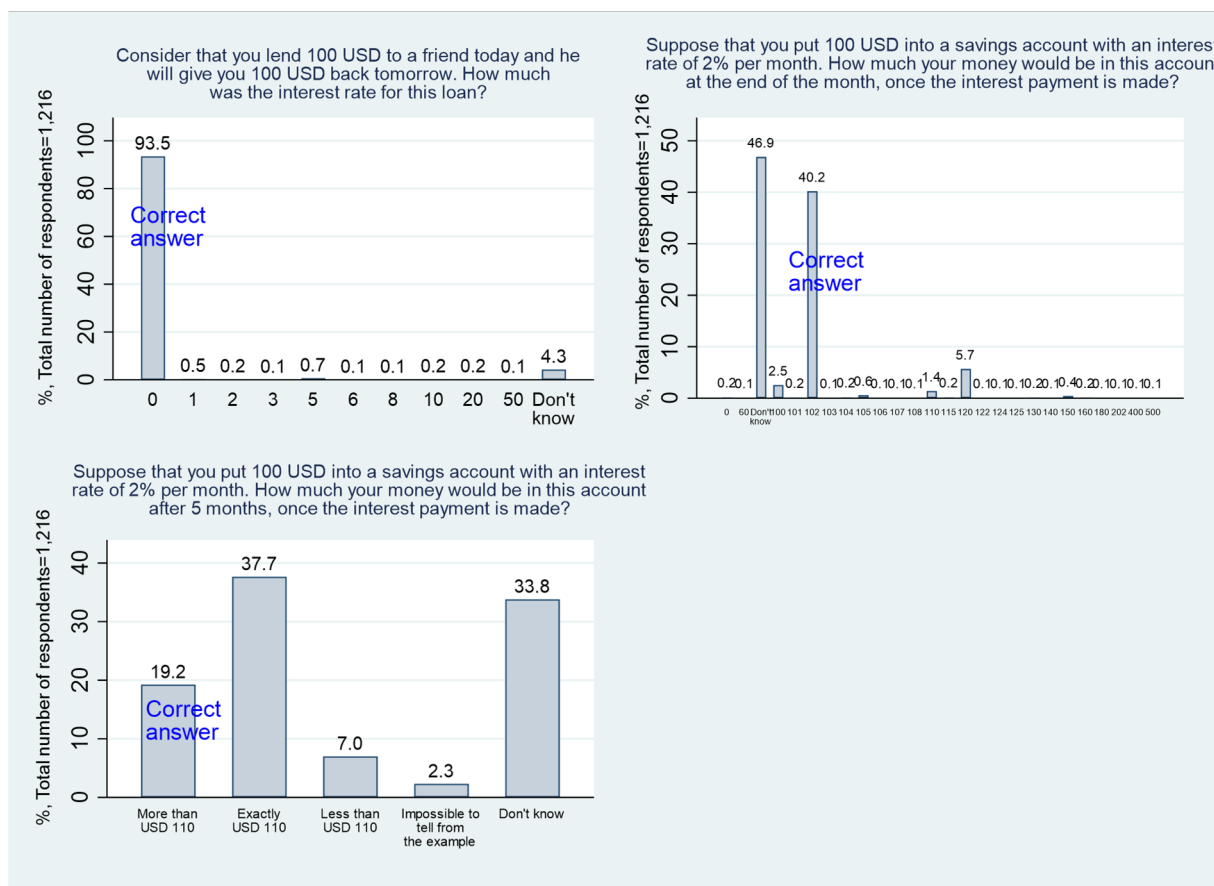
For interest rate-related financial literacy, we asked the respondents three questions. The first was a statement-type one, and we asked, “Consider that you lend USD 100 to a friend today, and he will give you USD 100 back tomorrow. How much interest do you charge for this loan?”

The second and third questions are calculation-type ones. First, we asked respondents, based on a simple calculation of the interest rate, to comment on “Suppose that you put USD 100 into a savings account with a guaranteed interest rate of 2% per month. You don't make any further payments into this account, and you don't withdraw any money from it. How much of your money would be in this account at the end of the month, once the interest payment is made?” Second, continuing from the first, the question is “How much would your money be in the account after five months?”, which relates to the compound interest rate calculation.

Figure 5 illustrates the results for these questions. From the figure, about 94% of respondents provided the correct answer for the first question. But the percentage of correct answers drops significantly for the interest rate calculation questions. Specifically, about 40% of respondents

provided the correct answer for the second question on simple interest rate calculation, and only about 19% of them provided the correct answer for the third question regarding the compound interest rate calculation.

Figure 5: Interest rate-related financial literacy



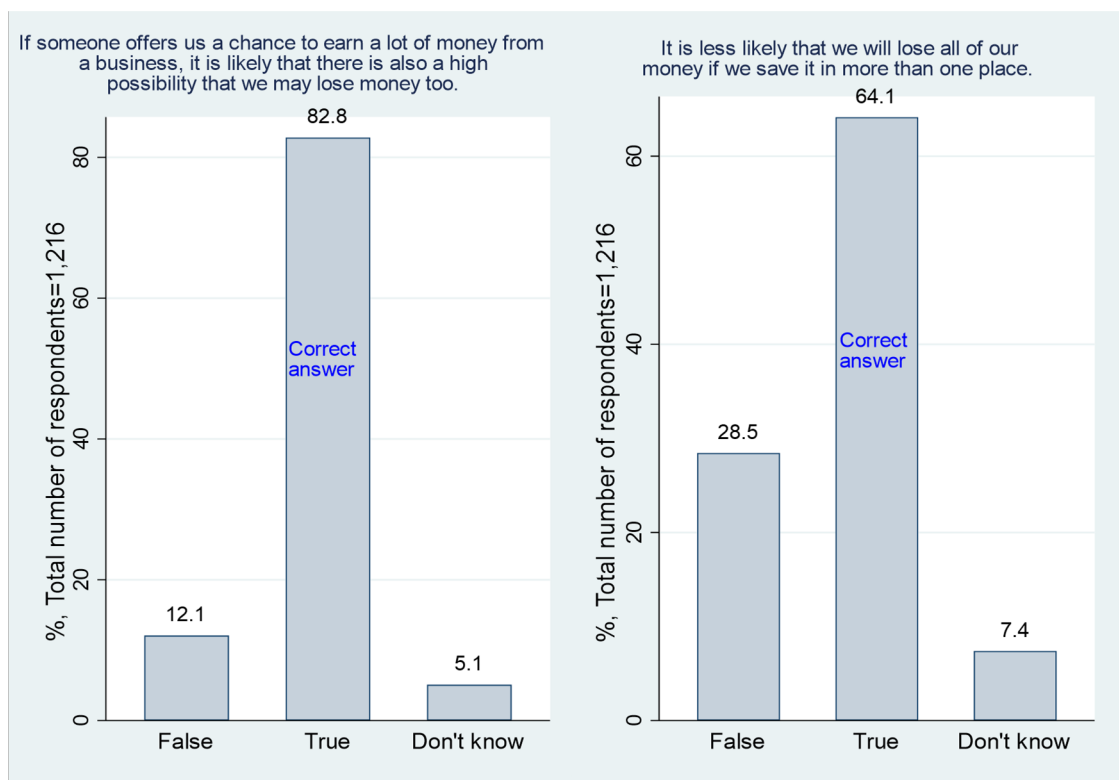
Source: Authors' household survey in 2021.

5.5. Risk-related financial literacy

For risk-related financial literacy, we ask respondents two questions. Each question is a statement-type one. The first question about perception of high-risk, high-return activities asks, "If someone offers us a chance to earn a lot of money from a business, it is likely that there is also a high possibility that we may lose money too". The second question regarding risk diversification asks, "It is less likely that we will lose all of our money if we save it in more than one place."

Figure 6 depicts the answers to these questions. Approximately 83% of respondents provided the correct answer to the perception question regarding high-risk, high-return activities. However, the percentage of correct responses for the risk-diversification perception question drops substantially to approximately 64%.

Figure 6: Risk-related financial literacy



Source: Authors' household survey in 2021.

6. Attributes of households with only loans from informal sources

As indicated in Section 4, our survey indicates that around 25% of households with outstanding loans exclusively rely on informal sources for their loan financing. In order to gain more insight into the characteristics exhibited by these households, a regression analysis is used to examine those aspects.

6.1. Estimation framework

In examining the features of households having only informal loans, the following probit regression equation is considered:

$$\Pr(r_i = 1|d_i) = F(d_i'\beta), \quad (1)$$

where r is a binary variable that takes the value 1 if a household has solely informal loans and 0 otherwise; " $\beta = (\beta_0, \beta_1, \dots, \beta_k)'$ " is a $(k + 1) \times 1$ vector of regression coefficients; " $d = (1, d_1, \dots, d_k)'$ " is a $(k + 1) \times 1$ vector of the explanatory variables; and i indicates the observation. F is the cumulative distribution function of the standard normal distribution. As explanatory variables, various household head and household characteristics are considered. These encompass the age, gender, years of education, and occupation of the household head, along with the household's ID Poor status, income level, and land ownership. Furthermore, the primary

variables of interest are the household's financial literacy level, which is represented by the financial literacy level of the respondent, and the household's social capital. Social capital here refers to the social networks among people within the community. A higher social capital in a community means a stronger social network among the people living there. Social capital in our study is measured by considering two questions: “*Are you or your household members active members of groups in your village or community (e.g., volunteer group, social activity group, etc.)?*” and “*Before COVID, how often have you or your household members (aged 18 and over) attended activities in your village or neighborhood over the past month?*”.

Our study employs probit regression given the binary dependent variable. We also use an instrumental-variables probit (IV-probit) model to reduce possible bias resulting from endogeneity issues. The endogenous variable we considered here is the financial literacy score of borrower households, proxied by the respondent's financial literacy score. Two instrumental variables are employed: the average financial literacy score in the commune (excluding the respondent's score) and the education years of respondents. These instruments are selected because it is likely that they have an impact on whether a household possesses only informal loans through their impact on households' financial literacy level.

6.2. Estimation results

Tables 9 and 10 show the results of the probit and IV-probit estimations, respectively. Based on a Wald test of the exogeneity of the endogenous variables in Table 10, overall, we can reject the null hypothesis of no endogeneity, indicating that IV-probit estimation results are less biased and should be used in the discussion.

From Table 10, the results indicate that there is no gender difference in the role of household heads, who are usually the decision-makers in households, for households having only informal loans. In addition, households with a lower income have a greater likelihood of having only informal loans. This may be due to the fact that formal lending institutions often require a certain level of income or financial stability, which may be inaccessible for low-income households, possibly forcing them to rely on informal loans. Similarly, households with farmer heads are also more likely to utilize informal loans. This may be due to the irregular income associated with farming, which makes it difficult for farmers to obtain loans from formal financial institutions.

In contrast, households that own land besides housing compound land are less likely to have only informal loans. This may be due to the fact that owning additional properties increases the value of a household's assets that can be used as collateral, thereby increasing its creditworthiness when accessing loans from formal lending institutions.

Our estimation also shows that households with a higher level of financial literacy, particularly interest rate-related financial literacy, are less likely to have only informal loans. This suggests that greater financial knowledge may result in improved financial decision-making and access to formal credit. In addition, households with greater social capital have a lower likelihood of having only informal loans. This may be due to the fact that social capital can frequently provide access to resources and support that can assist households in obtaining formal financing.

Table 9: Probit estimation results (**dependent variable:** households having only informal loans=1, others=0)

Independent variables	Financial literacy (inflation, max=2)	Financial literacy (inflation, max=2)	Financial literacy (interest rate, max=3)	Financial literacy (interest rate, max=3)	Financial literacy (risk, max=3)	Financial literacy (risk, max=3)	Financial literacy (overall, max=7)	Financial literacy (overall, max=7)
Financial literacy score	-0.162*	-0.192**	-0.136*	-0.130	0.094	0.074	-0.054	-0.064
	(0.093)	(0.095)	(0.080)	(0.081)	(0.085)	(0.085)	(0.045)	(0.045)
Household's social capital (1)	-0.015		0.027		-0.020		0.012	
	(0.123)		(0.124)		(0.124)		(0.125)	
Household's social capital (2)		-0.184***		-0.176***		-0.179***		-0.182***
		(0.058)		(0.057)		(0.058)		(0.057)
Household head's Age	-0.116***	-0.120***	-0.121***	-0.125***	-0.125***	-0.129***	-0.118***	-0.121***
	(0.032)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.032)	(0.031)
Household head's Age ²	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household head's gender (female=1, male=0)	0.079	0.086	0.091	0.098	0.085	0.091	0.080	0.088
	(0.135)	(0.135)	(0.136)	(0.136)	(0.135)	(0.135)	(0.135)	(0.135)
Household head's education years	-0.023	-0.023	-0.022	-0.022	-0.025	-0.025*	-0.023	-0.023
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Household head's occupation (self-employed)	0.020	0.015	0.013	0.006	0.019	0.011	0.011	0.002
	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)
Household head's occupation (farmer)	0.395**	0.438**	0.363*	0.403**	0.400**	0.426**	0.364*	0.403**
	(0.186)	(0.187)	(0.186)	(0.187)	(0.185)	(0.187)	(0.186)	(0.187)
IDPoor status (Yes=1, No=0)	0.146	0.137	0.138	0.131	0.170	0.162	0.146	0.135
	(0.124)	(0.125)	(0.125)	(0.126)	(0.123)	(0.124)	(0.124)	(0.126)
ln(hh income per capita)	-0.116**	-0.124**	-0.124**	-0.132**	-0.118**	-0.125**	-0.118**	-0.127**
	(0.056)	(0.057)	(0.056)	(0.056)	(0.055)	(0.056)	(0.056)	(0.057)
Housing compound land (Yes=1, No=0)	0.120	0.155	0.090	0.123	0.100	0.135	0.105	0.138
	(0.137)	(0.138)	(0.137)	(0.137)	(0.137)	(0.137)	(0.137)	(0.138)
Other land (agricultural land, etc., Yes=1, No=0)	-0.460***	-0.449***	-0.439***	-0.430***	-0.464***	-0.451***	-0.450***	-0.439***
	(0.133)	(0.133)	(0.133)	(0.134)	(0.132)	(0.133)	(0.132)	(0.134)
Rural	-0.044	-0.004	-0.060	-0.026	-0.072	-0.037	-0.051	-0.011
	(0.136)	(0.139)	(0.135)	(0.139)	(0.135)	(0.139)	(0.135)	(0.139)
Constant	2.689***	2.914***	2.851***	3.061***	2.581***	2.807***	2.772***	3.016***
Log pseudolikelihood	-356.636	-348.510	-356.679	-349.210	-357.503	-350.163	-357.396	-349.518
Pseudo-R2	0.063	0.081	0.063	0.079	0.061	0.077	0.061	0.079
Observations	690	689	690	689	690	689	690	689

Standard errors are in parentheses.

Asterisk “***”, “**” and “*” indicate the statistical significance at 1%, 5% and 10% significance levels, respectively.

Table 10: IV probit estimation results (Dependent variable: households having only informal loans=1, others=0)

Independent variables	Financial literacy (inflation_max=2)	Financial literacy (inflation_max=2)	Financial literacy (interst rate_max=3)	Financial literacy (interst rate_max=3)	Financial literacy (risk_max=3)	Financial literacy (risk_max=3)	Financial Literacy (overall_max=7)	Financial Literacy (overall_max=7)
Financial literacy score	-1.289*** (0.263)	-1.247*** (0.293)	-0.504** (0.210)	-0.423** (0.213)	0.780 (0.667)	0.765 (0.566)	-0.395*** (0.142)	-0.326** (0.146)
Household's social capital (1) (active member of groups: Yes=1, No=0)	-0.000 (0.106)		0.143 (0.135)		-0.100 (0.165)		0.173 (0.131)	
Household's social capital (2) (frequency of attending activities)		-0.132** (0.059)		-0.151*** (0.059)		-0.118 (0.083)		-0.165*** (0.057)
Household head's Age	-0.041 (0.039)	-0.048 (0.041)	-0.112*** (0.031)	-0.120*** (0.031)	-0.119*** (0.033)	-0.124*** (0.032)	-0.084** (0.035)	-0.097*** (0.035)
Household head's Age ²	0.000 (0.000)	0.000 (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001** (0.000)	0.001*** (0.000)
Household head's gender (female=1, male=0)	0.047 (0.124)	0.053 (0.126)	0.118 (0.137)	0.127 (0.138)	0.073 (0.135)	0.082 (0.136)	0.097 (0.131)	0.108 (0.133)
Household head's education years	-0.011 (0.016)	-0.011 (0.016)	-0.017 (0.016)	-0.019 (0.016)	-0.028* (0.016)	-0.029* (0.016)	-0.013 (0.016)	-0.015 (0.017)
Household head's occupation (self-employed)	0.035 (0.115)	0.031 (0.117)	0.011 (0.127)	0.008 (0.128)	0.065 (0.135)	0.065 (0.133)	-0.013 (0.123)	-0.014 (0.125)
Household head's occupation (farmer)	0.423** (0.170)	0.493*** (0.171)	0.356* (0.187)	0.419** (0.189)	0.505*** (0.178)	0.509*** (0.177)	0.306 (0.192)	0.398** (0.188)
IDPoor status (Yes=1, No=0)	-0.028 (0.128)	-0.013 (0.129)	0.053 (0.136)	0.060 (0.137)	0.171 (0.122)	0.159 (0.123)	0.006 (0.141)	0.030 (0.140)
ln(hh income per capita)	-0.066 (0.054)	-0.078 (0.057)	-0.133** (0.056)	-0.139** (0.057)	-0.110** (0.053)	-0.113** (0.055)	-0.107** (0.054)	-0.121** (0.056)
Housing compound land (Yes=1, No=0)	0.180 (0.117)	0.190 (0.121)	0.038 (0.138)	0.073 (0.140)	0.041 (0.140)	0.076 (0.139)	0.093 (0.135)	0.115 (0.138)
Other land (agricultural land, etc., Yes=1, No=0)	-0.322** (0.129)	-0.337*** (0.130)	-0.360*** (0.140)	-0.371*** (0.141)	-0.413** (0.163)	-0.412*** (0.150)	-0.345** (0.138)	-0.364*** (0.139)
Rural	0.106 (0.128)	0.131 (0.135)	-0.042 (0.135)	-0.014 (0.139)	-0.066 (0.130)	-0.065 (0.136)	0.018 (0.132)	0.048 (0.139)
Constant	2.211*** (0.783)	2.425*** (0.812)	3.286*** (0.833)	3.443*** (0.857)	1.577 (1.392)	1.756 (1.327)	3.414*** (0.826)	3.569*** (0.855)
Log pseudolikelihood	-903.183	-893.072	-968.642	-965.891	-987.781	-977.653	-1376.375	-1370.011
Wald test of exogeneity (corr = 0)	Prob>chi2=0.005	Prob>chi2=0.011	Prob>chi2=0.084	Prob>chi2=0.172	Prob>chi2=0.402	Prob>chi2=0.318	Prob>chi2=0.025	Prob>chi2=0.074
Observations	666	664	666	664	666	664	666	664

Instrumented: financial literacy score, instruments: average financial literacy score in the commune (excluding related respondent), respondent's educational years

Standard errors are in parentheses.

Asterisk "****", "***" and "**" indicate the statistical significance at 1%, 5% and 10% significance levels, respectively.

7. Factors affecting financial literacy

7.1. Estimation framework

For analyzing factors that influence the financial literacy of respondents, the following estimation equation is considered:

$$y_i = x_i' \gamma + u_i, \quad (2)$$

where y is a respondents' financial literacy score, " $\gamma = (\gamma_0, \gamma_1, \dots, \gamma_l)'$ " is a $(l + 1) \times 1$ vector of regression coefficients; " $x = (1, x_1, \dots, x_l)'$ " is a $(l + 1) \times 1$ vector of the explanatory variables; u is the error term; and i indicates the observation. As explanatory variables, various respondents' own characteristics and their household characteristics are considered. These include the age, gender, years of education, self-perceived financial literacy, and occupation of the household head. Additionally, we take into account the household's ID Poor status, income level, number of loans, and whether they have loans from banks or MFIs. The primary variable of interest in our study is the household's social capital.

We use ordinary least squares (OLS) and instrumental variables (IV) regressions in our estimations to account for the possibility of endogeneity-related bias. Considered here is the endogenous variable of social capital. As previously explained, social capital refers to the social networks among people in a community and is measured in our study by two questions: "*Are you or your household members active members of groups in your village or community (e.g., volunteer group, social activity group, etc.)?*" and "*Before COVID, how often have you or your household members (age 18 and over) attended activities in your village or neighborhood over the past month?*"

Two instrumental variables are used: the average level of social capital in the commune (excluding the social capital of related respondents and their households) and the per-capita income of the household. These instruments are chosen due to the likelihood that their impact on respondents' financial literacy is through their effect on social capital levels of related respondents and their households. For example, a community characterized by higher average social capital may enhance the social capital of its residents. This environment often promotes knowledge sharing among community members, indirectly contributing to the improvement of individuals' financial literacy.

Moreover, individuals from households with higher incomes generally have more ability to engage in their community's social activities. This increased participation can lead to a rise in their social capital, fostering knowledge sharing. As a result, it indirectly influences their financial literacy.

7.2. Estimation results

The results of the OLS and IV estimations are illustrated in Tables 11 and 12, respectively. Based on Kleibergen-Paap's under identification test, Cragg-Donald's weak identification test, and Hansen's overidentification test results in Table 12, selected instruments are relevant, and the IV estimation results will be less biased and should be used in the discussion.

The results in Table 12 indicate that there is no gender gap in financial literacy. A positive correlation is however observed between the number of years spent in general education and financial literacy, meaning that as the years of education increase, so does financial literacy. The results also indicate that poor households (households holding ID Poor) are associated with lower financial literacy, and households with a higher number of loans are associated with higher financial literacy, as is higher social capital. Moreover, the results show a negative relationship between self-perceived and actual financial literacy levels. Our findings are similar to those of Morgan and Trinh (2019), particularly in terms of gender and education effects.

Regarding social capital, it can enhance financial literacy through knowledge sharing and peer-to-peer learning. When people in the community share information and learn from one another, the financial literacy of the community as a whole can be improved. Enhancing social capital benefits not only borrowers but also financial institutions. For instance, when people have higher financial literacy, they are more likely to make better financial decisions in their transactions, which can result in better financial health for both individuals and the community as a whole. In addition, financial institutions can reduce negative consequences resulting from asymmetric information in their transactions, in a community with well-functioning social capital.

Table 11: OLS estimation results (dependent variable: financial literacy score)

Independent variables	Financial literacy (inflation, max=2)	Financial literacy (inflation, max=2)	Financial literacy (interest rate, max=3)	Financial literacy (interest rate, max=3)	Financial literacy (risk, max=3)	Financial literacy (risk, max=3)	Financial literacy (overall, max=7)	Financial literacy (overall, max=7)
Household's social capital (1) (active member of groups: Yes=1, No=0)	0.040 (0.044)		0.167*** (0.049)		0.118** (0.047)		0.324*** (0.090)	
Household's social capital (2) (frequency of attending activities)		0.032 (0.020)		0.053** (0.020)		-0.016 (0.021)		0.069* (0.039)
Resp.'s Age	0.015* (0.009)	0.017* (0.009)	-0.005 (0.010)	-0.006 (0.010)	0.002 (0.010)	0.004 (0.010)	0.013 (0.017)	0.015 (0.017)
Resp.'s Age ²	-0.000** (0.000)	-0.000** (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Resp.'s gender (female=1, male=0)	-0.016 (0.052)	-0.017 (0.052)	-0.081 (0.055)	-0.085 (0.054)	0.050 (0.053)	0.039 (0.053)	-0.047 (0.107)	-0.063 (0.107)
Resp.'s education years	0.006 (0.006)	0.007 (0.006)	0.027*** (0.006)	0.028*** (0.006)	0.011* (0.006)	0.011* (0.006)	0.044*** (0.012)	0.045*** (0.012)
Resp.'s self-perceived fin. Lit	-0.010 (0.020)	-0.011 (0.020)	-0.003 (0.022)	-0.000 (0.022)	-0.040* (0.021)	-0.034 (0.022)	-0.054 (0.042)	-0.045 (0.042)
Resp.'s occupation (self-employed)	0.026 (0.042)	0.023 (0.042)	-0.049 (0.044)	-0.050 (0.044)	0.017 (0.044)	0.022 (0.044)	-0.006 (0.084)	-0.004 (0.084)
IDPoor status (Yes=1, No=0)	-0.089* (0.047)	-0.084* (0.047)	-0.151*** (0.049)	-0.153*** (0.050)	0.039 (0.049)	0.045 (0.049)	-0.201** (0.096)	-0.192** (0.097)
ln(hh income per capita)	0.006 (0.019)	0.008 (0.019)	-0.055*** (0.018)	-0.054*** (0.018)	0.019 (0.018)	0.013 (0.019)	-0.030 (0.037)	-0.033 (0.038)
Hh's loan number	0.066*** (0.022)	0.064*** (0.022)	-0.019 (0.024)	-0.023 (0.024)	0.048* (0.025)	0.045* (0.026)	0.096** (0.045)	0.086* (0.045)
Loans from banks or MFIs (Yes=1, No=0)	0.016 (0.044)	0.021 (0.044)	0.137*** (0.048)	0.136*** (0.048)	-0.036 (0.050)	-0.031 (0.050)	0.117 (0.090)	0.126 (0.091)
Rural	0.116*** (0.043)	0.108** (0.043)	0.024 (0.046)	0.007 (0.047)	-0.011 (0.047)	0.014 (0.048)	0.129 (0.085)	0.130 (0.087)
Constant	0.815*** (0.216)	0.770*** (0.216)	1.847*** (0.238)	1.873*** (0.238)	1.252*** (0.239)	1.266*** (0.239)	3.914*** (0.413)	3.909*** (0.419)
Observations	1,029	1,030	1,029	1,030	1,029	1,030	1,029	1,030
R2	0.041	0.044	0.081	0.075	0.015	0.011	0.058	0.049

Standard errors are in parentheses.

Asterisk “***”, “**” and “*” indicate the statistical significance at 1%, 5% and 10% significance levels, respectively.

Table 12: IV estimation results (dependent variable: financial literacy score)

Independent variables	Financial literacy (inflation, max=2)	Financial literacy (inflation, max=2)	Financial literacy (interest rate, max=3)	Financial literacy (interest rate, max=3)	Financial literacy (risk, max=3)	Financial literacy (risk, max=3)	Financial Literacy (overall, max=7)	Financial Literacy (overall, max=7)
Household's social capital (1) (active member of groups: Yes=1, No=0)	0.145 (0.292)		1.368*** (0.393)		0.753** (0.336)		2.266*** (0.730)	
Household's social capital (2) (frequency of attending activities)		0.390*** (0.114)		0.600*** (0.131)		0.087 (0.099)		1.077*** (0.249)
Resp.'s Age	0.015* (0.009)	0.019** (0.009)	-0.002 (0.012)	-0.001 (0.012)	0.003 (0.011)	0.005 (0.010)	0.017 (0.020)	0.023 (0.021)
Resp.'s Age ²	-0.000** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Resp.'s gender (female=1, male=0)	-0.008 (0.056)	0.011 (0.059)	0.010 (0.076)	-0.041 (0.068)	0.097 (0.064)	0.047 (0.055)	0.099 (0.140)	0.017 (0.136)
Resp.'s education years	0.007 (0.006)	0.011 (0.007)	0.029*** (0.008)	0.031*** (0.008)	0.014** (0.007)	0.012* (0.006)	0.051*** (0.014)	0.054*** (0.015)
Resp.'s self-perceived fin. Lit	-0.014 (0.024)	-0.047* (0.026)	-0.064* (0.035)	-0.062** (0.030)	-0.067** (0.028)	-0.043* (0.024)	-0.145** (0.062)	-0.153*** (0.059)
Resp.'s occupation (self-employed)	0.027 (0.042)	0.036 (0.047)	-0.075 (0.056)	-0.050 (0.057)	0.017 (0.048)	0.029 (0.044)	-0.031 (0.101)	0.015 (0.107)
IDPoor status (Yes=1, No=0)	-0.089* (0.047)	-0.099* (0.055)	-0.114* (0.061)	-0.158** (0.065)	0.045 (0.054)	0.038 (0.050)	-0.158 (0.116)	-0.219* (0.127)
Hh's loan number	0.069*** (0.023)	0.090*** (0.027)	0.016 (0.032)	0.017 (0.033)	0.065** (0.028)	0.052** (0.026)	0.150*** (0.055)	0.159*** (0.059)
Loans from banks or MFIs (Yes=1, No=0)	0.014 (0.044)	-0.017 (0.053)	0.105* (0.063)	0.073 (0.067)	-0.049 (0.054)	-0.041 (0.053)	0.070 (0.109)	0.016 (0.124)
Rural	0.108** (0.047)	-0.054 (0.073)	-0.061 (0.067)	-0.236*** (0.083)	-0.059 (0.055)	-0.033 (0.063)	-0.012 (0.116)	-0.323** (0.158)
Constant	0.815*** (0.210)	0.542** (0.228)	1.351*** (0.291)	1.267*** (0.291)	1.179*** (0.261)	1.243*** (0.238)	3.345*** (0.489)	3.052*** (0.496)
Underidentification (Kleibergen-Paap rk LM)	Chi-sq(2)P-val=0.000	Chi-sq(2)P-val=0.000	Chi-sq(2)P-val=0.000	Chi-sq(2)P-val=0.000	Chi-sq(2)P-val=0.000	Chi-sq(2)P-val=0.000	Chi-sq(2)P-val=0.000	Chi-sq(2)P-val=0.000
Weak identification (Cragg-Donald Wald F) #	11.962	21.653	11.962	21.653	11.962	21.653	11.962	21.653
Overidentification (Hansen J)	Chi-sq(1)P-val=0.608	Chi-sq(1)P-val=0.0825	Chi-sq(1)P-val=0.184	Chi-sq(1)P-val=0.467	Chi-sq(1)P-val=0.074	Chi-sq(1)P-val=0.233	Chi-sq(1)P-val=0.746	Chi-sq(1)P-val=0.361
Observations	1,029	1,030	1,029	1,030	1,029	1,030	1,029	1,030

Instrumented: social capital: instruments: average level of social capital in the commune (excluding related respondent and his/her household), household's per-capita income (ln ln)

Standard errors are in parentheses.

Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93, 15% maximal IV size 11.59, 20% maximal IV size 8.75, 25% maximal IV size 7.25

Asterisk "****", "***" and "**" indicate the statistical significance at 1%, 5% and 10% significance levels, respectively.

8. Conclusions

The study identifies the significant role of financial literacy in enhancing financial inclusion, which is crucial for reducing poverty and raising living standards in Cambodia. Our findings support the importance of financial literacy in reducing the use of informal finance that is characterized by very high interest rates. The analysis also reveals a positive correlation between general education and financial literacy, indicating that increasing education levels can contribute directly to enhancing financial literacy. In addition, the study identifies a correlation between relatively lower-income households and lower financial literacy levels, highlighting the need for targeting financial education programs among these households. Lastly, the study identifies a correlation between higher social capital and higher financial literacy, indicating the significant role of community networks in enhancing financial literacy.

These results have some policy implications. They emphasize the need to promote financial education, particularly for relatively low-income households. The study also suggests that enhancing social network within a community can be an effective approach for increasing financial literacy. Furthermore, the findings highlight the importance of general education in fostering financial literacy. Thus, financial education programs could be more effective to be implemented along with community development programs both for fostering financial literacy and for reducing the use of informal finance.

Finally, it is important to acknowledge our study's limitations due to the limited scope of the survey locations and sample size. While the study provides insights into the landscape of financial literacy and its determinants among microfinance borrowers in Cambodia, the interpretations should be made with caution.

References

- Demirgüç-Kunt, A., L. Klapper, and D. Singer. 2017. *Financial Inclusion and Inclusive Growth*. Policy Research Working Paper No. 8040. Washington DC: World Bank.
- Fox, J., S. Bartholomae, and J. Lee. 2005. "Building the Case for Financial Education." *Journal of Consumer Affairs* 39 (1): 195-214.
- Green, W. N., and M. Bylande. 2021. "The Exclusionary Power of Microfinance: Over-indebtedness and Land Dispossession in Cambodia." *Sociology of Development* 7 (2): 202-229.
- Liv, D. 2013. *Study on the Drivers of Over-Indebtedness of Microfinance Borrowers in Cambodia: An In-depth Investigation of Saturated Areas*. Final Report. Phnom Penh: Cambodia Institute of Development Study.
- Lusardi, A., and O. S. Mitchell. 2011. "Financial Literacy Around the World: An Overview." *Journal of Pension Economics and Finance* 10 (4): 497-508.
- Lusardi, A., and O. S. Mitchell. 2014. "The Economic Importance of Financial Literacy: Theory and Evidence." *Journal of Economic Literature* 52: 5-44.
- Miller, M., J. Reichelstein, C. Salas, and B. Zia. 2015. "Can You Help Someone Become Financially Capable? A Meta-Analysis of the Literature." *World Bank Research Observer* 30 (2): 220-246.
- Morgan, P., and L. Q. Trinh. 2019. "Determinants and Impacts of Financial Literacy in Cambodia and Viet Nam." *Journal of Risk and Financial Management* 12 (1): 19.
- Morgan, P. J., and L. Q. Trinh. 2020. Financial Literacy, Financial Inclusion, and Savings Behavior in Laos. *Journal of Asian Economics* 68: 101197.
- NBC. 2023a. *Annual Report 2022*. Phnom Penh: National Bank of Cambodia.
- NBC. 2023b. *Annual Supervision Report 2022*. Phnom Penh: National Bank of Cambodia.
- NIS. 2019. *General Population Census of the Kingdom of Cambodia 2019*. Phnom Penh: National Institute of Statistics, Ministry of Planning.
- OECD. 2022. *OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion 2022*. Paris: Organization for Economic Cooperation and Development.
- Park, C. Y., and R. Mercado. 2018. "Financial Inclusion, Poverty, and Income Inequality." *Singapore Economic Review* 63 (1): 185-206.
- Rosenberg, R., A. Gonzalez, and S. Narain. 2009. "The New Moneylenders: Are the Poor Being Exploited by High Microcredit Interest Rates?" In *Moving Beyond Storytelling: Emerging Research in Microfinance (Contemporary Studies in Economic and Financial Analysis 92)*, edited by T. A. Watkins and K. Hicks, 145-181. Bingley: Emerald Group Publishing Limited. [https://doi.org/10.1108/S1569-3759\(2009\)0000092008](https://doi.org/10.1108/S1569-3759(2009)0000092008).
- Samreth, S., D. Aiba, S. Oeur, and V. Vat. 2021. *Impacts of the Interest Rate Ceiling on Microfinance Sector in Cambodia: Evidence from a Household Survey*. JICA Ogata Research Institute Working Paper No. 219. Tokyo: JICA.
- Samreth, S., D. Aiba, S. Oeur, and Y. Vat. 2023. "Impact of the Interest Rate Ceiling on Credit Cost, Loan Size, and Informal Credit in the Microfinance Sector: Evidence from a Household Survey in Cambodia." *Empirical Economics* 65: 2627-2667.
- Schicks, J. 2010. *Microfinance Over-Indebtedness: Understanding its Drivers and Challenging the Common Myths*. CEB Working Paper No. 10/048. Brussels: Solvay Brussels School of Economics and Management, Université Libre de Bruxelles.
- Xu, L., and B. Zia. 2012. *Financial Literacy in the Developing World*. Policy. Research Working Paper No. 6107. Washington DC: World Bank.

Yoshino, N., P. J. Morgan, and L. Q. Trinh. 2017. *Financial Literacy in Japan: Determinants and Impacts*. ADBI Working Paper Series No. 796. Tokyo: Asian Development Bank Institute.

Abstract (in Japanese)

要 約

金融包摂は、途上国において貧困削減と人々の生活水準向上において重要な役割を持つ。カンボジアでは、マイクロファイナンスの拡大は金融包摂に大いに貢献してきたが、近年金融リテラシーの不十分な借り手の間で過度な債務負担が起こっていることが指摘されている。金融リテラシーの不十分な借り手は、ローンの返済を過小評価し、消費目的や生産性の低い投資のために高い利息で借り入れを行っているケースがしばしば指摘されている。そのため、金融包摂をさらに進めるうえでは、どういった要因が金融リテラシーの程度に影響しているのかを把握し改善していくことが求められる。本研究では、2021年の家計調査からのデータを用いて、カンボジアのマイクロファイナンスの借り手における金融リテラシーを測定するとともに、個人や世帯の特性に注目し、彼らの金融リテラシーに影響を与える要因を分析した。分析の結果、(1) 金融リテラシーとインフォーマル金融へのアクセスとの負の相関関係、(2) 教育年数と金融リテラシーの間の正の相関関係、(3) 貧困と金融リテラシーとの間の負の相関関係、および(4) 高い社会関係資本（地域内の社会的ネットワーク）と金融リテラシーとの間の正の相関関係が実証的に明らかになった。これらの分析結果は、カンボジアにおける金融リテラシー改善の方向性を示唆するとともに、金融リテラシーの改善が金融包摂のさらなる向上や過重債務問題の解決につながる可能性を示唆するものと考えられる。

キーワード：金融リテラシー、社会関係資本、マイクロファイナンス