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Impacts of the Interest Rate Ceiling on Microfinance Sector in Cambodia: Evidence from a Household Survey

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Abstract

This paper examines the effects of the imposition of an interest rate ceiling in the microfinance sector in Cambodia in 2017, based on a household survey undertaken in 2019. Evidence indicates that the average interest rate was reduced after the imposition of the ceiling. Although this reduction is partially offset by the increase of the average loan assessment and processing fee, the average effective interest rate (i.e., credit cost) declined. The results also show the increase in the average loan size from formal sources at a relatively small level and the increase in the percentage of loans from informal sources by a few percentage points. Moreover, we find that relatively low-income households face a higher probability of being rejected for loans and a higher debt service ratio is positively associated with a larger loan amount. This implies the possibility of the increase of the debt burden occurring among relatively small borrowers, given that an increase of the average loan size at relatively small loan levels is observed. The evidence supporting the important role of financial literacy in reducing household debt burden is also confirmed.

Keywords: Interest rate ceiling, Financial inclusion, Microfinance, Cambodia.

JEL Classification: G21; G51; G53

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1. Introduction

Many people in developing countries, and especially those in low-income groups, still have little or no access to formal financial services (i.e., savings, borrowing, and other financial transactions). Generally, financial institutions such as conventional commercial banks may be reluctant to engage in financial activities with low-income groups due to the high risks and high unit costs resulting from their lack of collateral and the small transaction sizes. As an effort to combat poverty and improve people's living standards, providing them access to financial services is believed to be a good approach and has been enhanced by many developing countries. Actually, microfinance has played an important role in this process of financial inclusion. Microfinance, which may include microcredit, microsavings, and microinsurance, is defined as financial services to the poor, low-income groups, and small businesses. Although the history of microfinance (particularly microcredit) can be traced back for centuries, the emergence of its significant role in the developing world occurred in the 1970s and 1980s in countries like Brazil, Bangladesh, and Indonesia and, at present, it is believed that the number of institutions engaging in microfinance activities worldwide has reached 10,000 or more (Watkins 2018).

Like many other developing countries, microfinance is also an important element of the Cambodian financial sector. In 2019, while there were 47 commercial banks and 15 specialized banks, a few hundred financial institutions were engaging in microfinance activities in Cambodia. These microfinance institutions (MFIs) consist of 6 deposit-taking microfinance institutions, 76 non-deposit taking microfinance institutions, and 245 rural credit institutions, based on data published by NBC (2020). The total credit provided has increased rapidly from some million USD in 1995 to over 7 billion USD in 2019, which is approximately one fourth of the total credit provided in Cambodia.[1] The total number of borrowers of MFIs has now reached about two million. This number is more than three times that of commercial banks (World Bank

[1] MFIs data published by the National Bank of Cambodia. Accessed 17 July 2020. https://www.nbc.org.kh/english/economic_research/mfis_reports.php

2019). While ability to access financial services through MFIs might help the poor to escape poverty and to improve their living standards, there are also concerns such as the high debt burden, possibly resulting from high borrowing costs or high loan interest rates in the microfinance sector, as discussed in Schicks (2010) and Liv (2013). Actually, relatively high interest rates in the microfinance sector have been criticized since the late 1970s, and this criticism has increased over the past decade, as illustrated by Rosenberg et al. (2009). Many microfinance activities have been transformed from charity-like arrangements to more commercial ones. This has resulted in concerns regarding the double bottom line issue in the microfinance sector (Watkins 2018). That is, while helping the poor and low-income communities through financial services has been a main mission for MFIs, generating financial returns for their shareholders or investors has also become their mission as commercial entities.[2] In an attempt to protect borrowers, the policy regulating the maximum legal loan interest rate has been adopted by both developed and developing countries such as Armenia, Bangladesh, Bolivia, Chile, Kenya, India, South Africa, and the USA. Ferrari et al. (2018) provided a detailed documentation of countries adopting this policy. Similarly, in Cambodia, concerns regarding the relatively high interest rate in microfinance sector led to the imposition of a legal interest rate ceiling on microfinance loans to 18% per annum in April 2017. According to NBC (2017), the imposition of the interest rate ceiling is for protecting consumers from excessive interest rate charged by MFIs and for enhancing affordable loan. This ceiling is effective for not only a new loan contract, but also a restructured loan and a refinance loan contract.

Although the purpose of the imposition of an interest rate ceiling is to protect borrowers, it can lead to various consequences in the financial sector. Various studies have examined these effects. Research focusing on developed countries include Blitz and Long (1965), Villegas (1982), Peterson (1983), Villegas (1989), Benmelech and Moskowitz (2010), and Rigbi (2013)

[2] The double-bottom-line issue can lead to the so-called ‘mission drift’ in microfinance. That is, MFIs may move away from poor to better-off borrowers.

for the USA, and Ellison and Forster (2008) for Australia, France, Germany, Italy, Japan, the UK, and the USA. Alper et al. (2019) provided a detailed survey regarding this subject. Most of these studies documented the adverse impacts of the interest rate ceiling on the financial sector. Many studies also attempt to assess the impacts of the ceiling imposition in developing countries. For instance, based on a theoretical analysis, Gonzalez-Vega (1984) showed that the interest rate ceiling can lead to credit-rationing behavior among microcredit lenders in the agricultural sector in developing countries. Helms and Reille (2004) indicated the negative impacts of the ceiling imposition on poor microfinance borrowers due to the credit rationing that results from high lending costs, in their analysis using data from 40 developing and transitional countries in Asia, Africa, and Latin America. In a study on the impacts of the law on financial services in Bolivia, Heng (2015) indicated the possible negative consequences of the interest rate ceiling on financial inclusion. In an analysis of the case of Kenya, Alper et al. (2019) found that the imposition of the interest rate ceiling leads to a significant decrease in the credit supplied to micro-, small-, and medium-sized enterprises and negatively affected financial intermediation. Madeira (2019) showed that the imposition of the interest rate ceiling in Chile in 2013 could have led to the exclusion of borrowing households from bank credit. Although studies on Cambodia are still scarce, some can be found. For instance, Crawford and Hamilton (2018) indicated that the ceiling imposition in Cambodia led to an increase of the average loan size and a possible change of MFI behavior towards richer borrowers over their lending. In another study, World Bank (2019) investigated the impacts of the ceiling imposition in a more detailed manner. It found that the decrease of interest rate is partly offset by increases in loan assessment and processing fees. Furthermore, it showed that the ceiling imposition led to a shift in the behavior of MFIs from providing small loans to providing larger loans with a longer maturity in their loan portfolios. However, these earlier studies on the case of Cambodia focused on the examination using the data and information from the MFI side.

The aim of this paper is therefore to investigate the impacts of the imposition of the interest rate ceiling on microfinance loans in Cambodia, based on data and information from the borrower household side. Particularly, changes in credit cost, loan size, and loan maturity after the imposition of the ceiling are examined, and possible credit rationing and factors affecting household debt burden are also discussed and analyzed. Our results indicate that the average interest rate is reduced after the imposition and although this reduction is offset by the increase of the average loan assessment and processing fee, this increase is relatively small. As a result, the average credit cost declines. The average size of loans provided by MFIs at a relatively low level increases after the imposition; however, the change in the loan maturity is not statistically significant. This increase in the average loan size may be partially a result of the shift to larger loan size by MFIs in their loan portfolios. The increase in the percentage of loans from informal sources by a few percentage points after the ceiling imposition is also confirmed. This can reflect the possibility of credit rationing. Our logistic and probit regressions show that those in the relatively poor group have a higher probability of being rejected for loans. Furthermore, our analysis of the household debt burden indicates that a higher debt service ratio is positively associated with a larger loan size. Since we have confirmed the increase of the average loan size at a relatively low level after the ceiling imposition, this positive correlation might imply the possibility of an increase in the debt burden among relatively small borrowers. Finally, the evidence supporting the important role of financial literacy in alleviating household debt burden is also obtained.

The rest of this paper is structured as follows. Section 2 presents a theoretical overview of the impacts of the interest rate ceiling. Some hypotheses are also proposed in this section. Section 3 illustrates the survey framework, including information on the survey sample and location. Section 4 presents the socio-economic condition of survey households, including basic household characteristics, monthly income, and expenditure. Section 5 provides results and discussion, and Section 6 is the conclusion.

2. Theoretical overview of the impacts of the interest rate ceiling and hypotheses

In general, a financial institution charges interest rates on its loans by taking into account various factors such as the cost of funds, risks, and overhead costs, as documented in Miller (2013). The cost of funds refers to the cost that a financial institution must pay to their fund providers, including depositors for deposit-taking MFIs. Risks can include prevailing risk in the region in which loans are provided and household-specific risk. Overhead costs can consist of administration and other overhead costs for running offices and branches, network expansion and new product and service development-related costs, and loan assessment and processing fees. Furthermore, the loan interest rate of a financial institution may be influenced by the level of tax (i.e., corporate tax) prevailing in the sector, as explained by Ferrari et al. (2018), and economy-wide factors such as inflation, market competition, information asymmetry, and its profit margin target.

MFIs generally deal with relatively low-income and small borrowers who, in many cases, live in rural areas. In general, financial transactions with these borrowers have relatively high risks and high information asymmetry. Given the relatively small loan size, overhead costs are also high. For these reasons, the interest rate charged by an MFI is generally higher than that charged by a conventional commercial bank.

2.1 Interest rate ceiling and credit cost

When the legal ceiling for loan interest rates is imposed in the microfinance sector, formal credit providers (i.e., MFIs) must charge the interest rates of their loans at levels no higher than the ceiling, in compliance with the regulation. This constraint can affect their behavior. In their financial transaction activities, among the factors affecting interest rates discussed above, cost of funds, risks, tax, inflation, and competition can be considered to be economy-wide or

sector-wide exogenous factors faced by all MFIs.[3] However, for overhead costs and profit margin targets, MFIs can have more direct control and can more readily adjust these. Given this and the constraint resulting from the ceiling imposition, MFIs may need to adjust their overhead costs to maintain their profitability. Among overhead costs, loan assessment and processing fees can be relatively immediately adjusted and are not subject to a legal ceiling. MFIs might increase loan assessment and processing fee if they must comply with the legal ceiling on the interest rate. As a result, for borrowers, lower interest rates resulting from the ceiling regulation can be offset by the increase in loan assessment and processing fee. This is summarized in the following hypothesis:

Hypothesis 1: Although the imposition of the interest rate ceiling can decrease loan interest rates, this can be offset by an increase in loan assessment and processing fees.

2.2 Interest rate ceiling, loan size, and loan maturity

As discussed above, MFIs generally engage in financial transactions with relatively high overhead costs (i.e., high administrative and transaction costs). These costs are affected by their productivity as well as their transaction or business models, as discussed in Helms and Reille (2004) and Ferrari et al. (2018). At a given level of productivity, these costs are generally a decreasing function of loan size and loan maturity structure. That is, the administrative and transaction costs per unit of loan and per loan are higher for smaller size and shorter maturity loans, respectively. Given that productivity cannot be adjusted in the short run, the ceiling imposition may induce MFIs to adjust their transaction or business model by reducing small-size and short-maturity loans and increasing larger size and longer maturity loans in their loan portfolios to maintain their profitability. This can be summarized in the following hypothesis:

[3] In the market with information asymmetry between borrowers and MFIs, the relationship between borrower's default risk and loan interest rate could be endogenous. However, in reality, MFIs screen borrowers' risks, and impose interest rates depending on the risks. Thus, to some extent, the risks of the borrowers could be dealt with as exogenous factors affecting loan interest rates for MFIs.

Hypothesis 2: The imposition of the interest rate ceiling can induce MFIs to shift to larger size and longer maturity loans in their loan portfolios.

2.3 Interest rate ceiling, informal credit, and welfare of borrowers

A rationale underlying the imposition of the interest rate ceiling in the microfinance sector is the need to protect borrowers from being charged too-high interest rates. The proponent of the interest rate ceiling considers this as a need to address market failure that results from asymmetric information.[4] This view argues that a financial institution might be able to exploit its monopolistic market power to charge interest rates higher than the market rates, as argued in Miller (2013). This implies higher borrowing costs, thereby negatively affecting borrower welfare. This can be more severe if the credit demand at a higher interest rate level is interest rate inelastic. In this case, the ceiling imposition can improve borrower welfare if the ceiling rate is not set to a level lower than the market rate. However, if the initially prevailing interest rate is close to or at the market rate, the ceiling imposition can have adverse consequences, such as credit rationing by formal lenders. As a result, informal credit might increase. That is, borrowers who cannot access to credit from formal lenders due to credit rationing might then opt to borrow from informal lenders that are not regulated by monetary authorities. These borrowers will need to pay higher credit costs to informal lenders. This can negatively affect their welfare.

Another rationale for the imposition of the interest rate ceiling is the need to adjust the short-sighted and time-inconsistent behavior of borrowers, as documented in Tsutsui et al. (2007). This behavior particularly occurs among those who have a declining rate of time preference in their intertemporal decision making. This declining rate of time preference is also called ‘hyperbolic discounting’ (Frederick et al. 2002). That is, they tend to value present consumption or borrowing more than future ones. These borrowers might underestimate the

[4] Besley (1994) provided a detailed documentation on how market failures occur in rural microcredit markets.

future loan repayment and borrow at high interest rates for current consumption. Such behavior can increase their debt burden, thereby negatively affecting their welfare. This situation can be more severe if their financial literacy is low. Financial literacy reflects the ability to process economic information and make appropriate financial decision and planning (Lusardi and Mitchell 2014). In this case, the ceiling imposition can effectively help to adjust the short-sighted and inconsistent behavior of such borrowers. However, its effectiveness can be affected by the existence of informal lenders in the market and by whether all formal lenders abide by the ceiling rate in their loan provision, as discussed in Bizer et al. (1992) and Tsutsui (2007). If informal lenders widely exist, borrowers with short-sighted and inconsistent behavior might just shift to borrowing from informal lenders. Furthermore, the regulatory or supervisory ability of monetary authorities is also important in preventing such borrowers, especially those who have low financial literacy, from being exploited by lenders in general. Our discussion can be summarized in the following hypotheses:

Hypothesis 3-1: The imposition of the interest rate ceiling on MFIs can lead to an increase in informal credit.

Hypothesis 3-2: Higher financial literacy can reduce debt burden among borrowers.

3. Survey framework

This paper examines the impacts of the imposition of the interest rate ceiling on the microfinance sector in Cambodia by focusing on Hypotheses 1, 2, 3-1, and 3-2, as discussed above. The data and information used for our examinations are obtained from a survey of borrower households. The survey was conducted from August 19 to September 20, 2019.

3.1 Household categories

To ensure that we have a sample with a sufficient number of households having access to MFI loans for the periods before and after the ceiling imposition, three household categories are considered.[5] The first category, S1, consists of households mainly having access to MFI loans both between January 2012 and March 2017 (i.e., the period before the ceiling imposition) and between April 2017 and December 2018 (i.e., the period after ceiling imposition). The second category, S2, consists of households mainly having access to MFI loans between January 2012 and April 2017 (i.e., before the ceiling imposition), but having no access to loans after the imposition of the ceiling. It is noteworthy that, in terms of accessibility to MFI loans, S1 households are not likely to be affected by the ceiling, as they have access to MFI loans both before and after its imposition. For S2 households, although they might simply have no demand for credit after the imposition, there is also the possibility that they are affected by the ceiling. The third category, S3, consists of households from a general sampling process in our survey location. Table A1 in Appendix A summaries household categories and their definitions.

3.2 Survey location and sample size

Five provinces from four geographical zones in Cambodia were chosen for the survey, based on two criteria: the penetration of MFI activities and the number of borrowers as the percentage of the total population in each province. The five selected provinces are Battambang (from the Tonle Sap Lake zone), Kandal (from the Plain zone), Kampong Speu (from the Plateau and Mountainous zone), Kampot (from the Coastal zone), and Kratie (from the Plateau and Mountainous zone). From each province, two districts are selected: one is the capital district, and

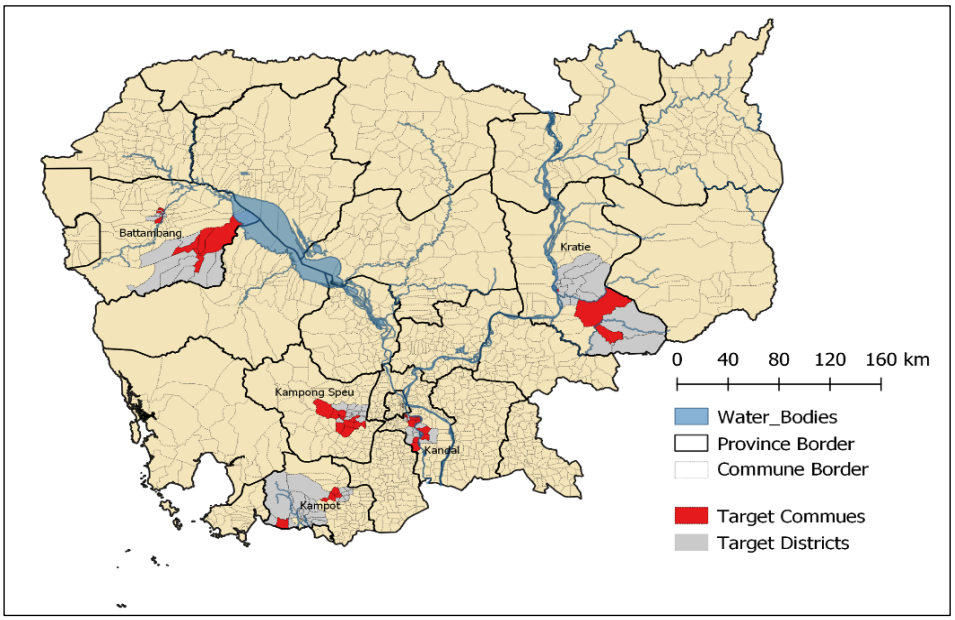
[5] The criteria of a household having access to an MFI loan before or after the imposition of the interest rate ceiling is based on the contract date of the loan. For instance, if a household has a loan contract before the ceiling imposition on April 1, 2017, this household is considered to have had loan access before the ceiling, even if that loan maturity may last until the period after the ceiling. A loan whose contract date is April 1, 2017, or after is considered as a loan after the ceiling. This is consistent with the loan criteria mentioned in the ceiling policy by the National Bank of Cambodia.

the other is a rural district with the largest number of borrowers among all rural districts in the same province, to ensure that we have households in urban as well as in rural districts in our sample. The proportional number of households selected for the survey in each district is determined by considering the proportional size of its total population across all 10 selected districts. The lists of S1 and S2 households in each district are provided by the Credit Bureau Cambodia (CBC) using a random selection procedure. Selected households are located across 36 communes in the 10 selected districts. Figure 1 illustrates our survey location on the Cambodian geographical map.

The survey was conducted from August 19 to September 20, 2019. During the fieldwork, for S1 and S2 households, our survey team visited villages in the selected communes and met with the village chiefs for identifying locations of selected households. In the case that the village chiefs could not identify the households, we sought help from the branch offices of MFIs in those areas. However, if the initially selected households still could not be identified from the lists provided by the CBC, a sampling method via the household network in the selected villages was employed to identify households that meet the criteria of S1 and S2 categories for the interviews. S3 households are randomly selected from the nearby villages of S1 and S2 househlds. The number of households for the survey are 400 for S1, 300 for S2, and 300 for S3.

For each selected household, we mainly interviewed the household head or the spouse, who are generally the decision makers in their family. Table 1 shows the number of households by district and by household category.

Figure 1: Survey location



Source: Authors' construction.

Table 1: Number of households by district and by household category

Province	District	S1	S2	S3	Total
Battambang	Battambang*	50	38	38	126
	Moung Rueussei	41	30	30	101
Kampong Speu	Krong Chbar Mon*	22	19	18	59
	Samraong Tong	78	56	57	191
Kampot	Krong Kampot*	12	9	9	30
	Chhuk	43	32	32	107
Kandal	Krong Ta Khmau*	31	23	23	77
	S'ang	90	68	68	226
Kratie	Krong Kracheh*	9	7	7	23
	Snuol	24	18	18	60
Total		400	300	300	1,000

* Capital district.
Source: National Institute of Statistics (NIS), Ministry of Planning, Cambodia.

4. Household socio-economic condition

In this section, the socio-economic condition of households is illustrated using the data and information from our survey. Specifically, household basic characteristics, monthly income, and monthly expenditures are presented and discussed.

4.1 Basic household characteristics

Table 2 presents the basic characteristics of survey households. Information on urban-rural classification for communes is obtained from the National Institute of Statistics (NIS) of the Ministry of Planning, Cambodia. A commune is defined as an urban commune if: (1) its population density exceeds 200 per km^2; (2) the share of its male employment in agriculture is lower than 50%; and (3) its total population is more than 2,000 (NIS 2015). Table A2 in Appendix A illustrates the 36 communes in our survey by urban-rural classification.

From Table 2, overall, we do not find statistically significant differences across household categories regarding their basic characteristics. Specifically, about one fourth of survey households have IDPoor, and about one fifth of them have at least one member migrating abroad or to other regions in Cambodia.[6] Household heads have an average age of about 50 years, and about one third of them are female. Moreover, average years of schooling of household members is around five years, and the average household size (i.e., number of persons per household) is about four. The identical basic characteristics of selected households across all categories, S1, S2, and S3 can reflect the careful and appropriate randomization procedure of this survey.

[6] The ID Poor program was established in 2006 for identifying poor households in Cambodia in an effort to reduce poverty. Households are identified as poor or not, based on their socio-economic conditions whose information are obtained from regular surveys. More details on the ID Poor program in Cambodia are available at https://www.idpoor.gov.kh.

Table 2: Basic household characteristics

Household category	Household		Household head		Household members	
	% of IDPoor	% of Having mig. member	% of female	Avg. age (years)	Avg. size	Avg. schooling years
S1 (number of households)	24.75 (400)	18.75 (400)	29.25 (400)	49 (400)	4.3 (400)	4.7 (400)
S2 (number of households)	22.67 (300)	23 (300)	32 (300)	50.1 (300)	4.2 (300)	4.9 (300)
S3 (Number of households)	23 (300)	21.33 (300)	34.67 (300)	49.9 (300)	4.2 (300)	4.5 (300)
All categories (Number of households)	23.6 (1000)	20.8 (1000)	31.7 (1000)	49.6 (1000)	4.2 (1000)	4.7 (1000)
T-statistic of t-test: One-tailed test (H_0: S1=S2)	0.6393	-1.3765	-0.7818	-1.3478	1.1642	-1.0492
F-statistic of ANOVA (H_0: S1=S2=S3)	0.35	0.98	1.17	1.01	0.65	2.03

Source: Authors' calculation and estimation, based on the survey data.

4.2 Household monthly income and expenditures

Table 3 shows the average monthly income and expenditures of survey households by category and region. The table indicates that, overall, although the difference of the average income between S1 and S2 households is not statistically significant, the difference of their monthly expenditure is. Specifically, the average monthly expenditure of S1 households is higher than that of S2 households for the overall and urban area cases. Figure 2 illustrates distributions of monthly income and expenditures by household category. This figure also indicates a higher monthly expenditure by S1 households, given that the curve of their expenditure distribution is on the right-hand side of that of S2 households. S1 households also have a higher median monthly expenditure. For a developing country like Cambodia, consumption or expenditure is often used as an indicator illustrating people's living standards, given that it is less volatile than income. Since S1 households are those that have access to MFI loans for both before and after the ceiling imposition, their higher living standards can somewhat provide an implication of the relationship between living standards and access to finance. That is, higher living standards tend

to be associated with better access to finance, although further study is required to identify the causality between them.[7]

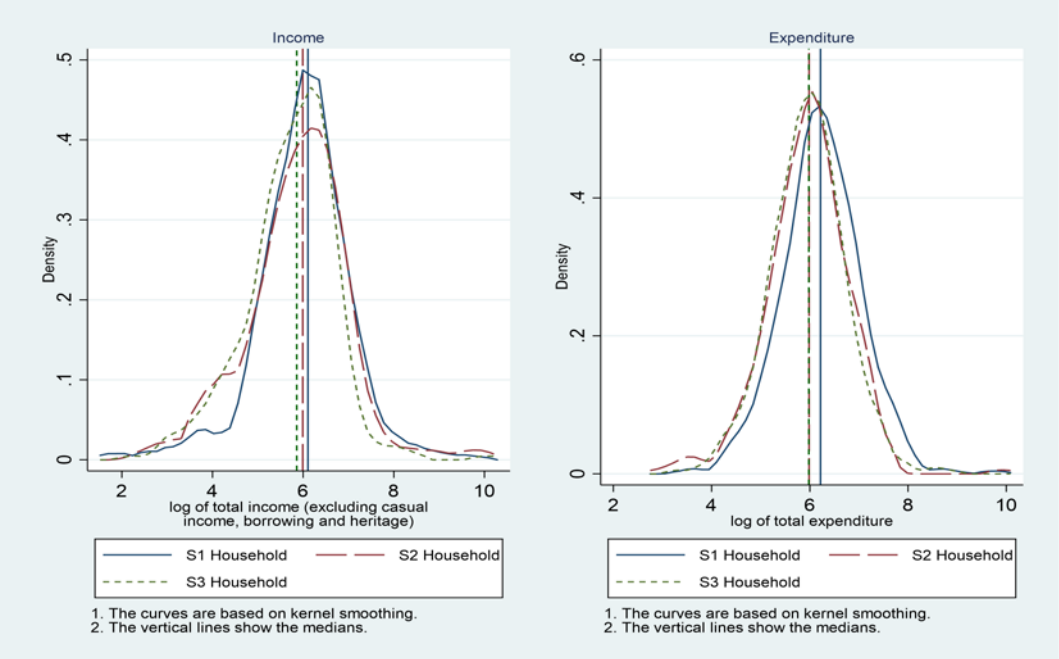
Table 3: Average household monthly income and expenditure[a] by category and region

Sample	Avg. income (USD)			Avg. expenditure (USD)		
	Urban communes	Rural communes	All communes	Urban communes	Rural communes	All communes
S1 households (number of households)	762 (100)	652 (300)	679 (400)	845 (100)	691 (300)	730 (400)
S2 households (number of households)	544 (77)	783 (223)	721 (300)	423 (77)	608 (223)	561 (300)
S3 households (number of households)	793 (77)	412 (223)	510 (300)	548 (77)	513 (223)	522 (300)
Total HHs (number of households)	705 (254)	619 (746)	641 (1000)	627 (254)	613 (746)	617 (1000)
T-statistic for t-test: One-tailed test for all communes (H_0: S1=S2)	1.8403*	-0.815	-0.3394	4.1194***	0.7598	1.9774**
F-statistic for ANOVA (H_0: S1=S2=S3)	0.55	3.38**	1.58	9.65***	1.77	4.50**

[a] Income from casual job, borrowing and heritage are excluded. Average income and expenditure are cross-sectional average values in 2019 when the survey was conducted. As a result, it is not necessary to separate the nominal and real values.
***, ** and * indicate statistical significance at 1%, 5% and 10% significance levels, respectively.
Source: Authors' calculation and estimation based on the survey data.

[7] Previous studies investigating the impacts of the access to microfinance on various aspects of household welfare in Cambodia provided mixed results. While Phim (2014), Roth et al. (2017) and Chhorn (2020) showed the positive impacts of microfinance on income, expenditure and poverty reduction, Seng (2018a, 2018b) indicated the negative impacts of microfinance on household welfare in Cambodia.

Figure 2: Distributions of monthly income (USD) and expenditure (USD) by household category



Source: Authors' construction based on the survey data.

Moreover, the statistical insignificance of the difference of monthly expenditure between S1 and S2 households in rural area may reflect the fact that the dispersion of living standards (i.e., inequality) among people in the rural area is lower than that in the urban area.

5. Impacts of the imposition of the interest rate ceiling

In this section, the results of the examinations of Hypotheses 1, 2, 3-1, and 3-2 are presented. Our survey revealed that 58 households in S2 also have access to microfinance loans after the ceiling imposition, although our initial classification of S2 did not intend to include households having access to MFI loans after the ceiling imposition, using the information provided by the CBC. This may be due to the possibility that those households have access to MFI loans through their different household members whose information was not yet covered by the CBC. Furthermore, it could also be because of their access to loans from informal sources.

5.1 Interest rate ceiling and credit cost

5.1.1 Basic statistics

Tables 4 and 5 illustrate the average monthly interest rate and average overall loan assessment and processing fees before and after the imposition of the interest rate ceiling.[8] For the average interest rate, the t-test confirms its decrease after the ceiling imposition for both loans from all sources and loans from formal sources (i.e., MFIs). For the average overall fee, while the difference of average overall fee-to-loan size ratio is not statistically significant, the average overall fee per loan increased. The average monthly interest rate has decreased from 1.82% to 1.60% for loans from overall sources and from 1.82% to 1.57% for loans from formal sources. The average interest rate after the ceiling imposition is very close to the legal ceiling rate, which is 18% per year, or around 1.5% monthly. The average overall fee-to-loan size ratio is around 3% to 4% and has been almost the same before and after ceiling imposition, while the average overall fees per loan have increased from 28 USD to 44 USD for loans from overall sources, and from 30 USD to 46 USD for loans from formal sources. The results indicating a higher average overall fee for loans from formal sources should not be surprising, since loans from overall sources also include informal sources that generally charge higher interest rates but may charge lower or no fees.

Table 6 shows the average fee-to-loan size ratio per month and average monthly effective interest rate before and after the ceiling imposition for loans from formal sources. The effective interest rate is the sum of the interest rate and the fee-to-loan size ratio. From the table, the average monthly effective interest rate for loans from formal sources decreased from around 2.12% to 1.84% after the ceiling imposition.[9]

[8] Average monthly interest rates and average loan assessment and processing fees are average values across loans, not across periods. As a result, it is not necessary to separate nominal and real values.
[9] This result also implies a decrease in the real effective interest rate after the imposition of the ceiling, given that Cambodia experienced a positive inflation rate over the period of loan maturity considered in our study.

Generally, these results confirmed Hypothesis 1. That is, the imposition of the interest rate ceiling decreased the average interest rate; but this was offset by an increase in loan assessment and processing fees. However, the offset effect was relatively small, resulting in a decrease in the average credit cost for borrowers.

Table 4: Average interest rate before and after the ceiling imposition

Household category	All sources (%)		Formal sources (%)	
	Before	After	Before	After
S1	1.8	1.56	1.8	1.55
(Number of loans)	(54)	(241)	(54)	(232)
S2	1.77	1.75	1.77	1.45
(Number of loans)	(60)	(39)	(60)	(33)
S3	2.68	1.65	2.68	1.65
(Number of loans)	(4)	(94)	(4)	(92)
All categories	1.82	1.6	1.82	1.57
(Number of loans)	(118)	(374)	(118)	(357)
T-statistic of t-test for all categories: One-tailed test (H_0: before=after)	2.0758**		2.6290***	

Loans with zero interest rate are excluded from the calculation and estimation.
*** and ** indicate statistical significance at the 1% and 5% significance levels, respectively.
Source: Authors' calculation and estimation, based on the survey data.

Table 5: Average overall loan assessment and processing fee before and after ceiling imposition

Household category	**Avg. overall fee per loan (USD)**				**Avg. overall fee-to-loan size ratio (%)**			
	All sources		Formal sources[a]		All sources		Formal sources	
	Before	After	Before	After	Before	After	Before	After
S1	29.2	46.1	30.4	47.3	4.4	3.4	4.5	3.5
(Number of loans)	(130)	(444)	(125)	(425)	(127)	(442)	(122)	(425)
S2	27.6	28.7	28.8	32	1.7	3.9	1.8	4.4
(Number of loans)	(140)	(78)	(134)	(69)	(137)	(76)	(131)	(68)
S3	27.6	45.7	27.6	47.6	7.3	5.5	7.3	4.8
(Number of loans)	(16)	(200)	(16)	(187)	(15)	(200)	(15)	(187)
All categories	28.3	44.1	29.5	45.8	3.2	4.1	3.3	3.9
(Number of loans)	(286)	(722)	(275)	(681)	(279)	(718)	(268)	(680)
T-statistic of t-test for all categories: One-tailed test (H_0: before=after)	-4.3194***		-4.3349***		-0.9626		-0.6589	

*** indicates statistical significance at the 1% significance level.
Source: Authors' calculation and estimation based on the survey data.

Table 6: Average fee-to-loan size ratio per month and average monthly effective interest rate before and after ceiling imposition, formal sources

Household category	Avg. fee-to-loan size ratio per month (%)		Avg. effective interest rate (monthly, %)[a]	
	Before	After	Before	After
S1	0.46	0.29	2.43	1.78
(Number of loans)	(119)	(424)	(47)	(228)
S2	0.11	0.30	1.83	1.53
(Number of loans)	(130)	(65)	(59)	(32)
S3	0.58	0.37	2.72	2.09
(Number of loans)	(15)	(186)	(4)	(92)
All categories	0.30	0.31	2.12	1.84
(Number of loans)	(264)	(675)	(110)	(352)
T-statistic of t-test for all categories: One-tailed test (H_0: before=after)	-0.1581		1.5358*	

[a] Effective interest rate is the sum of monthly interest rate and fee-to-loan size ratio per month. Loans with zero interest rate are excluded from the calculation and estimation.
* indicates statistical significance at the 0% significance level.
Source: Authors' calculation and estimation, based on the survey data.

5.1.2 Credit cost and their affecting factors

To compare the credit cost (i.e., interest rate and loan assessment and processing fee) before and after the ceiling imposition in a more adequate manner, regression analyses on the relationship between credit cost and their affecting factors are conducted. The regression equation can be expressed as follows.

$$y_i = x_i'\beta + u_i, \tag{1}$$

where y is credit cost, $\beta = (\beta_0, \beta_1, \cdots, \beta_k)'$ is a $(k+1) \times 1$ vector of regression coefficients, $x = (1, x_1, \cdots, x_k)'$ is a $(k+1) \times 1$ vector of the explanatory variables, u is the error term, and i indicates the observation.

For the specification of the estimation equation, the main factors affecting credit cost such as household characteristics, loan characteristics, market competition, and common risk variables are taken into account. Household characteristics include household ID Poor status, household income, average education years of household members, average age of household

members, number of household members (i.e., household size), household financial literacy, and gender of the household head.[10] Differences in these characteristics can result in different household-specific risks and socio-economic conditions, which are taken into account by lenders in financial transactions. Generally, a household with higher risk faces a higher credit cost. Loan characteristics include loan size, loan maturity, loan collateral, loan source, and loan purpose. The number of MFIs operating and non-performing loan rates at the commune level are used as proxies for market competition and common risk variables, respectively. Dummy variables for controlling the possible effects of different household categories and regional characteristics are also incorporated into the estimation equation. Data used for the estimation are from our survey, except for the number of MFIs operating and the non-performing loan rate, which are provided by the CBC.

For the estimation method, the quantile regression (QR) method, developed by Koenker and Bassett (1978), is applied.[11] The quantile estimator of β in Equation (1) is obtained from the following optimization problem:

$$\min_{\beta \in R^{k+1}} \left[\sum_{i \in \{i:\ y_i \geq x_i'\beta\}} \emptyset |y_i - x_i'\beta| + \sum_{i \in \{i:\ y_i < x_i'\beta\}} (1-\emptyset)|y_i - x_i'\beta| \right], \quad (2)$$

for the $\emptyset th$ ($0<\emptyset<1$). The QR method allows us to examine the impact of explanatory variables at the different quantiles of the distribution of the dependent variable. This method is more robust than the conventional ordinary least squares (OLS) method if outliers in the data exist and when the non-normal distribution pattern of the dependent variable is observed. From Figure B1 in Appendix B, the distributions of the monthly interest rate and the fee-to-loan size

[10] Financial literacy of a household head or the spouse whom we interviewed is used as the proxy for household financial literacy, since they are usually the main decision makers in their families. Financial literacy is constructed by using survey questions related to households' ability to calculate and understand the economic variables such as interest rate and inflation calculations. The ratio of the correct answers in all answers, which is between 0 and 1, is used as the measure of its level.

[11] In this regression, household socio-economic condition (e.g., income) related endogeneity issues may exist. Although this cannot be addressed with sophistication, various factors are controlled in our estimation equation. As a result, the possibility of the endogeneity resulting from omitted variables is reduced.

ratio obviously have non-normal patterns, and outliers seem to exist in their data. This motivates our application of the QR method. Tables 7, 8 and 9 present the estimation results at the 25^{th}, 50^{th}, and 75^{th} quantiles, in which the monthly interest rate, the overall fee-to-loan size ratio, and the fee-to-loan size ratio per month are used as dependent variables, respectively.

Table 7: Quantile regression results (dep. var.: monthly interest rate in %)

Q.25th	Before	Before	After	After
Variable	(1-1)	(1-2)	(1-3)	(1-4)
ID Poor (Yes=1, No=0)	-0.26	-0.26	-0.01	-0.13
	(0.20)	(0.20)	(0.02)	(0.36)
ln(income)[a]	0.05	0.05	-0.00	-0.00
	(0.06)	(0.06)	(0.01)	(0.01)
Avg. education of hh member	-0.05*	-0.05*	-0.01	-0.01
	(0.03)	(0.03)	(0.01)	(0.01)
ln(avg. age of hh member)	-1.58	-1.67	0.95*	0.98**
	(4.27)	(4.33)	(0.51)	(0.49)
Squared ln(avg. age of hh member)	0.27	0.28	-0.15*	-0.15**
	(0.62)	(0.62)	(0.08)	(0.07)
Household size	-0.04	-0.04	-0.00	-0.00
	(0.05)	(0.05)	(0.01)	(0.01)
Financial literacy	-0.21	-0.21	0.03	0.03
	(0.33)	(0.34)	(0.05)	(0.05)
Female hh head (Yes=1, No=0)	0.09	0.09	0.00	0.01
	(0.18)	(0.19)	(0.02)	(0.02)
ln(loan size)	-0.00	-0.00	-0.04***	-0.04***
	(0.06)	(0.06)	(0.02)	(0.02)
Loan maturity	-0.00	-0.00	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Land as collateral	-0.02	-0.03	0.01	0.01
	(0.33)	(0.38)	(0.02)	(0.02)
Formal source (Yes=1, No=0)[b]	-	-	-0.06	-0.06
	-	-	(0.19)	(0.24)
Productive and durable goods purpose	-0.03	-0.03	-0.02	-0.02
(Yes=1, No=0)	(0.11)	(0.12)	(0.02)	(0.02)
Number of MFI loans per 100 hhs	-0.50*	-0.51	-0.07*	-0.08*
(2016 for before, 2018 for after)	(0.30)	(0.31)	(0.04)	(0.04)
Non-performing loan rate (%)[c]	-0.00	-0.00	-0.00	-0.00
(2016 for before, 2018 for after)	(0.03)	(0.03)	(0.01)	(0.01)
S1 dummy (S1=1, Other=0)	-0.25	0.03	0.02	0.02
	(0.94)	(1.03)	(0.03)	(0.03)
S2 dummy (S2=1, Other=0)	-0.04	0.24	-0.00	-0.01
	(0.95)	(1.03)	(0.04)	(0.04)
Urban commune dummy (Yes=1, No=0)	0.33*	0.33*	-0.01	-0.00
	(0.18)	(0.19)	(0.04)	(0.04)
ID Poor*Formal source		-		0.12
		-		(0.36)
ID Poor*Urban commune dummy		-0.02		-0.06
		(0.56)		(0.07)
Constant	4.38	4.27	0.42	0.37
	(7.34)	(7.42)	(0.85)	(0.84)
Number of observations	110	110	368	368
Pseudo-R^2	0.133	0.133	0.178	0.180

[a] Income from casual job, borrowing and heritage are excluded.
[b] Coefficients of 'formal source' in Columns (1-1) and (1-2) and the coefficient of 'IDPoor* Formal source' in Column (1-2) cannot be estimated, due to collinearity.
[c] Non-performing loan refer to loan whose payment was more than 30-day overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 7 (cont.): Quantile regression results (dep. var.: monthly interest rate in %)

Q.50th	Before	Before	After	After
Variable	(2-1)	(2-2)	(2-3)	(2-4)
ID Poor (Yes=1, No=0)	-0.17	-0.17	-0.01	-0.55
	(0.25)	(0.27)	(0.02)	(0.36)
ln(income)[a]	-0.00	0.00	-0.00	-0.00
	(0.07)	(0.07)	(0.01)	(0.01)
Avg. education of hh member	-0.02	-0.03	-0.00	-0.00
	(0.03)	(0.03)	(0.00)	(0.00)
ln(avg. age of hh member)	-2.89	-1.42	0.43	0.35
	(4.61)	(4.68)	(0.44)	(0.44)
Squared ln(avg. age of hh member)	0.45	0.22	-0.07	-0.05
	(0.67)	(0.68)	(0.06)	(0.07)
Household size	-0.04	-0.04	-0.00	-0.00
	(0.07)	(0.08)	(0.01)	(0.01)
Financial literacy	-0.05	0.04	0.02	0.02
	(0.44)	(0.45)	(0.04)	(0.04)
Female hh head (Yes=1, No=0)	0.29	0.29	0.01	0.01
	(0.26)	(0.27)	(0.02)	(0.02)
ln(loan size)	-0.05	-0.08	-0.04**	-0.04**
	(0.09)	(0.10)	(0.02)	(0.02)
Loan maturity	-0.00	-0.00	-0.00*	-0.00*
	(0.01)	(0.01)	(0.00)	(0.00)
Land as collateral	-0.03	-0.06	0.04*	0.04*
	(0.39)	(0.45)	(0.02)	(0.02)
Formal source (Yes=1, No=0)[b]	-	-	-0.38**	-0.38
	-	-	(0.18)	(0.24)
Productive and durable goods purpose	-0.02	0.01	-0.01	-0.01
(Yes=1, No=0)	(0.14)	(0.15)	(0.02)	(0.02)
Number of MFI loans per 100 hhs	-0.16	-0.16	-0.05*	-0.06*
(2016 for before, 2018 for after)	(0.33)	(0.35)	(0.03)	(0.03)
Non-performing loan rate (%)[c]	-0.01	-0.00	-0.01	-0.01
(2016 for before, 2018 for after)	(0.04)	(0.05)	(0.01)	(0.01)
S1 dummy (S1=1, Other=0)	-1.27	-1.30	-0.00	-0.00
	(1.19)	(1.28)	(0.02)	(0.02)
S2 dummy (S2=1, Other=0)	-1.15	-1.18	-0.03	-0.03
	(1.19)	(1.28)	(0.04)	(0.04)
Urban commune dummy (Yes=1, No=0)	0.06	0.15	0.01	0.01
	(0.24)	(0.25)	(0.03)	(0.04)
ID Poor*Formal source[b]		-		0.54
		-		(0.36)
ID Poor*Urban commune dummy		-0.17		-0.00
		(0.72)		(0.05)
Constant	8.36	6.17	1.60**	1.72**
	(7.72)	(7.95)	(0.72)	(0.75)
Number of observations	110	110	368	368
Pseudo-R^2	0.085	0.086	0.045	0.045

[a] Income from casual job, borrowing and heritage are excluded.
[b] Coefficients of 'formal source' in Columns (2-1) and (2-2) and the coefficient of 'IDPoor*Formal source' in Column (2-2) cannot be estimated, due to collinearity.
[c] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 7 (cont.): Quantile regression results (dep. var.: monthly interest rate in %)

Q.75th	Before	Before	After	After
Variable	(3-1)	(3-2)	(3-3)	(3-4)
ID Poor (Yes=1, No=0)	-0.23	0.04	-0.00	-0.60
	(0.41)	(0.47)	(0.03)	(1.18)
ln(income)[a]	0.02	-0.05	0.00	-0.00
	(0.10)	(0.10)	(0.02)	(0.02)
Avg. education of hh member	-0.01	-0.02	0.00	-0.00
	(0.06)	(0.06)	(0.01)	(0.01)
ln(avg. age of hh member)	1.22	3.14	-0.00	0.00
	(8.46)	(8.36)	(0.84)	(0.82)
Squared ln(avg. age of hh member)	-0.14	-0.42	0.00	-0.00
	(1.21)	(1.19)	(0.12)	(0.12)
Household size	0.02	-0.05	0.00	0.00
	(0.12)	(0.12)	(0.01)	(0.01)
Financial literacy	0.39	0.17	0.00	-0.00
	(0.72)	(0.74)	(0.06)	(0.06)
Female hh head (Yes=1, No=0)	0.64*	0.41	-0.00	-0.00
	(0.38)	(0.37)	(0.04)	(0.04)
ln(loan size)	-0.29	-0.24	0.00	0.00
	(0.17)	(0.17)	(0.04)	(0.04)
Loan maturity	0.00	-0.00	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)
Land as collateral	0.14	-0.34	-0.00	-0.00
	(0.54)	(0.58)	(0.07)	(0.07)
Formal source (Yes=1, No=0)[b]	-	-	-1.00	-1.00
	-	-	(0.88)	(1.15)
Productive and durable goods purpose	0.19	0.06	0.00	0.00
(Yes=1, No=0)	(0.32)	(0.33)	(0.03)	(0.02)
Number of MFI loans per 100 hhs	0.10	0.10	-0.00	-0.00
(2016 for before, 2018 for after)	(0.58)	(0.60)	(0.05)	(0.05)
Non-performing loan rate (%)[c]	-0.02	0.04	0.00	0.00
(2016 for before, 2018 for after)	(0.06)	(0.08)	(0.02)	(0.02)
S1 dummy (S1=1, Other=0)	-0.15	-1.49	0.00	0.00
	(1.32)	(1.38)	(0.04)	(0.04)
S2 dummy (S2=1, Other=0)	-0.25	-1.60	-0.00	0.00
	(1.31)	(1.38)	(0.07)	(0.07)
Urban commune dummy (Yes=1, No=0)	-0.18	-0.01	0.00	-0.00
	(0.47)	(0.50)	(0.07)	(0.11)
ID Poor*Formal source[b]		-		0.60
		-		(1.17)
ID Poor*Urban commune dummy		-1.18		-0.00
		(1.12)		(0.16)
Constant	1.29	0.36	2.50	2.50
	(14.68)	(14.49)	(1.53)	(1.68)
Number of observations	110	110	368	368
Pseudo-R^2	0.175	0.191	0.045	0.049

[a] Income from casual job, borrowing and heritage are excluded.
[b] Coefficients of 'formal source' in Columns (3-1) and (3-2) and the coefficient of 'IDPoor*Formal source' in Column (3-2) cannot be estimated, due to collinearity.
[c] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 8: Quantile regression results (dep. var.: overall fee-to-loan size ratio, %)

Q.25th	Before	Before	After	After
Variable	(1-1)	(1-2)	(1-3)	(1-4)
ID Poor (Yes=1, No=0)	-0.01	-0.02	0.02	0.29
	(0.12)	(0.32)	(0.11)	(2.59)
ln(income)[a]	-0.00	-0.01	0.03	0.01
	(0.05)	(0.05)	(0.03)	(0.04)
Avg. education of hh member	-0.02	-0.02	0.01	0.01
	(0.03)	(0.03)	(0.01)	(0.02)
ln(avg. age of hh member)	3.38	3.08	-3.49	-2.82
	(3.35)	(3.45)	(2.14)	(2.19)
Squared ln(avg. age of hh member)	-0.56	-0.52	0.47	0.37
	(0.48)	(0.50)	(0.30)	(0.31)
Household size	-0.07	-0.07	-0.01	-0.01
	(0.05)	(0.05)	(0.02)	(0.03)
Financial literacy	0.37	0.36	-0.06	-0.12
	(0.22)	(0.23)	(0.16)	(0.17)
Female hh head (Yes=1, No=0)	0.05	0.05	-0.05	-0.07
	(0.11)	(0.12)	(0.08)	(0.08)
ln(loan size)	-0.14*	-0.15*	-0.06	-0.06
	(0.07)	(0.08)	(0.05)	(0.06)
Loan maturity	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Land as collateral	0.23	0.24	0.11	0.09
	(0.34)	(0.33)	(0.17)	(0.17)
Formal source (Yes=1, No=0)	0.66*	0.66	0.23	0.37
	(0.38)	(0.41)	(0.22)	(0.26)
Productive and durable goods purpose	-0.08	-0.08	0.12	0.14*
(Yes=1, No=0)	(0.10)	(0.10)	(0.08)	(0.08)
Number of MFI loans per 100 hhs	-0.14	-0.11	0.03	0.10
(2016 for before, 2018 for after)	(0.20)	(0.21)	(0.10)	(0.10)
Non-performing loan rate (%)[b]	-0.00	-0.01	-0.01	-0.01
(2016 for before, 2018 for after)	(0.03)	(0.04)	(0.03)	(0.03)
S1 dummy (S1=1, Other=0)	0.24	0.22	0.11	0.12
	(0.27)	(0.27)	(0.08)	(0.09)
S2 dummy (S2=1, Other=0)	0.08	0.08	-0.02	0.01
	(0.26)	(0.26)	(0.10)	(0.11)
Urban commune dummy (Yes=1, No=0)	-0.42***	-0.41**	0.02	-0.02
	(0.15)	(0.18)	(0.09)	(0.10)
ID Poor*Formal source		-0.06		-0.36
		(0.36)		(2.59)
ID Poor*Urban commune dummy		0.15		0.04
		(0.40)		(0.32)
Constant	-3.81	-3.28	6.38*	5.26
	(5.67)	(5.85)	(3.73)	(3.83)
Number of observations	266	266	700	700
Pseudo-R^2	0.038	0.038	0.008	0.008

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 8 (cont.): Quantile regression results (dep. var.: overall fee-to-loan size ratio, %)

Q.50th	Before	Before	After	After
Variable	(2-1)	(2-2)	(2-3)	(2-4)
ID Poor (Yes=1, No=0)	-0.04	0.01	0.21	1.25
	(0.13)	(0.47)	(0.19)	(8.40)
ln(income)[a]	0.06	0.06	0.02	0.02
	(0.07)	(0.07)	(0.07)	(0.07)
Avg. education of hh member	-0.03	-0.03	-0.01	-0.00
	(0.02)	(0.02)	(0.04)	(0.04)
ln(avg. age of hh member)	-2.79	-2.52	-4.98	-5.45
	(4.79)	(4.99)	(4.75)	(4.69)
Squared ln(avg. age of hh member)	0.33	0.30	0.66	0.73
	(0.68)	(0.70)	(0.68)	(0.67)
Household size	-0.04	-0.03	-0.07	-0.05
	(0.05)	(0.05)	(0.04)	(0.04)
Financial literacy	-0.01	-0.01	-0.17	-0.17
	(0.28)	(0.28)	(0.32)	(0.32)
Female hh head (Yes=1, No=0)	0.10	0.10	-0.09	-0.12
	(0.12)	(0.12)	(0.15)	(0.15)
ln(loan size)	-0.35**	-0.36**	-0.56***	-0.57***
	(0.15)	(0.15)	(0.11)	(0.11)
Loan maturity	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)
Land as collateral	-0.22	-0.16	-0.20	-0.32
	(0.83)	(0.81)	(0.36)	(0.34)
Formal source (Yes=1, No=0)	1.67*	1.62*	2.08***	2.62***
	(0.89)	(0.93)	(0.58)	(0.55)
Productive and durable goods purpose	-0.12	-0.12	0.17	0.19
(Yes=1, No=0)	(0.12)	(0.12)	(0.14)	(0.14)
Number of MFI loans per 100 hhs	-0.21	-0.21	0.11	0.12
(2016 for before, 2018 for after)	(0.26)	(0.26)	(0.17)	(0.17)
Non-performing loan rate (%)[b]	0.02	0.02	0.05	0.03
(2016 for before, 2018 for after)	(0.04)	(0.04)	(0.08)	(0.07)
S1 dummy (S1=1, Other=0)	0.12	0.08	0.08	0.07
	(0.26)	(1.01)	(0.16)	(0.16)
S2 dummy (S2=1, Other=0)	0.05	-0.02	-0.49**	-0.37
	(0.25)	(1.01)	(0.22)	(0.23)
Urban commune dummy (Yes=1, No=0)	-0.11	-0.08	-0.07	-0.21
	(0.19)	(0.23)	(0.17)	(0.17)
ID Poor*Formal source		-0.03		-1.27
		(0.50)		(8.41)
ID Poor*Urban commune dummy		-0.05		0.29
		(0.52)		(0.43)
Constant	7.72	7.34	13.09	13.44*
	(8.48)	(8.89)	(8.08)	(7.99)
Number of observations	266	266	700	700
Pseudo-R^2	0.043	0.043	0.046	0.048

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 8 (cont.): Quantile regression results (dep. var.: overall fee-to-loan size ratio, %)

Q.75th	Before	Before	After	After
Variable	(3-1)	(3-2)	(3-3)	(3-4)
ID Poor (Yes=1, No=0)	-0.55	-0.56	-0.18	7.36
	(0.34)	(1.45)	(0.40)	(35.07)
ln(income)[a]	0.04	0.02	0.14	0.18
	(0.15)	(0.15)	(0.14)	(0.14)
Avg. education. of hh member	-0.01	-0.01	-0.04	-0.05
	(0.07)	(0.07)	(0.07)	(0.07)
ln(avg. age of hh member)	-2.28	-0.17	-10.54	-7.46
	(14.06)	(14.77)	(9.17)	(8.81)
Squared ln(avg. age of hh member)	0.22	-0.10	1.48	1.05
	(1.98)	(2.08)	(1.30)	(1.26)
Household size	-0.05	-0.08	-0.05	-0.05
	(0.15)	(0.15)	(0.09)	(0.08)
Financial literacy	0.73	0.78	0.04	-0.06
	(0.69)	(0.71)	(0.65)	(0.62)
Female hh head (Yes=1, No=0)	0.16	0.25	-0.53*	-0.51*
	(0.42)	(0.44)	(0.29)	(0.27)
ln(loan size)	-1.10**	-1.00**	-1.72***	-1.62***
	(0.47)	(0.48)	(0.22)	(0.20)
Loan maturity	0.01	0.01	0.01*	0.01*
	(0.01)	(0.02)	(0.01)	(0.01)
Land as collateral	-5.99**	-6.05**	-1.09	-1.25
	(2.58)	(2.57)	(0.77)	(0.76)
Formal source (Yes=1, No=0)	8.66***	8.47***	1.64	3.87**
	(2.46)	(2.63)	(1.85)	(1.51)
Productive and durable goods purpose	-0.21	-0.31	0.20	0.26
(Yes=1, No=0)	(0.27)	(0.28)	(0.27)	(0.26)
Number of MFI loans per 100 hhs	0.02	-0.17	0.56*	0.53*
(2016 for before, 2018 for after)	(0.79)	(0.80)	(0.30)	(0.29)
Non-performing loan rate (%)[b]	0.07	0.08	0.13	0.10
(2016 for before, 2018 for after)	(0.20)	(0.22)	(0.11)	(0.11)
S1 dummy (S1=1, Other=0)	0.44	0.60	0.19	0.15
	(11.99)	(12.35)	(0.33)	(0.31)
S2 dummy (S2=1, Other=0)	0.39	0.47	-0.77**	-0.66*
	(11.99)	(12.35)	(0.39)	(0.37)
Urban commune dummy (Yes=1, No=0)	-0.05	0.14	-0.03	-0.31
	(0.63)	(0.70)	(0.42)	(0.39)
ID Poor*Formal source		0.10		-7.85
		(1.51)		(35.08)
ID Poor*Urban commune dummy		-0.45		0.86
		(1.40)		(1.72)
Constant	11.89	8.09	33.23**	24.85*
	(28.45)	(29.41)	(16.06)	(15.06)
Number of observations	266	266	700	700
Pseudo-R^2	0.096	0.096	0.111	0.123

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 9: Quantile regression results (dep. var.: fee-to-loan size ratio per month, %)

Q.25th	Before	Before	After	After
Variable	(1-1)	(1-2)	(1-3)	(1-4)
ID Poor (Yes=1, No=0)	0.00	0.00	0.00	0.01
	(0.00)	(0.01)	(0.00)	(0.52)
ln(income)[a]	0.00	0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Avg. education of hh member	-0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
ln(avg. age of hh member)	0.04	0.04	-0.09	-0.09
	(0.16)	(0.16)	(0.08)	(0.09)
Squared ln(avg. age of hh member)	-0.01	-0.01	0.01	0.01
	(0.02)	(0.02)	(0.01)	(0.01)
Household size	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Financial literacy	0.01	0.01	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Female hh head (Yes=1, No=0)	0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
ln(loan size)	-0.01*	-0.01*	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Loan maturity	-0.00**	-0.00**	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Land as collateral	0.01	0.01	0.00	0.00
	(0.02)	(0.02)	(0.01)	(0.01)
Formal source (Yes=1, No=0)	0.03	0.03	0.02	0.02
	(0.03)	(0.03)	(0.01)	(0.01)
Productive and durable goods purpose	-0.00	-0.00	0.00	0.01**
(Yes=1, No=0)	(0.00)	(0.00)	(0.00)	(0.00)
Number of MFI loans per 100 hhs	-0.01	-0.00	0.00	0.01
(2016 for before, 2018 for after)	(0.01)	(0.01)	(0.00)	(0.00)
Non-performing loan rate (%)[b]	-0.00	0.00	-0.00	-0.00
(2016 for before, 2018 for after)	(0.00)	(0.00)	(0.00)	(0.00)
S1 dummy (S1=1, Other=0)	0.01	0.01	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)
S2 dummy (S2=1, Other=0)	0.00	0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.00)	(0.00)
Urban commune dummy (Yes=1, No=0)	-0.01**	-0.01*	0.00	-0.00
	(0.01)	(0.01)	(0.00)	(0.00)
ID Poor*Formal source[c]		-		-0.01
		-		(0.52)
ID Poor*Urban commune dummy		-0.01		0.01
		(0.02)		(0.01)
Constant	0.02	0.01	0.16	0.17
	(0.28)	(0.28)	(0.15)	(0.15)
Number of observations	255	255	696	696
Pseudo-R^2	0.018	0.018	0.000	0.000

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
[c] Coefficients of 'ID Poor*Formal source' in Column (1-2) cannot be estimated, due to collinearity.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 9 (cont.): Quantile regression results (dep. var.: fee-to-loan size ratio per month, %)

Q.50th	Before	Before	After	After
Variable	(2-1)	(2-2)	(2-3)	(2-4)
ID Poor (Yes=1, No=0)	-0.00	-0.00	0.00	0.44
	(0.01)	(0.01)	(0.01)	(20.11)
ln(income)[a]	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Avg. education of hh member	-0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
ln(avg. age of hh member)	-0.02	-0.02	-0.20	-0.13
	(0.23)	(0.24)	(0.23)	(0.23)
Squared ln(avg. age of hh member)	-0.00	-0.00	0.03	0.02
	(0.03)	(0.03)	(0.03)	(0.03)
Household size	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Financial literacy	0.01	0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Female hh head (Yes=1, No=0)	0.01	0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
ln(loan size)	-0.02***	-0.02***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)
Loan maturity	-0.00	-0.00	-0.00*	-0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Land as collateral	-0.01	-0.02	-0.04**	-0.04*
	(0.05)	(0.05)	(0.02)	(0.02)
Formal source (Yes=1, No=0)	0.03	0.05	0.11**	0.15***
	(0.07)	(0.07)	(0.04)	(0.03)
Productive and durable goods purpose	-0.00	-0.00	0.01*	0.01**
(Yes=1, No=0)	(0.01)	(0.01)	(0.01)	(0.01)
Number of MFI loans per 100 hhs	-0.02	-0.02	0.01	0.01
(2016 for before, 2018 for after)	(0.02)	(0.01)	(0.01)	(0.01)
Non-performing loan rate (%)[b]	0.00	0.00	-0.00	0.00
(2016 for before, 2018 for after)	(0.00)	(0.00)	(0.00)	(0.00)
S1 dummy (S1=1, Other=0)	0.01	0.01	0.01**	0.01*
	(0.01)	(0.01)	(0.01)	(0.01)
S2 dummy (S2=1, Other=0)	0.00	0.00	-0.01	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Urban commune dummy (Yes=1, No=0)	0.00	0.01	0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)
ID Poor*Formal source[c]		-		-0.44
		-		(20.11)
ID Poor*Urban commune dummy		-0.01		0.01
		(0.03)		(0.02)
Constant	0.22	0.22	0.55	0.39
	(0.41)	(0.42)	(0.41)	(0.40)
Number of observations	255	255	696	696
Pseudo-R^2	0.032	0.032	0.007	0.009

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
[c] Coefficients of 'ID Poor*Formal source' in Column (2-2) cannot be estimated, due to collinearity.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 9 (cont.): Quantile regression results (dep. var.: fee-to-loan size ratio per month, %)

Q.75th	Before	Before	After	After
Variable	(3-1)	(3-2)	(3-3)	(3-4)
ID Poor (Yes=1, No=0)	-0.03	-0.03	0.01	5.50
	(0.02)	(0.03)	(0.02)	(183.87)
ln(income)[a]	0.01	0.01	0.02*	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Avg. education of hh member	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
ln(avg. age of hh member)	0.08	0.08	-0.58	-0.26
	(0.97)	(1.00)	(0.56)	(0.53)
Squared ln(avg. age of hh member)	-0.02	-0.02	0.08	0.04
	(0.14)	(0.14)	(0.08)	(0.08)
Household size	-0.01	-0.01	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Financial literacy	0.01	0.01	-0.00	0.01
	(0.04)	(0.04)	(0.04)	(0.04)
Female hh head (Yes=1, No=0)	0.01	0.01	-0.04**	-0.04**
	(0.02)	(0.02)	(0.02)	(0.02)
ln(loan size)	-0.06**	-0.06**	-0.07***	-0.07***
	(0.02)	(0.02)	(0.02)	(0.02)
Loan maturity	-0.00	-0.00	-0.00**	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Land as collateral	-0.28	-0.28	-0.15**	-0.14**
	(0.22)	(0.23)	(0.07)	(0.06)
Formal source (Yes=1, No=0)	0.38	0.38	-0.00	0.24*
	(0.23)	(0.25)	(0.61)	(0.13)
Productive and durable goods purpose	-0.02	-0.02	0.02	0.02
(Yes=1, No=0)	(0.02)	(0.02)	(0.02)	(0.02)
Number of MFI loans per 100 hhs	-0.02	-0.02	0.05**	0.06**
(2016 for before, 2018 for after)	(0.05)	(0.05)	(0.03)	(0.03)
Non-performing loan rate (%)[b]	0.01	0.01	0.01	0.01
(2016 for before, 2018 for after)	(0.01)	(0.01)	(0.01)	(0.01)
S1 dummy (S1=1, Other=0)	0.04	0.04	0.02	0.02
	(1.08)	(1.01)	(0.02)	(0.02)
S2 dummy (S2=1, Other=0)	0.01	0.01	-0.03	-0.03
	(1.09)	(1.01)	(0.02)	(0.02)
Urban commune dummy (Yes=1, No=0)	0.01	0.01	-0.01	-0.02
	(0.04)	(0.04)	(0.03)	(0.03)
ID Poor*Formal source[c]		-		-5.50
		-		(183.87)
ID Poor*Urban commune dummy		-0.01		0.00
		(0.08)		(0.15)
Constant	0.37	0.37	1.70	0.87
	(2.07)	(2.08)	(1.13)	(0.90)
Number of observations	255	255	696	696
Pseudo-R^2	0.066	0.066	0.015	0.022

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
[c] Coefficients of 'ID Poor*Formal source' in Column (3-2) cannot be estimated, due to collinearity.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Using the fitted values of the monthly interest rate calculated from the 50th quantile results in Table 7, after ceiling imposition, the average monthly interest rate decreased from 1.69% to 1.46%, which is well below the ceiling rate.[12] If only loans from formal sources are considered, it decreased from 1.67% to 1.44%. These results reflect the fact that the ceiling rate is being effectively enforced, although only about 13% of our 1,000 survey households answered that they are aware of the interest rate ceiling policy.[13] Table 7 also indicates that, after the ceiling imposition, the lower interest rate seems to be significantly correlated with a higher number of MFIs in operation, which is a proxy for microfinance market competition based on the results from the 25th and 50th quantiles. This finding implies that a higher competition among MFIs can result in a lower interest rate. Moreover, the table shows that the lower interest rate seems to be associated with a larger loan size and longer loan maturity. The overall fee-to-loan size ratio, after ceiling imposition, increased from 0.90% to 1.45%, using the fitted values calculated from the quantile 50th results in Table 8.[14] As for the fee-to-loan size ratio per month, it increased from about 0.04% to about 0.07%, using the fitted values calculated from the quantile 50th results in Table 9.[15] Given that the average monthly interest rate for loans from formal sources decreased from 1.67% to 1.44% after the ceiling imposition, this implies a decrease in the average monthly effective interest rate for loans from formal sources from 1.71% to 1.51%, which is almost at the level of the ceiling rate.[16]

Furthermore, Tables 8 and 9 show that, overall, a higher loan fee seems to be significantly associated with a smaller loan size. It also has a significantly positive correlation with loans from formal sources. This positive correlation result should not be surprising. Formal

[12] Estimated coefficients in columns 2-1 and 2-3 in Table 7 are used to calculate the fitted values of the interest rate before and after the ceiling imposition, respectively.
[13] From our survey, three fourths of those who are aware of the existence of the interest rate ceiling answered that they knew about it from credit officers of MFIs.
[14] Fitted values of the over fee-to-loan size ratio before and after the ceiling imposition are calculated by using estimated coefficients in columns 2-1 and 2-3 in Table 8, respectively.
[15] Fitted values of the fee-to-loan size ratio per month before and after the ceiling imposition are calculated by using estimated coefficients in columns 2-1 and 2-3 in Table 9, respectively.
[16] This result also implies a decrease in the real effective interest rate after ceiling imposition, given that Cambodia experienced a positive inflation rate over the period of loan maturity considered in our study.

lenders generally need to follow various formal procedures during the loan assessment and processing that incur fees. Although informal lenders might not apply such procedures when providing loans, they generally charge higher interest rates.

Our findings confirmed Hypothesis 1 and are consistent with the basic statistical results. That is, the ceiling imposition has resulted in a decrease of the average interest rate for borrowers. Although this was offset by the increase in average loan assessment and processing fee, the offset effect is relatively small, resulting in the decrease of the average credit cost for borrowers. Overall, these findings are somewhat consistent with those of the World Bank (2019) from an analysis based on the data and information from MFIs.

5.2 Interest rate ceiling, loan size, and loan maturity

Table 10 illustrates the average loan size and loan maturity before and after the imposition of the interest rate ceiling. The table shows that there is no statistically significant evidence of a change in the overall average loan size and loan maturity after ceiling imposition. Overall, the average loan size is around 4,000 USD, and the average loan maturity is around 30 months. Figure 3 illustrates the distribution of the loan size before and after the ceiling by loan source. From the figure, the obvious difference of loan size cannot be observed as well. However, Table 11 illustrates the statistical evidence on the increase of the average loan size at a relatively small loan level after the ceiling imposition, in the case of loans from formal sources (i.e., MFI loans).[17] Our survey indicates that, among those households having access to loans before the ceiling imposition, 73 of them have loans with the size smaller than 1,000 USD. About 37% of these households have the ID Poor and their average monthly income is around 469 USD. This average income is lower than that of the whole sample shown earlier in Table 3.

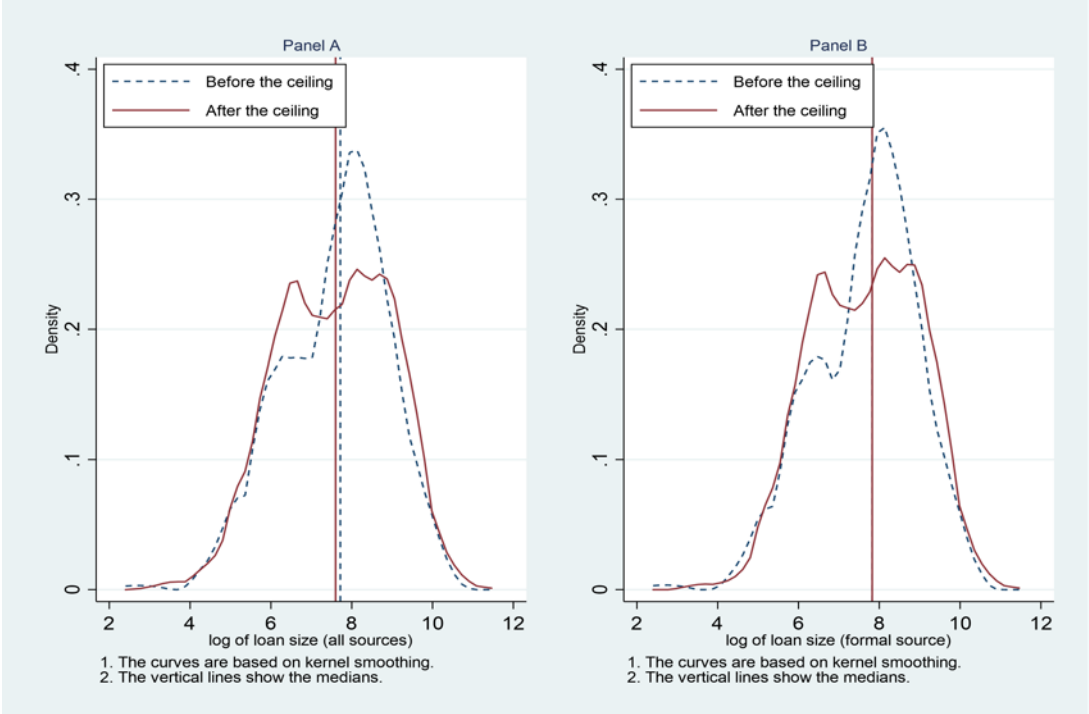
[17] It is important to note that loan size may be affected by various factors such as improvement in household living standards and their demand. For a better comparison, controlling for its affecting factors is more desirable if the data and information are available. Therefore, our results should be interpreted with caution.

Table 10: Average loan size and loan maturity before and after ceiling imposition

Household category	Avg. loan size (USD)				Avg. loan maturity (months)			
	All sources		Formal sources		All sources		Formal sources	
	Before	After	Before	After	Before	After	Before	After
S1	3,621	4,665	3,746	4,970	30	29.8	30.9	30.5
(Number of loans)	(127)	(446)	(122)	(429)	(145)	(448)	(140)	(429)
S2	4,020	3,721	4,181	4,046	31.7	26.5	33.1	28.8
(Number of loans)	(138)	(78)	(132)	(68)	(144)	(77)	(138)	(68)
S3	3,578	3,921	3,578	4,141	28.6	29.4	28.6	31.2
(Number of loans)	(15)	(201)	(15)	(187)	(16)	(200)	(16)	(186)
All categories	3,816	4,357	3,950	4,539	30.7	29.3	31.8	30.5
(Number of loans)	(280)	(725)	(269)	(684)	(305)	(725)	(294)	(683)
T-statistic of t-test for all categories: One-tailed test (H_0: before=after)	-1.3657		-1.4306		0.9414		0.8259	

Source: Authors' calculation and estimation, based on the survey data.

Figure 3: Distributions of loan size for all sources (Panel A) and formal sources (Panel B) before and after the ceiling, formal sources only



Source: Authors' construction based on the survey data.

Table 11: Average loan size (USD) by range before and after ceiling imposition, formal sources

Loan size	Avg.		T-statistic of t-test
	Before	After	(H_0: before=after)
less than 1,000 loan size	425	495	-2.3749***
(Number of loans)	(67)	(207)	
1,000 ≤ loan size < 2,000	1,243	1,254	-0.1987
(Number of loans)	(28)	(92)	
2,000 ≤ loan size < 3,000	2,114	2,209	-1.9631**
(Number of loans)	(44)	(71)	
3,000 ≤ loan size < 4,000	3,052	3,086	-0.8529
(Number of loans)	(31)	(52)	
4,000 ≤ loan size < 5,000	4,156	4,086	1.0831
(Number of loans)	(16)	(28)	
5,000 ≤ loan size < 6,000	5,023	5,037	-0.5506
(Number of loans)	(30)	(54)	
loan size ≥ 6,000	11,217	12,127	-0.8161
(Number of loans)	(53)	(180)	

***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.
Source: Authors' calculation and estimation based on the survey data.

Overall, our finding could not strongly confirm Hypothesis 2 since the difference in the average loan maturity before and after the imposition of the ceiling is not statistically significant. However, the evidence on the increase of the average loan size for a relatively small loan may provide some implications for the debt burden among relatively small borrowers, as discussed later in the paper.

5.3 Interest rate ceiling and informal credit

Table 12 presents the percentage of loans from informal sources before and after the ceiling imposition. The table indicates that loans from informal sources increased by a few percentage points. Overall, this result confirmed Hypothesis 3-1 regarding the increase in informal credit. This could reflect the possibility of credit rationing by formal lenders, although more sophisticated study might be needed to assess this consequence, if more data and information are available.

From our survey, among the 595 households who provided answers, 56 answered that they had experience being rejected for a loan by formal lenders after the ceiling imposition.

Table 13 illustrates the reasons for the household experience with loan rejection in Panel A and household coping methods in Panel B. From the table, lack of collateral and too-low income or being judged as having too low ability for loan repayment by the lenders seem to be the main reasons for being rejected for loans. Nearly half of the households with experience of being rejected for a loan turned to borrow from informal lenders such as friends and money lenders.

Table 12: Percentage of loans from informal sources before and after the ceiling imposition

Household category	**% of loans from informal sources**[a]	
	Before	After
S1	3.4	4.2
(Number of loans)	(146)	(448)
S2	4.2	11.5
(Number of loans)	(144)	(78)
S3	0.0	7.0
(Number of loans)	(16)	(201)
All categories	3.6	5.8
(Number of loans)	(306)	(727)
T-statistic of t-test for all categories: One-tailed test (H_0: before=after)	-1.4517*	

[a] Loans from village banks are categorized as loans from formal sources.
* Indicates statistical significance at the 10% significance level.
Source: Authors' calculation and estimation based on the survey data.

Table 13: Reasons of being rejected for loan and households' coping methods

Panel A: Reasons	**% of households**[a]
Too small borrowing amount[b]	7.1
(number of households)	(4)
Lack of collateral	30.4
(number of households)	(17)
Having too low income or being judged to have too low ability to make loan repayments	46.4
(number of households)	(26)
Other reasons (late repayment of previous loans, etc.)	7.1
(number of households)	(4)
Unaware of reason	19.6
(number of households)	(11)
Panel B: Coping methods	**% of households**[a]
Reducing necessary consumption	1.8
(number of households)	(1)
Selling livestock (cattle, buffalo, etc.)	5.4
(number of households)	(3)
Selling lands	5.4
(number of households)	(3)
Selling durable goods (agricultural tools, motorbike, etc.)	5.4
(number of households)	(3)
Borrowing from informal sources (relatives, money lenders, etc.)	44.6
(number of households)	(25)
Other solution	1.8
(number of households)	(1)
Do nothing	42.9
(number of households)	(24)
Total number of households experiencing being rejected for loan	56

[a] Households can be rejected for loans by more than one reason and they can also have more than one coping method.
[b] Specific borrowing amounts were 200 USD, 250 USD, 750 USD and 1,000 USD.
Source: Authors' calculation and estimation, based on the survey data.

5.4 Household characteristics and experience of being rejected for loans

To examine the factors affecting the experience being rejected for a loan in a more adequate manner, logistic and probit regression analyses are applied by focusing on household characteristics. The regression equation can be expressed as follows:

$$Pr(r_i = 1|d_i) = d_i'\gamma + v_i, \quad (3)$$

where r takes the value of 1 for a household having experience being rejected for a loan and 0 otherwise, $\gamma = (\gamma_0, \gamma_1, \cdots, \gamma_l)'$ is a $(l+1) \times 1$ vector of regression coefficients, $d =$

$(1, d_1, \cdots, d_l)'$ is a $(l+1) \times 1$ vector of the explanatory variables, v is the error term, and i indicates the observation.

The explanatory variables include main household characteristic variables such as household IDPoor status, household income, average education years of household members, average age of household members, number of household members (i.e., household size), household financial literacy, and the gender of the head of household. Differences in these characteristics can result in a different probability of being rejected for loans. Dummy variables addressing the possible effects of different household categories and regional characteristics are also incorporated into the estimation equation. The data used for the estimation are from our survey.

Table 14: Logistic and probit regression results (dep. var.: loan rejection, yes=1, no=0)

Variable	Logistic (1)	Logistic (2)	Probit (3)	Probit (4)
IDPoor (Yes=1, No=0)	0.34	0.34	0.18	0.18
	(0.32)	(0.32)	(0.16)	(0.16)
ln(income)[a]	-0.23	-0.23*	-0.12*	-0.13*
	(0.14)	(0.14)	(0.07)	(0.07)
Avg. education. of hh member	0.03	0.03	0.01	0.01
	(0.07)	(0.07)	(0.04)	(0.04)
ln(avg. age of hh member)	17.02*	17.04*	9.04*	9.04*
	(9.18)	(9.20)	(4.65)	(4.66)
Squared ln(avg. age of hh member)	-2.67**	-2.67*	-1.41**	-1.41**
	(1.36)	(1.36)	(0.69)	(0.69)
Household size	0.12	0.12	0.06	0.06
	(0.09)	(0.09)	(0.05)	(0.05)
Financial literacy	0.59	0.60	0.31	0.31
	(0.71)	(0.71)	(0.36)	(0.36)
Female hh head (Yes=1, No=0)	0.10	0.10	0.07	0.07
	(0.32)	(0.32)	(0.16)	(0.16)
S1 dummy (S1=1, Other=0)	0.12	0.13	0.07	0.07
	(0.34)	(0.34)	(0.17)	(0.17)
S2 dummy (S2=1, Other=0)	0.71	0.71	0.39	0.40
	(0.51)	(0.51)	(0.26)	(0.26)
Urban commune dummy (Yes=1, No=0)		0.12		0.06
		(0.33)		(0.17)
Constant	-28.95*	-28.99*	-15.53**	-15.55**
	(15.24)	(15.28)	(7.74)	(7.77)
Number of observations	581	581	581	581
Log pseudolikelihood	-172.637	-172.5783	-172.403	-172.351
Pseudo-R^2	0.051	0.052	0.053	0.053

[a] Income from casual job, borrowing and heritage are excluded.

The number in parentheses is the robust standard error.

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

The estimation results are provided in Table 14. From the table, overall, the coefficients of household income, average age of household members, and its squares are statistically significant. A higher probability of being rejected for a loan is significantly associated with lower household income. Given that the sign of squared average age of household members is negative, households with too young age members and too old age members tend to face higher probability of being rejected for a loan. In general, households with too young age members or too old age members have a higher age dependency ratio. This can negatively reflect their ability to make loan repayments when being assessed by lenders. The evidence shown in Table 14 is thus consistent with the basic statistics given in Table 13. That is, low income or being judged as having too low ability for loan repayment by lenders seem to be the main reasons for being rejected for loans.

5.5 Household debt burden

As discussed above, the rationale underlying the imposition of the interest rate ceiling in the microfinance sector is the need to protect borrowers from being charged too high interest rates and the need to adjust the short-sighted and time-inconsistent behavior of borrowers. This can be a result of the concern regarding the debt burden among borrowers. In this study, although the sophisticated examination of the impacts of the ceiling imposition on debt burden cannot be conducted due to data and information limitations, an illustration of debt burden and an analysis of its affecting factors are provided, including the test of Hypothesis 3-2 regarding the role of financial literacy in reducing debt burdens.

5.5.1 Basic statistics

Table 15 outlines the basic statistics on the household debt service-to-income ratio and the debt service-to-expenditure ratio. These statistics are based on data from the survey on households reporting to have debt service expenditures. The table shows that, overall, the debt service ratio

of urban households is higher than that of rural households. This result may reflect the fact that urban households engage more actively in financial transactions, and their borrowing amount is generally larger. Moreover, the debt service-to-income ratio seems to be more volatile and more prone to suffer from the existence of outliers than the debt service-to-expenditure ratio. This should not be surprising, given the more volatile characteristics of household incomes compared to household expenditures in general.

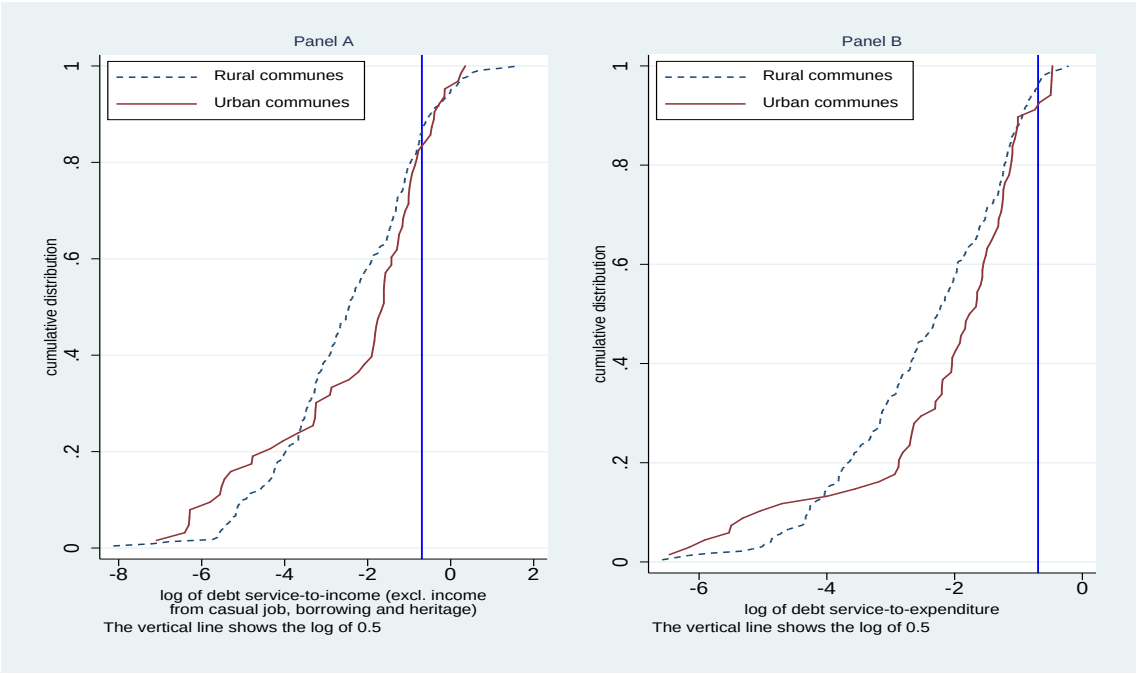
Figure 4 presents the cumulative distribution of the debt service-to-income ratio (Panel A) and the debt service-to-expenditure ratio (Panel B) in urban and rural communes. The vertical lines in both panels indicates 50% of the debt service ratio level. Overall, the percentages of borrower households having a debt service ratio of more than 50% are about 18% for the debt service-to-income ratio and about 5% for the debt service-to-expenditure ratio. These percentages are somewhat higher among households in urban communes.

Table 15: Household debt service ratio

Basic statistics	**Debt service-to-income ratio (%)[a]**			**Debt service-to-expenditure ratio (%)**		
	Urban communes	Rural communes	All communes	Urban communes	Rural communes	All communes
Average	49.0	32.2	35.9	20.6	16.2	17.3
Median	24.0	15.2	17.5	18.0	10.4	12.1
Minimum	0.1	0.1	0.1	0.2	0.1	0.1
Maximum	888.9	500.0	888.9	62.6	80.5	80.5
Standard deviation	113.5	53.0	71.0	16.9	15.9	16.2
Number of households	63	223	286	68	228	296
T-statistic of t-test: One-tailed test (H_0: Ave. rural=Ave. urban)		-1.6677**			-1.9678**	

[a] Income from casual job, borrowing and heritage are excluded.
** indicates statistical significance at the 5% significance level.
Source: Authors' calculation and estimation, based on the survey data.

Figure 4: Cumulative distributions of debt service-to-income ratio (Panel A) and debt service-to-expenditure ratio (Panel B) in urban and rural communes



Source: Authors' construction based on the survey data

5.5.2 Household debt burden and its affecting factors

To examine the factors affecting debt burden, regression analyses on the relationships between household debt service ratio and its affecting factors are conducted. The regression equation can be expressed as follows:

$$z_i = h_i'\theta + \mu_i, \tag{4}$$

where z is the household debt service ratio, $\theta = (\theta_0, \theta_1, \cdots, \theta_m)'$ is a $(m+1) \times 1$ vector of regression coefficients, $h = (1, h_1, \cdots, h_m)'$ is a $(m+1) \times 1$ vector of the explanatory variables, μ is the error term, and i indicates the observation.

Two debt service ratios are considered for the estimation: debt service-to-income ratio and debt service-to-expenditure ratio. The specification of the estimation equations takes into account household characteristics, loan characteristics, market competition, and common risk variables. Similar to the specification in the case of credit cost analyses in Equation (1),

household characteristics include household IDPoor status, household income, average education years of household members, average age of household members, number of household members (i.e., household size), household financial literacy, and the gender of the household head. Loan characteristics include loan size and the percentage of informal-source loans possessed by borrower households in the total loan numbers. As proxy variables for the market competition and common risk variables, the number of MFIs operating and non-performing loan rates at the commune level is used. To control for the possible effects of different household categories and regional characteristics, household category, and regional dummy variables are also included in the estimation equation. Except for the number of MFIs operating and non-performing loan rate which are provided by the CBC, all data are from our survey. For the estimation method, like the cause of credit cost analyses, we apply the QR method that allows us to examine the factors affecting the debt service ratio at different quantiles of its distribution.[18] Figure B2 in Appendix B also motivates our application of the QR method. From the figure, the distributions of dependent variables, debt service-to-income ratio, (Panel A) and debt service-to-expenditure ratio (Panel B) obviously have non-normal patterns, and outliers may also exist in their data, especially for the former. Table 16 presents the estimation results at the 25^{th}, 50^{th}, and 75^{th} quantiles of the dependent variable.

[18] In this regression, household characteristic (e.g., income) related endogeneity issues may exist. Although this cannot be addressed with sophistication, various factors are controlled in our estimation equation. As a result, the possibility of the endogeneity resulting from omitted variables is reduced.

Table 16: Quantile regression results (dep. var.: debt service ratio, %)

(Q.25th) Variable	Debt service-to-income ratio (1-1)	Debt service-to-income ratio (1-2)	Debt service-to-expenditure ratio (1-3)	Debt service-to-expenditure ratio (1-4)
ID Poor (Yes=1, No=0)	-0.38	-0.30	-0.30	-0.09
	(2.58)	(3.03)	(1.58)	(1.75)
ln(income)[a]	-6.67***	-6.68***	-0.85	-1.02
	(1.81)	(1.85)	(0.62)	(0.67)
Avg. education of hh member	-0.31	-0.27	-0.41	-0.37
	(0.48)	(0.51)	(0.26)	(0.29)
ln(avg. age. of hh member)	-21.45	-24.37	-70.21*	-71.89*
	(70.09)	(72.48)	(41.96)	(42.43)
Squared ln(avg. age. of hh member)	3.22	3.57	10.89*	11.22*
	(10.24)	(10.57)	(6.18)	(6.26)
Household size	-0.10	-0.16	-0.26	-0.30
	(0.58)	(0.61)	(0.27)	(0.29)
Financial literacy	-0.84	-0.61	-3.51	-2.98
	(5.52)	(5.77)	(2.61)	(2.80)
Female hh head (Yes=1, No=0)	4.25*	4.32*	2.39*	2.29
	(2.44)	(2.58)	(1.41)	(1.52)
ln(avg. loan size)	5.64***	5.61***	2.82***	2.87***
	(1.40)	(1.47)	(0.59)	(0.65)
% of informal-source loans in total loan numbers	0.02	-0.03	0.05	0.04
	(0.06)	(0.07)	(0.03)	(0.04)
Number of MFI loans per 100 hhs in 2018	8.15***	8.61**	7.57***	7.49***
	(3.09)	(3.41)	(2.16)	(2.28)
Non-performing loan rate (%) in 2018[b]	0.76	0.83	0.83*	0.88*
	(0.81)	(0.85)	(0.43)	(0.45)
S1 dummy (S1=1, Other=0)	-0.25	0.31	-2.61*	-2.69*
	(2.79)	(2.94)	(1.48)	(1.53)
S2 dummy (S2=1, Other=0)	4.26	5.29	1.99	1.63
	(5.04)	(5.33)	(3.11)	(3.28)
Urban commune dummy (Yes=1, No=0)	1.22	0.80	0.11	0.86
	(4.06)	(5.11)	(1.72)	(2.53)
ID Poor*% of informal-source loan		0.09		0.03
		(0.14)		(0.08)
ID Poor*Urban commune dummy		1.42		-1.47
		(7.73)		(4.05)
Constant	33.41	38.47	97.68	100.00
	(117.40)	(121.19)	(69.66)	(70.13)
Number of observations	235	235	235	235
Pseudo-R^2	0.113	0.115	0.155	0.157

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 16 (cont.): Quantile regression results (dep. var.: debt service ratio, %)

(Q.50th) Variable	Debt service-to-income ratio (2-1)	Debt service-to-income ratio (2-2)	Debt service-to-expenditure ratio (2-3)	Debt service-to-expenditure ratio (2-4)
ID Poor (Yes=1, No=0)	-5.32	-5.85	-0.36	-1.85
	(4.02)	(4.66)	(2.13)	(2.71)
ln(income)[a]	-12.45***	-12.57***	-0.34	-0.51
	(2.49)	(2.56)	(1.00)	(1.04)
Avg. education of hh member	-0.61	-0.70	-0.53	-0.57
	(0.76)	(0.79)	(0.58)	(0.64)
ln(avg. age. of hh member)	51.40	34.13	-95.53*	-94.19
	(114.11)	(116.27)	(56.19)	(58.23)
Squared ln(avg. age. of hh member)	-7.23	-4.68	14.49*	14.13
	(16.98)	(17.29)	(8.28)	(8.60)
Household size	-0.43	-0.19	-0.81	-0.78
	(0.93)	(0.92)	(0.59)	(0.64)
Financial literacy	-2.41	-2.58	-11.61**	-10.18*
	(7.81)	(8.34)	(4.71)	(5.18)
Female hh head (Yes=1, No=0)	6.11*	6.79**	4.92**	4.47*
	(3.15)	(3.24)	(2.39)	(2.60)
ln(avg. loan size)	8.80***	9.21***	3.98***	3.84***
	(1.83)	(1.94)	(1.02)	(1.12)
% of informal-source loans in total loan numbers	-0.05	-0.05	-0.00	-0.00
	(0.07)	(0.09)	(0.04)	(0.07)
Number of MFI loans per 100 hhs in 2018	6.62*	7.25*	9.01***	8.81***
	(3.62)	(3.76)	(2.55)	(2.65)
Non-performing loan rate (%) in 2018[b]	-0.58	-0.40	0.49	0.41
	(1.17)	(1.20)	(0.75)	(0.80)
S1 dummy (S1=1, Other=0)	-0.01	-0.60	-0.47	-1.02
	(3.57)	(3.91)	(2.47)	(2.63)
S2 dummy (S2=1, Other=0)	5.95	5.62	3.58	2.62
	(7.65)	(7.79)	(5.90)	(6.03)
Urban commune dummy (Yes=1, No=0)	5.90	4.27	-0.40	-2.26
	(4.29)	(5.45)	(2.95)	(3.82)
ID Poor*% of informal-source loan		-0.05		0.01
		(0.22)		(0.11)
ID Poor*Urban commune dummy		5.40		3.25
		(9.23)		(5.61)
Constant	-64.85	-39.43	138.08	140.94
	(186.91)	(191.47)	(93.76)	(97.06)
Number of observations	235	235	235	235
Pseudo-R^2	0.194	0.196	0.221	0.222

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 16 (cont.): Quantile regression results (dep. var.: debt service ratio, %)

(Q.75th) Variable	Debt service-to-income ratio (3-1)	Debt service-to-income ratio (3-2)	Debt service-to-expenditure ratio (3-3)	Debt service-to-expenditure ratio (3-4)
ID Poor (Yes=1, No=0)	-9.85	-9.78	-5.74*	-6.24*
	(7.01)	(7.55)	(3.27)	(3.69)
ln(income)[a]	-22.00***	-21.75***	-0.83	-0.88
	(5.57)	(5.69)	(1.60)	(1.59)
Avg. education of hh member	0.12	0.55	-1.06	-1.06
	(1.84)	(1.82)	(0.66)	(0.68)
ln(avg. age. of hh member)	-123.16	-63.02	-37.63	-34.20
	(269.93)	(266.13)	(74.33)	(70.61)
Squared ln(avg. age. of hh member)	19.01	10.43	5.53	5.05
	(41.37)	(40.75)	(10.64)	(10.13)
Household size	-2.08	-1.89	-1.12	-1.04
	(1.58)	(1.55)	(0.81)	(0.83)
Financial literacy	-7.33	-11.62	-12.45*	-12.31*
	(12.78)	(13.57)	(6.99)	(6.96)
Female hh head (Yes=1, No=0)	-1.76	-3.44	7.50**	7.60**
	(6.26)	(6.29)	(3.26)	(3.39)
ln(avg. loan size)	11.18***	11.27***	4.76***	4.68***
	(2.55)	(2.58)	(1.09)	(1.12)
% of informal-source loans in total loan numbers	-0.12	-0.11	-0.07	-0.07
	(0.19)	(0.17)	(0.07)	(0.08)
Number of MFI loans per 100 hhs in 2018	7.32	10.57	12.32***	12.73***
	(10.02)	(10.19)	(3.83)	(3.90)
Non-performing loan rate (%) in 2018[b]	-1.17	-0.97	-0.12	-0.16
	(2.29)	(2.28)	(0.90)	(0.92)
S1 dummy (S1=1, Other=0)	2.06	1.26	-4.31	-4.72
	(6.52)	(6.39)	(3.20)	(3.23)
S2 dummy (S2=1, Other=0)	8.47	5.24	4.32	3.90
	(19.51)	(19.55)	(5.62)	(5.57)
Urban commune dummy (Yes=1, No=0)	10.11	12.72	-0.85	-1.68
	(9.67)	(12.14)	(4.98)	(5.82)
ID Poor*% of informal-source loan		0.56		0.01
		(0.51)		(0.15)
ID Poor*Urban commune dummy		-6.48		0.27
		(19.88)		(9.03)
Constant	288.29	177.71	58.14	52.81
	(438.16)	(432.81)	(126.55)	(120.06)
Number of observations	235	235	235	235
Pseudo-R^2	0.211	0.216	0.295	0.295

[a] Income from casual job, borrowing and heritage are excluded.
[b] Non-performing loan refer to loan whose payment was more than 30 days overdue.
Results are based on 10,000 bootstrapping repetitions. The number in parentheses is the standard error.
***, ** and * indicate the statistical significance at 1%, 5% and 10%, respectively.

Table 16 shows that a higher debt service ratio is significantly associated with a larger loan size. A 10% increase in loan size is associated with an increase of about 0.3% to 0.5% in the debt service-to-expenditure ratio. These results may have some implications. Since the increase in the loan size at the relatively small loan level is observed after the ceiling rate imposition, the positive correlation between loan size and debt service ratio might somewhat imply a possibility of the increase in debt burden among the relatively small borrower households. Furthermore, households with female household heads are positively associated with higher debt service-to-expenditure ratios of about 2% to 8%. The higher debt service ratio of households with female household heads reflects the fact that their income and expenditures are relatively low, compared to households with male household heads. It is worth noting that the higher debt service ratio (i.e., higher debt burden) does not necessary imply a negative effect on household welfare in the long run. Being able to access to more credit can lead to the increase of the debt service ratio. But if the credit is productively used, household living standard can increase, thereby improving their welfare. However, more data and information are necessary to implement a detailed examination.

Overall, our estimation results also indicate that a lower debt service ratio is significantly associated with a higher financial literacy. A 0.1 increase in financial literacy is associated with about a 1% decrease in debt service-to-expenditure ratio at the 50^{th} and 75^{th} quantiles of the estimation.[19] This decreasing effect seems to be larger at a higher debt service-to-expenditure ratio. The evidence on the important role of financial literacy in reducing debt burden is in line with Liv (2013), which indicated that a higher financial literacy could reduce a borrower's inclination for an over-indebtedness. Our estimation results confirmed Hypothesis 3-2. The significant results of the positive correlation between the debt service ratio

[19] As explained above, by construction, financial literacy level is between 0 and 1. A higher value reflects a higher literacy level. Average financial literacy of our surveyed households is about 0.3 in both rural and urban communes.

and the number of MFIs operating should not be surprising, since a higher number of operating MFIs reflects higher household credit access, resulting in higher household debt service ratios.

6. Conclusion

The interest rate ceiling on microfinance loans was imposed in April 2017, in Cambodia. This imposition can have various impacts on the microfinance sector. Based on the data and information from a survey on borrower households in 2019, our analyses revealed that the ceiling imposition reduced the average interest rate and although this reduction is offset by the increase of the average loan assessment and processing fee, the increase is relatively small. Overall, the average effective interest rate (i.e., average credit cost) decreased. Our analyses also indicated the increase of average loan size provided by MFIs at a relatively small loan level, while the difference in the loan maturity was not statistically significant. However, the interpretations need to be made with caution due to the fact that controlling for other factors affecting loan size and loan maturity may be required.

In examining the possibility of credit rationing, we found that the percentage of loans from informal sources increased by a few percentage points after the ceiling imposition. Moreover, the results from logistic and probit regressions indicate that relatively low-income households face a higher probability of being rejected for a loan. More sophisticated analyses on possible impacts of the interest rate ceiling on credit rationing among small borrowers should be done, if more data and information are available. In our analyses of factors affecting household debt burden, the results indicated a possibility of an increase in debt burden among relatively small borrower households and a higher debt burden among households with female household heads. However, it is also important to bear in mind that higher debt burden does not necessary imply a negative effect on household welfare in the long run, if the credit is productively used by borrower households. In our analysis, we also confirmed the crucial role of financial literacy in alleviating household debt burden. This implies the importance of the enhancement of

household financial literacy. In this regard, a detailed examination of factors affecting household financial literacy is needed. This is a subject for future study.

Finally, a caveat that must be mentioned is that the selection of our survey location focuses on the penetration of microfinance activities in Cambodia and limited number of households were chosen for the survey, given time and cost constraints. A larger survey can provide more data and information for more thorough analyses. This is also a subject for future research.

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Appendix A

Table A1: Household categories and their definitions

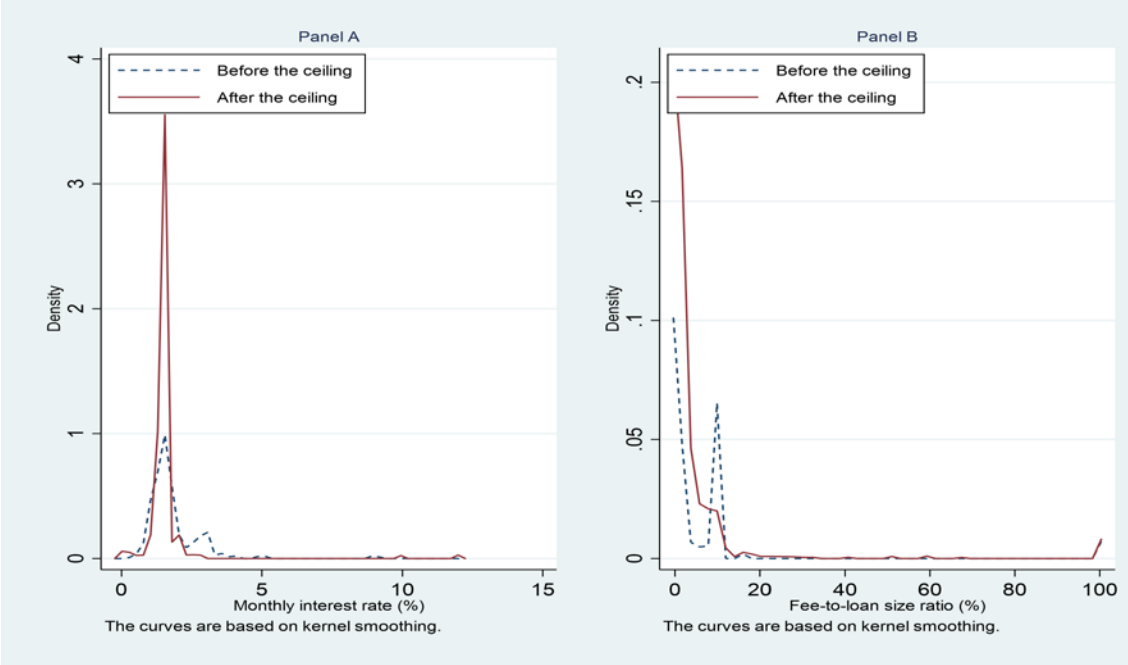
Household category	Definition
S1	Households mainly having access to microfinance loans both before and after the imposition of the interest ceiling in April 2017
S2	Households mainly having access to microfinance loans before the imposition of the interest ceiling in April 2017, but having no access to them after the imposition
S3	Households based on a general sampling process

Table A2: Survey communes by urban-rural classification

Province		**District**		**Commune (*urban)**	
1.	Battambang	**1.**	Battambang	**1.**	Chamkar Samraong*
				2.	Kdol Doun Teav*
				3.	Svay Pao*
				4.	Voat Kor
		2.	Moung Ruessei	**5.**	Chrey
				6.	Kakaoh
				7.	Kear
				8.	Ta Loas
2.	Kampong Speu	**3.**	Krong Chbar Mon	**9.**	Chbar Mon*
				10.	Kandaol Dom*
		4.	Samraong Tong	**11.**	Krang Ampil
				12.	Roleang Chak
				13.	Saen Dei
				14.	Skuh
				15.	Tang Krouch
				16.	Thummoda Ar
				17.	Tumpoar Meas
3.	Kampot	**5.**	Krong Kampot	**18.**	Traeuy Kaoh
		6.	Chhuk	**19.**	Boeng Nimol
				20.	Chhuk
				21.	Satv Pong
				22.	Trapeang Phleang
4.	Kandal	**7.**	Krong Ta Khmau	**23.**	Kampong Samnanh*
				24.	Preaek Ruessei*
				25.	Ta Kdol*
		8.	S'ang	**26.**	Kaoh Anlong Chen
				27.	Kaoh Khael
				28.	Preaek Ambel
				29.	Roka Khpos
				30.	Setbou
				31.	Svay Rolum
				32.	Ta Lon
				33.	Traeuy Sla
5.	Kratie	**9.**	Krong Kracheh	**34.**	Kracheh*
		10.	Snuol	**35.**	Snuol
				36.	Svay Chreah

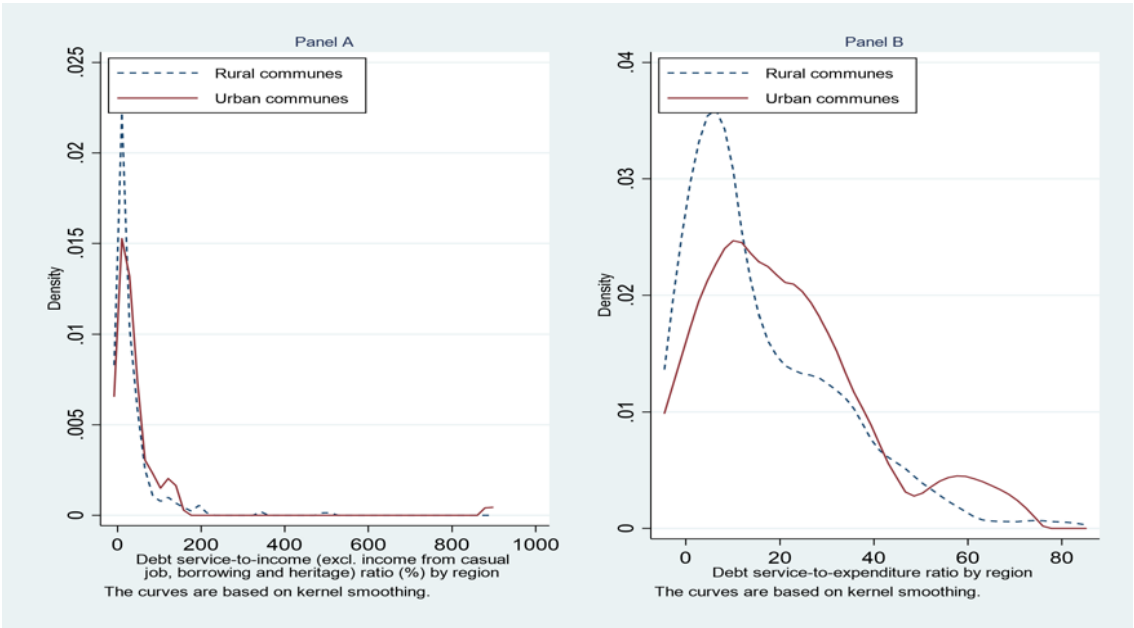
Appendix B

Figure B1: Distributions of monthly interest rate (Panel A) and fee-to-loan size ratio (Panel B) before and after the ceiling



Source: Authors' construction based on the survey data.

Figure B2: Distributions of debt service-to-income ratio (%) (Panel A) and debt service-to-expenditure ratio (%) (Panel B) in urban and rural communes



Source: Authors' construction based on the survey data.

Abstract (in Japanese)

要約

本稿ではカンボジアにおいて2017年4月に導入されたマイクロファイナンス機関への貸出上限金利規制の影響について分析を行った。分析にあたって、2019年に家計が上限金利規制以前に借りていたローンと上限金利規制以後に借りたローンも含めて、家計の経済状況について１０００家計を対象に調査を行い、データを収集した。データ収集の際は、現地の信用情報機関であるCredit Bureau Cambodiaとマイクロファイナンス機関の業界団体であるCambodia Microfinance Associationの協力の下、カンボジア国内で実際に借入をしている家計あるいは借入をしていた家計をすべて特定し、それらのグループに属する家計をランダムに訪問しインタビューを行うという方法を用いた。

分析の結果、上限金利規制後に平均的に名目金利は下がっていることが分かった。また、上限金利規制後は取引手数料の対借入額比が平均的に上がっており、名目金利の減少を部分的に相殺する傾向にあることが分かったが、手数料も含めた実効金利は平均的に下がっていることが分かった。また、分析では、上限金利規制前に比較的に小さい借入を行っていた家計において規制後の借入金額が平均的に上昇している傾向にあることが明らかになるとともに、増加幅は小さいもののインフォーマル金融からの借入が増えていることが明らかになった。さらに、上限金利規制以降低所得の家計は比較的高い確率で借入の申請が断れていたことが分かった。

また、借入額が高い家計ほど債務返済の対所得比が高い傾向にあった。つまり、比較的に小さい借入を行っていた家計ほど規制後に借入金額が上昇している傾向にあったことを踏まえると、規制により小口借入の家計はより高い債務負荷（Debt Burden）を負う傾向にある可能性があると考えられる。

さらに、分析では家計の金融リテラシーを測定し、家計の債務負荷との関係についても分析を行った。結果として、金融リテラシーが高い家計ほど、債務負荷が小さい傾向にあることが明らかとなった。つまり、債務負荷およびデフォルトリスクを軽減するためには家計の金融リテラシーの強化が有用であると考えられる。

キーワード: 金利上限規制、マイクロファイナンス、カンボジア、金融包摂

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