Microfinance regulation: Investigating the interplay between interest rate caps and competition in a financial inclusion context

Tristan Caballero-Montes

UMONS University of Mons

CERMi

Emerging Markets Finance Conference

16th December 2020 (Online)

Introduction

- **Microfinance**: double mission; microfinance institutions (MFIs); mitigated impact (Guérin et al., 2018)
- **Two important evolutions**:
  - Commercialization and competition (McIntosh & Wydick, 2005)
  - Regulation has intensified ; interest rate caps (Ferrari et al., 2018)

Aims of the paper

- *Understanding the effect of caps on the poverty level reached by MFIs*
- *How does competition influence this relationship? Is there an interaction?*

Interest rate caps and microfinance

- MFIs ≠ commercial banks → regulation must be adapted
- Interest rate caps socially counterproductive (Latortue, 2004; Campion et al., 2010; Attuel-Mendès & Ashta, 2015)

Rationale:

Poor, excluded clients → Tiny loans / different, costlier business model → Higher rates → Often too low caps jeopardize sustainability → *Mission drift (larger loans)*

- Although a priori « good » intentions, caps would exacerbate financial exclusion

→ ***H1*** : *MFIs facing interest rate caps provide* ***larger*** *loans on average*

Competition and microfinance: ambiguous outcomes

- Detrimental effects:
  - Deterioration of « *cross-subsidization* » (Morduch, 1999)
  - Information asymetry (McIntosh et al., 2005) → loosening of terms → risky behaviors (Navajas et al., 2003)
  - Smaller/socially oriented MFIs have less economies of scale → competition may force them to go out (Kar & Swain, 2018)

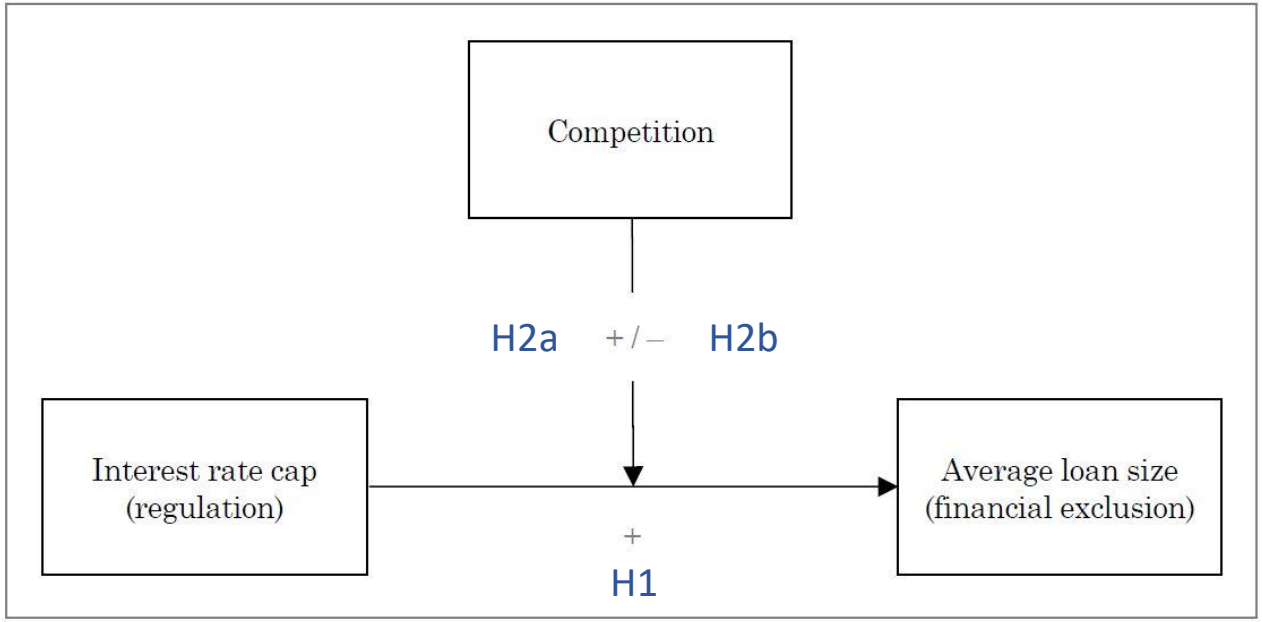
➔ ***H2a*** : *Competition* ***amplifies*** *the effect of interest rate caps on the average loan size*

- Still, other effects of competition:
  - Competition → MFIs and/or clients pay more attention to repayments → limit undesired behaviors (Vogelgesang, 2003)
  - Competition from purely commercial actors pushes MFIs in niche (poorer) markets (Vanroose & D'Espallier, 2013)

➔ ***H2b*** : *Competition* ***attenuates*** *the effect of interest rate caps on the average loan size*

Research design: hypotheses and model

Figure 1. Interaction of competition with the interest rate cap – average loan size relationship



$$ALS_{i,t} = \beta_0 + \beta_1 RATECAP_{ij,t} + \beta_2 COMP_{i,t} + \beta_3 RATECAP_{ij,t} * COMP_{i,t} + \lambda X_{i,t} + \gamma Z_{j,t} + \eta_i + \mu_t + \varepsilon_{i,t}$$

What relationship between caps and the average loan size?

(H1)

Is there a combined effect of competition and caps? Is there an interaction?

(H2a/H2b)

Common firm-level and country-level controls

Regressions with **fixed effects** (Hausman, 1978) and **time dummies**

Measuring competition

Main approach

« *Structural* » *approach*

Market-level approach → Analyzing market structure to apprehend competition

Herfindahl-Hirschman Index (HHI)

$$HHI_{j,t} = \sum_{i=1}^{n} MS_{i,t}^2$$

Robustness checks

« *Structural* » *approach*

# of MFIs

in the market

« *Organization-based* » approach

Firm-level approach → Analyzing firm performance or behavior (margins, elasticities…)

Lerner Index (LI)

$$LI_{i,t} = \frac{(P_{i,t} - MC_{i,t})}{P_{i,t}}$$

Data

- Final dataset of 986 MFIs from 73 countries over 2015-2018 (2588 observations), and consolidated out of:

Global Microscope on Financial Inclusion + desk research + direct field contacts	Microfinance Information Exchange (*MIX Market*)	World Bank's Open Data
- Country-level data - Microfinance regulation (caps)	- MFI-level data - Largest initiative in microfinance - Average Loan Size (ALS) - Other variables on MFIs	- General economic data (GDP, etc.)

Descriptive statistics and preliminary tests

Table 2. Mean-comparison test (t-test) for the average loan size, by state of RATECAP

	N	Mean	SD	Min	Max
No cap	1065	1332.619	2521.694	43	32613
Cap	1387	1778.421	2657.336	71	48417
Difference		(-445.802)*			
Combined	2452	1584.792	2608.149	43	48417

** significance level of 95%*

Table 3. Summary statistics

Variable	N	Mean	SD	Min	Max
Dependent variables					
Average loan size adj. GDP per capita	2591	0.537	0.772	0.023	5.713
Explanatory variables					
Interest rate cap (dummy)	2452	0.566	0.496	0	1
Herfindahl-Hirschman Index	2590	0.277	0.212	0.065	0.999
Percentage of female borrowers	2171	0.644	0.263	0	1
Percentage of rural borrowers	1972	0.525	0.323	0	1
Share of portfolio dedicated to SMEs	1836	0.133	0.224	0	1
Total assets (log)	2468	16.765	2.033	10.775	22.786
Number of active borrowers (log)	2591	9.867	2.082	2.565	15.741
Savings (dummy)	2591	0.500	0.500	0	1
Donated equity on total liabilities	1981	0.040	0.134	-0.187	1.585
Sustainable (dummy)	2591	0.826	0.379	0	1
Operating Expense ratio	2230	0.225	0.225	0.0002	4.927
PAR30	2397	0.070	0.117	0	12159
GDP growth rate	2591	0.042	0.028	-0.059	0.104
Inflation rate	2402	0.040	0.036	-0.024	0.295
Share of rural population	2573	0.480	0.201	0.081	0.879
Manufacturing value added (in % of GDP)	2561	0.135	0.041	0.017	0.295
Credit to GDP ratio	2531	0.425	0.231	0.055	1.611

Results

Table 5. Estimations for the average loan size adjusted with GDP per capita (fixed-effects regressions)

ALS (adj. GDP p.c.)	(1)	(2)	(3)	(4)	(5)
RATECAP	0.198***	0.355***	0.280***	0.278***	0.328***
	(0.053)	(0.099)	(0.083)	(0.082)	(0.088)
HHI				0.243***	0.123*
				(0.063)	(0.074)
*RATECAP * HHI*					0.197**
					(0.098)
MFI-level controls					
WOMEN		-0.095	-0.051	-0.051	-0.055
		(0.061)	(0.049)	(0.050)	(0.052)
RURAL		0.036	0.034	0.035	0.036
		(0035)	(0.040)	(0.040)	(0.041)
SME		-0.009	-0.020	0.004	0.002
		(0.056)	(0.052)	(0.046)	(0.045)
ASSETS		0.268***	0.198***	0.197***	0.197***
		(0.060)	(0.064)	(0.064)	(0.064)
BREADTH		-0.358***	-0.305***	-0.299***	-0.299***
		(0.063)	(0.063)	(0.062)	(0.0621)
SAVINGS		-0.075	-0.063	-0.047	-0.043
		(0.050)	(0.052)	(0.054)	(0.055)
DONATED		-0.001	0.043	0.064	0.064
		(0.140)	(0.122)	(0.101)	(0.096)
SUSTAINABLE		0.018	0.016	0.024	0.025
		(0.022)	(0.019)	(0.019)	(0.018)
OER		-0.133	-0.116	0.115	-0.117
		(0.117)	(0.108)	(0.107)	(0.106)
PAR30		0.082	0.038	0.044	0.048
		(0.087)	(0.076)	(0.078)	(0.080)
Country-level controls					
GROWTH	-0.012		-0.368	-0.492	-0.517
	(0.274)		(0.426)	(0.419)	(0.422)
INFLATION	-0.186		0.370	0.696**	0.734**
	(0.199)		(0.310)	(0.341)	(0.347)
RURALPOP	-2.670***		2.021	3.639*	2.917
	(0.858)		(1.829)	(2.001)	(1.886)
MANUFACT	-1.182		0.090	-0.180	0.040
	(1.148)		(1.140)	(1.107)	(1.082)
CREDIT	0.233**		0.034	-0.100	-0.176
	(0.094)		(0.143)	(0.143)	(0.154)
Time dummies	No	No	Yes	Yes	Yes
_cons	1.685***	-0.543	-0.866	-1.495	-1.196
	(0.446)	(0.670)	(1.127)	(1.159)	(1.116)
Overall R squared	0.022	0.1937	0.2617	0.1836	0.219
N	2243	1229	1132	1132	1132
Number of MFIs	893	630	596	596	596

*Notes: standard errors in parentheses; significance levels as *** (1%), ** (5%) and * (10%); "Yes" indicates that time dummies are included and significant at 10% or better, "No" indicates that time dummies are not included.*

UMONS University of Mons

CERMi

Results

Table 3. Estimations for the average loan size adjusted by GDP per capita (fixed-effects regressions)

ALS (adj. GDP p.c.)	(1)	(2)	(3)	(4)	(5)	(6)
RATECAP	0.207***	0.198***	0.355***	0.280***	0.278***	0.328***
	(0.002)	(0.053)	(0.098)	(0.083)	(0.081)	(0.088)
HHI					0.242***	0.122[a]
					(0.063)	(0.075)
*RATECAP * HHI*						**0.198****
						(0.099)

Figure 2. Effect of *RATECAP* on *ALS* for different values of *HHI*

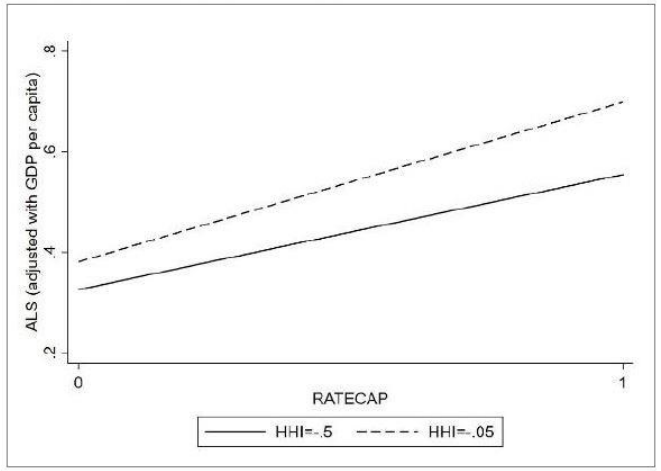
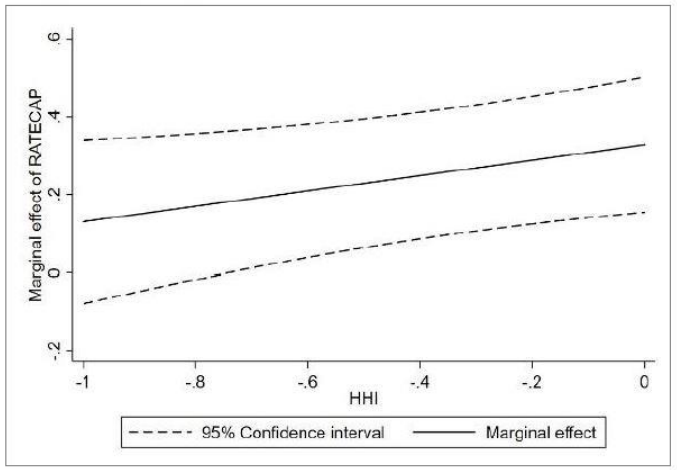


Figure 3. Marginal effect of *RATECAP* on *ALS* as *HHI* changes



- **H1 confirmed**: *MFIs facing rate caps are tempted to offer **larger** loans*

→ Caps exacerbate financial exclusion

- **H2a confirmed**: *Competition **amplifies** the exclusion effect of caps*

→ Additional pressure from competitors ; deterioration of cross-subsidization

→ Competition encourages efficiency and pushes small operators (NGOs) out, while they are already fragilized by the cap

- **Moderation**/interaction effect significant for almost the whole spectrum of HHI and LI
- **Robustness**: on dependent (ALS adj. with GNI and without adj.) and independent (Lerner Index; #MFIs) variables; Davidson-MacKinnon endogeneity test

UMONS University of Mons CERMi

Conclusion

- Microfinance has become a more mature industry but has also generated critics ➔ regulation and market dynamics have evolved ➔ Questionning regulation and market structures/dynamics is nowadays key

- ***Aims***

- Understanding the effect of caps on the financial inclusion of the poorest
- How does competition influence this relationship? → adopting a more systemic approach

- ***Contributions – Main results***

- Confirming the detrimental effects of caps on financial inclusion
- Competition amplifies this detrimental effect of caps → importance of considering market conditions for regulatory decision-making, especially in sensitive industries

Thanks for your attention!