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Subjectivity in Credit Allocation to Micro-Entrepreneurs: Evidence From Brazil

Isabelle Agier and Ariane Szafarz

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Keywords: Subjectivity, Microcredit, Gender, Loan O_cer, Loan Size, Entrepreneurs

JEL Classifications: O16, D82, J33, L31.

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Abstract

This paper estimates the impact of loan officers' subjectivity on microcredit granting by exploiting an exceptionally detailed database from a Brazilian microfinance institution. Loan officers collect field data, meet with applicants, and make recommendations to the credit committee that in turn has the final say on both loan approval and loan size. The loan officers' subjectivity is captured through the lens of disparate treatment based on gender. Indeed, our estimations show that an unfair gender gap is observed in loan size, and that this gap is almost exclusively attributable to the loan officers. We interpret this finding as evidence that, despite monitoring and wage incentivization, microcredit officers keep letting their subjective preferences interfere with loan granting. We conclude by suggesting alternative means to curb subjectivity in credit allocation to micro-entrepreneurs.

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"(...) the actions of loan officers have substantial and sometimes unexpected and unintended consequences for the actual direction and outcome of many credit programs." (Dixon, Ritchie and Siwale, 2007, p. 8)

1 Introduction

Asymmetric information is the main problem faced by the lending industry (Stiglitz and Weiss, 1981), including microcredit institutions (Karlan and Zinman, 2009). To tackle this problem, bankers typically combine two strategies: credit scoring and relationship lending. By the first of these strategies, the lending institutions assess the creditworthiness of potential borrowers from their personal and/or business characteristics (Hand and Henley, 2007; Lewis, 1994). The sound strategy is a time-consuming process by which credit officers learn about their clients' creditworthiness (Berger and Udell, 1995; Boot, 2000) and offer them progressively increasing loans after timely repayments (Egli, 2004).

For reasons likely pertaining to low technology and relatively cheap human capital, credit scoring plays a less prominent role in the microcredit industry than in mainstream banking.[1] As a consequence, credit officers benefit from more leeway to allocate loans (Armendáriz and Morduch, 2010).[2] This paper offers the first empirical estimation of the impact of loan officers' subjectivity on microcredit granting. This is made possible by the access to an exceptionally detailed database from VivaCred, a Brazilian Microfinance Institution (MFI).

The recent crisis in Andhra Pradesh has shown that microcredit officers are hard to monitor, notably because the microlending methodology is highly decentralized (Fuentes, 1996; Warning and Sadoulet, 1998; Churchill, 1999; Aubert, de Janvry and Sadoulet, 2009; Dixon, Ritchie and Siwale, 2007). Moreover, demand for microcredit still by far exceeds supply(de Janvry, McIntosh and Sadoulet, 2010). Consequently, when selecting borrowers the loan officers could be tempted to follow their subjective preferences, rather the MFI's best interests.[3]

[1] See Tra and Lensink (2007) for a comparative discussion on the lending practices of formal and informal credit markets.

[2] Moreover, Hartarska (2005) shows that, in Central and Eastern Europe, performance-based compensation is not necessarily associated with better-performing microfinance institutions.

[3] The MFI's best interests need not be restricted to profit maximization. For instance, Conning (1999); McIntosh and Wydick (2005); Ghosh and Van Tassel (2008); Armendáriz and Szafarz (2011) propose models built on socially-oriented objective functions.

On the other hand, most MFIs are socially-oriented and often subsidized institutions that have to stick to moral standards. Therefore, they need their staff to make decisions in line with both their mission statement and sustainability concern. As a matter of fact, monitoring credit officers is a major but difficult task.

For the researcher, disentangling objective creditworthiness assessment and subjective - and hence possibly discriminatory - judgment from loan officers requires observing the decision process that takes place within the MFI. More precisely, it is necessary to determine for each loan application: 1) how the officer's recommendation is drawn from the applicant's characteristics, and 2) how the credit committee makes its final decision.

The current paper addresses this issue through the lens of disparate treatment. We demonstrate that in VivaCred, a Brazilian MFI, women entrepreneurs receive smaller loans than their male counterparts, all other things being equal. Building on these findings, we dissect the underlying decision mechanism. Namely, we ascribe to both the loan officers and the credit committee their own shares of responsibility in the loan-size gender gap.

Our estimation results show that the unfair gender gap in loan size is almost exclusively created by loan officers. However, instead of correcting this bias the credit committee tends to reinforce it, albeit marginally.

These results are reached through partial-least-square (PLS) estimations that mimic the following three-step loan-allocation process: 1) applicant's request, 2) loan officer's recommendation, and 3) credit committee's decision. Indeed, our database includes all applicants' personal and business objective characteristics. Moreover, it enables us to trace the treatment of any loan application that reaches the MFI. By taking into consideration all the screening variables collected by the MFI, our results suffer as little as possible from the missing-variable problem that often plagues studies on creditworthiness assessment (Ross and Yinger, 2002).

The paper is organized as follows. Section 2 describes the database. Section 3 identifies each participant's share of responsibility in the loan-size gender gap. Section 4 concludes.

2 Loan Granting Process

Our unique database comes from VivaCred, a non-profit microcredit institution operating in Rio de Janeiro *favelas*, over the period 1997-2007 (eleven

years). VivaCred started its activity in 1996. It offers credit to urban micro-businesses such as storekeepers, craftspersons, and service providers, located in Rio's poor neighborhoods. The fixed monthly interest rate on VivaCred's loans is 3.9%.[4] There is an additional one-shot registration fee (from 3 to 5%), depending of the credit duration and the client's repayment history.

The database includes all pieces of information gathered by the six branches of VivaCred. Hence, our study is based on exhaustive data concerning 34,000 applications and 32,000 actual loans.[5]

The loan officers play a key role in clientele selection. Indeed, they are in charge of meeting with applicants, collecting all relevant pieces of information, and making proposals to the credit committee based on their own creditworthiness evaluation. The credit committee makes the final decision. In principle, the credit committee should monitor the loan officers, but in practice this is little enforced.

However, loan officers benefit from wage incentives. Their wage is split in two parts: a fixed basis and a performance-related premium, which depends positively on the number of new contracts they bring to the MFI and on their outstanding loan portfolio, and negatively on the proportion of their contracts with delays in payment longer than 30 days.[6]

The full decision process taking place in VivaCred is summarized by figure 1. This process starts when a loan application enters the MFI (step 1). The application files are entrusted with loan officers on a geographic basis in order to reduce operational costs. The designated officer meets with the applicant and guarantor, if any, collects the relevant data, and makes a recommendation to the credit committee (step 2). This second step is particularly demanding as the loan officer is asked to go through the applicant's business balance sheet and household's budget in detail. Lastly, the full application file - including the officer's recommendation - is examined by the credit committee,[7] which

[4] This interest rate has to be understood in the Brazilian context. Over the period 1997-2007, the central bank key interest rate (celic) was between 0.89% and 2.58% a month (between 11.18% and 35.76% a year). During the same period, *Banco da Mulher*, a comparable non-profit institution, was offering rates between 3% and 5% a month, and *Fininvest*, a for-profit institution, was offering consumption loans with rates reaching 12% a month. Until 2009, VivaCred was funded by BNDES (Brazilian Bank of Development) at an annual rate of 7.5% (this rate was even higher during the period 1997-2007). Later, VivaCred integrated the national program *CrediAmigo* financed by *Banco do Nordeste*, a Brazilian public bank.

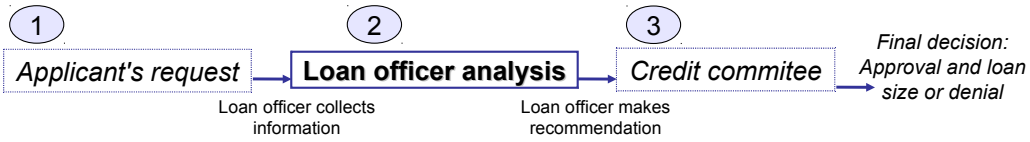
[5] The contracts with incomplete specifications, the loans to VivaCred's employees, and the few group loans were removed.

[6] VivaCred considers loans as delayed after 30 days, and defaulted after 180 days.

[7] Actually, the so-called "credit committee" refers to a single person who is either the

has the final word on the loan approval/denial and size (step 3).

Figure 1: Decision-making process in VivaCred



The loan officer has a face-to-face contact with each applicant, which is not the case for the credit committee. The officer also spends more time on each individual file. For these reasons, it is likely that subjectivity directly affects the officer's recommendation more than it affects the committee's decision.

Our dataset enables us to trace the progression of all applications, even those that are ultimately denied. Indeed, for each application we observe: 1) the applicant's requested amount, 2) the loan officer's recommendation, and 3) the final loan size fixed by the credit committee. Table 1 presents the overall and gender-disaggregated descriptive statistics for these figures. The final loan size is expressed both in absolute terms and in proportion to the requested amount. For each variable, a t-test for equal means between genders is performed.

Table 1: Global and gender-disaggregated descriptive statistics

	Global	**Std.**	**Mean**		**t-test**[a]
	Mean	**Dev.**	**Men**	**Women**	
Loan approval (Yes = 1, No = 0)	0.945	0.228	0.944	0.946	-0.0021
Requested Amount (BRL[b])	1,380	1,242	1,518	1237	281***
Proposed Amount (BRL[b])	1,046	1,016	1,168	921	248***
Loan size (BRL[b])	1,015	997	1,137	891	245***
LS/RA (%)	78.6	24.2	79.3	78.0	1.26***
Observations	33,530		16,899	16,631	

[a] t-test for equal means between genders; *** p<0.01, ** p<0.05, * p<0.1

[b] All financial values are in monthly BRL (Real), the Brazilian currency. Over the period under consideration, the BRL fluctuated between 0.270 and 0.588 USD.

VivaCred claims no special focus on women. Its clientele is nevertheless gender-balanced with about 50% of women. Men and women face similar approval rates (94.5%), but women receive smaller loans than men, not only

branch manager or a senior credit officer, depending on the requested amount.

in absolute terms (BRL 891 versus BRL 1,137) but also in proportion to the requested amount (78% versus 79.3%).

In fact, the gender gap shows itself in all three steps of the loan granting process. Firstly, women request smaller loans than men (BRL 1,237 versus BRL 1,518). Secondly, the loan officers perpetuate the gender gap in their recommendations (BRL 921 versus BRL 1,168). Lastly, the credit committee's decision goes in the same direction (BRL 891 versus BRL 1,137).

Unconditional means thus indicate that neither the loan officers, nor the credit committee compensate for the initial gender gap. However, these facts could possibly be explained by objective factors. For instance, men and women can differ in household situations and/or in business scopes.

In the next section, we draw regressions controlling for all known characteristics pertaining to the borrowers, their businesses and the loan specifications. The remaining gender gap, if any, will thus be unexplained by these objective characteristics. Isolating in this way the subjective component of the gender gap will subsequently lead to the determination each actor's share of responsibility.

3 Subjectivity and Gender Gap

After having defined their target population, MFIs typically delegate clientele selection to loan officers, resulting in a potential agency problem (see Aubert, de Janvry and Sadoulet, 2009). Existing evidence points to a discrepancy between the goals of lenders and the behavior of their agents. In particular, loan officers tend to favor applicants who meet their subjective preferences regarding some group membership. For instance, Storey (2004) shows that, in Trinidad and Tobago, applications from African small-business owners are more likely to be denied than others. In the same line, Labie et al. (2010) demonstrate that loan officers are reluctant to serve disabled applicants.[8]

The disparate treatment of women entrepreneurs in loan granting is also widely documented in the literature (Blanchflower, Levine and Zimmerman, 2003; Cavalluzzo and Cavalluzzo, 1998; Cavalluzzo and Wolken, 2005; Alesina, Lotti and Mistrulli, 2008). Beyond higher probability of denial, women entrepreneurs face reduced credit lines when compared to men with similar characteristics. For instance, Riding and Swift (1990); Coleman and

[8] In a different context, Bates and Bradford (2009) show that minority-oriented venture capital funds tend to drift away from their mission of investing in minority firms.

Robb (2009) and Bellucci, Borisov and Zazzaro (2010)observe that women entrepreneurs start their businesses with lower levels of capital than men. This is all the more important because loan size is key to growth and survival of small business projects.

Also, unlike mortgage loan applications that are typically approved or denied as such, productive loans can be easily sized by the lender. Therefore, observing both the requested amounts and the corresponding loan sizes enables us to estimate the credit rationing endured by each segment of the population.

In VivaCred, the full gender gap in loan size is the sum of three components, each of which is taking place in a given step of the loan granting progress featured in Figure 1. In step 1, an initial gender gap is created because female applicants ask for smaller loans, *ceteris paribus*. In step 2, loan officers produce gender-biased recommendations. In step 3, the credit committee adds its final touch to the gender gap. The initial gender gap relates to the applicant, and not to the MFI. Our analysis therefore concentrates on the remaining gender gap that is purely attributable to the MFI, leaving aside the issue raised by the gender-related requested amount.[9]

Table 1 exhibits the gender gaps that appear in each step. However, descriptive statistics mix the impacts of the applicant's profile and the consequences from judgmental biases. Regressions are therefore required to disentangle the objective and subjective factors involved in the loan-size gender gap.

We use Partial-Least-Square (PLS) estimation to mimic the sequential process that governs loan granting. First, applicant i announces requested amount RA_i, then the credit officer recommends to grant applicant i a loan of size PA_i (possibly zero), and lastly the credit committee fixes the real loan size, LS_i (equal to zero if the loan is denied).

In line with the loan granting process, the PLS estimation rests upon a recursive specification. Firstly, we regress the requested amount on the gender dummy and the control variables:

$$RA_i = a_F F_i + \mathbf{a}'_{\mathbf{Z}} \mathbf{Z_i} + RRA_i \tag{1}$$

where F is the gender dummy, $\mathbf{Z}$ summarizes the control variables,[10] and RRA is the residual requested amount, which is therefore the component of the requested amount that is explained by neither the applicant's gender, nor the control variables.

[9] In the first-best situation, the MFI should correct this original bias, and therefore apply milder credit rationing to female applicants.

[10] Bold characters are used for vectors.

This first regression is crucial because using RRA instead of RA in the sequel makes it possible to leave aside the initial gender gap attributable to the applicant.

Secondly, the loan size proposed by the loan officer is regressed on the gender dummy, the controls, and the residual requested amount:

$$PA_i = b_F F_i + \mathbf{b'_Z Z_i} + b_R\, RRA_i + RPA_i \tag{2}$$

where RPA represents the residual proposed amount. This regression cleans the amount proposed by the loan officer from the impacts of gender, requested amount, and controls.

Lastly, the final loan size resulting from the credit committee's decision is explained by the gender dummy, the controls, the residual requested amount (from the applicant), and the residual proposed amount (from the loan officer):

$$LS_i = c_F F_i + \mathbf{c'_Z Z_i} + c_R\, RRA_i + c_P\, RPA_i + \epsilon_i \tag{3}$$

Eq.3 estimates the impacts on loan size of both the applicant's RRA and the officer's RPA, independently from gender and controls. The remaining gender gap, if any, is then attributable to the credit committee. Indeed, eq.1 yields:

$$PA_i \;=\; \beta_F F_i + \boldsymbol{\beta}'_{\mathbf{Z}} \mathbf{Z_i} + b_R\, RRA_i + RPA_i \tag{4}$$

where

$$\beta_F \;=\; b_F + b_R a_F \tag{5}$$
$$\boldsymbol{\beta}'_{\mathbf{Z}} \;=\; \mathbf{b'_Z} + b_R \mathbf{a'_Z} \tag{6}$$

Similarly, thanks to eq.1 and eq.4 the final loan size writes:

$$LS_i \;=\; \gamma_F\, F_i + \boldsymbol{\gamma}'_{\mathbf{Z}}\, \mathbf{Z_i} + \gamma_R\, RRA_i + c_P\, RPA_i + \epsilon_i \tag{7}$$

where:

$$\gamma_F \;=\; c_F + c_P b_F + c_P b_R a_F + c_R a_F \tag{8}$$
$$\boldsymbol{\gamma}'_{\mathbf{Z}} \;=\; \mathbf{c'_Z} + c_P \mathbf{b'_Z} + c_P b_R \mathbf{a'_Z} + c_R \mathbf{a'_Z} \tag{9}$$
$$\gamma_R \;=\; c_R + c_P b_R \tag{10}$$

The full gender gap in loan size, γ_F, is split into four components, each one representing a specific channel through which the applicant's gender influences the final loan size. Indeed, when making its decision, the credit

committee takes into account the client's profile as well as the loan officer's proposal. In turn, the loan officer's proposal takes into account the applicant's profile. Therefore, in each step, a gender gap may be caused by both objective characteristics and subjective judgement.

Two components of the full gender-gap may be seen as *objective* because they derive from the fact that women ask for smaller loans than men, *certeris paribus*. Firstly, the impact of the requested amount channeled by the loan officers is measured by coefficient $c_P b_R a_F$. Secondly, the impact of the requested amount channeled by the credit committee is measured by coefficient $c_R a_F$. These two components are due to the initial gender gap in the requested amounts, independently from gender considerations.

The two other components represent *subjective* contributions to the gender gap in loan size. They are created by MFI's agents who allocate smaller loans to women with same characteristics than men (including the requested amount). Firstly, the contribution of gender-biased loan officers is measured by coefficient $c_P b_F$. Secondly, the contribution of the gender-biased credit committee is measured by coefficient c_F.

Figure 2: The four components of the full gender gap

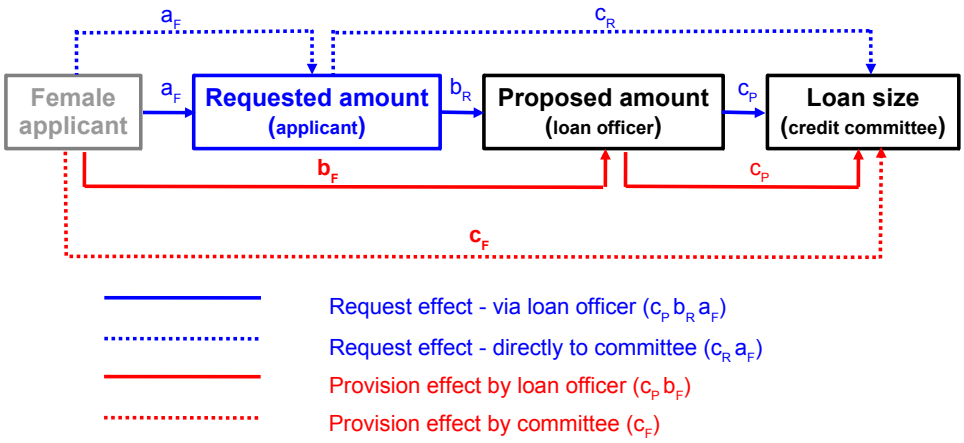


Figure 2 depicts the four components of the full gender gap in the final loan size. Blue lines represent channels that fall under the female applicants' responsibility (lower requested amounts), while red lines represent channels that are endured by female applicants (attributable to MFI's agents).

Table 2 reports the two-tear PLS regression results. The control variables (coefficients not reported) are the ones typically used to assess creditworthiness. They include the applicant's characteristics (age, marital status,

presence of dependents, external income), the applicant's history with VivaCred (number of former loans as a client and as a guarantor, number of delayed former loans), the loan characteristics (number of installments, guarantor's involvement, investment purpose), and the business characteristics: business profit, sector, business status, number of employees. Year dummies are introduced in order to correct for external economic factors.

Column (1), corresponding to eq.(1), confirms that the impact of gender on requested amount is significantly negative. Column (2), corresponding to eq.(4) shows that the loan officer's proposal depends negatively on gender and positively on the residual requested amount. From column (3), corresponding to eq.(7), it appears that the final loan size (LS) is also impacted negatively by gender and positively by the residual requested amount. Moreover, as expected the final loan size is positively linked to the residual proposed amount.

Table 2: The impacts of gender on the applicant's requested amount, the loan officer's proposed amount, and the credit committee's final loan size

	(1) RA		(2) PA		(3) LS	
Female Borrower (F)	-107.2***	(a_F)	-95.87***	(β_F)	-93.99***	(γ_F)
	(11.24)		(5.132)		(3.566)	
Residual Requested Amount (RRA)			0.626***	(b_R)	0.573***	(γ_R)
			(0.00248)		(0.00173)	
Residual Proposed Amount (RPA)					0.889***	(c_P)
					(0.00378)	
Observations	33,530		33,530		33,530	
R^2	0.336		0.793		0.897	

Monetary variables in deflated BRL, Standard errors in parentheses, *** p<0.01

Controls: Applicant's characteristics: age, marital status, presence of dependents, external income. Applicant's history with VivaCred: number of former loans as a client and as a guarantor, number of delayed former loans. Loan characteristics: number of installments, guarantor's involvement, investment purpose. Business characteristics: business profit, sector, business status, number of employees.

Loans granted to women are on average BRL 94 lower than loans granted to men. The estimates presented in table 2 allow to decompose this difference.[11] On the objective side, the initial gender gap combines BRL 59.66 coming from the loan officers and BRL 1.77 coming from the credit committee. On

[11] From table 2 and equations (5), (10), and (8), we derive the following estimates: $\hat{b}_F = -28.76$, $\hat{c}_R = 0.0165$, and $\hat{c}_F = -6.99$. These figures lead to the estimated products: $\widehat{c_P b_F} = -25.57$, $\widehat{c_P b_R a_F} = -59.66$, and $\widehat{c_R a_F} = -1.77$.

the subjective side, additional gender gaps of BRL 25.57 and BRL 6.99 are created by biased loan officers and credit committee, respectively.

This decomposition of the full gender gap in loan size is further detailed in table 3. The results (in %) are given for all applicants (first column), the newcomers (second column), and the known clients[12](third column), respectively. In the full sample, the main source of gender gap relates to female requesting lower amounts (65.3%). However, instead of correcting this initial gap unjustified by pure credit-scoring characteristics, the loan officer (27.3%) and the credit committee (7.4%) tend to reinforce it.

Table 3: Decomposition of the gender gap for all applicants, newcomers, and known clients

	Applicants		
	All	New	Known
Objective gender gap			
Total	65.3%	46.5%	74.1%
- channeled by loan officers	63.5%	44.9%	72.0%
- channeled by credit committee	1.8%	1.6%	2.1%
Subjective gender gap			
Total	**34.7%**	**53.5%**	**25.9%**
- created by loan officers	27.3%	43.5%	18.1%
- created by credit committee	7.4%	10.0%	7.8%

Understandably, the MFI's contribution to the gender gap is lower for known applicants (25.9%) than for newcomers (53.5%). More interestingly, this difference is almost entirely explained by the loan officers' attitude changes. Indeed, the officers' share of responsibility in the gender gap drops from 43.5% for newcomers to 18.1% for known applicants. This result confirms that the relationship is mainly experienced by the loan officers who are in charge of the field work, and hence establish personal contacts with the borrowers. The credit committee is less sensitive to existing relationships, and tends to stick to its prior (but light) bias against female applicants.

As robustness checks, we rerun the regressions on subsamples along two dimensions, successively. Firstly, we segment the full sample by loan officer. It appears that the observed gender-gap emanates from an identifiable subgroup of eleven loan officers out of 40.[13] The bias intensity is thus heterogeneously distributed among loan officers (Méon and Szafarz, 2011).

[12]Known clients have already reimbursed one loan at least.

[13]Notably, the officer's gender does not explain the gender gap in proposed amounts.

Secondly, we split the sample period in eleven one-year sub-periods. The one-year regressions show that the share of officers' responsibility for the gender gap decreases with time, evolving from 38% in 1997 to 7% in 2007. Hence, the size of the "objective gender gap" that remained stable in absolute terms over the whole period increased proportionately to the size of the "subjective gender gap". This could signal that some favorable kind of learning and/or adjustment process has taken place with time in VivaCred.

Summing up, the gender gap in loan size that originates from the MFI is mainly attributable to its loan officers. However, the credit committee tends to marginally contribute to this unfair gender gap. Therefore, each step of the loan granting process is detrimental to female applicants.

On average, women apply for smaller loans than men. This initial self-chosen handicap is reinforced, rather than corrected, by the loan officers who fail to properly account for the objective characteristics collected during the screening process. On top of that, the credit committee fails to monitor the officers efficiently since it does not counterbalance for the loan officers' misjudgment.

4 Concluding Remarks

The peculiarities of its lending methodology exposes the microfinance sector to a severe principal-agent problem. In practice, this translates into an unchallenged dominance of the loan officers in the decision making.[14] Most MFIs try to align the loan officers' objectives to their own mission through wage incentives.[15] However, even when incentives are enforced (as in VivaCred), monitoring remains an indispensable complement, especially given the persistence of a huge excess demand for microloans.

This paper has shown that monitoring is working poorly, at least for correcting the credit officers' gender-biased recommendations. As a consequence,

[14] As stated by Microsave (http://www.microsave.org/toolkit/individual-lending-for-credit-officers-toolkit): "At most institutions, Credit Officers must be everything and do everything. They must take a client through the lending process, from the first introduction to the MFI and products to full repayment of the loan. In some institutions, they underwrite several different types of loans, as well as sell many different types of bank products. The Credit Officer is expected to be in the field 80% of the time and cover as many potential borrowers as possible."

[15] According to McKim and Hughart (2005), the share of MFIs that use staff incentive schemes grew from 6% in 1990 to 63% in 2003. de Janvry, McIntosh and Sadoulet (2010) and Labie et al. (2010) discuss the merits of incentive-based wage schemes for non-profit MFIs.

other measures are needed to discourage loan officers from expressing their subjective and economically unjustified preferences and/or stereotypes when making proposals to the credit committee.

Given the importance of subsidies in microfinance, donors could constitute a valuable channel of influence to reach fairer loan allocation. Regulations and/or codes of good conduct could also help disciplining the loan officers, provided that such rules are accompanied by appropriate enforcement mechanisms.

Inescapably, monitoring increases operational costs, which are knowingly high in the microfinance industry. Therefore, other disciplining devices could be advocated. For instance, MFIs could put in place well-designed hiring policies. More precisely, loan officers could be selected among job candidates who exhibit *ex ante* characteristics that spontaneously align their objectives with the MFI's mission.[16] VivaCred seems to have made progress in this direction since the gender bias of its loan officers has dampened with time despite the credit committee sticking to its *modus operandi*.

However, the very nature of spontaneously favorable characteristics for loan officers remains unclear and, even if these characteristics were identified, finding loan officers with narrow profiles is not warranted. Still, when hiring loan officers MFIs could at least pay attention to the candidates' propensity of making biased recommendations. The resulting confidence in its loan officers' probity could indeed be fruitful to the MFI in terms of monitoring cost reduction.

In fact, the main difficulty in assessing the actual biases in loan granting stems from data availability. Indeed, detailed databases such as the one used in this paper are rarely disclosed, so that the internal functioning of MFIs keeps looking like a "black box" to the researchers, and likely to the managers of the MFIs themselves.

In that respect, it is fair emphasizing that VivaCred is a well-managed - and exceptionally transparent - MFI that benefits from a well-organized recording system. Therefore, we conjecture that the evidence put forward in this paper underestimates the agency problem prevailing in the overall microfinance industry. Of course, more data are required to assess the validity of this conjecture.

An important limitation of this paper comes from its restriction to the gender bias. Indeed, other judgmental biases may lead to loan officers' recommendations diverging from the MFI's mission statement and financial sustainability.

[16] For instance, D'Espallier, Guérin and Mersland (2011) show that female credit officers increase the odds of serving women.

Further work should investigate the generality of our results on other typical biases like cultural affinity, racial prejudice, etc.

In conclusion, our contribution confirms that the governance of socially-oriented firms raises specific issues (Labie, 2001; Hartarska, 2005; Mersland and Strom, 2010). By scrutinizing the influence of microcredit officers in the decision-making process, this paper has stressed the need for innovative disciplining devices designed to efficiently combat detrimental and mostly involuntary mission drift resulting from biased loan officers.

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