

Investigating the Impact of Loan Officer Gender on Repayment Rates

Abstract

Gender has been shown to be a significant variable in microfinance. With women comprising most of the current portfolio in most microfinance institutions, it is often perceived as a tool for female empowerment, with gender affecting loan type and size. However, despite the effects of borrower gender having been extensively studied, few research has looked at the effect of loan officer gender on default rates. The existing literature lacks consensus, with specific regional and country analyses finding opposite effects. In this paper, we analyze an international balanced panel dataset of MFIs from the Microfinance Information Exchange (MIX) ranging from 2011 to 2018, using a panel OLS model with country and time fixed effects, to examine how female loan officers impact repayment rates within MFIs. Our main findings contradict the current literature, as we found that, although higher proportions of women working as loan officers increase repayment rates, this relationship is not statistically significant. However, there is a marginally statistically significant effect between percentage of women staff and MFI repayment rates.

Introduction

The effect of borrowers' gender has been extensively studied in microfinance institutions (MFIs). Although research has shown that gender has an impact on loan size and interest rates in MFIs, since women typically have smaller loans, few studies have assessed the role of loan officer gender on borrowing transactions (Corsi & De Angelis, 2017, Agier & Szafarz, 2013). MFIs are institutions that primarily attend women and gender has been shown to be a significant

variable when defining loan terms and repayment rates. Thus, analyzing the impact of the gender of both lenders and borrowers is critical in microfinance (Bellucci, 2007, D'Espallier, 2011). Furthermore, assessing the effect of loan officer gender on delinquency rates is critical to understand the impact of microfinance on female empowerment and reduction of poverty as a whole.

Microfinance is a form of banking service that targets poor populations in different countries. It is primarily committed to offering services such as microcredit – small loans –, savings and insurance products to individuals living in poverty since they do not qualify for obtaining loans from formal financial institutions. MFIs mainly focus on women, who comprise over 70% of the total portfolio and tend to borrow small loans through group lending (D'Espallier, 2013). There are mixed explanations for this. On the one hand, the combination of the lack of formal credit opportunities for women and the social pressure in group lending increases the likelihood of repayment for women. On the other hand, women's traits may negatively affect their repayment rates, as they tend to be more risk-averse than men and invest in more conservative businesses when they receive larger grants. This may make repayment easier, but they typically receive no returns (D'Espallier, Guérin, & Mersland, 2011, Bellucci, 2007, de Mel et al., 2009). Although these reasons have not been proven to be directly related, MFIs may be perceived as a critical tool for women's empowerment (Agier & Szafarz, 2013; Corsi & De Angelis, 2017)

However, despite being the majority of clients, microfinance literature has shown that women suffer discrimination when requesting loans and may not receive the same credit conditions as their male counterparts. For instance, Agier and Szafarz (2013) found evidence that of an invisible barrier, or "glass-ceiling" that affects women entrepreneurs seeking loans for large

projects. Furthermore, Beck et al. (2018) suggest that this effect is exacerbated when borrowers are paired with loan-officers of the opposite sex: when they receive a loan, they are smaller in size and have higher interest rates than when paired with those of the same sex.

Loan officer gender could potentially impact the glass-ceiling effect. Corsi and De Angelis (2017) confirm that men and women treat credit conditions differently. Women have been shown to demonstrate solidarity with others in banking relations and their risk-aversion could contribute to reduce overdrawn (van den Berg et al., 2015; Bellucci, et al., 2007). Women lenders have also been found to be better at screening and monitoring their clients than their male counterparts (Beck et al., 2009). Additionally, loan officers are important figures in the enforcement of loan contracts, as they are responsible for monitoring their clients and assessing their credit risk. In some MFIs, credit officers even possess a dual role, having to serve as both enforcer and counsellor to their clients, intensifying the relations within the two parties and potentially the impact the officer may have (van den Berg et al., 2015).

The purpose of this study is to investigate the impact of loan officer gender on MFI repayment rates. Although microfinance literature has found that the pairing of borrowers with loan-officers of the opposite sex affects loan size and maturity (Beck et al., 2018), there is little empirical evidence on the effect of loan officer gender on default rates. Van den Berg (2015) found that in MFIs in countries such as Mexico, Vietnam and Burkina Faso, loan-officers actively pursued the borrowers, exerting a form of “staff pressure” to ensure the borrowers pay back their loans. However, gender biases related to the cultural context could play a role in determining how effective such pressures are. Among the few studies on the topic, Beck (2009) and van den Berg (2015) have found mixed evidence on the impact of loan officer gender on repayment rates. Beck (2009) found that default rates tend to be lower for loans granted by

women when assessing a large Albanian lender, whilst van den Berg (2015) found the opposite effect was true at a Mexican MFI. However, van den Berg (2015) admits their results are greatly influenced by the *male-dominant* Mexican culture, which affects how working women are seen by others. Overall, we anticipate that the proportion of women loan officers in MFIs will have a negative association on delinquency rate.

We extend Beck et al (2018 & 2009) and van den Berg (2015) study in several ways. First, our dataset includes key MFI financial information as well as other characteristics rather than loan transactions for one microfinance institution in a specific country. As a result, we can infer the general behavior of MFIs in several developing countries. Second, we use more recent data, comprising of a strong balanced panel dataset of MFIs from 2011 to 2018. This study therefore tests the reliability of the results found related to loan officer gender, assessing a much larger sample of MFIs. This also means our findings could provide broader implications and shed even more light on a topic that has not been sufficiently examined. For instance, if we find that loan officer gender does play a role in borrowers' default rates, that could imply that borrowers control their loans differently according to their loan-officer gender. It could also indicate how variables such as loan officer gender can be used by MFIs to increase the probability of loan repayment.

Overall, our main findings indicate that there is no relationship between the percentage of female loan officers and MFI repayments rates when considering MFIs worldwide, contradicting previous aforementioned studies at the regional or country level. However, we found a positive and marginally statistically significant relationship between the percentage of female staff and MFI repayment rate. This indicates that MFIs with higher proportions of women have lower

default rates. We also found that MFI performance and efficiency variables have a negative impact on MFI default rates.

Literature Review

Gender is a factor that greatly influences human behavior. Within microfinance, where women compose the majority of borrowers, research has shown that gender plays a significant role in shaping loan characteristics. For instance, D'Espallier et al. (2013) and Corsi and De Angelis (2017) found that women typically borrow small loans through collective lending methods and have a lower credit risk than their male counterparts. Although these specific methods hurt MFIs by lowering their Operational Self Sufficiency (OSS), women are also more risk-averse than men, more likely to invest in more conservative and cautionary methods and easier to monitor (D'Espallier et al., 2011). As a result, women have lower default rates and are considered more reliable than men, which means a focus on women can potentially enhance MFI repayment performance.

However, empirical evidence on how gender influences credit conditions has been mixed. On the one hand, recent studies indicate that loan officers subject women to a higher degree of scrutiny, with factors such as marital status and education being considered to classify creditworthiness. Despite this, Agiers and Szafarz (2013) found that women suffer from a "glass-ceiling effect" on loan size. Thus, the authors found that the average loan size is smaller for women than for men, even though both genders are subject to the same treatment in relation to loan approval. On the other hand, Corsi & DeAngelis (2017) did not find evidence of the effect in MFIs in Brazil. However, their results do align with Agiers and Szafarz (2013) regarding loan size and the behavior of female loan officers, as both studies found that women apply for smaller loans than men and that women loan officers are more conservative and grant smaller loans to

their borrowers, regardless of gender, which makes them typically tougher than their male counterparts. However, the reasons for this go beyond the scope of this paper, being caused by psychological factors.

Loan officer gender may also affect both loan type. Recent studies found that gender also plays a significant role in determining the relationship between borrowers and lenders (Agier & Szafarz, 2013; Corsi & De Angelis, 2017; D'espallier et al., 2013; D'Espallier et al., 2011). Specifically within MFIs, borrowers and their respective loan-officers have a strong relationship, as loan-officers have, in many cases, served as both credit enforcers and counsellors for their clients (D'espallier et al., 2013; van den Berg et al., 2015). However, while the effect of gender on loan sizes has been extensively studied within microfinance, research on the role of loan-officers is still scarce. Beck et al. (2018) shows that this relationship reinforces the effects of gender, as their results found that matching borrowers with lenders of the opposite gender affects loan size and loan duration.

However, the question of whether or not a specific loan-officer gender has better default rates is still unclear. On the one hand, Beck et al. (2009) in a study done in Albania, found that female loan officers are better than their male counterparts at both monitoring their loans and screening their borrowers and as a result, loans granted by women have statistically and economically lower default rates than those granted by men. On the other hand, in a similar study done in Mexico, van den Berg et al. (2015) found that male loan-officers have lower default rates than their female counterparts, because women tend to express more solidarity towards their borrowers.

Although Beck et al. (2009) and van den Berg et al. (2015) showcase opposite results in relation to gender, both demonstrate the significance of loan officer gender on default rates.

However, it is also important to consider how cultural aspects can contribute to the strength of the effect of loan-officer gender. In Mexico, for instance, the specific sub-culture puts men at an advantage, where they are seen as more trustworthy than women (van den Berg et al., 2015). In Albania, such cultural views are less stressed and results differ (Beck et al., 2009). This exemplifies the necessity for a cross-country analysis in order to verify if gender plays such a significant role in influencing client repayment rates.

Although there has been research that shows how loan-officers influence default rates and emphasize their significance, the role of loan-officers and factors that affect it has not been significantly studied in microfinance. Women have been found to have superior loan monitoring and screening skills, than their male counterparts and possess even lower default rates when paired with female borrowers (Corsi & De Angelis, 2017; Thorsten Beck et al., 2009). Considering how MFI clientele is primarily composed of women, we predict MFIs with a larger number of female loan officers will have higher repayment rates. Therefore, based on the previous discussions, we anticipate that the proportion of female loan officers will positively influence MFI repayment rate. Likewise, we also expect a positive relationship between the percentage of female staff and MFI repayment rate.

Methods

MFI data comes from the Microfinance Information Exchange (MIX), a nonprofit organization that facilitates access to quality financial data in the microfinance industry. MFIs that contribute by providing information to MIX serve a large proportion of the client base worldwide (Cull et al., 2009). The major advantage of the MIX dataset consists of several adjustments that facilitate comparability across MFIs located in countries with different

standards. The panel dataset spans a period of 5 years, from 2015 to 2019. Our sample consists of 722 MFIs (and 1853 MFI-year observation points). We included only MFIs with at least 2 years of data on repayment rate.

Our empirical strategy mainly tests the hypothesis that MFIs with a higher proportion of female loan officers will negatively impact loan delinquency rate. The empirical model is estimated through a panel OLS model with country and time fixed effects. Our models are estimated through the following equation

$$\begin{aligned}
 \text{Repay}_{ict} = & \beta_0 + \beta_1 * \text{Female Loan Officer}_{ict} + \sum_{j=1}^J \beta_{jct} * \text{MFI Characteristics}_{ijct} + \phi_c \\
 & + \tau_t + \varepsilon_{ict}
 \end{aligned}$$

where *Repay*, our dependent variable for MFI *i* in country *c* and year *t*, comprises two measures of repayment rates: portfolio at risk greater than 30 days (PAR 30 days), portfolio at risk greater than 90 days (PAR 90 days). These measures represent the portion of loans greater than 30 and 90 days past due, respectively. It includes the value of all renegotiated loans compared to gross loan portfolios. It is measured as the ratio between the outstanding balance of portfolio overdue for 30 or 90 days plus renegotiated loans and gross loan portfolio. Our explanatory variable of interest, *Female Loan Officer*, captures the fraction of women that work as loan officers. We also include another explanatory variable of interest, *Female Staff*, capturing the percentage of women that are full-time staff. Both variables are highly correlate.

In addition, we include several variables to control for MFI characteristics. For instance, we capture social performance using percentage of female borrowers and the number of clients below poverty line. In addition, we include MFI financial measures such as total assets, operational self-sufficiency, and yield on gross portfolio. These variables have been commonly

used in the microfinance literature (Cozarenco et al., 2016; Cozarenco & Szafarz, 2018; Hermes & Lensink, 2007). We also include time fixed effects τ_t . Country fixed effects are denoted by ϕ_c in order to account for all country-specific factors influencing household income. Standards errors are clustered at the country level to account for potential correlation in the cross-section within each country.

Results and Discussion

Results from the OLS regressions are displayed on table 1. Columns 1 and 2 display the results of the impact of both loan officers and female staff on PAR (30 days), while columns 3 and 4 shows the results using PAR (90 days) as an outcome variable. Overall, we found a negative relationship between the percentage of women loan officers and portfolio at risk. In other words, our findings indicate that higher proportions of women working as loan officers increase repayment rates. However, our relationship is not statistically significant, suggesting that loan officer gender has no impact on MFI repayment rates when examining MFIs worldwide. Our result contradicts previous studies examining specific regions or countries (D'Espallier et al, 2011; Beck et al, 2018). This indicates that cultural factors within specific countries or regions may drive the impact of loan officer gender on repayment rates.

Our results also show a marginal statistically significant relationship between percentage of women staff and MFI repayment rates. Our negative coefficients hold for both PAR (30 days) and PAR (90 days). A potential explanation for our finding may be women's trustworthiness and fair. In other words, women tend to be more solidary and trustworthy towards others in banking relations (van den Berg et al., 2015). In addition, women may be less susceptible to corruptive

practices (Swamy et al., 2001) shown to have a negative impact on MFI financial performance (Boehe & Barin Cruz, 2013).

Other financial related regressors are also significant predictors of MFI repayment rate. For instance, we found that total assets, operational self-sufficiency and yield on gross loan portfolio have a significant negative relationship with portfolio at risk in both 30 and 90 days. This shows that better performing MFIs are more efficient. They also have lower levels of default rates (higher repayment levels). Our results are consistent with previous literature on MFI financial performance (Mersland & Øystein Strøm, 2009; Hermes & Hudon, 2018)

Conclusion

This paper analyses the impact of Gender of Loan Officers and Staff on MFI Repayment Rate using extensive data from the Microfinance Information Exchange (MIX). This is important because the role of loan officer gender has not been extensively studied within microfinance, despite gender being significant in impacting loan type and size. Repayment is measured as the ratio between the outstanding balance of portfolio overdue for 30 or 90 days plus renegotiated loans and gross loan portfolio. Gender is studied through two explanatory variables: fraction of female loan officers and proportion of female staff. We also include MFI financial measures such as total assets, operational self-sufficiency, and yield on gross portfolio to control for MFI characteristics. To test our hypotheses, we use a panel OLS model with country and time fixed effects.

Our findings indicate that although higher proportions of women working as loan officers increases repayment rates, this relationship is not statistically significant. This contradicts previous findings and may imply that cultural characteristics play a significant role in defining how borrowers react to loan officers' genders. Additionally, we also found a marginally

statistically significant relationship between MFIs with a larger percentage of female staff and default rates and a significant negative relationship between total assets, operational self-sufficiency and yield on gross loan portfolio on portfolios at risk in both 30 and 90 days. These combined results are in line with previous research in that they indicate how better performing MFIs are more efficient and how women's aversion to corruptive practices can play a significant role in industry practices.

On a wider scale, further research is needed to assess specific countries and regions where cultural factors drive the impact of loan officer gender on repayment rates, as well as the reasons for why a higher percentage of female staff positively impacts repayment rates.

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Tables

Table 1: Impact of Gender of Loan Officers and Staff on MFI Repayment Rate

	(1)	(2)	(3)	(4)
	PAR(30)		PAR(90)	
Female Loan Officer	-0.0157		-0.00611	
	(0.023)		(0.020)	
Female Staff		-0.0364*		-0.0242*
		(0.018)		(0.012)
Female Borrowers	-0.0187	-0.0193	-0.0217	-0.0203
	(0.019)	(0.026)	(0.015)	(0.022)
Log Assets	-0.00470	-0.00643*	-0.00499*	-0.00640**
	(0.003)	(0.003)	(0.003)	(0.003)
Poor Clients	0.00280	0.00279	0.00304	0.00303
	(0.003)	(0.003)	(0.002)	(0.002)
OSS	-0.0580**	-0.0537*	-0.0422**	-0.0392*
	(0.029)	(0.029)	(0.021)	(0.021)
Yield	-0.200***	-0.213***	-0.156***	-0.166***
	(0.058)	(0.061)	(0.051)	(0.053)
_cons	0.224***	0.257***	0.197***	0.224***
	(0.062)	(0.077)	(0.065)	(0.076)
N	710	717	708	715

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* p<0.10, ** p<0.05, *** p<0.01

Dependent variable: Repayment Rate

Robust Standard Errors

Country and Time Fixed-Effects in models