Does peer-to-peer crowdfunding boost refugee entrepreneurs?

Ricardo Emanuel Correia

University of Beira Interior, Covilhã; BRU-IUL, Lisboa, Portugal
ricardo.emanuel.correia@ubi.pt
https://orcid.org/0000-0002-4520-4600

Fábio Duarte

CIICESI, ESTG, Politécnico do Porto, Porto, Portugal
fdd@estg.ipp.pt
https://orcid.org/0000-0002-4919-0736

Ana Paula Matias Gama

University of Beira Interior, Research Center in Business Science (NECE) Covilhã, Portugal
amatias@ubi.pt
https://orcid.org/0000-0002-8064-6244

Mário Augusto

University of Coimbra, CeBER, Faculty of Economics, Coimbra, Portugal
maugusto@fe.uc.pt
https://orcid.org/0000-0001-7345-1679

Does peer-to-peer crowdfunding boost refugee entrepreneurs?

Abstract

To provide new insights into the determinants of fundraising success for loans requested by refugees on a prosocial peer-to-peer (P2P) platform, this study investigates more than 180,000 business loan campaigns during 2015–2018. The leading online P2P platform offers access to financing for refugee entrepreneurs in developing countries, and the benefits are especially strong for refugees with prior borrowing experience. However, the results also reveal discrimination against female refugee entrepreneurs, compared with their non-refugee counterparts, in this P2P prosocial context. This gap should be addressed by scholars and policymakers determined to reach excluded and niche groups, including women and refugees.

1. Introduction

Refugees, particularly female ones, are drastically marginalized groups, such that they struggle to earn living wages (UNDP, 2017). Traditional lending markets also exclude refugees (Armendáriz and Morduch, 2005), which reinforces and contributes to the long legacy of discrimination (UNHCR, 2021). Noting this problematic scenario, some new financing options are devoted to seeding entrepreneurship among vulnerable groups, as in the form of microfinance, crowdfunding, and peer-to-peer (P2P) lending (Bruton et al., 2015). Online prosocial crowdfunding platforms enable both entrepreneurs and microfinance institutions (MFI) to raise capital from lenders (Jancenelle and Javalgi, 2018). Recent literature examines the effects of such P2P platforms as alternatives to formal financial institutions (Bruton et al., 2015) that might mitigate socio-economic discrimination (Figueroa-Armijos and Berns, 2021), though without fully clarifying the interplay of prosocial lending and refugee entrepreneurship in relation to entrepreneurial financing.

By integrating message framing and signaling theories, this study examines how prosocial P2P lending might promote access to credit among refugee entrepreneurs (RE), and it thus contributes to investigations of how discrimination affects access to credit in entrepreneurial finance settings (Eddleston et al., 2016). Combining these theories can provide insights into how lenders react to signals and framed cues about the borrowers' track records and social capital (Lee and van Dolen, 2015). A positive message frame can function as a low-cost signal, especially for unsophisticated lenders with relatively less experience or knowledge (Anglin et al., 2018). Previous studies of online P2P crowd-equity platforms affirm that project success often depends on prosocial cues, framed and provided by the applicants (e.g., Defazio et al., 2020). By packaging information strategically, they can attract audience attention and help lenders select relevant campaigns that resonate with their own social goals (Defazio et al., 2020).

Such information framing is possible on prosocial P2P crowdfunding platforms too, where borrowers can search for "women" or "refugees and IDPs [internally displaced people]" as lending categories (Kiva, 2021). On these platforms, lenders appear more inclined to support projects with social benefits (Galak et al., 2011), and framing a project according to its benefits for women or agricultural actors can attract prosocial lenders who want to engage in efforts to alleviate gender or rural

discrimination (Figueroa-Armijos and Berns, 2021). Another critical population subject to historical discrimination in lending is refugees, including female ones, whose entrepreneurship in particular represents a timely research topic (Hatton, 2017; Naudé et al., 2017; Shepherd et al., 2020), reflecting the refugee–business nexus (Akgündüz et al., 2018; Altındağ et al., 2020).

The number of refugees worldwide reached 25.9 million in 2018 (Convergences, 2019). Many of them seek entrepreneurship. Yet few financial services are available to refugees, reflecting a common perception that refugee entrepreneurship is "too risky" for investors (Convergences, 2019)—despite data showing an average repayment rate of 96.6% for refugee loans, on par with non-refugee ones (Kiva, 2018). Furthermore, refugees typically do not resettle back to their country of origin, so flight risk concerns appear unsubstantiated as well (Convergences, 2019). To discuss the opportunities linked to prosocial P2P lending as a means to support refugee entrepreneurship, this study investigates specifically if loan campaigns framed by refugee status achieve greater success, by determining if an individual business loan is more likely to be fully funded when requested by RE.

Gender discrimination has been studied in relation to financial markets (e.g., Orser et al., 2006; Wellalage and Thrikawala, 2021). In microfinance, social capital may compensate for moral hazard and adverse selection problems, which helps explain women's high repayment rates (Armendáriz and Morduch, 2005) and preferences by prosocial lenders to fund campaigns helmed by female borrowers (Figueroa-Armijos and Berns, 2021). This study contributes to these recent findings by also considering cross-lending potential benefits on prosocial P2P platforms, according to the possible moderating effects of refugee status on the success of female entrepreneurs' campaigns.

Traditional financial markets are characterized by information asymmetry, so lenders struggle to identify good borrowers and suffer high risk (Stiglitz and Weiss, 1981), forcing them to rely on collateral to reduce that risk (Duarte et al., 2016). When collateral is not available, as in P2P markets, information gaps persist (Lin et al., 2013), and investors must rely on ambiguous information (Ahlers et al., 2015). Crowdfunding microfinance thus needs an effective, alternative financing tool to resolve this problem (Armendáriz and Morduch, 2005). Previous studies propose that signals available in published information can determine funding success outcomes, such as third-party (Anglin et al., 2020), loan quality (Berns et al., 2020), economic or normative (Jancenelle et al., 2018), and moral-

foundations (Jancenelle and Javalgi, 2018) signals. Few studies consider the potential influences of early-stage signals provided during prefunding phases of a campaign, such as fundraising experience. That is, information asymmetry is lower for borrowers with prior experience (PE), because they can send a reputation signal to lenders (Spence, 2002). In P2P lending, market signals appear within the entrepreneurs' published profiles, which also provide information about their loan campaigns (Courtney et al., 2017; Moss et al., 2015). On Kiva, borrowers can identify themselves as repeated borrowers, to signal PE, which in turn implies as least some credible evidence of early-stage quality and helps alleviate the information gap (Ahlers et al., 2015; Courtney et al., 2017). To build on research that predicts a positive effect of prior fundraising experience on subsequent success (Courtney et al., 2017; Ding et al., 2019) and address calls to study early-stage signals (Fan et al., 2020), the current research investigates the potential moderating effect on microcredit acquisition by RE in a P2P context.

This study provides several contributions to P2P literature. First, the empirical support affirms lenders' positive perceptions of campaigns involving RE. Second, this study responds to continued calls for research into gender discrimination in credit markets (Wellalage and Thrikawala, 2021) and refugee discrimination at the micro level (Akgündüz et al., 2018). Prosocial P2P lending offers advantage to RE, but it suffers a blind spot with regard to female RE, compared with their non-refugee counterparts. Refugee framing partially mitigates discrimination against the overall group, but it does not reduce the information gap among women. This result challenges evidence of an absence of discrimination against women in microfinance (e.g., Corsi and De Angelis, 2017). Third, for a specific cohort of refugees, prior fundraising experience offers an important signal that can increase funding success, but for most refugees with PE, the probability of success still is not statistically higher than the average. In brief, prosocial P2P lending platforms may facilitate refugees' entrepreneurship, but gendered tensions persist, to the detriment of female RE.

2. Data

We deploy data sourced from the Kiva Application Programming Interface (https://www.kiva.org/build/data-snapshots), a P2P platform. Founded in 2005, Kiva has a microfinance focus and represents the "world's largest public database of micro-entrepreneur profiles"

(Flannery, 2009:48). It organizes profile information into campaigns that are accessible to potential lenders (Anglin et al., 2020). An available category in a "Lend" dropdown menu refers to "Refugees and IDPs", so Kiva already uses contextual framing. The lending process begins once the entrepreneur's profile is published on the platform (Jancenelle et al., 2018). During the fundraising window (typically, 30 days), most loans are fully funded; if they are not, any amounts contributed get reimbursed to lenders. We collected data about 181,929 individual loans in 20 developing countries during 2015-2018. Following standard practices, we selected only loans for business purposes (Jancenelle et al., 2019). In our sample, Lebanon and Palestine represent the countries with the most refugees (28.06% and 27.27%, respectively). These numbers increased substantially in 2017–2018. The industries most often cited in refugees' business loan applications are construction (15.01%) and entertainment (12.79%).

3. Empirical design

To test the effect of refugee status on likelihood of loan-campaign success and the moderating effects on female entrepreneurs' campaigns and past borrowing experience, we estimate a binary logit response model:

$$P(Success=1|X_i) = \beta_0 + \beta_1 RE_i + \beta_2 FE_i + \beta_3 PE_i + \beta_4 RE_i*FE_i + \beta_5 PE_i*RE_i + \delta_j W + \varepsilon_i \quad \textbf{(1)}$$

where *Success* is a dummy variable that takes a value of 1 if the ith loan is fully funded, and 0 otherwise; *RE* and *FE* are dummy variables equal to 1 if the entrepreneur is a refugee or female, respectively, and 0 otherwise; *PE* is a dummy variable that takes a value of 1 if the entrepreneur has past experience on Kiva, and 0 otherwise; *W* is a vector of control variables in the model that reflect characteristics of the entrepreneur (*Age;* Ding et al., 2019), loan (*Size, Maturity*, *Irregular* repayment, and *competition*; Ly and Mason, 2012), and MFI (*Rating;* Galak et al., 2011); and ε_i denotes the error term. We account for country, year, and industry effects using dummy variables (Jancenelle et al., 2019). Table 1 provides the descriptive statistics.

(Table 1 here)

4. Results and Discussion

Table 2 summarizes the estimation results of the proposed models. Column I contains the results of the logit estimations and average marginal effects (AME), obtained by using the command *margins, dydx ()* on Stata. The AME for refugee' entrepreneurs (*RE*) is 0.03 ($p<0.01$), which indicates that the probability of fundraising success is 3 percentage points higher than that achieved by non-refugee counterparts. Framing the loan as going to RE encourages lending. The control variables exhibit the expected signs; Columns II and III report the logit estimations and AME when the moderating effect of refugee status on entrepreneurs' gender (*RE*FE*) and the moderating effect of past experience on refugee status (*PE*RE*) are included, respectively. The magnitude of the interaction effect in nonlinear models, such as logit ones, does not equal the marginal effect of the interaction term, which creates the risk that standard procedures will provide inaccurate signs and significance levels (Ai and Norton, 2003). Thus, Columns II.2 and III.2 exclude the AME for the interaction terms *RE*FE* and *PE*RE*. The marginal effects of the constitutive terms of the interactions and control variables in Columns II.2 and III.2 are similar to those reported in Column I.2.

(Table 2 here)

To analyze the interaction terms, we compute the MER values (Williams, 2012), using the command *margins var1, at (var2) vsquish*. As Williams (2012) explains, the MER reveals how the effects of the variables vary according to other characteristics of the individual and thus offer an alternative analysis of the relationship among the constitutive terms in each interaction. Table 3 contains the MER values for model specifications II.1 (Panel A) and III.1 (Panel B). Compared with the coefficients in Table 2, the effect of female non-refugee status on the predicted probability of being fully funded (Panel A:$MER_{FE=1 and RE=0}$=0.085, $p<0.01$) is greater than the effect of being female with refugee status ($MER_{FE=1 and RE=1}$=0.072, $p<0.01$). As expected, the results also suggest that the effect of being a refugee with prior experience on the predicted probability of being fully funded (Panel B:$MER_{RE=1 and PE=1}$=0.039, $p<0.01$) is greater than the effect registered among refugees without prior experience ($MER_{RE=1 and PE=0}$=0.028, $p<0.01$).

7

(Table 3 here)

To mitigate concerns about the interaction effects in nonlinear models, Table 4 contains the correct marginal effect of a change in two interacted variables in the logit model, obtained using Stata's command *inteff* (Norton et al., 2004). When compared with the MER values, the correct marginal effect for *RE*FE* in Panel A is negative and statistically significant (-0.013, $p<0.01$). Although counterintuitive, this result echoes previous literature that identifies differences in labor market participation between refugees and other migrants, or the so-called refugee gap (Bakker et al., 2017), as well as the persistence of socio-political inequalities that marginalize female entrepreneurs within displaced groups and across other marginalized groups (Al-Dajani and Marlow, 2013). Panel B further shows that, whereas the MER values in Table 3 are positive, the correct marginal effect for *RE*FE* is not statistically significant (0.010, $p>0.1$). In contrast with linear models, this result cannot provide evidence of a null interaction effect though (Norton, 2004). To specify the interaction effect on the likelihood of a campaign being fully funded, it is necessary to examine the full range across the interaction effect.

Accordingly, Figure 1 shows that the full interaction effect of *RE*FE* is large and statistically significant for most observations, with a predominantly negative effect of being female and refugee on the probability of being fully funded. As Figure 2 shows, despite a lack of statistical significance of the coefficient for the interaction term *PE*RE*, the full interaction effect is positive and statistically significant in several observations. Thus, for a specific cohort of refugees, PE increases the likelihood of being fully funded, even if this effect does not arise for most cases. Evidence of the positive effect of PE also is available in entrepreneurial finance literature (Eddleston et al., 2016), including studies of crowdfunding (Courtney et al., 2017) and prosocial P2P lending (Ding et al., 2019).

(Table 4 here)

(Figures 1 and 2 here)

5. Conclusion

By studying the world's leading prosocial P2P lending platform, this research investigates if loans framed by refugees' status achieve higher fundraising success, controlling for how such cues might

moderate female entrepreneurs' campaigns or how prior borrower experience might enhance the likelihood of financing success. The findings support the idea that lenders affirmatively fund loans for minority and marginalized groups framed as refugees. As noted by Kiva, this marginalized group reports an average repayment rate in line with non-refugees (Kiva, 2018). This result aligns with the hybrid nature of lender motivations (prosocial and financial) (Berns et al., 2020). As a key contribution to prosocial P2P lending literature, we offer evidence of the applicability of framing theories to P2P platforms, such as Kiva. A frame that cites refugee conditions helps reduce discriminatory barriers that refugees face in accessing capital. This evidence can help practitioners and policymakers mitigate factors that discourage entrepreneurship among this group, with potentially positive impacts on "development in both sending and receiving countries" of refugees (Naudé et al., 2017:1). The findings also caution about a mission drift of P2P platforms toward niche groups, which might be relevant to scholars and policymakers seeking to establish and expand refugee agendas. Framing refugee status has a more prominent effect on serial borrowers' success, but it hinders female refugees' chances of being fully funded, compared with non-refugee female entrepreneurs. This result reveals a limitation of P2P prosocial lending, which advances entrepreneurship literature by clarifying the marginalization related to women's entrepreneurship and empowerment (Al-Dajani and Marlow, 2013). Furthermore, the findings expand the applicability of signaling theory to prosocial P2P lending, by demonstrating the relevance of signaling prior experience (PE) in P2P lending for providing a path to success for some refugee entrepreneurs (RE).

The findings also highlight the need for additional attention paid to niche groups. Female RE confront a "uniquely complex situation" that features discouragement and low self-esteem, as well as promising benefits of entrepreneurship as a means for self-reconstruction (Huq and Venugopal, 2021:137). Further research might study different types of RE, including migrants, elderly, and younger entrepreneurs, but it should also consider the potential for gendered tensions. Refugees with PE represent a niche within the minority group, a promising research direction would explore the role of prior borrowing experience among a wider sample of P2P campaigns. Such findings might contribute to finance literature by revealing the applicability of signaling theory to other forms of crowdfunding, such as financially driven forms. In addition, the interplay of gender and PE requires further research

to clarify its precise effects. One limitation of this paper arises from the lack of information about the default risk of refugee loan campaign. To advance research on crowdfunding platforms, scholars might therefore analyze how the default rate of refugee-entrepreneurial loans relates to the success of loan campaigns according to individual repayment rate data.

Declaration of interest statement

None.

References

Ahlers, G. K., Cumming, D., Günther, C., and Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice*, *39*(4), 955–980.

Ai, C., and Norton, E. C. (2003). Interaction terms in logit and probit models. *Economics Letters*, *80*(1), 123–129.

Akgündüz, Y. E., van den Berg, M., and Hassink, W. (2018). The impact of the Syrian refugee crisis on firm entry and performance in Turkey. *World Bank Economic Review*, *32*(1), 19–40.

Al-Dajani, H., and Marlow, S. (2013). Empowerment and entrepreneurship: A theoretical framework. *International Journal of Entrepreneurial Behaviour and Research*, *19*(5), 503.

Altındağ, O., Bakış, O., and Rozo, S. V. (2020). Blessing or burden? Impacts of refugees on businesses and the informal economy. *Journal of Development Economics*, *146*, (in press).

Anglin, A. H., Short, J. C., Drover, W., Stevenson, R. M., McKenny, A. F., and Allison, T. H. (2018). The power of positivity? The influence of positive psychological capital language on crowdfunding performance. *Journal of Business Venturing*, *33*(4), 470–492.

Anglin, A. H., Short, J. C., Ketchen Jr., D. J., Allison, T. H., and McKenny, A. F. (2020). Third-Party signals in crowdfunded microfinance: The role of microfinance institutions. *Entrepreneurship Theory and Practice*, *44*(4), 623–644.

Armendáriz, B., and Morduch, J. (2005). *The economics of microfinance*. MIT Press.

Bakker, L., Dagevos, J., and Engbersen, G. (2017). Explaining the refugee gap: A longitudinal study on labour market participation of refugees in the Netherlands. *Journal of Ethnic and Migration Studies*, *43*(11), 1775–1791.

Berns, J. P., Figueroa-Armijos, M., da Motta Veiga, S. P., and Dunne, T. C. (2020). Dynamics of lending-based prosocial crowdfunding: Using a social responsibility lens. *Journal of Business Ethics*, *161*(1), 169–185.

Bruton, G. D., Khavul, S., Siegel, D., and Wright, M. (2015). New financial alternatives in seeding entrepreneurship: Microfinance, crowdfunding, and peer-to-peer innovations. *Entrepreneurship Theory and Practice*, *39*(1), 9–26.

Convergences. (2019). *Microfinance Barometer 2019*. Paris: Convergences.

Corsi, M., and De Angelis, M. (2017). Gender discrimination in microfinance? Some evidence from Uganda. *Journal of Development Studies*, *53*(5), 723–740.

Courtney, C., Dutta, S., and Li, Y. (2017). Resolving information asymmetry: Signaling, endorsement, and crowdfunding success. *Entrepreneurship Theory and Practice*, *41*(2), 265–290.

Defazio, D., Franzoni, C., and Rossi-Lamastra, C. (2020). How pro-social framing affects the success of crowdfunding projects: The role of emphasis and information crowdedness. *Journal of Business Ethics*, (*in press*). DOI: https://doi.org/10.1007/s10551-020-04428-1

Ding, J., Huang, J., Li, Y., and Meng, M. (2019). Is there an effective reputation mechanism in peer-to-peer lending? Evidence from China. *Finance Research Letters*, *30*, 208–215.

Duarte, F., Gama, M., Paula, A., and Esperança, J. P. (2016). The Role of Collateral in the Credit Acquisition Process: Evidence from SME Lending. *Journal of Business Finance and Accounting*, *43*(5–6), 693–728.

Eddleston, K. A., Ladge, J. J., Mitteness, C., and Balachandra, L. (2016). Do you see what I see? Signaling effects of gender and firm characteristics on financing entrepreneurial ventures. *Entrepreneurship Theory and Practice*, *40*(3), 489–514.

Fan, T., Gao, L., and Steinhart, Y. (2020). The small predicts large effect in crowdfunding. *Journal of Consumer Research*, *47*(4), 544–565.

Figueroa-Armijos, M., and Berns, J. P. (2021). Vulnerable populations and individual social responsibility in prosocial crowdfunding: Does the framing matter for female and rural entrepreneurs? *Journal of Business Ethics*, (in press).

Flannery, M. (2009). Kiva at Four (Innovations Case Narrative: Kiva). *Innovations: Technology, Governance, Globalization*, *4*(2), 31–49.

Galak, J., Small, D., and Stephen, A. T. (2011). Microfinance decision making: A field study of prosocial lending. *Journal of Marketing Research*, *48*(Special Issue 2011), S130–S137.

Hatton, T. J. (2017). Refugees and asylum seekers, the crisis in Europe and the future of policy. *Economic Policy*, *32*(91), 447–496.

Huq, A., and Venugopal, V. (2021). DIY entrepreneurship? Self-reliance for women refugees in Australia. *International Migration*, *59*(1), 126–142.

Jancenelle, V. E., and Javalgi, R. (Raj) G. (2018). The effect of moral foundations in prosocial crowdfunding. *International Small Business Journal*, *36*(8), 932–951.

Jancenelle, V. E., Javalgi, R. R. G., and Cavusgil, E. (2018). The role of economic and normative signals in international prosocial crowdfunding: An illustration using market orientation and psychological capital. *International Business Review*, *27*(1), 208–217.

Jancenelle, V. E., Javalgi, R. R. G., and Cavusgil, E. (2019). Cultural entrepreneurship and legitimate distinctiveness in international prosocial crowdfunding. *International Business Review*, *28*(4), 802–810.

Kiva. (2018). *World Refugee Fund—Providing Displaced Populations with Access to Finance*. Kiva.

Kiva. (2021). *Kiva—Make a loan, change a life*. Kiva. Retrieved January 29, 2021, from https://www.kiva.org/lend-by-category.

Lee, H.-H. M., and van Dolen, W. (2015). Creative participation: Collective sentiment in online co-creation communities. *Information and Management*, *52*(8), 951–964.

Lin, M., Prabhala, N. R., and Viswanathan, S. (2013). Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending. *Management Science*, *59*(1), 17–35.

Ly, P., and Mason, G. (2012). Competition between microfinance NGOs: Evidence from Kiva. *World Development*, *40*(3), 643–655.

Moss, T. W., Neubaum, D. O., and Meyskens, M. (2015). The effect of virtuous and entrepreneurial orientations on microfinance lending and repayment: A signaling theory perspective. *Entrepreneurship Theory and Practice*, *39*(1), 27–52.

Naudé, W., Siegel, M., and Marchand, K. (2017). Migration, entrepreneurship and development: Critical questions. *IZA Journal of Migration*, *6*(1), 1–16.

Norton, E. C., Wang, H., and Ai, C. (2004). Computing interaction effects and standard errors in logit and probit models. *The Stata Journal*, *4*(2), 154–167.

Orser, B. J., Riding, A. L., and Manley, K. (2006). Women entrepreneurs and financial capital. *Entrepreneurship Theory and Practice*, *30*(5), 643–665.

Shepherd, D. A., Saade, F. P., and Wincent, J. (2020). How to circumvent adversity? Refugee-entrepreneurs' resilience in the face of substantial and persistent adversity. *Journal of Business Venturing*, *35*(4), (*in press*). DOI: https://doi.org/10.1016/j.jbusvent.2019.06.001

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review*, *92*(3), 434–459.

Stiglitz, J. E., and Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review*, *71*(3), 393–410.

UNDP. (2017). *Human Development Report 2016—Human development for everyone*. United Nations Development Programme.

UNHCR, U. N. H. C. for R. (2021). *Minorities and indigenous peoples*. Retrieved March 15, 2021, from https://www.unhcr.org/minorities-and-indigenous-peoples.html

Wellalage, N. H., and Thrikawala, S. (2021). Bank credit, microfinance and female ownership: Are women more disadvantaged than men? *Finance Research Letters*, (in press).

Williams, R. (2012). Using the margins command to estimate and interpret adjusted predictions and marginal effects. *The Stata Journal*, *12*(2), 308–331.

Table 1. Summary statistics

Variables	Mean	Std. Dev.	Min	Max
Dependent				
Success (0/1)	0.92	0.27	0.00	1.00
Independent				
Refugee Entrepreneur (RE) (0/1)	0.02	0.14	0.00	1.00
Female Entrepreneur (FE) (0/1)	0.81	0.39	0.00	1.00
Past Experience (PE) (0/1)	0.21	0.40	0.00	1.00
Controls				
Entrepreneur characteristics				
Age (in # years)	41.45	12.44	18.00	89.00
Loan-campaign characteristics				
Ln(Size) (in $US)	6.11	0.71	3.22	9.21
Ln(Maturity) (in months)	2.52	0.38	1.10	4.14
Irregular (0/1)	0.04	0.19	0.00	1.00
Ln(Sector competition) (in # loans)	7.00	0.95	0.00	8.31
Ln(Region competition) (in # loans)	7.26	0.68	3.97	8.49
MFI characteristics				
MFI Rating (1 to 5)	3.58	0.90	1.00	4.50

The sample contains 181,929 observations in 20 developing countries. Success is a dummy variable equal to 1 if the business loan campaign is fully funded, 0 otherwise. RE is a dummy variable equal to 1 if the loan campaign has refugee status (tag "refugee"), 0 otherwise. FE is a dummy variable equal to 1 if the entrepreneur is a woman, 0 otherwise. PE is a dummy variable equal to 1 if the borrower has previous P2P lending experience on Kiva (tag "repeated borrower"), 0 otherwise. Age is the age of the entrepreneur in years. Size is the US dollar amount of the loan, in logarithmic form. Maturity is the repayment term in months and in logarithmic form. Irregular takes the value of 1 if the repayment schedule is not regular (i.e., monthly), 0 otherwise. Sector/Region competition variables are the number of loans in the same sector/region fundraising until the date posted. MFI rating is assigned by Kiva, ranging from 1 (high risk) to 5 (low risk).

Table 2. Estimations results: Success of business loan campaigns (DV)

	Column I		Column II		Column III	
	Baseline model		RE*FE		PE*RE	
	Logit	**AME**	**Logit**	**AME**	**Logit**	**AME**
	I.1	**I.2**	**II.1**	**II.2**	**III.1**	**III.2**
Refugee Entrepreneur (RE)	0.668***	0.030***	0.577***	0.034***	0.614***	0.030***
	(0.068)	(0.003)	(0.076)	(0.003)	(0.070)	(0.002)
Female Entrepreneur (FE)	1.350***	0.085***	1.339***	0.085***	1.350***	0.085***
	(0.024)	(0.002)	(0.024)	(0.002)	(0.024)	(0.002)
Past Experience (PE)	0.216***	0.011***	0.217***	0.011***	0.205***	0.011***
	(0.029)	(0.001)	(0.029)	(0.001)	(0.030)	(0.001)
RE*FE			0.447***			
			(0.154)			
PE*RE					0.468**	
					(0.198)	
Controls (W1)						
Age	-0.005***	-0.000***	-0.005***	-0.000***	-0.005***	-0.000***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Controls (W2)						
Ln(Size)	-1.678***	-0.088***	-1.678***	-0.088***	-1.678***	-0.088***
	(0.022)	(0.001)	(0.022)	(0.001)	(0.022)	(0.001)
Ln(Maturity)	-1.766***	-0.093***	-1.766***	-0.093***	-1.766***	-0.093***
	(0.042)	(0.002)	(0.042)	(0.002)	(0.042)	(0.002)
Irregular	-0.098*	-0.005*	-0.098*	-0.005*	-0.098*	-0.005*
	(0.052)	(0.003)	(0.052)	(0.003)	(0.052)	(0.003)
Ln(Sector competition)	-0.663***	-0.035***	-0.665***	-0.035***	-0.664***	-0.035***
	(0.051)	(0.003)	(0.051)	(0.003)	(0.051)	(0.003)
Ln(Region competition)	-0.830***	-0.044***	-0.830***	-0.044***	-0.830***	-0.044***
	(0.041)	(0.002)	(0.042)	(0.002)	(0.042)	(0.002)
Controls (W3)						
Rating	0.388***	0.020***	0.390***	0.021***	0.388***	0.020***
	(0.017)	(0.001)	(0.017)	(0.001)	(0.017)	(0.001)
Intercept	28.636***		28.648***		28.648***	
	(0.423)		(0.423)		(0.423)	
Wald χ^2-test	22240.71		22258.03		22246.27	
p-value	0.00		0.00		0.00	
Log pseudo-likelihood	-33454.47		-33450.05		-33451.19	
Wald χ^2-test (W1)	41.24		41.55		41.25	
p-value (W1)	0.00		0.00		0.00	
Wald χ^2-test (W2)	10938.38		10940.43		10939.80	
p-value (W2)	0.00		0.00		0.00	
Wald χ^2-test (W3)	518.46		522.25		518.12	
p-value (W3)	0.00		0.00		0.00	
McFadden's Pseudo R^2	0.32		0.32		0.32	

Robust standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. Country, year, and industry variables were included but are not reported. The sample contains 181,929 observations, AME = average marginal effects.

**Table 3.** Estimates of interaction effects at representative (MER) values

	Coefficient	Standard Error	z-statistic
Panel A: RE*Female			
FE=1 (Base outcome is FE=0)			
RE=0	0.085***	0.002	47.25
RE=1	0.072***	0.005	13.17
Panel B: PE*RE			
RE=1 (Base outcome is RE=0)			
PE=0	0.028***	0.003	10.33
PE=1	0.039***	0.005	7.90

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. The sample contains 181,929 observations.

Table 4. Marginal effects of change (Norton, 2004)

	Coefficient	Standard Error	z-statistic
Panel A: RE*FE			
FE=1 (Base outcome is FE=0)			
Interaction effect (FE*RE=1)	-0.013***	0.006	-4.262
Panel B: PE*RE			
RE=1 (Base outcome is RE=0)			
Interaction effect (PE*RE=1)	0.010	0.005	1.390

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. The sample contains 181,929 observations.
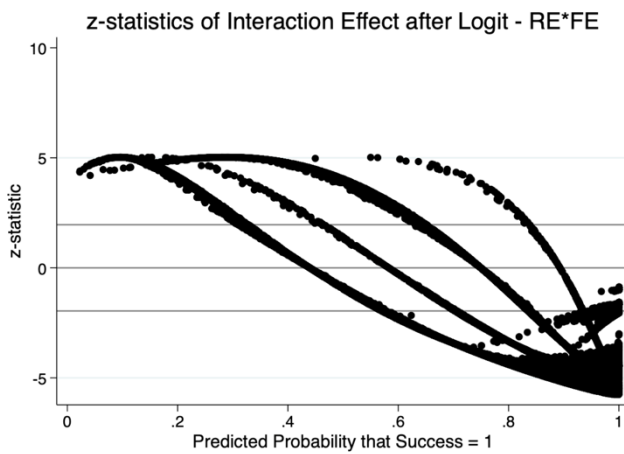
Figure 1. Z-statistics for the RE*FE interaction.
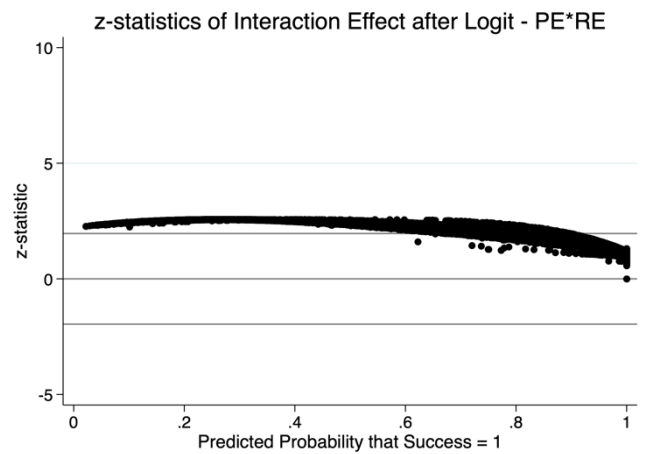
Figure 2. Z-statistics for the PE*RE interaction.