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Digital Microfinance Crowdfunding for Disconnected Women Entrepreneurs in India

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Abstract

This paper advances the knowledge on digital microfinance crowdfunding for women entrepreneurship and development by comparing environment and project factors in India. The empirical evidence is based on projects enacted by 626 poor and digitally disconnected women borrowers listed in *Rang De*, India's first digital social enterprise platform for crowdfunding and microfinance. The findings show that, even when the borrowers are digitally and socially disconnected from their funders, success is more a result of environmental factors than of project-specific characteristics. This differs from what is suggested by developed country crowdfunding research in regard to the importance of proximity and direct links between borrowers and investors. The importance and gender-specific role played by intermediaries in relation to digitally disconnected borrowers is also acknowledged, driving more attention to gender equality and to the digital divide for access to finance.

Keywords: microfinance, women entrepreneurs, developing countries, entrepreneurship networking, access to finance, digital inclusion

1. Introduction

Although microfinance and women entrepreneurship have been linked to empowerment (Swain & Wallentin, 2009), there is a clear debate on whether entrepreneurship really helps women (Martinez Dy, Martin, & Marlow, 2018). Studies on women entrepreneurship have looked at the role played by the size of the loans they are able to take (Mahmood, Hussain, & Matlay, 2014), support from nongovernmental organisations (Biswas & Rao, 2014), and general livelihood programmes (Ukanwa & Anderson, 2018). Although these studies—which confirm that, in developing countries, the empowerment of women through digital inclusion and entrepreneurial finance is a complex phenomenon—tend to look at market and institutional forces, they often ignore the entrepreneurial aspects of borrowers in general, and of women entrepreneurs in particular.

Although we know that micro-entrepreneurship has positive effects on the economic and social development of the poorest members of society (Vial & Hanoteau, 2015), we have limited knowledge of the influence of digital connectivity (Ilavarasan, 2019). For example, although studies on digital crowdfunding, crowdfunding, social capital, and signalling success factors in network environments do exist (Ahlers, Cumming, Günther, & Schweizer, 2015; Courtney, Dutta, & Li, 2017; Kromidha & Robson, 2016), they are often based on developed country digital platforms and projects. Despite the fact that, in online social media such as Facebook, YouTube, or LinkedIn, electronic word of mouth plays an important role in crowdfunding success (Fietkiewicz, Hoffmann, & Lins, 2018), this level of connectivity cannot always be achieved in developing countries. Similarly, although, owing to the increase in demand, the forces of globalization are believed to enhance the welfare of poor, marginalized individuals in developing countries, there is however the risk of these individuals not benefitting from this state of affairs due to a lack of knowledge or of the resources required to keep up with the dynamics of the commercial environment (Bhensdadia & Dana, 2004).

Research has shown that, in the developing world, women can achieve more by combining entrepreneurial motivation and digital technologies (Chew, Ilavarasan, & Levy, 2015); however, research on the related conditions, opportunities, and support for entrepreneurial success remains limited (Caputo, Mehtap, Pellegrini, & Alrefai, 2016). Digital inclusion and entrepreneurial economic development are related through networks of international development, governments, borrowing, philanthropism, and FinTech companies (Gabor & Brooks, 2017). In this new context,

financial technology, or FinTech, is disrupting the highly regulated banking and finance sectors through the design and delivery of new financial products and services through technology (Leong, Tan, Xiao, Tan, & Sun, 2017). Entrepreneurship, on the other hand, can drive economic growth, competitiveness, and employment (Thurik & Wennekers, 2004). Digital crowdfunding, a new FinTech mechanism, is creating new opportunities for peer-to-peer entrepreneurial finance by enabling numerous lenders to allocate small amounts of money in support of entrepreneurial ventures or projects. Although crowdfunding can help those who are unable to obtain external finance support from traditional sources such as banks (Nigam, Mbarek, & Benetti, 2019), more critical research is needed on the factors that affect success factors in developing countries, which are often characterised by disconnected and often inexperienced borrowers.

Microfinance crowdfunding for entrepreneurship can help with the creation of social value through social venturing (Meyskens & Bird, 2015). Many previous studies on microfinance are based on Kiva.org, a US-based platform that helps poor entrepreneurs with humanitarian loans made by individuals (see, e.g., Schwittay, 2019). However, there is limited empirical evidence on the impact of crowdfunding (Bruton, Khavul, Siegel, & Wright, 2015), especially in the context of disconnected women borrowers and development. This study intends to shed some light on this by looking at the success factors in microfinance for digitally disconnected women borrowers.

2. Research context

This study is based on Rang De, India's first digital social enterprise and digital platform for microfinance crowdfunding (Masiero & Ravishankar, 2018), which mainly supports women (86% at the time of the study) who are often disconnected from digital and financial means. This platform enables private individuals or investors to allocate very small amounts of money to fund the projects listed on it by microentrepreneurs. The platform focusses on microentrepreneurs who are unable to offer the collateral security needed to obtain loans from traditional channels like banks and private lending institutions. These microentrepreneurs are also likely to be digital have-nots. Their access to the Rang De platform is made possible by local non-governmental organizations (NGOs) called 'impact partners'. The information on the projects that seek funds is uploaded to the Rang De platform, which then advertises on multiple channels and engages with news channels to extend its reach.

Rang De charges an 18% annual interest rate, with a load that decreases with every part repayment made by the recipients. Investors, who can either withdraw or reinvest in the platform, and the NGOs each get a 7.2% interest return on successful repayment by the recipient. These returns are marginally higher than those on fixed deposits in traditional banks¹. The platform offers small-size crowdfunded loans that usually range from INR 5,000² (~ USD 77) to INR 40,000 (~ USD 615). The contributors have the choice to lend amounts as small as INR 100 to accomplish the mission. At the time of this study, about 250,000 USD were being crowdfunded.

India is a fast growing, developing economy. However, the country's per capita income is still much lower than that found in developed nations. Micro, small and medium enterprises contribute roughly 25% of the GDP, and informal microenterprises contribute most of the overall employment. Five years ago, more than 90% of the active workforce was employed in the informal sector (Ilavarasan, 2019). The scope of entrepreneurship in India is influenced by a number of factors such as government policies, social structure, culture, etc. (Dana, 2000). The challenges involved in engaging in entrepreneurial activities in India are further aggravated for women, given the lack of availability of the right resources and of adequate familial and societal support. In spite of these challenges, the number of women entrepreneurs and micro-entrepreneurs in India continues to grow, especially with the significant assistance provided by micro-financing schemes (Dana, 2014).

The choice of Rang De as the setting for this study was made in consideration of its network roots and financed projects in the Indian environment. We analysed the data on Rang De's women-led projects at both the environmental and project levels; an approach that was suggested by Bruton et al. (2015) as a future research agenda. Given the significantly high failure rate of crowdfunding projects (Forbes & Schaefer, 2017) and the issues surrounding women entrepreneurship and financial capital (Orser, Riding, & Manley, 2006; Rouse & Jayawarna, 2006), our research was focussed on the underlying project and environment factors of successful projects for development. By focussing on a crowdfunding platform for women and on its supporting gender-specific network, this study was aimed at addressing the gender-equality issues related to entrepreneurship and development via digital platforms.

¹ Further details are at: <https://rangde.in/faqs>

² At the time of the study, the exchange rate was INR 65 = 1 USD.

3. Theoretical approach, variables, and hypothesis

3.1. Conceptualising on Digital Microfinance Networks for Development

In this study, networking theory was adopted to explain the relationship between entrepreneurship, innovation, and regional development. In practice, entrepreneurial ecosystems are presented in order to explain the persistence of high-growth entrepreneurship within regions (Spigel, 2017; Rocha, 2004). Crowdfunding environments resemble entrepreneurial ecosystems or clusters in terms of borrowers, funders, agents, and the confined environments of digital platforms.

The role played by networks for development is highlighted from different vantage points—global production (Coe & Yeung, 2015), digital technologies (Castells, 2011), and culture (Robertson, 1992). Yet, many legal, operational, marketing, and sustainability issues persist (Koku, Marakkath, & Attuel-Mendes, 2015). Similarly, crowdfunding opportunities and success are sensitive to distance (Guenther, Johan, & Schweizer, 2018) and economic regional development (Agrawal, Catalini, & Goldfarb, 2015). It has also been posited that, when studying and understanding the nuances of entrepreneurship, it is crucial to focus on environmental and cultural influences, along with their individual or personal aspects (Dana & Dana, 2005). What could contribute to knowledge is the opportunity offered by digital crowdfunding platforms, thanks to the public and structured information about projects, partners, and the network they make available.

Moving from the macro level of entrepreneurial networks to the individual one of crowdfunding projects, structural embeddedness can explain the configuration of relationships, and relational embeddedness can explain their quality (Moran, 2005). A previous research study conducted on crowdfunding and involving 76,329 funders of 134 3D printing projects found that the knowledge exchanges that occur between funders and entrepreneurs mediate the junctional, structural, and positional embeddedness (Lu & Fulk, 2017). In addition, both formal (e.g., business contractors) and informal (e.g., family and friends) networks also play an important role in the growth of small firms (Coviello & Munro, 1997). In this context, research on microfinance for women borrowers identifies the key dimensions related to financial instruments (Mahmood, Hussain, & Matlay, 2014), government policy and non-government players (Biswas & Rao, 2014) and the social livelihood context (Ukanwa & Anderson, 2018). This has important implications in the context of crowdfunding and microfinance for entrepreneurial networks.

The developing country context selected for this study also differs from that of the developed world, where network resources are linked to the proximity of those seeking funds (Drover et al., 2017). Crowdfunding research should also give more consideration to informal business contexts (Williams, Martinez-Perez, & Kedir, 2017). Formal-informal contexts seem to be related to the maturity of the people running businesses (Babbitt, Brown, & Mazaheri, 2015). Microfinance crowdfunding networks can thus be understood as a combination of environment and project financing factors.

Women are increasingly engaging in entrepreneurship activities in family-run firms and in developing countries, but this reality is not easy and is fraught with challenges. For instance, Ramadani, Dana, Sadiku-Dushi, Ratten and Welsh (2017) offered insights into the decision making challenges found in the family business succession processes faced by the women entrepreneurs or into the impact of mobile phones on the microenterprises owned by women in the developing world (Chew, Ilavarasan, & Levy, 2015). Engaging in entrepreneurship activities can also enhance the leadership of women in family businesses (Palalić, Ramadani, Dana, & Ratten, 2017) and their succession prospects (Ramadani, Hisrich, Anggadwita, and Alamanda, 2017). However, in the developing world, financial access seems to be limited for women microentrepreneurs.

The constraints affecting access to finance for borrowers, and especially for women in developing countries, are complex (Mahajan & Ramola, 1996). Within a formal setup, women seem to be more likely than men to receive loans at lower interest rates, but social capital and informal network relationships play important roles (Pham & Talavera, 2018). However, access to formal lenders is difficult for women, and their businesses suffer due to lack of capital and networks (EY, 2014). A research conducted on Kickstarter, a US-based crowdfunding platform (Marom, Robb, & Sade, 2016), showed that, although women constituted up to 44% of the investors and enjoyed higher rates of success in funding their projects, only about 35% of them were project leaders. Evidence from Germany, on the other hand, showed that gender has no effect on the borrowers' chances of receiving funds (Barasinska & Schäfer, 2014). These studies highlight the complexity of the gender issues and of access to finance in developed and developing countries. This paper also represents an attempt to respond to a theory-building call for greater integration between process and outcome-oriented research in network-based studies on entrepreneurship (Hoang & Antoncic, 2003). To do so, we extracted and analysed the success

factors of 725 projects in the digital crowdfunding platform *Rang De*. As recommended by Bruton et al. (2015), we examined the projects at both the environmental and individual levels.

3.2. Variables and hypotheses

3.2.1. Dependent Variable, Research Context and Framework

The dependent variable for this study is the percentage of funds raised for microfinance crowdfunding in the form of loans taken by women entrepreneurs. Unlike other studies, which are focussed on microfinance for women empowerment, this study looks at the underlying environmental and project factors that influence successful funding. We extracted project records for a total of 725 borrowers who were crowdfunding at the time of this study, but we focussed our analysis on the 626 of them who were women. The platform's social entrepreneurship mission is to help borrowers—rather than to make a profit—whereby pro-poor technologies are employed to fill any institutional voids in finance (Masiero & Ravishankar, 2018). Borrowers can take any amount that is raised, which makes it different from the all-or-nothing lending model. However, partial funding can present risks for both investors and borrowers, as the availability of fewer resources than intended may result in project failures (Kiva Blog, 2018). On the other hand, Rang De's model can be considered more transparent than that of the Kiva platform, in which the difference between the required and given amounts is sometimes covered by the platform itself in order to keep the listed repayment rate—which Kiva does not often disclose—high for marketing purposes (Roodman, 2009). Therefore, this study uses the percentage of funds raised to paint a clear picture of the status of the projects on the Rang De platform, as opposed to just categorising the projects as 'successful' and 'unsuccessful'. The schematic representation of the independent variables we explored through our hypotheses is given in Section 1:

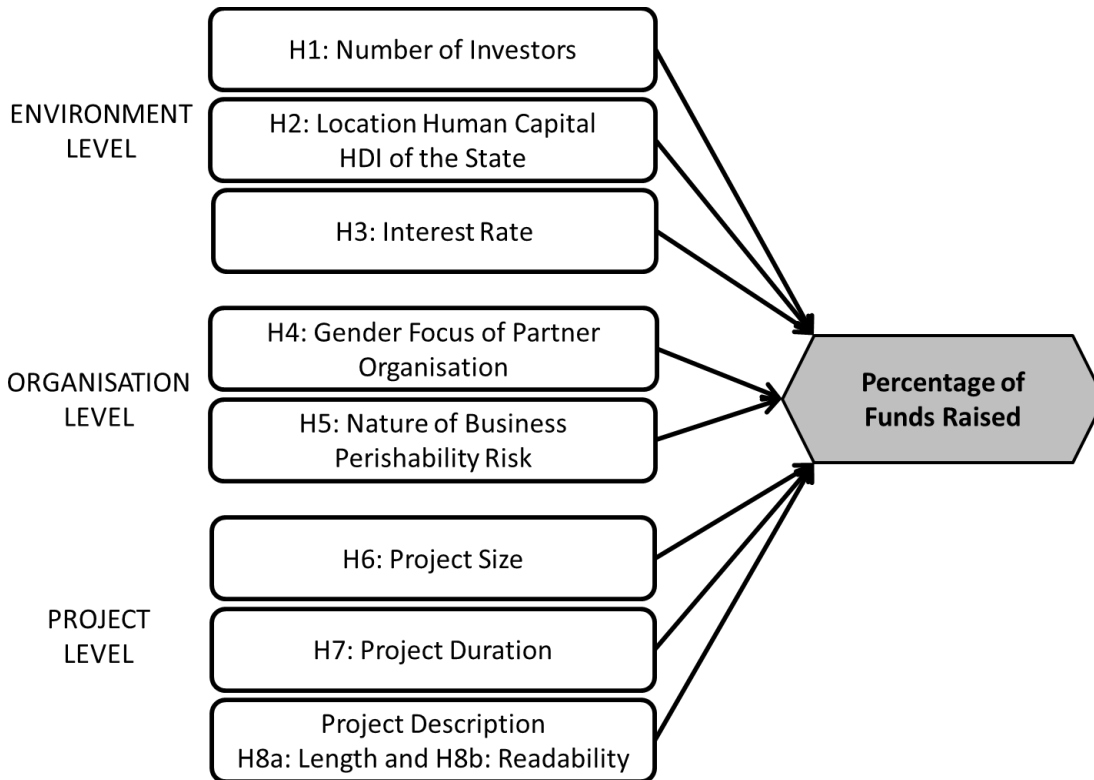


Figure 1: The determinants of success levels in crowdfunding networks for development

3.2.2. Independent Variables: The environment level

Number of Investors – This essentially refers to the number of investors who had contributed to the crowdfunding project at the point of observation. The establishment of a network of supportive relationships and the mobilisation of financial resources is essential to a new venture’s success (Steier & Greenwood, 2000). The success of a project is positively determined by the number of investors (Ahlers et al., 2015). But a greater number of investors does not necessarily mean more funding, because that also depends on the amount given by each investor as a loan. In digital platforms, fundraisers compete for investors (Ly & Mason, 2012), and the number of investors is considered to be a measure of network size, which is a function of the environment’s perception of each project. Therefore, we hypothesise that the higher the number of investors attracted by a project, as an environmental measure in the crowdfunding network, the better the chances of raising the required funds.

Hypothesis 1. *The number of investors is positively correlated to the percentage of funds raised.*

Location Human Capital: Human Development Index of the State – The Human Development Index (HDI) has been used as a reference measure. It is based on human capital indicators such as life expectancy, education, and per capita income (Wu, Fan, & Pan, 2014). Similarly, the Global Entrepreneurship and Development Index (GEDI) (Acs, Szerb, & Lloyd, 2017) is built on the HDI indicators. The GEDI has been used to measure regional entrepreneurship network ecosystems in earlier research (Acs, Szerb, Ortega-Argilés, Aidis, & Coduras, 2015), while the concept of the HDI has not been used in crowdfunding research. There is limited evidence of its positive relationship with microfinance in post-conflict areas (Allden, 2009) and of how it impacts governance and strategic decisions in microfinance institutions (Mersland & Strøm, 2009). In this study, the Indian states have been categorised into high, medium, and low HDI. We assume that high HDI states will have better business-supporting ecosystems.

Hypothesis 2. *The HDI of the state in which a proposed project is located is positively correlated to the percentage of funds raised.*

Interest Rates – The role played by interest rates or commissions in digital crowdfunding is an under-researched area of study. Whereas some platforms charge a flat rate on all projects—e.g., Kickstarter (5%)—Rang De’s interest rates vary from project to project, which affects the interest that the borrowers must pay on the loans taken. Studies have shown that investors treat crowdfunding as an act of philanthropy and do not expect high financial returns. (Agrawal, Catalini & Goldfarb, 2015). Earlier research showed that many individuals turn to peer-to-peer crowdfunding and lending because of the low interest rates paid on traditional saving accounts (Bruton et al., 2015). However, crowdfunding platforms like Rang De, which have a charitable or social entrepreneurship scope, apply interest rates that are very small, if they apply any at all, with most of the interest charged going to the partner managing the loan; thus, investors must be motivated by other reasons. Research shows that investors consider outcome-related factors when funding organisations and are influenced by interaction-related factors when giving to individuals (Gleasure & Feller, 2016).

Hypothesis 3. *The interest rate is negatively correlated with the percentage of funds raised.*

The Gender Focus of Partner Organisations – Although women entrepreneurs face difficulties in receiving funding from traditional sources such as banks (Marlow & Patton, 2005),

they are more successful than men in raising it through crowdfunding (Posegga, Zylka, & Fischbach, 2015) (Kiva Blog, 2018). Non-governmental organizations (NGOs) serve as intermediaries in connecting low educated women entrepreneurs and platforms (Ly & Mason, 2012). Rang De has information about whether its partner NGOs focus on the women development domain. Therefore, we explored whether those partners who work specifically for women have a better success rate.

Hypothesis 4. *Gender-specific partners perform better than gender-neutral ones in terms of percentages of funds raised.*

3.2.3. *Independent Variables: the project level*

The Nature of the Business: Perishability Risk – The level of risk or uncertainty is a crucial discriminating factor in investors’ decision making (Ahlers et al., 2015; Guenther et al., 2018). The nature of the business listed indicates the type of activities involved in it. We categorised the projects as either Low- or High-risk. The latter involved perishable goods or activities—for instance, fruit reselling or goat rearing—that are affected by simple climatic changes. Grocery shops or welding businesses involve at least some non-perishable goods and were treated as low-risk. We hypothesised that investors would be more likely to contribute to low-risk businesses.

Hypothesis 5: *The risk of perishability in the nature of a business is negatively correlated to the percentage of funds raised.*

Project Size – This refers to the total amount of funds that a crowdfunding project aims to raise. A study on reward-based crowdfunding (Kuppuswamy & Bayus, 2017) shows that crowdfunding support decreases once a project reaches its target. On the other hand, in lending-based crowdfunding, under-capitalisation—i.e., partial funding in the presence of targets that are too high—can be a risk and lead to project failure due to fewer resources than needed being available (Kiva Blog, 2018). Therefore, we proposed that higher project loan amount requirements are negatively associated with the percentages of funds raised.

Hypothesis 6. *Project size is negatively correlated to the percentage of funds raised.*

Project Duration – Research has revealed that the length of time during which a project is live significantly impacts the fund raising process. Longer durations primarily provide more opportunities in terms of attracting funds and therefore afford projects with better chances of success (Burtch, Ghose, & Wattal, 2013). However, other studies (for instance, Muller, Geyer, Soule, & Wafer, 2014) indicate that longer durations significantly reduce the fundraising project success rate as the confidence levels of potential investors decline.

Hypothesis 7. *The duration of a project is negatively correlated to the percentage of funds raised.*

Project Description – The information conveyed in relation to the projects while seeking funds has been found to affect contributors' decisions (Tu, Anh, & Thu, 2018). The length of (Zhou, Lu, Fan, & Wang, 2018) and the language used in a project description (Parhankangas & Ehrlich, 2014) seem to influence potential investors. For each project's description, we calculated the length (total number of words) and the simple measure of gobbledygook (SMOG) Readability Index (McLaughlin, 1969).

The SMOG Index is a measure of how well-written a text is in terms of its readability and clarity. This measure considers the total number of words, sentences, and polysyllables in a text. The SMOG Index provides an estimate of the number of years of education an individual requires to comprehend it. We proposed that the readability index is positively correlated to raising higher percentages of funds.

Hypothesis 8a. *The length of a project's description is positively correlated to the percentage of funds raised.*

Hypothesis 8b. *The readability of a project's description is positively correlated to the percentage of funds raised.*

4. Methodology

For this study, we used a secondary dataset of 725 live crowdfunding projects—including 626 women borrowers—extracted from the Rang De platform (www.rangde.in) between May and June 2018. This was the maximum amount of data in the public domain we were able to externally extract from the platform. Rang De has set up a network of field partnerships with NGOs and Micro-Financing Institutions in over ten Indian states to reach out to poor and disconnected women

borrowers. The data were analysed using SPSS 24 and multiple linear regression results were obtained. The variables taken in the study are defined as follows:

Dependent Variable: *Percentage of Funds Raised* – The percentage of the amount of funds raised in relation to the total of those requested in a crowdfunding project. It was calculated as below:

$$(\text{Amount of funds raised} / \text{Amount of funds requested}) * 100$$

Independent Variables:

Number of Investors – The total number of individuals who had invested in a crowdfunding project.

Duration – The number of days a crowdfunding project had been live on the Rang De platform.

Geographical Location – Ranked in three groups (High, Medium, and Low) based on the Human Development Index of the Indian state in which the crowdfunding project had been set up. Low HDI was scored as 1, Medium as 2, and High as 3.

Nature of Business – The types of businesses for which the funds had been requested were categorised as either Low- or High-risk based on the levels of risk they involved. Low-risk was scored as 1 and High-risk as 2.

Project Size – The total amount of funds (in INR) that had been requested for a crowdfunding project.

Rate of Interest – The interest rate at which the funds were to be provided for the business.

Partner NGO – The NGOs that work with Rang De as field partners were grouped into two categories—Gender-specific (those that work only with women) and Gender-neutral (those that are open to everyone). Gender specific NGOs were scored as 1 and Gender neutral ones as 0.

Project Information – The information provided on the crowdfunding projects was analysed based on two factors—Description length and Description SMOG Readability Index. Description length measured the total number of words. The SMOG Index was calculated using the following formula:

$$\text{SMOG Index} = 1.043 * \sqrt{(\text{Total polysyllables} * 30 / \text{Total sentences})} + 3.1291$$

5. Findings

5.1. *Sample description*

Out of 626 crowdfunding projects analysed, most of the borrowers were Hindus (93.8%), followed by Muslims (5.8%) and by an almost negligible representation of Christians (0.5%). Moreover, based on the purpose for which the funds were required, we found that most of our sample individuals needed to borrow money for cattle rearing (45.2%), farming (10.2%), grocery selling (12.3%), tailoring (8.6%) and starting other small businesses (23.6%). The project size ranged from INR 10,000 (USD 153.8) to INR 35,000 (USD 538.5) with a mean of INR 19,014 (USD 292.5) and a standard deviation of INR 8,607.9 (USD 132.4). The high standard deviation value indicates a wide range of funds needed. The mean amount raised was INR 2,485 (USD 38.2). The mean value of the remaining (not raised) amount was INR 16,529 (USD 254.3). The low ratio between the raised and needed amounts infers a low project success rate. The mean number of days allocated to raise the balance money (10.5 days) was also low, reinforcing the same inference. Most of the projects were in states with low HDI rankings. The mean number of investors, also called changemakers, was close to five. The projects clearly needed to increase the number of change makers to reach their requested funding.

Table 1: Descriptive statistics for the variables in this study

Variables	Sample	Range (INR)		Mean	
		Minimum	Maximum	Mean	Std. Dev.
Amount of Funds Raised	626	0	30200	2485.14	3450.229
Nature of Business		1	2	1.56	.496
No. of Days Left		0	39	10.57	12.651
Remaining Amount of Funds		500	34900	16529.23	8579.572
No. of Instalments		12	24	13.62	3.039
Interest (% flat p.a.)		8	10	9.96	.296
Partner NGO		1	2	1.62	.485
Category of State (Based on HDI)		1	3	1.76	.934
SMOG Grade Index		13	21	16.48	1.172
Total Number of Words in Description		79	336	178.02	37.686
No. of Change-makers / Investors	537	1	89	4.47	5.055
Business domains	626	Cattle rearing (45.2%), farming (10.2%), grocery selling (12.3%), tailoring (8.6%), and other small businesses (23.6%).			

A person product-moment correlation was conducted (Table 2) to understand the association between the variables. The dependent variable, *percentage of total amount raised*, was positively associated with *no. of investors*, *category of state (HDI)* and *total no. of words in project description*. It was negatively associated with *nature of business*, *project size* and *project duration*. Lastly, the dependent variable did not have a significant association with the remaining three independent variables, *interest rate*, *partner NGO* and *SMOG grade index*.

Table 2: Multiple Pearson product-moment correlation of variables

No.	Variable	1	2	3	4	5	6	7	8	9	10	Mean	Std. Dev.
1.	No. of Investors	1										4.47	5.055
2.	Category of State (Based on HDI)	-0.027	1									1.76	0.934
3.	Interest (% flat p.a.)	0.002	0.122**	1								9.96	0.296
4.	Partner NGO	-0.072	0.103*	0.194**	1							1.62	0.485
5.	Nature of Business	0.084	-0.092*	0.172**	0.104**	1						1.56	0.496
6.	Project Size	0.221**	0.270**	0.123**	0.196**	0.458**	1					19014.38	8607.984
7.	No. of Days Left	-0.423**	-0.102*	-0.064	-0.218**	-0.194**	-0.279**	1				10.57	12.651
8.	SMOG Grade Index	-0.003	0.071	0.101*	-0.019	-0.046	0.014	0.094*	1			16.48	1.172
9.	Total number of words in description	0.033	0.008	-0.019	0.035	-0.128**	-0.073	-0.137**	0.111**	1		178.02	37.686
10.	Percentage of Amount Raised	0.578**	0.119**	-0.063	-0.024	-0.188**	-0.089*	-0.509**	0.011	0.138**	1	13.50	19.104

A multiple regression analysis was conducted to examine whether the nine independent variables predicted the percentage of funds raised in the crowdfunding projects (Table 3). The regression equation for the hypothesised model was found to be statistically significant { $F(9, 527) = 76.739, p < 0.001$ } with an adjusted R^2 of 0.560. We found that 56% of the variance in the dependent variable could be explained by the set of independent variables taken in the model. These results also revealed that most of the independent variables significantly influenced the percentage of funds raised.

There was no multi-collinearity issue in the dataset. The tolerance statistics needed to be above 0.2 and variance inflation factor (VIF) less than 10 (Field, 2009). For all the independent variables, the range of tolerance statistics was 0.340 to 0.970 and range for VIF was 1.003 to 2.939. The higher explained variance, R^2 also indicated the robustness of the model.

Table 3: Multiple regression results to predict the amount of money raised

Model	Non-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	57.088	22.022		2.592	0.010
No. of Changemakers / Investors	1.970	0.128	0.504	15.366	0.000
Category of State (Based on HDI)	3.008	0.647	0.144	4.651	0.000
Interest (% flat p.a.)	-3.684	2.187	-0.050	-1.685	0.093
Gender Specific NGO or Not	-1.167	1.250	-0.028	-0.933	0.351
Nature of Business	-8.109	1.447	-0.203	-5.603	0.000

Project size	-0.001	0.000	-0.257	-7.103	0.00 0
No. of Days Left / Project duration	-0.722	0.068	-0.353	-10.565	0.00 0
SMOG GRADE INDEX	0.760	0.495	0.045	1.537	0.12 5
Total number of words in description	-0.001	0.015	-0.002	-0.077	0.93 9

Note: $F(9, 527) = 76.739, p < 0.001$; Adjusted $R^2 = 0.560$

5.2. Environmental Level Findings

Hypothesis 1 suggested that the number of investors in a crowdfunding project will be positively correlated with the percentage of funds raised. The regression results revealed that the number of investors contributing to a project does have a significant positive influence on the percentage of funds raised ($\beta = 0.504, p < 0.01$). In other words, greater numbers of investors result in higher amounts of funds generated. If the total size of a project is small, it appears that contributions are small size as well. There is also the possibility of an investor making a large contribution to a project, thus contradicting the above observation. However, this study's dataset did not support the same.

Hypothesis 2 stated that a higher HDI of the state in which the crowdfunding project is being carried out will result in a higher percentage of funds raised. The regression results showed a positive relation between the two variables ($\beta = 0.144, p < 0.01$).

Hypothesis 3 suggested that the interest rate will be negatively associated with the percentage of funds raised in a crowdfunding project. However, the regression results revealed that the association between the interest rate and the percentage of funds raised is negative and not significant ($\beta = -0.050, p > 0.05$).

Hypothesis 4 stated that gender-specific partners will perform better than gender-neutral ones in terms of the percentage of funds raised in a crowdfunding project. However, the results showed otherwise, the association between the variables is negative and not significant ($\beta = -0.028, p > 0.05$).

5.3. Project Level Findings

Hypothesis 5 suggested that the perishability risk inherent in the nature of the business will be negatively associated with the percentage of funds raised in a crowdfunding project. The results demonstrated a significant negative correlation, with higher risk crowdfunding projects raising lower percentages of funds ($\beta = -0.203$, $p < 0.01$).

Hypothesis 6 stated that project size will negatively influence the percentage of funds raised in a crowdfunding project. The regression results showed a statistically significant relation whereby higher loan amounts required for projects result in lower percentages of funds raised ($\beta = -0.257$, $p < 0.01$).

Hypothesis 7 proposed that crowdfunding project duration will be negatively associated with the percentage of funds raised. The results showed a negative correlation between crowdfunding project duration and the percentage of funds raised ($\beta = -0.353$, $p < 0.01$).

Hypotheses 8a and **8b** proposed that project description length and readability will be positively associated with the percentage of funds raised in a crowdfunding project. However, the results indicated that neither factor—length nor readability—is significantly correlated to the percentage of funds raised ($\beta = 0.045$, $p > 0.05$; $\beta = -0.002$, $p > 0.05$, respectively).

6. Discussion

6.1. Environmental Level Factors

The significant environmental variables that play a role in the success of microfinance crowdfunding entrepreneurship for women in India confirm the potential of digital crowdfunding platforms to create and support entrepreneurial ecosystems within regions (Spigel, 2017; Rocha, 2004). Indeed, opportunities and success are sensitive to economic regional development (Agrawal, Catalini, & Goldfarb, 2015); therefore, environmental and cultural influences play an important role over the individual or personal aspects (Dana & Dana, 2005) of entrepreneurs. This study revealed that, even when women entrepreneurs are digitally disconnected, environment and ecosystem forces can still enable microfinance resources to reach them. For example, this study, consistently with previous research (Ahlers et al., 2015), shows that the number of investors in a crowdfunding project is statistically significantly and positively correlated to the percentage of funds raised, and thus to the likelihood of project success.

The human capital associated with the geographical location of crowdfunding projects—which we categorised into three groups based on the HDI of the Indian state in which each project was located—also significantly impacts their success. The results confirmed that the HDI of the geographical location is directly related to crowdfunding success in terms of funds raised. Some interpretation of this result can be found in the relationship between lender-borrower proximity and intentions to invest (Agrawal, Catalini, & Goldfarb, 2011).

Additionally, a high state HDI is indicative of stable living standards in terms of life expectancy, education, and per capita income, which probably inspires confidence in investors. The study showed that the percentage of funds raised is not related to interest rate, which can be explained by lenders considering their loans as philanthropic acts, rather than investments (Agrawal et al., 2015). Rang De projects yield no or minimal interest to the investors, but the total interest rates charged to the borrowers are made public. There is also a possibility that higher interest rates may result in loss of trust among investors for being linked to higher likelihood of non-repayment of funds and, therefore, increased risk in investment.

Interest rates are an environmental factor made up of various components related to the investors, the partners, the platforms, and contingencies. These rates are mainly imposed to cover the transaction costs of the intermediary partners and Rang De's own, so we expected them to matter; the breakdown for each stakeholder is specified as a transparency mechanism. Even disregarding outcome-related factors, Rang De investors still contribute despite the fact that they do not and cannot interact with the borrowers, contrary to what previous research suggested (Gleasure & Feller, 2016); however, this seems to not be directly related to the interest rate, but to other factors. This appears to be a unique characteristic of crowdfunding in developing countries, where a sense of empathy with the borrowers is created even in the absence of any interaction with them. Social capital is converted into the economic capital transferred from investors to borrowers, although the two parties do not know each other and cannot communicate directly. The digital crowdfunding platform and its intermediaries are essential to make this work within regional boundaries, overcoming connectivity limitations and establishing trust.

This study supports that gender norms do not hinder women from finance (Kusimba, 2018). The partner organisations that work with Rang De belong to two categories: those that work specifically for the emancipation of women and those that are open to everyone. Although we hypothesised that the partner organisations that work for women will fare better, our regression

results revealed otherwise. This may be because women in India are still struggling against widespread biased social attitudes and are primarily treated as homemakers and not as breadwinners. This results in the lack of support they face in the pursuit of their dreams. Moreover, many Indian women are uneducated or financially dependent, which puts them in a vicious cycle of lack of money and resources. These findings are strongly influenced by a developing country environment like that of India; thus, more comparative research is needed to gain a better understanding of the differences between this context and those of developed countries.

6.2. Project Level Factors

The significance of project level factors highlighted in this study can be explained by the structural and relational embeddedness that conditions relationships among stakeholders (Moran, 2005). In the relationship between lenders and microfinance women borrowers, which is mediated by the digital platform and agent intermediaries, perceived risk and perishability seem to be important. This research shows that less risky business opportunities based around non-perishable goods are more likely to succeed in receiving funding, which is consistent with previous studies (Ahlers et al., 2015; Guenther et al., 2018). Harms (2010) posited that an investor's positive intent to contribute to a crowdfunding project is substantially influenced by the level of certainty of the project's outcome, in addition to other factors such as economic and personal benefits.

Interestingly, this study reveals two facets of networking embeddedness that depend on the nature and scope of the project relationships. We know that, in reward-based crowdfunding, the innovativeness of an idea and its replicability, which can be associated with higher risk, are positively related to success (Schwienbacher, 2015). However, in our case of women entrepreneurship microfinance and lending, successful lending is related to less perishable and therefore less risky projects. This can be explained both by Rang De's charitable and social entrepreneurship focus and by its developing country context, in which the sustainability and stability that are embedded in less-perishable projects are seen as desirable.

We proposed and investigated three variables that could be used to determine project-level embeddedness, opportunities, and success in the network: project size, project duration, and project description. Their study supports the existence of structural embeddedness in the configuration of relationships and of relational embeddedness (Moran, 2005) in crowdfunding projects. As a structural element, project size has a negative influence on the percentage of funds raised; a finding that is similar to those of earlier reward-based crowdfunding studies (Mollick,

2014) or other lending platforms (Kiva Blog, 2018). This may be primarily because projects requiring lower funding are attractive to investors.

Project duration has a significant and negative influence on the percentage of funds raised. This clarifies the debate found in previous studies, with some suggesting that longer project durations provide more opportunities by attracting funds for higher chances of success (Burtch et al., 2013), and others suggesting that longer project durations reduce fundraising success rates by projecting lower confidence levels (Muller et al., 2014). The findings from this study can be explained by the fact that longer project durations somehow might diminish investor confidence and motivation, thus leading to project failure.

Lastly, this study's results revealed the statistical insignificance of the influence of the length of and the language used in the project description on the percentage of funds raised. This contradicts previous studies, which suggested that the length of crowdfunded project descriptions (Zhou et al., 2018) and the language used in them ((Parhankangas & Ehrlich, 2014) influence investor funding decisions. This could be due to several reasons. With the advancement of technology, pictures and videos conveying project information are potentially more powerful in terms of attracting investors than the mere textual stories of the individuals who require the funds (Mollick, 2014). However, in the case of Rang De, many of the business owners are illiterate and have no internet connection. Their project profiles are managed by Rang De or NGOs.

6.3. Crowdfunding as a Network

Most crowdfunding research had hitherto focussed on either project success factors or environmental ones. This study brought these two dimensions together in a networking theory approach for entrepreneurship and development. It highlighted which of them is more important and which should be addressed in more detail by future research. The discussion builds on debates around entrepreneurship and development (Dhahri & Omri, 2018; Prieger, Bampoky, Blanco, & Liu, 2016), gender discrimination, social capital, and financial constraints for entrepreneurs in developing countries (Pham & Talavera, 2018) in the context of digital platforms.

Entrepreneurship studies link the importance of networks to the idea of entrepreneurial mutuality as a social capital construct (McKeever, Anderson, & Jack, 2014). From an ethical perspective, lending-based crowdfunding involves the risk of making honest entrepreneurs toil in vain, with little left once the loan has been repaid, or enable unscrupulous individuals to default on their loans, reducing value for funders, stakeholders, and society (Hossain & Oparaocha, 2017).

However, in our case, the social capital embedded in the digital social entrepreneurship network serves as both a glue and a lubricant, as suggested by previous research (Anderson & Jack, 2002). The context of entrepreneurial networks and of digital crowdfunding investigated in this research relates these earlier debates to new opportunities and challenges around digital entrepreneurial connectivity for development. Our findings suggest that success in crowdfunding networks located in developing countries is more a matter of environmental positioning than of project-specific characteristics. Informal business contexts can, to a certain extent, explain the differences in crowdfunding between developed and developing countries (Williams et al., 2017). In a developing country context, microcredit creates more jobs than SME financing (Bauchet & Morduch, 2013). As a fundraising medium, platforms like Rang De provide a unique alternative and hold great relevance in a growing economy like India. However, digital crowdfunding platforms are in the nascent stages, and therefore a research focus on better theoretical and practical advancements in the field is required to enable more successful crowdfunding projects. This study reveals that crowdfunding project factors—such as the nature of the business, project size, duration, geographical location, number of investors, and type of partner—have a significant role to play in the percentage of funds raised. Factors such as project description and interest rate were found not to be significant in relation to the percentage of funds raised. Besides supporting the suggestions made by previous entrepreneurship studies in relation to the importance of networks and entrepreneurial mutuality as a social capital construct (McKeever et al., 2014), this study also highlights some of the challenges found in a developing country.

7. Conclusion

This study reveals that entrepreneurship and regional development relationships (Huggins & Thompson, 2015) cannot be understood without taking into consideration the environmental and project level relationships between lenders, borrowers, and intermediary agents. Such relationships are embedded in the structural and relational settings (Moran, 2005) that, in this study, were orchestrated by Rang De, a digital microfinance crowdfunding platform. This finding is important in order to understand the role played by FinTech intermediaries as brokers of formal and informal relationships in networks (Coviello & Munro, 1997).

This study contributes to the research on microfinance, Fin-Tech, and entrepreneurship for development by bringing together the environmental and the project dimensions in the context of

crowdfunding for disconnected women entrepreneurs. The success factors of digital crowdfunding networks for development analysed here provide not only a clearer understanding of networking theory in management, entrepreneurship, and development studies, but also a roadmap for practitioners. This is particularly relevant given the significantly high failure rate of crowdfunding projects in developed countries (Forbes & Schaefer, 2017), but also in the developing nation context of this study.

Uncovering the underlying factors that propel the success of crowdfunding projects for women in particular, and of development more broadly, should inform not only those social investors that support borrowers in digital crowdfunding networks for development, but also policy actors and international financial institutions. What also emerges as important is the role played by the gender-focussed intermediaries—compared to that played by more general ones—that connect borrowers with investors via crowdfunding platforms. The identity of the intermediaries highlighted in this study should be taken in conjunction with the linguistic cues found in entrepreneurial narratives affecting funder motivation to give (Allison, Davis, Short, & Webb, 2015). With this study, we hope to have made a modest contribution in addressing Bruton et al.'s (2015) call for more research and conceptualisation at the macro-environmental, organisational, and individual project levels.

Peer-to-peer and alternative funding policies—which remain problematic in India (Srivastava, Kayalvizhi, & Sagar, 2014) and, more broadly, in developing countries—could benefit from this study. The gender issues related to the connectivity of entrepreneurs, and of women in particular, in this study are highlighted in order to drive more research focus on entrepreneurship and development problems. Although, as this study shows, the environmental context seems to be more important than project characteristics, strategic relations serve as network capital and a bridge between the two dimensions.

Some of our findings could be limited to our interpretation of the variables we were able to extract from the crowdfunding platform to analyse its success factors. A more in-depth research and analysis would be required in order to gain a better understanding of the motives that cause actors to engage, the way they overcome obstacles, and the power of development networks to facilitate the co-creation of capabilities through peer-to-peer relationships. More research and theoretical conceptualisation would be needed in this direction to analyse the importance of conformity and information intermediaries in network entrepreneurship for development. Dana

and Dana (2005) underlined the need for inductive qualitative approaches in entrepreneurship research. Additionally, a future research agenda should also include the ways in which a digital crowdfunding platform for development mediates the identities of the poor and disconnected borrowers or other actors to create an access-to-finance ecosystem. Finally, the ethical implications and long-term effects of every digital innovation and change being implemented on the poor need to be considered while bearing in mind the notion of sustainability and social responsibility.

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