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Microfinance – A Theoretical and Empirical Assessment

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Extended Abstract

This master thesis consists in two chapters addressing the topic of Microfinance. Since the emergence, in the 1970s, of Grameen Bank by the hand of Muhammad Yunus, Microfinance industry has gained a space that results from a path that we can analyse theoretically and empirically.

The first chapter scrutinizes the theoretical framework on the Microfinance topic. Heeding the call for more research on the role of microfinance for achieving social, economic, and financial inclusion, this paper provides a systematic literature review of the growing research domain depicts the current state of this dynamic setting in which scholars and policy makers investigate and develop microfinance practices—especially in relation to entrepreneurial finance. Using a bibliometric analysis, we identify three main dimensions of microfinance that guide academic research: (1) social considerations, (2) economic effects, and (3) the performance of microfinance institutions (MFIs). The study evidences that most literature continues to concentrate on developing countries, reflecting the success of microfinance as an instrument to promote social and economic development, mainly through microcredit programs. In addition, a keyword co-occurrence analysis reveals that despite growing interest in both financial inclusion and entrepreneurship domains, these areas remain underexplored empirically. The results provide promising opportunities for further research, as well as potential routes to extend current theoretical and empirical analyses of microfinance research to developed countries, according to an entrepreneurial finance context.

The second chapter investigates the role of entrepreneurial motivation and repayment performance on credit terms' in the context of Portuguese microcredit industry. Using data from the organization which first promoted and most consistently developed MC in Portugal – ANDC, covering 2,060 micro-loans granted to micro-entrepreneurs/micro-

enterprises between 1999 and 2015, our results show that Portuguese microcredit industry tend to lend higher amounts of credit with longer maturities to entrepreneurs who have lower likelihood of repayment (entrepreneurs moved by necessity). The focus on these riskier entrepreneurs led us to confirming the argument that MC is a prosocial instrument, following its initial belief.

Keywords: Microfinance, microcredit programs, social and economic dimensions, financial inclusion, entrepreneurship, systematic literature review, entrepreneurial motivation, prosocial funding instrument, Portugal

Resumo Alargado

Esta dissertação de mestrado é composta por dois capítulos que abordam o tópico da Microfinança. Desde o surgimento, na década de 1970, do Grameen Bank, pela mão de Muhammad Yunus, a indústria da microfinança tem conquistado um espaço que resulta de um caminho que podemos analisar teórica e empiricamente.

O primeiro capítulo examina o referencial teórico sobre o tópico da Microfinança. Atendendo ao apelo por mais pesquisas sobre o papel da microfinança no alcance da inclusão social, económica e financeira, este artigo fornece uma revisão sistemática da literatura sobre o crescente domínio da pesquisa, descrevendo o estado atual deste cenário dinâmico no qual estudiosos e formuladores de políticas investigam e desenvolvem práticas de microfinança - especialmente em relação ao financiamento empresarial. Utilizando uma análise bibliométrica, os autores identificam três dimensões principais da microfinança que orientam a pesquisa académica: (1) considerações sociais, (2) efeitos económicos e (3) desempenho de instituições de microfinança (MFIs). O estudo evidencia que a maior parte da literatura continua concentrada nos países em desenvolvimento, refletindo o sucesso da microfinança como um instrumento para promover o desenvolvimento social e económico, principalmente por meio de programas de microcrédito. Além disso, uma análise de coocorrência de palavras-chave revela que, apesar do crescente interesse nos domínios da inclusão financeira e do empreendedorismo, essas áreas permanecem pouco exploradas empiricamente. Os resultados fornecem oportunidades promissoras para pesquisas adicionais, bem como possíveis rotas para estender as análises teóricas e empíricas atuais da pesquisa em microfinança aos países desenvolvidos, de acordo com um contexto financeiro empresarial.

O segundo capítulo investiga o papel da motivação empreendedora e do desempenho do reembolso em termos de crédito no contexto da indústria microcrédito portuguesa. Utilizando dados da organização que primeiro promoveu e desenvolveu mais consistentemente o microcrédito em Portugal - ANDC, abrangendo 2.060 micro empréstimos concedidos a micro empreendedores / microempresas entre 1999 e 2015, os resultados mostram que a indústria portuguesa de microcrédito tende a emprestar maiores quantidades de crédito com vencimentos mais longos a empreendedores com menor probabilidade de reembolso (empreendedores movidos pela necessidade). O foco nesses empreendedores mais arriscados confirma o argumento de que o microcrédito é um instrumento pró-social, seguindo a sua crença inicial.

Palavras-chave: Microfinança, programas microcrédito, dimensão social e económica, inclusão financeira, empreendedorismo, revisão sistemática da literatura, motivação do empreendedor, instrumento de financiamento pró-social, Portugal

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CHAPTER 1

List of Acronyms

ANDC - Associação Nacional de Direito ao Crédito

CASES - Cooperativa António Sérgio para a Economia Social

EN - Entrepreneurs by necessity

GEM - Global Entrepreneurship Monitor

JCR - Journal Citation Report

MC - Microcredit

MFIs - Microfinance Institutions

MPM - Multinomial probit model

NGOs - Nongovernmental Organizations

OLS – Ordinary least squares

OPM - Ordered probit model

WoS - Web of Science

CHAPTER 1 - Microfinance: Where are we and where are we going?

ABSTRACT

This study provides a systematic literature review of the growing research on Microfinance promoted by scholars and policy makers in the context of entrepreneurial finance. The results provide promising opportunities for further research of microfinance research to developed countries. Using a bibliometric analysis, we identify three main dimensions of microfinance guiding academic research: social considerations; economic effects, and; the performance of microfinance institutions. Most literature concentrates on developing countries, reflecting the success of microfinance as an instrument to promote social and economic development. A keyword co-occurrence analysis reveals that financial inclusion and entrepreneurship domains remain underexplored empirically.

Keywords: Microfinance, microcredit programs, social and economic dimensions, financial inclusion, entrepreneurship, systematic literature review

RESUMO

Este estudo fornece uma revisão sistemática da literatura sobre a crescente pesquisa sobre a microfinança promovida por académicos e decisores políticos no contexto das finanças empresariais. Os resultados oferecem oportunidades promissoras para futuras pesquisas em microfinança nos países desenvolvidos. Utilizando uma análise bibliométrica, identificaram-se três dimensões principais da microfinança que orientam a pesquisa académica: considerações sociais; efeitos económicos e; o desempenho das instituições de microfinança. A maior parte da literatura concentra-se nos países em desenvolvimento, refletindo o sucesso da microfinança como um instrumento para promover o desenvolvimento social e económico. Uma análise de coocorrência de palavras-chave revela que os domínios de inclusão financeira e empreendedorismo permanecem pouco explorados empiricamente.

Palavras-chave: Microfinança, programas de microcrédito, dimensão social e económica, inclusão financeira, empreendedorismo, revisão sistemática da literatura.

1.1. Introduction

In recent decades, microfinance activities have propagated across the world, helping tens of millions of poor households that lack access to traditional financial services.

Microfinance is commonly defined as the process of ensuring access to financial services at an affordable cost to vulnerable groups, such as low-income persons (Bhanot, Bapat, & Bera, 2012). Recent studies suggest the microfinance sector has reached about 139 million low-income and underserved clients, with loans totalling an estimated $114 billion (Microfinance Barometer, 2018). The growing importance of microfinance has attracted the attention of academics, resulting in a vast number of empirical studies. Some authors (e.g., Helms, 2006) suggest that microfinance began as early as the 15th century, when the Catholic Church founded pawnshops as an alternative to usurious moneylenders (Helms, 2006). According to Armendariz de Aghion and Morduch (2010), the microfinance concept dates to the 18th century, when it took the form of informal and cooperative lending. It did not appear in its modern shape until economics professor Muhammad Yunus began making small loans to poor residents of villages in Bangladesh. The great success of this initiative led to the creation of Grameen Bank in the 1970s; also known as "the poor's bank," its purpose is to fight poverty in rural areas.

Since the advent of Grameen Bank, researchers have paid increasing attention to the microfinance sector, especially with the publication of several conceptual articles in the 2000s (e.g., Morduch, 1999a; 1999b; 2000). This attention intensified after 2006, when Yunus received the Nobel Peace Prize. Microfinance services soon expanded to economies that differed substantially from those to which they were initially applied (e.g., Bhatt & Tang, 2001; Bruhn-Leon, Eriksson, & Kraemer-Eis, 2012). Although the microfinance industry is commonly described as a specific instrument, it is actually an intervention field (Vaessen et al., 2009) designed to alleviate poverty, promote

employment, improve economic growth and social inclusion, contributing to economic development (de Koker & Jentzsch, 2013). Moreover, microfinance has important growth potential, due to its capacity to increase self-employment and, in developed countries, create microenterprises. Initially, microfinance was associated only with microcredit, but it has evolved to include a broader portfolio of services, such as microsavings, microinsurance, microremittances, and microguarantees—all part of an effort to build on the success of microcredit programs (Armendariz de Aghion & Morduch, 2010). In a broad sense then, microfinance involves the provision of financial services to economically active poor people who lack access to traditional financial services (Armendariz de Aghion & Morduch, 2010; Ledgerwood, Earne, & Nelson, 2013); it constitutes one of the world's most significant development policy innovations (Qudrat-I Elahi &Rahman, 2006).

Although commercial banks indicate some growing interest in microfinance, nongovernmental organizations (NGOs) and governments provide most microfinance services (Gonzalez & Rosenberg, 2006). Some studies accordingly focus on the performance of microfinance institutions (MFIs) to justify government support of them. Yet the dependence of microfinance on public subsidies remains controversial, leading researchers to evaluate it in terms of social, economic, and financial gains. Despite these extensive contributions, few prior studies evaluate or categorize existing literature on the subject, so we still lack a full understanding of the value of microfinance. To address this gap, we undertook a systematic literature review, using bibliometric analysis, to explore the possible links between various microfinance topics, as well as avenues for further research. The growing importance of the subject makes it essential to identify issues and reveal research gaps in pursuit of a more mature and developed understanding of microfinance, which in turn can provide guidelines for policy makers and financial

institutions regarding the value of MFIs for promoting social, economic, and financial integration. Specifically, this analysis identifies directions for microfinance scholars, by identifying (1) trends in the number of microfinance publications over time and by academic journals; (2) the most prolific contributors of microfinance context research according to author, institution, and country; (3) key literature connections and their underlying intellectual structures; and (4) trends in recent research in the microfinance context.

We undertake a bibliometric analysis (Liu et al., 2014; Van Leeuwen et al., 2003), a technique rarely applied to the microfinance area, using data from articles published up to and including 2018. Section 1.2 reports research methodology. Section 1.3 describes the analysis and reports our results. In Section 1.4, we discuss findings suggesting clues for future research. Section 1.5 provides final considerations.

1.2. Sample and methodology

From a methodological standpoint, this study provides a systematic literature review of microfinance. The use of a systematic literature review is justified by the research objective to improve knowledge on relevant topics, identify research gaps, and suggest opportunities for continued research. The methodology has earned the attention of researchers, because it helps establish a careful, formalized, and replicable research pattern (Thorpe et al., 2005).

1.2.1. Database

The selection of a high-quality database is critical to producing a high-quality systematic literature review. The Thomson Reuters Web of Science (WoS) is the most rigorous and reliable source of data, indexed in the prestigious Journal Citation Report (JCR).

We undertook our initial search of this database, in January 2019, using the keyword "microfinance," based on its great degree of coverage (see Table 1.1). Our objective was to identify the most relevant literature related to the topic. We considered all articles dated between 1900 and 2018 that contained the keyword “microfinance” as a topic field, according to searches of the title, abstract, and keywords. As a result, we identified 1,802 published articles, written by 3,211 authors. The database contains papers from 1993 to 2018 from 707 different journals, books, and conference proceedings (see Appendix 1.1.).

Table 1.1. Descriptive Statistics

Research phase	Details
Development date	January 2019
Selection of document types	Articles
Selection of databases	Web of Science (WoS)
Keywords	Search of specific research keys in the title, abstract and keywords of the article: "Microfinance"
Categories for research	Year of publication: 1900–2018

1.2.2. Methodology

The systematic literature review uses several bibliometric indicators to provide an overview of existing empirical literature on microfinance; which it is increasingly viewed as a robust tool for scientific production evaluation (Liu et al., 2014; Van Leeuwen et al., 2003). Bibliometric analysis is "the application of mathematical and statistical methods" (Pritchard, 1969, p. 348) to academic publications; it allows listing relevant information such as citations, co-citations, authors, journals, keywords as well as growth and distribution of publications.

Our bibliometric analysis was developed using VOSviewer software, which is a tool for creating and visualizing maps using network data. According to various authors (e.g., Albort-Morant & Ribeiro-Soriano, 2016), the indicators used in bibliometric analysis can be divided in three groups: quantity, quality, and structural. Quantity indicators are linked to productivity in terms of the number produced papers. Quality indicators measure the

impact of the publications, represented by the number of citations that each publication receives, and structural indicators measure relationships between publications that can provide valuable insights or identify clusters of research. Both quantity and quality indicators characterize scientific production, by providing information about production and citation tendencies, most representative research areas, and most productive countries. To present a more complete analysis, we address other indicators such as the WoS Price indexes and Half-Life indexes in order to evaluate obsolescence and provide a measure of scientific production maturity.[1]

After a briefly contextualizing of scientific production we perform a co-citation network and a keyword co-occurrence analyses, drawing knowledge maps that allow us to identify tendencies of microfinance research. Firstly, we conducted a co-citation analysis, as widely used method to explore the intellectual structure of a topic; it generates clusters and identifies major research areas (Griffith et al., 1974).[2] By using VOSviewer, we conducted co-citation analysis according to cited references, considering only cited references that had a minimum of 50 citations.

After that, we perform a keyword co-occurrence analysis: it studies relationships among concepts, instantly creating pictures of the main topics of academic study (Ding, Chowdhury, & Foo, 2001). In our keyword co-occurrence analysis, we use the *Author Keywords* and the *KeyWords Plus* (identified by Thomson Reuters) as the unit of analysis, considering only keywords with a minimum number of 50 occurrences. Furthermore, to

[1] For an overview, see Price (1965) and Burton and Kebler (1960), respectively.

[2] Co-citation analysis "records the number of papers that have cited any particular pair of documents and it is interpreted as a measure for similarity of content of the two documents" (Ramos-Rodríguez & Ruíz-Navarro 2004, 981). Within this analysis, we were able to classify cited references, sources, and research authors.

standardize the keywords of database, we have performed some qualitative normalization.[3]

1.3. Results

1.3.1. Scientific production contextualization

Our search of the WoS database revealed 1,802 articles containing the term "microfinance" in their titles, abstracts, or keywords (Figure 1.1.). Danes Brzica published the first article on microfinance in 1993; the article addresses theoretical issues of enterprise financial management. However, literature remained scarce until the early 2000s, after which we find increasing interest and rapid growth of research publications. The growth rate was even higher beginning in 2005 declared as the international year of microcredit. Reinforced the importance of the field, in 2006, Mohammad Yunus received the Nobel Peace Prize for his work in developing Grameen Bank; in the following four years, researchers showed remarkable interest in this field of research. The year 2017 was the period with the most publications on the subject (299).

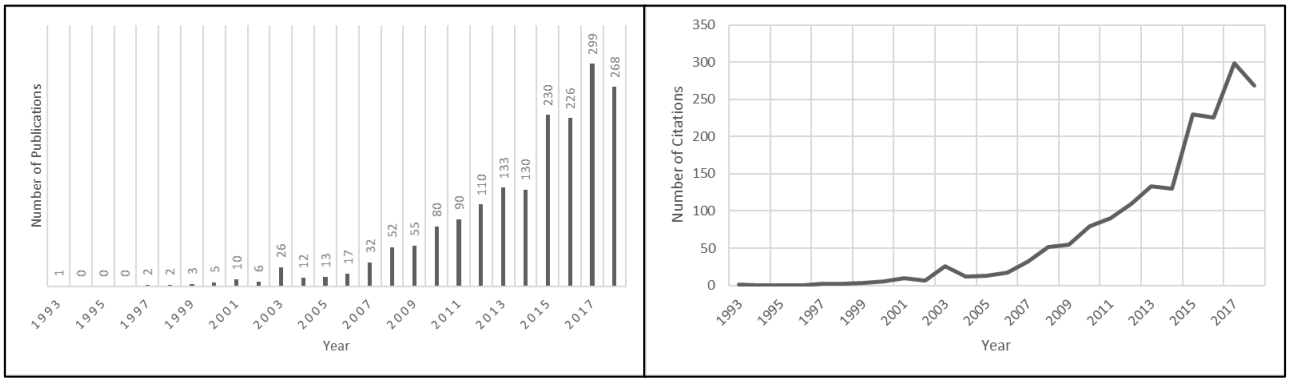

Figure 1.1. Evolution of number of publications (left side) and citations (right side) per year on microfinance topics (1993–2018); source: WoS Report (20-01-2019)

[3] We unify plurals and singulars (e.g., businesses, business), remove hyphens (e.g., micro-credit, microcredit), acknowledge abbreviations (e.g., MFIs, microfinance institutions), and group synonyms (e.g., enterprise, business). We also grouped countries into developed or developing countries.

The number of cited references per year follows the scientific publication's trends on this topic; "it has an increasing rate since 1997 and an exponentially growth since 2007" (García-Pérez, Muñoz-Torres, & Fernández-Izquierdo 2017, p. 3386). We observe these results by applying the Price index of obsolescence. In 2018, this index indicates that about 75% of references are less than five years old. Moreover, the Half-Life index (Burton & Kebler, 1960) reveals that half the cumulative total citations are concentrated in the last three years. These results reflect the high quantity of studies produced in recent years and establish microfinance as a dynamic and current subject.

The most representative areas related to the research topic are business economics (57%), followed by development studies (22%) (Appendix 2.2.). The remaining 21% of studies are dispersed in several other fields. The countries that have contributed most to literature are the United States and England, which together concentrate 44% of the total number of papers (Appendix 2.2.).

Table 1.2. Top 5 most productive authors; source: WoS Report (20-01-2019)

Author	Country	No. of papers	Citation	First Paper Identified
Roy Mersland	Norway	32	792	2009
Marek Hudon	Belgium	18	301	2009
Robert Lensink	Netherlands	17	387	2011
Dean Karlan	U.S.A.	16	711	2008
Jonathan Morduch	U.S.A.	14	1071	1999

Table 1.2. summarizes the 5 most productive authors on the topic. Mersland is the most productive microfinance researcher. His studies (or the studies in which he participates focus mainly on MFIs and their performance (Dato, Mersland, & Mori, 2018; Mersland & Strøm, 2009; Strøm, D'Espallier, & Mersland, 2014). The most cited author is Jonathan Morduch; he has contributed papers of great importance in the diffusion of the microfinance sector (e.g. Morduch, 1999a; 1999b; 2000).

Table 1.3. reports the rankings of the 5 journals with the most microfinance sector publications. The journal analysis shows that World Development, Journal of

Development Studies, and Journal of Development of Economics are the three journals with the most publications mainly exploring ways to reduce poverty and unemployment and discussing important issues in development economics, politics, and policy.

Every journal, book, or proceeding in the WoS core collection is linked to at least one of the several subject categories defined by the WoS (235 categories). Economics (666 articles) is the category with more papers affiliated followed by development studies (402), business (370), business-finance (153) and management (131). Although the economics category has been referenced since 1993, it has increased mostly since 2007. Since 2014, the number of articles devoted to business has grown quickly; after 2015, it ranked second (Appendix 1.3.).

Table 1.3. Top 5 most productive journals; source: WoS Report (20-01-2019)

Name of Journal	No. of papers	(%) of papers	Quartiles	Impact Factor	H Index	Citation
World Development	93	5.2	Q1	2.12	140	3262
Journal of Development Studies	44	2.4	Q1	0.93	70	512
Journal of Development Economics	41	2.3	Q1	3.07	115	1100
Journal of International Development	38	2.1	Q2	0.56	57	159
Strategic Change: Briefings in Entrepreneurial Finance	28	1.6	Q3	0.22	5	42

Notes: The impact factor and H Index were provided by the Scimago Journal & Country Rank for the year 2017.
Source: https://www.scimagojr.com/.

Table 1.4. presents the top three most cited papers for each of the five WoS most representative categories. Research by Battilana and Dorado (2010) is the most cited article associated with the business category (589 citations); their study examines how new types of hybrid organizations build and maintain their hybridity, with particular focus on MFIs. When MFIs were founded, they were "regarded as a purely not-for-profit endeavour undertaken mainly by NGOs and reliant on donations for financing" (Battilana & Dorado 2010, p. 1422). However, the paradigm is changing, and new MFIs are now profit-oriented, "claiming that lending to the poor could be managed as a self-sustaining endeavour by charging interest rates sufficiently high to cover the cost of lending"

(Battilana & Dorado 2010, p. 1422). Battilana and Dorado (2010) emphasize the importance of establishing a balance between the two approaches to increase the sustainability of MFIs without ignoring their original purpose. A study by Khandker (2005) is the second-most cited article (236 citations); it uses panel data from Bangladesh to examine the effects of microfinance on poverty. Results "suggest that access to microfinance contributes to poverty reduction, especially for female participants" (Khandker, 2005, p. 263). Jonathan Morduch (2000) is the third-most cited document (234 citations); it refers to the "microfinance schism." In line with Battilana and Dorado (2010), Morduch (2000, p. 617) assumes that "recognizing the limits to the win-win proposition is an important step toward reaching a more constructive dialogue between microfinance advocates that privilege financial development and those that privilege social impacts." Finally, Karlan and Valdivia (2011), who study the impact of business training on microfinance clients and institutions, assert that a large part of the microfinance industry has focused only on the availability of financial services, assuming that microentrepreneurs already have the necessary human capital. However, self-employed poor workers (mainly the developing country contexts) rarely have the necessary skills (e.g., education, business experience) to develop and maintain sustainable entrepreneurial activities. Thus, it is important to provide financial services and develop programs to teach and foster entrepreneurial skills. These authors note that a growing number of MFIs are attempting to develop microentrepreneurs' skills (human capital) to improve the livelihood of microfinance borrowers and fulfil the mission of poverty alleviation (Karlan & Valdivia, 2011).

Table 1.4. Top 3 papers with more citations for each of the 5 WoS most representative categories; source: WoS Report (20-01-2019)

	Paper	Total Citation	Market	Main Conclusions	Implications and Future Research
Economics	Cull, Demirgüç-Kunt, and Morduch, 2007	201	Developing countries	A trade-off emerges between profitability and serving the poorest.	A larger database may lead to more robust estimates and allow generalizations.
	Cull, Demirgüç-Kunt, and Morduch, 2009	197	Mix	Commercial investment is necessary to fund the continued expansion of microfinance, but institutions with strong social missions, with many taking advantage of subsidies, remain best-placed to reach and serve the poorest customers. Two-thirds of commercially oriented MFIs lent through standard methods (similarly to traditional banks), whereas three-quarters of non-governmental organizations used group lending methods.	Considering the various changes that microfinance institutions have undergone, further studies on the supply side are still needed.
	Karlan and Valdivia, 2011	162	Developing countries	Little or no evidence of changes in key outcomes of microfinance such as business revenue, profits, or employment. However, business knowledge improvements and increased client retention rates for MFIs.	Further investigation could evaluate the impacts of more specific training on habits, skills, or knowledge to examine whether there are important improvements that could be made with focus on the right topic. It also is important to evaluate the ongoing sustainability of any business changes for clients and lending institutions.
Development Studies	Morduch, 2000	234	Developing countries	Welfare-oriented programs argue that depth of outreach and focus on poverty alleviation are key to sustainable development, even though some of provided services might require subsidies. Institutionalists defend the key role of microfinance as financial broadening, helping build a system that can provide financial services to large numbers of poor on a sustainable basis.	A research agenda can pass for a more careful analysis of the subsidization of the microfinance programs. Systematic experimentation and evaluation with household-level data also can be important for future studies.
	Hermes, Lensink, and Meesters, 2011	161	Developing countries	MFIs with lower average loan balances (a measure of depth of outreach) are less efficient; MFIs that have more women borrowers as clients (also measure of depth of outreach) are less efficient.	Future studies can empirically investigate the existence (and if possible, the size) of the effects of increased efficiency of MFIs at the regional or macro level.
	Mersland and Strøm, 2010	141	Mix	Average loan size has not increased in the industry, nor is there a tendency toward more individual loans or a higher proportion of lending to urban costumers. Moreover, an increase in average profit and average cost tends to increase the average loan granted.	There is a need for more efficiency studies to better understand cost drivers in MFIs. It also is important to develop studies focused on MFIs that have transformed from non-profit to for-profit, answering the question: Have they abandoned their mission to serve the poor?

Table 1.4. Top 3 papers with more citations for each of the 5 WoS most representative categories (*Continuation*)

	Paper	Total Citation	Market	Main Conclusions	Implications and Future Research
Business	Battilana and Dorado, 2010	589	Developing countries	The results of a comparative study of two pioneering commercial microfinance organizations suggest that to be sustainable, new types of hybrid organizations need to create a common organizational identity that strikes a balance between the logics they combine (development and banking).	Future researchers could examine the influence of the degree of divergence between logics on the development of organizational identities able to ensure the sustainability of unprecedented combinations of logics. Moreover, more studies are needed in other contexts as well as in mature hybrid organizations, to provide the basis for generalizations.
	Bruton, Khavul, and Chavez, 2011	74	Developing countries	Borrowers that exhibit future growth orientation are more likely to create high-performance, employment-generating businesses; Women with higher levels of discretion in decision-making are more likely to create high-performing businesses that generate employment for individuals outside their immediate families; Borrowers skilled at managing social relationships within their groups, as well as between their groups and the lender, are more likely to create high-performing businesses; Borrowers who are affected by economic shocks are more likely to continue to repay their loans than those who are affected by personal shocks; Social relationships within borrowing groups, and the perceived asymmetry of power between the individual borrower and the lender, may explain why borrowers whose businesses fail continue to pay their loans.	Future researchers should pay attention to the role of leading group members in exercising the power that comes from the external and internal social capital that such members amass. Through either longitudinal or experimental studies, it also is important to study the direction of causality between relationship management skills and high performance. In addition, future studies must look closely at the rate of business failure associated with microlending, rather than focus only on loan failure; they should try to understand whether the nature of the group also affects the growth and survival potential of the businesses that borrowers start.
	Allison et al., 2015	73	Mix	The work shows that, according to cognitive evaluation theory, lenders respond positively to narratives highlighting the venture as an opportunity to help other instead of a business opportunity. Framing a microloan request as an investment opportunity is less effective than focusing on the reasons why funding the microloan would be intrinsically satisfying to the lender.	Future researchers could examine both whether and how other theories of motivation predict microlending, as well as the roles played by other types of intrinsic and extrinsic motivational cues.

Table 1.4. Top 3 papers with more citations for each of the 5 WoS most representative categories (*Continuation*)

	Paper	Total Citation	Market	Main Conclusions	Implications and Future Research
Business-Finance	Khandker, 2005	236	Developing countries	The results suggest that access to microfinance contributes to poverty reduction, especially for female participants, and to overall poverty reduction at the village level. Microfinance thus helps not only poor participants but also local economies.	
	Mersland and Strøm, 2009	142	Mix	The paper shows that financial performance improves with local rather than international directors, internal board auditors, and female CEOs. The number of credit clients increases with CEO/chairman duality. Outreach is lower in the case of lending to individual borrowers than group borrowers. The study reveals no difference between non-profit organizations and shareholder firms in financial performance and outreach and finds that bank regulation has no effect.	Future studies can focus on local information networks and how MFIs can explore them as well as how different incorporations operating in the same market influence MFI performance and overall customer satisfaction and outreach. Other research can focus on whether the competition brings customer benefits. There is a need to search for governance mechanisms that bring benefits to both MFIs and their customers. Why MFIs are shifting in their methodology (from group to individual loans) when such shifting lowers outreach? Future research should analyses the effect of international influence on MFI performance.
	Karlan and Zinman, 2010	131	Developing countries	The study finds that access to microcredit increases the probability of employment as well as personal income. It reveals a significant, positive effect on food consumption, economic self-sufficiency, and some aspects of mental health and outlook.	Further research is needed to determine if the results of this study allow generalization. Future work could focus on the mechanisms behind the effects of expanding access to credit.
Management	Gutiérrez-Nieto, Serrano-Cinca, and Mar Molinero, 2007	85	Developing countries	The study shows that differences in efficiency levels are associated with the location of MFIs (i.e., in which country they are located) as well as with their institutional type (i.e., (NGO)/non-NGO). The paper demonstrates that compared to non-NGOs, NGOs are more efficient in making many loans while operating as cheaply as possible.	The future may be to encourage analysts, rating agencies, and users to go beyond index analysis in MFIs to incorporate efficiency measures based on data envelopment analysis.
	Gutiérrez-Nieto, Serrano-Cinca, and Mar Molinero, 2009	71	Developing countries	The paper finds a positive but low correlation between social efficiency and financial efficiency. With one exception, it highlights that there are no MFIs that are both socially efficient and financially inefficient, which is consistent with the view that MFIs must be financially sound to meet their social responsibilities. The paper also finds that the geographical areas of activity of MFIs are important, and NGOs are more socially efficient than MFIs that are run under other organizational structures.	
	Dorado, 2013	25	Developing countries	The paper highlights the power of the group in doing institutional work. Considering the case of commercial microfinance in Bolivia, it shows how group dynamics may be what motives, inspires, and enables people to engage in institutional work. The group is irremediably enmeshed with the individual person's will to engage; its influence in mobilizing support and resources explains not only their likelihood of engagement but also whether that engagement translates into field change.	Like this study, future studies need to consider not only institutional entrepreneurial initiatives that generate the desire for field change but also those that fail to generate it.

1.3.2. Literature network analysis

After a brief contextualization of the scientific production, we conducted a co-citation analysis to study clusters. The fundamental assumption of this methodology is that co-citation clusters reveal underlying intellectual structures (Griffith et al., 1974) and identify the main theoretical foundations of the research topic. Using VOSviewer software, we identified three study clusters (Figure 1.2.): social, performance, and economic dimensions.

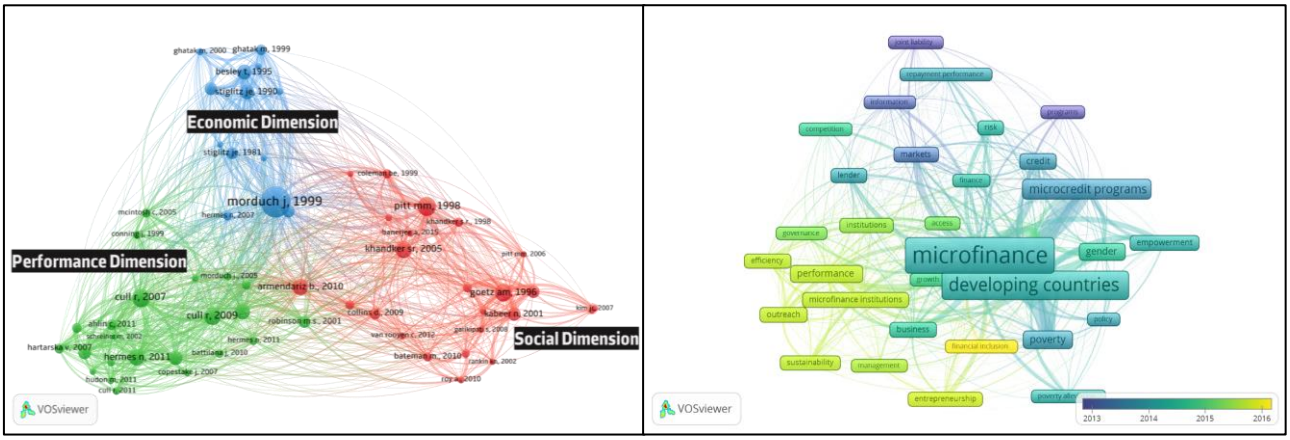

Figure 1.2. At the left, co-citation map of cited references. At the right, co-occurrence keywords map – research trends; source: VOSviewer

CLUSTER 1: SOCIAL DIMENSION

The social dimension cluster (in red) encompasses papers that focus on the social aspects of microfinance. This cluster has the most papers among the three groups, which can be explained largely by the success of microfinance in developing countries. When the microfinance sector was founded, its purpose was to fight extreme poverty, mainly in developing countries. Since a small experiment in Bangladesh (Yunus, 1999), the microfinance sector has been regarded as a powerful instrument of poverty alleviation and inequality reduction (Cervelló-Royo, Guijarro & Martinez-Gomez, 2017).

Pitt and Khandker's (1998, p. 958) article is the most cited in this cluster; it concludes that microcredit "has larger effect on the behaviour of poor households in Bangladesh

when women are the program participants." In same sense, Cervelló-Royo, Guijarro and Martinez-Gomez (2017) emphasize the fact that women contribute to relieving poverty by giving priority to maintaining and improving the family's standard of living. Goetz and Gupta (1996) and Khandker (2005) are the second- and third-most cited respectively; they also focus on women's empowerment as a form of poverty reduction.

CLUSTER 2: PERFORMANCE DIMENSION

Most publications in the second cluster (in green) are in some way related to the performance of MFIs. The articles in this cluster relate to questions of sustainability and program outreach. They identify some limitations of the "for-profit" MFI approach: on one hand, as the microfinance sector grows, it is essential that MFIs become more efficient and sustainable. On the other hand, microfinance is a special sector, with particularities that may contradict for-profit approaches. Because MFIs are financed largely by government subsidies,[4] it is fundamental that their purposes are effectively accomplished. However, if MFIs achieve sustainability by charging high rates to borrowers, or granting loans to wealthy borrowers with guarantees, their initial goal is not attained, and the result is increased in financial exclusion.

In this sense, several studies have evaluated MFI performance (e.g., Gutiérrez-Nieto, Serrano-Cinca, & Mar Molinero, 2007; Hermes, Lensink, & Meesters, 2011; Hudon & Traca, 2011; Mersland & Strøm, 2009). However, the compatibility of social and financial dimensions remains unknown. According to Gutiérrez-Nieto, Serrano-Cinca, and Mar Molinero (2009), the microfinance sector is a special industry that lies between financial worlds, owing to its dual financial and social roles. In most cases, MFIs are

[4] According to Morduch (1999a), part of the success of Grameen Bank is due to support from the government, such that "In 1996, for example, total subsidies evaluated at the economic opportunity cost of capital amounted to about US $26–30 million" (Morduch 1999a, p. 229). Because of the social function of this sector, MFIs traditionally do not emerge only as private institutions.

financially but not socially efficient. Despite reporting high loan repayment rates, several MFIs report little earned profit, possibly indicating that the trade-off between profitability and serving the poorest of the poor leads the industry to sacrifice its financial results (Cull, Demirgüç-Kunt, & Morduch, 2007). Both governance and market regulation of MFIs are research lines that have drawn little attention, even though they may have an impact on performance of these institutions. Hermes, Lensink and Meesters (2009) and Cull, Demirgüç-Kunt, and Morduch (2014) show that MFIs are more efficient where the formal financial system is better developed and more regulated. Mersland and Strøm (2009) find that, on the corporate governance side, local directors tend to improve financial performance more than international directors.

CLUSTER 3: ECONOMIC DIMENSION

The third co-citation cluster is represented in Figure 1.2. (in blue). Papers in this cluster reflect an economic view of microfinance, such as the problems caused by information asymmetry or the effects of the microfinance industry on financial markets. Morduch (1999b) is the most cited article: this state-of-the-art paper occupies a central position in the co-citation network and is connected to papers of all clusters. By examining the "microfinance promise" this article shows that the microfinance sector can finance poor people and maintain high repayment rates, even without collateral. Several studies suggest that new contractual forms, such as group lending with joint liability, are key to the success of the microfinance sector (Armendariz de Aghion & Morduch, 2000; Besley & Coate, 1995; Ghatak & Guinnane, 1999; Morduch, 1999a; Stiglitz, 1990; Wydick, 1999). Group lending is based on peer monitoring that transfers control and responsibility to the consigner (the pairs), as described by Stiglitz (1990). In Guatemala, Wydick (1999) shows that peer monitoring can significantly influence borrowing group performance through intra-group insurance, which can improve repayment rates when other methods

are unavailable (e.g., collateral). It also can be a way to overcome high levels of information asymmetry between lenders and borrowers.

1.3.3. Keyword co-occurrence analysis

To identify research trends in the field of microfinance, we conducted a co-occurrence analysis using the most representative keywords on the topic (Table 1.5.). With this analysis, we identify key groups of keywords (Figure 1.2.). We grouped the 32 most used keywords into three main clusters (related with Social, Performance and Economic dimensions).

Table 1.5. The most representative keywords; source: VOSviewer.

Cluster 1 Social Dimension		**Cluster 2 Performance Dimension**		**Cluster 3 Economic Dimension**	
Keyword	*Number of Occurrences*	*Keyword*	*Number of Occurrences*	*Keyword*	*Number of Occurrences*
Microfinance	1079	Performance	240	Credit	181
Developing	739	Business	167	Markets	152
Microcredit	375	Microfinance	149	Lender	126
Poverty	303	Outreach	132	Risk	94
Impact	244	Efficiency	107	Information	82
Gender	218	Entrepreneurship	102	Repayment	81
Empowerment	142	Sustainability	97	Growth	75
Poverty Alleviation	69	Institutions	87	Competition	58
Policy	61	Governance	73	Financial Inclusion	55
Programs	59	Management	55	Joint Liability	53
				Finance	51
				Access	50

SOCIAL DIMENSION

The most used keywords are “microfinance,” “developing countries,” “microcredit programs,” “poverty,” and “impact,” all related to the social dimension. This result underlines the argument that MFIs arise in developing countries to provide financial services that allow people to break the cycle of poverty by overcoming their financial exclusion (Prior & Argandoña, 2009). Furthermore, the microfinance sector provides several services, but microcredit programs are its major service (Ashta, Couchoro, &

Musa, 2014); they are powerful instruments with great social impact. The network map displayed in Figure 1.2. corroborates these research arguments.

Without access to financial resources, poor people face many difficulties in initiating, maintaining, and expanding value-adding economic activities (Bruton, Khavul, & Chavez, 2011). This problem is greater among women, which explains the high frequency of the keyword "gender" in a line of research dedicated to investigating how microfinance might reduce gender inequalities and support women's empowerment (high proximity of the two keywords).

PERFORMANCE DIMENSION

A second group of keywords relates to the performance dimension. "Performance" is the predominant keyword (240), followed by "business" (167) and "microfinance institutions" (149). Although the term "business" records more occurrences, studies about performance mainly address MFIs (e.g., Cassar, Crowley, & Wydick, 2007). As part of the financial sector, MFIs are the most advanced and controversial sub-field of social enterprises (Martin, 2015). Therefore, despite their role in creating economic and social value (Martin, 2015), several researchers have studied trade-offs among the outreach, efficiency, and sustainability of these institutions (e.g., Hermes, Lensink, & Meesters, 2011). Growing interest in the sustainability of these institutions is also evident in entrepreneurship research (Khan & Quaddus, 2015), such that recent studies in microfinance investigate which characteristics of MFIs lead to maximal efficiency, sustainability, and social impact.

ECONOMIC DIMENSION

"Credit" is the predominant keyword (181); "markets" also occurs frequently (152), followed by "lender" (126) in this cluster. The keywords "risk" (94), "information" (82),

and “repayment performance” (81) are also frequent among studies of MFI performance. Asymmetry of information is one the biggest barriers faced by traditional financial institutions when lending to poor borrowers, because it increases credit risk and costs. Poor people are often identified as financially illiterate, with limited collateral and no official credit histories; they also are often located in rural areas (Khavul, 2010), which exacerbates adverse selection and moral hazard problems. To overcome those problems, the microfinance sector provides innovative contract designs for lending money to the poor (Kar & Rahman, 2018). For example, in less developed countries, joint liability group lending practices are popular, because they increase outreach and decrease lenders’ risks. This type of practice (1) overcomes adverse selection, because borrowers self-select into groups using local information about peers’ trustworthiness, and (2) mitigates moral hazard problems by using peer monitoring and decreasing the relationship-lending costs charged on loan contracts. Thus, MFIs are important promoters of financial inclusion and provide financial services to people who have been excluded from the traditional financial system.

1.3.4. Microfinance: Research trends

Figure 1.3. presents both the average publication year and the average normalized citation. The first measure indicates the average publication year of the articles in which the term occurs; a high value indicates that a keyword has been referred in mainly recent documents. In the second measure, the value of the term is reflected by the average citation score of the articles in which the term occurs; the citation score for each article is normalized for the age of the article. This normalization process seeks to correct the age-factor bias, such that older publications tend to have more citations. Thus, a term with an average normalized citation score close to 1 indicates that, on average and in a comparative analysis, the article has received the expected number of citations based on

its age. If an article reports an average normalized citation above 1, the article has received more citations than expected (given its age).

The analysis depicted in Figure 1.3. highlights two terms: “financial inclusion” and “entrepreneurship.” The former term shows a remarkable average publication year of 2016.1, revealing the recent use of the term. Our analysis shows that the entrepreneurship concept also is an important subject among academic researchers, with a high average normalized citation rate (1.8). Despite recent research interest, the entrepreneurship field remains poorly studied in the microfinance context though. The initial idea of microfinance was to improve the outcomes of entrepreneurial activities (principally, by self-employment creation), through the provision of capital. Currently, as the impact of microfinance becomes more widely recognized, it may be useful to turn to the entrepreneurship field to better understand the beneficiaries of microfinance.

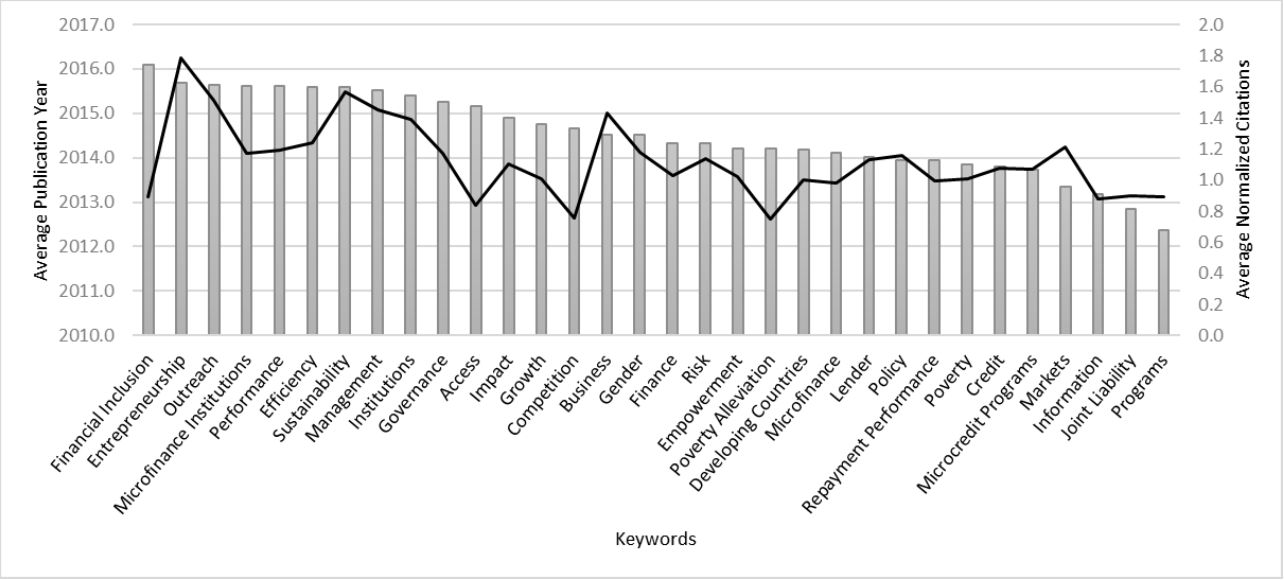

Figure 1.3. Microfinance research trends from keywords co-occurrence analysis; source: VOSviewer

1.4. Discussion and research gaps

Our results show that few studies highlight the potential of the microfinance industry for entrepreneurial finance (Brau & Woller, 2004). Due to the great success of microfinance in promoting social and economic development, microfinance research has

focused on developing countries; by providing financial services that enable the poor to break the cycle of poverty, it offers an alternative to traditional financial services in both developing and developed countries.

Recently, however, the number of MFIs in developed countries has grown. Although in this context the traditional financial system meets most demand, the microfinance industry plays an important role in increasing the financial inclusion of disadvantaged populations. Furthermore, this readjustment of the microfinance industry could prompt empirical researchers to explore new issues, such as the development of microenterprises (e.g., Bhatt & Tang, 2002; Salt, 2010; Schreiner & Woller, 2003). In this way, microfinance services are a form of entrepreneurial finance that act as viable alternatives to other financing forms, such as venture capital and angel investments (Bruton et al., 2015).

According to our bibliometric analysis, three main research dimensions guide academic research on microfinance: social, economic, and MFI performance. At the social level, the microfinance industry has been a powerful intervention field, initially in developing countries (and with a strong impact on extreme poverty reduction) and more recently in developed countries (to reverse cycles of financial exclusion). There has been little research on the impact or depth of MFI outreach (Hartarska, 2005), and most research focuses on developing countries. More studies are necessary, especially in developed countries. By highlighting the effectiveness and efficiency of microfinance activities, the developed country microfinance industry could attract more funders (public and private) and define appropriate strategies to target beneficiaries.

An important strand of literature that focuses on MFI performance evaluates the efficiency of government subsidies to support microfinance activities. However, considering the social and financial purposes of microfinance, it is relevant to evaluate

the effectiveness of this industry from beneficiaries' point of view. On the one hand, if microfinance has a positive impact on borrowers, governments should continue to subsidize MFIs to promote social and economic development (Khandker, 2005; Morduch, 1999a). On the other hand, if there is no verifiable impact of microfinance initiatives on the target public, this sector should not be weighing down public treasuries. However, this matter lacks empirical evidence, especially in developed country contexts.

From an economic perspective, the most remarkable characteristic of the microfinance industry is its ability to achieve high repayment rates (Armendariz de Aghion & Morduch, 2000), even in the presence of adverse selection and moral hazard problems. In developing countries, joint liability group lending practices increase microfinance outreach and decrease lenders' risk. Strict social ties among group members (Besley & Coate, 1995) and joint liability among borrowers reflect the strength of peer monitoring, which decreases relationship lending costs. However, in developed countries, this lending methodology is impracticable and leads to individual lending schemes reducing the capacity of peer monitoring and thereby challenging the success of microfinance.

Our keyword co-occurrence analysis identifies financial inclusion and entrepreneurship as hot topics for further research. Developing countries largely have recognized the ability of microcredit programs to increase financial inclusion through self-employment. In developed countries, researchers have focused on the microfinance sector in both self-employment and entrepreneurship domains, emphasizing how microfinance can foster sustainable activities. However, despite evidence of these impacts, some researchers question the ability of microfinance to generate or support sustainable entrepreneurship (Nguimkeu, 2014). Whereas developing countries are mainly concerned with the provision of financial services, developed countries face more competitive markets, in which sustainable entrepreneurship requires human capital (Nguimkeu, 2014), such as

suitable education, experience, and entrepreneurial training. According to Millán, Congregado, and Román (2012), a lack of skills can lead people to remain in self-employment activities that produce only temporary effects rather than promoting sustainable development, creating innovation, or adding business value (Baumol, 2008; Shane, 2009).

1.5. Final Considerations

This research offers important insights about academic production in the microfinance sector. It also reveals the underlying intellectual structures of the topic and identifies main research trends and opportunities for further research. Although the microfinance sector is scarce in terms of scientific structure, it is attracting increasing interest from both academics and policy makers. Our analysis of academic literature on the topic indicates an ascendant trend of publications in this field, with a remarkable increase in the past four years. A partial explanation for this increasing interest is that microcredit programs can contribute to better levels of social and economic development. The great success of these programs in developing countries has prompted developed countries to replicate them; moreover, policy makers' interest in microfinance programs has prompted academics to develop more studies in this area. Accordingly, increasing academic production must be followed by evaluations of academic literature. Our evaluation constitutes a fundamental element in the research process, enabling the determination and categorization of literature and showing trends in scientific production.

Although bibliometric analysis is useful for analysing the main trends in any field of research, it is important to consider its two main limitations: (1) the choice of database and (2) the algorithm applied. With regard to our database, our analysis likely ignores several studies, because though the database we used is the best available, it also is the most restrictive. Some studies on this topic have been published in journals that are not

indexed in the database and therefore not included by our research. With regard to our algorithm, we used only the word "microfinance" as our research topic. Researchers might cross-reference the term with other terms, for more focused results.

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Appendices

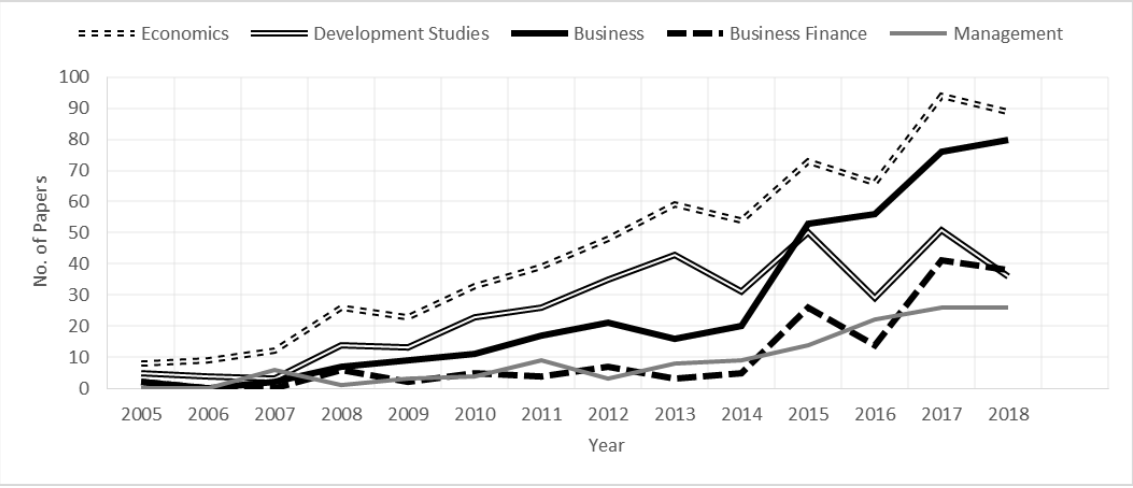
Appendix 1.1. Summary of the database; source: bibliometrix R-package (http://www.bibliometrix.org)

Description	Results
Documents	1802
Sources (journals, books, etc.)	707
KeyWords Plus (ID)	1950
Author Keywords (DE)	3167
Period	1993 - 2018
Average citations per documents	11.33
Authors	3211
Authors of single-authored documents	439
Authors of multi-authored documents	2772
Single-authored documents	528
Documents per author	0.561
Authors per document	1.78
Co-authors per documents	2.48
Collaboration index	2.18

Appendix 1.2. Top 5 research areas and Top 5 most productive countries; source: WoS Report (20-01-2019)

Research Area	No. of papers	(%) of papers	Countries	No. of papers	(%) of papers
Business Economics	1028	57	United States	575	31.9
Development Studies	402	22.3	England	223	12.4
Social Sciences Other Topics	95	5.3	India	126	7
Public Environmental Occupational Health	75	4.2	Australia	94	5.2
Environmental Sciences Ecology	64	3.6	France	85	4.7

Appendix 1.3. Evolution of the five most-referenced WoS categories (2005-2018); source: WoS Report (20-01-2019)



Appendix 1.4. Top 5 cited documents of each cluster; source: VOSviewer

	Reference	Citations	Title
Social Dimension	Pitt and Khandker, 1998	150	The impact of group-based credit programs on poor households in Bangladesh: Does the gender of participants matter?
	Goetz and Gupta, 1996	138	Who takes the credit? Gender, power, and control over loan use in rural credit programs in Bangladesh
	Khandker, 2005	131	Microfinance and poverty: Evidence using panel data from Bangladesh
	Armendariz de Aghion and Morduch, 2010	126	The economics of microfinance
	Kabeer, 2001	105	Conflicts over credit: Re-evaluating the empowerment potential of loans to women in rural Bangladesh
Performance Dimension	Cull, Demirgüç-Kunt, and Morduch, 2007	146	Financial performance and outreach: A global analysis of leading microbanks
	Cull, Demirgüç-Kunt, and Morduch, 2009	141	Microfinance meets the market
	Hermes, Lensink, and Meesters, 2011	127	Outreach and efficiency of microfinance institutions
	Morduch, 2000	124	The microfinance schism
	Mersland and Strøm, 2010	108	Microfinance mission drift?
Economic Dimension	Morduch, 1999b	239	The microfinance promise
	Stiglitz, 1990	118	Peer monitoring and credit markets
	Besley and Coate, 1995	115	Group lending, repayment incentives and social collateral
	Ghatak and Guinnane, 1999	102	The economics of lending with joint liability: Theory and practice
	Armendariz de Aghion and Morduch, 2005	98	The economics of microfinance

CHAPTER 2 - The role of entrepreneurial motivation and repayment performance on microcredit terms'

ABSTRACT

Since it´s modern form, microcredit have been deemed as a viable instrument to alleviate poverty. Popularized in poor countries, its value has grown worldwide, being applied in developing and developed countries. Our research investigates the role of entrepreneurial motivation and repayment performance on credit terms' in the context of Portuguese microcredit industry. Using a 2,060 microcredit loans between 1999-2015, our results show that Portuguese microcredit industry tend to lend higher amounts of credit with longer maturities to entrepreneurs who have lower likelihood of repayment (entrepreneurs moved by necessity). The focus on these riskier entrepreneurs led us to confirm the argument that MC is a prosocial instrument, following its initial belief.

Keywords: Microcredit, entrepreneurial motivation, prosocial funding instrument, Portugal

RESUMO

Desde a sua forma moderna, o microcrédito tem sido considerado um instrumento viável para aliviar a pobreza. Popularizado em países pobres, o seu valor cresceu por todo o mundo, sendo aplicado quer em países em desenvolvimento e quer em países desenvolvidos. A presente pesquisa investiga o papel da motivação empreendedora e do desempenho do reembolso em termos de crédito no contexto da indústria de microcrédito portuguesa. Utilizando 2.060 micro empréstimos entre 1999-2015, os resultados mostram que a indústria de microcrédito portuguesa tende a emprestar maiores quantidades de crédito com vencimentos mais longos a empreendedores com menor probabilidade de reembolso (empreendedores movidos por necessidade). O foco nesses empreendedores mais arriscados confirmar o argumento de que o MC é um instrumento pró-social, seguindo sua crença inicial.

Palavras-chave: Microcrédito, motivação do empreendedor, instrumento de financiamento pró-social, Portugal

2.1. Introduction

Access to financial resources has been often identified as one of the most important constraints reported by entrepreneurs when starting a business, especially in less developed countries (Stiglitz, 1990). Although literature still recognizing bank lending as the most commonly used form of finance by individual entrepreneurs and/or microenterprises (Berger & Udell, 1995), these entrepreneur-lender relationships often suffer from information asymmetries which might lead to market imperfections and, ultimately, to credit rationing (Gama & Van Auken, 2015; Stiglitz & Weiss, 1981). Lack of collateral and non-existent credit histories, coupled with high transaction costs, have led traditional banking system to neglect these individual entrepreneurs (Duarte, Gama, & Esperança, 2016). To solve some of these problems, new waves of entrepreneurial finance instruments emerged such as the case of the microcredit (MC) programs (Bruton, Khavul, Siegel, & Wright, 2015).

Born in poor countries, MC has grown into a worldwide industry[5]. Literature in the topic has been a fast-growing research area (mainly after the award of the Nobel Peace Prize to Prof. Yunus in 2006), and today is back in the spotlight after the 2019 Nobel Prize of Economics which recognizes the contribution of Abhijit Banerjee, Esther Duflo and Michael Kremer in the definition of anti-poverty policies, which includes MC lines.

In last decades, MC become a popular instrument as an innovative way to increase social and financial inclusion by mitigating credit rationing (Bendig, Unterberg, & Sarpong, 2014), enabling entrepreneurial activity (Bruton, Ketchen, & Ireland, 2013; Bruton, Khavul, & Chavez, 2011), reducing poverty (Khandker, 2005), and decreasing

[5] Initially dominated by MC, nowadays microfinance has evolved to include a broader portfolio of services, such as micro savings, microinsurance, micro remittances, and micro guarantees-all part of an effort to build on the success of MC programs (Armendariz de Aghion & Morduch, 2010). However, MC still remains the main service of this industry, and hence, commonly seen as synonyms.

unemployment (Yunus, 1998). However, after decades of research, scholars continue focusing attentions on developing countries, where MC have been higher success. Additionally, empirical research on MC in Europe is scarce, mainly because in developed countries MC still addressing a niche market[6]. We fill this empirical gap by extending the knowledge of MC lines and its characteristics on a European country - Portugal.

As pointed out by Bendig et al. (2014), MC may be an instrument not only to alleviate extreme poverty by also to promote microenterprises creation as a path to social and financial inclusion, minorities empowerment and job creation. Hence, in one hand, MC can be a good promoter of the transition from unemployment (or low-paid employment) to self-employment – entrepreneurs motivated by necessity. On the other hand, MC can extend finance to entrepreneurs who have started a business but have limited capital or credit history - entrepreneurs motivated by opportunity (Bourlès & Cozarenco, 2018). In this case, entrepreneurs recognize on the MC an opportunity to full fill a dream. In this study we address this puzzle by analysing how microentrepreneur's motivation influences the credit terms and the repayment performance of MC loans. Studying these two types of entrepreneurs - motivated by opportunity versus motivated by necessity - and the link with credit terms and loan performance we aim to shed more light on the pro social orientation of MC.

The remainder of this paper is organized as follows. Section 2.2 reviews the literature on the subject and establish the empirical research hypotheses. Section 2.3 describes the data and variables. Section 2.4 present the research methodology. Section 2.5 reports the empirical results. Section 2.6 contains the robustness tests and Section 2.7 summarize the main conclusions.

[6] According to Reed, Marsden, Rivera, Ortega and Rogers (2014), the microfinance institutions in the industrialized world represent 4.4% of total, serving less than 3% of microfinance clients.

2.2. Theoretical background and hypotheses

2.2.1 Microcredit Overview

Literature on MC has been a fast-growing research area (Milana & Ashta, 2012), mainly since that Muhammad Yunus (the founder of Grameen Bank and one of the modern MC' pioneers) won the Nobel Prize of Peace in 2006. After the success of Yunus's field experiments in Bangladesh in the 1970s, MC has been widely presented as the solution to reduce poverty (Khandker, 2005). In emerging and developed countries, MC is also considered a dynamic instrument to mitigate social and financial exclusion and to empower minorities. By providing access to credit for the so-called non-bankable borrowers, MC targets informal entrepreneurs and/or microenterprises who do not have access to traditional banks, often because they are enabled to offer enough collateral (Armendariz de Aghion & Morduch, 2010; Yunus, 2007). By making available small loans to low-income people, mainly in emerging countries, MC allows the poor to start or expand their entrepreneurial activities, and thus, escape to the poverty cycle.

Despite the merits widely attributed to MC, the pressure for greater sustainability of MC lines may deviate this instrument from its purpose: reach the poorest.[7] Initially dominated by subsidized institutions, several commercial lenders emerged in the MC domain in the last decade. In consequence, it is possible identify two main types of microfinance institutions (MFIs hereafter): i) those that are publicly subsided or donor-financed and follows a prosocial (also known as *poverty lending* or *welfarism*) approach, and; ii) those that are part of the traditional financial system (also known as *financial systems* or *institutionalist* approach) and, therefore, pursue the sustainability of their operations (Battilana & Dorado, 2010; Cull, Demirgüç-Kunt, & Morduch, 2007).

[7] For an overview on the subject see Mersland and Strøm (2010).

Although both types of MFIs had as main goal poverty alleviation and, hence, generally target the poor, its operating principles are different (Robinson, 2001). The prosocial approach concentrates on using credit (MC) to help overcome poverty. Its primary focus is to reach the poor, especially the poorest of the poor, by providing MC at low interest rates. However, providing MC at low cost to riskier borrowers, coupled with a lack of voluntary savings services (typical of this audience) has led MFIs that follows a prosocial approach to be not sustainable, and therefore commonly financed by donors or government subsidies. In opposition, the proponents of the commercial MFIs focus not only on financial intermediation among the low-income people but also on savers; its goal is reaching the institutional self-sufficiency.[8] Its enthusiasm is based on the *win-win* proposition of Morduch (2000), or the *double bottom line* principle (e.g., Cull et al., 2007; Cull, Demirgüç-Kunt, & Morduch, 2009), where the MFIs that follows the good banking practices will be those that alleviate poverty. The main argument of this view is that "lending to the poor could be managed as a self-sustaining endeavor by charging interest rates sufficiently high to cover the cost of lending" (Battilana & Dorado, 2010, p. 1422). However, as noted by Robinson (2001), this type of MFIs is not appropriated to the poorest of the poor; its main target should be the low-income people/ micro-entrepreneurs who need extra funding to full fill their dream or to pursue a business opportunity.

Far from being solved, the debate between these two approaches has divided both the academic community and policy makers. Hence, a better understanding of this changing paradigm - from a development-based view to a market-based view (Khavul, Chavez, & Bruton, 2013) - can provide clues to building a more efficient MC industry.

[8] By providing a range of services beyond MC, such as voluntary savings, commercial debt, and for-profit investments, these institutions manage their portfolios to achieve so-called sustainability (Robinson, 2001).

2.2.2 Microcredit and Entrepreneurial Motivation

Despite recent research interest on the topic, the entrepreneurship remains poorly studied in the MC context (Newman, Schwarz, & Borgia, 2014). This question is particularly relevant in developed countries, where MC institutions have been sought by a wide audience: if on the one hand, MC aims alleviate poverty, improving the empowerment of socially and financial excluded persons, on the other, it provides extra funding to entrepreneurs, mostly micro-entrepreneurs, who face problems with access to traditional funds for starting up or expanding their micro-business. Hence, MC's industry seek to understand how entrepreneurs motivation relates with MC performance, reaching its beneficiaries more efficiently (Duflo, 2011).

Since 2001, the Global Entrepreneurship Monitor (GEM) distinguishes entrepreneurs based on their motivations: entrepreneurs by necessity or by the opportunity.[9] Entrepreneurs moved by opportunity are seen as those who start a business in order to take advantage of a new idea or business prospect (Kirkwood, 2009; Kirzner, 2015); they are moved by the challenge and the potential rewards (mainly non-pecuniary), such as more independence, autonomy, self-fulfilment, or skill utilization (Benz & Frey, 2008; Dalborg & Wincent, 2015; Hundley, 2001; Lange, 2012; Taylor, 1996). In line with the Intrinsic Motivation of the Benabou and Tirole (2003), entrepreneurs who move in the no-reward condition (i.e., entrepreneurs by opportunity) are strongly involved with the project. Hence, this type of entrepreneurs tends to undertake more profitable projects (Block & Wagner, 2010). In opposition, entrepreneurs by necessity are driven by what could be described as survival-oriented motivations (Jaouen & Lasch, 2015). Forced to start a business to meet economic needs and survive to unemployment (Bergmann &

[9] We find conceptual support on Amit and Muller (1995), Giacomin et al. (2011) and Van der Zwan, Thurik, Verheul and Hessels (2016) to distinguish these two types of entrepreneurs also called "push" entrepreneurs and "pull" entrepreneurs, respectively.

Sternberg, 2007; Gilad & Levine, 1986), entrepreneurs moved by necessity tend to accept and undertake every project, even being previously aware that the project has a great probability of default. Driven by monetary rewards, they are entrepreneurs against their will (Korunka, Frank, Lueger, & Mugler, 2003), following a reactive behaviour (Miles, Snow, Meyer, & Coleman, 1978). Generally less educated than opportunity entrepreneurs, they are "thwarted expanders in that they try but are unable to grow their businesses" (Clark, Berkeley, & Steuer, 2001, p. 74).

Since entrepreneurs by opportunity traditionally have an extra-business source of professional income, which allows them to more easily accumulate personal savings when compared to entrepreneurs moved by necessity, they can repay their loans easier than entrepreneurs by necessity. For the same reasons, they tend to request smaller amounts of credit as well as lower maturities, contrary to entrepreneurs by necessity who will try to exhaust the credit terms (higher amounts of credit with longer maturities).[10]

Hence, if MC finances both types of entrepreneurs, we should expect to find evidences supporting its *pro* social approach, in line with Robinson (2001). If so, based on view that MC is a *pro* social funding instrument extending credit to riskier entrepreneurs, we formulate the following hypotheses:

H1: Entrepreneurs by necessity (EN) has lower likelihood of repayment;

H2: Entrepreneurs by necessity (EN) receive higher amounts of credit;

H3: Entrepreneurs by necessity (EN) receive credit with longer maturities.

[10] As shown by Jaouen and Lasch (2015), necessity entrepreneurs tend to fund their businesses with insufficient start-up capital with a subsequent vicious circle of lack of financial resources.

2.3. Data and Variables

2.3.1. Data

This study uses data from the organization which first promoted and most consistently developed MC in Portugal - ANDC.[11] Over the 1999-2015 period, this institution brokered 2,060 micro-loans amounting to a total of 13.2 million euros. Based on this client portfolio, the data set identifies several characteristics of entrepreneurs (i.e., gender, age, level of literacy, marital status and nationality), the nature of the business (i.e., whether the business is framed in a capital-intensive or labour-intensive sector), the terms on which the credit was provided (i.e., size and maturity), and the final repayment status of entrepreneurs' MC process.[12]

Founded in 1998 as a non-profit private institution, ANDC later evolved into a public/private partnership, where the Government, through the Ministry of Labour and Social Security, acts in articulation with traditional banking system. Following the strong boost given to MC by Muhammad Yunus, with the Grameen Bank experiment, ANDC emerges in Portugal with the aim of facilitating the borrower-lender's relationship, mainly helping to reduce transaction costs for potential beneficiaries. Sharing the same principles behind Grameen Bank foundation, ANDC aims to enable those socially and economically excluded from the traditional financial system, to have a way of accessing credit.

Despite the well-recognized public value of ANDC in Portugal, it is still difficult to speak of a consistently structured microfinance industry and so far, no non-bank MFI exists. Due to the Portuguese law, the ANDC cannot grant loans, accept deposits or provide other microfinance services directly, which are specifically reserved to the

[11] ANDC ("Associação Nacional de Direito ao Crédito" - National Association for the Credit Right). Currently, Portuguese MC programs are managed by CASES ("Cooperativa António Sérgio para a Economia Social" - https://www.cases.pt), which aims to promote the strengthening of the social economy sector.

[12] Recent research uses this data to address different research questions (Mota, Moreira, & Brandão, 2018).

traditional banks. In addition, as ANDC does not charge any transaction costs by the intermediation process, it is financially supported by the Government through the Ministry of Labour and Social Security. This support has been crucial to its operation.

2.3.2. Variables

DEPENDENT VARIABLES

Loan performance: Measured by the variable *REPAYMENT* which identify the final status of entrepreneurs' process (e.g., Bhatt & Tang, 2002; Moss, Neubaum, & Meyskens, 2015). This is a binary variable that takes a value of 1 if the credit of borrower was repaid without any credit event and 0 otherwise.

Credit terms: Measured by the variables *LSIZE* and *LMATURITY*. *LSIZE* is the natural logarithm of the amount of loan received (Brana, 2013) and *LMATURITY* is the natural logarithm of the time (in months) in which the full amount of loans must be repaid (Karlan & Zinman, 2008; Kirschenmann & Norden, 2012).

INDEPENDENT VARIABLES

Independent variables are divided into two groups: motivation of the entrepreneur, which is our main explanatory variable, and; characteristics of the entrepreneur and characteristics of the business/sector, that we group as our control variables.

Entrepreneur Motivation: Measured by the variable *Entrepreneur by Necessity*, our main explanatory variable, which is a binary variable that takes the value 1 if the entrepreneur is forced to start a business to meet economic needs and survive to unemployment (Bergmann & Sternberg, 2007; Gilad & Levine, 1986), and 0 if is an entrepreneur by opportunity, to full fill a dream.

Control variables: *Female* is a binary variable that takes the value one if the entrepreneur is female and zero otherwise (Brana, 2013; Moss et al., 2015); entrepreneur's *Age* is measured in years (Bourlès & Cozarenco, 2018; Mason, 2014); Literacy is measured using three binary variables: *University* that takes the value one if the microentrepreneur has a university graduation and zero otherwise; *High School* that takes the value one if the microentrepreneur has a High School graduation and zero otherwise, and; *Junior School* that takes the value one if the microentrepreneurs has (at maximum) a Junior School graduation and zero otherwise (Brana, 2013)[13]; *Marital Status* is a binary variable that equals one if the entrepreneur is married and zero otherwise (Brana, 2013; Dinh & Kleimeier, 2007); *Portuguese borrower* is a binary variable that equals one if the entrepreneur is Portuguese citizen and zero if it is foreigner (Bruder, Neuberger, & Räthke-Döppner, 2011); *Labour Intensive Sector* which represents the average of employed population over total employed population by activity sector (primary, secondary or tertiary sector).

2.4. Methodology

To test our **H1**, in line with Duarte, Gama and Gulamhussen (2018), this paper uses a Probit model[14] expressed as follows:

$$\text{REPAYMENT}_i = \beta_1 \text{Entrepreneur Motivation}_i + \beta_2 \text{Entrepreneur Characteristics}_i + \beta_3 \text{Business Characteristics}_i + \beta_4 \text{Credit Terms}_i + \varepsilon_i \text{ for } i = 1, \dots, n \quad \text{(eq.1)}$$

To test **H2** and **H3**, in line with Brana (2013), Duarte, Gama and Gulamhussen (2019) and Kirschenmann and Norden (2012), we test the following two models using an OLS regression:

[13] Despite receiving little attention in underdeveloped contexts, in developing countries literacy has shown a strong effect of loan performance.
[14] For an overview regarding the logit versus the probit model, see Gujarati (2009).

$$\mathbf{LSIZE_i = \beta_0 + \beta_1 Entrepreneur\ Motivation_i + \beta_2 Entrepreneur\ Characteristics_i + \beta_3 Business\ Characteristics_i + \beta_4 Credit\ Terms_i + \varepsilon_i \ \ for\ i = 1, \dots, n}$$

(eq.2)

$$\mathbf{LMATURITY_i = \beta_0 + \beta_1 Entrepreneur\ Motivation_i + \beta_2 Entrepreneur\ Characteristics_i + \beta_3 Business\ Characteristics_i + \beta_4 Credit\ Terms_i + \varepsilon_i \ \ for\ i = 1, \dots, n}$$

(eq.3)

2.5. Results

2.5.1 Descriptive Statistics and Univariate Tests

Descriptive Statistics: Our sample includes 1,307 micro loans that are already fully reimbursed, where 83.2% was repaid without any credit event (see Table 1), a significantly lower rate than those seen in underdeveloped contexts (see D'Espallier, Guérin, & Mersland, 2011). In this new context where the individual-lending practices are common, repayment rates tend to be less optimistic; this statistic is consistent with the work of Bhatt and Tang (2002) who, focusing on United States, found a repayment rate close to 80%. Regarding the credit terms, the average loan *Size* was €6,398.32 and the average duration of a microcredit was 43 months. Entrepreneurial motivation show that more than half of the entrepreneurs included in our data set are entrepreneurs moved by necessity,[15] in line with Bourlès and Cozarenco (2018). This preliminary statistic reinforces our assumption that MC is a primarily *pro* social instrument, and therefore entrepreneurs by necessity are its main target. Focusing on control variables, our descriptive statistics reveal that: 48.6% of entrepreneurs are women and that the average *Age* of entrepreneurs was 36 years; 44.4% of entrepreneurs had *Junior School*, 38.3% had

[15] Given the data set limitations, from the total of 2,060 micro loans it was only possible to identify the motivation of 1,440 entrepreneurs – 65.3% are entrepreneurs moved by necessity against 34.7% who pursuit an opportunity or to full fill a dream.

High School, and only 17.3% had *University* degree, which is also an indicator of MC as a pro social instrument; microcredit borrowers are mostly single (only 32% are married or committed) and Portuguese citizens (96.1%); nearly 53% of entrepreneurs resorted to microcredit to engage on Labour Intensive Sectors

Correlation Matrix: Only the credit terms (*Size* and *Maturity*) reveal a high correlation, above 0.50 (see Table 2). For that reason, we test one variable at a time in our eq.1 avoiding biased results in the multivariate estimations.

Univariate Tests: We report the univariate tests for our data set, distinguishing between the entrepreneurs moved by necessity and them moved by opportunity in Table 3. For entrepreneurial motivation, we find statistically meaningful differences across all variables. In line with the theoretical framework, our results confirm that entrepreneurs moved by opportunity are more likely to repay their loans than those moved by necessity. Entrepreneurs by opportunity traditionally have an additional income, leading them to have less difficulties in repaying their loans. Univariate tests also indicate that, on average, entrepreneurs by necessity have a higher loan size as well as loans with longer maturities. These preliminary findings strengthen our assumption that MC is a *pro* social instrument.

Table 2.1. Definition and Descriptive Statistics of the variables used in the study

Variables	Measure	Definition	Observations	Mean	Std. Dev.	Min	Max
Dependent							
Loan Performance							
Repayment	binary	Dummy variable that takes the value 1 if the micro loan was repaid without any credit event (i.e., if repaid on time or in advance) and 0 if otherwise.	1 307	0.832	0.374	0	1
Credit Terms							
Size[a]	€	This variable is the natural logarithm of the amount of loan received.	2 059	6398.315	2910.341	997.60	20 000.00
Maturity[a]	months	This variable is the natural logarithm of the time (measured in months) in which the full amount of loans must be repaid.	2 060	43.007	9.875	15.00	84.00
Independent							
Entrepreneur Motivation							
Entrepreneur by Necessity	binary	This variable identifies the entrepreneur motivation; it is equal to 1 if the entrepreneur is moved by necessity, entrepreneur who is forced to start a business to meet economic needs and survive to unemployment, and 0 if is an entrepreneur by opportunity, to full fill a dream.	1 440	0.653	0.476	0	1
Control Variables							
Female	binary	This variable identifies the entrepreneur gender; it is equals to 1 if entrepreneur is female and 0 if it is male.	2 060	0.486	0.500	0	1
Age	years	Variable representing age of entrepreneur at the request date of the MC.	2 058	36.348	10.338	18	72
Literacy							
University	binary	Dummy variable that takes the value 1 if the entrepreneur has a university graduation, and 0 otherwise.	2 025	0.173	0.378	0	1
High School (control)	binary	Dummy variable that takes the value 1 if the entrepreneur has a high school graduation, and 0 otherwise.	2 025	0.383	0.486	0	1
Junior School	binary	Dummy variable that takes the value 1 if has (at maximum) the junior school graduation, and 0 otherwise.	2 025	0.444	0.497	0	1
Marital Status	binary	Although the database has 6 different categories for entrepreneur marital status, we only divided the marital status into 2 groups: the married or committed group and the group with the remaining categories (single, divorced, separated, and widower/windowered).	1 980	0.320	0.467	0	1
Portuguese Borrower	binary	This variable identifies the entrepreneur nationality; it is equals to 1 if entrepreneur is Portuguese citizen and 0 if it is foreigner.	2 060	0.961	0.194	0	1
Labour Intensive Sector	binary	This variable is measured by average of employed population over total employed population by activity sector (primary, secondary or tertiary sector). This variable was constructed by calculating the average (average of all years 1999-2015) of employed population for each activity sector over the average (average of all years 1999-2015) of total employed population of the 3 activity sectors.	2 060	0.529	0.135	0.114	0.591

[a] In the empirical modelling, these variables are transformed into the natural logarithm of the real value.

Table 2.2. Spearman Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12
Repayment	**1**												
Size	**2**	-0.101*											
Maturity	**3**	-0.000	0.582*										
Entrepreneur by Necessity	**4**	-0.099*	0.190*	-0.000									
Female	**5**	-0.011	0.106*	0.047*	-0.005								
Age	**6**	0.016	-0.052*	-0.023	-0.012	-0.026							
University	**7**	0.099*	0.138*	0.168*	0.038	-0.046*	-0.059*						
High School (control)	**8**	-0.014	0.076*	0.104*	0.064*	0.032	-0.164*	-0.360*					
Junior School	**9**	0.053*	-0.180*	-0.230*	-0.094*	0.003	0.206*	-0.409*	-0.704*				
Marital Status	**10**	0.072*	0.029	0.050*	-0.023	0.020	0.230*	-0.061*	-0.087*	0.132*			
Portuguese Borrower	**11**	0.017	0.046*	0.046*	-0.001	-0.023	-0.066*	-0.043*	-0.009	0.042*	-0.052*		
Labour Intensive Sector	**12**	-0.038	0.066*	0.047*	0.120*	-0.109*	-0.113*	0.046*	0.056*	-0.089*	-0.051*	0.011	

*p-value<0.1

Table 2.3. Univariate tests

		Entrepreneur Orientation				
		Combined	By Opportunity	By Necessity	Mean Dif.	
Dependent Variables						
Repayment						
	Obs.	**767**	**328**	**439**		
	Mean	0.836	0.878	0.804	-0.074	***
	Std. Deviation	0.371	0.328	0.397		
Size						
	Obs.	**1440**	**500**	**940**		
	Mean	7072.954	6227.803	7495.907	1268.104	***
	Std. Deviation	3124.45	2660.348	3268.569		
Maturity						
	Obs.	**1440**	**500**	**940**		
	Mean	45.5	42.22	47.238	5.018	***
	Std. Deviation	10.58	7.496	11.529		

For a definition of the variables see table 1; *** p<0.01, ** p<0.05, * p<0.1; The Wilcoxon–Mann–Whitney test is conducted for continuous variables at the mean and a z-test is applied to binary variables at the median. H0: mean (y = 0) = mean (y = 1); difference = mean (y = 1) – mean (y = 0)

2.5.2 Multivariate Analysis

REPAYMENT PERFORMANCE

Table 4 reports Probit estimations about role of entrepreneurial motivation on credit repayment (Eq.1). Since our database includes several entrepreneur, business/sector and loan characteristics, we estimate different regressions to avoid collinearity problems. Thus, *Column 1* only includes the variable entrepreneur by necessity, *Column 2* adds entrepreneur characteristics (gender, age, level of literacy, marital status and nationality), *Column 3* also considers the nature of business, and *Columns 4* and *5* discriminate among credit terms[16].

Entrepreneur Motivation: Entrepreneurs moved by necessity (*Entrepreneur by Necessity*) are less likely to repay their loans on time than those moved by opportunity (negative coefficients in all *Columns*, with p-value<0.10 in *Column 4*, p-value<0.05 in *Columns 2*, *3* and *5*, and p-value<0.01 in *Column 1*), in line with Bourlès and Cozarenco (2018) and Vogelgesang (2003). Our results are also in line with the work of Andersson

[16] We isolate ln(Size) and ln(Maturity) variables given its high correlation (>0.50).

and Wadensjö (2007), who find that initially wage-earners have higher incomes than unemployed entrepreneurs. Block and Wagner (2010) also found that entrepreneurs moved by necessity undertake less profitable projects. Hence, these entrepreneurs have lower amounts available to repay their loans (Amit & Muller, 1995; Jaouen & Lasch, 2015) and therefore default more, supporting our **H1**. We check the robustness of these results in section 2.6.

Control variables: Entrepreneurs' gender is unrelated to credit repayment, in line with Block and Wagner (2002) and Bourlès and Cozarenco (2018). Similarly, we do not find a statistically significant effect of entrepreneurs' age on the probability of credit repayment, in contrast with the findings of Reinke (1998). Similar to other studies in developed countries, in our study Literacy shows a strong effect on credit repayment: the positive coefficients of *University* level (p-value<0.01 in all *Columns*) suggest that entrepreneurs with higher levels of education are more likely to repay their loans. Hence, in line with the findings of Bhatt and Tang (2002), these results are consistent with the entrepreneurship literature; higher levels of knowledge and skills enables entrepreneurs to perform more complex business analysis, leading them to greater financial success. In relation to the *Marital Status*, despite being considered by the literature as a sign of entrepreneur reliability, we do not find any statistically significant effect on repayment likelihood. In contrast, there is a significantly positive relationship between entrepreneur nationality and credit repayment (positive coefficients of *Portuguese Borrower* in all *Columns* with p-value<0.1). The results also show that credit repayment is related to the nature of business. The negative coefficients of *Labour Intensive Sector* (p-value<0.05 in all *Columns*) confirm that entrepreneurs operating in generally riskier industries reveal a lower probability of credit repayment.

Credit terms: Concerning the loan size, we find an inverse relationship with the credit repayment (negative coefficient of *ln(Size)* in *Column 4* with p-value<0.05). This result is compatible with the findings of Sharma and Zeller (1997) and Godquin (2004); the higher the loan size, the lower the probability of repayment as it increases the borrower's difficulty in repaying larger amounts. In terms of loan maturity, we do not find significant effect on credit repayment.

Table 2.4. Dependent variable: Repayment (0/1); Method: Probit

	1	2	3	4	5
Entrepreneur Motivation					
Entrepreneur by Necessity	-0.309***	-0.276**	-0.254**	-0.223*	-0.248**
	(0.113)	(0.116)	(0.116)	(0.118)	(0.117)
Control Variables					
Female		-0.028	-0.055	-0.032	-0.058
		(0.111)	(0.112)	(0.113)	(0.112)
Age		0.004	0.002	0.002	0.003
		(0.006)	(0.006)	(0.006)	(0.006)
Literacy					
University		0.546***	0.540***	0.565***	0.560***
		(0.202)	(0.202)	(0.203)	(0.204)
Junior School		0.037	0.020	0.004	0.007
		(0.121)	(0.121)	(0.122)	(0.122)
Marital Status		0.182	0.190	0.207	0.187
		(0.130)	(0.130)	(0.131)	(0.131)
Portuguese Borrower		0.400*	0.394*	0.402*	0.424*
		(0.229)	(0.229)	(0.230)	(0.231)
Labour Intensive Sector			-1.039**	-1.045**	-1.014**
			(0.500)	(0.503)	(0.502)
Credit Terms					
ln(Size)				-0.282**	
				(0.136)	
ln(Maturity)					-0.525
					(0.380)
Constant	1.165***	0.526	1.143***	3.561***	3.028**
	(0.089)	(0.322)	(0.438)	(1.248)	(1.438)
Observations	767	752	752	752	752

Standard errors in parentheses; For a definition of the variables see table 1; *** p<0.01, ** p<0.05, * p<0.1.

CREDIT TERMS

Tables 5 and 6 report estimations about role of entrepreneurial motivation on loan terms: size (eq.2) and maturity (eq.3), respectively; *Column 1* only includes the variable

entrepreneur by necessity, *Column 2* adds other entrepreneur characteristics (e.g., gender, age or level of literacy), *Column 3* also considers business characteristics, and *Column 4* also takes into account the terms of the credit.

Table 2.5. Dependent variable Y= Loan Size; Method: OLS

	1	2	3	4
Entrepreneur Motivation				
Entrepreneur by Necessity	0.189***	0.163***	0.164***	0.059***
	(0.026)	(0.026)	(0.026)	(0.023)
Control Variables				
Female		0.113***	0.111***	0.086***
		(0.024)	(0.024)	(0.021)
Age		-0.001	-0.001	-0.002
		(0.001)	(0.001)	(0.001)
Literacy				
University		0.120***	0.120***	0.062**
		(0.034)	(0.034)	(0.029)
Junior School		-0.085***	-0.086***	-0.011
		(0.028)	(0.028)	(0.024)
Marital Status		0.083***	0.082***	0.025
		(0.027)	(0.027)	(0.023)
Portuguese Borrower		0.098	0.098	-0.011
		(0.062)	(0.062)	(0.054)
Labour Intensive Sector			-0.065	-0.048
			(0.094)	(0.082)
Credit Terms				
ln(Maturity)				1.113***
				(0.052)
Constant	8.637***	8.521***	8.559***	4.544***
	(0.021)	(0.080)	(0.097)	(0.204)
Observations	1,440	1,405	1,405	1,405
R-squared	0.034	0.074	0.074	0.306

Standard errors in parentheses; For a definition of the variables see table 1; *** p<0.01, ** p<0.05, * p<0.1.

Entrepreneur Motivation: Both loan amounts and maturities increase if the borrower is an *Entrepreneur by Necessity* (positive coefficients in all *Columns* with p-value<0.01) which broadly support our **H2** and **H3**. Together, results about repayment performance and credit terms leads us to suggest that MC tend to sponsor riskier entrepreneurs moved by necessity. However, this evidence seems to contradict traditional finance literature, that is, riskier borrowers typically face more restrictions on access to credit (Diamond, 1991; Kirschenmann & Norden, 2012; Ortiz-Molina & Penas, 2008; Strahan, 2000). Our

results are also in contrast with the findings of Brana (2013), who focused its study on French microcredit applicants, but in line with Jaounen and Lasch (2015) who show that necessity entrepreneur tend to engage on entrepreneurial activity with insufficient start-up capital, leading them to a subsequent vicious circle of lack of financial resources. Hence, having an opportunity to have credit, these entrepreneurs will try to exhaust the credit terms.

Control variables: Both loan amount and maturity will be higher if the entrepreneur is a woman (positive coefficients in all *Columns* with p-value<0.01 of Table 5 and positive coefficients in *Columns 2* and *3* with p-value<0.05 of Table 6, respectively). Although these results are in contrast with the findings of Brana (2013) and Agier and Szafarz (2013), our evidence seems to confirm the purpose of prosocial MC - the minority women empowerment. In terms of entrepreneurs' *Age*, we find a non-significant effect on loan amount, and only a partial effect on loan maturity (positive coefficient in *Column 4* of Table 6). In contrast, the entrepreneurs' *Literacy* has a significant positive effect on both loan amount and maturity, broadly supported by the positive coefficients of the *University* level (p-value<0.01 in *Columns 2* and *3*, and p-value<0.05 in *Column 4* of Table 5; p-value<0.01 in *Columns 2* and *3*, and p-value<0.1 in *Column 4* of Table 6) and the negative coefficients of *Junior School* (p-value<0.01 in *Columns 2* and *3* of Table 5; p-value<0.01 in all *Columns* of Table 6). The positive coefficients of *Marital Status* (p-value <0.01 in *Columns 2* and *3* of Table 5, and p-value<0.01 in all *Columns* of Table 6) confirm that married or committed entrepreneurs receive higher amounts of credit as well as with longer maturities. Although the borrower's nationality does not have a significant effect on the loan amount, loan maturity tends to increase if the borrower is Portuguese (positive coefficients in all *Columns*, p-value<0.01). Regarding the nature of business, we find a non-significant effect on both loan size and maturity.

Credit Terms: The positive coefficients of *ln(Size)* and *ln(Maturity)* (p-value<0.01 in *Column 4* of Tables 5 and 6, respectively) are in line with the theoretical framework: larger loans require longer maturities (Karlan & Zinman, 2008).

Table 2.6. Dependent variable Y= Loan Maturity; Method: OLS

	1	2	3	4
Entrepreneur Motivation				
Entrepreneur by Necessity	0.101***	0.094***	0.095***	0.058***
	(0.012)	(0.012)	(0.012)	(0.010)
Control Variables				
Female		0.023**	0.023**	-0.002
		(0.011)	(0.011)	(0.010)
Age		0.001	0.001	0.001**
		(0.001)	(0.001)	(0.000)
Literacy				
University		0.053***	0.053***	0.026*
		(0.015)	(0.015)	(0.013)
Junior School		-0.067***	-0.068***	-0.048***
		(0.012)	(0.013)	(0.011)
Marital Status		0.051***	0.051***	0.033***
		(0.012)	(0.012)	(0.010)
Portuguese Borrower		0.098***	0.098***	0.076***
		(0.028)	(0.028)	(0.024)
Labour Intensive Sector			-0.015	-0.000
			(0.042)	(0.037)
Credit Terms				
ln(Size)				0.225***
				(0.010)
Constant	3.728***	3.598***	3.606***	1.677***
	(0.009)	(0.036)	(0.044)	(0.097)
Observations	1,440	1,405	1,405	1,405
R-squared	0.050	0.107	0.107	0.331

Standard errors in parentheses; For a definition of the variables see table 1; *** p<0.01, ** p<0.05, * p<0.1.

2.6. Robustness Tests

Previous research on the topic has focused primarily on credit performance using a binary variable to measure loan repayment/default. To go further in the knowledge about MC performance, in this section, we re-estimate the baseline model (reported in the Table 4) using the *REPAYMENT* as a categorical variable that takes the value: 1 if the credit was repaid with loan guarantees funds (i.e., *Defaulted*); 2 if the credit were not repaid within the contractual period but for which the possibility still remains that they will be

repaid later (i.e., *Overdue*); 3 if the credit was *Repaid on Time* and; 4 if the credit was Repaid in Advance.

Table 2.7. Dependent variable Y= Repayment (Categorical); Method: OPM

	(1)	(2)	(3)	(4)	(5)
Entrepreneur Motivation					
Entrepreneur by Necessity	-0.228**	-0.208**	-0.193*	-0.192*	-0.198*
	(0.100)	(0.103)	(0.103)	(0.104)	(0.103)
Control Variables					
Female		-0.056	-0.074	-0.073	-0.072
		(0.100)	(0.100)	(0.101)	(0.100)
Age		0.003	0.002	0.002	0.002
		(0.005)	(0.005)	(0.005)	(0.005)
Literacy					
University		0.551***	0.547***	0.548***	0.537***
		(0.167)	(0.167)	(0.167)	(0.167)
Junior School		-0.031	-0.042	-0.043	-0.033
		(0.110)	(0.110)	(0.111)	(0.111)
Marital Status		0.174	0.176	0.176	0.179
		(0.114)	(0.114)	(0.115)	(0.115)
Portuguese Borrower		0.399*	0.398*	0.398*	0.380*
		(0.211)	(0.211)	(0.211)	(0.212)
Labour Intensive Sector			-0.653	-0.653	-0.685
			(0.418)	(0.418)	(0.420)
Credit Terms					
ln(Size)				-0.009	
				(0.118)	
ln(Maturity)					0.358
					(0.334)
/cut1	-1.655***	-1.134***	-1.520***	-1.593	-0.242
	(0.095)	(0.295)	(0.385)	(1.078)	(1.253)
/cut2	-1.114***	-0.568*	-0.951**	-1.024	0.327
	(0.082)	(0.292)	(0.382)	(1.077)	(1.252)
/cut3	1.998***	2.612***	2.235***	2.162**	3.521***
	(0.122)	(0.317)	(0.396)	(1.084)	(1.266)
Observations	767	752	752	752	752

Standard errors in parentheses; For a definition of the variables see table 1; *** p<0.01, ** p<0.05, * p<0.1.

Scale of MC Performance: Checking the robustness of previous results we apply the Ordered Probit Model (Maddala, 1986). The results (see Table 7) generally confirm the previously identified effects in Table 4. The negative coefficients on the dummy variable *Entrepreneur by Necessity* (p-value<0.05 in *Columns 1* and *2*, and p-value<0.10 in remaining *Columns*) broadly confirms previously identified effects; being an *Entrepreneur by Necessity* decrease the likelihood of the credit repayment. The results also confirm the positive influence of literacy and nationality on probability of credit

repayment (statistically significant coefficients of the *University* degree, p-value<0.01; and *Portuguese Borrower*, p-value<0.10). However, although *Labour Intensive Sector* and *ln(Size)* variables continue to have negative coefficients, they are no longer statistically significant.

Table 2.8. Dependent variable Y= Repayment (Categorical); Method: MPM

	1			2		
	Defaulted	Overdue	Paid in advance	Defaulted	Overdue	Paid in advance
Entrepreneur Motivation						
Entrepreneur by Necessity	0.569**	0.173	0.297	0.524**	0.218	0.308
	(0.224)	(0.184)	(0.358)	(0.220)	(0.182)	(0.376)
Control Variables						
Female	0.279	-0.100	-0.199	0.238	-0.035	-0.028
	(0.209)	(0.178)	(0.341)	(0.206)	(0.176)	(0.359)
Age	0.002	-0.006	0.006	0.002	-0.007	0.006
	(0.010)	(0.009)	(0.017)	(0.010)	(0.009)	(0.018)
Literacy						
University	-0.996**	-0.592*	0.338	-0.941**	-0.590*	0.211
	(0.446)	(0.307)	(0.388)	(0.436)	(0.308)	(0.417)
Junior School	-0.082	0.008	-0.573	-0.074	-0.006	-0.702
	(0.217)	(0.194)	(0.432)	(0.218)	(0.192)	(0.464)
Marital Status	-0.345	-0.243	-0.054	-0.358	-0.175	-0.010
	(0.243)	(0.208)	(0.377)	(0.243)	(0.206)	(0.409)
Portuguese Borrower	-0.888**	-0.241	-0.333	-0.873**	-0.306	-0.362
	(0.368)	(0.393)	(0.668)	(0.365)	(0.394)	(0.737)
Labour Intensive Sector	1.785*	1.251	2.126	1.858*	1.173	2.324
	(1.002)	(0.794)	(2.011)	(1.009)	(0.786)	(2.073)
Credit Terms						
ln(Size)	-0.183	0.888***	2.009***			
	(0.232)	(0.238)	(0.625)			
ln(Maturity)				-0.656	1.839***	7.543***
				(0.702)	(0.600)	(2.721)
Constant	-0.902	-9.557***	-21.449***	-0.085	-8.568***	-32.485***
	(2.122)	(2.159)	(5.761)	(2.623)	(2.281)	(10.631)
Observations	752	752	752	752	752	752

Standard errors in parentheses; For a definition of the variables see table 1; *** p<0.01, ** p<0.05, * p<0.1.

Level of MC Performance: To investigate differences between distinct levels of MC performance we apply the Multinomial Probit Model (Keane, 1992) – *Repaid on Time* is our base outcome group (not reported). The results reported in the left-hand *Column* of Table 8 (i.e., *Defaulted*) also confirm our former estimates. The positive coefficients (p-value<0.05) of *Entrepreneur by Necessity* variable show that entrepreneurs moved by necessity are significantly more likely to default their loans than to repay it on time.

Similarly, those entrepreneurs operating in labour intensive sectors also are higher probability of being in the default category. Furthermore, the results also reveal that entrepreneurs with higher levels of education and Portuguese entrepreneurs are significantly more likely to repay their loans on time (negative coefficients of *University* degree and *Portuguese Borrower*, p-value<0.05). In opposition, the middle and right-hand *Columns* of Table 8 (*Overdue* and *Paid in advance*, respectively), reports different results. In the middle *Column*, only the *University* degree and the credit terms still remains statistically significant, whereas in the right-hand *Column* only the credit terms *(ln(Size)* and *ln(Maturity))* were statistically significant.

2.7. Conclusion

Since it´s modern form, microcredit have been deemed as a viable instrument to alleviate poverty. Popularized in poor countries to fight against extreme poverty, MC is starting to gain a momentum in developed countries as an instrument to mitigate social and financial exclusion of specific population groups. However, despite MC's success, there has been little research on the impact or depth of microfinance institutions outreach (Hartarska, 2005), and most research focuses on developing countries. Although we can find some studies on the credit terms and loan performance of commercial bank lending in Portugal (e.g., Duarte et al., 2018, 2019), to the best of our knowledge, this study is the first that investigates the role of entrepreneurial motivation and repayment performance on credit terms' in the context of Portuguese microcredit industry.

The results of this study show that entrepreneurial motivation have a significant effect on the credit repayment. Entrepreneurs moved by necessity show lower repayment rate than them moved by the opportunity. This supports the view of MC as a *pro* social instrument. These results are robust when we analyze the scale and level of repayment. Despite increasing pressure on MFIs to reduce its dependency of subsidies and hence, an

approximation to traditional financialization, our findings suggest that exist a specific industy (Portuguese MC industry) that target a specific group of individuals. In addition, this industry tend to lend higher amounts of credit with longer maturities to riskier entrepreneurs, and thus confirming the argument that MC is a *pro* social instrument, following its initial belief.

Since ANDC data set limits the generalizability of our findings, future investigations should use a more comprehensive data set that crosses data from multiple MFIs. In addition, a different measurement of our main variable (*Entrepreneur Motivation*) may also be interesting and provide new clues for entrepreneurial finance literature.

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