Micro Credit and Territory: Portugal as a case study

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abstract

This paper studies the relations between micro credit and territory, assuming that micro credit is an important instrument for fighting against poverty and social exclusion. Based on a micro-level database provided by ANDC (Associação Nacional de Direito ao Crédito), a statistical and econometric study has been undertaken in order to identify the territorial idiosyncrasies associated with the employment of micro credit in Portugal. Focusing on the survival of micro credit projects during the period 2006-2009, our study demonstrates the significance for a firm's survival of variables such as population density, value added growth in each activity and promoters' qualifications, as well as two regional dummies.

resumo / résumé

Este trabalho tem como objectivo o estudo das relações entre o microcrédito e território, admitindo que o microcrédito é um instrumento importante de combate à pobreza e à exclusão social. Com base numa base de dados a nível micro fornecida pela ANDC (Associação Nacional de Direito ao Crédito), foi desenvolvido um trabalho estatístico e econométrico tendo por fim identificar as especificidades territoriais associadas ao emprego do microcrédito em Portugal. Focando a atenção na sobrevivência dos projectos de microcrédito no período de 2006-2009, o estudo demonstra a importância de variáveis como a densidade populacional, o crescimento do valor acrescentado por sector de actividade, e as qualificações dos promotores, para além de duas *dummies* regionais, para a sobrevivência dos projectos de microcrédito em Portugal.

Cet article rapproche les relations entre le microcrédit et le territoire, en supposant que le microcrédit est un instrument important pour combattre la pauvreté et l'exclusion sociale. Fondé sur une base de données--micro prévu par l'ANDC (Associação Nacional de Direito ao Crédito), nous avons développé un travail statistique et économétrique afin d'identifier les particularités territoriales liées à l'emploi de microcrédit au Portugal. Nous nous concentrons sur la survie des projets de micro crédit dans la période 2006-2009, et nous avons pu conclure sur l'importance de la densité de population, la croissance de la valeur ajoutée de chaque activité et les qualifications des promoteurs, en plus de deux variables indicatrices régionales, pour la survie des entreprises.

JEL Classification: G21, R58, C24.

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1. Introduction

Micro credit has gained considerable attention among economists and institutions over the last two decades. The growth of the micro credit sector across the world and the recognition of its importance, especially in developing countries, are clearly demonstrated in two main events: the 2005 International Micro Credit Year and the attribution of the 2006 Nobel Peace Prize to Muhammad Yunus and the Grameen Bank. The Nobel Committee considered micro credit as a tool for upholding economic and social development, contributing in this way to the fight against poverty and to the promotion of human rights (Mjos, 2006).

The evolution of the micro credit sector and its geographical dissemination has not been homogeneous. Additionally, there are different perspectives regarding the economic and social impact of this instrument on the beneficiaries and its ability to reduce poverty. However, the empirical evaluation of the micro credit sector and its effects is quite difficult, firstly because there are strict data limitations, secondly because data collection is very expensive, and thirdly because the most adequate methodological procedure is not clearly defined. Therefore, research into this topic is far from exhausted and there is still a lot of work to do as far as research into the micro credit sector is concerned (Rosenberg, 2010).

The aim of this paper is to make a small contribution to this difficult task, using a territorial approach which, as far as we know, has not been adopted at this level. The territory is expected to play an important role, since poverty and social exclusion are geographically diverse and these differences must be taken into account when designing and implementing social policies. Our main goal is to identify territorial idiosyncrasies associated with the use of micro credit in Portugal and to propose explanations for the potential differences.

This study is organised as follows. After the Introduction, Section 2 reviews the concept of micro credit, its evolution and dissemination all over the world, as well as micro credit in Portugal. Section 3 presents the main methodological considerations of our study concerning the relationship between micro credit and territory, based on Portuguese territorial idiosyncrasies. In Section 4 the results are discussed and in Section 5 the main conclusions and ongoing research are presented.

2. The conceptualization and evolution of micro credit

Micro credit consists in providing small loans to poor and socially excluded people, allowing them to become entrepreneurs. Through self-employment, people are expected to become professionally integrated and to be able to earn sufficient income to support themselves and their families (Sengupta and Aubuchon, 2008; Microcredit Summit Campaign, 2010).

From this perspective, micro credit is an instrument for fighting against poverty and social exclusion, and this was the main motive for the first experiments in the 1970s in some Asian and Latin American countries. The most famous and successful of these experiments was the one conducted by Muhammad Yunus in the village of Jobra, Bangladesh (Gutiérrez-Nieto, 2005). In 1983, the Bangladesh government created a special charter to allow the foundation of the Grameen Bank, an independent formal financial institution dedicated to micro credit (Sengupta and Aubuchon, 2008).

The Grameen Bank experiment demonstrated that poor people benefit from the opportunity to access capital and that institutions achieve high repayment rates from these credits. This success was the reason for a fast dissemination to other countries, some of them replicating the Grameen Bank programme. The sector's evolution also demonstrated that besides the act of providing credit, many of the institutions started offering a wider range of financial products and services, including savings and insurance. This enlargement is reflected in the use of the term microfinance (Sengupta and Aubuchon, 2008).

Nowadays, across the world, there is an attempt to scale up microfinance with a market-based approach. As a consequence there is growing concern about the sustainability of the microfinance institutions and an increasing tendency towards the transformation of non-governmental organizations into financial institutions.[1] The evolution of the microfinance sector in recent years has raised some concerns about whom micro credit is really helping, while questioning whether the micro credit programmes are managing to assist the extremely poor or the more geographically isolated. Marcus *et al.* (1999) pointed out that most micro credit schemes do not address the poorest for several reasons. One of these reasons is the way the schemes are designed in terms of loans and saving conditions, namely the interest rates and grace periods applied and the liquidity conditions of the savings. Another is the group lending mechanism, which has many advantages but also some disadvantages, as it discourages the poorest who have difficulties in joining or forming a group.

In spite of these considerations, the demand for financial services by the financially excluded is enormous, and this fact has been translated into the numbers of the microfinance sector. The 2009 Annual Report of the Microcredit Summit Campaign presents, for the year 2007, almost 155 million clients and more than 3 550 microfinance institutions worldwide (Daley-Harris, 2009). This report also illustrates the difference between developing and developed countries, with North America and Western Europe representing an almost insignificant proportion in relation to the total numbers.[2]

The growth of the microfinance sector in developing countries has brought attention to this type of programme and encouraged people in developed countries to try to adapt micro credit to their own situations. The first experiments in Europe began in the 1980s but the sector is still young, as most institutions started their lending operations after the second half of the 1990s, including ANDC (Associação Nacional de Direito ao Crédito) in Portugal (Jayo *et al.*, 2008; ANDC, 2010b).

The adaptation of micro credit to developed countries, namely Western European countries, is founded on the belief that it is based on universal principles, *i.e.* that being unemployed or receiving welfare contributions does not mean that people lack capabilities or the will to change their lives by creating their own jobs (Nowak, 2008). Frequently, these individuals are not able to acquire the financial capital needed to implement their projects as the banking system does not consider them credit worthy – these potential market segments are generally considered too small and less lucrative. Micro credit in Europe aims to close this market gap (Evers *et al.*, 2007). This is one of the main reasons for the growing interest in it, including at the European Union level.[3] The current economic crisis and the evolution of European labour markets cannot be dissociated from the structural reforms needed to address the long term challenges of globalisation and demographic and climate change. The massive unemployment growth in the last few years and the clear perception of the need to retain and bring more people into the labour market, especially women, older workers and groups facing discrimination, have

1. This tendency is particularly strong in developing countries and one example is the transformation, in 1992, of PRODEM – Fundación para Promoción y el Desarrollo de la Microempresa, into BancoSol – Banco Solidario, a commercial bank in Bolivia. With this change, the institution revised its priorities, with profitability becoming the main concern to its leaders (Sengupta and Aubuchon, 2008).
2. For these regions the number of clients is only 200 000 and there are only 127 institutions, contrasting for example with Asia and the Pacific, the most active region with 129 million clients and 1,727 institutions (Daley-Harris, 2009).
3. The introduction of micro credit into the institutional agenda of the EU formally occurred in 2007, but there were several previous initiatives such as: the working group «Micro credit for small business and business creation: bridging a market gap» (2003), the 1st Microfinance Conference in Brussels (2004) and the launching of JEREMIE – Joint European Resources for Micro to Medium Enterprises (2005). More recently, in 2008 and 2009, the European Commission approved the JASMINE programme (Joint Action for the Support of Microfinance Institutions) and the Progress Initiative, which establishes a European Microfinance Facility for Employment and Social Exclusion (European Commission, 2009).

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contributed to the rising interest in the solution of self-employment (Nowak, 2008; European Commission, 2009).

The European Commission defines micro credit as loans of up to 25 000 Euros for the creation or development of small businesses (Evers *et al*., 2007). This is a broad concept that does not take into consideration the profile of the entrepreneurs and the main motive of micro credit in its original concept. This is also an expression of two different approaches to microfinance: a *poverty lending approach* closer to the first experiments in developing countries, which assumes a primary goal of reaching the lowest segments of society, and a *financial system approach* more concerned with the scale and sustainability of the operations from the perspective that a larger number of clients will allow a wider portfolio of financial products offered, even if this means the exclusion of the poorest (Bonomo and Vitali, 2004). These two perspectives co-exist throughout most countries and micro credit is nowadays an expression used indistinctively.

The experience of micro credit in Europe is not a homogeneous reality. There are differences resulting from different approaches that are also linked to distinct situations when compared with developing countries.

Nowak (2008) presents the main differences: in the developing countries, self-employment has been the dominant form of employment, which means that micro credit has a huge number of potential clients; the strong demand for financial services and the importance of proximity relations between people has enabled the implementation of mechanisms such as group lending, which minimize risks and operational costs, these being some of the central problems in the developed countries; nowadays, the banking system is even less developed in developing countries, which have allowed easier entry for the microfinance institutions, especially in rural areas; finally, the framework for developing businesses (in developing countries) is more favourable to small initiatives, while in developed countries firms have to compete in highly regulated markets, subject to taxes and social charges.

This last aspect raises another important question related to micro credit in Europe, concerned with the capabilities and knowledge needed to successfully manage a business. For a considerable part of the poor and socially excluded this is not a simple task and many of the microfinance institutions, namely the non-governmental institutions that assume the mantle of the struggle against poverty and social exclusion in their mission statement, complement their portfolio activity with training and business development services (Nowak, 2008).

The overview of the sector in 2007, developed by the European Microfinance Network, demonstrates that even inside Europe the sector is not homogeneous. There are different types of institutions (*e.g*., Foundations, Non-Governmental Organizations (NGOs), Commercial or Saving Banks), with different missions and priorities, acting on different geographical scales.[4]

The analysis of the microfinance sector cannot be complete without considering the target population. The importance of women as a target group for micro credit, which is one of the main features of the programmes in developing countries, has not been as important in Europe. In 2007, only 44% of European micro credit clients were women, although in some countries women comprised the majority, namely in Spain, Bulgaria, Portugal, the United Kingdom and Romania (Jayo *et al*., 2008).

Other segments identified as targets in the European context are immigrants and young people, for which groups the take-up rate is also still below the expected level. With regard to immigrants, Spain is the most relevant example, relating to 2007, as 47% of the clients were immigrants, followed by France (24%) and Italy (21%). Nevertheless, in countries such as Germany and Belgium, where a high proportion of foreigners exist, the number of immigrants who apply for

4. For example, there is an important role of savings banks and foundations in Spain; the main actors in France, England and Portugal are NGOs; in Finland a government agency, Finnvera, is the key institution (Underwood, 2006; Evers *et al*., 2007).

micro credit is irrelevant. The outreach to the young is even less noteworthy, Hungary being the (one) exception, as it is the only country with a percentage of clients under 25 years old larger than 50% (Jayo *et al*., 2008).

As already mentioned, particularly in the case of Portugal micro credit was introduced at the end of the 1990s, with the emergence of ANDC, an NGO with national coverage. In the following year, a micro credit programme started operating, based on a partnership between ANDC, a public institution (Instituto do Emprego e Formação Profissional, IEFP) and Millennium BCP, a commercial bank. During the last ten years a few other programmes have been implemented, especially in the second half of the last decade, two under national coverage and two more under a local scheme (BSCD Portugal, 2006; GLOCAL, 2010).[5]

Although the sector has grown in Portugal in the last decade, with several actors coming onto the stage, there are still relatively few studies on this subject, particularly with a focus on a territorial approach. The main impact study up to date is the one conducted by Mendes (2007), which analysed all micro credits approved by ANDC between July 1999 and August 2006. In spite of not specifically focusing on a territorial perspective, one of the recommendations included (in the report) is the need to adapt the instrument to the diversity of poverty and social exclusion situations that are presented at a local level. In this context, Mendes (2007) underlines the role of local institutions that should work in direct collaboration with ANDC.

The importance of the territory in the development of small scale economic initiatives is also stressed in a study about micro-entrepreneurship in Portugal, promoted by Instituto António Sérgio do Sector Cooperativo (INSCOOP). The authors support the idea that entrepreneurship is influenced by the environment in which businesses are created and developed. There are micro-climates which are territorially diverse, that stimulate or restrain the entrepreneurship process, and this is particularly relevant for small initiatives (Portela *et al*., 2008).

3. Methodological considerations

In order to explore our main research goal – the relationship between micro credit and territory – we adopt a twofold approach. First, we present a statistical description in order to discuss the relevance of the territory dimension in the micro credit programmes in Portugal. Second, on the assumption that the success of micro credit projects depends on their sustainability, we develop a survival analysis to explore the influence of the territory on the success of micro credit loans. To the best of our knowledge, this topic has not been studied and deserves particular attention.

In Portugal, the most significant and documented experience at the micro credit level is associated with ANDC. Therefore, we develop our analysis based on a micro-level database provided to us by that institution for the period between 1st January 2006 and 31st December 2009.[6]

5. The two national programmes are the autonomous micro credit scheme developed by Millennium BCP and a programme targeting young entrepreneurs managed by the National Association of Young Entrepreneurs (ANJE). This programme has recently been changed with an increase in the maximum credit amount to 50 000 euros, so it cannot be considered micro credit by the European Union definition. One of the local programmes is conducted by Santa Casa da Misericórdia de Lisboa, with a very specific target public (residents in Lisboa) (Microcrédito SCML), and the other by a network of 13 local development associations that covers about 60 municipalities in the North and Centre of the country (GLOCAL-SIM). All the programmes developed by NGOs incorporate a commercial bank in the partnerships and all of them are concerned with financial exclusion. The programme conducted in Lisboa is the only one that assumes fighting against poverty as a central goal (BSCD Portugal, 2006; GLOCAL, 2010).

6. This database includes all micro credit projects promoted by ANDC in articulation with the commercial banks, including new projects and projects subject either to an increase in capital, possible since 2007, or to a restructuring process (meaning an extension of the repayment period). For each one there is information available at several levels: promoters, businesses, loans and technical support.

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The methodology used for analyzing the survival of micro credit projects is based on studies of firms' survival that have been developed since the 1980s, typically by using a hazard model. In this type of analysis, the traditional OLS model is inadequate because the dependent variable is incomplete, as at the end of the period under study there are several business projects that are not closed. The most important studies focus on the influence of the characteristics of firms and sectors on the duration of firms, particularly for the manufacturing sector (*e.g.* Mata and Portugal, 1994; Mata and Portugal, 2002).

Hazard models are based on a hazard function that represents the conditional probability of failure in a short term interval t, given that the observation unit has survived up to that moment (Cox and Oakes, 1984), defined as:

$$h(t) = \lim_{\Delta t \to 0} \frac{P(t \le T < t + \Delta t \mid T \ge t)}{\Delta t} \qquad (3.1)$$

In our analysis, we use a Cox proportional hazard model,[7] with the businesses' life time (in years) as a dependent variable[8]:

$$h(t \mid X_{t-1}) = e^{\lambda t} e^{\beta X_{t-1}}, \quad t = 1,\ldots,K, \qquad (3.2)$$

where $e^{\lambda t}$ is the probability of closure of a microcredit business during year t and β corresponds to the regression coefficients of the independent variables denoted by X.

In order to explain the business closure, we include several explanatory variables that are mainly drawn from the literature on firms' survival[9] (systematized in Table 1).[10]

7. The proportional hazard model is very popular because it allows for solid results even if the distribution of survival time variables is not specified (Kleinbaum e Klein, 2005). Since some independent variables used in our model may vary with time, *e.g.* the growth rate of each sector, whilst others may not, *e.g.* the gender of the promoter, we must test the hazard proportional assumption, *i.e.* assess whether the hazard for one unit is proportional to the hazard for any other unit, where the proportionality is constant over time (Kleinbaum e Klein, 2005).

8. The information concerning micro credit firms' survival is yearly based since businesses' starting and closing dates are given annually. Moreover, the starting date is proxied by the approval date of the micro credit projects since the database does not include the effective open date, which is a reasonable choice, given that the two dates are usually very close. In regard to the closing date, we had to complete the ANDC database with information directly gathered from the microcredit officers responsible for each project.

9. It is important to mention that some of the independent variables usually included in the literature related to firms' survival are not relevant to our research context. For example, the size of the firm at the starting date is usually a statistically significant variable (*e.g.*, Mata e Portugal, 1994 and 2002; Holmes *et al.*, 2010). However, since most micro credit firms have only one worker, this variable is excluded.

10. Besides the variables included in Table 3, our research departed from an enlarged set of variables (comprising both internal characteristics of firms and external features of the environment), which was defined according to the related literature. However, the correlation analysis (Pearson's correlation statistics among quantitative variables and Cramer's V correlation statistics among qualitative variables) determined the exclusion of some variables, such as per capita GDP and firms per Km^2.

Table 1 – Explanatory variables

Variable		Designation
Population density		DP
Annual growth rate of the gross added value in each sector		VAB
Promoters' nationality		NAC
Promoter's schooling	Primary school	HAB – 1C
	2nd and 3rd cycle	HAB – 3C
	Secondary school	HAB – S
	Bachelor, under-graduation or graduation	HAB – U
Promoter's age	18-24	IDD – A
	25-34	IDD – B
	35-44	IDD – C
	45 or more	IDD – D
Sector of activity	Agriculture and Fishing (CAE – A)	NEG – A
	Construction (CAE – F)	NEG – C
	Manufacturing with high technology intensity (CAE – C: 20-21, 28-30, 33)	NEG – IFT
	Manufacturing with low technology intensity (CAE – C: 10-19, 22-25, 31-32)	NEG – IBT
	Delivering services (CAE – E, G, H, J)	NEG – SDB
	Production services (CAE – K, L, M, N)	NEG – SPD
	Social services (CAE – O, P, Q)	NEG – SS
	Personal services (CAE – I, R, S)	NEG – SP
Region (NUTS II)	Norte	REG – N
	Centro	REG – C
	Lisboa	REG – L
	Alentejo	REG – AT
	Algarve	REG – AG

The population density (inhabitants per square km) (INE, 2009b) might reflect the land cost, as firms and population compete for the same location**.** Therefore, we expect to observe a negative influence on the survival of micro credit projects. Furthermore, and similarly to Mata and Portugal (1994, 2002), we expect that the sector dynamics, evaluated by the growth rate of the gross value added in each sector (INE, 2010), will have a positive influence on firms' survival (*e.g.*, Mata and Portugal, 1994, 2002). All the other variables are dummy variables. The influence of the promoter's nationality on firms' survival is a relevant topic for study, as local promoters are better informed about national legislation, and therefore we anticipate that they are more able to obtain a higher survival rate for their businesses. We also expect that the entrepreneurs' capabilities, measured by their school enrolment rate and age, have a positive influence on firms' survival (*e.g.*, Mata and Portugal, 2002). With regard to the effect of the sector of activity on firms' survival, we consider the following categories: agriculture and fishing, construction,

manufacturing – categorized according to the technological intensity – and services. As most micro credit projects are in services, we adopted a larger categorization for this sector: delivering, production, social and personal services (Browning and Singelmann, 1975). Finally, the inclusion of the territorial dimension is accomplished in two ways: firstly, by considering the economic variables at the NUTS III level; secondly, by introducing a dummy variable for each region NUTS II in order to capture the influence of other specific regional characteristics on firms' survival.

4. Micro Credit and Territory – Portugal as a case study

First micro credit experiments were conducted in a particular territorial context, namely rural areas in some developing countries. As mentioned above, the results obtained from these experiments motivated the export of micro credit to countries and regions with enormous differences as far as the level of development was concerned. In this process, the instrument was also employed in urban areas, principally in developed countries. In Portugal, for the period between 1999 and 2009, 47% of the projects approved by ANDC were set up in the districts of Lisboa and Porto, two mainly urban areas (ANDC, 2010a).

The relevance of the territory dimension in the micro credit programmes in Europe, especially when they have social objectives, is illustrated by a significant presence of local schemes. Moreover, some of the most important national microfinance institutions felt the need to be located at the regional level.[11]

Focusing on the Portuguese case, we start by looking at the evolution of projects promoted by ANDC in the period 2006-2009 (Table 2).

Table 2 – Total ANDC Micro credit projects, 2006-2009

	2006	2007	2008	2009	Total
New Projects	123	144	219	192	678
Capital Increase	0	15	28	36	79
Capital Restructuring	4	7	8	12	31
Total	127	166	255	240	788

Source: Own calculations, ANDC database.

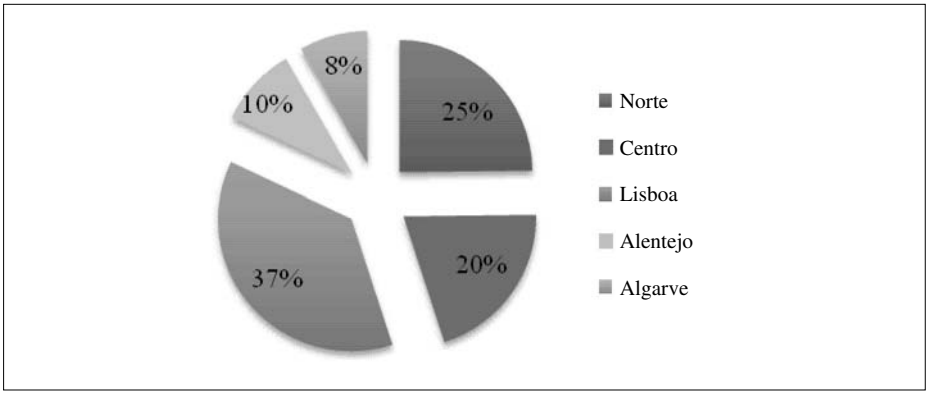
These numbers suggest an increasing importance of micro credit in the Portuguese economy in recent years, only interrupted in 2009. In this year there were fewer new projects and, simultaneously, more processes of increasing capital and extending repayment periods. This situation might be related to the recent economic crisis felt in Portugal and across Europe.

As the projects with capital increase or capital restructuring have started only recently and have only a slight bearing on total micro credit projects, we exclude them and focus on new micro credit projects.

We then analyse the distribution of new micro credit projects across regions NUTS II and III in the period 2006-2009 (see Figure 1 and Table 3).

11. This territorial relevance is illustrated, for example, by the presence of the 120 and 236 permanent offices in France of the Association pour le droit à l'initiative économique (Adie) and the France Initiative Réseau (FIR), respectively, in 2006 (Jayo *et al.*, 2008; Planet Finance, 2007).

Figure 1 – New Micro credit projects, by NUTS II, 2006-2009



Source: Own calculations, ANDC database.

Table 3 – Geographic distribution of Micro credit projects, 2006-2009

NUTS II / III	Municipalities			New micro credit projects		Total new firms with 1 or more employees, 2007	
	Total	with new projects					
		N.º	%	N.º	%	N.º	%
182 – Alto Alentejo	15	3	20.0%	5	0.7%	1 311	0.9%
183 – Alentejo Central	14	7	50.0%	17	2.5%	2 067	1.4%
181 – Alentejo Litoral	5	4	80.0%	8	1.2%	1 215	0.8%
184 – Baixo Alentejo	13	8	61.5%	24	3.5%	1 379	0.9%
185 – Lezíria do Tejo	11	6	54.5%	12	1.8%	2 994	2.0%
18 – Alentejo	**58**	**28**	**48.3%**	**66**	**9.7%**	**8 966**	**5.9%**
150 – Algarve	16	15	93.8%	56	8.3%	9 693	6.4%
15 – Algarve	**16**	**15**	**93.8%**	**56**	**8.3%**	**9 693**	**6.4%**
171 – Grande Lisboa	9	9	100.0%	201	29.6%	40 700	26.9%
172 – Península Setúbal	9	8	88.9%	50	7.4%	12 914	8.5%
17 – Lisboa	**18**	**17**	**94.4%**	**251**	**37.0%**	**53 614**	**35.5%**
161 – Baixo Vouga	12	8	66.7%	21	3.1%	5 694	3.8%
162 – Baixo Mondego	8	3	37.5%	19	2.8%	4 821	3.2%
163 – Pinhal Litoral	5	4	80.0%	23	3.4%	3 855	2.6%
164 – Pinhal Interior Norte	14	2	14.3%	2	0.3%	1 309	0.9%

(cont.)

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Table 3 – Geographic distribution of Micro credit projects, 2006-2009 *(cont.)*

NUTS II / III	Municipalities			New micro credit projects		Total new firms with 1 or more employees, 2007	
	Total	with new projects					
		N.º	%	N.º	%	N.º	%
165 – Pinhal Interior Sul	5	2	40.0%	2	0.3%	296	0.2%
166 – Dão – Lafões	15	6	40.0%	13	1.9%	3 207	2.1%
167 – Serra da Estrela	3	1	33.3%	1	0.1%	436	0.3%
168 – Beira Interior Norte	9	3	33.3%	5	0.7%	1 004	0.7%
169 – Beira Interior Sul	4	1	25.0%	2	0.3%	780	0.5%
16A – Cova da Beira	3	2	66.7%	2	0.3%	998	0.7%
16B – Oeste	12	11	91.7%	36	5.3%	5 266	3.5%
16C – Médio Tejo	10	6	60.0%	11	1.6%	2 590	1.7%
16 – Centro	**100**	**49**	**49.0%**	**137**	**20.2%**	**30 256**	**20.0%**
111 – Minho – Lima	10	1	10.0%	7	1.0%	2 714	1.8%
112 – Cávado	6	4	66.7%	12	1.8%	5 220	3.5%
113 – Ave	8	6	75.0%	12	1.8%	6 179	4.1%
114 – Grande Porto	9	7	77.8%	70	10.3%	20 738	13.7%
115 – Tâmega	15	5	33.3%	13	1.9%	5 556	3.7%
116 – Entre Douro e Vouga	5	2	40.0%	9	1.3%	3 743	2.5%
117 – Douro	19	7	36.8%	26	3.8%	2 186	1.4%
118 – Alto Trás-os-Montes	14	5	35.7%	19	2.8%	2 300	1.5%
11 – Norte	**86**	**37**	**43.0%**	**168**	**24.8%**	**48 636**	**32.2%**
1 – Portugal (mainland)	**278**	**146**	**52.5%**	**678**	**100.0%**	**151 165**	**100.0%**

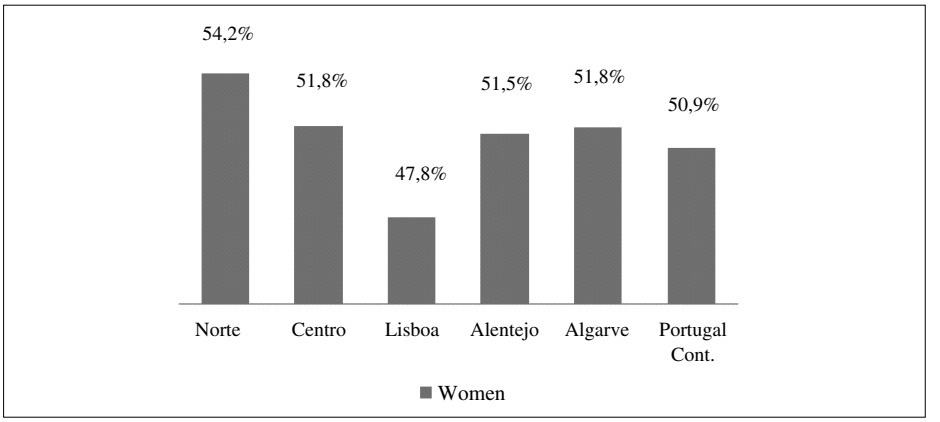
Source: Own calculations, ANDC database and INE (2010).

In Figure 1 the relative importance of Lisboa is clear in the results, with a proportion of 37% of the total of new projects developed during the period 2006-2009. Additionally, Table 3 shows that the 9 municipalities of NUTS III Grande Lisboa are the most dynamic as regards micro credit. This table also demonstrates that the presence of micro credit is not uniform across Portugal. There are regions, such as Lisboa and Algarve, where new projects have been developed in almost every municipality, but there are also regions where the existence of new projects is more concentrated in some of the municipalities, Minho-Lima and Pinhal Interior Norte being the best examples. In these two areas there are 24 municipalities but in only 3 were there projects in the period under study (Viana do Castelo, Vila Nova de Poiares e Miranda do Corvo).

At the national level (mainland Portugal), the number of municipalities with new micro credit projects was slightly above 50% in the period 2006-2009. Compared with firm birth rates in each region for 2007 (INE, 2010), we detect different regional dynamics at this level, with the geographical distribution of micro credit projects and total new firms being dissimilar.

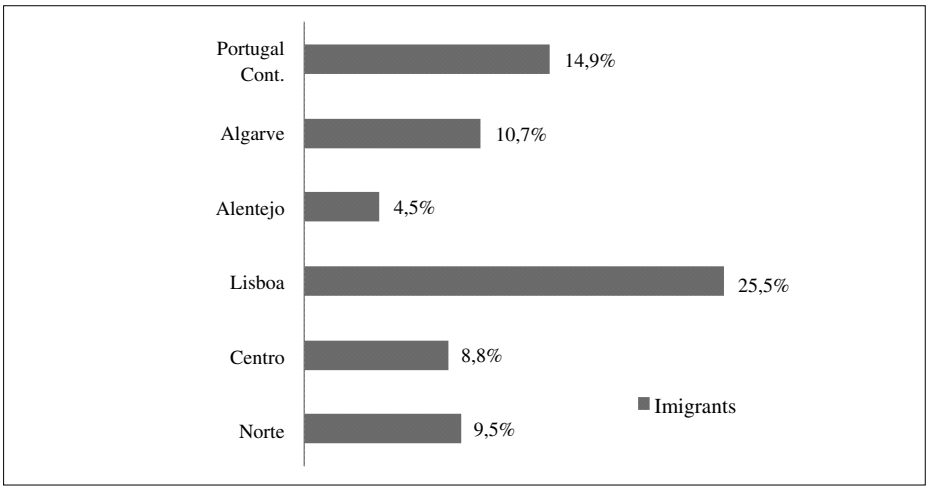
Focusing now on the characterisation of the micro credit public by nationality, gender, age and scholarship, once again for the period 2006-2009, it is possible to observe significant differences between regions, even when the analysis is made at a NUTS II level, as Figures 2 to 5 show.

Figure 2 – Women in new Micro credit projects, by NUTS II, 2006-2009



Source: Own calculations, ANDC database.

Figure 3 – Immigrants in new Micro credit projects, by NUTS II, 2006-2009



Source: Own calculations, ANDC database.

We observe substantial differences in the geographical distribution of micro credit projects developed by women and immigrants, usually identified as more vulnerable to social exclusion.

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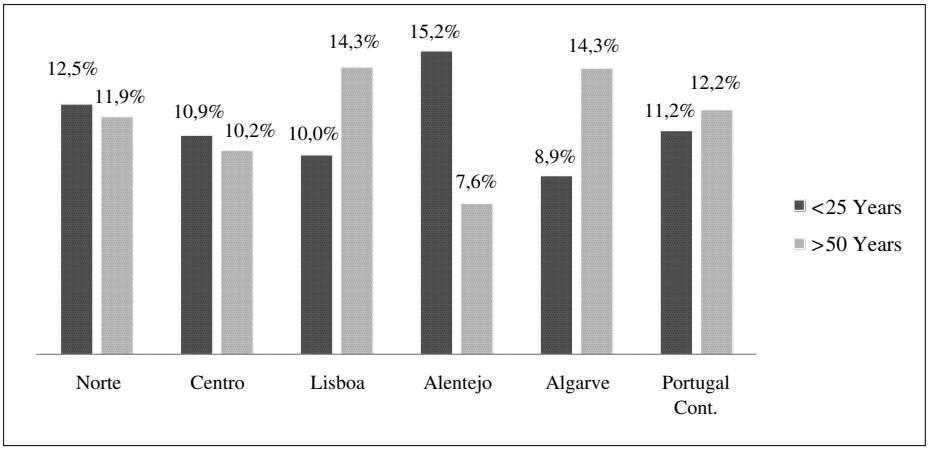
As regards women (Figure 2), Lisboa clearly has the smallest percentage, whereas Norte is the region where there is a more significant proportion of women, followed by Algarve, Centro and Alentejo with similar percentages. This situation can be associated with larger feminine unemployment rates, as in 2009 these rates reached 12.4%, 11.9% and 11.2% in Norte, Alentejo and Algarve respectively, according to the Instituto Nacional Estatística (INE, 2009a).

By comparison, the number of immigrants' projects is significantly higher in Lisboa, where a quarter of the new projects are promoted by immigrants (Figure 3). The presence of immigrants' micro credit projects in other regions is concentrated in a reduced number of municipalities. For instance, in NUTS II Alentejo there were 3 projects in 3 municipalities, while in NUTS III Grande Porto there were immigrants' projects only in the municipalities of Porto and Vila Nova de Gaia. When compared with the distribution of total immigrants in Portugal (SEF, 2010), we may observe that the most significant region is also Lisboa, but in this case comprising 54% of total immigrants in Portugal.

Figure 4 – New Micro credit projects, by age of the promoters, by NUTS II, 2006-2009

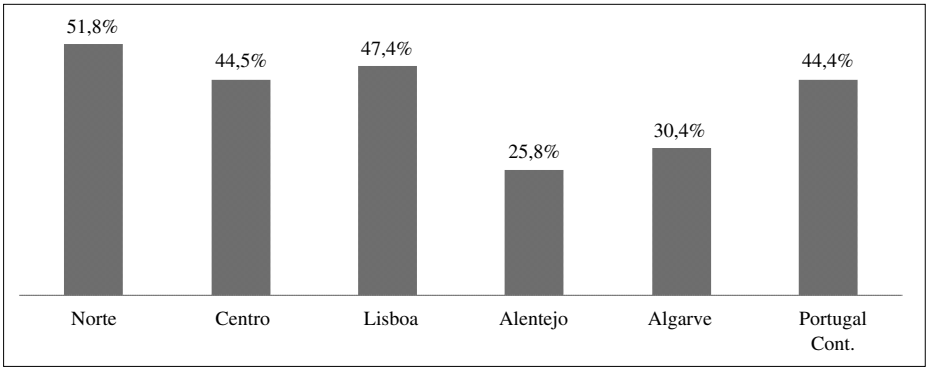


Source: Own calculations, ANDC database.

The average age of the groups is also a criterion with distinct results by territory (Figure 4). Considering the peripheral groups – young people under 25 and adults over 50 years of age – it is curious to see the relatively high proportion of young people in Alentejo (15.2%), a region with the highest ageing index in the last few decades (INE, 1991-2008). Also significant is the number of promoters over 50 years old in Lisboa and Algarve, where they overtake the number of young people.

Figure 5 highlights an important characteristic associated with the ability to manage a business: the level of qualifications of entrepreneurs. In the period under study, almost 52% of the new micro credit projects in Norte were conducted by promoters who had at least completed secondary education. This number contrasts with 26% and 30% in the two southern regions of the country, Alentejo and Algarve respectively. We must also note that the distribution of micro credit promoters and the distribution of total population by education level is dissimilar: according to INE (2009a), and for the year 2009, the highest secondary school enrolment rates take place in Lisboa (43.8%) and Algarve (35.8%), while for Norte and Centro, the corresponding rates are much lower (27.1% and 28.4%, respectively).

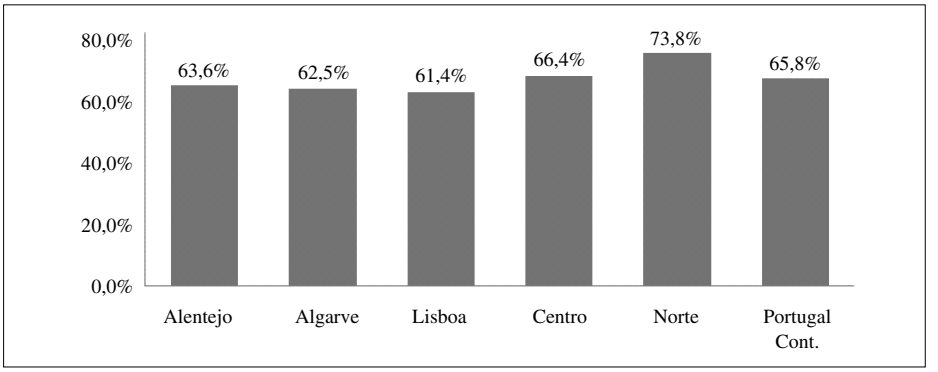
Figure 5 – Micro credit promoters with the secondary school, by NUTS II, 2006-2009



Source: Own calculations, ANDC database.

The relatively higher qualifications attained by the micro credit promoters in Norte may be one of the explanations for the better results obtained in terms of the survival rate of the projects in this region. Figure 6 confirms that Norte was the region with by far the best performance when we relate the relative importance of the businesses open on 31st December 2009 with the total of new projects that began in the period 2006-2009.

Figure 6 – Micro credit business survival rates at 31/12/2009, by NUTS II



Source: Own calculations, ANDC database.

At this stage we may state that there are important territorial nuances concerning the implementation of micro credit in Portugal. The statistical analysis developed so far offers fundamental support for developing a survival analysis to explore the influence of the territory on the success of micro credit loans.

As previously mentioned, our database covers new micro credit projects developed in mainland Portugal within the ANDC programme from 2006 to 2009. We have 652 observations, 206 (31.6%) of which correspond to business closures (Table 4).

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Table 4 – Case processing summary

		N.º	%
Cases available in analysis	Events*	206	31,6%
	Censored	446	68,4%
	Total	652	100,0%

* Dependent variable: Businesses life time
Source: Own calculations, ANDC database.

To proceed with our analysis, we test the proportional hazard assumption to guarantee that there were no time dependent variables included in the model, by calculating the correlations between the Schoenfeld partial residuals for the quantitative variables and the ranked order of businesses' life time (*Rank*) for non-censored observations. When the correlations obtained by means of this process are significantly different from zero, then the hypothesis is rejected and the extended Cox model must be considered (Table 5).

Table 5 – Correlations between the Schoenfeld partial residuals and the rank order of the survival time for non-censored observations

		Rank of the businesses life time	Partial residual for DP	Partial residual for VAB
Rank of the businesses life time	Pearson correlation	1	-0.044	0.017
	Level of significance (2-tailed)		0.533	0.811
	Number	206	206	206
Partial residual for DP	Pearson correlation	-0.044	1	-0.086
	Level of significance (2-tailed)	0.533		0.220
	Number	206	206	206
Partial residual for VAB	Pearson correlation	0.017	-0.086	1
	Level of significance (2-tailed)	0.811	0.220	
	Number	206	206	206

Source: Own calculations, ANDC database.

Our results show that there is no evidence of statistical correlation among variables at a 0.05 level of significance. Therefore, we do not reject the hazard proportional hypothesis and proceed with the estimation of the Cox proportional hazard model.

Table 6 shows the omnibus test of model coefficients, which allows for an overall evaluation of the model. The likelihood ratio and the chi-square statistics are asymptotically equivalent tests of the omnibus null hypothesis that all coefficients (*b*) are zero. In this case, the null hypothesis is rejected (p-value < 0.05), indicating that there are variables with a significant impact on the survival of microcredit projects.

Table 6 – Omnibus test of model coefficients in Cox regression

-2Log Likelihood	Overall (score)		
	Chi-square	d.f.	p-value
2 544.231	34.391	20	0.024

Source: Own calculations, ANDC database.

The results of the Cox Proportional Hazard model are presented in Table 7.

Table 7 – Cox proportional hazard model: results

	Estimated β	Standard Error	Wald	d.f.	Significance level	Exp (Estim. β)
DP	0,001	0,000	8,239	1	0,004*	1,001
VAB	0,019	0,011	2,836	1	0,092*	1,020
HAB – U			7,779	3	0,051*	
HAB – 1C	0,613	0,341	3,224	1	0,073*	1,845
HAB – 3C	0,765	0,290	6,976	1	0,008*	2,149
HAB – S	0,513	0,298	2,953	1	0,086*	1,670
IDD- D			1,774	3	0,621	
IDD – A	0,181	0,260	0,487	1	0,485	1,199
IDD – B	-0,027	0,198	0,018	1	0,893	0,974
IDD – C	0,173	0,202	0,732	1	0,392	1,188
NAC	0,296	0,184	2,597	1	0,107	1,345
NEG – SS			7,231	7	0,405	
NEG – A	0,061	0,669	0,008	1	0,927	1,063
NEG – C	0,365	0,532	0,471	1	0,493	1,441
NEG – IBT	0,292	0,492	0,353	1	0,552	1,340
NEG – IFT	0,681	0,719	0,897	1	0,344	1,975
NEG – SDB	0,471	0,434	1,179	1	0,278	1,602
NEG – SP	0,465	0,443	1,101	1	0,294	1,592
NEG – SPD	-0,337	0,533	0,400	1	0,527	0,714
REG – N			5,119	4	0,275	
REG – AG	0,566	0,346	2,682	1	0,102	1,761
REG – AT	0,618	0,329	3,529	1	0,060*	1,855
REG – C	0,500	0,267	3,496	1	0,062*	1,648
REG – L	-0,027	0,202	0,018	1	0,894	0,974

Source: Own calculations, ANDC database.

* Significant at 0.1 level of significance

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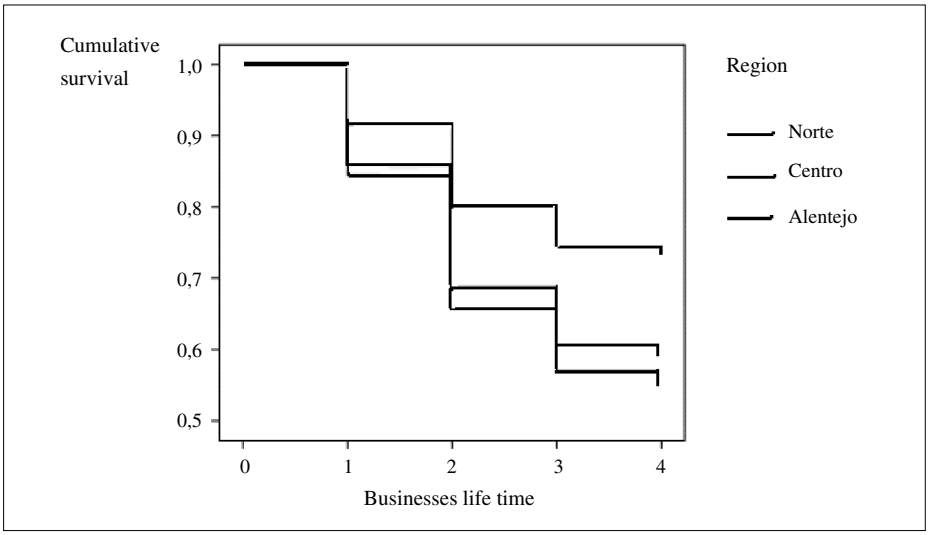
The results show that the population density is significant and has a negative influence on the survival of micro credit projects. In fact, we expect that an increase of 1 inhabitant per square km increases the business closure likelihood of 0.1%, *ceteris paribus*. Additionally, we observe that the sector dynamics have a negative influence on firms' survival, which contradicts our expectations.

As far as the promoter's schooling is concerned, the results are as expected: we observe that the probability of business closure for a promoter with a bachelor's or higher degree is the lowest. Actually, a micro credit promoter with only primary school education has a risk of closure of 84.5% higher than if the project had been developed by a promoter with a bachelor's or higher degree, *ceteris paribus*. If the promoter has completed the first years of secondary schooling (up to the age of about 15), the risk of shutdown increases to 114.9%, while for a promoter who has completed secondary education, this risk is 67% higher than if he/she has a bachelor's or a higher degree. Our results do not support the influence of a sector's specificities or of a promoter's nationality or age on firms' survival.

Finally, for the regional dummies, the results reveal that the probability of observing a business closure is 85.5% and 64.0% higher in Alentejo and Centro, respectively, when compared with Norte, *ceteris paribus*. Therefore, we may conclude that differences exist between the territories with regard to the characterization of the target public and the success of the economic initiatives created during the period under study.

In Figure 7, we depict the survival function for the new micro credit projects.

Figure 7 – Survival function for Micro credit projects (NUTS II) (2006-2009)



Source: Own calculations, ANDC database.

Focusing on the regions with significant results, we may confirm that there is a significant difference between Norte on the one hand, and Alentejo and Centro on the other. In fact, at the end of the period under study, we observed that the probability of survival is higher than 70% in Norte, while in Alentejo and Centro, it remains close to 60%.

5. Conclusions

It is recognized that micro credit is growing and gaining attention as an instrument of social policy in Europe and particularly in Portugal, even if it is still a recently established sector, of as yet small dimensions, when compared with the experiments in developing countries, namely in South Asia and Latin America.

In Portugal, micro credit was introduced at the end of the 1990s through a partnership between an NGO, a commercial bank and a public institution, and our study was based on this experiment. Starting from the ANDC database for the period 2006-2009, we identified some of the main territorial characteristics of the programme developed by this institution.

Our results allow us to conclude that differences exist between the territories as far as the public characterization and the success of the economic initiatives created during the period under study are concerned. We also focused on the survival of the micro credit projects in the same period and concluded that both the population density and the sector dynamics exert a negative influence, while the promoters' qualifications seem positively to influence the micro credit projects' survival. Finally, we observed that the region with the lowest business closure rate is Norte, with Alentejo and Centro being subject to a higher risk of closure.

This analysis is crucial at a policy level. In fact, as the introduction of microcredit to the European agenda highlights (Unterberg, 2009), this instrument is important in several policy areas such as: social policy, given its role in fighting against poverty and social exclusion; employment policy, by stimulating self-employment solutions; and economic policy, by promoting entrepreneurship and the emergence of new firms (Unterberg, 2009).

In particular, since our results sustain the relevance of territorial idiosyncrasies associated with micro credit in Portugal, we argue that policy makers should implement local responses that, in the first instance, include micro credit both at the social and the economic dimensions of regional policies and, in the second instance adapt programmes' conditions to local needs.

This may suggest considering new micro credit schemes or introducing some changes in the schemes that have been implemented so far, especially if we take into account that the existing programmes have the same loan conditions and mechanisms regardless of the region where they are implemented. Looking at the two main results of the survival analysis (the negative influence of population density and the positive influence of promoters' qualifications), we can point out as possible changes to these schemes the introduction of differences in loan grace periods (allowing longer periods in regions with higher population densities), in the risk analysis within credit decision processes and in the definition and practice of the technical monitoring of projects and promoters. The shaping of programme conditions and operations will certainly contribute to improving the survival rate of projects at local level. Additionally, the identification and strengthening of local partnerships is a significant part in this process.

We expect to further improve this research, namely by exploring other causes for the closure of micro credit business projects. Some of the variables considered in the present study have an impact on the micro credit projects' survival but they do not explain everything nor allow the identification of the consequences of this closure to the beneficiary and his/her family. Lack of profitability is one of the major reasons for business closure(s) but there are other factors that can determine this situation, such as promoters' constraints (diseases or family issues) or a better working opportunity. This kind of information is not directly available at ANDC. Hence, the undertaking of future research within this area would demand different research methodologies and resources.

Another direction which further research could take would be the enlargement of the territorial analysis to other micro credit programmes developed in Portugal, including both national and local schemes.

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