Dynamic analysis of business demography strategy: An European perspective

Francisco del Olmo-García[1], Fernando Crecente-Romero[2], Maria Teresa del Val-Núñez[3]

[1] PhD Program in Economics and Business Management, University of Alcalá, Spain, Francisco.olmo@uah.es
[2] University of Alcalá, Spain, fernando.crecente@uah.es
[3] University of Alcalá, Spain, mteresa.val@uah.es

ABSTRACT

The development of entrepreneurial spirit based on market opportunities, innovation, and creativity is what drives economic growth, provided this takes place under conditions of sustainability. To ensure such development, an institutional framework conducive to business creation must be established. However, the scope should be broadened to consider the lessons learned by entrepreneurs who have not failed in their first five years of activity. Authorities can thereby design and implement suitable measures to ensure high rates of entrepreneurial survival. This paper presents an analysis of business demography in the Eurozone, with a special focus on new firms. Using business demography data from Eurostat for the period 2008 to 2015, we study differences in business dynamics (business creation and failure), comparing the likelihood of survival and failure of newly created firms across different stages of the economic cycle. During the aforementioned period, entrepreneurs and self-employed persons intensified their internationalization efforts and increased their contact with other regions in response to the effects of lower internal demand and variation in relative labor costs. In this paper, we analyze a) historical trends in the rate of entrepreneurship by business size, legal form, and sector; b) trends in business specialization across European regions; and c) the regional trends in the number of firms per 1,000 active persons (or business density) as an indicator of growth to assess the convergence or divergence of Northern European regions and Southern European regions over the study period. These analyses highlight the economies with the highest rates of entrepreneurial survival and have implications for employment and sector dynamics.

Introduction

Choosing to become an entrepreneur by starting a business venture is no easy decision, nor is it easy to understand the repercussions that this decision will have for entrepreneurs themselves and society as a whole.

The sheer diversity in the profile of entrepreneurs is one of the most valuable assets of any country's economic context. The entrepreneurial profile varies regardless of gender, origin, or other characteristics. An entrepreneur may be a young person who opts not to work for others but instead decides to devote all of his or her efforts to making a success of a new venture. An entrepreneur may just as well be an experienced professional who decides to take a new direction in

her or his career and go it alone by starting a new business. Alternatively, an entrepreneur might be an experienced entrepreneur who has launched failed or successful businesses and who, upon seeing an opportunity, decides to take it by starting a new venture.

Understanding the entrepreneurial process means understanding the tradeoff defined by risk under uncertain conditions (to borrow Knight's terms) versus the chance to exploit a market opportunity using some form of innovation (to borrow Schumpeter's terms of "creative destruction"). In this sense, Joshi & Anand (2018) provide interesting evidence about the relationship between perceived uncertainty and routine and non-routine information seeking, while business models change and a dynamic capabilities point of view is necessary for understanding early-stage firms and its adaptability to the environment (Adam, Strähle & Freise, 2018). Thus, strategies based on high performance work systems become vital to achieve startup success (Bendickson, Mul-

doon, Ligouri. & Midgett, 2017).

Understanding this tradeoff also involves considering the repercussions that these business decisions have for economic activity, taking into account how entrepreneurs predict what markets will be like in the future. In this sense, Rita, Priyanto, Andadari, & Haryanto (2018) show evidence of strong correlation between future anticipation, entrepreneurship and entrepreneurial background. In addition, Schenkel, D'Souza, Cornwall, & Matthews (2015) expose that prior start-up experience has significant positive influence over entrepreneurship. However, Harris, Gibson & McDowell (2014) conclude that previous business experience does not significantly impact firm performance. So, entrepreneurial failure could be an important experience for business success, but it is not the only factor to considering.

From a theoretical perspective, interest in the figure of the entrepreneur is exemplified by classical research by authors such as Cantillón, Say, and Stuart Mill (Carrillo, Bergamini, & Navarro, 2014). As Almodóvar (2016) notes, however, until recently, this has only been enough to elicit scarce consideration of entrepreneurial activity in economic growth models. Nevertheless, a systemic relationship has been found between a country's per capita GDP and economic growth and the rate and type of entrepreneurial activity, highlighting the existence of a virtuous circle consisting of entrepreneurship and economic activity (Minniti, 2012).

The empirical evidence indicates that a higher rate of entrepreneurial activity enables faster economic growth and greater productivity (Audretsch, 2007; Boente, Heblich, & Jarosch, 2008; Callejón & Segarra, 1999), while causing a long-term reduction in unemployment (Thurik & Verheul, 2002) and increasing per capita GDP (Audretsch, Thurik, Verheul, & Wennekers, 2002). Here, institutional quality is important because of its role as a driver of growth and its effect on the entrepreneurship process (Minniti, 2012). Those responsible for economic policy have taken note of these findings. The European Commission has stressed the need to support entrepreneurship as a powerful driver of economic growth and job creation (European Commission, 2003). This stance is reflected by the numerous measures adopted in recent years, best exemplified by The Entrepreneurship 2020 Action Plan. This plan is devoted not only to helping budding entrepreneurs complete the necessary procedures to start a business but also to fostering an entrepreneurial culture that can strengthen the European economy. The plan focuses on the following pillars: developing education and training to foster entrepreneurial spirit, removing administrative barriers that prevent entrepreneurs from taking their first steps, and creating the right business culture.

In this paper, we study the behavior and development of European entrepreneurship from the perspective of business dynamics and demographics. The goal is to study the rate of entrepreneurship success and failure in the main countries of the Eurozone for the period 2008 to 2015, which spans the recent period of economic crisis.

To do so, we first present the method and information sources used for the study, supported by a rigorous literature review. After describing the method and main information sources, we analyze the dynamics of the demography of business creation and failure and study the role of entrepreneurial failure. Next, we analyze changes in sector specialization to determine whether the model of production has changed as a result of the prolonged period of crisis. Finally, we analyze the process of convergence between different countries in the Eurozone, using annual growth in entrepreneurship as a proxy for economic growth.

If Eurozone countries wish to continue growing sustainably over time, with the attendant development that this entails for European society, they must encourage the development of entrepreneurship in Europe and foster competitiveness through economic policies that improve the economic environment and the institutional framework where these new firms operate.

Business Demography

Business failure has been analyzed using a range of perspectives and methodologies. This analysis has underpinned one of the most active areas of research in business economics in recent decades. In parallel with the study of the causes of business failure, emphasis has been placed on the study of business dynamics, especially within the regional economy. This consists of the study of the process of net creation and destruction of firms, principally through the analysis of demographic features (Segarra, Arauzo, Gras, Manjón, Mañé, Teruel, & Theilen, 2002; van Dijk & Pellenbarg, 2000; van Wissen, 2002). This analysis approach is nothing new, as reflected by classical research by Stanback and Knight (1970), and Hannan and Freeman (1977), among others.

Driven by increasingly accurate public information, notable analyses include those by Eurostat (e.g., Schrör, 2008a, 2009), the OECD (2017), and the European Commission (European Commission, 2004; Rossetti, 2017). The latter analysis referred to here focused on behavior in the information and communications technology sector. Other notable research includes analysis of business dynamics in job creation (Schrör, 2007; Schrör, 2008b). Similarly, scholars have conducted numerous studies of European countries with a national scope focusing on, for example, Belgium (Verduyn, 2013), Portugal (Nunes, & de Morris Sarmento, 2012), and Poland (Markowicz, 2007; Ptak-Chmielewska, 2011).

In the case of Spain, concern over business dynamics has always been linked to the study of industry and convergence across regions (Segarra et al., 2002, Segarra & Mar-

tin, 2004). A sector approach has been applied in numerous studies (Spanish Chamber of Commerce, 2001; Segarra & Martin, 2004; Garrido, 2008b; Banco de España, 2015), although territorial studies (Cardona, García, & i Caralt, 2012; Garrido, 2008a; Spanish Chamber of Commerce, 2001) and aggregate studies (e.g., Fariñas & Huergo, 2015) have been just as important.

In the wake of the recent economic crisis, scholars such as Herce, Parada, Barragán, Galindo, Delgado, & Sepúlveda (2012) and Crecente, Martos, & Rivera (2014); Crecente, Martos, & Rivera (2015), the latter focusing on self-employment, have analyzed survival, adopting a regional and sector-based perspective to identify differences in trends of business mortality as a function of a birth cohort.

Method

To perform the proposed analysis, we selected only firms with a maximum of nine employees (including firms with no employees), as per the definition of microenterprises found in Annex I of Commission Regulation (EU) No 651/2014. The justification for this selection criterion is that we only sought to analyze the demographic dynamics of newly created firms resulting from entrepreneurship. This excluded all other firms, which, even if they had been newly created, probably resulted from splits from larger companies or the formation of subsidiaries of business groups. Thus, throughout this study, we refer to entrepreneurial ventures as firms that have no employees or have fewer than 10 employees and that were created during the study period.

The geographical scope of the study was extended to all member states in the Eurozone. This decision is justified by the need to reduce as much as possible any element of the economic and institutional environment that might cause differences between different countries and that might create bias in the conclusions derived from the analysis. We therefore chose countries with the same monetary policy and, accordingly, the same economic and financial rules and institutional demands. From a sector perspective, the data collected for this analysis were based on the definitions published in the NACE Rev. 2 classification. For this study, we considered the categories "Industry (except construction)," "Construction," and "Services of the business economy except activities of holding companies."

The main data source was Eurostat, the European statistical office. More specifically, we took data from the "Business demography" database, which contains annual data and provides aggregate information on firms and the features of business demographics for each member state (Eurostat, 2007). This approach meant that we were able to use data from different countries following harmonized definitions and criteria. However, this data source also has certain limitations. For example, data was not available for all countries for the entire study period (i.e., data for Greece and Malta were missing). The variables that were used in this study are detailed in Table 1.

Table 1
Variables used in the study

Variable	Description	Expression
Rate of entrepreneurship	Number of ventures created in year t divided by active business population in year t. R^t is the number of ventures created in year t, and N^t is the active business population in year t.	$TR^t = \dfrac{R^t}{N^t} \times 100$
Entrepreneurial failure rate	Number of ventures that failed in year t divided by active business population in year t. D^t is the number of ventures that failed in year t, and N^t is the active business population in year t.	$TD^t = \dfrac{D^t}{N^t} \times 100$
Entrepreneurial Failure/ mortality function	Number of ventures created in year t that had not survived by year t + k divided by the number of ventures created in year t. $s^{(t+k)}$ is the number of ventures created in year t that had survived by year t + k, and R^t is the number of ventures created in year t.	$1 - TS^{t+k}$ Being: $TS^{t+k} = \dfrac{s^{t+k}}{R^t} \times 100$
Entrepreneurship and labor population rate	N^t is the number of active ventures in year t, and PA^t is the labor population (aged 15–64 years) in year t.	$TE^t = \dfrac{N^t}{PA^t}$
Specialization index	$N_{(S,P)}$ is the number of ventures in sector S and country P, and N_P is the number of country P entrepreneurial projects.	$IE_{S,P} = \dfrac{\dfrac{N_{S,P}}{N_P}}{\dfrac{N_{S,Eurozone}}{N_{Eurozone}}}$

Note: Authors' calculations.

Results

Business Structure in the Eurozone Before the Economic Crisis

The economic dynamism of the Eurozone is reflected by the highly consolidated business population, which comprised 18,463,349 firms in 2015. This figure represents 72.3% of the businesses in the European Union. Analyzing this data further shows that self-employment makes up the largest segment, accounting for 61% of all firms. Firms with 1 to 4 employees account for 28% of firms. Firms with 5 to 9 employees and those with 10 or more account for roughly the same percentage of firms (approximately 6% each). Therefore, 95% of firms in the Eurozone have fewer than 10 employees. In short, it is fundamental for the European authorities to develop suitable initiatives to encourage the survival and growth of the smallest firms, which provide 34% of total employment in the Eurozone business sector.

In terms of activity, 76% of firms are service firms, whereas just 15% operate in the construction sector, and 9% operate in the industry sector. This distribution hardly changes when firm size is accounted for, although when smaller firms are considered, the percentage of service firms is higher and the percentage of industrial firms is lower see (Figure 1).

When type of employment is considered, we observe that 77% of the employment generated by self-employment is in the service sector, largely influenced by the range of services provided by those who work in the liberal professions, versus 7% in industry. However, the effect of size is noticeable: The service sector accounts for only 64% when firms with 10 or more employees are considered, whereas the industry sector accounts for 30% of employment, most likely because of the effect of economies of scale enabled by the size of these firms. This data reflect the decreasing relative importance of the construction sector as firm size increases.
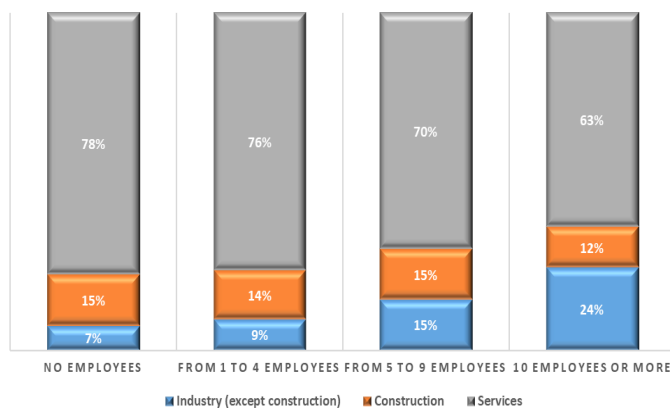
This data shows the prominent role of self-employment and microenterprises in the Eurozone. The aim of the study is to analyze the dynamics of entrepreneurship. Hence, our analysis focuses on the segments comprising the smallest firms, which are therefore also most closely related to recent entrepreneurial activity. This focus allows us to study structural characteristics in depth.

Accordingly, we were interested in analyzing the historical evolution of the population of self-employed businesses and microenterprises by sector. Notably, the first year of the study period coincided with the start of the financial crisis. Figure 2 shows how the business population evolved over time, taking 2008 as the base year. Figure 2 plots the varying trends that define this evolution and reflects the way the effect of the crisis varies by firm size and sector.
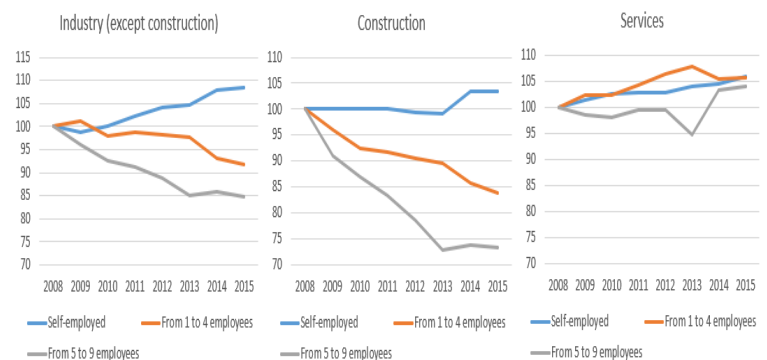

Figure 2. Self-employed and microenterprises evolution in the euro zone by economic sector (2008 = 100)
Note: Authors' calculations based on Eurostat data; Greece and Malta excluded.

The results by sector show that the crisis mainly affected the industry and construction sectors, mainly the latter of the two. The results by firm size indicate that self-employed persons showed the greatest strength. Their flexibility and ability to adapt and reinvent themselves meant that the number of firms virtually remained stable throughout the period in the construction and industry sectors, both of these sectors were heavily affected by the crisis. Meanwhile, there was considerable growth in the service sector. The number of service firms in 2015 was 6% higher than in 2008. In contrast, the segment of larger firms (5 to 9 employees) had the highest rate of failure throughout the crisis. The number of construction firms with 5 to 9 employees reached a minimum in 2013, after losing 27% of firms in just five years, but failed to recover by 2015. Although less pronounced, a similar negative trend can be observed in relation to firms in the industry sector. After seven years of economic crisis, the number of firms in the Eurozone had fallen by 15% with respect to the number in 2008. The service sector, however,

Figure 1. Proportion of enterprises by size class and economic sector
Note: Authors' calculations based on Eurostat data.

experienced a different trend. After reaching a minimum in 2013, following a 5% drop with respect to 2008 in terms of the number of firms with between 5 and 9 employees, subsequent economic recovery drove an increase in the number of firms such that by 2015, the number of firms was 4% higher than it was in 2008.

The number of medium-sized microenterprises (i.e., 1 to 4 employees) followed a more positive trend that reflects how, once again, the service sector continued to grow steadily from 2008 onward, with 6% more firms in 2015 than in 2008. However, this dynamic was not reflected in the other two sectors under study. In the industry sector, the number of firms with 1 to 4 employees was 8% lower than in 2008, and in the construction sector, the number of firms was 16% lower than in 2008. In light of these results, the strength of smaller firms, especially those in the service sector, helped boost the business population in the Eurozone, albeit with a high cost in terms of firm mortality and therefore employment.

Following this analysis of the Eurozone business structure based on aggregate data, we focused on the individual situation in each country, considering the changes experienced by self-employed businesses and microenterprises in each region. Table 2 shows the historical evolution of the number of self-employed businesses and microenterprises from 2008 to 2015 as well as the rate of entrepreneurship, taking 2008 as the reference year.

The analysis highlights the notable case of Latvia, which experienced a 191% increase in the number of self-employed persons over the 7-year period, albeit with a marginally downward trend in the number of microenterprises. The other Baltic countries, Lithuania and Estonia, experienced strong growth in the number of microenterprises (33% and 25% growth, respectively). Lithuania also experienced strong growth of 41% in the number of self-employed persons, whereas the number of self-employed persons in Estonia essentially remained constant, with virtually no variation in the business population for this segment. These results are particularly noteworthy given the major impact of the crisis on the three Baltic countries, whose economies underwent major economic adjustments that enabled them to successfully overcome their difficulties (Garrote, del Río, Sastre, & Valdeolivas, 2013).

Another notable case given its contradictions and the major impact of the economic crisis, which led to financial bailout, is Ireland. Ireland's self-employed population rose by 65% over the period, contrasting with an 8% drop in the number of microenterprises over the same period. The trend in the number of self-employed persons was also positive in the Benelux countries, with 130% growth, and in France, Slovenia, and Slovakia, all with growth rates of more than 45%. In contrast, there was a prominent negative trend in

Spain, where the self-employed population fell by 3%, and in Italy, Cyprus, Germany, and Portugal, where the decrease was more than 10% in all cases and close to 20% in Germany and Portugal.

The microenterprise population has followed a much less dynamic trend since 2008. Positive trends can be observed in the cases of Luxembourg, which experienced an increase of 33%, and France, Slovenia, and Italy, whose growth was approximately 10%. The trend in the microenterprise population was highly negative in Portugal, Spain, and Cyprus, whose business populations shrank by between 8% in Portugal and 15% in Spain and Cyprus. There was a notable reduction in the number of businesses in the segments of smaller sized firms in these three countries over the study period. This finding affords the competent authorities an opportunity to reflect upon the proposed measures to help smaller firms become more competitive and reduce the likelihood of failure in recessive economic cycles.

Similarly, the data presented in Table 2 also refer to the way that the rate of entrepreneurship has evolved over time. The rate of entrepreneurship captures the number of self-employed persons and microenterprises per 1,000 active employees as an indicator of the degree of entrepreneurial initiative of the active population of each country (Spanish Chamber of Commerce, 2001). This rate is closely associated with entrepreneurial processes and the dynamics of labor market entry and exit. Regarding self-employed persons, notable cases are Latvia and Ireland, with growth of 231% and 72%, respectively, although the trends in Slovakia, Slovenia, France, and Lithuania were also notable, with growth of between 40% and 50%. In contrast, Cyprus, Germany, Portugal, and Italy stand out because of the considerable reduction in their rates of entrepreneurship, which ranged between 10% and 20%. The case of Germany is particularly noteworthy because in both 2008 and 2015, Germany had the lowest rate of entrepreneurship in the Eurozone, with fewer than 40 self-employed persons per 1,000 active persons.

In terms of microenterprises, once again there was strong growth in the Baltic countries and Slovenia, with rates that ranged from 13% to 37%. This contrasted with the dramatic fall in Spain (15%) and Cyprus (23%). The Netherlands had the lowest rate of microenterprise entrepreneurship in the Eurozone, with just 20 microenterprises per 1,000 members of the active population, again followed by Germany, with a rate of around 27.

Historical Evolution of Business Demography in the Eurozone

The analysis presented in the previous section yields certain conclusions regarding the differences in the dynamics of entrepreneurship across the Eurozone. However,

Table 2

Self-employed persons and micro enterprises population (2008–2015)

Self-employed	Number of enterprises		Growth index		Entrepreneurship and labor population rate		Growth rate
	2008	2015	2008	2015	2008	2015	2008–2015
Latvia	19,207	55,969	100%	291%	17.51	58.00	231%
Ireland	86,602	142,629	100%	165%	37.46	64.28	72%
Slovakia	222,013	327,389	100%	147%	82.87	120.41	45%
Slovenia	51,075	74,611	100%	146%	50.02	75.21	50%
France	1,618,824	2,361,988	100%	146%	58.32	80.99	39%
Lithuania	79,964	112,630	100%	141%	53.88	78.54	46%
Belgium	334,931	456,014	100%	136%	70.56	96.06	36%
Luxembourg	9,196	12,013	100%	131%	43.17	43.84	2%
Netherlands	685,523	883,775	100%	129%	78.76	101.36	29%
Finland	140,724	155,088	100%	110%	52.73	59.22	12%
Estonia	31,779	32,021	100%	101%	47.43	48.96	3%
Austria	207,309	207,735	100%	100%	50.56	48.10	-5%
Spain	1,736,994	1,688,181	100%	97%	75.82	74.15	-2%
Italy	2,737,144	2,432,989	100%	89%	112.38	97.33	-13%
Cyprus	21,197	17,804	100%	84%	54.91	43.11	-21%
Germany	1,599,010	1,322,461	100%	83%	38.97	32.16	-17%
Portugal	620,178	510,096	100%	82%	119.20	103.07	-14%
Microenterprises (From 1 to 9 employees)	*Number of enterprises*		*Growth index*		*Entrepreneurship and labor population rate*		*Growth rate*
	2008	*2015*	*2008*	*2015*	*2008*	*2015*	*2008–2015*
Lithuania	42,847	56,851	100%	133%	28.87	39.65	37%
Estonia	34,992	43,883	100%	125%	52.23	67.10	28%
Luxembourg	12,742	15,449	100%	121%	59.82	56.38	-6%
France	866,564	976,010	100%	113%	31.22	33.47	7%
Slovenia	54,244	59,335	100%	109%	53.13	59.81	13%
Italy	1,132,365	1,229,713	100%	109%	46.49	49.19	6%
Slovakia	99,154	104,233	100%	105%	37.01	38.34	4%
Germany	1,119,012	1,122,691	100%	100%	27.27	27.30	0%
Netherlands	170,873	170,659	100%	100%	19.63	19.57	0%
Belgium	156,047	155,473	100%	100%	32.87	32.75	0%
Latvia	45,975	45,713	100%	99%	41.91	47.37	13%
Austria	164,369	161,267	100%	98%	40.09	37.34	-7%
Finland	121,075	116,483	100%	96%	45.36	44.48	-2%
Portugal	292,267	269,700	100%	92%	56.17	54.50	-3%
Ireland	94,839	87,346	100%	92%	41.02	39.36	-4%
Spain	1,384,135	1,168,283	100%	84%	60.42	51.31	-15%
Cyprus	33,982	28,072	100%	83%	88.04	67.97	-23%

Note: Authors' calculations based on Eurostat data; Greece and Malta excluded because of a lack of data for the study period. Data for Cyprus for 2015 were unavailable, so data for 2014 were used; countries sorted in descending order by growth rate

studying the dynamics of entrepreneurship requires analysis of the processes of business creation and failure, in this case focusing on small ventures as the representation of entrepreneurial spirit.

As a reflection of the dynamics of entrepreneurship, the rates of business creation and failure displayed in Table 3 show, by firm size, the idiosyncrasies of each country within the Eurozone. This data is conditioned by the impact of the economic crisis and the policies implemented in response to this crisis in each country.

The data once again conclusively show that the Baltic countries are leaders, with rates of creation of self-employed businesses of 35% (Estonia), 19% (Latvia), and 28% (Lithuania) in 2008. These rates remained virtually constant for the whole study period in Lithuania and even increased by 7 percentage points in Latvia. Estonia was the only country that experienced a decrease of almost 20 percentage points

in the rate of entrepreneurship, resulting in a rate of 15.5%, which was nonetheless still higher than the Eurozone average. These countries likewise stand out in terms of creation of microenterprises, with a rate that reached 7% in 2015 following a positive trend. Other countries with outstanding rates are Portugal, Slovenia, Slovakia, Finland, Luxembourg, and the Netherlands, all of which had rates close to or greater than 10% in 2015. These countries also had 2-digit rates of creation of self-employed businesses. In 2008, Slovakia and Luxembourg were leaders in the creation of microenterprises, although this trend had slowed by 2015, especially in Slovakia.

Conversely, Cyprus, Belgium, and Italy had notably low rates of entrepreneurial dynamism, with rates of creation of self-employed businesses of less than 10% in 2008. Belgium and particularly Cyprus experienced positive trends in this regard, whereas Italy experienced a similar level of growth

as at the beginning of the period. These countries, together with Ireland, Spain, and France, had microenterprise venture creation rates of less than 5% in 2008 but generally experienced a positive trend, although the highest increase in any of these cases was still less than 2 percentage points. The

exception was Belgium, whose rate in 2015 did not change with respect to 2008.

In terms of business failure, countries with high rates of self-employed business failure were the Baltic countries, Ireland, and Portugal, all of which had entrepreneurial fail-

Table 3

Entrepreneurship and entrepreneurial failure rates (2008–2015)

| | Rate of Entrepreneurship (%) | | | | | | | | | | | | | | | |
| | Self-Employed | | | | | | | | Microenterprises (1–9 Employees) | | | | | | | |
	2008	2009	2010	2011	2012	2013	2014	2015	2008	2009	2010	2011	2012	2013	2014	2015
Belgium	6.5	7.6	8.4	8.6	7.5	6.1	7.2	7.6	4.0	3.8	4.4	4.4	3.9	3.7	4.4	4.0
Germany	12.3	10.8	11.6	11.9	10.9	10.8	11.1	11.2	6.8	6.5	6.5	6.1	5.6	4.1	4.6	4.2
Estonia	35.3	16.5	17.0	17.9	18.8	17.5	16.5	15.5	6.6	5.7	7.4	8.2	8.0	6.8	7.5	7.9
Ireland	10.2	12.2	9.5	10.5	11.8	10.2	9.2	9.6	3.2	2.5	2.5	2.9	2.8	3.7	4.4	4.2
Spain	10.6	10.1	10.9	11.0	11.6	11.7	13.8	13.0	4.2	3.8	4.2	4.3	4.3	4.6	4.8	4.6
France	14.0	18.9	18.2	15.4	14.1	12.4	12.7	11.9	3.5	3.0	2.9	2.8	2.6	4.8	4.9	4.8
Italy	8.5	8.8	7.7	7.8	8.4	8.6	8.6	8.4	4.4	4.8	5.2	5.1	4.9	4.9	4.9	6.0
Cyprus	1.8	3.9	3.6	4.8	4.7	6.2	10.3	-	4.5	2.9	4.4	4.8	6.3	6.7	5.3	5.3
Latvia	19.2	30.6	27.2	22.8	22.9	21.6	22.1	26.4	15.0	12.5	13.5	20.3	13.5	11.3	10.1	8.9
Lithuania	27.8	21.4	34.3	37.8	36.6	34.5	34.3	25.3	13.0	10.4	11.6	12.3	15.2	8.9	12.4	9.8
Luxembourg	14.5	13.4	14.0	15.1	14.4	14.8	15.0	14.2	9.3	8.8	8.7	8.2	8.4	8.5	8.6	8.0
Netherlands	15.9	14.4	12.9	13.5	12.4	12.0	12.0	11.6	6.2	4.8	3.5	4.3	3.9	4.1	3.8	3.1
Austria	11.6	10.8	11.3	10.6	10.3	10.4	10.2	10.2	6.0	5.8	5.4	5.4	5.4	3.8	4.2	3.9
Portugal	18.8	15.6	15.6	16.2	16.5	18.9	19.3	21.1	7.8	6.6	6.4	7.5	6.7	8.4	8.2	8.2
Slovenia	18.5	18.0	15.9	15.4	15.1	20.6	16.0	16.0	6.9	6.3	5.9	5.8	5.7	5.7	6.1	5.3
Slovakia	15.8	15.9	11.0	13.0	11.1	8.8	24.7	14.7	17.6	19.2	19.4	17.9	10.6	12.4	6.6	5.2
Finland	14.8	12.6	13.7	13.8	11.9	10.0	10.6	9.1	6.4	6.1	6.5	6.0	6.9	4.4	5.4	4.7

| | Entrepreneurial Failure Rate (%) | | | | | | | | | | | | | | | |
| | Self-Employed | | | | | | | | Microenterprises (1–9 Employees) | | | | | | | |
	2008	2009	2010	2011	2012	2013	2014	2015	2008	2009	2010	2011	2012	2013	2014	2015
Belgium	4.5	3.8	3.8	3.8	4.1	5.5	5.3	3.8	1.2	1.1	1.1	1.3	1.2	1.2	1.4	1.0
Germany	14.8	15.2	14.5	14.7	14.6	14.1	15.3	14.9	0.0	2.1	2.2	1.9	1.8	1.7	2.4	1.8
Estonia	20.8	22.6	14.2	11.9	10.6	12.7	10.9	10.0	8.6	9.3	7.5	6.3	7.1	6.8	6.5	5.9
Ireland	16.2	19.1	12.8	15.4	14.6	13.4	11.3	10.8	5.6	6.9	4.5	5.0	4.1	3.8	4.2	3.6
Spain	9.9	11.3	10.3	12.0	12.1	11.7	10.0	10.4	9.8	8.0	8.1	6.6	7.4	7.2	6.4	5.8
France	9.5	9.0	8.0	7.6	6.7	7.1	7.5	6.9	5.6	5.5	5.2	4.8	3.9	2.2	2.1	2.1
Italy	8.1	7.4	8.0	8.4	8.4	9.5	9.0	10.3	5.2	4.1	4.1	4.7	4.9	5.1	4.9	5.0
Cyprus	2.2	5.7	9.3	12.7	9.8	14.6	14.4	14.4	2.7	3.2	7.0	9.6	9.4	5.9	7.4	7.4
Latvia	24.7	22.3	20.6	20.5	21.0	20.9	15.3	10.2	12.4	13.9	7.3	9.7	7.1	6.6	3.8	2.4
Lithuania	47.3	36.7	29.1	24.6	23.4	21.1	21.9	24.7	6.3	8.4	7.3	5.3	16.8	5.6	7.9	6.3
Luxembourg	13.1	11.3	11.7	11.5	11.0	11.6	12.5	12.1	6.0	6.4	6.3	6.6	6.4	6.4	6.5	6.9
Netherlands	9.7	10.7	9.3	9.7	11.1	9.8	7.8	7.5	1.7	1.6	1.3	1.2	1.5	1.7	1.3	1.0
Austria	7.6	8.4	9.7	10.0	9.6	9.2	8.4	9.5	4.7	4.4	4.9	4.8	4.6	2.9	2.8	3.0
Portugal	20.2	21.4	20.6	21.4	21.2	18.6	17.9	20.3	7.3	7.6	8.2	8.9	8.3	6.9	6.4	6.7
Slovenia	10.5	11.2	12.2	11.6	12.8	12.3	11.3	12.5	3.9	4.7	5.6	5.6	6.1	5.9	5.2	5.4
Slovakia	14.8	14.0	7.6	14.3	11.3	17.3	12.7	13.4	5.9	4.7	6.6	15.2	6.6	6.7	4.3	4.3
Finland	12.0	12.9	13.8	0.0	5.9	11.3	11.3	11.0	4.0	4.3	2.9	0.0	7.1	3.1	3.1	4.4

Note: Authors' calculations based on Eurostat data; Greece and Malta were excluded from the study because of a lack of data for the study period. Data for Cyprus for the year 2015 were unavailable, so the most recent data for Cyprus were for the year 2014.

ure rates of approximately 20%, except for Ireland (16%) and Lithuania (47%). This data, which illustrate the intensity with which the crisis affected these countries, had virtually halved by the end of the study period, except in the case of Portugal, which maintained a rate of failure of around 20% for the whole period.

In terms of microenterprise failure, Latvia was the leader at the start of the period with a rate of more than 12%. Spain, Estonia, and Portugal also had high rates of approximately 10%, 8.6%, and 7.3% respectively. These countries generally showed positive progress over the period. The exception was Portugal, whose rate remained higher than 6%, with a decrease of just 0.6 percentage points. The case of Latvia was remarkable in that the rate of microenterprise failure decreased by 10 percentage points.

We complemented this analysis of the rate of entrepreneurial dynamics by considering aggregate Eurozone data by sector. Figure 3 presents the trend of entrepreneurial cre-

ation and failure by firm size and sector, taking 2008 as the base year. The data in Figure 3 show that in general, the level of business creation fell with respect to the level in 2008. Only the service sector displayed a real entrepreneurial dynamic following the most severe period of the crisis. This entrepreneurship was mainly supported by self-employed businesses.

These conclusions reflect the highly prominent role of services in new business trends, which relate to service personalization and knowledge management. One example is the provision of personal services and care services in a society where it is increasingly common for people to live longer. Another example is data management, reflected by the emergence of new paradigms such as big data or the development of technologies such as the Internet of things. These trends contrast with those in sectors such as construction and industry, which are gradually becoming less relevant to today's society.
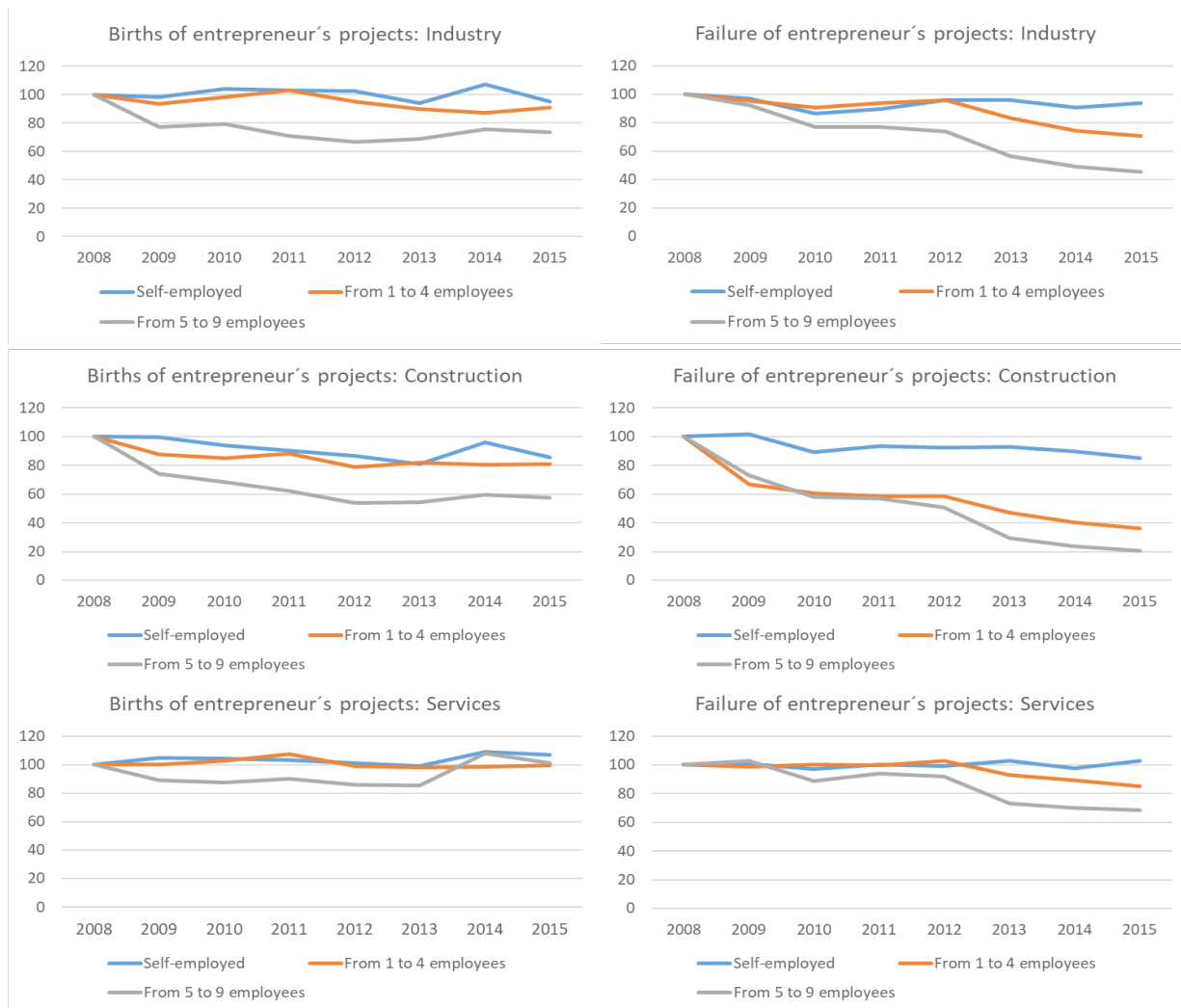

Figure 3. Births and failures of entrepreneur's projects in the euro zone (2008 = 100)
Note: Authors' calculations based on Eurostat data; Greece and Malta excluded because of a lack of data.

From the perspective of entrepreneurial failure, firms have undoubtedly faced difficulties throughout the crisis. This is particularly true of self-employed businesses, who despite their greater flexibility, have fewer resources and less capacity to resist in tough conditions. The segment devoted to the provision of services is the only segment with rates that were slightly higher than they were in 2008. As regards the industry sector and (mainly) the construction sector, there was a trend toward a reduction in failures, although this trend was considerably slower in the case of self-employed businesses.

Entrepreneurial Dynamics: The Role of Entrepreneurial Failure

The study of firm mortality in each year equips us with a better understanding of the dynamics of firm survival according to the firm's year of birth, capturing structural and contextual changes that influence business failure. The Eurozone currently comprises 19 countries, which would make a study of individual countries dense and difficult to perform. We therefore selected a group of countries that reflected certain noteworthy characteristics. First, we selected Germany, Spain, Italy, and France. This choice is justified by the fact that these four countries account for 75% of the business population of the Eurozone. As Figure 4 shows, Germany had the highest rate of firm failure among young firms because 24% of self-employed persons or microenterprises born in 2014 had failed by the following year, having

increased by 4.4 percentage points with respect to firms born in 2007. Spain had high but virtually constant rates (just 1.5 percentage points) throughout the crisis. The finding implies that the factors behind this phenomenon are more structural than situational. In both countries, the highest probability of business failure, which was greater than 60%, was in the fifth year of activity.

In France and Italy, the likelihood that self-employed persons and microenterprises would fail after one year increased by more than 10 percentage points between firms born in 2007 and those born in 2014. This likelihood of failure considerably reduced these countries' competitiveness and capacity to innovate with respect to other European regions.

Lithuania and Austria were also selected because they have specific characteristics of interest. In the case of Lithuania, the likelihood that the smallest businesses would fail in their first year was 37%, and the likelihood of failure after five years was 70%. However, during the crisis, economic policies led to a reduction in both rates of 6 and 14 percentage points, respectively, which placed Lithuania on the path to fostering entrepreneurship, although there is still considerable progress to be made.

In the case of Austria, the likelihood of failure after one year rose by virtually 6 percentage points from one of the lowest levels in the Eurozone for firms born in 2007 (8.2%). Similarly, the likelihood of failure after five years was one of the lowest for firms born in 2007 (less than 40%). However, the consequences of the crisis altered this dynamic such that
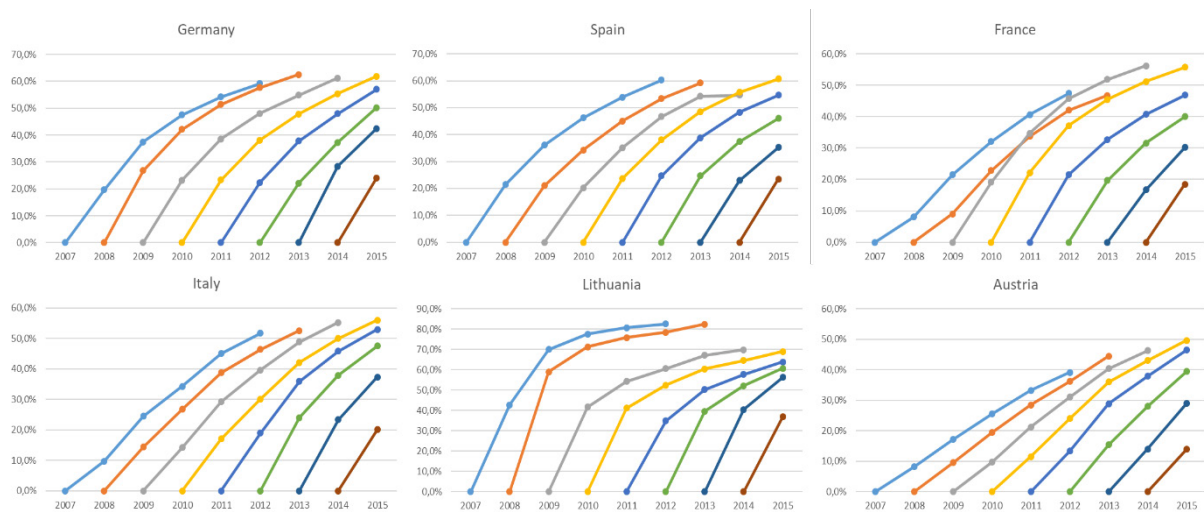

Figure 4. Entrepreneurial failure function: Self-employed and microenterprises (by birth year)
Source: Authors' calculations based on Eurostat data.

50% of self-employed ventures and microenterprises had failed within five years of activity.

Trends in Specialization: From Crisis to Recovery

In the previous sections, we showed how the processes of entrepreneurial dynamics are predominantly focused on the service sector as the driver of development across the Eurozone. A crisis such as the one covered by this study, whose effects on the Eurozone were particularly severe, has not only affected the decisions of entrepreneurs but has also had major consequences for the production model in the Eurozone member states. For each country, the specialization index presented in Table 4 shows whether a particular sector is more or less prominent with respect to the mean for the Eurozone between 2008 and 2015.

The data in Table 4 shows that the trend of specialization in the Eurozone seemed to be influenced by geographical conditions. Regions that specialized the most in services at the start of the crisis were situated in Central and Eastern European countries, with the exception of Portugal. The results are similar for the industry sector, although the cases of Slovenia and Slovakia are also notable. In terms of the role of construction in the production model, countries that experienced a housing bubble, such as Spain and Ireland, were most relevant. The effect of the crisis has left its mark not only on these countries but also on countries such as Slovenia and Portugal, where there has been a clear shift in the focus of production from construction toward industry and especially services. This shift represents the biggest change in the Eurozone over the study period. However, it is also worth noting the increase in the prominence of the construction sector in countries such as Belgium, Germany, Latvia, and Austria, with a minimum increase of 12%. The industry sector was also prominent in these countries, especially in Germany, as reflected by an 18% increase in the index of

Table 4. *Specialization index evolution in the euro zone (2008–2015)*

	Specialization index (2008)			Specialization index (2015)			Variation (2008-2015)		
	Industry	Construction	Services	Industry	Construction	Services	Industry	Construction	Services
Belgium	79%	95%	104%	69%	112%	101%	88%	118%	98%
Germany	105%	78%	104%	124%	93%	98%	118%	118%	95%
Estonia	109%	86%	102%	115%	86%	101%	105%	100%	99%
Ireland	71%	162%	90%	74%	136%	96%	104%	84%	107%
Spain	82%	125%	97%	75%	102%	103%	92%	81%	106%
France	92%	108%	99%	90%	119%	97%	97%	110%	98%
Italy	120%	97%	98%	118%	91%	100%	98%	94%	102%
Cyprus	122%	112%	95%	117%	100%	98%	97%	90%	104%
Latvia	108%	60%	108%	113%	67%	105%	105%	112%	97%
Lithuania	115%	97%	99%	124%	106%	96%	108%	109%	97%
Luxembourg	38%	69%	115%	32%	76%	113%	83%	110%	98%
Netherlands	65%	95%	106%	64%	97%	105%	98%	103%	99%
Austria	93%	57%	110%	95%	64%	108%	102%	112%	97%
Portugal	89%	79%	106%	92%	64%	108%	103%	80%	102%
Slovenia	165%	113%	88%	163%	94%	93%	98%	83%	106%
Slovakia	183%	122%	84%	167%	131%	86%	91%	107%	102%
Finland	118%	103%	97%	112%	114%	96%	95%	111%	99%

Source: Authors' calculations based on Eurostat data

specialization. This finding provides a clear example of how Germany has focused on a sector in which it has major competitive advantages and massive exports.

Dynamics of Regional Convergence and Divergence in the Eurozone

Finally, to complement the previous analyses, we analyzed the process of convergence across the Eurozone countries. Following Crecente, et al. (2014); Crecente, et al. (2015), the annual average growth and decline of firms is a suitable proxy for economic growth because of the correlation between GDP per capita and changes in the business population, thereby implying greater wealth per inhabitant in countries with a greater business population. In this study, which focuses on the population of self-employed persons and microenterprises, using these segments of the population as a proxy for business density is a suitable approach given that they account for 95% of the total population.

A European business structure based on small firms, even considering their high flexibility in response to economic shocks, lacks the necessary levels of productivity and competitiveness for long-term growth. This leads to di-

vergence between countries in the Eurozone, as shown in Figure 5. For each country, Figure 5 shows the variation in numbers of firms between 2008 and 2015 with respect to business density in 2008.

The results depict a reality characterized by divergence arising from the fact that the impact of the crisis and the responses of the authorities varied from country to country. First, four countries had particularly high relative rates of entrepreneurship before the crisis. However, these four countries were also severely affected and were heavily involved in the debt crisis. The entrepreneurial dynamic in Portugal, Italy, Cyprus, and Spain was weaker than in other Eurozone countries, even though these countries started from a strong position.

In contrast, other countries that started from a weaker situation in terms of rate of entrepreneurship with respect to the mean also profoundly suffered the effects of the crisis. However, these countries emerged from the crisis with remarkable strength. This is reflected by strong entrepreneurial dynamics, as exemplified by the Baltic countries and Ireland.

Finally, Germany is worthy of mention because at the start of the crisis, it had the second worst rate of entrepreneurship in the Eurozone, having converged by approxi-
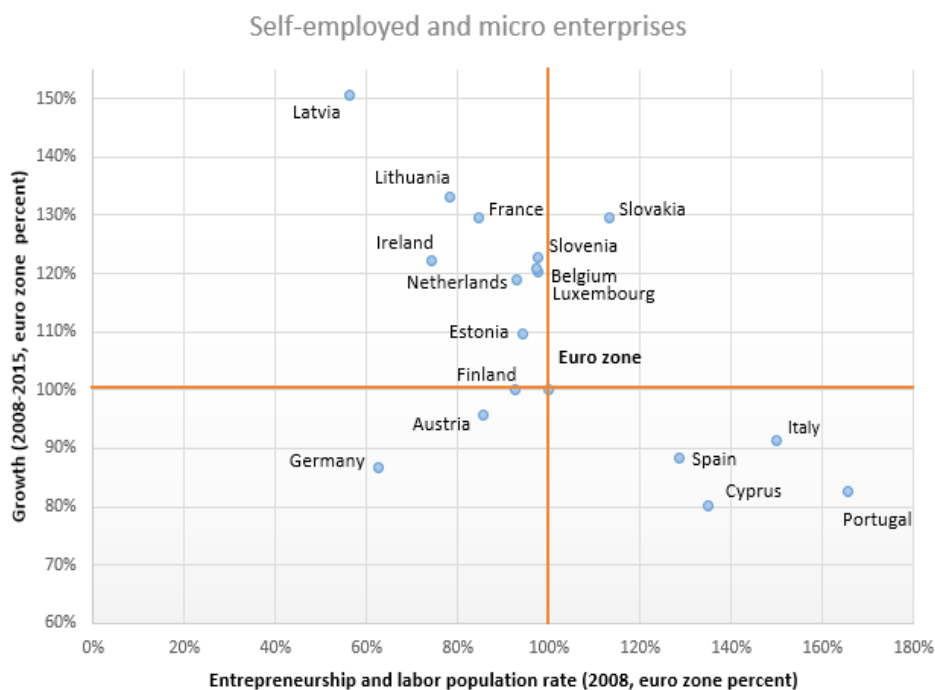

Figure 5. Business density and cumulated growth (2008–2015)
Note: Authors' calculations based on Eurostat data; Greece and Malta excluded from the Eurozone because of a lack of data; calculations were performed for self-employed persons and microenterprises.

mately 20 points toward the mean over the seven years considered in this study. Nevertheless, Germany still remained some way away from the mean.

Conclusion

Between 2008 and 2015, whether for structural reasons or due to contextual causes such as the economic crisis and the policies implemented by the authorities in each country, firms in the Eurozone followed different demographic trends. Entrepreneurial dynamics in terms of business creation and failure have been affected because of the need to adapt to a complex economic environment.

Without doubt, the smallest firms are crucial across the Eurozone. Self-employed persons, microenterprises with 1 to 4 employees, and microenterprises with 5 to 9 employees reflect the European entrepreneurial spirit, accounting for 61%, 28%, and 6% of firms in the Eurozone, respectively. The Eurozone is a service-providing region because 76% of all firms operate in the service sector, making this sector responsible for creating the majority of jobs.

During the difficult period of crisis, the microenterprises and self-employed individuals in the construction and industry sectors were those that suffered most from the effects of the crisis, while self-employed businesses showed their resilience and their growth in the provision of services. In general, larger companies faced greater difficulties, probably owing to a lower degree of flexibility in adjusting their economic and financial structures to the realities of a struggling economy.

From a regional perspective, Ireland and the Baltic countries have been highlighted throughout the paper as the paradigmatic examples of countries showing positive trends, not only in the rate of entrepreneurship and the birth of self-employed businesses and microenterprises, but also in the high rate of business failure, which has positively affected the relative change in business density. These findings must be contextualized, especially given the severe effect of the economic crisis on these economies and the political economy measures that were implemented. Lithuania stands out as one of the countries with the highest likelihood of business failure when this is analyzed by the firm's year of birth. However, Lithuania is also noteworthy for having substantially reduced this likelihood. Ireland once again stands out, in this case together with Spain, because of the dramatic decline of the construction sector, once a driver of growth, within the business population.

Some countries in Southern Europe such as Spain, Portugal, and Cyprus stand out because of the decrease in the number of self-employed businesses and microenterprises, as well as the negative trend in the rate of entrepreneurship. This negative trend affected these countries' entrepreneurial dynamics, with respect to the rest of the Eurozone, despite having started from a strong position in 2008. Portugal and Cyprus offer particularly negative examples in terms of how the rate of business creation evolved over time, particularly in relation to self-employed businesses. Cyprus followed a highly negative trend in terms of rate of failure, whereas Portugal remained stable or improved slightly in the microenterprise segment. The entrepreneurial rate worsened in Spain too, although less substantially. Spain also stands out because of its negative trend in terms of rate of failure of self-employed persons. Analysis of firm failure in each country shows that besides the effect of the crisis, structural factors prevented a substantial reduction in the likelihood of failure.

Therefore, the Eurozone can be characterized by an established business population dominated by SMEs and focused on the provision of services. However, this characterization nonetheless differs greatly when the situation in different regions is analyzed. Despite the major impact of the crisis, the diverse responses by different authorities coupled with structural idiosyncrasies have led to a wide range of outcomes in terms of entrepreneurial dynamics. This can best be appreciated by comparing Southern European countries with Ireland and the Baltic countries.

References

Adam, M., Strähle, J., & Freise, M. (2018). Dynamic capabilities of early-stage firms: Exploring the business of renting fashion. *Journal of Small Business Strategy*, *28*(2), 49-67.

Almodóvar, M. (2016). *Actividad emprendedora y crecimiento económico* (Doctoral dissertation) Retrieved from Dialnet (47486).

Audretsch, D., Thurik, A. R., Verheul, I., & Wennekers, A. (2002). *Entrepreneurship: determinants and policy in a European – US comparison* (Vol. 27). Berlin, Germany: Springer Science & Business Media.

Audretsch, D. B. (2007). Entrepreneurship capital and economic growth. *Oxford Review of Economic Policy, 23*(1), 63–78.

Banco de España (2015). La dinámica empresarial en España: Características, determinantes e implicaciones. *Informe Annual 2015,* 109–138.

Bendickson, J., Muldoon, J., Ligouri, E., & Midgett, C. (2017). High performance work systems: A necessity for startups. *Journal of Small Business Strategy*, *27*(2), 1-12.

Boente, W., Heblich, S., & Jarosch, M. (2008). Entrepreneurship Capital, Knowledge Spillovers and Regional Productivity: Some Empirical Evidence from European Regions. (*Working Paper IAREG* WP3/05).

Retrieved from Researchgate.net: https://www.researchgate.net/profile/Werner_Boente/publication/237702949_Entrepreneurship_Capital_Knowledge_Spillovers_and_Regional_Productivity_Some_Empirical_Evidence_from_European_Regions/links/00b495268116228ce7000000/Entrepreneurship-Capital-Knowledge-Spillovers-and-Regional-Productivity-Some-Empirical-Evidence-from-European-Regions.pdf

Callejón, M., & Segarra, A. (1999). Business dynamics and efficiency in industries and regions: The case of Spain. *Small Business Economics, 13*(4), 253–271.

Cardona, J. C. D., García, J. R., & i Caralt, J. S (2012). Propuesta metodológica para la desagregación espacio-temporal de los indicadores de demografía empresarial. *Investigaciones Regionales: Journal of Regional Research, 23*, 77–104.

Carrillo, L. L., Bergamini, T. P., & Navarro, C. L. C. (2014). El emprendimiento como motor del crecimiento económico. *Boletín económico de ICE, Información Comercial Española*, *3048*, 55-63.

Crecente, F. J., Martos, E. I., & Rivera, L. F. (2014). Análisis de la demografía empresarial de las regiones españolas: Evolución y fuentes. Paper presented at XL Reunión de Estudios Regionales. Zaragoza, Spain.

Crecente, F. J., Martos E. I., & Rivera, L. F. (2015, November). Evolución de la demografía de los empresarios autónomos en las regiones españolas: El germen del emprendimiento. Paper presented at XLI Regional Studies Meeting, Spanish Association of Regional Science, Reus, Spain.

European Commission. (2003). *Green paper entrepreneurship in Europe.* (COM (2003) 27). Brussels: Belguim. Commison of the European Communities.

European Commission. (2004). *Business demography in Europe Results for 10 Member States and Norway.* Luxembourg. European Commission.

Eurostat. O. E. C. D. (2007). *Eurostat −OECD manual on business demography statistics.* Brussels: Belguim. European Communities / OECD.

Fariñas, J. C., & Huergo, E. (2015). Demografía empresarial en España: Tendencias y regularidades, *FEDEA, eee2015*(24), 1-66.

Garrido, R. (2008a). *La dinámica empresarial en España. Un enfoque territorial,* Madrid: Spain EOI Foundation.

Garrido, R. (2008b). *La dinámica empresarial en España. Un enfoque sectorial,* Madrid: SpainEOI Foundation.

Garrote, D., del Río, P., Sastre, T. & Valdeolivas, E. (2013). El ajuste en los países bálticos tras la crisis financiera. *Banco de España Economic Bulletin, (October 2013),* 137-151.

Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology*, *82*(5), 929–964.

Harris, M., Gibson, S.G., McDowell, W. C. (2014). The impact of strategic focus and previous business experience on small business performance. *Journal of Small Business Strategy*, *24*(1), 29-44.

Herce, J. A., Parada, A. R., Barragán, E. M., Galindo, P. M., Delgado, D. V., & Sepúlveda, N. L. (2012). *Emprender en momentos de crisis: Riesgos y factores de éxito.* Madrid: Fundación Mapfre.

Joshi, M., & Anand, V. (2018). Small business owners' external information-seeking behaviors: The role of perceived uncertainty and organizational identity complexity. *Journal of Small Business Strateg*y, *28*(3), 48-68.

Knight, F. H. (1921). *Risk, Uncertainty, and Profit.* Boston: Houghton Mifflin Company.

Markowicz, I. (2007). Business demography – The analysis of firm population in the Zachodniopomorskie Voivodship as Compared to the Polish and European Market. *Folia Oeconomica Stetinensia*, *6*(1), 53-62.

Minniti, M. (2012). El emprendimiento y el crecimiento económico de las naciones, *Economía Industrial*, 383, 23-30.

Nunes, A., & de Morris Sarmento, E. (2012). Business demography dynamics in Portugal: A non-parametric survival analysis. In J. Bonnet, M. Dejardin, & A. Madrid-Guijarro (Eds.), *The shift to the entrepreneurial society* (260-272). Chelternham, UK: Edward Elgar Publishing Limited.

OECD (2017), *The geography of firm dynamics: Measuring business demography for regional development*. Paris: OECD Publishing.

Ptak-Chmielewska, A. (2011). Business demography issues and empirical research on dynamics of enterprises population in Poland. *Acta Scientiarum Polonorum Oeconomia, 10*(1), 69-81.

Rita, M. R., Priyanto, S. H., Andadari, R. K., & Haryanto, J. O. (2018). How entrepreneurs anticipate the future market: An initial approach of a future market anticipation model for small businesses. *Journal of Small Business Strategy*, *28*(1), 49-65.

Rossetti, F. (2017). The business demography of the ICT sector in Europe. *JRC Science for Policy Report, European Commission,* EUR 28651, 1-57, doi:10.2760/45401

Schenkel, M. T., D'Souza, R. R., Cornwall, J. R., & Matthews, C. H. (2015) early influences and entrepreneurial intent: Examining the roles of education, experience, and advice networks. *Journal of Small Business Strategy, 25*(2), 1-20.

Schrör, H. (2007). Business demography: Growth in the

population of enterprises. *Eurostat Statistics in Focus, 48*(2007), 1-8.

Schrör, H. (2008a). Enterprise births, survivals and deaths – Employment effects. *Eurostat statistics in Focus, 44*(2008), 1-8.

Schrör, H. (2008b).Business demography in Europe: Employers and job creation. *Eurostat Statistics in Focus, 100*(2008), 1-8.

Schrör, H. (2009). Business Demography: Employment and survival. *Eurostat Statistics in Focus, 70*(2009), 1-8.

Segarra, A., Arauzo, J. M., Gras, N., Manjón, M., Mañé, F., Teruel, M., & Theilen, B. (2002). La creación y la supervivencia de las empresas industriales. *Revista de Economía Aplicada*, *XI*(32), 2003, 143-147.

Segarra, A., & Martin, M. (2004). Dinámica empresarial en las industrias maduras españolas, *Economía Industrial*, (355), 97-106.

Spanish Chamber of Commerce (2001). *La creación de empresas en España. Análisis por Regiones y sectores, Madrid: Spanish Chamber of Commerce and IN-CYDE.*

Stanback, T.M. & Knight , R.V. (1970). *The metropolitan economy: The process of employment expansion.* New York, NY: Columbia University Press.

Thurik R., & Verheul, I. (2003). The relationship between entrepreneurship and unemployment: The case of Spain. In E. Genescà, D. Urbano, J. Capelleras, C. Guallarte, & J. Vergès (Eds), *Creación de empresas - Entrepreneurship*, (pp. 521-542). Barcelona: UAB.

van Dijk, J., & Pellenbarg, P. H. (2000). Spatial perspectives on firm demography. *Papers in Regional Science, 79*(2), 107-110.

Van Wissen, L. J. (2002). Demography of the firm: A useful metaphor?. *European Journal of Population/Revue Européenne de Démographie*, *18*(3), 263-279.

Verduyn, F. (2013). Business Demography. *NBB Economic Review,* June *2013*, 39-56.