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Predictors of entrepreneurial activity before and during the European economic crisis

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Abstract The aim of this study is to analyze the role of individual characteristics and social norms as variables that explain early-stage entrepreneurial activity before and during the European crisis. We used the Global Entrepreneurship Monitor Adult Population Survey data from Southern European countries (Greece, Spain, Italy and Portugal) and Northern European countries (Sweden, Norway and Finland) in 2007, 2010, 2012 and 2013. We performed logistic regression analysis to identify the role of individual characteristics (self-efficacy, perceptions of opportunities, role model and

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risk perceptions) and social norms (desirable career choice, status and respect and public media) on the early-stage entrepreneurial activity (TEA). Results show that individual characteristics are the most important predictor of entrepreneurial activity, and this effect stays stable throughout the time of the crisis; and social norms have an absent or low effect on entrepreneurial activity, with slight fluctuations during the crisis. These results highlight the role of individual predictors on the entrepreneurial activity despite the macroeconomic environment, which empathizes the importance of education and training to promote the entrepreneurial mindset and attitude.

Keywords European crisis · Entrepreneurial activity · Southern European countries · Nordic European countries · Individual characteristics and social norms

Introduction

Entrepreneurial activity depends on a series of individual factors as well as regional and national aspects. The fields of economics (Wennekers and Thurik 1999), political science (Kreft and Sobel 2005), cognition theory (Liñán et al. 2011), sociology and culture (Liñán and Fernández-Serrano 2014) and institutional theory (Stenholm et al. 2013) all recognize the importance of individual characteristics, social cultural perceptions, cultural values and regulative and normative dimensions on the rate of entrepreneurial activity across countries. In this study, we contribute to this notion.

The aim of this study is to analyze the specific role of individual characteristics and social norms as variables that explain early-stage entrepreneurial activity before and during the 2008 European crisis in Southern and Nordic European countries. We analyze the structural change of individual characteristics of entrepreneurs (including self-efficacy, role model, risk perception and perceptions of opportunities) and social norms (including the desirability of entrepreneurship as a career choice, respect and status of entrepreneurs and media coverage of successful entrepreneurial stories) as predictors of entrepreneurial activity in the crisis context. Because the economic and financial crisis did not affect all European countries equally, our focus is on two European regions that had experienced the crisis differently: Southern countries (Greece, Spain, Italy and Portugal) which have been severely affected by the financial crisis, having high monetary debt and fragile bank systems; and Northern countries (Sweden, Norway and Finland) which were mostly resistant to the effects of the crisis, avoiding the financial crunch and keeping top ratings from the major credit rating agencies (Glover 2012).

Although both individual and social predictors of entrepreneurial activity have been widely explored in entrepreneurship literature (e.g., Liñán et al. 2011; Autio et al. 2013; Liñán and Fernández-Serrano 2014; Stephan et al. 2015), we argue that two important gaps persist.

Firstly, there is a lack of understanding of how major macroeconomic events interfere in entrepreneurial activity over time, such as an economic crisis. The European crisis of 2008 caused great uncertainty and instability in political, economic, financial, and social systems. This European crisis also triggered disturbance in the *level* of entrepreneurial activities (number of self-employed persons or new business start-up), as national markets were unstable, venture capitalists more cautious and individuals were more concerned with their own savings (e.g., Williams and Vorley 2015).

However, there is also evidence that a crisis can boost the emergence of new opportunities and the need to find disruptive solutions and leverage resources (e.g., Wan and Yiu 2009). When individuals face severe restrictions, they are elicited to find alternative paths to supplant the gradual loss. Therefore, the impact of the European economic and financial crisis will differ across time, both boosting and suppressing early-stage entrepreneurial activities. We hence argue that it is important to analyze the relationship between individual and social factors of entrepreneurial activity across time, before and during the times leading up to a crisis context.

Secondly, previous studies have predominantly focused on measuring individual intentions towards entrepreneurship (Fernández et al. 2009; Liñán et al. 2011). Despite the fact that entrepreneurial intentions are an established area of research in entrepreneurship (Krueger 2009), meta-analyses found that intentions only explain 27% of behaviors (Armitage and Conner 2001). Therefore, in the entrepreneurship context, the intention-behavior link is still meager and future research needs to focus on measuring actual behavior (Fayolle and Liñán 2014; Liñán and Fayolle 2015). To our best knowledge, research was not yet able to clearly establish whether the predictors of entrepreneurial intentions are also the same of entrepreneurial activity.

To address these gaps, we focus our analysis on predictors of entrepreneurial activity comparing the Southern and Northern region of Europe through four different time points before and during the 2008 European crisis. In contrast to previous studies that have been focusing on entrepreneurial intentions, we specifically examine *de facto* entrepreneurial behavior and activity.

Theory and hypotheses

Predictors of entrepreneurial activity: individual characteristics

The importance of individual characteristics on the identification and execution of profit-making opportunities has been firmly embedded in the classical theories of entrepreneurship (e.g., Knight 1921; Schumpeter 1934/2008; Kirzner 1973).

Among the various characteristics that have an impact on entrepreneurial behaviors, intentions and activity, self-efficacy and role model perception are considered the most relevant, in accordance with the Social Cognitive Theory of Albert Bandura (1997). Both have been consistently included into the broad avenue of entrepreneurial cognitive research (e.g., Sánchez et al. 2011; Mitchell et al. 2002a, b), entrepreneurial intentions (Fayolle and Liñán 2014) and are part of the entrepreneurial implementation-intention link (Frese 2009).

More specifically, self-efficacy has been found to be a critical variable that positively influences entrepreneurial intentions, behaviors and actions. Self-efficacy distinguishes entrepreneurs from managers (Chen et al. 1998), is an antecedent of entrepreneurial intentions (Zhao et al. 2005), and positively influences firm formation and performance (Markman et al. 2002; Hmieleski and Baron 2008) as well as entrepreneurial career intentions (BarNir et al. 2011).

Role model perception, on the other hand, is related to the engagement in vicarious learning and helps shape the individual's self-efficacy. Individuals are influenced by their role models primarily through mastery of experiences, repeated accomplishment of entrepreneurial performance, observation and social persuasion (Bandura 1986). If the individual has a strong positive attitude towards an entrepreneurial role model, he or she will take on their normative behavior and attitudes as their own (Gnyawali and Fogel 1994), which can lead the individual to see a greater perceived value of entrepreneurship and to positively contribute to intention and future behaviors.

Research has shown that role models also affect entrepreneurial intentions among students (Krueger et al. 2000; Scherer et al. 1989; Van Auken et al. 2006a, b) and potential entrepreneurs (Liñán et al. 2011), and reduce the fear of entrepreneurial failure (Wyrwich et al. 2016). At a more macro level, scholars have demonstrated that the existence and availability of role models explain regional variance in entrepreneurship (Fornahl 2003; Lafuente et al. 2007; Sternberg 2009). Therefore, we expect that entrepreneurial role models will also have a positive impact on early-stage entrepreneurial activity, following the same pattern for entrepreneurial intentions (Fayolle and Liñán 2014).

Entrepreneurial behaviors and actions are also dependent on the perception of opportunities in the environment. In fact, entrepreneurial behaviors and actions will not be pursued without the individual perceiving the existence of an opportunity. Based on this argument, entrepreneurship has been framed in the context of the individual-opportunity nexus (Venkataraman 1997) and further developed by Shane (2003), suggesting that entrepreneurship is interdependent and inherent to the interaction between individuals and opportunities. Entrepreneurs seek out opportunities for profit and introduce innovations (Schumpeter 1934/2008). Recognition of an opportunity is generally defined as the starting point of the entrepreneurship process and involves the process of identifying the potential to create something new, be it products, markets, production processes, or organizing technologies (Baron and Shane 2008). The perception of opportunities is objective and realistic (Ramoglou and Tsang 2016) and is related to the intention of starting a business (Fernández et al. 2009; Liñán et al. 2011). Building on the substantive prior research on the positive influence of opportunity perception on entrepreneurial intentions, we expect to find a positive influence on entrepreneurial behavior, and thus, on early-stage entrepreneurial activity.

Another important individual characteristic is risk perception. Forlani and Mullins (2000) defined risk as *'the degree of uncertainty and potential loss associated with the outcomes which may follow from a given behaviour or set of behaviours'* (p.309) and risk propensity as *'the tendency of a decision-maker either to take or to avoid risks'* (p.310). An entrepreneur assumes controlled risks and the ability to take calculated risks is associated with the strategic behavior of entrepreneurs (Chell 2008). In a meta-analytic review, Stewart and Roth (2001) showed that entrepreneurs were more likely to take risks than managers and small business owners. However, Miner and Raju (2004) found that entrepreneurs were less likely to take risks than other participants, not involved in entrepreneurial activities. More specifically, they argue that *'it looks as if managers tend to believe in their ability to exercise post decisional control and thus avoid risk (...)* (Whereas) *the research on entrepreneurs (...)* suggests a belief in pre-

decisional control, which means that risk is removed in a completely different manner' (Miner and Raju 2004 p.10). When risk is perceived as existent, there is a negative influence on the entrepreneurial intentions of potential entrepreneurs (Fernández et al. 2009; Liñán et al. 2011) and thus we expect that it will also have a negative effect on entrepreneurial activities.

In sum, individual characteristics exert a strong influence on entrepreneurial activities (Shane and Venkataraman 2000). According to the literature described above, self-efficacy, perception of opportunities and role models are expected to have a positive influence on early-stage entrepreneurial activity, while risk perception will have a negative influence on early-stage entrepreneurial activity. Grounded in this literature review, we put forward the following set of hypotheses:

- H1a: Individuals with high self-efficacy are more likely to engage in early-stage entrepreneurial activities.
- H1b: Individuals who perceive opportunities are more likely to engage in early-stage entrepreneurial activities.
- H1c: Individuals who know a role model in starting a business are more likely to engage in early-stage entrepreneurial activities.
- H1d: Individuals who perceive risk are less likely to engage in early-stage entrepreneurial activities.

Predictors of entrepreneurial activity: social norms

The entrepreneurship process is embedded in an institutional environment that shapes entrepreneurial intentions and, ultimately, entrepreneurial activity. Such institutional environments typically consist of entrepreneurial finance, government policy, government entrepreneurship programs, entrepreneurship education, R&D transfer, commercial and legal infrastructure, entry regulation, physical infrastructure and cultural, and social norms (Valliere 2010; Bosma et al. 2012; Xavier et al. 2013). These conditions influence individual decision-making and entrepreneurship profiles across economies (Bosma et al. 2012; Xavier et al. 2013). Therefore, the rate and type of entrepreneurial activity at the country level needs to be evaluated through a multidimensional construct grounded in institutional theory, consisting of regulatory, normative, and cognitive dimensions of entrepreneurial activity, as well as the country's ability to support high-impact entrepreneurship (Stenholm et al. 2013).

Among the different entrepreneurial framework conditions, culture and social norms have garnered increased scholarly attention (e.g., Krueger et al. 2013; Wennberg et al. 2013). As individuals are embedded in specific cultural and social conditions, such circumstances can influence the cultural values and social norms about entrepreneurship and thus shape entrepreneurial activity indicators (Krueger et al. 2013).

Culture includes beliefs, values and norms that are shared by a group of people. Inglehart (1997) defined culture as the shared values that shape the individual's behaviors in a society. This includes similar patterns of thoughts, feelings and actions (Hofstede and Hofstede 2005). Different cultural practices play an important role in shaping entrepreneurial growth aspirations (Autio et al. 2013), social entrepreneurship (Stephan et al. 2015), and entrepreneurial activity (Cullen et al. 2014). For example,

charismatic and self-protective leadership ideals were found to be an important driver of entrepreneurship across countries (Stephan and Pathak 2016). The interaction of cultural values (performance orientation, individualism and family collectivism) and social institutions (social stratification, education, and the political-economic system) have been shown to predict national-level entrepreneurship rates (Cullen et al. 2014). Collectivistic practices were found to negatively influence entrepreneurial entry behaviors, yet they positively influence entrepreneurial growth aspirations (Autio et al. 2013).

The perceptions of socio-cultural values were found to have a positive influence on entrepreneurial intentions (Fernández et al. 2009; Liñán et al. 2011). Social norms do not capture cultural values per se, but their manifestations, as they are perceived by the individuals. Specifically, Fernández et al. (2009) and Liñán et al. (2011) found evidence that proves that perceiving a high respect for entrepreneurs, considering entrepreneurship as a good career choice and having entrepreneurs featured on mass media channels have a positive impact on entrepreneurial intentions.

Building on previous empirical work on the role of socio-cultural values on entrepreneurial intentions, we took a step forward and analyzed the role of these predictors on entrepreneurial activity. Societies in which entrepreneurship is a valuable, recognized and respected activity or career choice, have a greater possibility to increase their entrepreneurial activity rates. Thus, we put forward the following hypotheses:

- H2a: Career choice desirability is positively and significantly associated with the early-stage entrepreneurial activity.
- H2b: Status and respect of entrepreneurs is positively and significantly associated with the early-stage entrepreneurial activity.
- H2c: Mass media coverage on entrepreneurship is positively and significantly associated with the early-stage entrepreneurial activity.

Predictors of entrepreneurial activity: time and regional effects

Predictors of entrepreneurial activity are sensitive to time and geographical regions (e.g., Hindle and Klyver 2007; Tominc and Rebernik 2007; Hessels et al. 2008). Accordingly, entrepreneurship research needs to acknowledge how specific moments in time shape the pattern of relationships between variables (e.g., Gartner and Shane 1995) in different geographic contexts. To that purpose, our study examines four different moments in time to capture fluctuations in entrepreneurial activity before (2007) and during (2010, 2012 and 2013) the European crisis. The three years that are part of the ‘during the crisis’ stage have different characteristics: 2010 was marked by severe financial and economic constraints, high austerity, resulting in financial support measures requiring the assistance of the European Central Bank and/or the International Monetary Fund (McClain 2012); 2012 and 2013 showed signs of a positive (albeit small) recovery, with minor economic contractions, and policies to stimulate economic development and employment, while keeping the financial debt under surveillance (e.g., Lichfield 2012).

To our best knowledge, the impact of the European crisis on entrepreneurial activity has not been empirically explored yet. Conclusive findings are still amiss as some scholars advocate that economic and financial crises can damp entrepreneurial activity (e.g., Williams and Vorley 2015), and others claim that they can boost entrepreneurial

activity (e.g., Wan and Yiu 2009). With respect to the European crisis, we postulate that the effect on entrepreneurial activity differed between the countries in Southern and Northern Europe, mainly due to their differences in economic and financial robustness.

The Southern European cluster includes Greece, Spain, Italy and Portugal. The Nordic European cluster includes Sweden, Norway and Finland. These two clusters were previously used by Fernández et al. (2009) when analyzing the predictors of entrepreneurial intentions. Liñán and Fernández-Serrano (2014) findings further confirmed the existence of these clusters when looking for similarities between different regions of the European Union based on GDP, entrepreneurship and cultural value dimensions. Considering the cultural and economic differences between these two European regions, we expect structural changes in entrepreneurial activity based on key predictors. Furthermore, we anticipate such changes in entrepreneurial activity to be stronger in regions that were more affected by the crisis, namely the Southern European cluster. As there is a lack of previous empirical studies comparing these regions at our time frame of interest, we assume a comparative perspective regarding the effect of time and region on entrepreneurial activity.

Method

This study uses the GEM Adult Population Survey (APS) data at the individual level from Portugal, Italy, Greece, Spain, Sweden, Finland and Norway in 2007, 2010, 2012 and 2013. Table 1 presents the economic indicators regarding GDP at market price, unemployment rate and employment growth of all countries.

These indicators showed that unemployment rates highly increased for the Southern countries from 2007 to 2013, while the employment growth decreased. In the Northern countries, unemployment rates showed a slight growth from 2007 to 2013, and the employment growth showed positive signs.

Sample

We used the GEM APS Individual Data downloaded from the Consortium web page. We used the GEM 2007 APS Global - Individual-Level Data, the GEM 2010 APS Global - Individual-Level Data, the GEM 2012 APS Global - Individual-Level Data and the GEM 2013 APS Global - Individual-Level Data. From the complete data sets we selected the Southern and Nordic countries that were included simultaneously in the four moments in time of our analysis. In the Southern cluster, we included Greece, Spain, Italy and Portugal. The Nordic cluster consisted of Sweden, Norway and Finland.

The total sample amounted to 151,400 individuals ($N_{2007} = 39,905$; $N_{2010} = 39,890$; $N_{2012} = 34,439$; $N_{2013} = 37,166$). These are all country representative samples. Appendix 1 (Table 9) provides a more in-depth overview of how individuals are distributed by country and region for 2007, 2010, 2012, and 2013.

Measures

Age and gender were the *control variables* in our study. Additional variables, measuring individual characteristics were:

Table 1 Economic indicators of Southern and Nordic Countries in 2007, 2010, 2012 and 2013

Region	2007				2010			
	GDP per capita Index (EU28 = 100)	Unemployment rate	Employment growth	Employment growth	GDP per capita Index (EU28 = 100)	Unemployment rate	Employment growth	Employment growth
Southern	Greece	90	8.4	1.4	89	12.7	-2.6	-2.6
	Spain	105	8.2	3	99	19.9	-2.2	-2.2
	Italy	104	6.1	1.3	103	8.4	-0.7	-0.7
	Portugal	79	8.9	0	80	12	-1.5	-1.5
Nordic	Sweden	125	6.1	2.3	123	8.6	1	1
	Norway	181	2.5	4.1	180	3.6	-0.5	-0.5
	Finland	117	6.9	2.2	114	8.4	-0.1	-0.1
Region	2012				2013			
	GDP per capita Index (EU28 = 100)	Unemployment rate	Employment growth	Employment growth	GDP per capita Index (EU28 = 100)	Unemployment rate	Employment growth	Employment growth
Southern	76	24.5	-8.3	-8.3	73	27.5	-3.8	-3.8
	96	24.8	-4.2	-4.2	94	24.5	-2.6	-2.6
	100	10.7	-0.3	-0.3	99	12.1	-1.8	-1.8
	76	15.8	-4.2	-4.2	79	16.4	-2.9	-2.9
Nordic	126	8	0.7	0.7	127	8.0	1.0	1.0
	194	3.2	2.2	2.2	186		1.2	1.2
	115	7.7	0.1	0.1	113	8.2	-1.5	-1.5

Self-efficacy was measured by asking respondents if they believed they have the required skills and knowledge to start a business (0 = No, 1 = Yes);

Role model perception was assessed by asking respondents if they personally knew someone who had started a business in the two years preceding the survey (0 = No, 1 = Yes);

Risk perception was measured by asking respondents whether fear of failure would prevent them from setting up a business or not (0 = No, 1 = Yes);

Perceptions of opportunities was measured by asking respondents if they think that their area of residence provided good opportunities to start a firm in the six months following the survey (0 = No, 1 = Yes).

The social norms were measured by three variables:

Desirable career choice measured respondents' perception of whether most people in their country think that starting a new business would be considered a desirable career choice (0 = No, 1 = Yes);

Status and respect was measured by asking respondents whether individuals that successfully start a new business have a high level of status and respect in their country (0 = No, 1 = Yes);

Public media was measured by asking respondents whether they will often see stories in the public media about successful new businesses (0 = No, 1 = Yes).

Region was computed including the two categories (0 = Nordic; 1 = Southern). The Nordic region included all the individuals from Sweden, Norway and Finland, and the Southern region included all the individuals from Greece, Spain, Italy and Portugal.

The criterion variable was *total early-stage entrepreneurial activity (TEA)* referring to the individuals aged between 18 and 64 who are either a nascent entrepreneur or owner-manager of a new business (0 = No, 1 = Yes).

Data analysis procedure and models

To test our hypotheses, we performed a logistic regression analysis. Logistic regression is a log-linear model, which uses maximum likelihood to estimate the regression's response function and allows for the use of both qualitative and quantitative predictor variables (Neter et al. 1996). Unlike standard multiple linear regression, the criterion variable in logistic regression is an *odds ratio* which indicates the changes in the estimated proportion of successful cases that are due to the changes in one unit of the independent variables.

Therefore, logistic regression is useful for predicting a criterion variable (total early-stage entrepreneurial activity) on the basis of independent variables. The criterion variable takes the value of 1 if the respondent group engages in early-stage entrepreneurial activity and the value 0 if they do not engage in early-stage entrepreneurial activity (Hair et al. 1998; Gong 2003; Hitt et al. 2006). The generic and complete form of the logistic regression model used is presented in the following equation:

$$\log\left(\frac{p(\text{TEA})}{1-p(\text{TEA})}\right) = \alpha_0 + \alpha_1 \text{gender} + \alpha_2 \text{age} + \beta_1 \text{self eff} + \beta_2 \text{role model} + \beta_3 \text{risk percep} + \beta_4 \text{percep opport} + \beta_5 \text{career choice} + \beta_6 \text{status} + \beta_7 \text{public media} + \beta_8 \text{region}$$

The logistic regression models were computed separately for each year, and the influence of individual characteristics, social norms and region were introduced in subsequent steps of the *logit* models. In step 1, we included the control variables (age and gender), in the second step we included the individual characteristics (self-efficacy, role model, risk perception and perception of opportunities), in the third step we included the social norms (desirable career choice, status and respect, and public media) and in the fourth, and last step, we included region. This approach is modeled after previous work on cognitive predictors of entrepreneurial intentions (Fernández et al. 2009; and Liñán et al. 2011), however, measuring entrepreneurial activity rates.

Results

Descriptive statistics

The descriptive statistics and the correlation matrix of all variables are depicted in Appendix 2 (Table 10). Using one-way multivariate analysis, we tested between and within subject differences of early-stage entrepreneurial activity for each year and region. Results indicate that early-stage entrepreneurial activity differed significantly by Region ($F(1;151,281) = 1.775$; *Pillai's Trace* = 0.011, $p < 0.01$). We also found significant differences in early-stage entrepreneurial activity with respect to the different time points ($F(3;151,281) = 20.602$; *Pillai's Trace* = 0.004, $p < 0.01$). More specifically, post hoc tests (Tukey HSD and Scheffe test) revealed significant differences between 2007 and 2010 (Mean difference_{2010–2007} = 0.03, $p \leq 0.05$); 2007 and 2012 (Mean difference_{2012–2007} = 0.01, $p \leq 0.05$); 2007 and 2013 (Mean difference_{2013–2007} = 0.01, $p \leq 0.05$); 2010 and 2012 (Mean difference_{2012–2010} = -0.02 , $p \leq 0.05$); and 2010 and 2013 (Mean difference_{2013–2010} = 0.01, $p \leq 0.05$). No significant differences in early-stage entrepreneurial activity rates were found between 2012 and 2013, but 2007 is significantly different from 2013, and 2010 is significantly different from 2012, so they are relevant to our data analyses. Figure 1 depicts the estimated marginal means of early-stage entrepreneurial activity for Southern and Nordic Regions in 2007, 2010, 2012 and 2013.

Individual characteristics, social norms and regional effects on early-entrepreneurial activity

Four logistic regression analyses were computed, introducing the influence of individual characteristics, social norms and region in four subsequent *logit* regression models. The goodness of fit statistics, measured through the Omnibus tests, for all models were significant, suggesting that these predictor variables were adequate to estimate the probability of engaging in early-stage entrepreneurial activity (Table 2). Furthermore, the Nagelkerke R^2 increased from Model 1 to Model 4, indicating an increase in the percentage of variance explained by the models. The value of -2 Log Likelihood decreased from Model 1 to Model 4, providing additional support to the adequacy of the model.

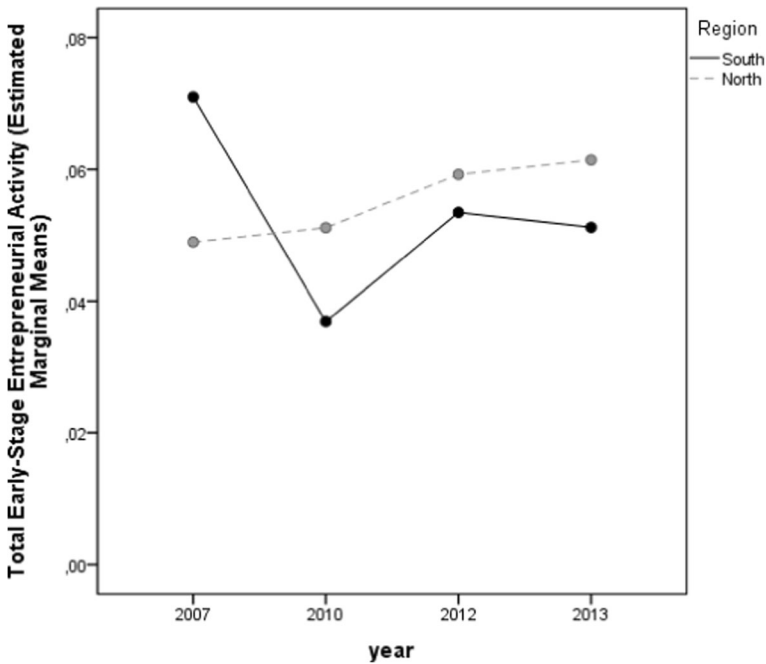


Fig. 1 Estimated marginal means of early-stage entrepreneurial activity for South and North Regions in 2007, 2010, 2012 and 2013

Table 2 Goodness-of-fit statistics

		Model 1 Control variables	Model 2 Individual characteristics	Model 3 Social norms	Model 4 Regional area
Omnibus tests (significance level)	2007	0.00	0.00	0.00	0.00
Cox & Snell R ²		0.008	0.081	0.082	0.082
Nagelkerke R ²		0.017	0.167	0.168	0.169
-2 Log Likelihood		11,986.66	10,594.28	10,582.62	10,572.96
Omnibus tests (significance level)	2010	0.00	0.00	0.00	0.00
Cox & Snell R ²		0.007	0.046	0.046	0.047
Nagelkerke R ²		0.024	0.155	0.156	0.158
-2 Log Likelihood		9269.13	8198.07	8183.59	8167.62
Omnibus Tests (significance level)	2012	0.00	0.00	0.00	0.00
Cox & Snell R ²		0.005	0.067	0.067	0.067
Nagelkerke R ²		0.014	0.186	0.187	0.187
-2 Log Likelihood		9205.11	7864.21	7855.66	7855.66
Omnibus Tests (significance level)	2013	0.00	0.00	0.00	0.00
Cox & Snell R ²		0.004	0.006	0.067	0.067
Nagelkerke R ²		0.012	0.191	0.192	0.193
-2 Log Likelihood		10,067.38	8531.37	8515.75	8513.96

Tables 3, 4, 5 and 6 present the results of the predictors effects on early-stage entrepreneurial activity for the years 2007, 2010, 2012 and 2013, respectively. The pattern of results in the four moments in time, and in the four steps of the model, is quite similar.

The control variables gender and age, showed a significant influence on the early-stage entrepreneurial activity, in the four moments in time. We found a negative effect of gender, suggesting that men were more likely to engage in early-stage entrepreneurial activity than women. Similarly, age showed a negative effect, indicating that younger individuals were more likely to engage in early-stage entrepreneurial activity than older people.

The variables describing individual characteristics (self-efficacy, role-model, risk perception and perceptions of opportunities) also showed significant effects on early-stage entrepreneurial activity in all four time periods. Self-efficacy showed a consistently positive and significant effect across the four time periods, supporting hypothesis 1a ($B_{2007} = 2.07$; $B_{2010} = 2.10$; $B_{2012} = 1.71$; $B_{2013} = 1.83$). Moreover, self-efficacy had the highest odd ratio in the logistic regression equation in all four models, indicating that it was the variable with the greatest influence on the likelihood of engaging in early-stage entrepreneurial activity (odd ratio_{2007self-efficacy} = 7.93; odd ratio_{2010self-efficacy} = 8.14; odd ratio_{2012self-efficacy} = 5.52; odd ratio_{2013self-efficacy} = 6.24).

Table 3 Logistic regressions on total early-stage entrepreneurial activity 2007

	2007							
	Model 1		Model 2		Model 3		Model 4	
	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)
Constant	-0.89**	0.42	-2.91**	0.06	-2.80**	0.06	-2.80**	0.06
Control Variables								
Gender	-0.41**	0.67	-0.19**	0.83	-0.19**	0.83	-0.18**	0.83
Age	-0.02**	0.98	-0.02**	0.98	-0.02**	0.98	-0.02**	0.98
Individual Characteristics								
Self-efficacy			2.08**	8.01	2.08**	8.02	2.07**	7.93
Role model			0.36**	1.43	0.36**	1.43	0.37**	1.45
Risk perception			-0.35**	0.71	-0.34**	0.71	-0.36**	0.70
Perceptions of opportunities			0.32**	1.38	0.33**	1.39	0.35**	1.42
Social Norms								
Desirable career choice					-0.18**	0.84	-0.20**	0.82
Status and respect					-0.01	0.99	-0.01	0.10
Public media					0.05	1.05	0.06	1.06
Regional Area								
Region ^a							-0.24**	0.79

** $p < 0.001$

^a 1 = Nordic countries; 0 = Southern countries

Table 4 Logistic regressions on total early-stage entrepreneurial activity 2010

	2010							
	Model 1		Model 2		Model 3		Model 4	
	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)
Constant	-1.32**	0.27	-3.56**	0.03	-3.47**	0.03	-3.46**	0.03
Control variables								
Gender	-0.58**	0.56	-0.29**	0.75	-0.29**	0.75	-0.29**	0.75
Age	-0.02**	0.98	-0.03**	0.98	-0.02**	0.98	-0.03**	0.98
Individual characteristics								
Self-efficacy			2.07**	7.90	2.07**	7.91	2.10**	8.14
Role model			0.60**	1.82	0.60**	1.82	0.58**	1.78
Risk perception			-0.47**	0.63	-0.46**	0.63	-0.44**	0.64
Perceptions of opportunities			0.54**	1.72	0.54**	1.71	0.47**	1.60
Social Norms								
Desirable career choice					-0.24**	0.79	-0.20**	0.82
Status and respect					0.04	1.04	0.03	1.03
Public media					0.09	1.09	0.04	1.04
Regional Area								
Region ^a							0.35**	1.41

** $p < 0.001$

^a 1 = Nordic countries; 0 = Southern countries

Both role model perception and perception of opportunities showed positive significant effects on early-stage entrepreneurial activity in all four models, suggesting that that people who have entrepreneurial role models and who perceive entrepreneurial opportunities were more likely to engage in early-stage entrepreneurial activity (Role model perception: $B_{2007} = 0.37$; $B_{2010} = 0.58$; $B_{2012} = 1.18$; $B_{2013} = 1.11$; Perception of opportunities: $B_{2007} = 0.35$; $B_{2010} = 0.47$; $B_{2012} = 0.54$; $B_{2013} = 0.57$). These results support our hypotheses 1b and 1c, respectively. The coefficients and the odd ratios for role model perception and perception of opportunities are smaller when compared to the coefficient for self-efficacy (see Tables 3, 4, 5 and 6), showing that despite being significant these variables contribute much less to the involvement in entrepreneurial activity than self-efficacy.

As predicted, risk perception had a negative significant effect on TEA in all four models, showing that the perception of risk decreases the probability of being involved in early-stage entrepreneurial activity ($B_{2007} = -0.36$; $B_{2010} = -0.44$; $B_{2012} = -0.51$; $B_{2013} = -0.57$). This result supports our hypothesis 1d. Furthermore, the odd ratio of risk perception was the lowest among the individual-level variables, suggesting that risk perception has the weakest effect on predicting TEA (odd ratio_{2007RiskPerception} = 0.70; odd ratio_{2010RiskPerception} = 0.64; odd ratio_{2012RiskPerception} = 0.60; odd ratio_{2013RiskPerception} = 0.57).

The variables measuring social norms showed varying effects on TEA across the four time points. In 2007 and 2010, only the variable desirable career choice showed a

Table 5 Logistic regressions on total early-stage entrepreneurial activity 2012

	2012							
	Model 1		Model 2		Model 3		Model 4	
	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)
Constant	-1.59**	0.20	-3.59**	0.03	-3.48**	0.03	-3.48**	0.03
Control Variables								
Gender	-0.54**	0.58	-0.24**	0.79	-0.24**	0.78	-0.24**	0.78
Age	-0.01**	0.99	-0.01**	0.99	-0.01**	0.98	-0.01**	0.99
Individual Characteristics								
Self-efficacy			1.72**	5.55	1.71**	5.52	1.71**	5.52
Role model			1.19**	3.28	1.18**	3.27	1.18**	3.27
Risk perception			-0.52**	0.60	-0.51**	0.60	-0.51**	0.60
Perceptions of opportunities			0.53**	1.71	0.54**	1.79	0.54**	1.72
Social Norms								
Desirable career choice					-0.05	0.95	-0.05	0.95
Status and respect					-0.17**	0.84	-0.17**	0.85
Public media					0.08	1.08	0.08	1.08
Regional Area								
Region ^a							-0.01	0.10

** $p < 0.001$

^a 1 = Nordic countries; 0 = Southern countries

significant effect on TEA. More specifically, the effect of desirable career choice was negative, suggesting that individuals that consider starting a new business a desirable career choice are less engaged in early-stage entrepreneurial activity ($B_{2007} = -0.20$; $B_{2010} = -0.20$; $B_{2012} = -0.05$, n.s.; $B_{2013} = -0.14$). Consequently, hypothesis 2a was rejected. With respect to the odd ratio, we found that for 2007, 2010 and 2013 desirable career choice had the smallest effect on early-stage entrepreneurial activity among all variables measuring social norms (odd ratio_{2007DesirableCareerChoice} = 0.82; odd ratio_{2010DesirableCareerChoice} = 0.82; odd ratio_{2013DesirableCareerChoice} = 0.87).

The effects of status and respect also varied across the four points in time. In 2007 and 2010, the effects were not statistically significant. In 2012 and 2013, status and respect showed negative significant effects on early-stage entrepreneurial activity ($B_{2012} = -0.17$; $B_{2013} = -0.12$). Therefore, hypothesis 2b was rejected. The odd ratio of status and respect was small, indicating that their influence on early-stage entrepreneurial activity is weak (odd ratio_{2012StatusRespect} = 0.85; odd ratio_{2013StatusRespect} = 0.89).

The effect of public media also showed a change over time. In 2007, 2010 and 2012 the presentation of entrepreneurship in the public media did not have a significant effect on early-stage entrepreneurial activity. In 2013, however, this effect was significant and negative, showing that presenting success stories about entrepreneurs and business owners in the public media contributes to a decrease of individuals engaging in early-stage entrepreneurial activity ($B_{2013} = -0.12$). Therefore, hypothesis 2c was rejected.

Table 6 Logistic regressions on total early-stage entrepreneurial activity 2013

	2013							
	Model 1		Model 2		Model 3		Model 4	
	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)
Constant	-1.69**	0.19	-3.73**	0.02	-3.55**	0.03	-3.55**	0.03
Control Variables								
Gender	-0.47**	0.63	-0.17**	0.84	-0.18**	0.84	-0.18**	0.84
Age	-0.01**	0.99	-0.01**	0.99	-0.01**	0.99	-0.01**	0.99
Individual Characteristics								
Self-efficacy			1.83**	6.23	1.82**	6.18	1.83**	6.24
Role model			1.11**	3.04	1.11**	3.04	1.11**	3.03
Risk perception			-0.58**	0.56	-0.58**	0.56	-0.57**	0.57
Perceptions of opportunities			0.56**	1.75	0.60**	1.82	0.57**	1.77
Social Norms								
Desirable career choice					-0.15**	0.86	-0.14**	0.87
Status and respect					-0.11**	0.90	-0.12**	0.89
Public media					-0.11**	0.90	-0.12**	0.89
Regional Area								
Region ^a							0.11	1.12

** $p < 0.001$

^a 1 = Nordic countries; 0 = Southern countries

The effect of region changed across time as well. In 2007, region had a negative and significant effect on TEA, suggesting that Southern countries were more likely to be involved in early-stage entrepreneurial activity than Nordic countries ($B_{2007} = -0.24$). In 2010, this effect was reversed, indicating that Nordic countries were more likely to engage in early-stage entrepreneurial activity than Southern countries ($B_{2010} = 0.35$). In 2012 and 2013, no statistically significant effects could be observed.

As these results showed a changing effect of region from 2007 to 2013 on the explanation of the likelihood to be involved in early-stage entrepreneurial activity, we next conducted the analysis comparing Nordic and Southern regions.

Regional analysis on early-entrepreneurial activity

To analyze the regional differences, we conducted a separate logistic regression analysis comparing Southern and Nordic regions. The goodness of fit statistics (Table 7) showed that all models had a significant p value. The percentage of variance of TEA explained (indicated by the Nagelkerke R^2 scores) by our predictors was higher for Nordic countries than for Southern countries for each time point (2007- Southern = 17%_{variance explained}; Nordic = 18%_{variance explained};

Table 7 Goodness-of-fit statistics of regional logistic regression analysis

	2007		2010		2012		2013	
	Southern	Nordic	Southern	Nordic	Southern	Nordic	Southern	Nordic
Omnibus Tests (significance level)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cox & Snell R ²	0.08	0.09	0.04	0.08	0.06	0.09	0.06	0.11
Nagelkerke R ²	0.17	0.18	0.14	0.21	0.18	0.21	0.18	0.26
-2 Log Likelihood	9152.84	1404.97	6697.14	1462.64	6733.33	1111.41	7064.13	1438.01

2010- Southern = 14%_{variance explained}; Nordic = 21%_{variance explained}; 2012- Southern = 18%_{variance explained}; Nordic = 21%_{variance explained}; 2013- Southern = 18%_{variance explained}; Nordic = 26%_{variance explained}).

With respect to the control variables age and gender, we found significant negative effects on early-stage entrepreneurial activity, indicating that in each time point younger male individuals from both the Southern and Nordic regions have a greater probability to engage in early-stage entrepreneurial activity (Table 8).

The variables of self-efficacy and role model perception showed positive significant effects, while risk perception reported a negative significant effect. This pattern was consistent in the four moments in time. Perception of opportunities was the only variable from individual characteristics that showed a changing pattern in 2012 for the Nordic countries. Perceptions of opportunities was found to have a positive and significant effect on TEA in both regions throughout 2007, 2010 and 2013. In 2012 no significant effect was found in the Nordic countries ($B_{\text{Nordic}2012\text{opportunities}} = 0.28$, n.s.).

The variables measuring social norms showed varying effects on TEA for the four time points and the different regions. The desirable career choice variable showed a negative and significant effect on early-stage entrepreneurial activity for the Southern countries in 2007, 2010 and 2013 ($B_{\text{Southern}2007\text{DesirableCareer}} = -0.20$; $B_{\text{Southern}2010\text{DesirableCareer}} = -0.20$; $B_{\text{Southern}2013\text{DesirableCareer}} = -0.13$). For the Southern countries perceiving that starting a new business is considered as a desirable career choice contributes to decrease the involvement on the early-stage entrepreneurial activity. In 2012, the variable status and respect showed a significant negative effect on TEA for the Nordic countries ($B_{\text{Nordic}2012\text{StatusRespect}} = -0.49$), indicating that perceiving that those successful at starting a new business have a high level of status and respect contributes to decrease the involvement on entrepreneurial activity. In 2013, we found that status and respect had a significant negative effect on TEA in Southern countries ($B_{\text{Southern}2013\text{StatusRespec}} = -0.13$).

Discussion

This study analyzed structural changes in the predictors of early-stage entrepreneurial activity before and during the 2008 European crisis. Specifically, we

Table 8 Regional logistic regressions on total early-stage entrepreneurial activity: Southern and Nordic

	2007				2010				2012				2013			
	Southern		Nordic		Southern		Nordic		Southern		Nordic		Southern		Nordic	
	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)
Constant	-2.95**	0.05	-2.29**	0.10	-3.65**	0.03	-2.44**	0.09	-3.60**	0.03	-2.68**	0.07	-3.54**	0.03	-3.36	0.03
Control Variables																
Gender	-0.17**	0.84	-0.03**	0.75	-0.26**	0.77	-0.44**	0.65	-0.22**	0.80	-0.37**	0.69	-0.17**	0.84	-0.18	0.84
Age	-0.02**	0.98	-0.03**	0.97	-0.02**	0.98	-0.04**	0.97	-0.01**	0.99	-0.01**	0.99	-0.01**	0.99	-0.02**	0.98
Individual Char.																
Self-efficacy	2.14**	8.48	1.63**	5.11	2.09**	8.09	2.12**	8.35	1.76**	5.78	1.50**	4.50	1.73**	5.63	2.23**	9.32
Role model	0.34**	1.40	0.66**	1.93	0.59**	1.81	0.52**	1.67	1.17**	3.21	1.31**	3.72	1.13**	3.09	1.00**	2.73
Risk perception	-0.35**	0.71	-0.55**	0.58	-0.42**	0.66	-0.61**	0.54	-0.53**	0.59	-0.39**	0.68	-0.52**	0.60	-0.87**	0.42
Perceptions of opportunities	0.36**	1.43	0.36**	1.43	0.47**	1.59	0.52**	1.69	0.58**	1.79	0.28	1.32	0.59**	1.81	0.43**	1.54
Social Norms																
Desir. career choice	-0.20**	0.82	-0.21	0.81	-0.20**	0.82	-0.21	0.82	-0.05	0.96	-0.13	0.88	-0.13	0.88	-0.20	0.82
Status and respect	-0.01	0.10	-0.04	0.96	0.03	1.03	0.04	1.04	-0.13	0.88	-0.49**	0.62	-0.13	0.88	-0.06	0.94
Public media	0.05	0.05	0.16	1.17	0.05	1.05	0.03	1.03	0.11	1.11	-0.11	0.90	-0.09	0.92	-0.25	0.78

** $p < 0.001$; * $p < 0.05$

examined the effects of individual characteristics and social norms during multiple time points of the economic crisis in two European regions: Southern and Nordic countries.

In line with our hypotheses, results revealed that self-efficacy, perceptions of opportunities and role model perception had a positive and significant influence on early-stage entrepreneurial activity. This shows that, despite the crisis, individuals who perceive opportunities, have high self-efficacy and a role model who started a business, are more likely to be engaged in early-stage entrepreneurial activity; this was found in both Southern and Nordic regions. As expected, the analyses on risk perception revealed a negative influence on early-stage entrepreneurial activity, showing that individuals who perceive risk are less likely to engage in early-stage entrepreneurial activity. Again, this result was confirmed for both regions, before and during the crisis. Overall, these results were consistent over time and there is not a structural change on these predictors before and during the crisis.

These results are in line with our theoretical rationale and with previous research on entrepreneurial intentions (Fernández et al. 2009; Liñán et al. 2011), demonstrating that alertness to opportunities, fear of failure, role modeling, and confidence about one's own skills are related to an individual's decision and intention to become an entrepreneur (Arenius and Minniti 2005; Liñán et al. 2011). Our study goes a step further, by providing evidence that these factors are also related to the participation in entrepreneurial activities. Of all the individual-level variables, self-efficacy showed the highest statistical influence on entrepreneurial activity, although this influence decreased over time ($2007 \geq 2013$). One possible explanation is that individuals perceive their own self-efficacy as more fragile during an economic crisis, as a consequence of their subjective assessment of how the crisis impacted their surroundings and consequently their own ability to attain a specific level of performance.

In contrast, the statistical influence of role model perception increased over time ($2007 \leq 2013$), showing that knowing other individuals who successfully started a business had more relevance for entrepreneurial activity during the crisis than before. Role models can be perceived as more relevant during the crisis as they are an important point of contact to leverage resources, knowledge and mentoring. In a crisis scenario, individuals might perceive knowing entrepreneurial role models as helpful not only to vicarious learning but also to increase their social capital, networking, peer counseling, and resources acquisition. The statistical influence of risk perception and opportunities did not show meaningful fluctuations before and during the crisis, suggesting that their impact on entrepreneurial activity does not change in presence of a macro crisis. Also, attitudes towards entrepreneurship were identified as an important predictor of entrepreneurial activity at the regional level, as Bosma and Schutjens (2009) showed in an analysis over the period from 2001 to 2006 across 18 European countries. To sum up, our results suggest that individual characteristics have a consistent effect on early-stage

entrepreneurial activity over time. Self-efficacy and having a role model are particularly impermeable to the effect of major external disturbance, such as the European crisis of 2008.

We also found that the statistical influence of social norms was weaker when compared to the individual characteristics, as the odd ratios of desirable career choice, public media coverage, and status and respect were lower. Specifically, the results with respect to the influence of social norms on early-stage entrepreneurial activity were surprising and contradicted our theoretical predictions. Our hypotheses were grounded in research on entrepreneurial intentions (Fernández et al. 2009; Liñán et al. 2011), but our findings showed that when measuring de facto entrepreneurial activity, social norms variables were found to have little to no impact on entrepreneurial activity. Desirable career choice was the only variable that was found to have a significant negative effect on early-stage entrepreneurial activity before and during the crisis, suggesting that considering starting a new business as a desirable career choice decreases the likelihood of being involved in the early-stage entrepreneurship. Status and respect and the influence of public media had a negative impact on early-stage entrepreneurial activities and were only shown to be significant during the crisis. We conclude that the way individuals perceive social norms does not promote engaging in early-stage entrepreneurial activities, and as such, they challenge the Social Identity Theory (Tajfel 1981), and conformity and socialization models (Brewer and Schneider 1990). Moreover, they also show that during the crisis, the negative impact of social norms is even more severe than before, opening the discussion on whether these social norms are perceived as legitimate.

Individuals may perceive that society is imprinting too much pressure on them to become entrepreneurs and create their own jobs, as entrepreneurship has become a popular topic of discussion. Additionally, in a society where information spreads widely, it may be the case that not all examples of social norms are reliable or inspirational or embedded in individuals' realities, which in turn may negatively affect entrepreneurial activities. Thus, the discredit of social norms can lead to the behaviors that are not in conformity with social norms, as Kübler (2001) noted that '*A certain norm-guided behavior can be discredited by advertisement campaigns or symbolic acts of influential people, thereby reducing the social pressure to follow the norm (...)*' (p. 462).

If we consider the wording of the items regarding social norms ('*In your country, most people consider starting a new business a desirable career choice*'; '*In your country, those successful at starting a new business have a high level of status and respect*'; and '*In your country, you will often see stories in the public media about successful new businesses*'), we find that these are injunctive social norms and that they mobilize people to behave via social evaluation (Cialdini et al. 1991). There are two critical "compliance-relevant decision points" that need to be analyzed in order to understand how individuals take notice of social influence (Cialdini 2007). Previous research showed that individuals frequently ignore or severely underestimate (1) the extent to which

their actions in a situation are determined by the similar actions of others; and (2) the persuasive impact that norms can have on the choices of a target audience (Cialdini 2007). Thus, it might be the case that individuals are underestimating the relevance of entrepreneurship being considered as a desirable career choice by others, the status and respect of entrepreneurs and the impact of the public media. Overall, these results are intriguing as they suggest that social norms have a very different impact on entrepreneurial intentions (Fernández et al. 2009; Liñán et al. 2011) and entrepreneurial activity than previously thought, thus opening avenues for future research.

Therefore, our results strengthen the relevance of individual characteristics compared to social norms and support the argument that entrepreneurial activity is highly dependent on the individual action (e.g., Venkataraman 1997; Shane 2003). Nevertheless, entrepreneurial activity does not take place in a vacuum, and thus, as Hmieleski and Baron (2009) noticed, the '*effects of individual-level variables occur primarily through interactions with key environmental factors*' (p.474).

Finally, the results showed that region (Southern and Nordic) had a significant effect on early-stage entrepreneurial activity before and during the crisis years. Prior to the outbreak of the economic crisis, individuals in the Southern countries were more likely to be involved in TEA, while individuals of Nordic countries were more likely to engage in early-stage entrepreneurial activity during the crisis years. This result is in line with the effects of the European crisis, which affected the Southern countries, mainly Greece, Spain and Portugal. In 2012, the effects of region were not significant, as the economic recovery started, reducing the disparities between Southern and Nordic regions. Similarly, in 2013, as the recovery gained pace, differences between Southern and Nordic regions did not show significant differences.

This study offers three main contributions. Firstly, we deepen our understanding of how the economic crisis impacted entrepreneurial activity in different regions of the European Union. Before the crisis, individuals in Southern European countries were more likely to be involved in early-stage entrepreneurial activity than Nordic countries, with this trend reversing during the crisis.

Secondly, we contribute to the understanding of entrepreneurial activity predictors, taking into account both individual and social norm perceptions, which is relevant for future promotion and policy decision making for entrepreneurship in Europe. Individual characteristics are the most important predictor of entrepreneurial activity, and this effect stays stable throughout the time of the crisis; and social norms have an absent or low effect on entrepreneurial activity, with slight fluctuations during the crisis.

Thirdly, our study contributes to the research on the predictors of entrepreneurial activity (e.g., Burton et al., 2016; Sorenson and Audia 2000) and adopts a comparative perspective over time and between two European regions. This is a distinctive characteristic of this study that allows capturing the evolution of the entrepreneurial activity predictors over time.

Limitations, future research and implications for practice

This study has several limitations, mainly related to the characteristics of the GEM database, which constrain the measures and data analysis procedure. GEM APS data includes mainly one-item measures and ‘yes’ or ‘no’ answers, which somewhat limits the types of statistical procedures that can be used. Specifically, regarding individual characteristics and social norms, other academically driven cross-national surveys such as the European Social Survey include items answered in Likert scales, for example. Plus, the analysis is circumscribed to the available data. Future research on this line will benefit from updated data in the upcoming years, which will allow us to create a complete picture for before, during and after the European financial crisis.

This study is especially informative to European policy makers who are attempting to understand the dynamics of entrepreneurial activity in Europe, and how to promote the creation of new ventures. As individual characteristics emerged as the most important predictor of entrepreneurial activity, policy makers and stakeholders should invest resources in training individuals and promoting the entrepreneurial mindset. Entrepreneurship education is a key vehicle to develop individual characteristics, mainly to promote self-efficacy towards entrepreneurial activities, to learn how to recognize business opportunities and mitigate risks. Policy makers should also be aware of the fluctuations on the importance of social norms towards entrepreneurship activity rates. Yet, it is necessary to analyze the sources that are promoting social norms regarding entrepreneurship and to design more effective informative campaigns. Thus, policy makers should promote entrepreneurship initiatives both national and regionally, by endorsing and recognizing the benefits of being an entrepreneur, sharing entrepreneurship stories and examples in the media channels, and endorsing the respect of those who launch new businesses.

As future research, it would be interesting to extend the comparison to other European regions, and other critical time moments, namely in the apparent aftermath of the crises. In fact, this research is an exploratory step to develop systematic and analytical research on the predictors of early-stage entrepreneurial activity, going further than the descriptive analysis of Global Entrepreneurship Monitor. In addition, future research should consider different aspects of the early-stage entrepreneurial activity, as the opportunity versus the necessity based entrepreneurial activity, and might also benefit from the integration of data from other sources. Moreover, other data analysis techniques, such as multilevel methods will be very pertinent to explore how regional and country level variables influence individual level entrepreneurial behavior. The driver of the entrepreneurial activity before, during and after the crisis should have important implications for practice. Recovering from the European crisis is an urgent demand, and entrepreneurial activities, new venture ideas and actors have their critical role (Williams and Vorley 2015).

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Appendix 1

Table 9 Sample distribution: Involvement in total early-stage entrepreneurial activity by country in 2007, 2010, 2012 and 2013

Region	Involved in total early-stage entrepreneurial activity												
	2007			2010			2012			2013			
	No	Yes	Total	No	Yes	Total	No	Yes	Total	No	Yes	Total	
Southern Countries	Greece	1892 (94.6%)	108 (5.4%)	2000	1891 (94.6%)	109 (5.5%)	2000	1872 (93.6%)	128 (6.4%)	2000	1896 (94.8%)	104 (5.2%)	2000
	Spain	25,843 (92.7%)	2037 (7.3%)	27,880	25,431 (96.4%)	957 (3.6%)	26,388	20,781 (94.9%)	1119 (5.1%)	21,900	23,378 (95%)	1222 (5%)	24,600
	Italy	1920 (96%)	80 (4%)	2000	2931 (97.7%)	69 (2.3%)	3000	1912 (95.6%)	88 (4.4%)	2000	1979 (96.4%)	73 (3.6%)	2052
Nordic Countries	Portugal	1841 (91.0%)	182 (9.0%)	2023	1908 (95.3%)	94 (4.7%)	2002	1845 (92.2%)	156 (7.8%)	2001	1832 (91.5%)	171 (8.5%)	2003
	Sweden	1932 (96.6%)	69 (3.4%)	2001	2395 (96.1%)	97 (3.9%)	2492	2369 (94.8%)	131 (5.2%)	2500	2337 (93.3%)	169 (6.7%)	2506
	Norway	1908 (95.6%)	88 (4.4%)	1996	1883 (94.1%)	119 (5.9%)	2002	1865 (93.3%)	135 (6.8%)	2000	1875 (93.8%)	125 (6.3%)	2000
	Finland	1868 (93.2%)	137 (6.8%)	2005	1890 (94.2%)	116 (5.8%)	2006	1917 (94.1%)	121 (5.9%)	2038	1899 (94.7%)	106 (5.3%)	2005

Appendix 2

Table 10 Descriptive and correlation matrix of all variables in the study

	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Gender	1.50	0.50										
2. Age	42.54	13.33	0.04**									
3. Self-efficacy	0.45	0.52	-0.12**	-0.01**								
4. Role model	0.32	0.47	-0.08**	-0.11**	0.21**							
5. Risk perception	0.46	0.52	0.07**	-0.04**	-0.08**	-0.03**						
6. Perceptions of opportunities	0.20	0.49	-0.06**	-0.02**	0.12**	0.16**	-0.06**					
7. Desirable career choice	0.58	0.54	-0.01**	-0.01**	0.03**	0.02**	0.04**	0.10**				
8. Status and respect	0.61	0.53	-0.01**	0.00	0.00	0.02**	0.06**	0.10**	0.20**			
9. Public media	0.45	0.54	-0.03**	0.04**	0.05**	0.07**	0.00	0.14**	0.14**	0.17**		
10. Region	0.17	0.37	0.00	0.10**	-0.08**	0.07**	-0.12**	0.17**	-0.10**	0.08**	0.12**	
11. Total early-stage entrepreneurial activity	0.05	0.23	-0.06**	-0.05**	0.20**	0.15**	-0.07**	0.09**	-0.01**	-0.01**	0.02**	0.00

SD Standard Deviation

** $p < 0.001$; * $p < 0.05$

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