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Entrepreneurial process in peripheral regions: the role of motivation and culture

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ABSTRACT

The entrepreneurial potential of a region is a key factor in linking innovation to the market, thus leading to economic growth. This is especially important in peripheral regions that are characterized by low innovative dynamism. This paper analyses the entrepreneurial process in a European peripheral region, the Canary Islands, Spain. It attempts to determine possible cultural specificities and the role of motivation in the entrepreneurial process. To do this, an analysis of entrepreneurial intention (EI) is framed within the theory of planned behaviour and using motivation, opportunity and ability theory. An empirical study was carried out using a sample of 1457 university students participating in the Global University Entrepreneurial Spirit Students' Survey project. Results indicate that motivation influences EI directly and indirectly through an individual's attitude towards entrepreneurial behaviour. The perception of business opportunities is also a significant antecedent of entrepreneurial motivation. Consequently, entrepreneurial education and policies to foster entrepreneurship in peripheral regions should not attempt to transform individuals' attitudes towards entrepreneurship directly, but rather focus on improving motivation using intensive pedagogical strategies in creativity that go beyond mere informative content. Methodologies and content focused on recognizing opportunities and problem-solving would also be effective elements in educational programmes of entrepreneurship.

Introduction

The study of innovation's positive impact on the economic growth of regions and countries is a classic theme in academic literature (Damanpour, 1991; Damanpour & Scheneider, 2006; Drucker, 1986; Hult, Hurley, & Knight, 2004; Schmiedeberg, 2008). Much effort has been invested in trying to understand the dynamics of the innovation process and the policies and incentives that drive or hinder its development (Asheim, 2009; Piñero, Rodríguez-Monroy, & Arbola, 2012; Van Oostrom, 2015).

However, when regional development is analysed, at least at European level, it is clear that 'no one size fits all' (Asheim, Moodyson, & Tödtling, 2011; Tödtling & Trippl, 2005).

It is not possible; therefore, to perform homogeneous analyses, since each region has specific features in terms of its innovative capacity, and the impact investments in innovation would generate in terms of economic growth. From this point of view, Asheim et al. (2011) distinguish between metropolitan, industrial and peripheral regions. The latter are characterized by low-level innovative activity due to a lack of dynamic firms and knowledge-generating organizations, a 'thin' and less specialized structure of knowledge suppliers, educational institutions and poorly developed networks of these suppliers.

By contrast, metropolitan regions are innovation centres that benefit from economies of scale and agglomeration as well as a high density of knowledge centres, clusters and support institutions. Industrial regions also have a high level of expertise in certain key industries around which knowledge-generating organizations and educational institutions can focus.

Among the dynamics that determine regional character regarding its innovative potential, cultural specificities have been shown as some of the most important elements (Clifton, Gärtner, & Rehfeld, 2011). However, few studies have systematically analysed this connection, with the exception of the seminal analysis of Saxenian (1994), which compared the impact of sociocultural aspects in the success of Silicon Valley as an innovative region with the so-called Route 128 in Boston. The author concludes that the culture of interaction between the actors in the Californian region was the decisive factor for its great innovative dynamism. In this sense, Keeble and Wilkinson (2000) also highlight the impact of cultural influences on learning processes and innovation in European high-tech regions.

Therefore, in explaining the dynamics of innovation, the institutional and organizational contexts in different regions must be considered, as well as the processes of generation and exploitation of knowledge and interactions between different actors (Autio, 1998; Cooke, Heidenreich, & Braczyk, 2004; Doloreux, 2002; Tödtling & Trippl, 2005). The importance of these institutional and cultural specificities is reinforced by the need for modern innovation policies to be based not only on promoting investment in R&D (driven by supply), but also on promoting demand from users (Asheim, 2009).

Among the institutional and cultural aspects that can influence innovation and regional economic development, the degree of entrepreneurial potential in the territory should be highlighted as one that generates innovation and promotes economic growth. There need to be entrepreneurs with the ability to link innovation to the market, generating value, creating demand and the resulting economic growth (Audretsch & Keilbach, 2004; González, Peña, & Vendrell, 2012; Guerrero & Peña-Legazkue, 2013).

It can be argued that a country or region's competitiveness is based on its investment in research and technological development (R&D) and its ability to generate and attract skilled human capital. It is also essential to have 'the existence of a business network that is able to tap into the sources of knowledge and technology at its disposal to produce new products and services that have acceptance in the global marketplace' (COTEC Foundation, 2015, p. 21). For peripheral regions, this poses additional difficulties, in that most studies agree that individuals' motivation for entrepreneurial activities in non-core regions is mainly need-driven (Baumgartner, Pütz, & Seidl, 2013; Kalantaridis, 2004). Thus, following the terminology of Liñán, Fernández-Serrano, and Romero (2013), it is mainly necessity entrepreneurship rather than opportunity entrepreneurship. There is

also a tendency for the most talented entrepreneurs from the periphery to migrate to the core regions (Kaufmann & Malul, 2015).

It is therefore important to understand the cultural and institutional specificities of a country or region in which entrepreneurial activities are carried out, since these can be barriers and obstacles to transferring innovative efforts into economic development (Guerrero & Peña-Legazkue, 2013). Overcoming these limitations is essential to access the benefits of a virtuous circle that could increase regions' economic prosperity through investment in innovation, which in turn can improve potential innovative and entrepreneurial activity (Audretsch & Peña, 2012; González, Martiarena, Navarro, & Peña, 2009).

Empirical studies have demonstrated how the cultural aspects of a specific region can affect entrepreneurial intention (hereinafter EI) even more than economic variables (García-Cabrera & García-Soto, 2008; García-Rodríguez, Gil-Soto, Ruiz-Rosa, & Sene, 2015; Hofstede et al., 2004; Liñán, Urbano, & Guerrero, 2011; Wennekers, Thurik, Van Stel, & Noorderhaven, 2007), in that the former tend to present a more permanent character than the latter. For Mueller and Thomas (2001), the concept of 'culture' is associated with the system of fundamental values and principles specific to a particular group or society that, at the same time, give rise to certain personality traits and individual motivations that are not reproduced in other societies. Hofstede (1984) distinguishes four dimensions when analysing cultural differences among countries or regions: power distance, uncertainty avoidance, individualism–collectivism in a country, and masculinity–femininity. Later, Hofstede (1991) added a fifth dimension: individuals' orientation towards the short/long term.

For a given region, it is clear that having university education contributes to the innovative potential and impact of the region's economic development, not only through classic knowledge transfer, but also by providing leadership for the creation of entrepreneurial thinking, actions and institutions (Guerrero, Cunningham, & Urbano, 2015; Guerrero, Urbano, & Fayolle, 2016). Therefore, it is particularly interesting to analyse the dynamics of the entrepreneurial process and the possible existence of institutional obstacles or cultural barriers among university students (Guerrero & Peña-Legazkue, 2013).

Together with cultural aspects, individual motivation is an important explanatory factor in the entrepreneurial process. It is related to the so-called theories of needs, which identify individuals' internal stimuli (hunger, fear, etc.) that guide their behaviour, and 'incentive theories', which suggest that individuals develop one behaviour or another in search of external objectives or prizes (Carsrud & Brännback, 2011; Fayolle, Liñán, & Moriano, 2014).

Taking into account the above aspects, this paper analyses the entrepreneurial process in a European peripheral region, the Canary Islands, Spain. It attempts to determine possible cultural specificities and provides an integrated view of motivation's role in EI and its antecedents. It adopts the perspective based on the approach of Shapero and Sokol (1982) and the theory of planned behaviour by Ajzen (1991). Attitude towards entrepreneurial behaviour, subjective norms and perceived behavioural control are assumed to be antecedents of EI. This view is complemented by the so-called motivation, opportunity and ability (MOA) theory, originally adopted by MacInnis and Jaworski (1989), which determines the impact of motivation on EI either directly or indirectly through its antecedents.

The model is tested on a sample of undergraduates, who participated in the Global University Entrepreneurial Spirit Students' Survey (GUESSS) project.

After having contextualized the importance of potential entrepreneurs to regions, especially peripheral ones and highlighting specific cultural features, the second section of the paper explains entrepreneurial process and motivation from a theoretical perspective and puts forward the working hypotheses. Subsequently, an empirical analysis is carried out among university students in the Canary Islands, Spain, a European peripheral region. Results show the main relational links between motivation and EI. Finally, the most relevant conclusions are drawn, from both academic and applied perspectives.

The role of motivation and cultural aspects in the entrepreneurial process

The entrepreneurial process

The phenomenon of entrepreneurship, as a process that occurs over time (Gartner, Shaver, Gatewood, & Katz, 1994), begins long before the moment when an individual sets up a business. Thus, as with all behaviours, it requires a planning process even to reach the stage of EI. This intention, therefore, is prior to the creation of a business and can be considered one of the best predictors of entrepreneurship (Ajzen, 1987, 1991, 2001, 2002; Krueger & Brazeal, 1994).

This perspective runs parallel to the conviction predominantly supported by the literature since the 1980s, stating that it is not nature but nurture that makes an entrepreneur. Therefore, entrepreneurship is associated with learning processes, maturing and possible changes in individuals' abilities and personal capacities (Minniti & Bygrave, 2001).

In this sense, entrepreneurs' abilities are not fixed personality traits or characteristics; instead, their abilities can change over time, develop and be learnt through experience (Gibb, 1993, 2000). This is the context in which entrepreneurship can be explained based on the theory of attitudes (Robinson, Stimpson, Huefner, & Hunt, 1991) and studies such as the one by McCline, Bhat, and Baj (2000). The basic idea is that the concept or the attitude of an individual is dynamic and changing. Individuals respond to external incentives, and therefore it is more appropriate to explain entrepreneurship this way rather than in a more static way associated with personality traits.

Among the various theoretical models proposed to describe and explain the entrepreneurial process, it is worth mentioning Shapero and Sokol's work (1982) and Ajzen's (1991) theory of planned behaviour. Both models have been widely tested and validated in numerous scientific studies, particularly noteworthy are the ones by Krueger and Brazeal (1994), Peterman and Kennedy (2003) and Souitaris, Zerbinati, and Al-Laham (2007).

According to this perspective, the decision to initiate a new entrepreneurial activity depends on three elements: the perception of desirability, feasibility and the individual's willingness to act. Krueger and Brazeal (1994) differentiate between an individual's entrepreneurial potential, which can remain in a 'latent' state and his/her EI, which is a reaction to a relevant event that can cause a change in behaviour. Thus, the perceived desire, perceived feasibility and propensity to act are antecedents of EI (Shapero & Sokol, 1982). To these three elements, Azjen's 'subjective norms' can be added, which support the entrepreneur's behavioural setting.

To the degree personal and social factors influence entrepreneurial conduct, in contrast to the approach of Shapero and Sokol (1982), the theory of planned behaviour (Ajzen, 1991, 2001) has become consolidated as the most commonly used approach in recent research into EI (Liñán & Fayolle, 2015; Moriano, Gómez, Laguna, & Roznowski, 2008).

To sum up, the theory of planned behaviour holds that EI depends on the influence of three variables: attitude towards entrepreneurship, subjective norms and perceived behavioural control (Ajzen, 1991, 2001). In the latter variable, Ajzen (2001) incorporates two dimensions: self-efficacy (belief in one's own capacity to organize and perform behaviour) and controllability (belief in one's control of his/her conduct).

This theoretical model has had wide empirical testing with the works of Liñán and Chen (2009), Souitaris et al. (2007), Peterman and Kennedy (2003), Audet (2002, 2004), Krueger, Reilly, and Carsrud (2000), Kolvereid (1996) and Tkachev and Kolvereid (1999) being worthy of particular mention.

Motivation in the entrepreneurial process

However, the research focus on EI within the field of entrepreneurship as the best predictor of behaviour has meant that another key element in the entrepreneurial process has been left aside: motivation (Carsrud & Brännback, 2011). The entrepreneurial process may not be linear, but instead could be better understood as behaviour directed towards the search for objectives at distinct levels of deliberation. These objectives serve as sources of external motivation (Lawson, 1997).

There are essentially two perspectives in motivational theories: one based on economics and the other on psychology (Fisher, 1930), which attempt to answer three questions: What activates a person? What makes the individual choose one behaviour over another? Why do different people respond differently to the same motivational stimuli? (Carsrud & Brännback, 2011).

Among the main theories that support the study of motivation in entrepreneurship, there are 'incentive theories' based on the idea that individuals develop one kind of behaviour or another in search of objectives and external prizes created to incentivize. There are also the 'theories of needs' that rely on the existence of internal stimuli in individuals that guide their behaviour (Carsrud & Brännback, 2011; Fayolle et al., 2014). Theories of needs applied to the entrepreneurial process hold that individuals have intrinsic needs that generate internal tensions, which motivate them to act. In this way, motivation will influence the antecedents of EI and finally EI itself (Fayolle et al., 2014; Solesvik, 2013).

Motivation can be an important explanatory element both of EI's antecedents (Solesvik, 2013), as well as influencing the relationship between EI and the decision to be an entrepreneur (Carsrud & Brännback, 2011; Fayolle et al., 2014). Various studies have demonstrated the existence of relationships between several motivational variables and EI (Chen, Greene, & Crick, 1998; Souitaris et al., 2007). More recently, Hui-Chen, Kuen-Hung, and Chen-Yi (2014) have proposed an integrated model of the entrepreneurial process, finding that motivation affects EI through attitudes and perceived behavioural control. From the perspective of 'incentive theories', motivation could play a key role in transforming EI into the actual setting up of a business activity by being the missing link between intention and behaviour (Carsrud & Brännback, 2011; Edelman, Brush, Manolova, & Greene, 2010).

On the other hand, another important concept that has emerged recently in the field of entrepreneurship, related to but different from motivation, is individual values (Fayolle et al., 2014). These can be considered as general principles that show certain stability over a long period and guide the conduct of the individual (Schwartz, 2011).

Formulating hypotheses

Based on the above, and, in particular, on the recent works of Solesvik (2013) and Hui-Chen et al. (2014), motivation would be expected to influence EI positively. This could occur both directly and indirectly through its antecedents and to the extent that the entrepreneurial process is not linear but rather a search for objectives (Carsrud & Brännback, 2011; Lawson, 1997). In this sense, a significant number of studies have demonstrated that motivation is directly linked to entrepreneurs (Caird, 1991; Durand & Shea, 1974; Morris & Fargher, 1974; Robinson et al., 1991). In accordance with Fayolle et al. (2014), it would be possible to relate the theory of motivation based on need with greater EI owing to the internal tension generated, which is then channelled through the antecedents of the intention, making it possible to propose the following hypothesis:

> H1. Motivation has a positive impact on (a) EI, (b) personal attitude, (c) perceived behavioural control and (d) subjective norms.

MacInnis and Jaworski (1989) were the authors who originally proposed the MOA theory. This theory has had a varied academic path. It has been applied to diverse areas to try to explain behaviours of choice among companies and individuals (Binney, Hall, & Shaw, 2003; Gruen, Osmonbekov, & Czaplewski, 2005, 2006, 2007; Rothschild, 1999; Siemsen, Roth, & Balasubramanian, 2008). Therefore, in this case, as well as in motivation, it will be necessary to consider it as an explanatory element of EI and EI's antecedents: opportunity and individuals' ability.

Opportunities will be external factors that favour or hamper the achievement of individuals' desires (Binney et al., 2003). Therefore, from the perspective of becoming an entrepreneur, if opportunities do not exist, it is unlikely that the desired behaviour will be achieved despite great motivation on the part of an individual. It is also necessary to consider individuals' abilities, that is, their competencies that would favour the setting up of a business activity, since these will help individuals feel ready to achieve their goals (Binney et al., 2003; Rothschild, 1999).

Thus, it is possible to put forward the following hypotheses:

> H2. Opportunity has a positive impact on (a) EI, (b) motivation, (e) personal attitudes, (f) perceived control of behaviour and (g) subjective norms.

> H3. Abilities have a positive impact on (a) EI, (b) motivation, (c) opportunity, (e) personal attitudes, (f) perceived behavioural control and (g) subjective norms.

In addition, various studies based on Ajzen's (1991) theory of planned behaviour have shown a positive relationship between EI and personal attitudes and perceived control (Audet, 2002, 2004; Finisterra Do Paço et al., 2011; Kolvereid, 1996; Krueger et al., 2000; Liñán & Chen, 2009; Souitaris et al., 2007; Tkachev & Kolvereid, 1999), thus, making it logical to propose that:

H4. Personal attitudes have a positive impact on (a) EI.

H5. Perceived control of behaviour has a positive impact on (a) EI.

Finally, Liñán and Chen (2009) show that many previous works on the theory of planned behaviour did not include the subjective norms variable in the analysis, so bearing in mind studies that did (Kolvereid, 1996; Tkachev & Kolvereid, 1999), it is reasonable to expect that:

H6. Subjective norms have a positive impact on (a) EI, (e) personal attitudes and (f) perceived control of behaviour.

Empirical work

Regional context, data gathering and sample description

Canary Island is a Spanish fragmented island territory with a surface area of 7447 km^2. It is considered a peripheral region by the European Union, geographically located in the African continent, on the eastern edge of the mid-Atlantic, at the southern limit of the temperate zone, with the Sahara Desert to the east. Its mild, warm climate combined with the political and socio-economic stability of the region has meant that its tourism sector has developed to become the leading international tourist destination during the winter season receiving almost 12 million visitors in 2014. However, this polarized economic activity is not enough to create sufficient employment, as current unemployment in the Canary Islands stands at over 30%.

According to the COTEC Foundation (2015), the Canary Islands ranks as the second region with least resources devoted to R&D in Spain in 2013 (0.52% of GDP). Moreover, it should be noted that Spain's R&D expenditure represented 1.24% of GDP, which remains well below the average for OECD (2005) countries (2.4%) and the EU-28 (1.92%). This is why the Canary Islands constitutes a representative example of a European peripheral region.

The data to carry out this study come from answers to a questionnaire as part of the GUESSS project with students from the University of La Laguna in Canary Islands. GUESSS is an international research project that attempts to analyse EI and its antecedents for students at a global level. In its sixth edition, data were gathered from over 700 universities in 34 different countries, between October 2013 and March 2014, with Spain participating for the first time in the analysis.

The GUESSS project aims to carry out a comprehensive analysis not only of the psychological characteristics of future entrepreneurs but also specific attitudes, personal antecedents and situational variables. The main contribution of the project has been to homogenize methodology, so that comparisons can be made between different countries, significantly enhancing the study of EI among students. The sixth edition, corresponding to 2013, contained 12 blocks that have been translated and validated by experts in entrepreneurship, from both academic and applied areas.

At the University La Laguna, the questionnaire was sent to all the students (20,729) by email in November 2013 and 1457 responses were obtained over the two months in which the fieldwork took place. The questionnaire was in electronic format and was self-administered with assistance using the Qualtrics programme. The sample consisted of 37.5%

men and 64.3% women; regarding age, 81.5% were between 18 and 24 years, 12.5% between 25 and 30 years and 5.9% over 30 years. There were 80.6% studying undergraduate degrees, 18.4% were doing postgraduate studies and 0.8% doctorate students. Out of the total sample, 25.7% were studying business, economics and law, 42.5% science and medicine, and 31.8% social sciences.

Differences in variables such as age, gender and educational level could influence the predictive ability of the model for the sample. In order to assess their impact and determine whether these control variables influence indicators of the MOA model constructs, an analysis of variance was carried out for each of the three classification variables. The ANOVA results for the three age groups (18–24, 25–30 and >30) and educational level (degree, master and doctorate) and the analysis of mean difference in gender (men and women) led to the conclusion that there is no association between independent variables or any of the three control variables since no significant statistical F values ($p > .05$) were obtained.

In addition, the majority of the students in the sample (91.7%) were not working regularly and in 30.2% of the cases, one or both of their parents were self-employed. In addition, 6% of the sample intended to become entrepreneurs on finishing their studies and 36.3% indicated EI in the future (five years).

The measurement scales used in this research were not prepared ad hoc but used those proposed in the GUESSS model project, whose theoretical foundations are based on the theory of planned behaviour by Ajzen (1991). All scales have been widely validated in previous studies, for example, Liñán and Chen (2009) for Personal Attitude and Entrepreneurial Intention scales. This confirms the validity of the content used to fulfil the objectives and the hypotheses of the analysis model (Figure 1). In addition, for the
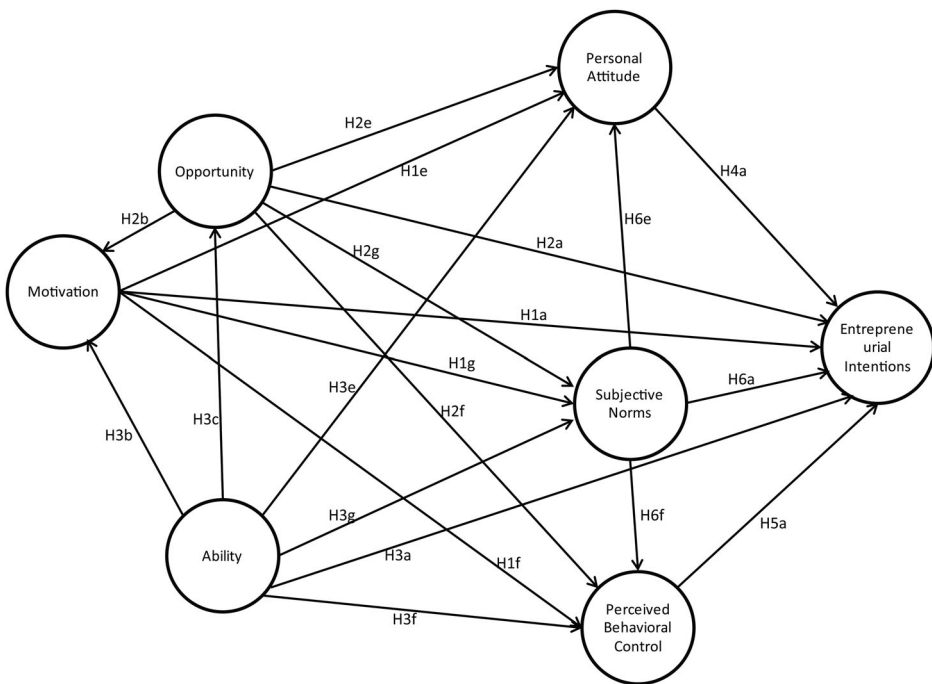

Figure 1. Constructs for MOA model.

opportunity variable, the questionnaire items refer to the opportunity to initiate an activity after finishing studying and within five years of finishing.

Data analysis

Structural equations were chosen to analyse the data, using the technique of partial least-squares (PLS) (Fornell & Cha, 1994). This technique is designed to reflect the theoretical and empirical characteristics of social sciences and behaviour, in which theories frequently lack sufficient support and there is little information available (Wold, 1979). Specifically, SmartPLS 2.0 was used (Ringle, Wende, & Will, 2005).

The general recommendations regarding the theoretical support for a model of PLS have been followed; the sifting of data and the analysis of the psychometric properties of all the variables of the model before beginning the analysis; examining relationships and effects; standard errors and the predictive power of the model to guarantee its validity. The PLS method allows hypotheses to be tested at the same time as admitting measurements with single and multiple items and the use of formative and reflective indicators (Fornell & Bookstein, 1982).

Following the criteria of Chin (1998) regarding the items used for each of the constructs of the proposed model, we find that all the indicators of the latent variables are reflective, since an increase in one of the indicators in one direction means that the rest change in a similar way.

To assure the validity of the PLS technique, two steps are required (Barclay, Higgins, & Thompson, 1995). First, the measurement model is evaluated and then the structural one. The evaluation of the measurement model is performed by ensuring the reliability of each item, the reliability of constructs, the average variance extracted (AVE) and the discriminatory validity of the indicators that measure the latent variables. The structural model is validated by confirming up to what point the causal relations are consistent with the available data (Real, Leal, & Roldán, 2006).

In the model proposed in this study, there are seven first-order constructs, as observed in Figure 1.

The analysis begins by evaluating the individual reliability of the constructs examining the factor loading, composite reliability (CR) and AVE (Chin, 1998; Fornell & Larcker, 1981). Table 1 shows these measures as well as each of the items used. The factor loadings are all over .707, indicating that at least 50% of the variance of the construct is reflected in the indicator (Chin, 1998). CR is always greater than .7, which is required in the initial stages of research, and is also higher than the stricter value of .8 required for basic research (Nunnally, 1978).

As for AVE, for the indicators of each construct, these should be greater than .5, which explains 50% or more the indicator's variance (Fornell & Larcker, 1981). This condition was comfortably met in all cases.

To ensure discriminatory validity, the square roots of AVEs are compared (i.e. the diagonal values in Table 2) with the correlations between constructs (i.e. the elements that are outside the diagonal in the table).

All the constructs are reflective and mainly relate to their own measures rather than to other constructs (Table 3). Additionally, crossed factor loadings have been analysed and it has been confirmed that they are not significant regarding their relation with factor loadings (Chin, 1998).

Table 1. Construct properties of model.

Constructs and items		Mean	STD	λ	AVE	CR	α
Ability							
Please indicate your level of competence in performing the following tasks (1 = very low competence, 7 = very high competence)							
Q6.3_1	Identifying new business opportunities	4.49	1.43	.975	.952	.994	.993
Q6.3_2	Creating new products and services	4.34	1.49	.976			
Q6.3_3	Applying my personal creativity	5.01	1.49	.969			
Q6.3_4	Managing innovation within a firm	4.68	1.50	.983			
Q6.3_5	Being a leader and communicator	5.02	1.53	.976			
Q6.3_6	Building up a professional network	4.62	1.54	.975			
Q6.3_7	Commercializing a new idea or development	4.64	1.55	.977			
Q6.3_8	Successfully managing a business	4.84	1.55	.974			
Els							
Please indicate your level of agreement with the following statements (1 = strongly disagree, 7 = strongly agree)							
Q6.1a_1	I am ready to do anything to be an entrepreneur	3.77	1.73	.936	.930	.988	.985
Q6.1a_2	My professional goal is to become an entrepreneur	3.99	1.86	.968			
Q6.1a_3	I will make every effort to start and run my own firm	3.99	1.89	.979			
Q6.1a_4	I am determined to create a firm in the future	4.00	1.93	.980			
Q6.1a_5	I have very seriously thought of starting a firm	3.91	2.01	.952			
Q6.1a_6	I have the strong intention to start a firm someday	3.97	2.04	.972			
Motivation							
How important are the following factors when you decide on your future career path? (1 = not important at all, 7 = very important)							
Q4_1	To have a challenging job	5.28	1.40	.892	.759	.969	.963
Q4_10	To take advantage of your creative needs	5.67	1.40	.921			
Q4_2	To have an exciting job	5.75	1.25	.928			
Q4_3	Freedom	5.77	1.16	.936			
Q4_4	Independence	5.68	1.24	.924			
Q4_5	To be your own boss	4.43	1.68	.610			
Q4_6	To have power to make decisions	5.51	1.27	.684			
Q4_7	To have authority	5.02	1.47	.887			
Q4_8	To realize your dream	6.34	1.11	.944			
Q4_9	To create something	5.47	1.54	.917			
Opportunity							
Which career path do you intend to pursue right after completion of your studies, and which career path five years after completion of studies? I want to be a entrepreneur working in my own firm							
OP1	Opportunity on finishing studies	1.71	1.37	.970	.918	.957	.912
OP2	Opportunity five years after	3.11	2.74	.946			
Personal attitude							
Please indicate your level of agreement with the following statements (1 = strongly disagree, 7 = strongly agree)							
Q6.1b_1	Being an entrepreneur implies more advantages than disadvantages to me	4.11	1.65	.955	.948	.989	.986
Q6.1b_2	A career as entrepreneur is attractive for me	4.28	1.79	.977			
Q6.1b_3	If I had the opportunity and resources, I would become an entrepreneur	5.07	1.79	.979			
Q6.1b_4	Being an entrepreneur would entail great satisfaction for me	4.76	1.83	.982			
Q6.1b_5	Among various options, I would rather become an entrepreneur	4.26	1.87	.976			
Perceived behavioural control							
Please indicate your level of agreement with the following statements (1 = strongly disagree, 7 = strongly agree)							
Q6.1c_1	I am usually able to protect my personal interests	5.36	1.22	.968	.916	.987	.985
Q6.1c_2	When I make plans, I am almost certain to make them work	5.38	1.21	.971			
Q6.1c_3	I can pretty much determine what will happen in my life	3.91	1.56	.945			
Q6.1c_4	For me, being an entrepreneur would be very easy	3.60	1.61	.951			
Q6.1c_5	If I wanted to, I could easily pursue a career as entrepreneur	3.33	1.59	.939			
Q6.1c_6	As entrepreneur, I would have complete control over the situation	5.04	1.59	.957			
Q6.1c_7	If I become an entrepreneur, the chances of success would be very high	4.34	1.43	.967			
Subjective norms							
If you would pursue a career as an entrepreneur, how would people in your environment react? (1 = very negatively, 7 = very positively)							
Q6.2_1	Your close family	5.54	1.51	.982	.969	.990	.984
Q6.2_2	Your friends	5.67	1.31	.992			
Q6.2_3	Your fellow students	5.40	1.41	.980			

Note: CR = composite reliability; AVE = average variance extracted; α = Cronbach's alpha.

Table 2. AVE and correlations between model constructs.

	Ability	Els	Motivation	Opportunity	Personal attitude	Perceived behavioural control	Subjective norms
Ability	*.976*						
Els	.708	*.965*					
Motivation	.389	.499	*.871*				
Opportunity	.790	.712	.660	*.958*			
Personal attitude	.768	.903	.480	.737	*.974*		
Perceived behavioural control	.855	.750	.435	.758	.828	*.957*	
Subjective norms	.858	.720	.416	.751	.808	.919	*.985*

Notes: All correlations are significant to the level of $p < .01$.
The diagonal shows the square root of AVE.

Table 3. Table of crossed correlations.

	Ability	Els	Motivation	Opportunity	Personal attitude	Perceived behavioural control	Subjective norms
OP1	.269	.336	.680	**.970**	.334	.324	.318
OP2	.187	.180	.565	**.946**	.208	.241	.243
Q4_1	.354	.431	**.892**	.594	.420	.390	.361
Q4_10	.377	.472	**.921**	.610	.450	.404	.387
Q4_2	.352	.449	**.928**	.630	.436	.403	.387
Q4_3	.345	.446	**.936**	.638	.434	.404	.393
Q4_4	.331	.446	**.924**	.613	.428	.388	.380
Q4_5	.261	.351	.610	.328	.330	.279	.266
Q4_6	.255	.324	.684	.407	.312	.273	.250
Q4_7	.346	.457	.887	.564	.440	.388	.371
Q4_8	.366	.460	.944	.661	.446	.418	.404
Q4_9	.377	.481	.917	.597	.461	.406	.388
Q6.1a_1	.679	**.936**	.491	.305	.858	.738	.705
Q6.1a_2	.683	**.968**	.490	.283	.887	.726	.701
Q6.1a_3	.692	**.979**	.487	.272	.882	.728	.698
Q6.1a_4	.693	**.980**	.480	.262	.879	.728	.697
Q6.1a_5	.679	**.952**	.467	.252	.851	.709	.676
Q6.1a_6	.682	**.972**	.469	.250	.866	.713	.689
Q6.1b_1	.725	.857	.465	.292	**.955**	.788	.774
Q6.1b_2	.753	.891	.466	.278	**.977**	.809	.784
Q6.1b_3	.762	.873	.477	.301	**.979**	.820	.801
Q6.1b_4	.750	.888	.472	.286	**.982**	.812	.789
Q6.1b_5	.756	.887	.458	.264	**.976**	.803	.785
Q6.1c_1	.831	.719	.432	.309	.798	**.968**	.913
Q6.1c_2	.835	.717	.432	.310	.800	**.971**	.914
Q6.1c_3	.791	.690	.404	.287	.762	**.945**	.854
Q6.1c_4	.810	.716	.403	.269	.785	**.951**	.852
Q6.1c_5	.794	.707	.390	.265	.770	**.939**	.833
Q6.1c_6	.824	.729	.423	.287	.808	**.957**	.892
Q6.1c_7	.843	.746	.426	.282	.822	**.967**	.896
Q6.2_1	.848	.718	.406	.289	.799	.905	**.982**
Q6.2_2	.855	.715	.417	.297	.806	.914	**.992**
Q6.2_3	.834	.694	.406	.294	.781	.895	**.980**
Q6.3_1	**.975**	.704	.377	.236	.760	.834	.841
Q6.3_2	**.976**	.698	.379	.237	.755	.830	.837
Q6.3_3	**.969**	.682	.386	.245	.744	.838	.841
Q6.3_4	**.983**	.701	.382	.234	.759	.839	.839
Q6.3_5	**.976**	.686	.382	.242	.748	.840	.841
Q6.3_6	**.975**	.684	.379	.237	.743	.832	.832
Q6.3_7	**.977**	.693	.376	.235	.746	.828	.837
Q6.3_8	**.974**	.691	.373	.238	.751	.836	.837

Results

Figure 2 shows the results of the analysis of the structural model, including the explained variance of the constructs (R^2) and standardized coefficients (β). The PLS method makes no distribution assumptions about parameters' estimation, which is why it is more appropriate than traditional parameter techniques to ensure significance and evaluate the model (Chin, 1998). Another difference between analytical approaches using covariance structure or PLS is that in the latter, there is no single measure to guarantee the goodness of fit (GoF) of the model (Hulland, 1999). Thus, in PLS, the structural model is examined using the values for R^2, the Q^2 test for predictive relevance and the size of the path coefficients. Finally, the stability of estimations is examined using t-statistics that are obtained by bootstrapping with 500 samples.

Table 4 shows the hypotheses that were proposed, coefficient paths and observed t values with their significance from the bootstrap test. Additionally, the direct effects and the proportion of explained variance are shown, as well as Q^2 constructs.

Regarding the explained variance (R^2) of the EI latent variable (Table 4), the structural model shows an adequate predictive power, since 82% of the variance is explained. As well as examining R^2, the model is evaluated by observing the predictive relevance Q^2 of the models' constructs (Geisser, 1974). This test measures to what degree observed values are reproduced by the model and their estimated parameters (Chin, 1998). A Q^2 greater than 0 implies that the model has predictive relevance, whereas if the value is below 0, it indicates that the model lacks predictive relevance. The results shown in
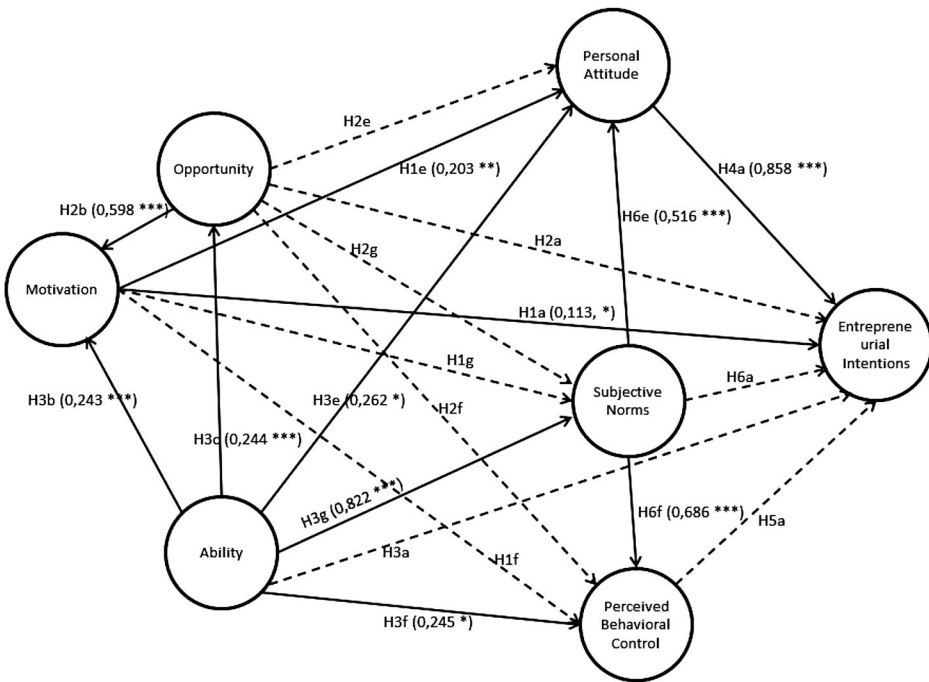

Figure 2. Estimated causal relations in structural model. Significant relation = continuous line; non-significant relation = dashed line.

Table 4. Direct, indirect and total effects, variance explained and test Q^2.

Hypothesis	Relacion	Direct effect	Sig.	T statistic	Correlation coefficients	Variance explained	Total effect	Q^2
Els						.823		.751
H3a	AB → EI	.077	ns	0.903	.710	.055	.714	
H1a	MO → EI	.113	*	1.726	.498	.056	.314	
H2a	OP → EI	−.042	ns	1.112	.281	−.012	.115	
H4a	PA → EI	.858	***	11.222	.903	.775	.858	
H5a	PBC → EI	.031	ns	0.261	.750	.023	.041	
H6a	SN → EI	−.102	ns	0.888	.720	−.074	.347	
Motivation						.488		.365
H3b	AB → MO	.243	***	3.443	.389	.094	.391	
H2b	OP → MO	.598	***	5.814	.657	.393	.594	
Opportunity						.060		.052
H3c	AB → OP	.244	***	3.700	.244	.060	.246	
Personal attitude						.282		.653
H3e	AB → PA	.262	*	2.011	.769	.202	.859	
H1e	MO → PA	.203	**	2.666	.480	.097	.236	
H2e	OP → PA	−.059	ns	1.219	.292	−.017	.112	
H6e	SN → PA	.516	***	3.903	.808	.417	.503	
Perceived behavioural control						.864		.770
H3f	AB → PBC	.245	*	1.993	.855	.210	.859	
H1f	MO → PBC	.053	ns	1.217	.435	.023	.090	
H2f	OP → PBC	.001	ns	0.030	.300	.000	.097	
H6f	SN → PBC	.686	***	5.677	.919	.631	.670	
Subjective norms						.748		.721
H3g	AB → SN	.822	***	14.441	.859	.707	.860	
H1g	MO → SN	.057	ns	0.891	.416	.024	.056	
H2g	OP → SN	.060	ns	1.343	.298	.018	.094	

Note: Level of significance: ***$p < .001$; **$p < .01$; *$p < .05$; ns, non-significant.

Table 4 confirm that the measurement model is appropriate, and that the structural model has predictive relevance.

Finally, to guarantee the quality of the model, the PLS approach has recently developed the GoF test. This is defined as the 'geometric mean' of the average communality and the average R^2 for endogenous constructs (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005; Wetzels, Odekerken-Schröder, & Van Oppen, 2009), with average communality being measured using the AVE in PLS. In our case, for the complete model (Table 5), we obtained a GoF value of .746. This comfortably exceeds the value of .36 proposed by Wetzels et al. (2009) that considers the most unfavourable situation for this test: a sample with large effects.

Therefore, in relation to the proposed hypotheses in the model, the following conclusions can be drawn:

- H1a and H1e are confirmed. These establish, respectively, that motivation has a positive impact on EI ($\beta = .113$, $p < .05$) and personal attitude ($\beta = .203$, $p < .01$).
- By contrast, H1f and H1g are not confirmed, so the existence of relations between motivation and perceived behavioural control cannot be claimed ($\beta = .053$, n.s.) and neither between motivation and subjective norms ($\beta = .057$, n.s.).
- H2b is confirmed. This establishes that opportunity has a positive impact on motivation ($\beta = .598$, $p < .001$).

Table 5. GoF test.

	AVE	R^2	GoF
EIs	.930	.823	
Motivation	.759	.488	
Opportunity	.918	.060	
Personal attitude	.948	.698	
Perceived behavioural control	.916	.864	
Subjective norms	.969	.748	
	.907	.613	.746

- However, H2a, H2e, H2f and H2g are not confirmed. Therefore, there are no relations between opportunity and EI ($\beta = -.042$, n.s.), personal attitude ($\beta = -.059$, n.s.), perceived control ($\beta = .001$, ns) and subjective norms ($\beta = .060$, n.s.).
- H3b, H3c, H3e–H3g are confirmed. They establish, respectively, that ability has a positive impact on motivation ($\beta = .243$, $p < .001$), opportunity ($\beta = .244$, $p < .001$), personal attitude ($\beta = .262$, $p < .05$), perceived behavioural control ($\beta = .245$, $p < .05$) and subjective norms ($\beta = .822$, $p < .001$).
- By contrast, H3a is not confirmed. Therefore, no relation can be claimed between ability and EI ($\beta = .077$, ns).
- H4a is confirmed. This hypothesis states that personal attitude has a positive impact on EI ($\beta = .858$, $p < .001$).
- However, H5a cannot be confirmed. So, no relation between perceived behavioural control and EI can be claimed ($\beta = .031$, n.s.).
- H6e and H6f, respectively, establish that subjective norms have a positive impact on personal attitudes ($\beta = .516$, $p < .001$) and on perceived behavioural control ($\beta = .686$, $p < .001$).
- To the contrary, H6a was not confirmed and, therefore, no relationship can be claimed to exist between subjective norms and EI ($\beta = -.102$, n.s.).

Discussion of results

This paper has analysed, from an integrated perspective, the entrepreneurial process in undergraduates in the Canary Islands, Spain, a European peripheral region, and the role of motivation and cultural specificities in forming EI. The results partially confirm those from previous studies, demonstrating the existence of relations between diverse motivational variables and EI (Chen et al., 1998; Souitaris et al., 2007).

Additionally, the application of motivational and needs theories to the entrepreneurial process can be partially accepted. This is particularly true, in the sense that EI is positively affected by individuals' attempts to reduce certain internal tensions, through greater EI, which is channelled through some of their antecedents (Fayolle et al., 2014; Solesvik, 2013).

As mentioned above, this is only partial insomuch as motivation indirectly affects EI through attitude though not through perceived behavioural control and subjective norms. These results differ from those obtained by Solesvik (2013) and Hui-Chen et al. (2014), who found an indirect effect through all these three variables.

This difference in results could be due to possible cultural differences in regions like those analysed here (García-Rodríguez et al., 2015; Liñán & Chen, 2009), which means

that further testing would be necessary in different sociocultural contexts. Thus, it may be that in peripheral regions such as the one analysed, the subjective norms are so strongly rooted in young people that they are difficult to change through motivation.

In addition, it is worth highlighting that motivation also directly affects EI positively, which coincides with the results obtained by Hui-Chen et al. (2014) in their integrated model of the entrepreneurial process. However, a direct and significant relationship between abilities and personal attitude occurs which can be observed in this study, unlike previous works like Hui-Chen et al. (2014). This seems to indicate that in the context analysed, the acquisition of entrepreneurial abilities eventually has an impact, albeit indirectly, in EI.

Conclusions and limitations

The results obtained have important consequences for entrepreneurial education and policies in peripheral regions and, specifically, in the attention that should be paid to motivation. Thus, it seems that by improving young people's motivation to be entrepreneurs, their EI would also increase, on the one hand, through direct influence and on the other, thanks to the impact of an improvement in personal attitude. This confirms the importance of motivational–inspirational content in actions to promote entrepreneurship, in line with the approaches of Souitaris et al. (2007), and demonstrates the limited effectiveness of approaches only aimed at changing individuals' attitudes.

It seems that rather than attempting to directly transform individuals' attitudes towards entrepreneurship, it would be more efficient to focus on improving their motivation using intensive pedagogical strategies in creativity that go beyond mere informative content. Education could be particularly important in peripheral regions, for example, inspiring stories of successful entrepreneurs. These stories can convey to young people a vision of entrepreneurial activity in the region itself that is viable, desirable and attractive and thus help break entrepreneurship brain drain from the region (Kaufmann & Malul, 2015).

In connection with the above, it is worth noting the role of opportunity in motivation. Thus, the perception of opportunities for entrepreneurship would indirectly influence motivation in a positive sense. Consequently, it would seem that including methodologies and content focused on recognizing opportunities and problem-solving in educational programmes of entrepreneurship could also be an efficient element.

It also appears that investments in entrepreneurship training (abilities) for young people in peripheral regions could have a high impact on EI, to the extent that it has the power to transform their attitudes. Therefore, policies that invest in human capital in the field of entrepreneurship would be highly recommended in this type of peripheral contexts.

Looking to the future, it would be useful to repeat this study in other regions, peripheral as well as in metropolitan and industrial ones to carry out comparative studies. This would help determine to what extent the characteristics of the entrepreneurial process found here are linked to the peripheral nature of the region and can, therefore, be extrapolated to other similar ones or follow other patterns. In this sense, there is empirical evidence on the relevance of the socio-demographic context in motivation and individuals' personalities (Liñán & Chen, 2009). Second, as in the majority of EI studies, it would be interesting to incorporate the time factor (Audet, 2002), particularly since cross-sectional studies

cannot make strong conclusions about causality because they do not allow causal relations to be tested, and common method variance is also likely to be a problem. Finally, despite the theory of planned behaviour by Ajzen (1991) still being a valid point of reference for the study of EI (Liñán & Fayolle, 2015), researchers should not only study variables that make up an entrepreneur's psychological profile but should also determine the relative importance of other cognitive and contextual variables. These could influence directly or indirectly antecedents of EI and individuals' 'posteriori' behaviour and could provide potential advances in this field.

Disclosure statement

No potential conflict of interest was reported by the authors.

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