

Entrepreneurial potential in less innovative regions: the impact of social and cultural environment

The impact of
social and
cultural
environment

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Received 21 July 2016
Revised 21 November 2016
Accepted 9 January 2017

Abstract

Purpose – The purpose of this paper is to analyze the role that the sociocultural, family and university environment play in the entrepreneurial intention of young people in a peripheral and less innovative region.

Design/methodology/approach – The authors adopted the perspective of the theory of planned behavior and made an empirical study with a sample of 1,064 Spanish university students who voluntarily participated in the GUESSS Project answering an online questionnaire. A methodology based on structural equations was used employing the partial least squares structural equation modeling estimation technique.

Findings – The results show that the university environment directly influences attitude, self-confidence and motivation, and indirectly the students' entrepreneurial intention. The social context also exerts a weak direct influence on the perceived attitudes or desires toward the option to start a business and indirectly on the intention.

Originality/value – The main contribution of this paper seems to confirm what previous literature highlighted in the terms of regional specificities on the link between innovation systems, the impact of entrepreneurial potential and economic development. In this sense, the university context can play an important role in generating improvements in the entrepreneurial intention's antecedents of young people with greater potential for innovation in peripheral regions. Therefore, when it comes to defining policies to improve entrepreneurship in these regions, it seems that the establishment of entrepreneurship education and motivation programs in universities is a very effective tool to increase perceived attitude toward the option to start a new business.

Keywords Innovation, Entrepreneurship, Entrepreneurial intention, GUESSS project, Outermost regions

Paper type Research paper

JEL Classification — L26, R10, R11

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The authors are grateful for the support of the international research team of the Global University Entrepreneurial Spirit Students' Survey (GUESSS) corresponding to the year 2013/2014, of which the authors are part of and from which the data were obtained for this paper. The authors are personally grateful to the Project Coordinator at the international level, Dr Philipp Sieger and to the ESADE Business School technical team for the specific case of Spain.



1. Introduction

There are numerous studies in the literature that link innovation with economic development (Drucker, 1986; Damanpour and Scheneider, 2006; Schmiedeberg, 2008). However, this relationship is not direct, but is mediated by the institutional and organizational contexts of different regions, as well as the processes of generation and exploitation of knowledge driven by economic agents and, in particular, by entrepreneurs (Autio, 1998; Audretsch and Keilbach, 2004; Cooke, 2007; Huggins and Thompson, 2015).

Among these aspects, it is necessary to emphasize the important role played by the entrepreneurial potential of a territory. For investments in R&D and innovation to be transferred to economic growth, they must be accompanied by entrepreneurs with the capacity to access and exploit knowledge and generate innovation, creating demand and producing economic growth (Audretsch and Keilbach, 2004; González *et al.*, 2012; Guerrero and Peña-Legazkue, 2013; Castaño *et al.*, 2015; Guerrero *et al.*, 2016).

Several authors have shown that the different regional dimensions influence the promotion of entrepreneurship (Davidsson and Wiklund, 1997; Audretsch and Keilbach, 2004; Audretsch and Peña, 2012; Liñán and Fernández-Serrano, 2014; Guerrero *et al.*, 2016; García-Rodríguez *et al.*, 2016). From this point of view, it is not possible to perform homogeneous analyses and speak of “one-size-fits-all” regions (Asheim *et al.*, 2011) rather each region presents specific characteristics that determine the impact of investment in innovation on economic growth.

Therefore, following Asheim *et al.* (2011), regions can be classified into three categories: metropolitan, industrial and peripheral. The latter are characterized by a poorly developed regional innovation system, with a low presence of dynamic companies and knowledge-generating organizations. Following Huggins and Thompson (2015), peripheral regions present a deficit of educational institutions with a weak configuration of networks and links between companies and agents of regional innovation systems, especially between universities and research institutes. Therefore, in order to promote changes that favor innovation-based entrepreneurship as a driving force for growth in “peripheral” regions, we need to delve deeper into the analysis of the conditions of these environments and the motivations that drive entrepreneurship.

In this context, adopting an integrative perspective of the entrepreneurial process, according to the GUESSS project model, this paper aims to analyze the role that the sociocultural, family and university environment play in the entrepreneurial intention of young people in the Canary Islands region. This region is characterized as peripheral from the point of view of innovation, following the typology of Asheim *et al.* (2011).

Thus, the main contribution of this paper is to analyze the extent to which the university, social and family context, as well as the psychological factors of a peripheral region, affect the entrepreneurial intention of its population. This intention is especially important among the younger population segment, who have greater innovative potential, as in the case of a university population. This segment would be the key to transforming innovation into productive dynamics. Although descriptive analyses of this phenomenon have been made (Huggins and Thompson, 2015), empirical studies are still relatively scarce (García-Rodríguez *et al.*, 2016).

This paper begins by developing, from a theoretical perspective, the role of the university, family and sociocultural context in entrepreneurial intention, as well as the psychological factors framed in the theory of planned behavior (TPB), which constitute the theoretical foundation of the GUESSS model. Next, we present the empirical study and then the results and discussion. Finally, the most relevant conclusions are presented, as well as some limitations and future lines of research.

2. Entrepreneurial intention and regional economic development

The mediating role of entrepreneurship between investment in innovation and the economic development of a country or region is highly complex and may be limited by

significant barriers and obstacles, not only those directly linked to the market, but also institutional and cultural constraints (Guerrero and Peña-Legazkue, 2013; Guerrero *et al.*, 2016). Overcoming these limitations is essential to gain access to the benefits of a virtuous circle that not only increases the levels of regional economic development through investment in innovation, but also by the subsequent improvements that a higher level of economic prosperity can bring in a potential innovative and entrepreneurial economy (González *et al.*, 2009; Audretsch and Peña, 2012). These limitations have a greater or lesser influence according to the kind of entrepreneur and entrepreneurial fabric in a country (Asheim *et al.*, 2011).

However, this entrepreneurial fabric is the result of multiple decisions made by individuals involved in a complex process that occurs over time (Gartner *et al.*, 1994; Kyrö and Carrier, 2005) and begins long before the moment the business is created, since there must be a process of prior planning to produce entrepreneurial intention. This intention, therefore, is prior to the creation of a business and, as in all behavior, can be considered its best predictor (Fishbein and Ajzen, 1975; Ajzen, 1991; Krueger and Brazeal, 1994).

From an integrative perspective and focusing on the university population, this process can be influenced, in addition to psychological factors, by other exogenous elements such as the university context, the family environment and the sociocultural context (Sieger *et al.*, 2014).

2.1 University context

Several studies show that the university environment is a key factor in motivating students to discover opportunities, as well as helping them to create knowledge-based or technology-based firms (Sánchez *et al.*, 2012).

This perspective is based on the conviction, mostly expressed in the literature since the 1980s, that an entrepreneur is not born but is made (Gartner *et al.*, 1994). Therefore, entrepreneurship is associated with a learning process and a possible change in the individual's abilities (Minniti and Bygrave, 2001). In this sense, the entrepreneur's capacities are not fixed or immovable personality traits or characteristics, but can change over time, develop and be learned through experience (Gibb, 1993; Bergmann, 2017). It is in this context that an explanatory approach to entrepreneurship based on the theory of attitudes (Robinson *et al.*, 1991) and identification of opportunities in studies such as those of McCline *et al.* (2000) or of Bergmann (2017) can be understood. The basic idea is that the concept of attitude in the individual is dynamic and changing and can respond to external incentives and, therefore, is much more adequate to explain entrepreneurship than the static conception associated with personality traits.

As mentioned, for investment in R&D and innovation to be transformed into economic growth, it is key to foster an entrepreneurial spirit oriented to innovation as a driving force for regional growth (Audretsch and Keilbach, 2004; González *et al.*, 2012; Guerrero and Peña-Legazkue, 2013; Castaño *et al.*, 2015; Guerrero *et al.*, 2016). In this sense, Sánchez *et al.* (2012) point out that after a slow period of internalization of the values of entrepreneurship in universities, these institutions are incorporating, as part of their philosophy, the capitalization of knowledge through the creation of businesses driven by the universities, themselves.

Considering that the educational environment, with its shared values and norms, especially in higher education, can affect entrepreneurial intentions and the subsequent start-up of firms (Guerrero *et al.*, 2016), the following hypotheses are proposed:

- H1. The university context of students positively influences (a) personal attitude, (b) perceived subjective norms, (c) perceived control of their behavior, (d) their professional motivations and (e) the intention to create a business as a professional path following the completion of studies.

2.2 Sociocultural contexts

Sociocultural values shared by members of a society play a fundamental role in the psychological functioning of individuals and have been the subject of research from multiple perspectives. In the entrepreneurial field, there is empirical evidence of the influence of certain social and cultural characteristics on individuals' beliefs and motivations in the face of entrepreneurial action (Lee *et al.*, 2006; Guerrero *et al.*, 2016). Among the different dimensions that influence the sociocultural environment, three stand out: type of society in relation to its' individualist vs collectivist "character", "distance to power" in reference to the acceptance or not of rules/rules and "aversion to risk" or degree of uncertainty (Hofstede, 2001).

Taking into account, Hofstede's (2001) social categories or groups, Liñán and Fernández-Serrano (2014) found that in developed countries, a greater cultural emphasis on individualistic values is associated with greater entrepreneurial activity derived from greater social legitimacy, so the decision to be an entrepreneur transcends personal beliefs and attitudes. On the contrary, when values related to aspects such as innovation and success conflict with the traditional cultural values, the lack of social recognition of entrepreneurship negatively influences entrepreneurial decisions. Similar studies have confirmed the significant influence that cultural differences can have on entrepreneurial intention (Liñán and Chen, 2009; Shinnar *et al.*, 2012; García-Rodríguez *et al.*, 2015).

Another of the sociocultural dimensions mentioned in the academic literature on entrepreneurship is associated with perceptions of the degree of authority or rank as well as the acceptance of norms and laws. Consequently, cultures in which members have a low-risk profile feel uncomfortable with little or non-structured situations and tend to avoid them (Shinnar *et al.*, 2012).

Lastly, there is risk aversion (uncertainty avoidance) or the degree in which members of a culture feel threatened by situations of uncertainty or ignorance (Hofstede, 2001). In this sense, Wennekers *et al.* (2007) found empirical evidence of the negative relationship between risk aversion and entrepreneurship.

Taking into account all this and assuming that entrepreneurial intention could be affected directly or indirectly by the sociocultural environment of the individual, the following hypotheses are proposed:

- H2.* The sociocultural context of students positively influences (a) personal attitude, (b) perceived subjective norms, (c) perceived control of behavior, (d) professional motivations and (e) the intention to create a business as a professional career after completion of studies.

2.3 Psychological factors, motivation and family context

In addition to the analyzed environmental factors, psychological factors must be integrated for a better understanding of the cognitive process of entrepreneurship (Sieger *et al.*, 2014). For this, the most used theoretical foundation is Ajzen's (1991) TPB. TPB has consolidated as the most used perspective in recent research to explain the entrepreneurial process from the combined influence of personal and social factors (Lima *et al.*, 2015; Shirokova *et al.*, 2016; Entrialgo and Iglesias, 2016).

According to TPB, entrepreneurial intention depends on three independent factors: personal attitude, perceived behavior control and subjective norms (Ajzen, 1991). "Personal attitude" refers to the degree to which individuals have a positive or negative personal assessment of themselves. "Perceived behavior control" represents the perceived ease or difficulty in controlling that behavior. This concept encompasses both the capacity for self-perception and the degree of perceived control. Finally, "subjective norms" reflects the perception of the degree of agreement or not on the part of relatives, friends and other

persons of reference regarding the decision to adopt a certain behavior. Following Fishbein and Ajzen (1975), the three antecedents mentioned are sufficient to explain the intentions but their relative importance varies from one context to another.

According to this perspective, the decision to start a new business activity would depend on the perception of these three antecedent factors of intention. Consequently, the following research hypotheses are proposed:

- H3. A student's personal attitude toward entrepreneurship positively influences their intention to create a business as a professional career after completing studies.
- H4. The subjective norms perceived by the student influence positively in (a) personal attitude, (b) perceived behavior control and (c) intention to create a business as a professional opportunity after the end of their studies.
- H5. The perceived control of the student's behavior positively influences the intention to create a business as a professional path after completing studies.

Finally, the family context and motivation represent two aspects that in the entrepreneurship literature are also considered the determinants of intention. In fact, in the family context, numerous studies suggest that students with a history of entrepreneurial relatives may influence their career intention (Shirokova *et al.*, 2016). Therefore, the following hypotheses are proposed:

- H6. The entrepreneurial experience of a student's family positively influences (a) personal attitude, (b) subjective norms and (c) the perceived control of their behavior to create a business as a professional path following completion of their studies.

Finally, some papers have emphasized the importance of integrating the role of motivation in the analysis of the entrepreneurial process. As well as mediating the relationship between the intention and the decision to be an entrepreneur (Carsrud and Brännback, 2011; Fayolle *et al.*, 2014), motivation can also be an explanatory element of entrepreneurial intention antecedents (Solesvik, 2013; Hui-Chen *et al.*, 2014). Motivation theories linked to entrepreneurship can be divided into two main areas. There are "necessity theories" that are based on the existence of internal stimuli in the individual (hunger, fear, etc.) and guide behavior toward the reduction of the resulting tension and there are "incentive theories," which start from the individual developing behaviors or from the pursuit of external objectives and prizes (Carsrud and Brännback, 2011; Fayolle *et al.*, 2014).

Therefore, the professional motivation of individuals based on their expectations and preferences represent the aspects that could positively influence entrepreneurial intention, both directly and indirectly through their antecedents. Therefore, it is possible to propose the following hypothesis:

- H7. Students' motivation positively influences (a) personal attitude, (b) perceived subjective norms, (c) perceived control of behavior and (d) the intention to create a business as a professional path after completion of studies.

3. Empirical study

3.1 Study context

Spain's R&D expenditure in 2013 was equivalent to 1.24 percent of its GDP, well below the OECD (2.4 percent) and EU-28 (1.92 percent). In addition, this figure for Spain puts it at levels below to those of 2007, a fact that contrasts with what has happened in the countries of reference, where R&D efforts have continued to increase. As a result, the gap between Spain and reference regions has widened: if in 2010 Spanish R&D was 0.95 percentage

points from the OECD average and 0.49 from the EU average-28, in 2013 these distances were 1.15 and 0.68 points, respectively (Fundación COTEC, 2015, p. 24).

In the Spanish regional context and in terms of R&D effort, the Canary Islands ranks as second from the bottom regarding R&D spending, as the amount allocated to this activity is equivalent to only 0.52 percent of GDP, only ahead of the Balearic Islands (Fundación COTEC, 2015). Although in other less applied indicators, such as the case of scientific production in internationally disseminated journals, the situation in the Canary Islands is slightly better than in the previous variable. For example, the Canary Islands achieved a percentage of academic papers in the Spanish context in the period 2009-2013 of 2.88 percent, placing it in the 12th place (COTEC Foundation, 2015). However, the fact is that in general terms R&D in the region is very weak. In addition, the situation of the regional innovation system in the Canary Islands is characterized by being highly unbalanced, with a few high-level nodes but with few results, and a high dependence on public institutions. These institutions represent a much higher percentage in the system than other Spanish regions with a lack of productive fabric capable of absorbing R&D results. All this means that, according to the typology of Asheim *et al.* (2011), the Canary Islands can clearly be designated as a peripheral region from the point of view of innovation.

3.2 Measurement scale and research model

To analyze the influence of the social and university environment on entrepreneurial intention, the GUESSS international project reference model is used. This project is led by the Swiss Research Institute of Small Business and Entrepreneurship of the University of St Gallen (Sieger *et al.* 2014). The theoretical framework that underlies the questionnaire items is unique to all participating universities and is based on Ajzen's (1991) TPB, focusing on career choice intentions in general and on entrepreneurial intentions in particular. Table I of the results section shows the description of the items used in the questionnaire to measure each of the first- and second-order constructs of the model.

The model used in this study is shown in Figure 1. It is an adaptation of the proposal in the GUESSS project. This model specifies 11 first-order constructs and two second = order constructs (Univ_Context and Soc_Context).

3.3 Sample and data collection

Since the fundamental purpose of the GUESSS project is to understand the entrepreneurial intentions and activities of university students, the empirical study uses a sample of students from the University of La Laguna, who voluntarily answered a questionnaire. This type of sample is very recurrent in empirical research applied to entrepreneurship, since university students represent a segment of the population with high entrepreneurial potential (Robinson *et al.*, 1991; Souitaris *et al.*, 2007). It was supported by the vice-rectorate of student affairs who promoted the research among the students. Data collection was through an online questionnaire between October and December 2013 (sixth edition of the GUESSS project and the first in which the Spanish universities participated). The questionnaire, translated by experts in entrepreneurship, contains more than 240 questions distributed in 12 blocks. For the purposes of this research, we worked with 54 items for variables measured on a seven-point Likert scale, except for the Fam_Exper construct.

From the number of students enrolled in the academic year 2013-2014, a response rate of 7 percent was estimated, which led to a sample of 1,461 questionnaires. After debugging and a preliminary analysis, 397 questionnaires with a response rate of less than 5 percent were eliminated, so the final sample was reduced to 1,064 valid questionnaires for the analysis. By gender, the sample consisted of 34 percent men and 66 percent women with an average age of 21.

| Items | First-order constructs | λ | CR ^a | AVE ^a | R ² |
|--|--|-----------|-----------------|------------------|----------------|
| <i>Please indicate your level of agreement with the following statements (1 = strongly disagree, 7 = strongly agree)</i> | | | | | |
| (1) Entrepreneurial intention | | | | | |
| EI1 | I am ready to do anything to be an entrepreneur | 0.87 | 0.98 | 0.86 | 0.65 |
| EI2 | My professional goal is to become an entrepreneur | 0.94 | | | |
| EI3 | I will make every effort to start and run my own firm | 0.96 | | | |
| EI4 | I am determined to create a firm in the future | 0.96 | | | |
| EI5 | I have very seriously thought of starting a firm | 0.91 | | | |
| EI6 | I have the strong intention to start a firm someday | 0.95 | | | |
| (2) Attitude | | | | | |
| A1 | Being an entrepreneur implies more advantages than disadvantages to me | 0.92 | 0.98 | 0.90 | 0.47 |
| A2 | A career as entrepreneur is attractive for me | 0.96 | | | |
| A3 | If I had the opportunity and resources, I would become an entrepreneur | 0.96 | | | |
| A4 | Being an entrepreneur would entail great satisfaction for me | 0.97 | | | |
| A5 | Among various options, I would rather become an entrepreneur | 0.96 | | | |
| <i>If you would pursue a career as an entrepreneur, how would people in your environment react? (1 = very negatively, 7 = very positively)</i> | | | | | |
| (3) Subjective norms | | | | | |
| SN1 | Your close family | 0.97 | 0.98 | 0.95 | 0.40 |
| SN2 | Your friends | 0.99 | | | |
| SN3 | Your fellow students | 0.97 | | | |
| <i>Please indicate your level of agreement with the following statements (1 = strongly disagree, 7 = strongly agree)</i> | | | | | |
| (4) Perceived behavior control | | | | | |
| PBC1 | I am usually able to protect my personal interests | 0.95 | 0.98 | 0.87 | 0.75 |
| PBC2 | When I make plans, I am almost certain to make them work | 0.95 | | | |
| PBC3 | I can pretty much determine what will happen in my life | 0.91 | | | |
| PBC4 | For me, being an entrepreneur would be very easy | 0.92 | | | |
| PBC5 | If I wanted to, I could easily pursue a career as entrepreneur | 0.90 | | | |
| PBC6 | As entrepreneur, I would have complete control over the situation | 0.93 | | | |
| PBC7 | If I become an entrepreneur, the chances of success would be very high | 0.95 | | | |
| <i>(1 = No, 2 = Yes, father, 3 = Yes, mother, 4 = both)</i> | | | | | |
| (5) Family background | | | | | |
| F1 | Are your parents currently self-employed? | 0.92 | 0.97 | 0.87 | |
| F2 | Are they majority shareholders of a firm? | 0.94 | | | |
| F3 | Do you have other family members who are self-employed and/or majority shareholders of a private firm? | 0.94 | | | |
| F4 | Do you have close friends who are self-employed and/or majority shareholders of a private firm? | 0.95 | | | |
| <i>How important are the following factors when you are to decide on your future career path? (1 = not important at all, 7 = very important)</i> | | | | | |
| (6) Career motives | | | | | |
| M10 | To take advantage of your creative needs | 0.61 | 0.85 | 0.48 | 0.05 |
| M5 | To be your own boss | 0.75 | | | |
| M6 | To have power to make decisions | 0.79 | | | |
| M7 | To have authority | 0.72 | | | |
| M8 | To realize your dream | 0.57 | | | |
| M9 | To create something | 0.69 | | | |
| <i>Please indicate the extent to which you agree to the following statements about the university environment. (1 = not at all, 7 = very much)</i> | | | | | |
| (7) University environment (atmosphere) | | | | | |
| UE1 | The atmosphere at my university inspires me to develop ideas for new businesses | 0.89 | 0.93 | 0.81 | |

(continued)

Table I.
Items and results of
the analysis of the
model's reliability
and validity

| Items | First-order constructs | λ | CR ^a | AVE ^a | R ² |
|---|---|-----------|-----------------|------------------|----------------|
| UE2 | There is a favorable climate for becoming an entrepreneur at my university | 0.94 | | | |
| UE3 | At my university, students are encouraged to engage in entrepreneurial activities | 0.87 | | | |
| | (8) Learning progress | | | | |
| | The courses and offerings I attended ... | | | | |
| UL1 | ... increased my understanding of the attitudes, values and motivations of entrepreneurs | 0.90 | 0.96 | 0.81 | |
| UL2 | ... increased my understanding of the actions someone has to take to start a business | 0.93 | | | |
| UL3 | ... enhanced my practical management skills in order to start a business | 0.92 | | | |
| UL4 | ... enhanced my ability to develop networks | 0.89 | | | |
| UL5 | ... enhanced my ability to identify an opportunity | 0.87 | | | |
| <i>Indicate your level of agreement with the following statements (1 = strongly disagree, 7 = strongly agree)</i> | | | | | |
| Social context | | | | | |
| | (9) In-group collectivism ^b | | | | |
| | In my society, ... | | | | |
| IGC1 | ..., children take pride in the individual accomplishments of their parents | 0.95 | 0.97 | 0.89 | |
| IGC2 | ..., parents take pride in the individual accomplishments of their children | 0.97 | | | |
| IGC3 | ..., aging parents generally live at home with their children | 0.92 | | | |
| IGC4 | ..., children generally live at home with their parents until they get married | 0.92 | | | |
| <i>For the following questions, please indicate which of two opposing answers (a or b) you agree more:</i> | | | | | |
| | (10) Power distance ^b | | | | |
| PD1 | In my society, a person's influence is based primarily on: (a) Ability and contribution to society; (b) Authority of one's position | 0.91 | 0.94 | 0.78 | |
| PD2 | In my society, followers are expected to: (a) Obey leaders without question; (b) Question leaders when in disagreement | 0.86 | | | |
| PD3 | My society has rules or laws to cover: (a) Almost all situations; (b) Very few situations | 0.91 | | | |
| PD4 | In my society, power is: (a) Concentrated at the top; (b) Shared throughout society | 0.86 | | | |
| | (11) Uncertainty avoidance ^b | | | | |
| | In my society, ... | | | | |
| UA1 | ..., orderliness and consistency are stressed, even at the expense of experimentation and innovation | 0.95 | 0.95 | 0.83 | |
| UA2 | ..., most people lead highly structured lives with few unexpected events | 0.95 | | | |
| UA3 | ..., societal requirements and instructions are spelled out in detail so citizens know what they are expected to do | 0.94 | | | |
| UA4 | ..., rank and position in the hierarchy have special privileges | 0.81 | | | |
| <i>Second-order constructs</i> | | | | | |
| University context | | | | | |
| UE | University atmosphere | 0.82 | 0.97 | 0.71 | |
| UL | Learning progress | 0.87 | | | |
| Social context | | | | | |
| IGC | In-group collectivism | 0.95 | 0.83 | 0.91 | |
| PD | Power distance | 0.96 | | | |
| UA | Uncertainty avoidance | 0.96 | | | |

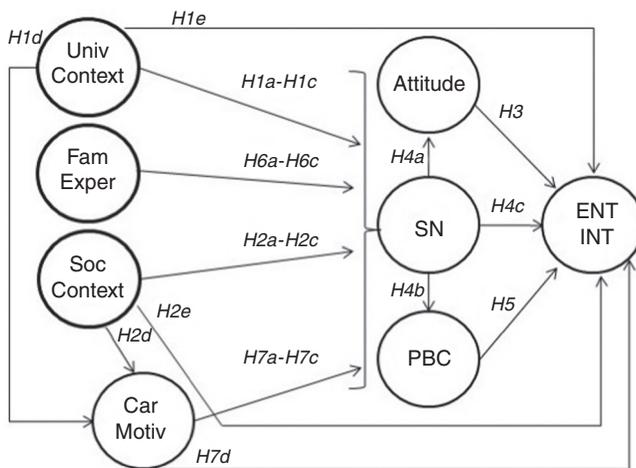
Notes: ^aCR, composite reliability; AVE, average variance extracted; ^bitems from "social context" are from Global Leadership and Organizational Behavior Effectiveness (GLOBE) in which cultural dimensions are measured with three dimensions of Hofstede: in-group collectivism, power distance and uncertainty avoidance

Source: Own elaboration

Table I.

4. Results and discussion

For the predictive analysis of entrepreneurial intention of participating students, a methodology based on structural equations was used employing the partial least squares (PLS) structural equation modeling estimation technique. The PLS technique



Source: Adapted from the theoretical model of the GUESSS project (Sieger *et al.*, 2014)

Figure 1.
Theoretical model
and hypothesis

(also called flexible modeling) is more oriented to predictive (non-causal) analysis and has been used in numerous works applied in different fields of knowledge for its metric properties for validation of measurement scales and confirmation of hypotheses. In the particular field of entrepreneurship literature, some of the more recent works using analytical techniques have been based on structural equations (Castaño *et al.*, 2015; Bergmann, 2017; Guerrero *et al.*, 2016). The use of these equations is appropriate in studies in which the theoretical foundations are not yet well defined and, therefore, the theoretical framework plays a guiding role in the establishment of conjectural relations between constructs whose measurements are not very developed. The estimation of the parameters representing the measurements and the multiple regression path relationships shown in Figure 1 is performed using the PLS technique, since this technique best completes the analysis of main components and the one of linear regression.

All the unobserved latent variables are measured with reflective indicators as they reflect the theoretical construct they represent, giving rise to observable variables that are reflective (Sarstedt *et al.*, 2014). Only the construct represented by the “family environment” to measure the latent variable entrepreneurial experience is formative, since this construct is defined by its four indicators (see Table I).

Data analysis was performed with the SmartPLS 2.0 software that allows an evaluation of the reliability and validity of the model in a first phase, and an evaluation of the structural relationships of the model in a second. For the estimation of the second-order constructs, the hierarchical components method was used, since the number of indicators in each dimension is equivalent and they are reflective.

4.1 Measurement model: reliability and validity

For the analysis of the individual reliability, the loadings of the indicators with their respective construct were examined. Values between 0.6 and 0.7 are considered acceptable in exploratory research and, above 0.7 as being very satisfactory (Sarstedt *et al.*, 2014). Nevertheless, authors such as Chin (1998) argue that in the initial stages of the development of a scale, values greater than 0.5 could be accepted.

In this paper, following the criteria of Sarstedt *et al.* (2014), we opted to eliminate four items with factor loadings lower than 0.6 and whose exclusion, although affecting the content validity of the construct they represent, does not theoretically produce significant changes in the specification of the model. In particular, the items of the motivation construct (Car_Motiv) related to the following aspects are eliminated: “To have a job that involves a challenge” (M1, $\lambda = 0.48$); “To have exciting work” (M2, $\lambda = 0.51$); “Freedom” (M3, $\lambda = 0.52$) and “Independence” (M4, $\lambda = 0.56$). A second estimation of the parameters of the respecified model confirms the individual reliability of the first-order indicators with values greater than 0.6 in all cases except for the item “Fulfill your dream” (M8, $\lambda = 0.57$), which was not eliminated to avoid the possible negative effects on the predictive validity of the measures of the construct and because its loading is substantially higher than the minimum suggested by Chin (1998).

The internal consistency of the constructs was then evaluated through the composite reliability indicator (ρ_c). All constructs reached values between 0.83 (Soc_Context) and 0.98 (SN and PBC), always above the optimum level set at 0.7 (Chin, 1998; Fornell and Larcker, 1981).

The convergent validity of the constructs was evaluated by the value of the average variance extracted (AVE). An acceptable value is 0.50 or higher since it indicates that, on average, the construct explains more than 50 percent of the variance of its items. In the cases analyzed, all the constructs of the model reached a value of AVE superior or very close to 0.5 (Fornell and Larcker, 1981). Table I summarizes the results obtained for the reliability and validity analysis of the first- and second-order constructs.

The analysis of the discriminant validity of the constructs was performed using the criterion established by Fornell and Larcker (1981). To do this, it was verified that the square root of the AVE of each construct that appears in the diagonal of Table II is greater than the correlations between constructs that are shown in the inferior part of this diagonal.

Additionally, this result was corroborated by the analysis of the correlations between the scores for each construct and those for the items belonging to other constructs or analysis of cross-loadings. This result confirms that all indicators have a greater loading on their own construct than on any other construct included in the structural model (Hair *et al.*, 2014).

4.2 Evaluation of the structural model

The evaluation of the structural model allows an analysis of the extent to which the predictive relationships proposed in the model are consistent with the available data. For the interpretation of the structural model, two basic indices are used: the square of the

| | ATT | Car Motiv | ENT INT | Fam Exp | IGC | PBC | PD | SN | UA | UE |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ATT | <i>0.951</i> | | | | | | | | | |
| Car Motiv | 0.231 | <i>0.692</i> | | | | | | | | |
| ENT INT | 0.807 | 0.280 | <i>0.932</i> | | | | | | | |
| Fam Exp | 0.386 | 0.071 | 0.259 | <i>0.936</i> | | | | | | |
| IGC | 0.393 | 0.096 | 0.265 | 0.909 | <i>0.943</i> | | | | | |
| PBC | 0.689 | 0.129 | 0.537 | 0.575 | 0.571 | <i>0.930</i> | | | | |
| PD | 0.332 | 0.030 | 0.218 | 0.819 | 0.851 | 0.499 | <i>0.886</i> | | | |
| SN | 0.656 | 0.078 | 0.488 | 0.625 | 0.622 | 0.863 | 0.542 | <i>0.975</i> | | |
| UA | 0.344 | 0.057 | 0.237 | 0.801 | 0.842 | 0.506 | <i>0.916</i> | 0.533 | <i>0.916</i> | |
| UE | 0.113 | 0.164 | 0.119 | 0.045 | 0.058 | 0.083 | 0.064 | 0.068 | 0.089 | <i>0.901</i> |
| UL | 0.154 | 0.183 | 0.197 | 0.047 | 0.040 | 0.080 | 0.048 | 0.040 | 0.072 | <i>0.429</i> |

Note: The square root of AVE values is shown on the diagonal and printed in italics

Source: Own elaboration

Table II.
Discriminant validity

coefficient of multiple correlation (R^2) and the standardized path coefficients (β). According to Sarstedt *et al.* (2014), as a general rule, R^2 values equal to 0.75, 0.50 and 0.25 can be interpreted as levels involving substantial, moderate and weak predictive power, respectively. However, Chin (1998) sets somewhat lower limits of 0.67, 0.33 and 0.19 for each of the three levels of predictive potential.

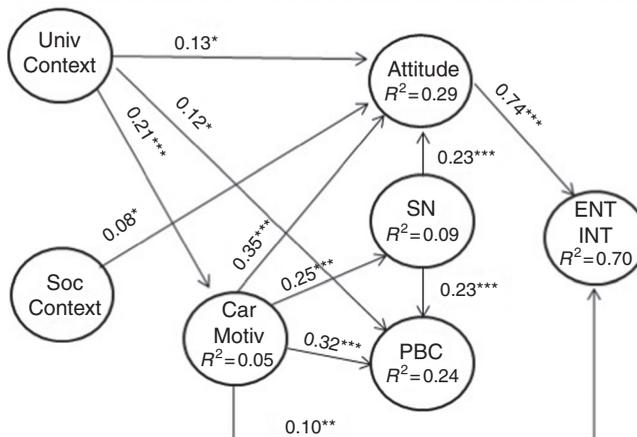
The results of the structural model are shown in Figure 2 in which it is observed that the latent variable ENT_INT has high predictive power with an R^2 value equal to 0.70. In the case of attitude and perceived behavior control, moderate values of 0.29 and 0.24, respectively were reached. As for the subjective norms and Car_Motiv constructs, the amount of their variance that was explained by the model was very weak, with values of 0.09 and 0.05, respectively.

The results of the analysis of the significance and relevance of the structural relationships of the model with a nonparametric bootstrap procedure with 5,000 observations revealed that 11 of the 22 structural relationships presented in the model are significant ($p < 0.05$) and seven reached a positive value for the standardized path coefficient that as greater than 0.2. Table III provides an overview of the total effects and their level of significance.

The quality of the global model is analyzed by the GoF test (Tenenhaus *et al.*, 2005), which represents the geometric mean of average commonality and the average R^2 (for endogenous constructs), whose value is bounded by 0 and 1. In this paper, the GoF value obtained for the complete model was 0.69, which exceeds the minimum reference value, thus confirming the substantial explanatory power of the model:

$$\text{GoF} = \sqrt{\text{AVE} \times R^2}$$

To analyze the predictive relevance of the model-dependent constructs, the Stone and Geisser (Q^2) test was performed considering that, as a general rule, values of Q^2 greater than 0 indicate that the predictive capacity is acceptable (Chin, 1998). In this study, the cross-validated redundancy approach for the calculation of Q^2 (Hair *et al.*, 2014) was used. The blindfolding procedure was performed with a default distance of 5 and the values obtained in all endogenous constructs were greater than 0 (ENT_INT: 0.56; ATT: 0.41; SN: 0.38, PBC: 0.62 and Car_Motiv: 0.2), which confirms the predictive relevance of the model.



Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source: Own elaboration

Figure 2. Relationships of structural model analyzed

| Hypothesis | β | Sig. | Total effect | <i>t</i> -statistics | R^2 | Q^2 |
|--|---------|------|--------------|----------------------|-------|-------|
| <i>Entrepreneurial intention</i> | | | | | | |
| ATT → ENT INT | 0.74 | *** | | 20.29 | 0.70 | 0.56 |
| Car Motiv → ENT INT | 0.10 | ** | 0.40 | 2.70 | | |
| PBC → ENT INT | 0.04 | | | 1.04 | | |
| SN → ENT INT | 0.03 | | | 0.78 | | |
| Soc Contx → ENT INT | 0.02 | | | 0.60 | | |
| Univ Contx → ENT INT | 0.04 | | | 1.32 | | |
| Soc_Contx → ENT_INT | | * | 0.12 | 2.30 | | |
| Univ_Contx → ENT_INT | | *** | 0.25 | 4.77 | | |
| <i>Attitude</i> | | | | | | |
| Car Motiv → ATT | 0.35 | *** | | 6.69 | 0.29 | 0.41 |
| Fam Exp → ATT | -0.07 | | | 0.75 | | |
| SN → ATT | 0.23 | *** | | 4.03 | | |
| Soc Contx → ATT | 0.08 | * | | 1.75 | | |
| Univ Contx → ATT | 0.13 | * | | 2.48 | | |
| <i>Subjective norms</i> | | | | | | |
| Car Motiv → SN | 0.25 | *** | | 4.59 | 0.09 | 0.38 |
| Fam Exp → SN | -0.08 | | | 0.73 | | |
| Soc Contx → SN | 0.06 | | | 1.05 | | |
| Univ Contx → SN | 0.08 | | | 1.43 | | |
| <i>Perceived behavior control</i> | | | | | | |
| Car Motiv → PBC | 0.32 | *** | | 6.27 | 0.24 | 0.62 |
| Fam Exp → PBC | -0.07 | | | 0.67 | | |
| SN → PBC | 0.23 | *** | | 3.60 | | |
| Soc Contx → PBC | 0.00 | | | 0.02 | | |
| Univ Contx → PBC | 0.12 | * | | 2.20 | | |
| <i>Professional motivation</i> | | | | | | |
| Soc Contx → Car Motiv | 0.08 | | | 1.35 | 0.05 | 0.02 |
| Univ Contx → Car Motiv | 0.21 | *** | | 3.63 | | |
| Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ | | | | | | |
| Source: Own elaboration | | | | | | |

Table III.
Results of the
analysis of the
structural model

4.3 Discussion

The result of the data used shows that in the theoretical model proposed in the GUESSS project and applied to a sample of university students, 50 percent of the relationships between the constructs of this model can be confirmed. In general, university environment and learning directly influence attitude ($H1(a)$, $\beta = 0.13$, $p < 0.05$), self-confidence ($H1(c)$, $\beta = 0.12$, $p < 0.05$) and motivation ($H1(d)$, $\beta = 0.21$, $p < 0.001$) and indirectly, although moderately, students' entrepreneurial intention ($\beta = 0.25$). The social context also exerts a weak direct influence on the perceived attitudes or desires toward the option to start a business ($H2(a)$, $\beta = 0.08$, $p < 0.05$) and indirectly on the intention ($\beta = 0.12$).

However, the same university environment does not significantly influence students' perceptions of family and close friends' support with their idea of setting up a firm. Experience in the entrepreneurial field of relatives or friends does not seem to exert any significant influence on the determinants of entrepreneurial intention by students ($H6(a)-(c)$), unlike other works in which a positive and significant relationship between professional experience and the perception of opportunities on the part of the students has been shown (Bergmann, 2017).

As to the motivation of these students to start professional careers as entrepreneurs, the results show the strong and positive influence of motivation on attitude ($H7(a)$, $\beta = 0.35$, $p < 0.001$), family support ($H7(b)$, $\beta = 0.25$, $p < 0.001$), and, in a weaker way, on their entrepreneurial intention ($H7(d)$, $\beta = 0.01$, $p < 0.01$) and on the confidence perceived by the students themselves ($H7(d)$, $\beta = 0.01$, $p < 0.01$).

5. Conclusions, limitations and future lines of research

In this paper, new evidence is presented about the positive influence on entrepreneurial intention of university students of dimensions such as the university and sociocultural context of a region such as the Canary Islands, considered peripheral from the point of view of innovation, according to the typology of Asheim *et al.* (2011). Such influences, in line with the results of Cooke (2007) and Huggins and Thompson (2015), could contribute to economic growth, development and innovation.

This paper analyzes entrepreneurial intention in a sample of university students from the Canary Islands. The Canarian archipelago is a region that, according to Asheim *et al.* (2011), would be framed in the typology of “peripheral” region. These regions are characterized by a system of regional innovation that is poorly developed and with a low presence of both dynamic companies and knowledge-generating organizations. The case of the Canary Islands stands out as this region has an entrepreneurship rate in terms of the perception of business opportunities that places the archipelago above the national average (Peña *et al.*, 2016).

This contextual approach makes sense insofar as in the field of innovation it is not possible to carry out homogeneous analyzes and speak of “one size fits all” (Asheim *et al.*, 2011). Instead, each region may have specific characteristics that determine the impact that investments in innovation generate on economic growth and on the way entrepreneurial potential is translated into entrepreneurial intention.

The results highlight the great importance that attitudes have as a direct antecedent of the entrepreneurial intention of university students. In this sense, the university context, that is to say, an environment and climate conducive to innovation, creativity and entrepreneurship existing in universities have great importance in the formation of entrepreneurial attitudes. This impact seems to be conveyed through changes in the reasons for choosing future professional careers. In this sense, this variation of professional motivations directly impacts on the attitudes of young people, modifying them and generating a change in entrepreneurial intention. However, there is also an important indirect effect on the attitudes through subjective norms, so that changes in the reasons for choosing a future professional career would alter the perception of the opinions of others (family, friends, etc.) regarding the possible decision to be an entrepreneur.

To the contrary, it is emphasized that, although there is a direct and statistically significant relationship between the social context and entrepreneurial attitude, it is very weak. Moreover, there is no other significant relationship between social context and other entrepreneurial intention antecedents. Thus, it appears to confirm what Asheim *et al.* (2011) highlighted in terms of regional specificities regarding the link between innovation systems, the impact of entrepreneurial potential and economic development. In this sense, it seems that in the so-called peripheral regions, the university context can play an important role in generating improvements in the entrepreneurial intention of young people with greater innovative potential.

Therefore, when it comes to defining policies to improve entrepreneurship in these regions, it seems that the establishment of entrepreneurial education and motivation programs in universities is a highly effective tool (Souitaris *et al.*, 2007).

5.1 Limitations and future lines of research

To conclude this exploratory analysis, the main limitations and future lines of action are indicated. First, as in most entrepreneurial intention studies, data are analyzed from a

sample in which a single (cross-sectional) data collection is carried out. This allows robust but restricted conclusions to be drawn about the predictive relationships established in the model. Therefore, in the future it would be interesting to repeat the process of data collection at different times. In the field of entrepreneurship, some studies have incorporated the temporal dimension in a longitudinal analysis to give greater amplitude and depth to the analysis (Van Gelderen *et al.*, 2015).

Second, the paper limits its scope to university students on the Canary Islands, a peripheral region in the European context. As a future line of research and to have a more complete view of the phenomenon analyzed, it would be advisable to extend this research to the national and international level, both to similar regions and to industrial and metropolitan ones, with data from the GUESSS survey (Guerrero and Peña-Legazkue, 2013; Castaño *et al.*, 2015).

Third, this research is carried out with the items present in the GUESSS questionnaire, which restricts the content validity of the constructs of the analytical model to these items. Therefore, it would be interesting to incorporate in the measurement instrument other elements of the university and sociocultural environment that have not been taken into account in this paper. Among them, we can mention the potential of university spin-off creation and its impact in terms of productivity and profitability of R&D and innovation activity (Sánchez *et al.*, 2012).

Finally, in line with Van Gelderen *et al.* (2015), it would be interesting to investigate to what extent entrepreneurial intention shown by the participants becomes effectively an action and subsequent new business start-up, evaluating “precipitating events” or circumstances that encourage potential entrepreneurs to start or not a new business.

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