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A cognitive attempt to understanding female entrepreneurial potential: the role of social norms and culture

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This article analyzes the different perceptions of both male and female potential entrepreneurs from three European regions differing in their respective level of economic development and entrepreneurial culture. We use an extended cognitive model of entrepreneurial intentions based on the theory of planned behaviour, the theory of normative social behaviour and social capital literature. Results show females have lower self-efficacy and entrepreneurial attraction than males, thus leading to lower entrepreneurial intention. Differences between the three subsamples are small when males are studied. However, female entrepreneurial intentions and perceptions are more affected by the cultural context.

1. INTRODUCTION

Global Entrepreneurship Monitor (Allen, Elam, Langowitz and Dean, 2008) reports that women own fewer businesses than men and a smaller number of them are engaged in a "firm start-up" process. These two facts are regarded as "gender differences in entrepreneurial potential". Likewise, the literature also illustrates that compared to men, female entrepreneurs exhibit limitations in entrepreneurial activity, constraining not only the creation and consolidation of their firms but the nature of their businesses and their sizes.

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"Firm-Creation" or "Established-firm" stages are well-discussed subjects in women's entrepreneurship literature. However, during these initial stages of the entrepreneurial process most of the women have already decided not to start a business. Then, in order to explain the gender gap in entrepreneurship, it is necessary to analyze the entrepreneurial potential of women and figure out the influencing factors. Therefore, research must also analyze as a target population those females who are in the "conception stage" of the "start-up process", when individuals are forming their entrepreneurial intentions.

Although it is true that some researchers have been considering the existence of gender differences in entrepreneurial potential, very few of them have adopted a cognitive approach towards it. However, Bruin, Brush and Welter (2007) argued that future research on women entrepreneurship has to consider cognitions and self-perceptions. These elements are closely linked to the environment in which entrepreneurship takes place and that environment shapes intentions toward entrepreneurship.

Furthermore, most studies are based on samples selected from a similar city, region and country, ignoring the effects of the socio-cultural environment in shaping entrepreneurial intentions. As Marlow, Henry and Carter (2009) point out, only a small proportion of research considers the socio-economic context of female entrepreneurship. In this sense, according to Ahl (2007), to avoid the risk of not questioning the norms and values of one's own culture, comparative works from different countries are recommended.

This paper attempts to contribute and fill these two gaps of the literature by specifically analyzing the perceptions of male and female potential entrepreneurs from three European regions regarding attitudes, capacities and intentions towards business start-up. This will probably explore new ideas about gender-specific perceptions of entrepreneurship. It will also aid to explain why women lack entrepreneurial intentions and why they concentrate

mainly on certain industries. To attain this objective, the cognitive approach followed in this paper is based on three elements:

a) Firstly, Ajzen's theory of planned behaviour or TPB (1991): this mentions that intentions are the best predictors of any planned behaviour. This theory has been repeatedly applied to entrepreneurship in recent years with considerable success (Kolvereid, 1996; Krueger, Reilly & Casrud, 2000; Liñan & Chen, 2009).

b) Secondly, the influence of the social context on entrepreneurial intentions. This influence will be studied developing the concept of "perceived social norms" in more detail. Starting from the literature on social capital (Liñan & Santos, 2007) and the theory of normative social behaviour (Lapinski & Rimal, 2005), two levels of analysis of social norms will be considered: individual and collective.

c) Finally, the influence of national and regional culture on female entrepreneurial intentions. Each culture influences entrepreneurship through social legitimation or promoting certain attitudes related to firm creation (Etzioni, 1987).

2. THEORETICAL FRAMEWORK

2.1. Entrepreneurial Intentions and Social Norms

Cognitive models have better explanatory capacity than the trait and demographic approaches in entrepreneurship, as they consider behaviour as a consequence of person-situation interactions. This fact has been widely accepted in cognitive psychology since the 1960s (Shaver & Scott, 1991). Fortunately, the cognitive approach is becoming more and more used to explain the idea why some individuals choose to become entrepreneurs (Krueger & Carsrud, 1993; Mitchell, Businetz, Lant, Mcdougall, Morse & Smith, 2002a; Baron, 2004). It emphasizes the fact that everything we say or do as human beings is influenced by mental

processes, through which we acquire, store, transform and use information to accomplish different tasks, i.e., making decisions or solving problems (Baron, 2004). One of these decisions, of course, could be to start a new venture.

Entrepreneurial intentions are one of the most relevant elements within the individual's cognitive process leading to start up a venture (Krueger, Reilly & Casrud., 2000). These intentions influence the individual's behaviour by capturing the motivational factors. Therefore, intentions can be used to measure the effort planned by an individual to perform the behaviour of firm creation.

Perceptions are also important cognitive elements to be considered because of their influence on entrepreneurial intentions. Perceptions represent the external environment around individuals captured through their senses and consciousness (Krueger, 2003). They represent a subjective interpretation of reality but do not necessarily reflect objective circumstances (Arenius & Minniti, 2005). Perceptions could be classified into three different kinds (Fernández, Liñan & Santos, forthcoming): firstly, perceptions about the self and the immediate environment; secondly, perceptions about the general economic opportunities to start a venture (known as economic perceptions); and, finally, the perceived entrepreneurially-related socio-cultural values prevalent in the society (known as socio-cultural perceptions).

The theory of planned behaviour or TPB (Ajzen, 1991) is one of the theories most often applied to explain entrepreneurial intentions (Krueger & Casrud, 1993; Krueger & Brazeal, 1994; Kolvereid, 1996; Liñan & Chen, 2009). It considers entrepreneurial intentions to be influenced by three perceptions. The first one, personal attraction (PA) considers the degree of attraction towards becoming an entrepreneur (Shapero & Sokol, 1982) Perceived behavioural control (PBC) is the perception of the ability to adopt entrepreneurial behaviour (Bandura, 1997). And the last, perceived subjective norms (SN) refer to the view that people

in their closer environment would approve of the firm-creation decision (closer environment approval).

PA and PBC are personal perceptions, while SN is a social perception. Hence, PA could be partially explained by the role model theory, which is different to imitation. Individual behaviour can be changed by observational learning and perceptions, through a four-stage cognitive process: attention, retention, reproduction and, finally, motivation (Bandura, 1977). This theory explains why individuals, having entrepreneurial parents, become entrepreneurs (Scherer, Brodzinski & Wiebe, 1991; Arenius & Minniti, 2005). Similarly, the concept of self-efficacy or PBC is also emphasized by Bandura (1982) in his social learning theory. He argues that individuals considering themselves as capable of successfully performing as an entrepreneur, will have a greater probability of becoming an entrepreneur or at least, of exhibiting entrepreneurial intentions (Krueger & Carsrud, 1993). Finally, SN were included in the TPB by Ajzen (1991) to take directly and specifically into account the influence exerted on intention by social factors. SN take the form of injunctive norms because they involve social sanctions for non-compliance with the norm (Rimal & Real, 2003).

The entrepreneurship literature has found strong empirical evidence that supports TPB. In fact, the TPB has shown good results to explain the variance in behaviour and intentions (Armitage & Conner, 2001). Nevertheless, the direct influence of perceived SN on entrepreneurial intention is quite weak (Ajzen, 1991) and personal perceptions (i.e., PA and PBC), therefore, emerge as stronger predictors of intentions.

One of the possible reasons to explain this weak influence of SN on entrepreneurial intention may be that SN moderate the relationship between personal perceptions and behavioural intention. The influence of personal perceptions on behaviours is heightened when SN are strong and attenuated when SN are weak (Rimal & Real, 2003). In fact,

following this line of reasoning and based on the above mentioned TPB literature and social capital literature (Naphiet & Ghoshal, 1998; Johannisson, 1995; Jack & Anderson, 2002; Casson & Della Giusta, 2007), Liñán and Santos (2007) established that perceived social pressure could exert its influence directly on personal attraction and PBC, moderating the influence of these two individual perceptions on entrepreneurial intentions.

The influence of SN, finally, can be considered both at the individual and collective levels (Lapinski & Rimal, 2005). On the one hand, individuals receive the influence from *Closer Environment Valuations* (individual level) which, according to social capital literature, could be related to the closer links with family or friends (strong ties). They could exert their influence directly on PA as a consequence of the cognitive values and beliefs making up individuals' perceptions towards a career (Grootaert & Bastelaer, 2001; Uphoff, 2000). On the other hand, when *Social Valuations* are considered (collective level), social values take on a critical role in determining entrepreneurial behaviour (Zahra, Jennings, & Kuratko, 1999), since macro-social values reinforce certain personal characteristics and penalize others (Thomas & Mueller, 2000). The underlying system of values peculiar to a specific group or society would shape the development of certain personality traits and capacities, modelling normative and ability perceptions towards the entrepreneurial activity.

Insert Figure 1 here.

The recent studies analysing GEM data have supported the effective role of different personal perceptions in the entrepreneurial process. Thus, both self-efficacy or knowing a role model which may enhance personal attraction towards the entrepreneurial activity increase the propensity to pursue an entrepreneurial activity. This influence is significant for both genders and individuals in different countries (Arenius & Minniti, 2005; Minniti & Nardone, 2007; Fernández, Liñan & Santos, forthcoming). Hence it is expected that the previous model

explaining this concept is not dependent on the gender and nationality of the respondents. This generates the first proposition for this paper:

Proposition 1: *entrepreneurial intentions are explained by the five different elements of the entrepreneurial intention model independent of gender.*

2.2. Gender, Entrepreneurial Intentions and Social Norms

Literature on women's entrepreneurship mainly suggests women tend to exhibit some weaknesses in entrepreneurial activity relative to men. These weaknesses constrain not only the creation of their firms but also their development and growth. The literature illustrates that some of these weaknesses include fewer financial, human and network resources (Brush and Hisrish, 1991; Brush, Carter, Greene, Hart & Gatewood, 2002; Fabowale, Orser & Riding, 1995; Carter & Allen, 1997; Marlow & Patton, 2005: Smith-Hunter, 2006; Becker-Blease & Sohl, 2007, Gatewood, Brush, Carter, Grenne & Hart, 2009) and less management experience (Loscocco, Robinson, Hall, & Allen, 1991; Lee & Rogoll, 1997; Alsos & Kolvereid, 1998). So it can be argued that the scarcity of certain resources can explain the reasons why females exhibit lower entrepreneurial intentions and create fewer firms than males do.

Nevertheless, these studies analyze women's entrepreneurship as something similar to male experiences. They don't take into account the fact that female entrepreneurial behaviour is different from that of men in some aspects, i.e. their management style or their choices for firm growth (Mukhtar, 2002; Morris, Miyasaki, Watters, & Coombes, 2006). Likewise, it is also true that other studies suggest more similarities than differences in terms of male and female business ownership. For instance, Watson (2002) found no performance differences between male and female businesses when some inputs, such as starting capital or hours worked, were statistically controlled.

Another setback of women entrepreneurship studies relates to their focus on nascent or established female entrepreneurs. Thus, many of this invisible barriers and personal experiences of thousands of women at the firm-conception stage are overlooked. In this sense, it has been also argued that those barriers and discriminations against women are the cause of the female entrepreneurial weaknesses. (Carter & Allen, 1997; Weiller & Bernaseck, 2001; Blanchard, Zhaob &Yinger, 2008). These would prevent women, firstly, from developing and pursuing their entrepreneurial intentions and, secondly, from accessing to different basic resources, thus facing a very difficult to overcome glass-ceiling. As a result, they either abandon their entrepreneurial intentions or, if they start and run businesses, most of the time these businesses are small and under-resourced.

Similarly, some other studies have considered traits or demographic-variable differences to explain the specificities of female entrepreneurship. However, results have not been clear, since some studies showed gender differences and others did not. For instance, some studies have found that female entrepreneurs had a lower risk-taking propensity than their male counterparts (Sexton & Bowman-Upton, 1990), while others did not find any difference (Master & Maier, 1988).

Recently, some researchers have considered cognitive elements which could exert an influence on entrepreneurial intentions and behaviours. Firstly, at an aggregate level of analysis, lower self-efficacy and opportunity perceptions or higher fear-of-failure help to explain female start-up rates and the lower entrepreneurial propensity of women (Langowitz & Minniti, 2007; Minniti & Nardone, 2007). Secondly, at an individual level of analysis, some studies have focused on entrepreneurial self-efficacy (ESE) as an important factor differentiating females and males. Thus, according to Wilson, Kickul and Marlino (2007), females show significantly lower ESE than males in both middle/high school and MBA programs, although when females receive specific entrepreneurship education their levels of

ESE rise and so does their interest in starting their own venture. In this context, Mueller and Dato-on (2008) argue that it is not gender perse which explains ESE differences, but gender stereotypes and socially conditioned perceptions of what it means to be masculine or feminine. Individuals identifying themselves with a masculine stereotype (mostly men, but not necessarily) would express a higher ESE level. Therefore, according to these arguments a second proposition is posed:

Proposition 2: *females have, in general, lower entrepreneurial intention because they perceive lower entrepreneurial attraction and lower behavioural control than males*

Following the argument about gender stereotypes, recent studies find that individuals (women or men) with a femininity stereotype based on dependence, cooperation or caring, are likely to have lower entrepreneurial intentions (Gupta, Turban, Vasti & Sikdar, 2009) or be related to higher employee relationship satisfiers, higher customer relationship satisfiers or higher contribution to society satisfiers (Eddleston, & Powell, 2008). This suggests that the femininity stereotype is associated with behaviours far from the competitive paradigm in which businesses operate. These issues open space for gender discrimination. From these studies, it could be inferred that gender stereotypes are at the basis of the lack of social support, entrepreneurial education and experience that women exhibit relative to men. Similarly, this could lead women to perceive a lower pressure from their environment to behave entrepreneurially. Therefore, following these arguments the following proposition is posed.

Proposition 3: *Females perceive lower closer pressure and lower social pressure than males to become entrepreneurs.*

2.3. Gender, Entrepreneurial Intentions and Culture

The literature argues that entrepreneurial intentions of potential entrepreneurs are influenced by national or regional culture, independent of the individual's gender (Shane, Kolvereid, & Westhead, 1991; Davidsson, 1995; Mueller & Thomas, 2001). Culture is made up of ideas, values and norms that are common to a group of people. Inglehart (1997) defines culture as the set of basic common shared values which contributes to shaping people's behaviour in a society. Hofstede and Hofstede (2005) believe that the notion of culture also includes patterns of thinking, feeling and acting, which are learned and shared by people living within the same social environment.

The influence of culture on opportunity recognition and entrepreneurial intention exists through cognitive mechanisms. According to Etzioni (1987), culture may influence entrepreneurship both through social legitimation (at the aggregate level) and through promoting certain positive attitudes regarding firm creation. Hofstede (1980) explains that the reason why this happens is that culture shapes people's cognitive schemes, programing behavioural patterns which are consistent with the cultural context. Moreover, these cognitive schemes derived from culture can help entrepreneurs in several aspects,such as reducing the uncertainty of taking a decision or, what is more important for this study, increasing the intention to start up (Busenitz & Lau 1996).

From an empirical point of view, studies about the influence of culture on entrepreneurial behaviours (Mcgrath, MacMillan, Yang &Tsai 1992; Mueller & Thomas, 2001; Wennekers, Thurik, van Stel & Noorderhaven, 2007) have used Hofstede's (1980) four dimensions of national culture. Masculinity is one of them and is a cultural aspect associated with competitiveness, independence and aggressiveness, that is to say, associated with a

masculine stereotype. Then, societies with a high masculinity (MAS+) have in general a higher entrepreneurial activity.

Mitchel, Smith, Seawright and Morse (2000) found that power distance and individualism exert a direct influence on arrangement, ability and willingness cognitions, and these latter constructs, in turn, affect the decision to start up. Differences across a number of countries were detected in the level and nature of ability and willingness cognitions. In a subsequent study, entrepreneurial cognitions across cultures were found to be broadly similar, but with significant differences depending on the national culture (Mitchell, Smith, Morse, Seawright, Paredo & Mckenzei, 2002b).

Within the gender literature about entrepreneurship, some studies have focused on the influence of national culture on female entrepreneurship, especially in less-developed countries. In India, the existence of a traditional culture prevents women from engaging in an entrepreneurial career (Bertaux & Crable, 2007). A similar study stresses the barriers to development and progression of women entrepreneurs in an Islamic society such as Pakistan (Roomi & Parrott, 2008). Finally, Wells, Pfntz and Bryne (2003) analyzed the barriers women entrepreneurs face in a transition economy, such as Russia.

One of the first studies on gender entrepreneurial perceptions across cultures suggested that there were differences between male and female entrepreneurs regarding perceptions about the business environment for start-up in western countries (Kolvereid, Shane & Westhead, 1993). However, it only took into account perceptions of existing entrepreneurs and did not analyze the perceptions of potential entrepreneurs. In general, both female entrepreneurs and male entrepreneurs have a high illusion of control, overconfidence and other cognitive biases which make them perceive a lower difficulty in creating a new firm (Baron, 1998; Keh, Foo & Lim, 2002; Koellinger, Minniti & Schade, 2007).

Nevertheless, more recent studies consider that there is a gender gap in entrepreneurial potential which may be different across countries and cultures. Thus, Langowitz and Minniti (2007), using the GEM sample examined the role of perceptions on female nascent entrepreneurs from 17 countries. Perceptions about self-efficacy, risk and opportunities explain a significant portion of the differences in the propensity to start a business in some of these countries. Their study suggests that national context and culture (by shaping national institutions) exert an influence on the entrepreneurial propensity of women but, at the same time, they emphasize the role of universal and evolutionary behaviours.

If we accept that the normative support for female entrepreneurship seems to be embedded in overall attitudes about entrepreneurship and gender equality, it can be argued that this cultural context may be a contributing element towards the rate of female entrepreneurial activity (Baughn, Chua &.Neupert, 2006). Therefore, according to these arguments, a fourth proposition is formulated as:

Proposition 4: the formation of female entrepreneurial intention is affected by national/ regional culture.

3. RESEARCH METHODOLOGY

3.1. Data

To determine the strength of the four suggested propositions for this paper, an empirical analysis was carried out with a survey on data collected through 816 on-line completed questionnaires from final-year business undergraduate students of three different regions. Selected regions varied from each other on different characteristics i.e. economic potential and entrepreneurial culture: Bedfordshire (southern Britain), Barcelona (northern Spain) and Seville (southern Spain). The absolute sample includes 816 cases: 267 students

from University of Bedfordshire in Luton campus, 300 students from University of Barcelona and 249 students from University of Seville. The character breakdown of the collected data demonstrates that it contains almost balanced number of male and female participants, except from Bedfordshire which contains more male participants than females. Table 1 summarizes age and gender characteristics of the three samples.

There are three basic reasons for selecting final year business undergraduate university students as a research population for this study. Firstly, such a population is repeatedly used for entrepreneurship research (Autio, Keely, Klofsten, Parker & Hay, 2001; Tkachev & Kolvereid, 1999; Krueger, Relly & Casrud, 2000; Fayolle & Gailly, 2004; Liñan & Chen, 2009). Secondly, Reynolds, Bygrave, Autio and Hay (2002) argue that university graduates in the 25- 34 years age range are the segment showing higher probability of becoming entrepreneurs. The third and final reason was the fact that most of these students are at the stage of making a decision for their careers. Therefore, the data from this population is considered to be more effective for this study.

Insert Table 1 here.

The regions selected for the study represent the economic potential and entrepreneurial culture at three different stages available in Europe:

- Firstly, Bedfordshire is a county in south eastern Britain. Near London, it is very well-connected with the British capital through motorways and railways. Moreover, Luton airport is one of the four London international airports. The income level of this county is one of the highest in Europe and there is a high level of entrepreneurial culture.

- Secondly, Barcelona is a city located in north eastern Spain. It is the capital of Catalonia, considered as one of the most industrialized Spanish regions. Barcelona

also has an important harbour, so it has major economic links with France and the rest of Europe. Although it has a lower income level than Bedfordshire, it has a high entrepreneurial culture within the Spanish context.

- Finally, the city of Seville, located in southern Spain, is the capital of Andalusia, one of the less-industrialized regions in Spain and, therefore, in Western Europe. Its income level is the lowest of the sample and it has the lowest level of entrepreneurial culture.

Eurobarometer data (European Commission, 2007), rates the entrepreneurial activity index as highest for the UK in the European Union. On the contrary, it considers Spain as one of the lowest. The UK shows a higher entrepreneurship rate, a lower proportion of business failures and a higher proportion of "pull" entrepreneurs (individuals with low perception of financial difficulties for the start-up, high risk-tolerance and high probability that they started the business as a result of an opportunity). Although, there are not comparable data available for the Spanish regions, this information suggests that the entrepreneurial culture should be higher in Bedfordshire than in Barcelona or Seville. Likewise, given the higher economic level of Barcelona, and the cultural characteristics of Catalonia and Andalusia, it is expected that entrepreneurial culture is higher there than in Seville.

Insert Table 2 here

3.2. Measures

A modified version of *Entrepreneurial Intention Questionnaire (EIQ)* by Liñán and Chen (2009) was used to test the four suggested propositions. The questionnaire included randomly ordered and reversed variables, measuring the key constructs (see appendix)

Likert-type scales were used in the EIQ to create the different indicators by processing the information provided. In the questionnaire, items A1 to A20 measure the four central

constructs of the theory of planned behavior: Entrepreneurial Intention (A4, A6, A9–reversed-, A13, A17 & A19–rev-), PA (A2–rev-, A10, A12-rev-, A15 & A18), PBC (A1, A5-rev-, A7, A14, A16-rev-, A20), and SN (A3, A8, A11). On the other hand, social values regarding entrepreneurship were measured through 8 items (C1-C8). Three of these items measure the valuation of entrepreneurship in the closer environment of the respondent (C1, C4, C7) and this construct has been called Closer Valuation. The rest of them measure perceptions regarding general Social Valuation of entrepreneurship (C2, C3-rev-, C5-rev, C6, C8-rev-).

Epistemic relationships describe the association between theory (constructs) and data (indicators) (Fornell, 1982). In the present study, the six constructs of the measurement model have been measured through reflective indicators. That is, they are assumed to reflect the unobserved theoretical construct and, hence, co-vary with the level of the latent variable. (McKenzie, Podsakoff & Jarvis, 2005).

3.3. Data analysis

Given the characteristics of the model proposed in section 2.1, a structural equation model is used to test the different relationships among the constructs of the theoretical model of entrepreneurial intentions (Proposition 1). In particular, a multivariate analysis technique based on Partial Least Squares (PLS) is applied and the PLS Graph V. 3.00 Build 1126 (Chin & Frye, 2003) software is used. According to Gefen, Straub, Boudreau (2000), when exploratory studies are carried out and relatively small samples are used, this multivariate statistical technique is more suitable than others, such as LISREL, based on the covariance analysis.

The analysis and interpretation of the PLS model suggested is carried out in two subsequent stages: firstly, assessment of reliability and validity of the measurement by model, and secondly, assessment of the structural model (Sanchez-Franco & Roldan, 2005). The

measurement model consists of the relationships between the constructs and the indicators used to measure them. This specifically implies the examination of the convergent and discriminant validities of the research instrument. The sequence ensures that the constructs' measures are valid and reliable before attempting to draw conclusions (Barclay, Higgins & Thompson, 1995). For the evaluation of the structural model the bootstrap re-sampling procedure was applied to test the significance of the paths coefficients.

In order to test the 2nd and 3rd propositions concerning gender differences, a one-way ANOVA test was performed on the six factors obtained in the measurement model: entrepreneurial intention, personal attitude, perceived behavioral control, subjective norms, closer valuation and social valuation.

For the purpose of exploring possible gender gaps in the results (Proposition 4), a multi-group analysis was performed. This technique looks for statistically significant differences in path coefficients between sub-samples (Chin, 2000). In accordance with this procedure, a *t*-test has been calculated following equation 1, which follows a *t*-distribution with $m + n - 2$ degrees of freedom, *Sp* (equation 2) being the pooled estimator for the variance, *m* the number of cases of the sample from region a, *n* the number of cases of the sample from region b, and *SE* the standard error for the path provided by PLS-Graph in the bootstrap test.

Equation 1. T-statistic with m + n - 2 degrees of freedom

$$t = \frac{Path_{\text{region a}} - Path_{\text{region b}}}{Spx\sqrt{\dfrac{1}{m} + \dfrac{1}{n}}} \approx t(m + n - 2)$$

Equation 2. Pooled estimator for the variance

$$Sp = \sqrt{\frac{(m-1)^2}{m+n-2} \, xSE^2_{\text{region a}} + \frac{(n-1)^2}{m+n-2} \, xSE^2_{\text{region b}}}$$

4. RESULTS

After eliminating some individual items from question A and C, most of the individual reflective-item reliabilities –in terms of standardised loading – were over the acceptable cut-off level for 0.7. The two loadings lower than 0.7 were 0.6341 (PBC; the females' model for the three regions) and 0.6577 (PBC; the males' model for the three regions). The results obtained are thus acceptable considering the exploratory nature of our study (see table 3 and 4).

Construct reliability is assessed using the *composite reliability* rather than using Cronbach's alpha. We can use the guidelines offered by Nunnally (1978) who suggests 0.7 as a benchmark for a modest reliability applicable in the initial stages of research. The composite reliabilities for the multiple reflective indicators ranged from 0.838 (PBC) to 0.902 (Entrepreneurial intention) –the females' model; and 0.830 (Social valuation) to 0.906(Entrepreneurial Intention) – the males' model, which are well over the recommended acceptable 0.7 level (see tables 3 and 4).

Convergent and discriminant validity are assessed by applying that the square root of the average variance extracted (AVE) between a construct and its indicators should be at least 0.7 (i.e. AVE >0.5 see tables 3 and 4) and should be greater than that construct's correlation with other constructs (Fornell & Larcker, 1981; Barclay, Higgins & Thompson, 1995; Chin, 1998). All latent constructs satisfy this condition We thus maintain the convergent and discriminant validity of the multi-item constructs of the models (see also tables 5 and 6).

Insert Table 3 here

Insert Table 4 here

Insert Table 5 here

Insert Table 6 here

To test Proposition 1, the PLS structural model was assessed by examining path coefficients (β) (similar to standardised beta weights in a regression analysis) and their significance levels. The variance explained (R^2) in the endogenous variables and the regression coefficients' significance serve as indicators of a model's performance within the sample. As recommended by Chin (1998), bootstrapping (with 500 subsamples) was performed to test the statistical significance of each path coefficient using t-tests. Figure 2 shows a graphical representation of the path coefficients (β) and the R^2 values, which allows a better understanding of the structural model.

The gender-based models of the three selected regions seem to have an appropriate predictive power for all the dependent variables included. Specifically, the explained variance of the entrepreneurial intention is 65.4% and 65.6% for females and males respectively (figure 2). The entire path coefficients are highly significant in both models. Specifically, the relationships among the central elements of the TPB (PBC, SN, PA and EntInt) are significant at a level of 99.9%. Hence, the results support the proposition 1. So, it can be concluded that entrepreneurial intentions are explained by the five different elements of the entrepreneurial intention model proposed, independent both of the gender and the country of residence of the individual

Insert Figure 2 here

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As mentioned earlier, a one way ANOVA test was performed to test proposition 2 and 3 The objective for this test was to determine the existence of significant differences between females and males in the five constructs of the entrepreneurial intention model. Different studies suggest that females have lower entrepreneurial intention, self-efficacy and entrepreneurial attraction than males. The ANOVA test performed for the subject regions confirms these results. The mean scores of each construct demonstrate that males have higher entrepreneurial intention, PBC and entrepreneurial attraction than females. On the other hand, these differences are highly significant at a level $p<0.001$. Therefore, proposition 2 is supported (see table 7).

Results demonstrate higher values for males than females with regard to the role of social constructs. However, according to the ANOVA test, the only construct with a significant value difference is closer valuation. Therefore, on the basis of these figures, proposition 3 is partially supported (see table 7). In this sense, it may be argued that perceptions about the social valuation of entrepreneurship are shared by the whole community and would not be different for men and women, whereas perceptions in the closer environment vary from case to case, and women may feel it is not valued in their environment.

Insert Table 7 here

Concerning the analysis carried out to test proposition 4, firstly, a measurement model was built for each subsample (i.e., females and males) in each one of the three regions, that is to say, three female PLS measurement models and three male PLS measurement models. The items used were kept the same for both models. The item reliability, the construct reliability and the convergent and discriminant validity of each model satisfy the theoretical conditions mentioned earlier. Figure 3 and 4 show the three female PLS structural models and the three

male PLS structural models. Significant path coefficients and explained variance of dependent variables are shown in figures 3 and 4.

Relationships described among main elements of the TPB model (Entrepreneurial Attraction, PBC and Entrepreneurial Intention) are significant for both males and females in each of the three regions. This confirms once more the applicability of this theory to entrepreneurship research. However, the most important differences are found in the relationships of the two social constructs (closer valuation and social valuation) with those elements. Thus, the influence of closer valuation seems to be more important for females than for males in its influence on the other constructs of the TPB (Ent. Attact., SN and PBC). For instance, in the case of the female Seville sample, these three relationships are significant ($p<0.001$), and in the case of the female Bedfordshire sample, closer valuation exerts a significant influence on relationships, both on Social Norms ($p<0.001$) and on PBC ($p<0.001$). However, the influence of Social Valuation is significant only in the case of the female Barcelona sample for its relationship with social norms ($p<0.001$).

Observing the male PLS models, it can be noticed that closer valuation exerts its influence on entrepreneurial attraction ($p<0.001$) and PBC ($p<0.05$) in the Seville sample, but in the Bedfordshire sample, that relationship is only significant for Social Norms ($p<0.01$) and in the case of Barcelona sample, on PBC ($p<0.01$). On the other hand, Social Valuation exerts a significant influence, firstly, on entrepreneurial attraction, both in the Bedfordshire sample ($p<0.01$) and in the Barcelona sample ($p<0.001$) and, secondly, on PBC in the Seville sample ($p<0.05$).

Insert Figure 3 here

Insert Figure 4 here

When variances explained (R^2) of the dependent variables are compared for female and male models (table 8), it can be observed that a high predictability is attained. On the one hand, the theoretical model has been able to explain 70.24%, 62.45 % and 60.81% of the variance of the entrepreneurial intention to create a firm among females of Bedfordshire, Barcelona and Seville respectively. On the other hand, it has been able to explain 68.42%, 61.95 and 61.92% of the variance of the entrepreneurial intention among males of the three samples. This comparative test thus also contributes to revealing that entrepreneurial intention to create a firm can be partially predicted by extended TPB.

Table 8 also reveals that there are more differences between the R^2 values of entrepreneurial intentions among females or males of different regions than among females and males in the same region. In fact, when a multi-group analysis is performed to test if there are possible significant differences in the path-coefficients of female and male models in each region, many significant differences are found. In this sense, a second step of this analysis leads us to compare male and female models of different regions through the multi-group analysis. Thus, it is possible to investigate if the cultural context exerts a moderator role concerning female differences among different regions (proposition 4).

Insert Table 8 here

In this context, both the females and males samples for Barcelona and Bedfordshire have been selected for the multi-group analysis. The reason for selecting these two samples is these two regions are the most homogeneous in terms of income level but, at the same time, are very different in their cultural context. Thus, the possible effect of the cultural context can be more accurately assessed. Tables 9 and 10 provide us with the results of the analysis.

Insert Table 9 here

Insert Table 10 here

It can be observed that multi-group analysis for females illustrates that there are several paths among constructs that can be moderated by the cultural context. Specifically, the influence of Social Norms both on entrepreneurial attraction and on PBC is stronger and more significant in the case of Bedfordshire females. On the other hand, the influence of closer valuation on entrepreneurial attraction is stronger and more significant in the case of Barcelona females. The multi-group analysis does not show any other significant differences in the path coefficients between these two samples of females.

However, once the multi-group analysis is performed to compare differences in the path coefficients of the two samples of males from Barcelona and Bedfordshire, results show that many of the differences of the path coefficients are not significant. The significant ones are, firstly, the differences of the path coefficients between entrepreneurial attraction and entrepreneurial intention, being higher in the case of Barcelona males, and, secondly, the differences of the path coefficients between Closer Valuation and PBC, being stronger in the case of Bedfordshire males.

The fact that significantly different path coefficients between females and males differ is an indication that culture exerts a moderating role in the relationships among model elements. And therefore, it can be argued that proposition 4 is partially supported by the multi-group analysis.

5. CONCLUSIONS AND IMPLICATIONS

The research presented in this paper analyzed the entrepreneurial intention to create a firm from a gender perspective. Results from the study serve to validate the relations among the different elements of the entrepreneurial intention model presented in section 2.1. This

model is mainly based on Ajzen´s TPB model, considering the two dimensions of the perceived social norms, i.e., individual (closer valuation) and collective (social valuation). Social norms, in their two dimensions, are found to be strongly influencing factors affecting the attitudes (entrepreneurial attraction and PBC) towards the intention to create a new firm, irrespective of the gender. Constructs validity is considered acceptable. The measures analyzed were reliable and the constructs had an acceptable level of convergence and discriminant validity. The paper may thus help to further the empirical research and to examine and clarify an entrepreneurial intention model. To sum up, this study provides a strong support for the integration of the two dimensions of social norms within TPB.

The figures indicate that males and females do not have the same entrepreneurial intentions, in spite of the similarity of factors which determine these intentions. Females have lower entrepreneurial intentions than their male counterparts. In this sense, the result of this paper explains this difference by their lower PBC and lower entrepreneurial attraction. Besides, females also perceive lower support from the closer environment than males, and this explains –at least partly- their lower entrepreneurial attraction and PBC.

This result supports some ideas. Firstly, and most importantly, if females have a lower entrepreneurial intention, it is partially related to the higher psychological barriers they find in the closer environment. According to their perceptions, family and friends do not sufficiently support the creation of firms with their social approval. Secondly, this finding is also important from a methodological point of view because it emphasizes the need to analyze the influence of the social environment on female behaviours. In this sense, barriers for females do not appear only when they are in the process of launching a firm but even before. These are invisible barriers and exert their influence as a discouraging factor which becomes itself an accepted fact for females. Thus, this kind of invisible barriers seems to play a negative role for the female rate of firm creation.

Nevertheless, although the predictive capacity of the model is very high, results show that gender differences in the influence of cognitive elements on entrepreneurial intentions are mainly moderated by national/regional cultures. In this specific study, female entrepreneurial intentions from two different regions are compared controlling their income level (Bedfordshire and Barcelona). Some interesting differences are found to be significant. However, when male entrepreneurial intentions are compared, fewer differences are found. Therefore, it may be concluded that female entrepreneurial intentions are affected by the national or regional culture.

On the one hand, according to Inglehart, Basañez, Deiz-Medrano, Halman and Luijkx (2004), the British culture is more secular, rational and less traditional than the Spanish culture. On the other hand, according to Hofstede and Hofstede (2005), British culture is more masculine and individualistic and less unequal and uncertainty avoiding than Spanish culture. These two cultural findings could help to explain why entrepreneurial intentions, independent of the gender, are higher for Bedfordshire than for Barcelona and why, at the same time, social norms and, especially, closer valuation exert a stronger influence both on entrepreneurial attraction and on PBC in Bedfordshire females than in Barcelona females. It is clear that the British environment is less traditional regarding the role of gender in economic activity, promoting a higher entrepreneurial intention both for females and males. However, it is also true that the British environment is highly competitive partially due to the individualistic and masculine dimension of its culture which makes the closer environment of females exert a stronger negative influence on entrepreneurial attitudes.

The role of social valuation regarding female entrepreneurial intentions requires a specific comment. As was observed, this cognitive element is not significantly higher for females than for males in the full sample. Likewise, the influence of social valuation on attitudes towards start-up is not significant among females of different regions, nor is it

among males. A possible explanation is that the macro-social context shaped by the role of institutions is very similar in the British and Spanish environments because both countries belong to the European Union and are implementing similar policies to promote economic activity of females. Nevertheless, this fact cannot avoid, at least in the short term, the national culture exerting a differential influence, that is more negative for Spanish females.

Relevant policy implications may be derived from the results of this study. It has been shown that women are not born with lower entrepreneurial intentions than men. This situation is derived from socialization processes. They perceive the entrepreneurial role is not being adequate for them and this makes them perceive a lower attraction and PBC, which, in turn, explains why they have shown lower intention levels. Therefore, the promotion of female entrepreneurship as a socially-accepted and desirable option would be a very relevant instrument to break this "chain".

The literature has shown that women differ from men in their management styles. This is not sufficiently recognized yet. Even when it is, it is often assumed that this male style is superior. The promotion and valuation of the female entrepreneurial style as equally good could be very important to increase the number of women who perceive entrepreneurship as valid for them, desirable and feasible.

Finally, it is necessary to point out that this research has several limitations. Regarding the measurement instrument (the questionnaire), improvements are probably needed. Some items may need revising or even elimination. In particular, reversed items have probably been useful to avoid acquiescence bias, but contributed very little to the constructs. Secondly, more work will be needed to fully understand how values perceived in each regional culture help determine start-up decisions. A number of interesting environmental factor elements should be analyzed. Thus, the influence of specific investment in programs or measures implemented in each region to improve the entrepreneurial culture and, specifically, female entrepreneurial

culture should be considered. Thirdly, it is necessary to apply this methodology to different samples in additional regions. In particular, engineering students, technology-park workers or similar "potential technology ventures" should be analyzed, since most support measures for entrepreneurship in the European Union are focused on the development of high-tech firms.

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APPENDIX. Questionnaire items

A. Indicate your level of agreement with the following statements about the **Entrepreneurial Activity** from 1 (total disagreement) to 7 (total agreement).

	1	2	3	4	5	6	7
A01.- Starting a firm and keeping it viable would be easy for me	☐	☐	☐	☐	☐	☐	☐
A02.- A career as an entrepreneur is totally **unattractive** to me	☐	☐	☐	☐	☐	☐	☐
A03.- My friends would approve of my decision to start a business	☐	☐	☐	☐	☐	☐	☐
A04.- I am ready to do anything to be an entrepreneur	☐	☐	☐	☐	☐	☐	☐
A05.- I believe I would be completely **unable** to start a business	☐	☐	☐	☐	☐	☐	☐
A06.- I will make every effort to start and run my own business	☐	☐	☐	☐	☐	☐	☐
A07.- I am able to control the creation process of a new business	☐	☐	☐	☐	☐	☐	☐
A08.- My immediate family would approve of my decision to start a business	☐	☐	☐	☐	☐	☐	☐
A09.- I have **serious doubts** about ever starting my own business	☐	☐	☐	☐	☐	☐	☐
A10.- If I had the opportunity and resources, I would love to start a business	☐	☐	☐	☐	☐	☐	☐
A11.- My colleagues would approve of my decision to start a business	☐	☐	☐	☐	☐	☐	☐
A12.- Amongst various options, I would rather be **anything but** an entrepreneur	☐	☐	☐	☐	☐	☐	☐
A13.- I am determined to create a business venture in the future	☐	☐	☐	☐	☐	☐	☐
A14.- If I tried to start a business, I would have a high chance of being successful	☐	☐	☐	☐	☐	☐	☐
A15.- Being an entrepreneur would give me great satisfaction	☐	☐	☐	☐	☐	☐	☐

A16.- It would be **very difficult** for me to develop a
business idea ☐ ☐ ☐ ☐ ☐ ☐ ☐

A17.- My professional goal is to be an entrepreneur ☐ ☐ ☐ ☐ ☐ ☐ ☐

A18.- Being an entrepreneur implies more advantages
than disadvantages to me ☐ ☐ ☐ ☐ ☐ ☐ ☐

A19.- I have a **very low** intention of ever starting a
business ☐ ☐ ☐ ☐ ☐ ☐ ☐

A20.- I know all about the practical details needed to
start a business ☐ ☐ ☐ ☐ ☐ ☐ ☐

C. Indicate your level of agreement with the following sentences about the **values society put
on entrepreneurship** from 1 (total disagreement) to 7 (total agreement).

1	2	3	4	5	6	7

C1.- My immediate family values entrepreneurial
activity above other activities and careers ☐ ☐ ☐ ☐ ☐ ☐ ☐

C2.- The culture in my country is highly favorable
towards entrepreneurial activity ☐ ☐ ☐ ☐ ☐ ☐ ☐

C3.- The entrepreneur's role in the economy is
generally **undervalued** in my country ☐ ☐ ☐ ☐ ☐ ☐ ☐

C4.- My friends value entrepreneurial activity above
other activities and careers ☐ ☐ ☐ ☐ ☐ ☐ ☐

C5.- Most people in my country consider it
unacceptable to be an entrepreneur ☐ ☐ ☐ ☐ ☐ ☐ ☐

C6.- In my country, entrepreneurial activity is
considered to be worthwhile, despite the risks ☐ ☐ ☐ ☐ ☐ ☐ ☐

C7.- My colleagues value entrepreneurial activity above
other activities and careers ☐ ☐ ☐ ☐ ☐ ☐ ☐

C8.- It is commonly thought in my country that
entrepreneurs **take advantage** of others ☐ ☐ ☐ ☐ ☐ ☐ ☐

Figure 1: Entrepreneurial intention model

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┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│                         ┌──────────────┐                          │
│                         │   Personal   │                          │
│                         │  Attraction  │                          │
│            ┌──────────┐ └──────────────┘                          │
│            │  Closer  │                    ┌──────────────┐        │
│            │ Valuation│                    │Entrepreneurial│       │
│            └──────────┘   ┌──────────────┐ │  Intention   │       │
│                           │  Subjective  │ └──────────────┘        │
│                           │    Norms     │                         │
│            ┌──────────┐   └──────────────┘                         │
│            │  Social  │                                            │
│            │ Valuation│   ┌─────────────────────┐                 │
│            └──────────┘   │Perceived Behavioural│                  │
│                          │       Control        │                 │
│                           └─────────────────────┘                 │
│                                                                   │
└─────────────────────────────────────────────────────────────────┘
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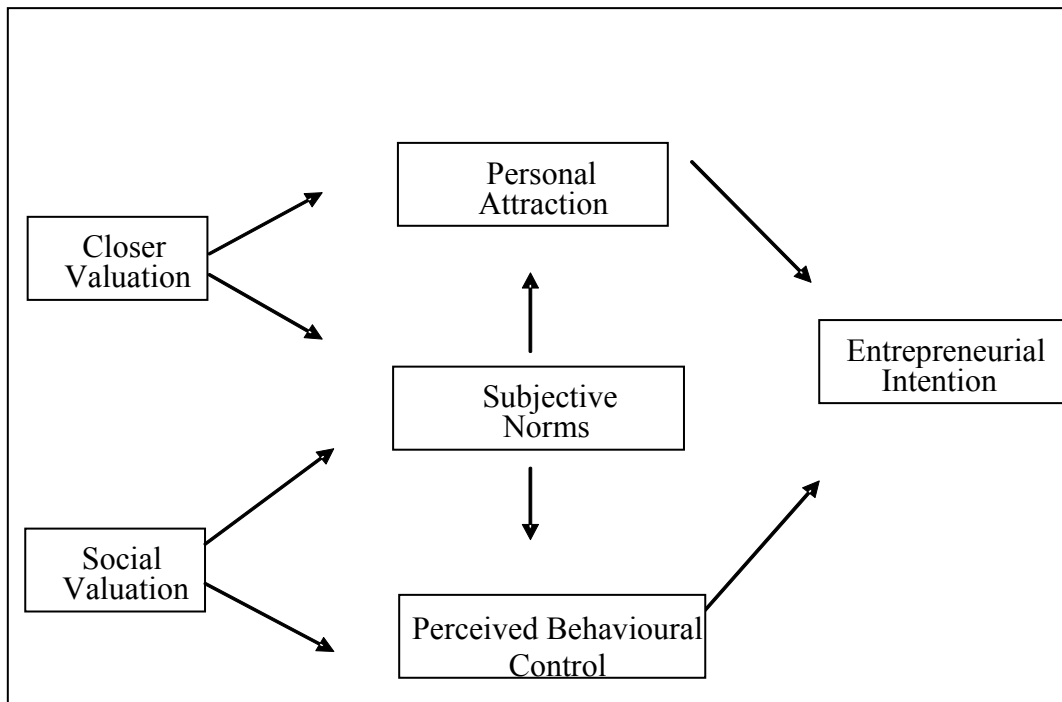
Figure 2: Structural models of entrepreneurial intention for the females sample (n=419) and the males sample (n=374) in the three regions
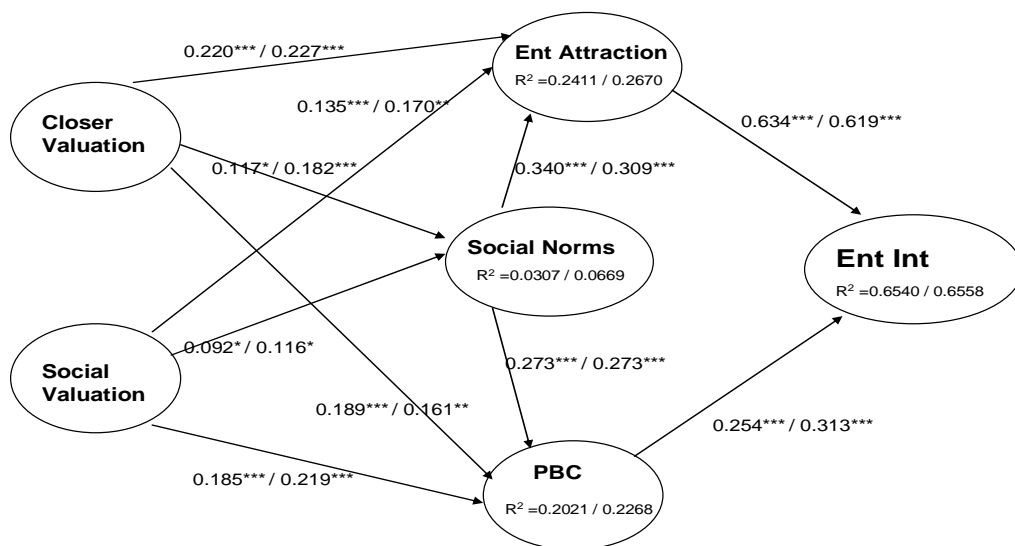
Females / Males

p<0,05 *, p<0,01**, p<0,001*** (based on t_{499} ,two tail test)

Figure 3. Structural models of entrepreneurial intention for the female samples in each of the three regions ($N_{Bed}=125$, $N_{Bcn}=169$, $N_{Svq}=125$).
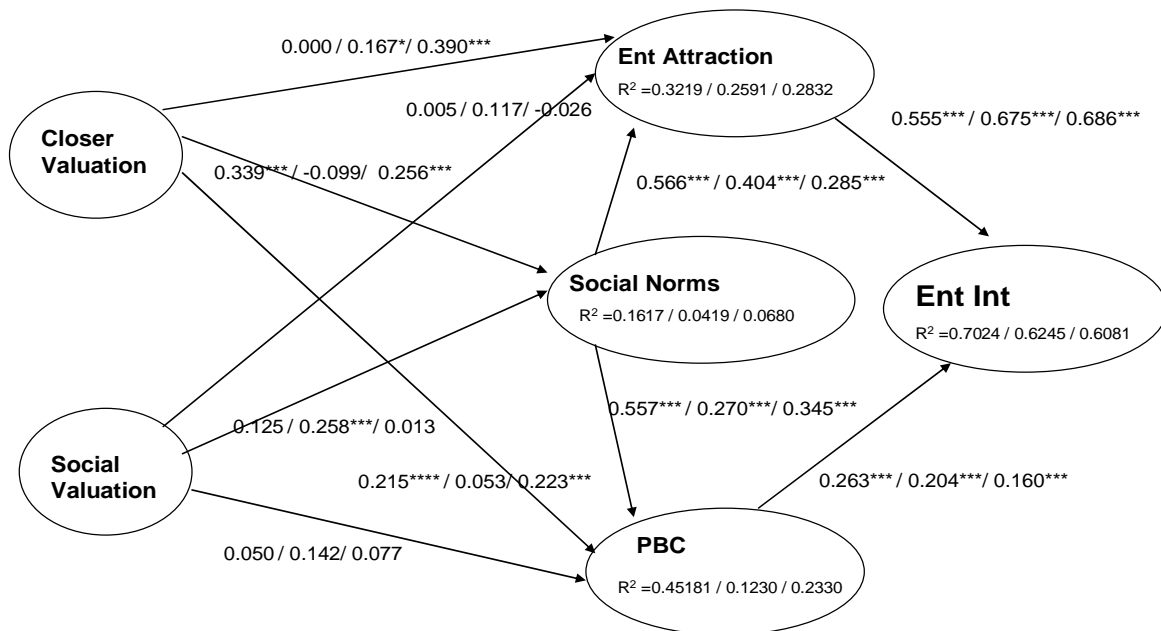

Bed/BCN/Sevilla

p<0,05 *, p<0,01**, p<0,001*** (based on t_{499} ,two tail test)

Figure 4. Structural models of entrepreneurial intention for the male samples in each of the three regions ($N_{Bed}=142$, $N_{Bcn}=120$, $N_{Svq}=112$).

Ent Attraction
R² =0.3534 / 0.3218 / 0.2324

0.043 / 0.156*/ 0.320***

0.265** / 0.222***/ 0.052

Closer Valuation

0.318**/ 0.174/ 0.162

0.596*** / 0.667***/ 0.589***

0.419*** / 0.412***/ 0.270**

Social Norms
R² =0.1845 / 0.0419 / 0.0586

Ent Int
R² =0.6842 / 0.6195 / 0.6192

0.156 / 0.089/ 0.128

Social Valuation

0.423*** / 0.431***/ 0.186*

0.178. / -0.041/ 0.172**

0.309*** / 0.286***/ 0.258***

0.153* / 0.098/ 0.240**

PBC
R² =0.3722 / 0.1998 / 0.1839
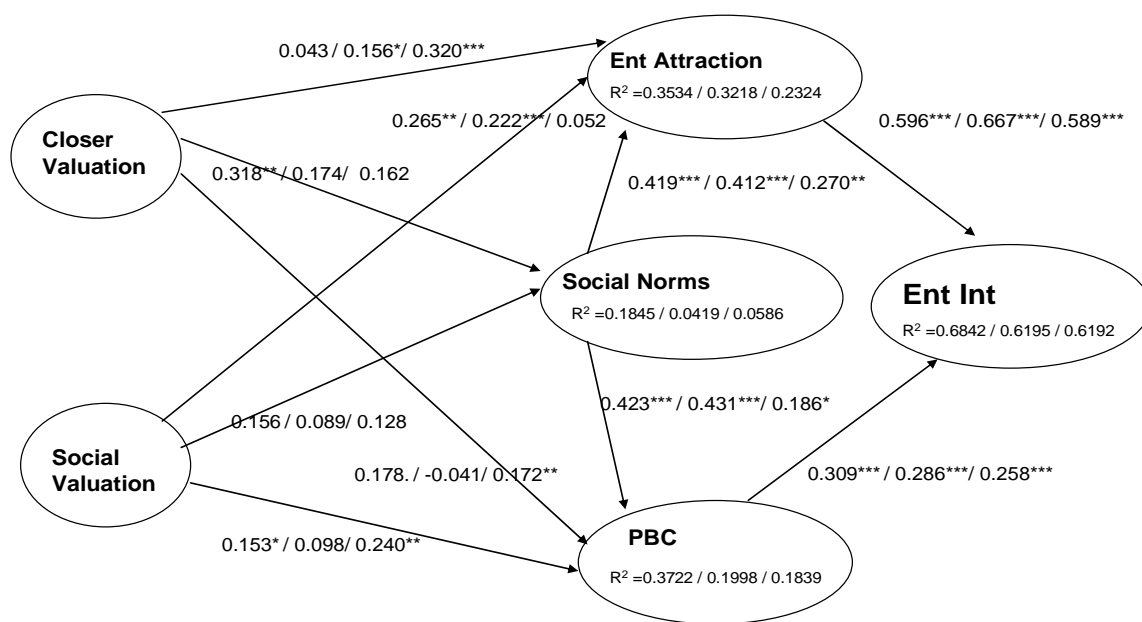
Bed/BCN/Sevilla

p<0,05 *, p<0,01**, p<0,001*** (based on t_{499} ,two tail test)

Table I. Descriptive characteristics of the different samples (%)

Description		Full sample	Bedfordshire	Barcelona	Seville
Gender	Male	52.8	53.2	41.5	47.3
	Female	47.2	46.8	58.5	52.7
Age	18-24	67.8	57.3	71.0	75.1
	25-30	22.7	31.1	19.3	17.7
	>31	5.8	11.6	3.3	2.4
	Total (number)	**816**	**267**	**300**	**249**

Table 2. Key economic indicators of the three regions

Indicator	Bedfordshire(1)	Barcelona(2)	Seville(3)
Income per capita 2006(GDP PPS per capita)	30600	29000	19100
Activity rate (2004)	70,9	71,5	64,6
Unemployment rate (2007)	4.7	6.5	12.8
Female unemployment rate (2007)	4.6	7.8	17.5
Male unemployment rate (2007)	4.8	5.6	9.5
Employment in high tech sectors 2007 (% of total employment)	8.35	3.41	2.28

(1) Data for Bedfordshire, Herthfordshire (2) Data for Catalonia (3) Data for Andalusia
Source: Eurostat, Regional Statistics NUTS 2.

Table 3. Females in the three regions: Individual item reliability, individual item loadings, construct reliability and convergent validity coefficients

Construct	Items	Loadings	Composite reliability	Average Variance Extracted (AVE)
Entrepreneurial intention	A04	0.7407	0.902	0.648
	A06	0.7790		
	A13	0.8890		
	A17	0.8184		
	A19-rev-	0.7889		
Entrepreneurial Attraction	A10	0.8444	0.862	0.677
	A15	0.8676		
	A18	0.7512		
Social Norms	A03	0.8384	0.886	0.721
	A08	0.7987		
	A11	0.9072		
Perceived Behavioral Control	A01	0.7434	0.838	0.565
	A07	0.8064		
	A14	0.8103		
	A20	0.6341		
Closer Valuation	C1	0.8043	0.855	0.663
	C4	0.7929		
	C7	0.8454		
Social Valuation	C2	0.8574	0.851	0.741
	C6	0.8644		

Table 4. Males in the three regions: Individual item reliability, individual item loadings, construct reliability and convergent validity coefficients

Construct	Items	Loadings	Composite reliability	Average Variance Extracted (AVE)
Entrepreneurial intention	A04	0.7424	0.906	0.660
	A06	0.7924		
	A13	0.8719		
	A17	0.8589		
	A19-rev-	0.7897		
Entrepreneurial Attraction	A10	0.8417	0.885	0.720
	A15	0.8707		
	A18	0.8322		
Social Norms	A03	0.7956	0.867	0.685
	A08	0.8071		
	A11	0.8785		
Perceived Behavioral Control (PBC)	A01	0.7727	0.840	0.569
	A07	0.7839		
	A14	0.7961		
	A20	0.6577		
Closer Valuation	C1	0.8031	0.858	0.667
	C4	0.8235		
	C7	0.8182		
Social Valuation	C2	0.8537	0.830	0.709
	C6	0.8307		

Table 5. Females in the three regions: Discriminant validity coefficients

	Ent. Intention	Ent. Attraction	Social Norms	PBC	Closer Valuation	Social Valuation

	Entrepren.	Ent. Attr.	Social Norms	PBC	Closer Val.	Social Val.
Entrepreneurial Intention	**0.804**					
Entrepreneurial Attraction	0.781	**0.822**				
Social Norms	0.338	0.392	**0.849**			
PBC	0.618	0.571	0.327	**0.751**		
Closer Valuation	0.298	0.326	0.154	0.305	**0.814**	
Social Valuation	0.252	0.269	0.138	0.298	0.399	**0.860**

Note: Diagonal elements (bold) are the square root of average variance extracted (AVE) between the constructs and their measures. Off-diagonal elements are correlations between constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements in the same row and column.

Table 6. Males in the three regions: Discriminant validity coefficients

	Ent. Intention	Ent. Attraction	Social Norms	PBC	Closer Valuation	Social Valuation
Entrepreneurial Intention	**0.812**					
Entrepreneurial Attraction	0.766	**0.848**				
Social Norms	0.318	0.397	**0.827**			
PBC	0.621	0.520	0.356	**0.754**		
Closer Valuation	0.435	0.381	0.237	0.329	**0.817**	
Social Valuation	0.333	0.340	0.203	0.350	0.473	**0.842**

Note: Diagonal elements (bold) are the square root of average variance extracted (AVE) between the constructs and their measures. Off-diagonal elements are correlations between constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements in the same row and column.

Table 7. ANOVA-test for female and male samples in the three regions

	G	N	Mean	Std. Dev.		SSq	df	MSq	F	Sig.
Ent. Int	M	359	4.6117	1.39407	Inter	62.079	1	62.079	30.870	.000
	F	406	4.0409	1.43900	Intra	1534.392	763	2.011		
					Total	1596.471	764			
Ent. Attr.	M	367	5.2598	1.28500	Inter	37.058	1	37.058	22.161	.000
	F	412	4.8228	1.30034	Intra	1299.301	777	1.672		
					Total	1336.360	778			
PBC	M	365	4.2658	1.09644	Inter	27.301	1	27.301	22.406	.000
	F	412	3.8902	1.11036	Intra	944.315	775	1.218		
					Total	971.616	776			
SN	M	363	5.2470	1.24693	Inter	.459	1	.459	.277	.599
	F	412	5.1982	1.32390	Intra	1283.219	773	1.660		
					Total	1283.678	774			
CV	M	373	4.2020	1.18269	Inter	7.832	1	7.832	5.582	.018
	F	416	4.0024	1.18615	Intra	1104.227	787	1.403		
					Total	1112.059	788			
SV	M	372	4.3911	1.22896	Inter	.183	1	.183	.120	.729
	F	416	4.3606	1.23738	Intra	1195.754	786	1.521		
					Total	1195.938	787			

Table 8. Variance explained (R^2) for the female and male structural models of the three regions (%)

Indicators	Bedfordshire		Barcelona		Seville	
	Females	Males	Females	Males	Females	Males
Ent. Intention	70.24	68.42	62.45	61.95	60.81	61.92
Ent. Attraction	32.19	35.34	25.91	32.18	28.32	23.24
Social Norms	16.17	18.45	4.19	4.19	6.80	5.86
PBC	45.18	37.22	12.30	19.98	23.30	18.39

Table 9. T-tests for multi-group analysis: Females from Barcelona and Bedfordshire samples

	Path-coefficient BCN	Path coefficient BED	Path coefficient Difference	Standard Error BCN	Standard Error BED	SP	t-value
Ent Attract-EntInt	0.6750	0.5550	0.1200	0.0592	0.0935	0.8939	ns
PBC-EntInt	0.2040	0.2630	-0.0590	0.0739	0.0794	0.9273	ns
SN-Ent Attract	0.4040	0.5660	-0.1620	0.0775	0.0747	0.9351	-2.4354*
SN-PBC	0.2700	0.5570	-0.2870	0.1006	0.0708	1.1145	-3.6199***
CV-Ent Attrac	0.1670	0.0000	0.1670	0.0880	0.0917	1.0915	2.1509*
CV-SN	-0.0990	0.3390	-0.4380	0.1045	0.0895	1.2155	-5.0657***
CV-PBC	0.0530	0.2150	-0.1620	0.1034	0.0773	1.1611	ns
SV-Ent Attrac	0.1170	0.0050	0.1120	0.0879	0.0824	1.0509	ns
SV-SN	0.2580	0.1250	0.1330	0.0965	0.1034	1.2096	ns
Sv-PBC	0.1420	0.0050	0.1370	0.1256	0.0708	1.3374	ns

***p <0.001, **p <0.01, *p <0.05, ns=not significant (based on $t_{(292)}$, two-tailed test)
t(0.001; 292)=3.32416; t(0.01; 292)=2.59277; t(0.05; 292)=1.96812

Table 10. T-tests for multi-group analysis: Males from Barcelona and Bedfordshire samples

	Path-coefficient BCN	Path-coefficient BED	Path coefficient difference	Standard Error BCN	Standard Error BED	SP	t-value

Ent. Attr.-Ent.Int.	0.6670	0.5690	0.0980	0.0600	0.0573	0.6687	2.0602*
PBC-Ent.Int.	0.2860	0.3090	-0.0230	0.0677	0.0722	0.8051	ns
SN-Ent. Attr.	0.4120	0.4190	-0.0070	0.0866	0.0184	0.6591	ns
SN-PBC	0.4310	0.4230	0.0080	0.0743	0.0855	0.9272	ns
CV-Ent. Attr.	0.1560	0.0430	0.1130	0.0840	0.1035	1.0970	ns
CV-SN	0.1740	0.3180	-0.1440	0.1094	0.1083	1.2445	ns
CV-PBC	-0.0410	0.1780	-0.2190	0.1192	0.1198	1.3680	-2.2505*
SV-Ent. Attr.	0.2220	0.2650	-0.0430	0.0799	0.1093	1.1230	ns
SV-SN	0.0890	0.1560	-0.0670	0.0858	0.1199	1.2248	ns
Sv-PBC	0.0980	0.1530	-0.0550	0.0968	0.0863	1.0392	ns

***p <0.001, **p <0.01, *p <0.05, ns=not significant (based on $t_{(260)}$, two-tailed test)
t(0.001; 260)=3.32834; t(0.01; 260)=2.59487; t(0.05; 260)=1.96913

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