

**Skill and value perceptions: how do they affect entrepreneurial intentions?**

Francisco Liñán

*Dept. Economía Aplicada I, University of Seville*

*Av. Ramon y Cajal, 1. E41008-Seville (Spain)*

Tel: +34.954554487

Fax: +34.954551636

flinan@us.es

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### **Abstract**

This paper starts from Ajzen's theory of planned behavior to test the role of different perceptions on the individual's intention to become an entrepreneur. Support has most often been found for this theory in the field of entrepreneurship. However, little is yet known about the way in which perceptions are formed. It may be argued that social values regarding entrepreneurship, and also personal skill perceptions, would both affect entrepreneurial intentions. Our objective, therefore, is testing the existence and reach of both effects. Empirical analysis has been carried out on a sample of 249 university students. Structural equations models have been used to test our hypotheses. Results generally confirm them, since values and skills do play a significant role in explaining intention. However, the role of perceived skills seems to be more relevant. Implications may be derived in several areas, and especially regarding entrepreneurship education.

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Keywords: entrepreneurship, entrepreneurial intention, cognitive models, self-perceptions, structural models

The consideration of entrepreneurship as the result of a cognitive process is widely shared today. Several researchers have pointed out that the decision to become an entrepreneur is a complex one, and it is the result of intricate mental processes. In this sense, the theory of planned behavior (Ajzen, 1991) has been frequently applied to explain this mental process leading to firm creation. In particular, authors such as Krueger (Krueger, Reilly & Carsrud, 2000; Krueger, 2007), Kolvereid (Kolvereid, 1996; Kolvereid & Isaksen, 2006) and Fayolle (Fayolle & Gailly, 2005; Fayolle & DeGeorge, 2006) have used this theory to explain the firm-creation decision. According to it, the intention to become an entrepreneur depends on individuals' personal attitude, their perceived control over the firm-creation behavior, and the perceived social pressure to become (or not) an entrepreneur.

However, there is still much to be said regarding the way in which those individual perceptions are formed. Some authors have argued that social values and beliefs regarding entrepreneurship will affect the motivational antecedents of intention (Davidsson & Honig, 2003; Liñán & Santos, 2007). In this sense, when the person's closer or broader environment is highly supportive of the entrepreneurial activity, it is plausible that he/she will feel more inclined towards this career option. Similarly, personal skills may also have an effect on entrepreneurial intention (Chen, Greene & Crick, 1998). There is an obvious connection between skills and perceived behavioral control. Thus, those individuals feeling they have a higher level of certain entrepreneurial skills will more probably feel they can create a firm. Besides, it might be argued that a high self-perception regarding entrepreneurial skills would also be associated with more favorable attitudes and subjective norms.

In this paper, therefore, our main objective is testing whether perceived social valuation of entrepreneurship and perceived personal skills have any significant impact on the entrepreneurial intention, either directly or through the motivational factors determining it. According to the theory, we should expect that valuation of entrepreneurship in the individual's closer environment would have its highest effect on personal attitude and subjective norms. That is, when the society around them is supportive of entrepreneurship, individuals would feel more inclined towards that option, and would feel their closer environment approves their decision to become entrepreneurs. On the other hand, entrepreneurial skills would have its main effect on perceived behavioral control (a concept quite close to self-efficacy), but may also affect attitudes and norms.

However, measurement of these cognitive constructs is somewhat problematic, as happens with most unobserved variables. At this stage of entrepreneurship research, there is no standardized or widely accepted instrument to measure entrepreneurial intentions. In most instances, researchers use their own *ad hoc* instruments. However, comparability of results is severely undermined in this situation. Some attempts are being made to develop a theory-based and statistically-robust questionnaire to measure entrepreneurial intentions. One of these attempts is that of Liñán and his collaborators (Liñán & Santos, 2007; Liñán & Chen, forthcoming), who have developed an Entrepreneurial Intention Questionnaire (EIQ) presenting satisfactory and interesting properties in measuring these cognitive constructs. In this sense, Liñán and Chen (forthcoming) carried out a statistical validation of this questionnaire. A subsequent version of the EIQ has been applied to different samples of last-year university students with good results (Liñán, Urbano & Guerrero, 2007).

This research design has been tested using data from a sample of 249 university students. They are in the last year of their business or economics studies. University of Seville is one of the largest universities in Spain, located in Andalusia (one of the most backward regions in the country, with GDP per capita below 80% of the Spanish average). Despite some recent improvements, indicators of entrepreneurial activity in Andalusia are still weak. It is especially important, therefore, to understand why so relatively few individuals in the region intend to become entrepreneurs. We hope our results will help in this sense.

Results from this research may also have very important consequences for entrepreneurship education. If it is confirmed that perceived valuation and skills do have significant effects over entrepreneurial intention and the variables determining it, education initiatives should take this into consideration. Firstly, there would be a strong reason to promote a more positive valuation of entrepreneurship in the society. Awareness courses at all levels of the educational system would be justified. Secondly, business-plan courses may not be enough. They may be useful to help already-decided individuals to start their firm. But, if we want more individuals intending to become entrepreneurs, they should be complemented with workshops to develop entrepreneurial skills.

The organization of this paper is as follows. After this introduction, next section presents the theoretical framework and the hypotheses to be tested. Section three explains the methodological design for the empirical analysis. Section four offers the main results. Finally, section five includes some conclusions and discussion of the results.

## **Theory and Hypotheses**

The entrepreneurial intention has been considered as the key element to understand the new-firm creation process (Bird, 1988). In this sense, entrepreneurial research has been conducted following two main lines: the personal characteristics or traits of the entrepreneur; and the influence of contextual factors in entrepreneurship (Robinson, Stimpson, Huefner & Hunt, 1991). From this last institutional approach, some entrepreneurial models with a cognitive basis emerged to explain this phenomenon: the Entrepreneurial Event Theory (Shapero & Sokol, 1982) and the Theory of Planned Behavior (Ajzen 1991) appeared as the main theory-driver models. They have been widely adopted by entrepreneurial intention research to analyze new venture creation.

Shapero's model focuses on the phenomenon of the entrepreneurial event, which is affected by perceptions of desirability (individual value system and social system that the individual is part of) and feasibility (financial support and would-be partners). These perceptions are the product of cultural and social environments and they determine personal choice (Shapero and Sokol 1982). This model was used or adapted empirically by Krueger et al. (2000), Peterman and Kennedy (2003) and others. On the other hand, Ajzen's model explains and predicts how the cultural and social environment affects human behavior. It is based on the individual's intention, which is the result of three determinants (Ajzen 1991): the attitude towards the behavior (personal evaluation), the subjective norms (social pressures) and perceived behavioral control (ability to perform the behavior). Much research has found empirical support for this theory in the area of entrepreneurship (Kolvereid, 1996; Tkachev & Kolvereid, 1999; Krueger et al., 2000; Liñán, 2004; Fayolle & Gailly, 2005; Veciana, Aponte & Urbano, 2005).

From this point of view, studies reveal that both models overlap in two elements: Shapero's construct of perceived venture desirability is equivalent to Ajzen's determinants of attitude towards the behavior (personal attraction) and subjective norms; and perceived venture feasibility proposed by Shapero is similar to Ajzen's perceived behavioral control (Krueger & Brazeal, 1994) or to the idea of perceived self efficacy (Bandura, 1997). For this reason and based on this terminology, Krueger and Brazeal (1994) constructed the Entrepreneurial Potential Model that has been used in diverse research elsewhere (Crant, 1996; Walstad & Kourilsky, 1998; Veciana et al., 2005; Guerrero, Rialp & Urbano, 2007). Nevertheless, both approaches have been widely used to study entrepreneurship, and some studies have tried to compare their relative explanatory capacity (Krueger et al. 2000). Results have always been consistent with the applicability of the theory of planned behavior. Nevertheless, some conflicts have arisen by differences in measures used, as there are not standard measurement instruments for entrepreneurial intention and its antecedents (Armitage & Conner, 2001; Liñán & Chen, forthcoming).

Exogenous or demographic variables, on the other hand, operate indirectly on intentions, only if they change the decision-maker's attitudes (Krueger, 2000). Therefore, it is not strange that some of these models did not include demographic variables (Krueger et al. 2000). Additionally, those models do not cover some combinations of environmental factors that play a role in entrepreneurship, such as legal, institutional and socioeconomic conditions, entrepreneurial and business skills, financial or non financial assistance, and other elements which depend on the country (Gnyawali & Fogel, 1994; Davidsson & Henkson, 2002).

In this context, an Entrepreneurial Intentional Model is developed to understand the influence of social and skills perceptions in determining entrepreneurial

intentions. Based on the planned behavior approach, it could be argued that individuals take their decision to create a new enterprise based on three motivational factors: his personal preference or attraction towards entrepreneurship, his perceived behavioral control, and the perceived subjective norms (Liñán 2004).

Personal attraction or attitude towards the behavior refers to the attractiveness of the proposed behavior or degree to which the individual holds a positive or negative personal valuation about being an entrepreneur (Ajzen 1991, 2002; Kolvereid 1996). In this sense, personal attraction is an important element concerning the perception of desirability that affects entrepreneurial intention. The second motivational factor is perceived behavioral control or self efficacy; that is, the perceived easiness or difficulty of becoming an entrepreneur (Ajzen 1991). The importance of this variable in the new-firm creation process resides in its predictive capacity, as it reflects the perception that the individual will be able to control that behavior (Ajzen, 2002). In this line, this element could be influenced by different processes, such as enactive mastery, role modeling, social persuasion, and judgments (Bandura 1997). Several researchers have used different constructs to measure it, such as Boyd and Vozikis (1994) and Zhao et al. (2005).

On the other hand, subjective norms measure the perceived social pressure from family, friends or significant others (Ajzen 1991) to perform the entrepreneurial behavior. It refers to the perception that “reference people” would, or would not, approve of the decision to become an entrepreneur (Ajzen, 2001). In general, this type of norms tend to contribute more weakly on intention (Armitage & Conner, 2001) for individuals with strong internal locus of control (Ajzen 2002) than for those with a strong action orientation (Bagozzi, 1992). In the entrepreneurship literature, several studies found no significant direct relationship between



subjective norms and entrepreneurial intention. Social capital literature finds evidence indicating that these elements favorably affect personal attraction and self efficacy (Scherer, Brodzinsky & Wiebe, 1991; Cooper, 1993; Matthews & Moser, 1996; Kennedy, Drennan, Renfrow & Watson, 2003; Liñán & Santos, 2007). Therefore, our first set of hypotheses is that the following four relationships hold.

H1a. Personal attraction has a positive impact on entrepreneurial intentions.

H1b. Perceived behavioral control has a positive impact on entrepreneurial intentions.

H1c. Subjective norm has a positive impact on personal attraction.

H1d. Subjective norm has a positive impact on perceived behavioral control.

The environmental or institutional factors reflect the social dynamics of entrepreneurship, where the level of entrepreneurial activity within a community is an unintended consequence of many individual choices with respect to entrepreneurship (Bygrave & Minniti, 2000). These choices, however, could be derived from social models that impact on the individual's entrepreneurial intention (Hmieleski & Corbett, 2006). Those models, in turn, would be the consequence of values or valuations of entrepreneurial activity in the society the individual belongs to, which play a very relevant role in the configuration of personal attitudes and intentions towards entrepreneurship. Similarly, North's (1990, 2005) informal institutions -in the context of institutional economic theory- refer to environmental factors such as the culture of a society (codes of behavior, attitudes, values, norms of conduct, and conventions).

In this line, individuals receive the influence from their closer environment valuations which, according to social capital literature, could be related to the closer links with family or friends. They could exert their influence directly on perceived desirability as a consequence of the cognitive values and beliefs conforming individual's perceptions towards a career (Uphoff, 2000; Grootaert & Bastelaer, 2001). Kennedy et al. (2003) found that expectations from family, friends and significant others are key variables influencing student's responses. According to them, closer environment expectations were related to personal attraction, subjective norms and gender. Perceived behavioral control would not be important at this stage. Thus, our second set of hypotheses is the following:

H2a. Closer valuation has a positive impact on personal attraction.

H2b. Closer valuation has a positive impact on subjective norms.

On the other hand, when Social Valuations are considered, culture takes a critical role in determining entrepreneurial behavior (Zahra, Jennings & Kuratko, 1999). Since culture reinforces certain personal characteristics and penalizes others (Thomas & Muller, 2000), the underlying system of values peculiar to a specific group or society would shape the development of certain personality traits and capacities, modeling normative and ability perceptions towards the entrepreneurial activity. For example, Takyiasiedu (1993) found that some socio-cultural factors hindered the entrepreneurial activity in Africa. Therefore, our hypotheses regarding social valuation of entrepreneurship are two:

H3a. Social valuation has a positive impact on subjective norms.

H3b. Social valuation has a positive impact on perceived behavioral control.

Entrepreneurial skills perceptions indicate how confident respondents are in their possession of a high-enough level of certain skills related to entrepreneurship. The specific skills considered in our study have been taken from the literature (Boyd & Vozikis, 1994; Chen et al., 1998; Denoble, Jung & Ehrlich, 1999; Delmar & Davidsson, 2000). Possessing these skills could make individuals feel more able to start a firm (DeNoble et al. 1999). Similarly, these specifically entrepreneurial skills could more easily be exercised as an entrepreneur. Thus, they could be associated with higher personal attraction and subjective norms (Scherer et al., 1991; Carsrud, 1992; Boyd & Vozikis, 1994). In this sense, three additional hypotheses can be derived here:

H4a. Entrepreneurial skills have a positive impact on personal attraction.

H4b. Entrepreneurial skills have a positive impact on subjective norms.

H4c. Entrepreneurial skills have a positive impact on perceived behavioral control.

Finally, cultural variables -as perceived by the individual- could probably affect self-perceptions regarding entrepreneurial skills (Davidsson, 1995; Mazzarol, Volery, Doss & Thein, 1999; Delmar & Davidsson, 2000; Thomas & Muller, 2000; Kennedy et al., 2003). Therefore, our fifth set of hypotheses reflects these relationships:

H5a. Closer valuation has a positive impact on entrepreneurial skills.

H5b. Social valuation has a positive impact on entrepreneurial skills.

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Insert Figure 1 around here  
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In summary, the elements and relationships integrating the Entrepreneurial Intention Model proposed in this paper are presented in Figure 1.

### **Methodology**

The empirical analysis has been carried out on a sample of last-year university students. This is a convenience sample very often used in entrepreneurship research (Fayolle and Gailly 2005; Kolvereid 1996; Krueger et al. 2000; Tkachev and Kolvereid 1999; Veciana et al. 2005). In particular, recent research has found that young university graduates (25-34 years) show the highest propensity towards starting up a firm (Reynolds, Bygrave, Autio & Hay, 2002).

University of Seville is the largest university in the region of Andalusia, and the third biggest in Spain, with some 60.000 students. The data for this research was obtained from a total population of 702 university students in the last year of their business and economics degrees, during academic year 2006-2007. The sample includes 249 university students with a sample error of  $\pm 4.99\%$  at a 95% confidence level ( $Z=1.96$ ,  $p=q=0.5$ ). Questionnaires were administered to last-year students during a class session, with previous authorization from the lecturer/professor. Fieldwork was carried out in October and November 2006.

The Entrepreneurial Intention Questionnaire (EIQ) used for this study is a modified version of the one used by Liñán and Chen (forthcoming). The relevant items are included in the appendix. In their study, those authors recognized some

possible problems with the EIQ, such as acquiescence bias. For this reason, a modified version was used, in which items measuring key constructs were randomly ordered, some reversed items were also included. Thus, items A1 to A20 measure the four central constructs of the theory of planned behavior: Entrepreneurial Intention (A4, A6, A9–reversed-, A13, A17 and A19–rev-), Personal Attraction (A2–rev-, A10, A12–rev-, A15 and A18), Perceived Behavioral Control (A1, A5–rev-, A7, A14, A16–rev-, A20), and Subjective Norms (A3, A8, A11).

On the other hand, social values regarding entrepreneurship were measure through eight items (C1-C8). Three of these items measure the valuation of entrepreneurship in the closer environment of the respondent (C1, C4, and C7); we have called this construct Closer Valuation. The remaining items measure perceptions regarding general Social Valuation of entrepreneurship (C2, C3–rev-, C5–rev, C6, C8–rev-). Finally, Entrepreneurial Skills were measured through a six-item scale (items D1-D6), partially based on DeNoble et al. (1999).

Factor analyses have been carried out with SPSS 14 software package, while the structural analysis has been performed using Partial Least Squares, with PLSGraph 3.0 Build 1126 as the software package (Chin & Frye, 2003). Partial least squares is a structural equations technique that has been satisfactorily applied in entrepreneurship before (Santos & Liñán, 2007).

## **Results**

Before carrying out the corresponding factor analyses, the Mahalanobis distance was calculated to identify anomalous cases. Additionally, those questionnaires with missing data in the relevant items (questions A, C and D) were also

eliminated. Overall, 23 cases were left out, representing 9.2% of the sample. A final sample of 226 valid questionnaires was used in the empirical analysis.

An initial factor analysis was performed on items A1 to A20. Three items loaded on the wrong factor, so they were eliminated (A5Rev, A9Rev and A19Rev). A second factor analysis was performed with results shown in Table 1. All items loaded in the expected factor. However, items A18 and A20 had loadings below the 0.40 threshold. We decided to leave these two items out for the structural equation system.

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Insert Table 1 around here  
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A second factor analysis was performed on items C1 to C8. Results were not easy to interpret. After a careful check, item C8 (reversed) presented a very small communality, so it was eliminated. A second factor analysis was performed on the remaining seven items, with results shown in Table 2. As it may be seen, two factors emerged. The first one corresponds to the Closer Valuation concept developed in the theory section. The second factor corresponds to the Social Valuation of entrepreneurship in the respondent's society.

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Insert Table 2 around here  
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A third factor analysis was performed on the six different entrepreneurial skills included in question D. Only one single factor was extracted, with the six items loading on it above the 0.40 threshold. Therefore, all six entrepreneurial-skill items were included as a single construct in the structural analysis.

With these results, the Entrepreneurial Intention Model presented in Figure 1 can be tested through a structural equation model.

Constructs were defined as the results from the above-mentioned factor analyses would suggest. However, the Partial Least Squares (PLS) technique used provides information not only about the structural model, but also about the measurement model. Indicators with loadings above 0.7 are usually acceptable, but those above 0.6 could also be retained in newly developed measures (Roldán & Leal, 2003). Following this criterion, items A2Rev and A16Rev were removed from the perceived behavioral control construct. Similarly, items C3Rev and C5Rev were removed from the social valuation construct.

The final result from the partial least squares analysis is presented in Figure 2, whereas reliability statistics for each construct are offered in Table 3. The composite reliability index is similar to the widely used Cronbach's alpha, and the 0.7 threshold is also used here (Roldán & Leal, 2003). As shown in the table, all constructs score well above that level. Average variance extracted (AVE) measures the fraction of the construct variance explained by its indicators, and it is used as an indicator of convergent validity. A level above 0.5 is usually considered acceptable. This criterion is met by all the constructs used in the analysis.

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Insert Table 3 around here

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As may be seen in Figure 2, the four hypotheses labeled as H1 were confirmed in our empirical analysis. This serves to corroborate the applicability of the planned behavior approach to entrepreneurship. Similar to previous research, more than half the variance in entrepreneurial intention (59.2%) is explained by personal attraction and perceived behavioral control (Liñán and Chen forthcoming; Liñán and Santos 2007). This model also explains a substantial proportion of the variance in personal attraction and perceived behavioral control (30.8% and 38.0%, respectively).

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Insert Figure 2 around here

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On the other hand, hypotheses H2 were only partially supported. H2a was significant, whereas H2b was not. Additionally, a non-hypothesized significant direct relationship was found between closer valuation and entrepreneurial intention. That is, closer valuation positively affects personal attraction towards entrepreneurship and, besides, has an independent direct effect on intention. However, subjective norms are not directly affected by the valuation of entrepreneurship in the individual's closer environment.

With respect to hypotheses H3 about the influence of social valuation, they were both rejected. This may be partially due to problems with the indicators included in this scale. In effect, only two (C2 and C6) of the five original items were finally



included in the social valuation construct for the structural equation system. The other three had to be eliminated (C3Rev, C5Rev and C8).

Hypotheses H4 were fully supported, as entrepreneurial skills were significant predictors of the three motivational antecedents of intention (personal attraction, subjective norms and perceived behavioral control). It is confirmed, therefore, that perceived self-skills significantly affect the antecedents of entrepreneurial intention.

Finally, hypotheses H5 were also fully confirmed. The valuation of entrepreneurship both in the closer environment and in the society at large does have an influence on perceived entrepreneurial skills.

## **Discussion**

This paper has tried to test the possible influence of social and skills perceptions on the motivational factors determining entrepreneurial intention. In this sense, results obtained have been relatively satisfactory. Entrepreneurial skills perceptions do have a very significant effect over the three motivational constructs considered (personal attraction, subjective norms and perceived behavioral control). As expected, the strongest effect is over the third construct. Given the relationship between perceived behavioral control (PBC) and self-efficacy, it is not surprising that self-perceived entrepreneurial skills are closely linked to this variable. It should be noted that entrepreneurial skills are measured through a list of very specific abilities. In contrast, PBC has been measured as an aggregate sense of capacity or control. Therefore, the perception that those abilities are possessed reinforces the impression that starting a firm is feasible.

If we also take into account the strong effect it has over personal attraction and subjective norms, it seems evident that a high level of these skills could help a lot in the individual's decision to start a firm. Therefore, one immediate consequence for entrepreneurship education could be derived. Education and training initiatives trying to increase entrepreneurial potential in the participants should include workshops specifically addressed to the development of those entrepreneurial skills. Possessing them would be very useful in itself, as they could help in the effective operation of the firm (once it has been established). Besides, they would also contribute to increase entrepreneurial intention (through its antecedents) and, therefore, reinforce the possibility that the firm is actually started.

Regarding value perceptions, a first result emerges. Both closer and social valuation of entrepreneurship has a positive effect over perceived entrepreneurial skills. This finding may be also important for entrepreneurship policy in general, and specifically for education. Entrepreneurship education could be a very relevant instrument to promote a more positive entrepreneurial culture in the society. This will contribute to a greater social legitimation of the entrepreneur (European Commission., 2004). According to our results, it will also contribute to people feeling they have higher entrepreneurial skills and, through this effect, higher start-up intention.

The direct influence of value perceptions over the motivational antecedents of intention, however, is more limited. These two sets of hypotheses (H2 and H3) have been totally or partially rejected. H2 refers to the influence of closer valuation, which is significant over personal attraction (H2a). This closer environment is made up of family members, friends and colleagues. Therefore, it has a clear affective element. When these people value entrepreneurship positively, the individual shows a higher desire to become an entrepreneur. But

there is no significant effect over subjective norms. That is, a higher closer valuation of entrepreneurship does not imply a more positive “social pressure” to start a firm.

Besides, there is a direct effect over intention. This would be indicating that, independently from the motivational antecedents, a more favorable closer valuation leads to higher entrepreneurial intention. This could be interpreted as leading to ‘entrepreneurial families’. That is, those with an entrepreneurial background would value this option more highly, increasing the likelihood that other family members or close friends intend to start a firm.

Finally, social valuation has no effect over motivational antecedents in our empirical analysis, despite some previous indications in the literature (Zahra et al. 1999; Thomas and Muller 2000; Liñán et al. 2007). This may possibly be due to some limitations with the items comprising this scale, as will be explained below. Until new research is developed to solve this limitation, we can tentatively interpret our results as indicating the mechanism through which social valuation affects intentions. In this sense, it may be argued that a more positive social valuation makes the individual feel as possessing higher entrepreneurial skills. And this, in turn, increases the level of the three motivational antecedents (personal attraction, subjective norm and perceived behavioral control) of intention.

With respect to the region selected for the empirical analysis, and according to these results, it might be said that the relatively low level of entrepreneurial activity in Andalusia could be partially explained by two factors. Firstly, entrepreneurship would not be highly valued as a career option, leading to low closer valuation. Secondly, entrepreneurial skills are not sufficiently developed

among the local population, leading to negative motivational elements towards entrepreneurship (especially self-efficacy or behavioral control).

### Limitations

Careful analysis of the questionnaire items should be performed, as some problems with their wording may have occurred. More generally, reversed items have tended to be eliminated from the analysis. Therefore, though they may have been useful to avoid acquiescence problems, they may present some other weaknesses. In particular, social valuation seems to present additional difficulties that have to be solved. Revision of the questionnaire is clearly needed in this respect.

A second limitation derives from the characteristics of the sample selected. New research should be performed on a sample extracted from the general adult population. In particular, potential or nascent entrepreneurs should be analyzed to confirm these results.

### Conclusions

The main conclusion drawn from this study relates to a better understanding of the mechanisms through which motivational perceptions are formed, which in turn determine intention. Perceived entrepreneurial skills explain a substantial fraction of the variance in these motivational perceptions. Besides, they also play a mediating role. That is, the influence of values and beliefs shared among members

of the society, or even among close contacts and family members, would be exerted -at least partly- through their effect on perceived entrepreneurial skills.

There is a strong case, therefore, for developing skills such as opportunity recognition, creativity, problem solving, leadership and communication, innovation and networking. They are needed for successful entrepreneurship, but not only for that career option. Therefore, the inclusion of specific contents in the education system would be an obvious policy action to be taken. For the particular case of entrepreneurship education, these contents would be a very important complement to the more widespread business-plan course.

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**Appendix: Questionnaire items<sup>1</sup>**

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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A02.- A career as an entrepreneur is totally <b>unattractive</b> to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A03.- My friends would approve of my decision to start a business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A04.- I am ready to do anything to be an entrepreneur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A05.- I believe I would be completely <b>unable</b> to start a business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A06.- I will make every effort to start and run my own business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A07.- I am able to control the creation process of a new business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A08.- My immediate family would approve of my decision to start a business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A09.- I have <b>serious doubts</b> about ever starting my own business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

<sup>1</sup> Original in Spanish

- 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 the 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

D. How do you rate yourself on the following **entrepreneurial abilities/skill**

**sets**? Indicate from 1 (no aptitude at all) to 7 (very high aptitude).

1	2	3	4	5	6	7
---	---	---	---	---	---	---

- D1.- Recognition of opportunity
- D2.- Creativity
- D3.- Problem solving skills
- D4.- Leadership and communication skills
- D5.- Development of new products and  
services
- D6.- Networking skills, and making  
professional contacts



FIGURE 1

Entrepreneurial Intention Model with hypotheses.

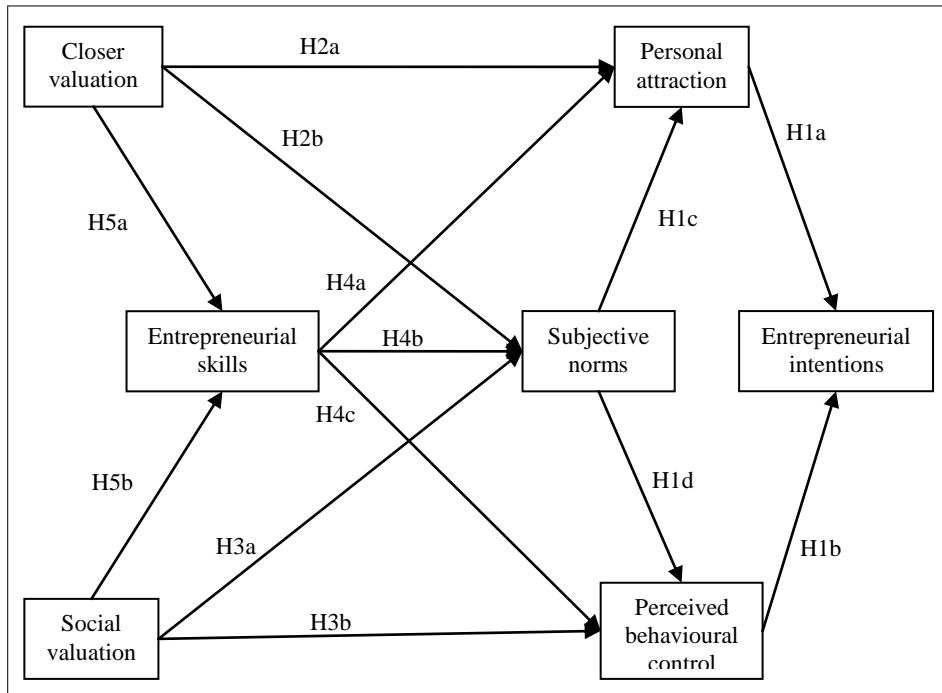
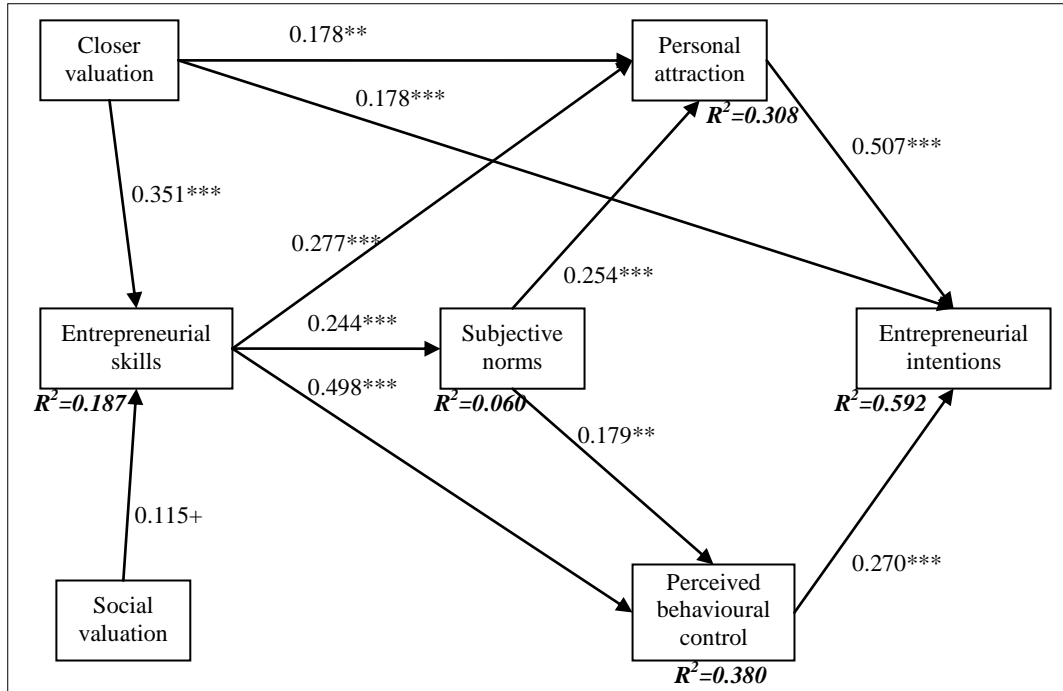


FIGURE 2

Structural equation system results



+  $p < 0.1$

\*  $p < 0.05$

\*\*  $p < 0.01$

\*\*\*  $p < 0.001$

TABLE 1

Factor analysis entrepreneurial intention (rotated factor matrix)

	Factor			
	1	2	3	4
a01			.697	
a2Rev	.503			
a03		.920		
a04				.500
a06				.653
a07			.417	
a08		.571		
a10	.625			
a11		.882		
a12Rev	.669			
a13				.612
a14			.495	
a15	.720			
a16Rev			.595	
a17				.567
a18				
a20				

Note: Extraction method: principal axis factorization. Rotation method: Oblimin Normalization with Kaiser. Rotation converged after 17 iterations. Loadings below 0.40 not shown.

TABLE 2

Factor analysis social variables (rotated factor matrix)

	Factor	
	1	2
c1	.416	
c2		.431
c3Rev		.587
c4	.732	
c5Rev		.647
c6		.422
c7	.911	

Note: Extraction method: principal axis factorization. Rotation method: Oblimin

Normalization with Kaiser. Rotation converged after 17 iterations.

Loadings below 0.40 not shown.

TABLE 3

## Reliability statistics

Construct	Item	Loading	Composite Reliability	AVE <sup>a</sup>
Entrepreneurial Intention	a04	0.7185	0.891	0.673
	a06	0.8005		
	a13	0.8785		
	a17	0.8733		
Personal Attraction	a12Rev	0.7797	0.889	0.728
	a10	0.8772		
	a15	0.8989		
Perc. Beh. Control	a01	0.8096	0.839	0.635
	a07	0.7406		
	a14	0.8376		
Subjective Norms	a03	0.8600	0.899	0.748
	a08	0.8161		
	a11	0.9155		
Closer Valuation	C1	0.6942	0.842	0.641
	C4	0.8536		
	C7	0.8448		
Social Valuation	C2	0.8602	0.853	0.744
	C6	0.8652		
Entrepreneurial Skills	d1	0.7440	0.858	0.503
	d2	0.7071		
	d3	0.6295		

	d4	0.7291		
	d5	0.7383		
	d6	0.7009		

<sup>a</sup> Average Variance Extracted.