Universitat Autònoma de Barcelona

Documents de Treball

TESTING THE ENTREPRENEURIAL INTENTION MODEL ON A TWO-COUNTRY SAMPLE

Francisco Liñán

Yi-Wen Chen

Departament d'Economia de l'Empresa

Coordinador / Coordinator *Documents de treball:*

David Urbano
http://selene.uab.es/dep-economia-empresa/recerca/Documents.htm
e-mail: david.urbano@uab.es
Telèfon / Phone: +34 93 5814298
Fax: +34 93 5812555

Edita / Publisher*:*

Departament d'Economia de l'Empresa
http://selene.uab.es/dep-economia-empresa/
Universitat Autònoma de Barcelona
Facultat de Ciències Econòmiques i Empresarials
Edifici B
08193 Bellaterra (Cerdanyola del Vallès), Spain
Tel. 93 5811209
Fax 93 5812555

TESTING THE ENTREPRENEURIAL
INTENTION MODEL
ON A TWO-COUNTRY SAMPLE

Francisco Liñán

Yi-Wen Chen

Testing the Entrepreneurial Intention Model on a Two-Country Sample

Francisco Liñán
Dept. Economia Aplicada I,
University of Seville
Av. Ramon y Cajal, 1. E41018 - Seville (Spain)
Tel.: +34.954554487. Fax: +34.954551636. flinan@us.es

Yi-Wen Chen
Graduate Institute of Technology & Innovation Management,
National Chengchi University
Tel.: +886-2-2939-3091 ext. 65750. g1359508@nccu.edu.tw

Abstract

This paper tests the Entrepreneurial Intention Model -which is adapted from the Theory of Planned Behavior- on a sample of 533 individuals from two quite different countries: one of them European (Spain) and the other South Asian (Taiwan). A newly developed Entrepreneurial Intention Questionnaire (EIQ) has being used which tries to overcome some of the limitations of previous instruments. Structural equations techniques were used in the empirical analysis. Results are generally satisfactory, indicating that the model is probably adequate for studying entrepreneurship. Support for the model was found not only in the combined sample, but also in each of the national ones. However, some differences arose that may indicate demographic variables contribute differently to the formation of perceptions in each culture.

1. INTRODUCTION

There is a growing body of literature arguing that intentions play a very relevant role in the decision to start a new firm. The importance of cognitive variables in understanding this personal decision has been highlighted by Baron (2004) or Shaver & Scott (1991), among other researchers. In their view, this cognitive focus provides additional insights into the complex process of entrepreneurship, over and above those offered by others. «Given the impressive success of a cognitive approach in other fields (e.g., psychology, education), there are grounds for predicting that it may also yield positive results when applied to the field of entrepreneurship» (Baron, 2004: 237).

This study follows the cognitive approach, through the application of an Entrepreneurial Intention model. A number of works are being published lately about this issue. However, a lot of research is still needed to better comprehend which the factors affecting entrepreneurial perceptions (and, through them, intention) are. In particular, our knowledge is specially limited in two specific areas. Firstly, cross-cultural studies are needed so that the effect of different cultures and values on the entrepreneurial intention is increasingly understood. Nevertheless, for different research to be comparable, measurement instruments has to be standardized. Therefore, there is also a need to develop more adequate, reliable and valid instruments to analyze the entrepreneurial perceptions and intention.

The main purpose of this paper is clearly in line with those needs. In the first place, we try to test the adequacy of the Entrepreneurial Intention model in a two-country sample. And, secondly, we also try to assess the adequacy of a newly-developed instrument -the Entrepreneurial Intention Questionnaire, EIQ- in different cultural settings.

These results will hopefully shed some light on a number of issues. It will serve as a confirmation of the applicability of this cognitive model to the entrepreneurial decision. In this case, our sample comes from two countries with very different cultural and social structure. Thus, the robustness of this model on different settings will be tested. It will also contribute to clarify the specific pattern of relationships among the antecedents of intention. Finally, relevant implications for educators and policy-makers could be derived.

Regarding the pattern of relationships in the model, one important concern is the traditionally weak role of subjective social norms in the theory of planned behavior in general, and in the entrepreneurial intention model in particular. In this latter case, some studies have simply omitted social norms (Veciana et al., 2005), while others found them to be non-significant (Krueger et al., 2000; Fayolle and Gailly, 2004; Liñán, 2005). The existence of interactions and indirect effects of social norms on intention could be explaining these results. Thus, in this paper, structural equations are used, so that a clearer understanding of those effects may be gained.

Therefore, since a preliminary test on construct validity and psychometric properties of the EIQ has already been carried out (Liñán, 2005), we will center the analysis here on testing the model through a structural equation design. The organization of the paper is as follows. After this introduction, section two reviews previous contributions and presents the theoretical entrepreneurial intention model adopted. The third section briefly describes how the questionnaire was developed, and its psychometric properties. Section four presents the results for the structural model. Finally, a discussion is included in section five. The paper ends with a brief conclusion.

2. ENTREPRENEURIAL INTENTION MODEL

Methodologies used so far to study the entrepreneur have been changing along the years (Santos and Liñán, forthcoming). Traits and demographic variables differentiating entrepreneurs from non entrepreneurs were initially looked for (Gartner, 1985, 1989; Robinson et al., 1991). Both lines of analysis have allowed the identification of significant relationships among certain traits or demographic characteristics of the individual, and the fulfillment of entrepreneurial behaviors. However, their predictive capacity has been very limited (Reynolds, 1997). On the theoretical side, many authors have criticized those approaches (Gartner, 1989; Robinson et al., 1991; Baron, 1998; Veciana et al., 2005), so much for their methodological and conceptual limitations as for their low explanatory capacity.

From a third perspective, since the decision to become an entrepreneur may be plausibly considered as voluntary and conscious (Krueger et al., 2000), it seems reasonable to analyze how that decision is taken. Entrepreneurship may be viewed as a process that occurs over time (Gartner et al, 1994; Kyrö and Carrier, 2005). In this sense, entrepreneurial intentions would be the first step in the evolving and – sometimes- long-term process of venture creation (Lee and Wong, 2004). The intention to start up, then, would be a previous and determinant element towards performing entrepreneurial behaviors (Kolvereid, 1996; Fayolle and Gailly, 2004). In addition, intentions toward a behavior would be the single best predictor of that behavior (Fishbein and Ajzen, 1975, Ajzen, 1991, 2001).

In turn, the intention of carrying out a given behavior may be affected by several factors, such as needs, values, wants, habits, and beliefs (Bird, 1988; Lee and Wong, 2004). In particular, Ajzen (1991) calls "antecedents" the set of cognitive variables that would exert their influence on intention (personal attitude towards the behavior, perceived social norms, and perceived behavioral control). More favorable "antecedents" would make more feasible the intention of carrying that behavior out, and the other way round (Liñán, 2004). Obviously, situational factors also influence entrepreneurial intentions (Ajzen, 1987; Boyd and Vozikis, 1994; Tubbs and Ekeberg, 1991). Variables such as time constraints, task difficulty, and the influence of other people through social pressure could be examples of these situational factors (Lee and Wong, 2004). Therefore, exogenous factors also influence one's attitudes toward entrepreneurship (Krueger, 1993).

Even though results have always been consistent to the applicability of the Theory of Planned Behavior (TPB) to entrepreneurship, there have been some conflicts between the various studies. A good part of these differences may have been due to measurement issues. In fact, measuring these cognitive variables implies considerable difficulty (Baron, 1998). In the case of entrepreneurship, empirical tests have differed widely in this sense. Thus, Krueger et al. (2000) used single-item variables to measure each of the constructs in the model. Kolvereid (1996) used a belief-based measure of attitudes. More recently, Kolvereid and Isaksen (in press) have used an aggregate measure for attitudes, but a single-item one for intention. Similarly, some of these studies used an unconditional measure of intention (Zhao et al., 2005; Kickul and Zaper, 2000; Krueger et al., 2000; Kolvereid and Isaksen, in press), while others forced participants to state their preferences and estimated likelihoods of pursuing a self-employment career "as opposed to organizational employment" (Kolvereid, 1996; Fayolle and Gailly, 2004; Erikson, 1998). Therefore, there is work to be done to produce an standard measurement instrument for entrepreneurial intention and its antecedents. In this sense, we will be using a newly deveoped Entrepreneurial Intention Questionnaire (EIQ), based on an integration of psychology and entrepreneurship literature, as well as previous empirical research in this field. The EIQ tries to overcome the main shortcomings of previous research instruments.

After some early contribution such as the theory of the entrepreneurial event (Shapero and Sokol, 1982; Krueger, 1993), which have been proved to be highly compatible with the theory of planned behavior (Krueger et al., 2000), empirical application of the latter has been somewhat wider (Krueger and Carsrud, 1993; Kolvereid, 1996; Tkachev and Kolvereid, 1996; Veciana et al., 2005; Kolvereid and Isaksen, in press). It is a theory that may be applied to nearly all voluntary behaviors and it provides quite good results in very diverse fields, including the choice of professional career (Ajzen, 2001; Kolvereid, 1996). According to it, a narrow relationship would exist between the intention to be an entrepreneur, and its effective performance. Intention becomes the fundamental element towards explaining behavior. It indicates the effort that the person will make to carry out that entrepreneurial behavior (Liñán, 2004). And so, it captures the three motivational factors that influence behavior (Ajzen, 1991):

- *Attitude towards the behavior (Personal Attraction, PA)* refers to the degree to which the individual holds a positive or negative personal valuation about being an entrepreneur (Ajzen, 2002, Kolvereid, 1996). It would include not only affective (I like it, it makes me feel good, it is pleasant), but also evaluative considerations (it is more profitable, has more advantages).

- *Perceived Social Norms (SN)* would measure the perceived social pressure to carry out -or not to carry out- that entrepreneurial behavior. In particular, it would refer to the perception that "reference people" would approve of the decision to become an entrepreneur, or not (Ajzen, 2001).

- *Perceived Behavioral Control (PBC)* would be defined as the perception of the easiness or difficulty in the fulfillment of the behavior of interest (becoming an entrepreneur). It is, therefore, a concept quite similar to perceived self-efficacy (SE) (Bandura, 1997). In the same way, it is also very similar to Shapero and

Sokol's (1982) vision about perceived feasibility. In all three instances, the important thing is the sense of capacity regarding the fulfillment of firm creation behaviors. Nevertheless, recent work has emphasized the difference between PBC and self-efficacy (Ajzen, 2002). PBC would include not only the feeling of being able, but also the perception about behavior controllability. That is, the extent to which performing it or not is up to the person.

This model has been adapted to study the intention to start a venture (Krueger, 1993; Krueger et al., 2000; Kolvereid, 1996; Fayolle and Gailly, 2004). In this sense, an entrepreneurial intention model would argue that individuals make their firm-creation decision based on three elements (Liñán, 2004): his personal preference or attraction towards entrepreneurship; the perceived social norms regarding that career option; and, thirdly, his perceived entrepreneurial self-efficacy.

Although these three elements would constitute the constructs explaining entrepreneurial intention, according to the Theory of Planned Behavior, their relative contributions to this intention are not established in the model, as they may change from case to case. In particular, in the nineteen empirical works analyzed by Ajzen (1991), subjective norms tended to contribute very weakly to the intention of carrying out different behaviors. Similarly, in a meta-analysis of the TPB, Armitage and Conner (2001) found social norms to exert the weakest influence on intention among the three antecedents. The specific configuration of relationships among those constructs would have to be empirically determined for each specific behavior (Ajzen, 1991, 2002).

In this sense, there may be reasons to consider that social norms may have an effect on both personal attraction and self-efficacy. From a social-capital point of view, a number of authors argue that values transmitted by "important others" would cause more favorable perceptions regarding personal attraction and self-efficacy (Cooper, 1993; Scherer et al., 1991; Mathews and Moser, 1995). Liñán and Santos (in press), describe social norms as specific forms of social capital and suggest a causation effect over the other two antecedents of intention. Their results tend to support this hypothesis. In Figure 1, we have adopted such a design.

On the other hand, as mentioned above, situational or "demographic" factors have an influence on intentions (Boyd and Vozikis, 1994; Lee and Wong, 2004; Tubbs and Ekelberg, 1991). In particular, a greater knowledge of different entrepreneurial aspects will surely contribute to more realistic perceptions about the entrepreneurial activity (Ajzen, 2002), thus influencing intentions indirectly.

The relevance of experience and education has been widely highlighted, especially for the increased knowledge it provides (Cooper, 1985, 1993). In general, greater knowledge will also directly provide a greater awareness about the existence of that professional career option (Liñán, 2004), as may be inferred by the importance attached to the existence of role models (Carrier, 2005; Ronstadt, 1990). This latter element would have an influence on self-efficacy and possibly on personal attraction and social norms as well (Scherer et al., 1991). Therefore, it might be expected that entrepreneurial knowledge would have a distinct and significant effect on the antecedents of intention.

In Figure 1, therefore, we summarize the model we will be using as a starting point for our analysis. Apart from the explicit inclusion of external variables, this Figure 1 is quite similar to the Theory of Planned Behavior described by Ajzen (1991), and used by Kolvereid (1996), Fayolle and Gailly (2004), Erikson (1998), Kolvereid and Isaksen (in press), Krueger et al. (2000), Reitan (1997), Veciana et al. (2005) or Liñán (2004). One particularity, however, is that we have specifically hypothesized what the pattern of relationships among the so-called antecedents of intention is. Social norms are assumed to influence both personal attraction and self-efficacy perceptions.

3. ENTREPRENEURIAL INTENTION QUESTIONNAIRE (EIQ)

In this paper, the entrepreneurial intention model is considered as essentially adequate to analyze the intention to become an entrepreneur. Therefore, an instrument to measure intentions and the other variables in the model was needed. The Entrepreneurial Intention Questionnaire (EIQ) was developed for that purpose. It is based on the existent theoretical and empirical literature about the application of the theory of planned behavior to entrepreneurship. Thus, it has been carefully cross-checked with those instruments used by other researchers, such as Kolvereid (1996), Kovlereid and Isaksen (in press), Chen et al. (1998), Kickul and Zaper (2000), Krueger et al. (2000) or Veciana et al. (2005). Along the whole construction process, Ajzen's (1991, 2001 and 2002) work has been carefully revised to solve any discrepancy that might have arisen between the different instruments. The EIQ is available from the authors upon request. Items used to capture the central elements of the Entrepreneurial Intention Model are included in the Appendix.

Whenever possible, items have been built as 7-point likert-type scales. In particular, this has been true for the part of the EIQ measuring those variables central to the entrepreneurial intention model: i.e., personal attraction, perceived social norms, self-efficacy and intention. In this sense, Nunnally (1978) suggests that multi-item scales are more reliable than single-item ones. The EIQ has been divided in ten sections. Sections three to six correspond with the elements in the entrepreneurial intention model (see Figure 1). Within them, all items adjust to the likert-type sort of question.

The first (education and experience), second (entrepreneurial knowledge) and ninth (personal data) sections ask for demographic variables that should not affect intention directly, but could be very useful in identifying their effect on perceived control, attitudes and social norms. The questionnaire also includes a seventh section centered on entrepreneurial objectives. Its purpose is to analyze students' concept of "success" and the importance they attach to business development and growth.

Entrepreneurial quality has been defined as the behaviors performed to develop the firm and make it dynamic (Guzmán and Santos, 2001; Santos and Liñán, forthcoming). This section tries to measure the intention to perform such behaviors. Finally, we also asked students to voluntarily provide contact data so that they may be studied again after some time. This follow-up will hopefully allow for future analysis of the intention-behavior relationship.

Entrepreneurial intention has been measured through a likert-type scale with five items. These are general sentences indicating different aspects of intention. A similar system has already been used by Chen et al. (1998) or Zhao et al. (2005). However, Armitage and Conner (2001) identified three distinct kinds of intention measures: desire (I want to …), self-prediction (How likely it is …) and behavioral intention (I intend to …). This latter type seems to provide slightly better results in the prediction of behavior (Armitage and Conner, 2001: 483). In this sense, Chen et al. (1998) use a mix of self-prediction and pure-intention items, whereas Zhao et al. (2005) use "interest" measures (how interested are you in …). In our opinion, the similarity between interest and intention may not be so clear. For this reason we have chosen a pure-intention measure.

However, single-item questions have been very common in past research. Krueger et al. (2000), Peterman and Kennedy (2003), Veciana et al. (2005) or Kolvereid and Isaksen (in perss) have used a single-item entrepreneurial intention measure. Therefore, additionally to the scale, a yes/no question has been included. Answers to this question have not been used to validate the questionnaire, but might be useful for comparison purposes.

Personal attraction has also been measured through an aggregate attitude scale. This is an important difference with other studies, such as Kolvereid (1996) or Fayolle and Gailly (2004) where a belief-based measure of personal attraction was used. However, Ajzen's (1991, 2001) states that beliefs are the antecedents of attitudes, and suggests using an aggregate measure for attitudes (beliefs would explain attitude, while attitude would explain intention). In this sense, Krueger et al. (2000) use such a design, with beliefs explaining an aggregate measure of attitude, while this latter variable was used to explain intention. Similarly, in Kolvereid and Isaksen's (in press) study, both kinds of measures were included together in a linear regression with entrepreneurial intention as dependent variable. Aggregate attitude was a significant regressor, while beliefs were not. Semantic differentials or likert-type scales could be used to measure aggregate personal attraction towards entrepreneurship. Correlations between the aggregate and belief-based measures are sometimes disappointing (Ajzen, 1991: 192). For this reason, we have chosen an aggregate measure of personal attraction in the EIQ.

Another main difference with some previous studies is the consideration of salaried work. Kolvereid (1996) considered these two options as opposed. However, this very same author seems to have changed his views more recently, stating that «this dichotomization is clearly a simplification. […] It is not clear how to categorize people who combine working for an employer and running their own business. There is evidence to suggest that a large proportion of new business founders start their business as a part-time operation while they continue to work for their employer

(Carter et al., 1996; Delmar and Davidsson, 2000).» (Kolvereid and Isaksen, in press). In the EIQ, this has been accounted for by asking respondents to rate their preference towards both options at different items. Besides, a third item (preference to being a liberal professional) was also included to stress the idea that the options are not opposed. A post-hoc analysis of the correlation between the preference to work self-employed and as an employee will be carried out to check the validity of this assumption.

Subjective norms, or Perceived social valuation, according to Ajzen (1991), should be approached through an aggregate measure of the kind "what do important others think?" In practice, however, some researchers simply omit this element from the model (Krueger, 1993; Chen et al., 1998). On the other hand, others have pondered the answer to this question with their respective "motives to comply" (Kolvereid, 1996; Kolvereid and Isaksen, in press). However, Armitage and Conner (2001: 485) found that the "subjective norms X motives to comply" measure tends to show weaker predictive power towards intention than the "multiple-item subjective norm" measure. Therefore, we have used one such scale in the validation process, including three groups of "important others": family, friends and mates. In this manner, we also contribute to keep the EIQ as parsimonious as possible.

Perceived behavioral control over firm creation has been measured through a general self-efficacy scale. In previous research, self-efficacy has frequently been measured through specific self-efficacies (Chen et al., 1998; DeNoble et al., 1999; Zhao et al., 2005). They typically build smaller scales for a number of skills related to entrepreneurship and sum them up into an aggregate self-efficacy index. In particular, Kolvereid (1996) used a general six-item scale with good results, whereas Kolvereid and Isaksen (in presss) used an 18-item scale that was then grouped into four specific self-efficacies through factor analysis. This latter study showed no significant correlation between self-efficacy and intention. In Ajzen's (1991) opinion, control beliefs would be the antecedents of an aggregate measure of perceived behavioral control. Thus, it could be understood as specific efficacies being the antecedent of general self-efficacy. In this sense, as aggregate measures have been used for personal attraction and social norms, we chose to keep this scheme for this construct as well.

Therefore, interviewees' were asked to rate their level of agreement with several general statements about the feeling of capacity regarding firm creation. In a recent work, Ajzen (2002) considers that perceived behavioral control is a concept somewhat wider than self-efficacy. It would also include a measure of controllability (the extent to which successfully performing the behavior is up to the person). However, Kolvereid and Isaksen (in press) used a pure "self-efficacy" scale, as Armitage and Conner (2001) concluded that self-efficacy is more clearly defined and more strongly correlated with intention and behavior. For this reason, a six-item scale was used; five of those items measure general self-efficacy, while the sixth one is a controllability statement.

4. RESULTS

The EIQ has been used on a sample of last year university students of business and economics. Selection of this sample has been made on three grounds. Firstly, it is very common to find empirical literature using these students. In particular, regarding research on entrepreneurial intentions, some papers using this kind of samples may be: Kolvereid (1996), Autio et al. (1997), Tkachev and Kolvereid (1999), Krueger et al. (2000), Fayolle and Gailly (2004) or Veciana et al. (2005). Secondly, last year university students are about to enter the segment of the population showing highest tendency towards becoming an entrepreneur; i.e., those belonging to the 25-34 age-group and with university studies (Reynolds et al., 2002). Finally, they are about to face their professional career choice, so they may answer the EIQ more consciously.

The Spanish sample was obtained from three universities in Andalusia. This is the most populated region in Spain, with more than 7 million inhabitants. In this manner, we collected 400 usable questionnaires. 71.3% of the sample corresponds to Business students, the rest being essentially Economics (27.0%). 55.9% of the interviewees are female, while the average age is 23.6 years. These figures generally correspond to the overall characteristics of business and economics students. Thus, this may be deemed as a representative sample.

The Taiwanese sample was obtained from the eighth edition of the Technology Innovation Competition. This is the largest business plan competition in Taiwan for university students. One of the steps consists on a 3-day winter camp. It was during this stage that the fieldwork was carried out. Two people were randomly selected from each competing team. 133 valid questionnaires were collected. Average age is 23.1 years and 42.1% of interviewees are female. Again, business is the most common degree (60.6%), followed by engineering (24.4%), the rest being mostly health and life sciences.

Table 1 around here

Some differences do arise between both samples, as might be expected. In the first place, in the Spanish sample there are significantly more women. Similarly, knowing an entrepreneur is more common in Spain (86% compared to 48.5% of the Taiwanese sample). This difference is consistent for all possible sources of entrepreneurial role models: family (66.0% in Spain, 27.8% in Taiwan); friends (57.3% to 23.3%) or boss/foreman (17.5% to 4.5%). On the other hand, even though the proportion of interviewees having work experience is broadly similar (43.5% to 36.8%), Taiwanese students have much higher self-employment experience. These differences might have relevant effects over the entrepreneurial intention model variables. For this reason, we will include these demographics as control variables in the statistical analysis.

The entrepreneurial intention model to be tested has been presented in Figure 1. Structural equation modeling was used to test its empirical validity. However, as a

first step, an exploratory factor analysis was carried out to check the correspondence or the indicators used with our theoretical constructs. Three factor analyses were carried out, one for the whole sample and the others for each of the national samples. In all three instances, the Kaiser-Meyer-Olkin measure of sampling adequacy is notably high (0.922, 0.920 and 0.890 respectively). Similarly, Bartlett's test of sphericity is highly significant ($p < 0.001$ for all three samples). Both measures suggest factor analysis to be an adequate instrument to use. Cumulative variance explained was 73.1% for Spain and 76.3% for Taiwan (73.7% for the combined sample).

Results were generally satisfactory. However, for the Spanish sample there were three items measuring personal attraction (11b, 11c and 11e) that also presented relatively high saturations (0.483, 0.445 and 0.472) on factor 1 (which would be measuring entrepreneurial intention). Nevertheless, their saturations were much higher on factor 3 (measuring personal attraction): 0.699, 0.746 and 0.709. On the other hand, for the Taiwanese sample, there was one item (15f) from factor two (items measuring self efficacy) that also had a relatively high saturation on factor 1 (measuring intention): 0.673 in front of 0.441. Apart from these items, all others loaded heavily in their respective factor only (using 0.4 as the cut-off level).

These anomalies could be indicating the existence of some cultural differences between both samples that may imply a bias in the interpretation of items. On the other hand, the difference may be more structural. That is, it is possible that Spanish students form their intentions mostly based on their personal attraction (therefore, a higher correlation would exist among these two constructs and items would tend to mix up). Meanwhile, Taiwanese students may base mostly on self-efficacy to form their intentions. The structural analysis will hopefully shed some light on this issue.

According to the theory, external variables will exert their direct influence only on the antecedents of intention. For this reason, control variables were included as explaining personal attraction, social norms and self efficacy. Age was measured in years. The other four demographic variables are dichotomic 0/1. The value 1 means male (in the gender variable), knows personally an entrepreneur (in role model), has self-employment experience (in SelfEmpl Exper), and has labor experience (in work Exper). The value 0 means the opposite. Therefore, positive relationships are expected for these demographics with the antecedents of intention, as possessing these characteristics would be associated to more favorable perceptions.

The statistical analysis was carried out with PLSGrpah v.3.00 (Chin and Frey, 2003). The initial model to be tested is presented in Figure 2. As may be seen, a dummy variably has been included (labeled Taiwan) to account for possible cultural country differences. In this case, a direct influence of this dummy over intention was initially drawn to reflect the possibility that the way intentions are formed differ in each culture.

Figure 2 around here

After running the statistical software on these data, a number of non-significant path coefficients were found. A recursive method was used to eliminate the path with the lowest t-statistic in each iteration, until all coefficients were significant at least at the 95% level ($p < 0.05$). Figure 3 presents the results for the combined sample. As may be observed, the core entrepreneurial intention model is generally supported by this analysis, with the only exception of the social norm-intention relationship. This had already been identified as the weakest link in intention models. In particular, Liñán and Santos (in press) had suggested that social norms would exert their main influence through its effects on personal attraction and self-efficacy.

Demographic variables have relatively few significant effects over the antecedents of the entrepreneurial intention and, in general, they are small in magnitude. The signs of coefficients, however, are as expected. Only the effect of gender (being male) on self-efficacy is considerably large (0.228) and, to a lower extent, having labor experience also has a considerable effect (0.194) on self-efficacy.

Figure 3 around here

These results also suggest that significant cultural differences among these two samples probably exists, since the country variable coefficients are significant. Nevertheless, no significant direct effect on intention was found from this variable. This would mean that, starting from perceptions, intentions are formed the same way in the European and the Asian countries studied. However, there are significant differences with respect to levels of those antecedents: personal attraction, social norms and self-efficacy. Taiwanese interviewees tend to perceive much lower support in their closer environment (-0.353) than Spanish do. In contrast, the effect on perceptions of personal attraction (0.216) and to a lower extent self-efficacy (0.103) is positive. For these reason, we have decided to carry out separate analyses for each of the two samples (see below).

For the combined sample, however, reliability and validity statistics are quite satisfactory. In the first place, Table 2 shows loadings for all indicators are above 0.707, which is a common cut-off point for retaining them (Roldán and Leal, 2003). Similarly, composite reliability indexes are also very high (0.892 and above). For comparison purposes, the more common Cronbach's alphas have also been calculated, confirming the adequate reliability of these constructs.

Table 2 around here

Convergent and discriminant validity of the constructs may be assessed through both the Average Variance Extracted (AVE) and the correlations of each indicator with the different constructs (Gefen et al., 2000: 43). In the first case, the AVE of each construct measures the proportion of the variance in the indicators explained by the construct (Rodgers, 1999: 134). Gefen et al. (2000) suggest this value to be higher than 0.50, indicating that more than half the variance of the indicators is explained by their construct. In our case, this condition is fulfilled for all constructs.

On the other hand, the use of the AVE to assess discriminant validity is carried out by comparing it with the correlations among the constructs. For discriminant validity to be adequate, the AVE of each indicator has to be higher than the squared correlation of this construct with all others (Roldán and Leal, 2003). In this sense, Table 3 shows the squared correlations among the constructs and, on the main diagonal, the AVE values. As may be observed, the established criterion is fulfilled in all cases and, therefore, it may be said that the discriminant validity of those constructs is adequate.

Table 3 around here

Finally, as the country dummy made significant contributions to explain the three antecedents, we have also reproduced the analysis for each of the national samples. This would also help to test whether the factor analysis discrepancies are due to cultural differences or scale misspecification. The national results are presented in the appendix. They are, in general, greatly in line with those of the combined sample, reinforcing the robustness of the model. However, some differences do exist.

The most obvious discrepancy relates the number of significant contributions ($p < 0.05$) by demographic variables. In Taiwan there is only one of them, linking self-employment experience to social norms. Smaller sample size may account for this lower presence of significant variables. But it may also be due to sample characteristics. On the other hand, demographics do not affect social norms in Spain. The consequences of experience or knowledge of entrepreneurs are felt on higher personal attraction and self-efficacy. Similarly, being male is also reflected on the same antecedents.

Regarding the core elements of the entrepreneurial intention model, the signs of coefficients are consistent among the two national samples and with the combined one. However, the relative effect of social norms on the other two antecedents is notably larger for Taiwan. Similarly, the influence of personal attraction on intention

is the largest one in the Spanish sample, much stronger than that of self-efficacy. For Taiwan, the opposite is true: self-efficacy is the strongest influence on intention.

5. DISCUSSION

Based on the findings presented in this paper, strong support for the entrepreneurial intention model could be claimed. The applicability of the theory of planned behavior to entrepreneurship had received wide empirical support in the past, though not without some exceptions (Kolvereid and Isaksen, in press). The originality of this paper resides in testing it on a two-country sample, with a newly developed instrument, and specifying the structural relations among the antecedents of intention.

General results are satisfactory, since most hypotheses have been confirmed. In particular, four of the five original core-model relationships were significant. Social norms exert its influence on both personal attraction and self-efficacy (which in turn explain intention), but not directly on intention. Demographic or external variables, on the other hand, exert their direct effect on those antecedents.

However, these combined-sample results give cause to consider the existence of relevant country differences. The country dummy variable included made significant contributions to explain each of the antecedents of intention, though not this latter construct. In our opinion, this would mean that the effect of demographics on perceptions differ for each country, depending possibly on cultural and social differences. On the other hand, the formation of intentions from its antecedents is essentially similar in both samples. Thus, internal cognitive mechanisms would be the same for all people. That is, the 'lenses' through which each of us see reality may differ in a cultural or social manner, but our way of reasoning would be similar.

In this case, Taiwanese interviewees have more favorable perceptions about their personal attraction and self-efficacy towards firm creation than Spaniards do. The fact that the Taiwanese sample is made up of participants in a business plan competition could help explain this result. The decision to participate in this competition would have been taken because of their higher levels of both kinds of perceptions. In contrast, they have much lower levels of perceived social norms. This is more difficult to explain by sample characteristics. Instead, it could be more logically attributed to cultural factors. An analysis of prevalent social values and social valuation of entrepreneurship as a career option could be very useful in this sense.

The relatively small size of the Taiwanese sample has probably resulted in just one demographic-variable coefficient being significant. Only having self-employment experience makes a significant (and sizeable) contribution to improve perceived social norms. This result should have to be confirmed repeating the study on a larger sample. On the other hand, in the Spanish sample there is not any significant effect on social norms. That is, those demographics fail to capture any relevant part of the variance in this construct. It may, again, be the case that social values and social valuation of entrepreneurship are more evenly distributed among the population studied in Spain, while in Taiwan there would be important cultural differences among subgroups of the population.

Another important difference among both countries regards the relative effect of personal attraction and self-efficacy on intention. For the Spanish sample, attraction exerts the largest effect (the path coefficient is 0.667), whereas for Taiwan is self-efficacy the most important contributor to intention (coefficient is 0.579). This difference may be attributed either to country or to sample characteristics. In the first case, the Taiwanese concept of intention would be more closely related to self-capacity. The Spanish concept of intention would be more volitional. On the other hand, the Taiwanese sample was made up of participants in a competition, they may be absorbed in the business plan elaboration and then have their minds concentrated on capacity issues. New research would be needed to investigate this issue farther.

However, results from this study have to be taken with caution, as some limitations regarding the instrument or the sample may be present. In the first place, The EIQ was initially tested on a Spanish sample with good results, and reliability and validity analyses have been satisfactorily replicated here. The fact that the items making up each scale were listed adjacent and always positive may have had an influence on respondents. This study should be replicated with a modified questionnaire to check the results. However, this problem may artificially increase reliability and validity measures, but would not *per se* improve results of the structural model (sign, magnitude and significance of the path coefficients).

Another possible problem with the EIQ is the specification of items. The joint factor analysis found two attraction items (11b and 11e) loading also on the intention factor. When we ran the analysis for the Spanish sample there were three of these items (11b, 11c and 11e). These items may be poorly specified and may need re-elaboration or elimination. However, when the Taiwanese sample was analyzed, the only problem was found with one self-efficacy item (15f), which also presented a relatively high saturation on the intention factor. Since the original EIQ was in Spanish, it may be the case that the translation to English has solved some specification problems while creating a new one. It may be noted that a multinational research team is already working on an improved English translation of the EIQ.

A sample made of university students is very common in entrepreneurial intention research. They offer the advantage of similar age and qualifications, making it more homogeneous. However, in multinational studies, it is very difficult to obtain fully comparable samples. In our case, the Taiwanese students were participating in a business plan competition, while the Spanish were not. It may be possible that this circumstance has conditioned their answers and, thus, the results. Nevertheless, we ran the analysis for business students in both countries only, to make them the most similar possible. Factor analysis results were broadly equivalent (only item 11b saturated in more than one factor), and the same happened with the structural analysis.

Bearing all these limitations in mind, our results suggest the traditional specification of the entrepreneurial intention model -based on the theory of planned behavior- may not be completely adequate. It seems that perceived social norms do not play any direct role in determining entrepreneurial intention. Its effect would rather be indirect. This holds for both the Spanish and Taiwanese samples. It may be argued that social pressures act modifying personal attraction and self-efficacy levels.

If the person feels that "important others" would approve of the decision to become an entrepreneur, they would be more attracted towards that option and more able to perform it satisfactorily. Nevertheless, other researchers have found a direct and significant relationship between social norms and entrepreneurial intention (Kolvereid, 1996; Tkachev and Kolvereid, 1999; Kolvereid and Isaksen, in press). However, their analyses were based on linear regression models, and not on structural equations systems as ours.

Another characteristic of the EIQ is that it considers entrepreneurship as not opposed to employee. To test this hypothesis, we used Pearson correlation coefficients (since histogram and skewness statistics suggest normal distributions). For the combined sample, the Pearson correlation among items 10a (attraction towards salaried work) and 10c (attraction towards entrepreneurship) takes a significant value of -0.247 ($p < 0.01$). Though it is negative, its magnitude is relatively small, suggesting that interviewees do not see them as exact opposites. The value for the Spanish sample is slightly larger -0.308 and equally significant ($p < 0.01$), but for the Taiwanese sample is nearly zero and non significant (-0.024). Therefore, although Spaniards still see them partially as alternative options, it seems that in Taiwan this is not the case at all. If this result is confirmed, it would be an important argument to use unconditional measures of both personal attraction and entrepreneurial intention in future research, in line with recent reasoning by Kolvereid and Isaksen (in press).

Implications of these results may be derived at least on two areas. Firstly, regarding entrepreneurship education, more attention should be paid to the effect of different contents on cognitions. Business plan elaboration is the basic instrument provided by the great majority of courses and programs (Honig, 2004). However, some recent studies indicate (Carrier, 2005) that a course consisting only on the production of a business plan may have a negative effect on attraction. This result, if confirmed, would be strengthening the case for a wider entrepreneurship education program. Contents specifically designed to increase personal attraction and social norms should be included. In particular, this latter element appears to play a very relevant role. However, we still know very little about ways to improve perceived social norms. This is an obvious avenue for future research.

Secondly, implications for public decision-makers could also be derived. If future research confirms that social norms is a previous element helping to determine personal attraction and self-efficacy, there is a strong case for the promotion of a entrepreneurially-friendly culture in each society. The better entrepreneurship is valued as a career option, the higher the probabilities that people would perceive favorable social norms in their closer environment. Every opportunity should be taken to recognize the role of entrepreneurs in the economy. Legal reforms that facilitate firm creation would be important not only as such, but because they transmit the message that becoming an entrepreneur is a positive option.

6. CONCLUSIONS

The present paper has addressed some still unsolved issues regarding entrepreneurial intention. In the first place, it has tried to test the applicability of the

entrepreneurial intention model on two different cultural environments: Spain and Taiwan. Secondly, it has used a newly developed instrument to measure the relevant cognitive constructs. Thirdly, it has considered the particular role of perceived social norms through a specific structural pattern of relationships among the elements of the model.

Results have supported most of our *a priori* hypotheses. It seems that the model holds for different countries. Cultural and social particularities would be reflected on the effect of external variables on the antecedents of intention (social norms, personal attraction and self-efficacy). Reliability and validity measures suggest the EIQ may be generally adequate, though some problems of design may have to be solved in future research.

In particular, our results seem to confirm that the cognitive process from perceptions to intention is not affected by cultural or social aspects. At the most, the relative importance of each antecedent in the configuration of intention may differ. National particularities manifest themselves on the way people apprehend reality and transform it into perceptions towards entrepreneurship. Similarly, social norms would be the first step in the mental process, acting as a first filter to external stimuli and thus influencing perceptions of personal attraction and self-efficacy.

Future research should be developed to confirm our findings. In particular, this study should be replicated on a wider sample from different countries, possibly using a modified version of the EIQ. Additionally, contact data were asked to participants in the study and provided by more than 80% of them. In this way, it will be possible to follow up these students to test the intention behavior relationship.

REFERENCES

Ajzen, I. (1987): "Attitudes, traits and actions: dispositional prediction of behavior in personality and social psychology"; in Berkowitz, L. (Ed.): *Advances in Experimental and Social Psychology*, Academic Press, San Diego, 1–63.

Ajzen, I. (1991): "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Ajzen, I. (2001): "Nature and operation of attitudes", *Annual Review of Psychology*, 52, 27-58.

Ajzen, I. (2002): "Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior", *Journal of Applied Social Psychology*, 32, 1-20.

Armitage, C.J. and Conner, M. (2001): "Efficacy of the theory of planned behavior: a meta-analytic review", *British Journal of Social Psychology*, 40 (4), 471-499.

Autio, E., Keeley, R.H., Klofsten, M. and Ulfstedt, T. (1997): "Entrepreneurial intent among students: Testing an intent model in Asia, Scandinavia and USA", *Frontiers for Entrepreneurship Research Conference*, Babson College.

Bandura, A. (1997): *Self-efficacy: The exercise of control*, Freeman, New York.

Baron, R.A. (1998): "Cognitive mechanisms in entrepreneurship: why and when entrepreneurs think differently than other people", *Journal of Business Venturing*, 13, 275–294.

Baron, R.A. (2004): "The cognitive perspective: a valuable tool for answering entrepreneurship's basic ''why'' questions", *Journal of Business Venturing*, 19, 221–239.

Bird, B. (1988): "Implementing entrepreneurial ideas: the case for intention", *Academy of Management Review*, 13, 442–453.

Boyd, N.G. and Vozikis, G.S. (1994): "The influence of self-efficacy on the development of entrepreneurial intentions and actions", *Entrepreneurship Theory & Practice*, 18, 63–77.

Carrier, C. 2005. "Pedagogical challenges in entrepreneurship education"; in Kyrö, P. and Carrier, C. (Ed.): *The dynamics of learning entrepreneurship in a cross-cultural university context*, University of Tampere, Hämmeenlinna, 136-158.

Carter, N.M., Gartner, W.B. and Reynolds, P.D. (1996): "Exploring start-up event sequences", *Journal of Business Venturing*, 11 (3), 151-166.

Chen, C.C., Greene, P.G. and Crick, A. (1998): "Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?", *Journal of Business Venturing*, 13 (4), 295-316.

Chin, W. W. and Frye, T. (2003): *PLS-Graph, Version 3.00 (Build 1026)*, University of Houston.

Cooper, A.C. (1985): "The Role of Incubator Organizations in the Founding of Growth-Oriented Firms", *Journal of Business Venturing*, 1 (1), 75-86.

Cooper, A.C. (1993): "Challenges in predicting new firm performance", *Journal of Business Venturing*, 8 (3), 241-253.

Delmar, F. and Davidsson, P. (2000): "Where do they come from? Prevalence and characteristics of nascent entrepreneurs", *Entrepreneurship and Regional Development*, 12 (1), 1-23.

Erikson T. (1998): "A study of career choice intentions among a cohort US MBAs-The Ajzen model", *Euro PME Conference*, Rennes (France).

Fayolle, A. and Gailly, B. (2004): "Using the theory of planned behaviour to assess entrepreneurship teaching programs: a first experimentation", *IntEnt2004 Conference*, Naples (Italy), 5-7 July.

Fishbein, M. and Ajzen, I. (1975): *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Addison-Wesley, New York.

Gartner, W.B. (1985): "A conceptual framework for describing the phenomenon of new venture creation", *Academy of Management Review*, 10 (4), 696-706.

Gartner, W.B. (1989): " "Who is an entrepreneur?" is the wrong question", *Entrepreneurship Theory and Practice*, vol. 13 (4), pp. 47-68.

Gartner, W.B., Shaver, K.G., Gatewood, E. and Katz, J.A. (1994): "Finding the entrepreneur in entrepreneurship", *Entrepreneurship Theory & Practice*, 18, 5–9.

Gefen, D., Straub, D.W. & Boudreau, M.C. (2000): "Structural equation modeling and regression: guidelines for research practice", *Communications of the Association for Information Society*, 4 (7), 1-77.

Guzmán, J. and Santos, F.J. (2001): "The booster function and the entrepreneurial quality: an application to the province of Seville", *Entrepreneurship and Regional Development*, 13 (3), 211-228.

Honig, B. (2004): "Entrepreneurship education: toward a model of contingency-based business planning", *Academy of Management Learning and Education*, 3 (3), 258-273.

Kickul, J. and Zaper, J.A. (2000): "Untying the knot: Do personal and organizational determinants influence entrepreneurial intentions?", *Journal of Small Business and Entrepreneurship*, 15 (3), 57-77.

Kolvereid, L. (1996): "Prediction of employment status choice intentions", *Entrepreneurship Theory & Practice*, 21 (1), 47-57.

Kolvereid, L. and Isaksen, E. (in press): "New business start-up and subsequent entry into self-employment", *Journal of Business Venturing*,

Krueger, N. (1993): "The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability", *Entrepreneurship Theory & Practice*, 18, 5–21.

Krueger, N.F. and Carsrud, A.L. (1993): "Entrepreneurial intentions: applying the theory of planned behavior", *Entrepreneurship and Regional Development*, 5, 315–330.

Krueger, N.F., Reilly, M.D. and Carsrud, A.L. (2000): "Competing models of entrepreneurial intentions", *Journal of Business Venturing*, 15 (5/6), 411-432.

Kyrö, P. and Carrier, C. 2005. "Entrepreneurial learning in universities: bridges across borders"; in Kyrö, P. and Carrier, C. (Ed.): *The dynamics of learning entrepreneurship in a cross-cultural university context*, University of Tampere, Hämmeenlinna, 14-43.

Lee, S.H. and Wong, P.K. (2004): "An exploratory study of technopreneurial intentions: a career anchor perspective", *Journal of Business Venturing*, 19, 7–28.

Liñán, F. (2004): "Intention-based models of entrepreneurship education", *Piccolla Impresa / Small Business*, Iss. 3, 11-35.

Liñán, F. (2005): "Development and validation of an Entrepreneurial Intention Questionnaire (EIQ)", *IntEnt05 Conference*, Guildford (United Kingdom), 10-13 July.

Liñán, F. and Santos, F.J. (in press): "La influencia del capital social sobre los empresarios potenciales", *Estudios de Economía Aplicada*, vol. 24 (2)

Matthews, C. H. y Moser, S. B. (1995) "Family Background and Gender: Implications for Interest in Small Firm Ownership". *Entrepreneurship and Regional Development*, vol 7, nº 4, pp 365-377.

Nunnally, J.C. (1978): *Psychometric Theory*, Mc-Graw-Hill, New York.

Peterman, N.E. and Kennedy, J. (2003): "Enterprise Education: influencing students' perceptions of entrepreneurship", *Entrepreneurship Theory and Practice*, 28 (2), 129-144.

Reitan, B. (1997): "Where do we learn that entrepreneurship is feasible, desirable and/or profitable? -A look at the processes leading to entrepreneurial potential", *ICSB World Conference*, San Francisco.

Reynolds, P.D. (1997): "Who start new firms? – Preliminary explorations of firms-in-gestation", *Small Business Economics*, 9 (5), 449-462.

Reynolds, P.D., Bygrave, W.D., Autio, D. and Hay, M. (2002): *Global Entrepreneurship Monitor. 2002 summary report*, Ewin Marion Kauffman Foundation, Kansas City.

Robinson, P.B., Stimpson, D.V., Huefner, J.C. and Hunt, H.K. (1991): "An attitude approach to the prediction of entrepreneurship", *Entrepreneurship Theory and Practice*, 15 (4), 13-30.

Roldán, J.L. and Leal, A. (2003): "A validation test of an adaptation of the DeLone and McLean's model in the Spanish EIS field", in Cano, J.J. (Ed.): *Critical Reflections on Information Systems. A Systematic Approach*, pp. 66-84, Idea Group Publishing, Hershey, PA (USA).

Ronstadt, R. (1990): "The educated entrepreneurs: a new era of entrepreneurial education is beginning"; in Kent, C.A. (Ed.): *Entrepreneurship education: current developments, future directions*, Quorum Books, Westport.

Santos, F.J. and Liñán, F. (forthcoming): "Measuring entrepreneurial quality in southern Europe", *International Entrepreneurship and Management Journal*.

Scherer, R.F., Brodzinsky, J.D. and Wiebe, F.A. (1991): "Examining the relationship between personality and entrepreneurial career preference", *Entrepreneurship and Regional Development*, 3, 195-206.

Shapero, A. and Sokol, L. (1982): "Social dimensions of entreprenurship", in Kent, C.A., Sexton, D.L. and Vesper, K.H. (eds.): *Encyclopaedia of entrepreneurship*, Prentice Hall, Englewood Cliffs (NJ).

Shaver, K.G. and Scott, L.R. (1991): "Person, process, choice: the psychology of new venture creation", *Entrepreneurship Theory and Practice*, 16 (2), 23-45.

Tkachev, A. and Kolvereid, L. (1999): "Self-employment intentions among Russian students", *Entrepreneurship and Regional Development*, 11, 269-280.

Tubbs, M.E. and Ekeberg, S.E. (1991): "The role of intentions in work motivation: implications for goal-setting theory and research", *Academy of Management Review*, 14, 361–384.

Veciana, J.M., Aponte, M. and Urbano, D. (2005): "University students' attitudes towards entrepreneurship: a two countries comparison", *International Entrepreneurship and Management Journal*, 1 (2), 165-182.

Zhao, H., Hills, G.E. and Seibert, S.E. (2005): "The mediating role of self-efficacy in the development of entrepreneurial intentions", *Journal of Applied Psychology*, 90 (6), 1265-1272.

APPENDIX

Measures of core Entrepreneurial Intention Model elements

Professional attraction

10. In the medium and longer term, considering all advantages and disadvantages (economic, personal, social recognition, labour stability, and so on), indicate your level of attraction towards each of the following professional options from 1 (minimum attraction) to 7 (maximum attraction).

	1	2	3	4	5	6	7
- salaried work	☐	☐	☐	☐	☐	☐	☐
- liberal profession	☐	☐	☐	☐	☐	☐	☐
- Entrepreneur	☐	☐	☐	☐	☐	☐	☐

11. Indicate your level of agreement with the following sentences from 1 (total disagreement) to 7 (total agreement).

	1	2	3	4	5	6	7
- Being an entrepreneur implies more advantages than disadvantages to me	☐	☐	☐	☐	☐	☐	☐
- A career as entrepreneur is attractive for me	☐	☐	☐	☐	☐	☐	☐
- If I had the opportunity and resources, I'd like to start a firm	☐	☐	☐	☐	☐	☐	☐
- Being an entrepreneur would entail great satisfactions for me	☐	☐	☐	☐	☐	☐	☐
- Among various options, I'd rather be an entrepreneur	☐	☐	☐	☐	☐	☐	☐

Social valuation

13. If you decided to create a firm, people in your close environment would approve of that decision? Indicate from 1 (total disapprovement) to 7 (total approvement).

	1	2	3	4	5	6	7
- Your close family	☐	☐	☐	☐	☐	☐	☐
- Your friends	☐	☐	☐	☐	☐	☐	☐
- Your colleagues and mates	☐	☐	☐	☐	☐	☐	☐

Entrepreneurial capacity

15. To what extent do you agree with the following statements regarding your entrepreneurial capacity? Value them from 1 (total disagreement) to 7 (total agreement).

	1	2	3	4	5	6	7
- Start a firm and keep it working would be easy for me	☐	☐	☐	☐	☐	☐	☐
- I'm prepared to start a viable firm	☐	☐	☐	☐	☐	☐	☐
- I can control the creation process of a new firm	☐	☐	☐	☐	☐	☐	☐
- I know the necessary practical details to start a firm	☐	☐	☐	☐	☐	☐	☐
- I know how to develop an entrepreneurial project	☐	☐	☐	☐	☐	☐	☐
- If I tried to start a firm, I would have a high probability of succeeding	☐	☐	☐	☐	☐	☐	☐

Entrepreneurial intention

17. Have you ever seriously considered becoming an entrepreneur?   ☐ Yes ☐ No

18. Indicate your level of agreement with the following statements from 1 (total disagreement) to 7 (total agreement)

	1	2	3	4	5	6	7
- I'm ready to make anything to be an entrepreneur	☐	☐	☐	☐	☐	☐	☐
- My professional goal is becoming an entrepreneur	☐	☐	☐	☐	☐	☐	☐
- I will make every effort to start and run my own firm	☐	☐	☐	☐	☐	☐	☐
- I'm determined to create a firm in the future	☐	☐	☐	☐	☐	☐	☐
- I have very seriously thought in starting a firm	☐	☐	☐	☐	☐	☐	☐
- I've got the firm intention to start a firm some day	☐	☐	☐	☐	☐	☐	☐

Structural equation results for the Spanish sample
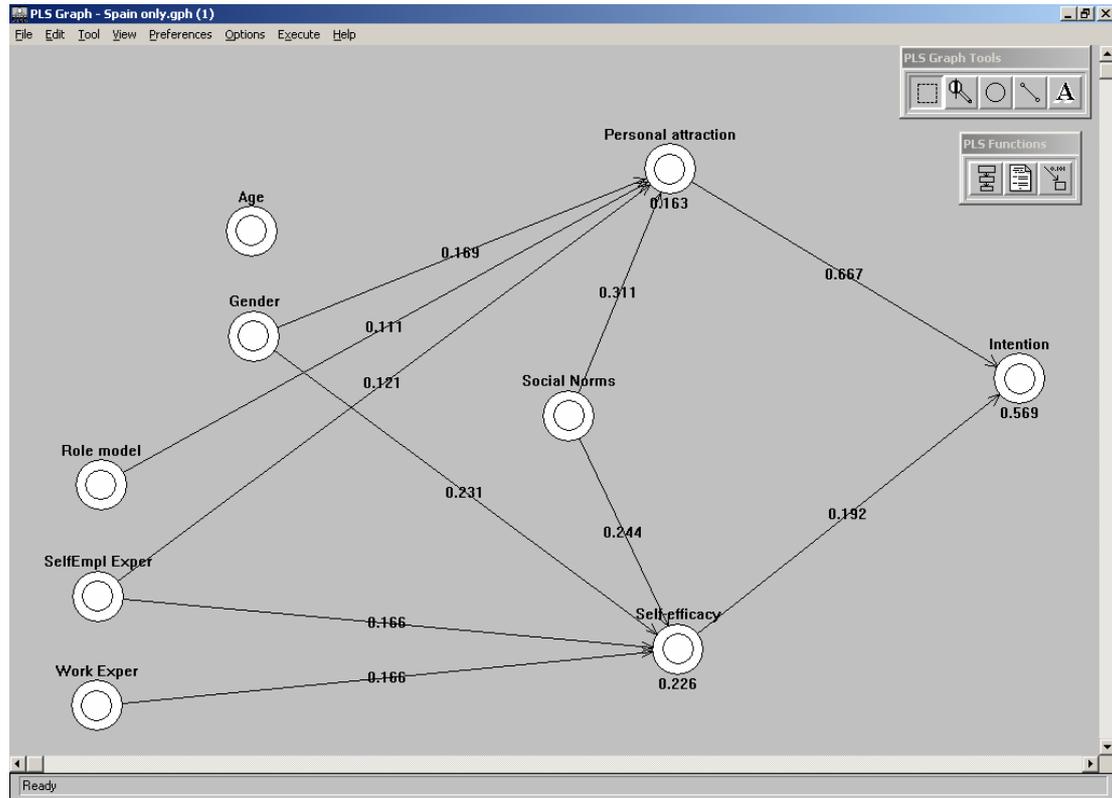
Reliability analysis for the Spanish-sample structural model

Construct	Indicator	loadings	composite reliability	Cronbach's alpha
Personal Attraction	11a attraction	0.7434	0.931	0.908
	11b attraction	0.8834		
	11c attraction	0.8993		
	11d attraction	0.8661		
	11e attraction	0.8733		
Perceived Social Norms	13a family	0.8053	0.869	0.763
	13bfriends	0.8754		
	13c mates	0.8077		
Self-efficacy	15a self-efficacy	0.7547	0.917	0.893
	15b self-efficacy	0.8648		
	15c self-efficacy	0.8747		
	15d self-efficacy	0.6884		
	15e self-efficacy	0.8060		
	15f self-efficacy	0.8299		
Entrepreneurial Intention	18a intention	0.8001	0.957	0.945
	18b intention	0.9072		
	18c intention	0.9174		
	18d intention	0.9246		
	18e intention	0.8822		
	18f intention	0.8880		

Structural equation results for the Taiwanese sample
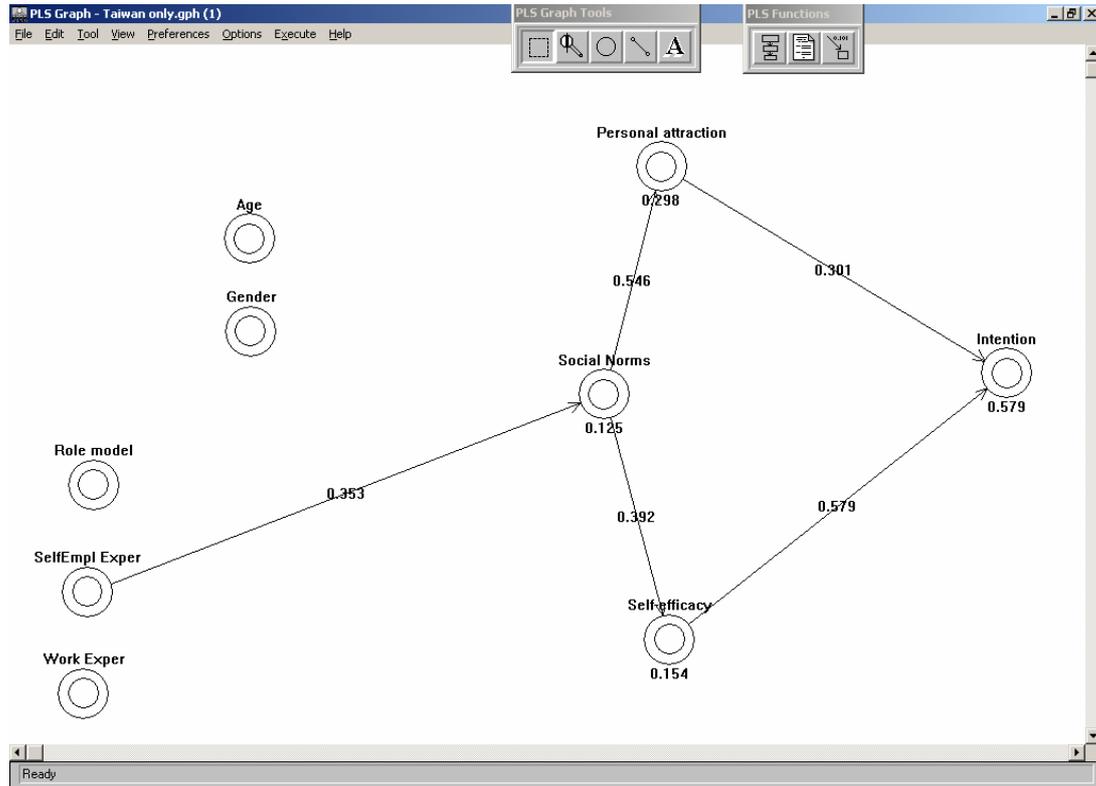
Reliability analysis for the Taiwanese-sample structural model

Construct	Indicator	loadings	composite reliability	Cronbach's alpha
Personal Attraction	11a attraction 11b attraction 11c attraction 11d attraction 11e attraction	0.6536 0.8947 0.8698 0.8087 0.8819	0.914	0.882
Perceived Social Norms	13a family 13bfriends 13c mates	0.8262 0.9098 0.9044	0.912	0.844
Self-efficacy	15a self-efficacy 15b self-efficacy 15c self-efficacy 15d self-efficacy 15e self-efficacy 15f self-efficacy	0.7318 0.8601 0.9014 0.8427 0.8447 0.8649	0.936	0.921
Entrepreneurial Intention	18a intention 18b intention 18c intention 18d intention 18e intention 18f intention	0.7781 0.9223 0.8681 0.9290 0.9406 0.9437	0.962	0.953

Figure 1
Entrepreneurial intention model
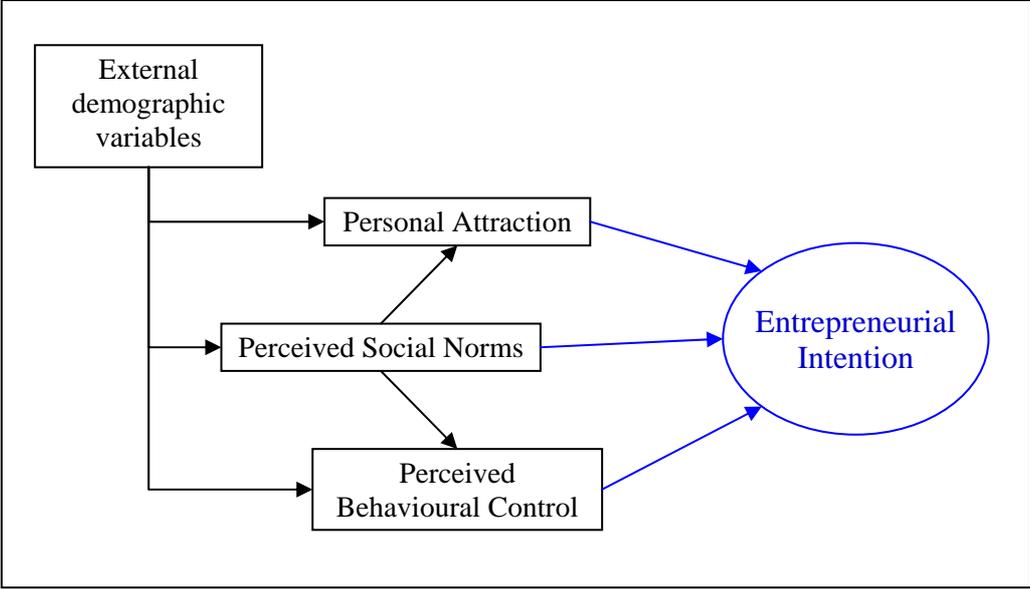
Figure 2
Entrepreneurial intention model to be tested
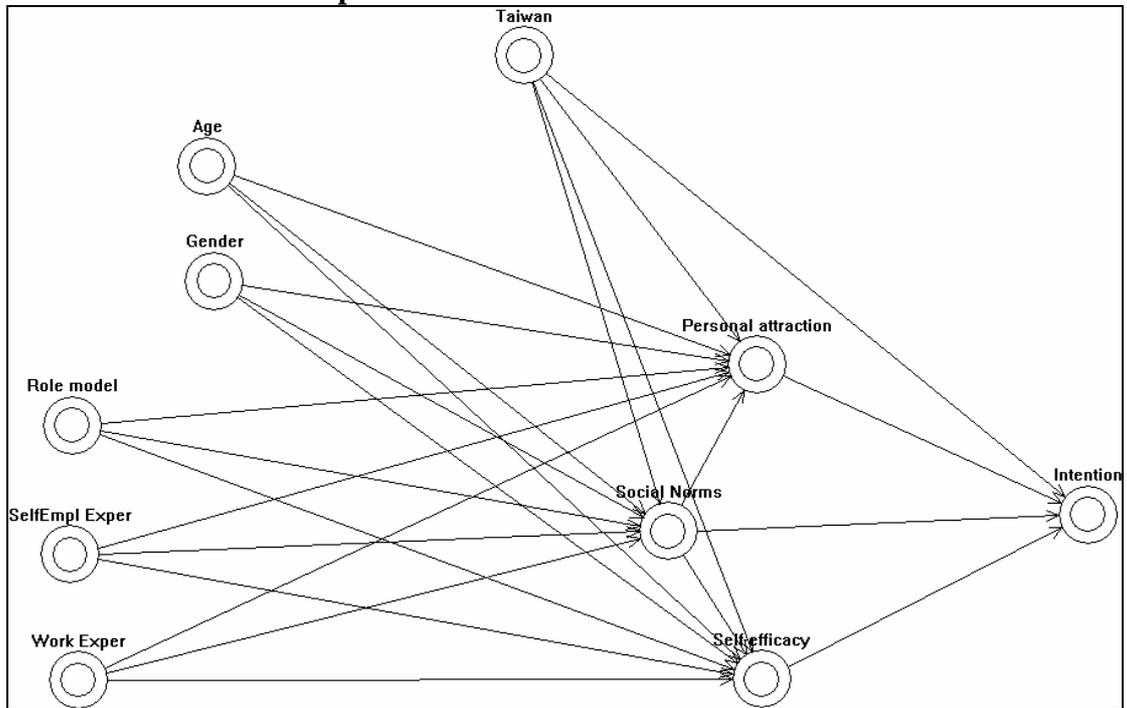
Figure 3
Results for the combined sample
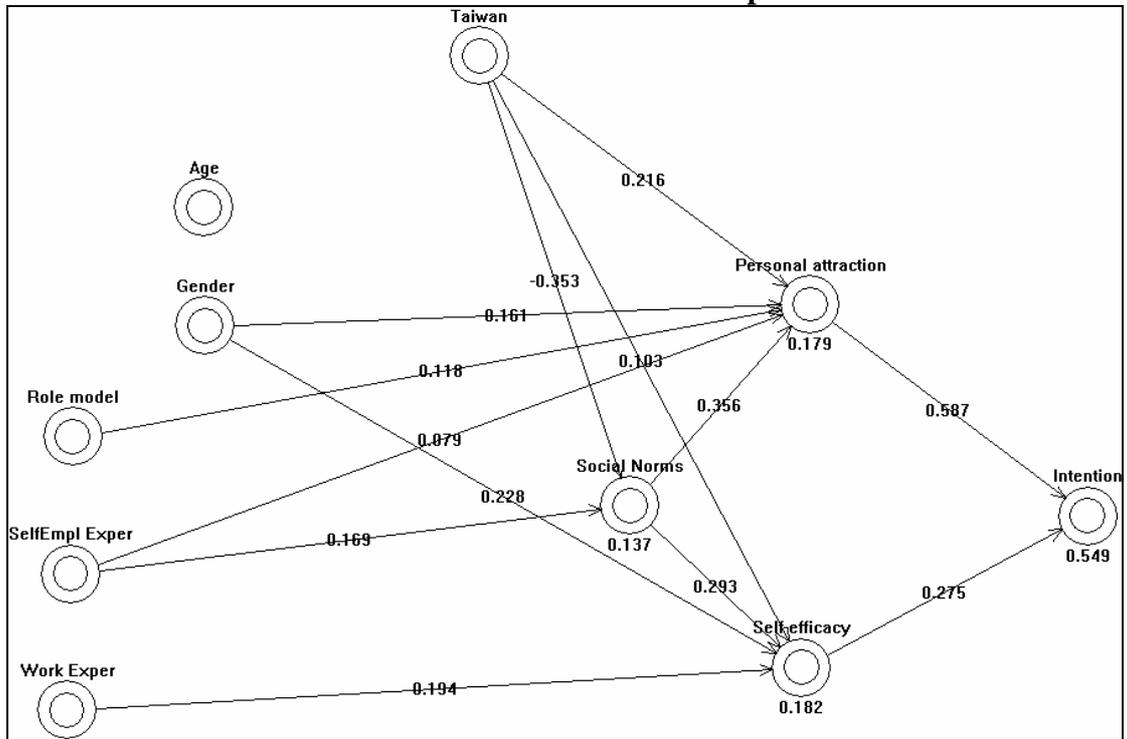
Table 1
Sample characteristics

	Spain			Taiwan			Total		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.
Age	396	23,609	3,075	126	23,071	2,972	522	23,479	3,056
Gender*	397	0,441	0,497	126	0,579	0,496	523	0,474	0,500
Degree studied	397			127			524		
Business		71.3%			60.6%			68.7%	
Economics		27.0%			----			20.4%	
Engineering		----			24.4%			5.9%	
Other		1.8%			15.0%			5.0%	
Work experience	400	0,435	0,496	133	0,368	0,484	533	0,418	0,494
Self-empl. exper.*	400	0,025	0,156	130	0,085	0,279	530	0,040	0,195
Know entrepreneur*	400	0,860	0,347	132	0,485	0,502	532	0,767	0,423

* Country difference is significant at the 99% level ($p < 0.01$)

Table 2
Reliability analysis for the combined-sample structural model

Construct	Indicator	loadings	composite reliability	Cronbach's alpha
Personal Attraction	11a attraction	0.7260	0.928	0.904
	11b attraction	0.8859		
	11c attraction	0.8920		
	11d attraction	0.8540		
	11e attraction	0.8764		
Perceived Social Norms	13a family	0.8247	0.892	0.804
	13bfriends	0.8928		
	13c mates	0.8505		
Self-efficacy	15a self-efficacy	0.8451	0.919	0.898
	15b self-efficacy	0.8602		
	15c self-efficacy	0.8765		
	15d self-efficacy	0.7192		
	15e self-efficacy	0.8027		
	15f self-efficacy	0.8422		
Entrepreneurial Intention	18a intention	0.7945	0.958	0.947
	18b intention	0.9103		
	18c intention	0.9067		
	18d intention	0.9266		
	18e intention	0.8959		
	18f intention	0.9018		

Table 3
Discriminant validity analysis

	1	2	3	4
1. Personal Attraction	**0,721**			
2. Social Norms	0,094	**0,734**		
3. Self-Efficacy	0,160	0,067	**0,656**	
4. Intention	0,486	0,050	0,260	**0,793**

Edicions / Issues:

01/5   *Enfoque estructural vs. recursos y capacidades: un estudio empírico de los factores clave de éxito de las agencias de viajes en España.*
Fabiola López-Marín, José M.ª Veciana

01/6   *Opción de Responsabilidad Limitada y Opción de Abandonar: Una Integración para el Análisis del Coste de Capita.*
Neus Orgaz

01/7   *Un Modelo de Predicción de la Insolvencia Empresarial Aplicado al Sector Textil y Confección de Barcelona (1994-1997).*
Antonio Somoza López

01/8   *La Gestión del Conocimiento en Pequeñas Empresas de Tecnología de la Información: Una Investigación Exploratoria.*
Laura E. Zapata Cantú

01/9   *Marco Institucional Formal de Creación de Empresas en Catalunya: Oferta y Demanda de Servicios de Apoyo*
David Urbano y José María Veciana.

02/1   *Access as a Motivational Device: Implications for Human Resource Management.*
Pablo Arocena, Mikel Villanueva

02/2   *Efficiency and Quality in Local Government. The Case of Spanish Local Authorities*
M.T. Balaguer, D. Prior, J.M. Vela

02/3   *Single Period Markowitz Portfolio Selection, Performance Gauging and Duality: A variation on Luenberger's Shortage Function*
Walter Briec, Kristiaan Kerstens, Jean Baptiste Lesourd

02/4   *Innovación tecnológica y resultado exportador: un análisis empírico aplicado al sector textil-confección español*
Rossano Eusebio, Àlex Rialp Criado

02/5   *Caracterización de las empresas que colaboran con centros tecnológicos*
Lluís Santamaria, Miguel Ángel García Cestona, Josep Rialp

02/6   *Restricción de crédito bancario en economías emergentes: el caso de la PYME en México*
Esteban van Hemmen Almazor

02/7   *La revelación de información obligatoria y voluntaria (activos intangibles) en las entidades de crédito. Factores determinantes.*
Gonzalo Rodríguez Pérez

02/8   *Measuring Sustained Superior Performance at the Firm Level*
Emili Grifell - Tatjé, Pilar Marquès - Gou

02/9   *Governance Mechanisms in Spanish Financial Intermediaries*
Rafel Crespi, Miguel A. García-Cestona, Vicente Salas

02/10   *Endeudamiento y ciclos políticos presupuestarios: el caso de los ayuntamientos catalanes*
Pedro Escudero Fernández, Diego Prior Jiménez

02/11   *The phenomenon of international new ventures, global start-ups, and born-globals:what do we know after a decade (1993-2002) of exhaustive scientific inquiry?*
Àlex Rialp-Criado, Josep Rialp-Criado, Gary A. Knight

03/1   *A methodology to measure shareholder value orientation and shareholder value creation aimed at providing a research basis to investigate the link between both magnitudes*
Stephan Hecking

03/2   *Assessing the structural change of strategic mobility. Determinants under hypercompetitive environments*
José Ángel Zúñiga Vicente, José David Vicente Lorente

03/3   *Internal promotion versus external recruitment: evidence in industrial plants*
Alberto Bayo-Moriones, Pedro Ortín-Ángel

03/4   *El empresario digital como determinante del éxito de las empresas puramente digitales: un estudio empírico*
Christian Serarols, José M.ª Veciana

03/5   *La solvencia financiera del asegurador de vida y su relación con el coste de capital*
Jordi Celma Sanz

03/6   *Proceso del desarrollo exportador de las empresas industriales españolas que participan en un consorcio de exportación: un estudio de caso*
Piedad Cristina Martínez Carazo

03/7   *Utilidad de una Medida de la Eficiencia en la Generación de Ventas para la Predicción del Resultado*
María Cristina Abad Navarro

03/8   *Evaluación de fondos de inversión garantizados por medio de portfolio insurance*
Sílvia Bou Ysàs

03/9   *Aplicación del DEA en el Análisis de Beneficios en un Sistema Integrado Verticalmente Hacia Adelante*
Héctor Ruiz Soria

04/1   *Regulación de la Distribución Eléctrica en España: Análisis Económico de una Década, 1987-1997*
Leticia Blázquez Gómez; Emili Grifell-Tatjé

04/2   *The Barcelonnettes: an Example of Network-Entrepreneurs in XIX Century Mexico. An Explanation Based on a Theory of Bounded Rational Choice with Social Embeddedness.*
Gonzalo Castañeda

04/3   *Estructura de propiedad en las grandes sociedades anónimas por acciones. Evidencia empírica española en el contexto internacional*
Rabel Crespí; Eva Jansson

05/1   *IFRS Adoption in Europe: The Case of Germany.*
Soledad Moya, Jordi Perramon, Anselm Constans