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DO ENTREPRENEURS COME FROM VENUS OR MARS? IMPACT OF POSTGRADUATE STUDIES: GENDER AND FAMILY BUSINESS BACKGROUND

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Abstract

Online MBA programs give postgraduate students the opportunity to develop skills and abilities to discover new business opportunities and to develop entrepreneurship intention (EI) (or entrepreneurial activity intention) and start-up behavior (SUB) (or entrepreneurship activity). This paper analyzes the impacts on entrepreneurial intention and on start-up behavior developed by the graduate students of an international online Master of Business Administration (OL-MBA) program launched by three public Spanish universities that offers two specializations (Management and Finance). The students of this program come from different countries, so the impact of cultural aspects is also examined in this study. The main results show that coming from an entrepreneurial family increases entrepreneurial intention, and this result is reinforced when the OL-MBA student is female. Additionally, female students are more likely to engage in start-up behavior if she comes from an entrepreneurial family. However, this start-up behavior is reduced when female students receive entrepreneurial education or if they have children (dependency context). Other personal characteristics, such as non-risk-adverse personality, can also motivate entrepreneurial intention and start-up behavior.

Keywords: Entrepreneurship education - Learning education - Entrepreneurship intention - Start-up behavior - Online learning, Master of Business Administration Students - Gender *JEL Codes*: A2, I22, M10, M130.

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DO ENTREPRENEURS COME FROM VENUS OR MARS?

IMPACT OF POSTGRADUATE STUDIES: GENDER AND FAMILY BUSINESS BACKGROUND

1.-INTRODUCTION

The importance of entrepreneurship has increased over the last several years, given that innovation and initiative are relevant determinants of economic growth (Harding and Bosma, 2006). However, it is not clear to researchers what factors and decisions encourage an individual to become an entrepreneur.

Several programs that focus on entrepreneurship have been promoted in high schools, colleges and universities in the United States (U.S.), resulting in remarkable growth over the last thirty years. An increase in the number of entrepreneurship programs has also occurred in the United Kingdom (U.K.), where business and entrepreneurial development has been listed as one of the four strategic goals for British universities (Katz, 2003). Other European countries, the rest of the U.S., Asia and Africa have also followed this tendency (Gürol and Ansal, 2006, Brockhaus, 1991; Gibb, 1993; Ronstadt, 1987; Koh, 1996; Hytti and O'Gorman, 2004).

Previous research has analyzed learning aspects such as the following: i) which works better, a training approach or an educational approach?1,2; ii) what to teach?3;

¹The Global Entrepreneurship Monitor (GEM) model suggests that the effect of enterprise training on the allocation of effort into entrepreneurial activity (as opposed to other economic activity, such as being an employee) will be fully mediated by its influence on opportunity perception, on the one hand, and entrepreneurial skills perception, on the other. This expectation justifies a study of the effect of enterprise training on opportunity and skill perception.

²Recognizing that part-time programs have very little impact within individuals' existing organizations, the universities previously developed new approaches to education, called "action learning" and developed by Frank (1996). Action learning entails managers sharing their concerns and plans with like-minded colleagues, resulting in managers gaining greater insights, inspirations, and motivation to cope with difficult and challenging times (Johnson and Spicer, 2006).



iii) where to teach?; and iv) what is the impact of education on the professional activities of former students in different countries and with different levels of education? (Johnson and Spicer, 2006; Mwasalwiba, 2010 among others). The relevant empirical works include those of Vesper and Gartner (1997), Low, et al. (2003), Luthje and Franke (2003), Paterman and Kennedy (2003), DeMartino and Barbato (2003), Wang and Wond (2004), Soutaris et al. (2007), Athayde (2009), Levi, et al. (2009), Zellwegewe, et al. (2010), etc. Taking into account the second aspect "What to teach?", the taught topics may help people to recognize opportunities and think creatively, and they enable them to build leadership skills and confidence and to promote innovation and self-employment (Sexton, 1997 and the European Commission Report, 2008). A general MBA program includes these different knowledge areas.

Focusing on university education, particularly in postgraduate programs such as MBA programs, it is apparent that a greater presence of programs that train students to pursue their own businesses leads to a larger number of start-ups. Graduates at the university level who have taken entrepreneurship courses are more likely to select managerial and entrepreneurial careers, work in small businesses and develop patented inventions or innovative processes, services or products (Honig, 2004; Matlay, 2008 and Levi, et al., 2009, among others). Nevertheless, these studies do not analyze how students' attitudes and interests influence their decision to launch their own enterprises. However, studies such as that of Peterman and Kennedy (2003) examine the effect of participation in an enterprise education program on the perceived desire and possible feasibility of starting a business. After being involved in the program, students reported

³"Learning by doing" is more effective for developing entrepreneurial skills and attitudes than traditional methods, such as lectures (European Commission Report, 2008; Walter and Dohse, 2009); "Learning by learning" suggests than an experimental learning approach works better (Rasmussen and Sorhein, 2005; Raffo et al., 2002). Masters students apply and receive both methods.



a significantly higher perception of desirability and feasibility compared to the control group. At the same time, Souitaris et al. (2007) tested the effect of entrepreneurship programs on the entrepreneurial attitudes and intentions of science and engineering students. Among the main results, the article shows that the programs increase some attitudes and overall entrepreneurial intention. Inspiration is the programs' most influential benefit.

More recent studies analyze how socio-psychological and cognitive aspects may influence entrepreneurship decisions (Shane and Venkataraman, 2000). According to the Theory of Planned Behavior, the attitude towards entrepreneurship is the determining factor for entrepreneurial intention (Honig, 2004; Diaz-García, Jimenez-Moreno, 2010 among others). Another influencing factor is gender, whose effect on entrepreneurship intention and entrepreneurship activity has been analyzed in previous studies. The empirical results show that there are many similarities between female and male entrepreneurship intention at the university level of education. However, women and men have different motivations to engage in entrepreneurial activity (DeMartino and Barbato, 2003; Diaz-García, Jimenez-Moreno, 2010, among others).

Unlike previous research, the aim of this study is to analyze the impact of postgraduate education on entrepreneurial initiatives, taking into account the relevance of individual characteristics. In addition, this paper focuses on the impact of entrepreneurial families, entrepreneurial skills and the dependency context on these decisions, analyzing not only the effect on students' attitudes and intentions to develop entrepreneurial activity but also the possible gender differences in this decision. Our database selected students from different countries that were part of an OL-MBA Program launched by three Spanish public universities.



This paper contributes to the literature in three ways. First, to the best of our knowledge, no other study has focused on the impact of undertaking an OL-MBA on EI and SUB. A study by DeMartino and Barbato (2003) also analyzed EI and SUB. However, they considered students from contact classes (not online classes) in a U.S. Business School after 1978. Second, this paper extends the time period of previous studies from 2002 to 2010. This period is characterized by both economic growth and economic crisis periods. Finally, this paper presents an international experience because we analyze the impact of international student enrollment in an OL-MBA program on EI and SUB.

The main results show that coming from an entrepreneurial family increases entrepreneurial intention, and this result is reinforced when the OL-MBA student is female. Additionally, female students are more likely to engage in start-up behavior when they come from an entrepreneurial family. However, this start-up behavior is reduced when female students have entrepreneurial education or if they have children. Other personal characteristics, such as non-risk adverse personality can motivate entrepreneurial intention and start-up behavior.

The paper is structured as follows. In section 2 we present previous research and the hypotheses established. Section 3 describes the database and methodology used. Section 4 shows the main results. Finally, in section 5, we discuss the conclusions and academic and economic implications.

2. -PREVIOUS RESEARCH AND HYPOTHESES

According to Souitaris et al., (2007) "in the psychology literature, intention proved to be the best predictor of planned behavior, particularly when that behavior is rare, hard to



observe, or involves unpredictable time lags". Because entrepreneurship is an example of planned, intentional behavior, (Krueger and Brazeal, 1994, among others), we will analyze the factors that determine that intention. The presence of intention precedes behavior. In turn, intention is determined by attitudes, which are influenced by external factors such as training and situational variables4 (Krueger et al., 2000).

The majority of previous studies suggest that while there are similarities between female and male entrepreneurs in the areas of personality factors and motivations, there are also important differences (DeMartino and Barbato, 2003, among others). Common motivations for female entrepreneurs to start their own businesses include dissatisfaction with their current employment and the belief that being an owner may allow better balance between work and family life. Male entrepreneurs, however, are often motivated by economic factors.

2.1. The Level of Education and Gender

Individuals can receive entrepreneurial education and training at different times in their lives, at school, in college, or after formal education, and this education or training may take the form of traditional learning or experimental immersion (Levie *et al.*, 2009). According to the academic level where the management or entrepreneurship courses were received, previous literature makes the following classifications (Pittaway and Cope, 2007):

i) High school studies.

Athayde (2009) investigated the impact of participation in a Young Enterprise Company Program, which was based on the U.S. Junior Achievement model, in six secondary schools in

⁴ According to Justo, *et al.* (2006), when authors try to explain gender differences with respect to motivations and perceptions, the arguments used are based on two opposing theories: i) dispositional perspective (variations in education and socialization patterns of women and men lead to different experimental backgrounds, ways of thinking and interpersonal orientations and ii) situational perspective (men and women do not differ in terms of values or intentions, but rather these differences can be attributed to variations in the power and opportunities accorded to women and men).



London (United Kingdom). Appling a cross-group control-sectional instrument developed by the author, she measured what she called "enterprise potential", the attitudes towards the characteristics associated with entrepreneurship. Among the main results, she found that differences between groups based on demography exist (e.g., ethnic groups or family history).

ii) Undergraduate Studies.

The literature offers many papers addressing, among other issues, how universities determine what courses constitute a program in entrepreneurship and how they determine the criteria that impact the quality of the entrepreneurship program (Vesper and Gartner, 1997). Other studies have examined issues that impact the study of business (McLarty, 2003). Peterman and Kennedy (2003) used a control group on a survey of 117 students to examine the effect of participation in an enterprise education program on perception concerning the desire and feasibility of starting a business. The authors measured the changes in the perceptions of students enrolled in the Young Achievement Australia enterprise program using a pre-test and post-test control group. After being involved in the program, the students reported a significantly higher perception (desirability and feasibility) compared to the control group. Gürol and Atsan (2006) explored the entrepreneurship profile of students at two Turkish universities. They made an evaluation of their entrepreneurship orientation by comparing them with non-entrepreneurially inclined students, using a random sample of 400 fourth-year university students. Students were asked, "What are you planning to do after graduation?" to discriminate between those who are entrepreneurially inclined and those who are not. Respondents who offered answers such as, "I'm planning to develop my own business venture" are accepted as potential entrepreneurs. Then, the entrepreneurial traits of these students are subjected to a comparative analysis with other students who do not plan to start their own businesses and who are, thus, are not included in the group of potential entrepreneurs. The results of the t-tests showed that, except for tolerance of ambiguity and self-confidence, all entrepreneurial traits (innovativeness, need for achievement, locus of control, risk-taking propensity, tolerance of ambiguity and self-confidence) are found to be higher in



entrepreneurially inclined students compared to non-entrepreneurially inclined students. That is, these students are found to have higher risk-taking propensity, a higher internal locus of control, a higher need for achievement and higher innovativeness. Souitaris et al. (2007) test the effects of entrepreneurship programs on the entrepreneurial attitudes and intentions of science and engineering students. Using a survey of 232 students (154 in London, UK and 78 in Grenoble, France) with a control group of 220 students (148 in London, UK and 72 in Grenoble, France), the main result of this study showed that the programs raise entrepreneurial intention. Levie, et al. (2009) analyzed the effect of enterprise training on the opportunity perception and entrepreneurial skill perception of trainees using information from 5,000 adults aged 18 to 44 from the Global Entrepreneurial Monitor (GEM) U.K. database. The authors attempted to overcome methodological challenges in demonstrating the effect of enterprise training on the opportunity perception and entrepreneurial skills perception of trainees. Logistic regression shows that, controlling for demographic effects, experience and attitudes, different types of training had different effects on opportunity perception and entrepreneurial skill perception. The results suggest that a combination of college-based training and work placement might provide a better all-around entrepreneurial capability for both graduates and non-graduates.

iii) Master Postgraduate Studies in Management and Entrepreneurship.

It is shown that Master students in business schools that complete entrepreneurship courses have a higher propensity to become entrepreneurs (Vesper and Gartner, 1996). Wright *et al.* (2009) examined the current role of business schools in academic entrepreneurship, especially the contribution of business schools to the transfer of knowledge to enable academic entrepreneurship. Being able to participate in a successful entrepreneurship course increases the demand for quality MBA programs (Callan and Warshaw, 1995). However, when analyzing the impact of the successful programs (failure) on corporate incentives after the completion of an MBA, prior business experience demonstrated by the student should be taken into

^{5 &}quot;Five cases out of eight suggested that MBA students might provide effective alternatives to the involvement of academic faculty. The product of MBA programs could also be used directly in academic entrepreneurship. For instance, one university reported that the MBA student database has been used to identify interim managers for two spin-out companies."



consideration. Thus, success could be explained, at least in part, by the knowledge gained through past experience (Krueger and Brazeal, 1994, Matlay, 2008).

Hamidi *et al.* (2008) applied the social cognitive theory to analyze the relationship between creativity and entrepreneurial intention. They analyzed three graduate entrepreneurship programs, using a well-established creativity test to measure students' disposition toward creativity. Creativity is one of the most important elements of entrepreneurship intention and can be defined as "a conscious state of mind that directs attention (and therefore experience and action) toward a specific object (goal) or pathway to achieve it (means)" (Bird, 1989). They found that higher scores of creativity corresponded to stronger positive effects on entrepreneurial intention.

In summary, different personal characteristics of high school, undergraduate and postgraduate students are relevant to explain entrepreneurial intention. These characteristics might be conditioned by the level of education.

Empirical studies also show that there are differences in the entrepreneurial career motivation between female and male MBA holders (DeMartino and Barbato, 2003). The authors analyzed motivational differences in a sample composed of 1,763 alumni from a business school after 1978. They conclude that female entrepreneurs preferred careers that give them flexibility and allowed them to balance career and family obligations, while male entrepreneurs are motivated by careers that would allow them to create wealth. These differences are greater between married women and men with dependent children.

There are differences in entrepreneurial self-efficacy that are persistent even among women who have chosen a management career path and are actively pursuing MBA degrees. However, the authors find that entrepreneurship education may reduce these gender differences for women with entrepreneurial aspirations. For Pittaway, *et al.* (2007), entrepreneurship education can be positioned as an equalizer, possibly reducing the limiting effects of low self-efficacy and ultimately increasing the chances for successful venture creation by women.



A study published by Low *et al.* (2003) studied the traits of students to assess whether these traits are interrelated and to determine the extent of the impact of demographic variables on these entrepreneurial traits. The more developed entrepreneurial traits observed included the following: "competing against self-imposed standards", "self-confidence" and "management of failure." The most significant relationships from a statistical point of view are gender, race, age, entrepreneurial traits and the institution attended by the students.

Wilson *et al.* (2007) find a strong gender effect on both entrepreneurial self-efficacy and intentions at the middle/high school level, supporting earlier research on self-efficacy differences that seem to reflect gender-based role expectations. While they do not measure gender stereotyping for different career paths, the results, taken together with previous research on self-efficacy and career intentions, suggest that entrepreneurship may still be perceived as a "male" field and that young women may be limiting their career aspirations because they feel that they lack adequate skills and abilities.

Additionally, Ebersberger and Pirhofer (2011) focused on the entrepreneur intention of academics in Austria. Their results show that supplementary management education does not have a significant effect on willingness to pursue academic entrepreneurship. However, for female academics, supplementary management education exerts a significantly positive effect, almost offsetting the gender effect.

Focusing on entrepreneurship intention in Spain, we find Veciana *et al.* (2005). They use a sample of 837 and 435 undergraduate-students from two universities in Catalonia (Spain) and Puerto Rico, respectively. The aim of the study is to assess and compare the attitudes towards entrepreneurship and enterprise training between these two groups of students. The results reveal a positive image of entrepreneurs. Both samples had a favorable perception of the desirability of new venture creation, although the perception of feasibility is far less positive, and only a small percentage has the firm intention to create a new company. These researchers also analyze intention to create a new firm by gender.



García-Díaz and Jiménez-Moreno (2010) analyze the attitudes towards entrepreneurship to be determining factors of entrepreneurial intention, and they find that gender also seems to play a key role according to the Theory of Planned Behavior for undergraduate students. This study analyzes the entrepreneurial intention model and focuses on the role of gender in this process. One of the main conclusions is that men are more likely to think about beginning an entrepreneurial activity than to actually do so. However, of those men, those who perceive higher congruence between masculinity and entrepreneurial attributes are more likely to have firm entrepreneurial intentions. Men and women with firm entrepreneurial intentions perceive successful entrepreneurs to have feminine attributes. This, together with the characteristics of the sample, may explain the lack of a gender difference in entrepreneurial intention.

To the best of our knowledge, in Spain there are no studies that analyze the impact of online postgraduate education programs considering gender impact. Therefore, we propose the following hypothesis:

H1: Individuals are more likely to recognize their entrepreneurial intention (and startup behavior) if they have undertaken entrepreneurship training or education at any level of education (such as an OL-MBA). This effect may vary depending on gender.

2.2. Family Entrepreneurship

Previous experiences in entrepreneurial activities are important for entrepreneurial intention. It is widely known that many individuals become entrepreneurs because they are the daughters and sons of entrepreneurs. The literature tells us that two reasons lead to this outcome (Hamidi, *et al.*, 2003): i) parents act as role models (Delmar and Davidson, 2000) and, ii) the parents transfer skills to their children in the hopes of carrying forward the enterprise they manage (Westhead, 2003). Therefore, we propose the following hypothesis:

H2: Individuals are more likely to recognize their entrepreneurial intention (and startup behavior) if they belong to an entrepreneurial family. This effect may vary depending on gender.



2.3. Entrepreneurial Skills

Luthje and Franke (2003) used a survey of 512 students at the MIT School of Engineering (USA) and applied a covariance structure model to test and identify the causes of entrepreneurial intention among engineering students. The study shows that personality traits have a strong impact on attitude toward self-employment and are linked to intention to start a new venture. Entrepreneurial intent was also viewed to be directly affected by perceived barriers and support factors. The skills needed to develop entrepreneurship include the following: lack of risk aversion, leadership, the ability to take initiative, teamwork skills and creativity). Hamidi et al., (2008) apply the social cognitive theory to analyze the relationship between creativity and entrepreneurial intention. The authors use a well-established creativity test to measure students' creativity disposition. Creativity is one of the most important elements of entrepreneurship intention and can be defined as "a conscious state of mind that directs attention (and therefore experience and action) toward a specific object (goal) or pathway to achieve it (means)" (Bird, 1989). They find that higher the scores of creativity correspond to stronger positive effects on entrepreneurial intention; therefore, we propose the following hypothesis:

H3: Individuals are more likely to recognize their entrepreneurial intention (and start-up behavior) if they believe they have the entrepreneurial skills (lack of risk aversion, creativity, leadership, the ability to take initiative, team works skills) to do so. This effect may vary depending on gender.

2.4. Dependency context

Motivational differences between females and males with MBAs have been studied by DeMartino and Barbato (2003). The main conclusions are that female entrepreneurs prefer careers that give them flexibility and allow them to balance career and family obligations, while male entrepreneurs are motivated by careers that would allow them to create wealth. Both



differences become greater when comparisons are made between married women and men with dependent children; therefore, we propose the following hypothesis:

H4: Individuals are more likely to recognize their entrepreneurial intention (and startup behavior) if they are involved in a dependency context (they have children). This effect may vary depending on gender.

3. -DATABASE AND METHODOLOGY

3.1 Sample Description

In May of 2010, a questionnaire was sent to the alumni of an OL-MBA offered by three well-known public universities in Spain. The program has two specializations, Management and Finance, and it focuses on a part-time program. Subsequently, to simplify, we will refer to both of the specializations together as the OL-MBA program. The questionnaire included 44 questions that requested information related to previous studies, gender, personal perceptions with respect to risk aversion, creativity, leadership skills, the ability to carry out initiatives and teamwork skills, personal profile in terms of marriage and dependent status, current employment (the sector and position of the firm), country of origin, and age.

The entrepreneurship profile is identified in the following ways (DeMartino and Barbato, 2003): i) the intention of setting up a personal business once finished with the MBA program: ii) if the individual is self-employed or currently employed; iii) The individual's own perception with respect to risk aversion, creativity, leadership skills, the ability to carry out initiatives and teamwork skills.



The survey considers an alumni population of 930 people. The number of answers received by September 30th, 2010 was 213, which represented 23% of the population. This program started in October, 2002. Given that it was an online program, it was followed by students from 30 different countries. The period of study extended from the first time the course was offered (October 2002) until the final time (March 2008). The final sample is composed of 213 student answers, 75% belonging to the OL-MBA Management specialization and 25% to OL-MBA Financial specialization.

3.2. Variable Description

As stated above, the variables used in this paper are drawn from the original data obtained from the survey, which was produced ad hoc for this investigation. According to the purpose of this study and the postulated hypotheses we want to test, we define different types of variables that will be employed in the empirical analysis. They are reported in Table 1.

Insert Table 1 here

The sample and the characteristics of the dataset are briefly described as follows:

- 33.80% of the postgraduate students in the sample have the intention to set up their own business when they finished the OL-MBA program (72 students). Of this group 46.75% of them start their own business.
- 47.89% of the students have received specific entrepreneurship training/education during their lifetime. 24.41% of this group has received it at university, in a postgraduate program or in their professional career.



- 23.70% of the students are female and 76.30% are male.
- 58.45% of the postgraduate students have a family member who is an entrepreneur, but only 30.54% postgraduate students consider themselves to be from entrepreneurial families.
- In relation to personal characteristics, females are less risky and creative than males. According to a Likert scale that assumes a value of 1 for risk adverse individuals and 5 for non-risk adverse individuals, the averages are 2.98 and 3.49 for female and male respondents, respectively. In the case of creativity, the average for females is 3.82, and for males it is 4.02. There are no statistical differences for the rest of the characteristics.
- 64.32% of the postgraduate students have children, so they have dependency activity added to their lives. The average number of children among them is 1.8 (median 2 children), with 6 children being the highest.
- 72.25% of postgraduate students are married, 24.88% are single, and the rest of them are in different situations.
- 19.25% of them are currently studying.
- The average number of years since the completion of their undergraduate degree (B.A./B. Sc.) is 16.78 years.
- The average number of years between their undergraduate degree (B.A./B.Sc.) and the beginning of the online MBA programs is 17 years.
- The background studies of the OL-MBA students are described as follows:
 32.39% are graduated in technical studies or engineering; 51.64% are graduated



in Business Administration, Economics, Accounting or Marketing Degrees; the rest of the postgraduate students have Degrees in Law, Science, Humanities or Communication.

- The countries of origin of the final 213 postgraduate students are as follows: 70.89% of the students come from Latin America; 24.41% come from European countries (except Spain); 19.72% come from Spain; 4.69% come from Africa, and the rest of the students come from China.
- The average age is 39 years old (median 38 years old), with the youngest student being 24 years old and the oldest student being 63 years old.

Motivational factors to start their own business

The direct reasons that the OL-MBA students revealed for starting their own businesses were identified by a question in the survey. Table 2 reports that the main reason why OL-MBA students decide to start their own businesses is based on entrepreneurial vocation (career flexibility), and the second main reason is to discover business opportunities. These results are coherent with the other results for entrepreneurial intention.

Insert Table 2 here

Specific training/education on entrepreneurship

Table 3 shows OL-MBA students' perceptions regarding the degree to which the training or education in entrepreneurship received at different levels has contributed to their actual entrepreneurial activity (starting their own companies). This training is



classified in four levels (Primary School, High School or Technical School, University and MBA program). For each level, a Likert scale is described from 1 (no contribution) to 5 (significant contribution). Table 3 shows the percentage for each level.

Insert Table 3 here

Given the results in Table 3, we can see how important the education/training received by OL-MBA students is to their entrepreneurial skills used to start their own businesses. Additionally, the training obtained at university level seems relevant. Table 3 also shows the result for how the students' decisions to take part in an OL-MBA program help them to feel self-confident with their entrepreneurial intention.

3.3. Methodology

The model designed to test the study hypotheses is analyzed following the maximum likelihood estimation, using Probit models. This is the most appropriate method given that the variables we want to explain are dichotomous. We distinguish two models: one for "entrepreneurial intention" and the second one for "start—up behavior" (or "entrepreneurial activity").

We want to determine the final impact of training/education and personal characteristics, as well as the effects of the entrepreneurial family and dependency context on the way in which individuals perceive their intention to start their own company. However, as we have postulated in the hypotheses, we also consider that gender will have a moderate impact on the explanatory variables of entrepreneurial intention. Thus, the model is described as follows:



(1)
$$ENT _{in} = \alpha_0 + \sum_{j=1}^{J} \beta_j EV_{ij} + \sum_{m=1}^{M} \lambda_m CV_{im} + \varepsilon_i$$

Where,

 $ENT_{-}INT_{n}$ is the dependent variable that explains entrepreneurial intention.

EV_{ij}: Explanatory variables involve all those variables that, under our hypotheses, will explain entrepreneurial intention, such as specific training/education on entrepreneurship and gender; personal characteristics associated with entrepreneurs, such as risk aversion, creativity, the ability to take initiative, leadership and teamwork skills; belonging to an entrepreneurial family; and being involved in a dependency context.

CVm: Control variables that can affect the entrepreneurial activity intention, such as the level of education, years between undergraduate study and MBA study, and country of residence prior to MBA study.

For the second case, the *Probit* model proposed is as follows:

(2)
$$START - UP_{in} = \alpha_0 + \sum_{j=1}^{J} \beta_j EV_{ij} + \sum_{m=1}^{M} \lambda_m CV_{im} + \varepsilon_i$$

Where $START-UP_{in}$ is the dependent variable that explains start-up behavior, and it is a function of the variables described for the first model.

In this case, it is important to remark that we will also report the main motivation identified by the OL-MBA students to explain the reasons why they decided to start their own business.



4.-RESULTS

In this section, we present the results of the empirical analysis regarding the determinants of entrepreneurial intention and start-up behavior.

4.1. Entrepreneurial intention determinants

Table 4 captures all results obtained from the econometric analysis shown in the previous part to test all hypotheses. Column (1) reports the general model captured by equation (1), which will help us to test hypotheses H1-H4 in relation to entrepreneurial intention. Columns (2) and (3) show the cross-effect impact of gender on entrepreneurial intention. Column (4) shows the general model in relation to start-up behavior, and models (5) and (6) show the cross-effect impact of gender on this dependent variable (start-up behavior).

Insert Table 4 here

Column (1) shows that specific training/education in entrepreneurship throughout a lifetime (TRAINING) has no significant impact on the entrepreneurial intentions developed by MBA students. There is no empirical effect on the start-up behavior, model (4). Thus, our hypothesis 1 is not supported. However, women with training/education in entrepreneurship are less likely to start their own businesses, with men being more likely to do so. Therefore, this result shows that there are differences by gender, in line with Wilson et al. (2007).

In contrast, there is empirical evidence to support hypothesis 2, given that we find a positive relationship in the variable FAM_ENT. Thus, we can conclude that individuals are more likely to develop their entrepreneurial activity intentions if they



belong to entrepreneurial families. In addition to this result, it is important to analyze the effect of gender on this relationship. Column (3) shows the cross effect of gender and entrepreneurial family. As shown, it seems that female gender explains the positive effect of having an entrepreneurial intention when a female student has a family with entrepreneurial experience. Columns (5) and (6) show that there is a positive effect of this interaction on start-up behavior. This result supports the argument that a female student who comes from a family with entrepreneurial experience is more likely to start her own business. Again, the results show that there are differences by gender. Family transference skills may have more impact on women than men.

In relation to personality characteristic effects on entrepreneurial activity intention, we identify different empirical results (Hypothesis 3). Analyzing column (1) and (2), we can see that only non-risk adverse individuals (RISK_TYPE) are more likely to develop their entrepreneurial intention. Non-risk adverse individuals are also more likely to start their own businesses, as is shown in model (4). The remaining personality variables do not seem to be statistically significant in this case. However, once we cross the effect of gender with each of these personality characteristics, gender is observed to generate a moderate effect on each. Particularly, column (3) shows how female non-risk adverse individuals are less likely to develop entrepreneurial intentions (EI). Therefore, men are more likely to have EI.

Creativity skills (CREATIVITY) seem to not be significant in the general model.

Leadership skills (LEADER) do not have a significant effect on entrepreneurial intention or start-up behavior for individuals in general. However, women with high leadership skills are more likely to start their own businesses, as shown in model (6).



The variable associated with an individual who takes the initiative to make decisions (INITIATIVE) is not statistically significant in the general model.

Finally, the personality characteristic associated with teamwork is not statistically significant in the general model. However, it becomes marginally significant once we cross it with gender (columns 5 and 6). This means that female individuals with teamwork skills are less likely to start their own businesses, where it is more likely that men would start businesses.

When analyzing hypothesis 4, we do not find empirical evidence to the general model. However, the interaction between gender and dependency has a negative impact on start-up behavior, model (5) and (6). This result supports the argument that females are less likely to start their own businesses when they have children (dependency context, H4). Therefore, again, the results show that there are differences between females and males in entrepreneurial decisions. This result is consistent with DeMartino and Barbato (2003).

5. CONCLUSIONS

The purpose of this paper is to analyze the entrepreneurship intention of international OL-MBA students to start up their own businesses. We have considered students from all over the world, mainly Latin America and Europe, given that the OL-MBA considered was an online program. Additionally, it is interesting for us, given the results found for the United States and United Kingdom, to analyze the moderate effect that gender can have in these relationships.

The sample was created through a questionnaire sent to all students who enrolled in the OL-MBA program from 2002 to 2008. The response ratio was 23%, which amounted to 213 answers from the whole population (930 OL-MBA students).



Unlike previous research, the aim of this study is to analyze the impact of postgraduate education on entrepreneurial initiatives, taking into account the relevance of individual characteristics. In addition, the paper focuses on the impacts of an entrepreneurial family, entrepreneurial skills and a dependency context on these decisions, analyzing not only the effect on the students' attitudes and intentions to develop entrepreneurial activity but also the possible gender differences in this decision. Our database selected students from different countries that were part of an OL-MBA Program launched by three public universities in Spain.

Regarding the determinants of entrepreneurial activity intention and the drive to start a business, our results show the following conclusions:

- Specific training/education in entrepreneurship seems not to have a statistically significant impact on EI. However, once we analyze the perception of starting an individual business, a negative impact of female training/education on the final decision to start a personal business is found (mainly in the online MBA program). Thus, one of the lessons we can learn from this research is that many efforts should be made by the government and educational institutions to promote female entrepreneurial activity at all educational levels, given that it is relevant to economic growth, even in periods of economic crisis and unemployment, such as the current one.
- Family entrepreneur culture seems very relevant for OL-MBA students in terms of entrepreneurial intention and the decision to start a personal business.
 This effect is reinforced when the MBA student is female. Thus, this finding could be a signal that the professionalization intention of family firms results



in family members becoming trained and achieving a high level of educational studies, such as OL-MBA programs.

- The impact of personal characteristics on entrepreneurial activity intention is relevant. In this sense, results report that lacking risk aversion is the most important characteristic in general. Considering gender, empirical evidence supports the result that personal characteristics such as lacking risk aversion and possessing teamwork skills can motivate start-up behavior when individuals are male. The start-up behavior is reduced when individuals are female.
- The results show a significant effect for dependency issues when students are female, reducing the likelihood that they will start their own businesses.

This research serves to cover the lack of research evaluating policies based on education at different levels and its impact on entrepreneurial activity intention and real activity, as well as family entrepreneurship, entrepreneurial skills and dependency context. Additionally, this study takes into account possible differences depending on the student gender.

The results associated with the social characteristics have several implications for academics and politicians that may provide them with useful knowledge about what formative programs could be developed and implemented to motivate entrepreneurial activity. It is also relevant to implement programs that are gender-sensitive.

REFERENCES

Athayde, R., 2009. Measuring Enterprise Potential in Young People. Entrepreneurship Theory and Practice 33 (2), 485-500.



- Coduras, A., Urbano, D., Rojas, A., Martinez, S., 2008. The Relationship between University Support to Entrepreneurship with Entrepreneurial Activity in Spain: A GEM data based Analysis. International Advances in Economic Research 14, 395-406.
- Delmar, F., Davidson, P.,2000. Where do they come from? Prevalence and characteristics of nascent entrepreneurs. Entrepreneurship and Regional Development 12, 1-23.
- DeMartino, R., Barbato, R., 2003. Differences between women and men MBA entrepreneurs: exploring family flexibility and wealth creation as career motivators. Journal of Business Venturing 18, 815-832.
- Díaz-García, M.C., Jiménez-Moreno, J., 2010. Entrepreneurial intention: the role of gender. International Entrepreneurship and Management Journal 6 (3), 261-283.
- Ebersberger, B., Pirhofer, C., 2011. Gender, management education and the willingness for academic entrepreneurship. Applied Economics Letters 18, 841-844.
- Gürol, Y., Atsan, N., 2006. Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey. Education + Training 48 (1), 25-38.
- Hamidi, D., Wennberg, K., Burglund, H., 2008. Creativity in entrepreneurship education. Journal of Small Business and Enterprise Development 15 (2), 304-320.
- Harding, R., Bosma, N., 2006. Global Entrepreneurship Monitor 2006. Global Summary Results.
- Honig, B., 2004. Entrepreneurship Education: Toward a Model of Contingency-Based Business Planning. Academy of Management Learning and Education 3 (3), 258–273.
- Justo, R., Cruz, C., De Castro, J., Coduras, A., 2006.Entrepreneurs' Perceptions of success: Examining differences across gender and family status. IE Working Paper_W06-07
- Johnson, C., Spicer, D.P., 2006. A case study of action learning in an MBA program: A case study of action learning. Education + Traning 48 (1), 39-54.
- Katz, J., 2003. The Chronology and Intellectual Trajectory of American Entrepreneurship Education 1876–1999. Journal of Business Venturing 18 (2), 283–300.
- Krueger, N., Brazeal, D.V., 1994. Entrepreneurial potential and potential entrepreneurs, Entrepreneurship Theory and Practice 18 (3) 91-104.
- Krueger, N., Reilly, M.D. and Carsrud, A. L., 2000. Competing models of entrepreneurial intentions. Journal of Business Venturing 15 (5-6), 411-432.
- Levi, J., Hart, M., Anyadike-Danes, M., 2009. The effect of business or enterprise training on opportunity recognition and entrepreneurial skills of gradates and no graduates in the UK. Babson College Entrepreneurial Conference, Babson College, June.
- Louw, L., van Eede, S.M., Bosch, J., Venter, D., 2003. Entrepreneurial traits of undergraduate students at selected South African tertiary institutions. International Journal of Entrepreneurial Behaviour & Research 9 (1), 5-26.
- Luthje, C., Franke, N., 2003. The Making of an Entrepreneur: Testing a Model of Entrepreneurial Intent among Engineering Students at MIT.R & D Management 3 (2), 135-47.
- Mwasalwiba, E. S.,2010. Entrepreneurship education: a review of its objectives, teaching methods, and impact indicators. Education + Training 52 (1), 20-47.
- Matlay, H., 2008. The impact of entrepreneurship education on entrepreneurial outcomes. Journal of Small Business and Enterprise Development 15 (2), 382-396.



- McLarty, R., 2003. Graduate Entrepreneurship: A critical Review of Problems, issues and Personal Competencies. International Journal of Entrepreneurship and Innovation Management 3 (5-6), 621-36.
- Peterman, N., Kennedy, J., 2003. Enterprise education: influencing student' perceptions of entrepreneurship. Entrepreneurship: Theory and Practice 28 (20), 129-144.
- Pittaway, L., Cope, J., 2007. Entrepreneurship Education: A Systematic review of the Evidence. International Small Business Journal 25, 479-510.
- Raffo, C., Lovatt, A., Banks, M., O'Connor, J., 2002. Teaching and Learning Entrepreneurship for Micro and Small Businesses in the Cultural Industries Sector. Education + Training 42 (6), 356–365.
- Rasmussen, E., Sørheim, R., 2005. Action-Based Entrepreneurship Education. Technovation 26 (2), 185–194.
- Rosa, P., 2003. Hardly likely to make the Japanese Tremble": The Businesses Recently Graduated University and College "Entrepreneurs. International Small Business Journal 21 (4), 435-59.
- Sexton, D., Upton, N., Wacholtz, L., McDougall, P., 1997. Learning Needs of Growth-Oriented Entrepreneurs. Journal of Business Venturing 12, 1–8.
- Shane, S., Venkataraman, S., 2000. The promise of entrepreneurship as a field of research. Academy of Management Review 25, 217-226.
- Small Business Administrations Office of Advocacy, Summit Consulting 2009. http://www.sba.gov/advo/
- Souitaris, V., Zerbinati, S., Al-Laham, A., 2007.Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. Journal of Business Venturing 22, 566-591.
- Veciana, J.M., Aponte, M., Urbano, D., 2005. University Students attitudes Towards Entrepreneurship: A two Countries comparation. International Entrepreneurship and Management Journal 1, 165–182.
- Vesper, K.H., Gartner, W.B., 1997. Measuring progress in entrepreneurship education. Journal of Business Venturing <u>12 (5)</u>,403-421.
- Walter, S., Dohse, D., 2009. The Interplay between Entrepreneurship Education and Regional Knowledge Potential in Forming Entrepreneurial Intentions, Kiel, Germany: Kiel Institute for the World Economy _ 1549.
- Wang, C., Wong, P., 2004. Entrepreneurial interest in University Students in Singapore", Technovation 24 (2), 163-172.
- Westhead, P., 2003. Company performance and objectives reported by first and multigeneration family companies. Journal of Small Business and Enterprise Development 10 (1), 93-105.
- Wilson, F., Kickul, J., Marlino, D., 2007. Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: implications for Entrepreneurship Education. Entrepreneurship Theory and Practice 31 (3),387-406.
- Wright, M., Piva, E., Mosey, S., Lockett, A., 2009. Academic entrepreneurship and business schools. Journal of Technology Transfer 34, 560-587.
- Zellweger, T., Siege, P., Halter, F., 2010. Should I stay or should I go? Career choice intentions of students with family business background. Journal of Business Venturing, doi:10.1016/j.jbusvent.2010.04.001.



Table 1: Variable definition

DEPENDENT VARIABLES:						
Variable	Definition					
ENT_ACT	Entrepreneurs Activity: Dummy variable that takes the value of 1 if the postgraduate student is currently developing (or developed after finishing the programme) an entrepreneurial activity. It takes the value 0 if since the end of the MBA students have worked or work for someone else.					
START-UP BEHAVIOR	Entrepreneurs Activity Intention: Dummy variable that takes the value 1 if the postgraduate student had the intention of developing an entrepreneurial activity, after finishing the master, and 0, in the other cases.					
	EXPLANATORY VARIABLES:					
TRAINING	Training/education: Dummy variable that takes the value of 1 if the MBA student has received any specific training/education on entrepreneurship in his /her lifetime and 0 otherwise.					
GENDER	Gender. Dummy variable that takes the value of 1 when the student is a female and takes the value 0 when he is a male.					
FAM_ENT	Family Entrepreneur: Dummy that takes the value of 1 when the postgraduate student comes from an entrepreneurial family and 0 otherwise.					
RISK_TYPE	Personal risk averse: Likert scale from 1 (risk adverse) to 5 non-risk adverse.					
CREATIVITY	Personal creativity. Likert scale from not creative (1) to very creative (5).					
LEADER	Leadership skills. Likert scale from no leadership skills (1) to many leadership skills (5).					
INITIATIVE	Carry out initiatives. Likert scale variable from (1) not entrepreneurial to very entrepreneurial (5).					
TEAMWORK	Teamwork skills. Likert scale variable from 1 (no teamwork skills) to many teamwork skills (5).					
DEPENDENCY	Dependency: Dummy variable that takes value 1 if individual has dependent children, 0 otherwise.					
LEVEL _EDUC	Level of entrepreneurial education. Dummy variable that take the value of 1 if the training/education on entrepreneurship has been received at university time or later and 0 otherwise.					
YEARS_DEGMBA	Number of years since the graduate started the MBA programme and finished the undergraduate studies.					
ENG_STUD	Previous Education Engineering. Dummy variable that takes the value 1 if the previous studies are Technical studies or Engineering, and 0 otherwise.					
BUS_STUD	Previous Education Business Administration. Dummy variable that takes the value 1 if the previous studies are Business Administration, Economics, Accounting or Marketing, and 0 otherwise.					
AM_NAT	American Nationality: Dummy variable. It takes the value 1 if the postgraduate student came from USA and Latin America, and 0 otherwise.					
AFR_NAT	African nationality. Dummy variable. It takes the value of 1 if the postgraduate student came from Africa and 0 otherwise.					
EUR_NAT	European Nationality: Dummy variable. It takes the value of 1 if the postgraduate student came from Europe and 0 otherwise.					
AGE	Postgraduate student Age.					



Table 2: Motivational factor to start-up their own business.

Motivational factors	% of students that choose this factor as the relevant one.	# obs.
Entrepreneurial vocation (Career flexibility)	9.86 %	21 obs.
Business opportunities	8.45%	18 obs.
Economic Crisis	1.88%	4 obs.
Unemployment	1.41%	3 obs.
More flexibility for Family (family-friendly policies)	0.47%	1 obs.
Personal growth or advancement	5.63%	12 obs.
Creating wealth	2.82%	6 obs.
No other alternatives (necessity)	0.94%	2 obs.
Spouse/co-career employment issues	0.94%	2 obs.

Table 3: Perception about degree of training/education on entrepreneurship and star-up own business.

Educational levels	Likert scale (1-5)					
	1 (any)	2	3	4	5(very	
					much)	
Primary School	29%	36%	11%	7%	18%	
High School/Technical School	10%	17%	24%	24%	24%	
University (Degree)	-	3%	6%	41%	50%	
On-line MBA	-	3%	7%	34%	55%	



 Table 4: Results Entrepreneurial Intention and Start-Up Determinants.

VARIABLES	(1) ENT_ACT	(2) ENT_ACT	(3) ENT_ACT	(4) START-UP	(5) START-UP	(6) START-UF
			-			
TRAINING	0.1053	0.2804		-0.1942	0.0489	
	(0.42)	(1.02)		(-0.68)	(0.16)	
GENDER	0.4210*	0.0679	-1.9251	0.2005	-0.7237	-2.1259
	(1.77)	(0.03)	(-1.22)	(0.78)	(-0.30)	(-1.07)
FAM_ENT	0.3750*	0.3003		0.0890	-0.1127	
	(1.87)	(1.33)		(0.40)	(-0.45)	
RISK_TYPE	0.3146***	0.2534*		0.2353*	0.2377	
	(2.60)	(1.78)		(1.76)	(1.46)	
CREATIVITY	0.1870	0.1461		0.2299	0.2407	
	(1.34)	(0.94)		(1.64)	(1.50)	
LEADER	0.1781	0.3215		0.3036	0.2639	
	(0.99)	(1.52)		(1.46)	(1.06)	
INITIATIVE	-0.2300	-0.2566		-0.3086	-0.3817	
	(-1.19)	(-1.21)		(-1.32)	(-1.45)	
TEAMWORK	-0.0806	-0.0463		-0.1402	-0.0563	
	(-0.48)	(-0.24)		(-0.73)	(-0.25)	
DEPENDENCY	0.1729	0.1385		-0.0076	0.2392	
	(0.83)	(0.58)		(-0.03)	(0.86)	
LEVEL_EDUC	-0.3092	-0.3104	-0.0688	0.0339	-0.0908	0.0727
	(-1.09)	(-1.07)	(-0.29)	(0.11)	(-0.28)	(0.26)
YEARS_DEGMA	-0.0074	-0.0032	0.0058	0.0217	0.0240	0.0314**
	(-0.43)	(-0.18)	(0.38)	(1.24)	(1.28)	(1.98)
GENDER*TRAINING		-0.5193	-0.3631		-2.0908***	-2.1292***
		(-0.99)	(-0.74)		(-2.65)	(-2.82)
GENDER*FAM_ENT		0.6973	0.9855**		1.1067*	0.9868*
		(1.31)	(2.03)		(1.73)	(1.68)
GENDER*RISK_TYPE		0.2799	0.5727**		-0.2637	0.0130
		(0.95)	(2.25)		(-0.78)	(0.04)
GENDER*CREATIVITY		0.0630	0.1937		0.3843	0.5959
		(0.18)	(0.63)		(0.88)	(1.48)
GENDER*LEADER		-0.7075	-0.4271		0.9638	1.1977**
		(-1.25)	(-0.81)		(1.53)	(2.09)
GENDER*INITIATIVE		0.4505	0.2173		0.6492	0.2957
		(0.83)	(0.44)		(0.95)	(0.48)
GENDER*TEAMWORK		-0.0109	-0.0399		-1.3244*	-1.3393**
GENDER*DEPENDECY		(-0.02)	(-0.09)		(-1.83)	(-1.98)
		0.0735	0.1650		-1.6319**	-1.3966*
		(0.15)	(0.38)		(-2.08)	(-1.94)
CONSTANT	-1.9948**	-2.3315**	-0.4825**	-2.0785**	-2.1633*	-1.0326***
	(-2.19)	(-2.01)	(-2.17)	(-2.04)	(-1.67)	(-4.13)
Observation	201	201	201	201	201	201
Country FE	YES	YES	YES	YES	YES	YES
Wald Chi2	22.42	31.12	16.11	19.16	29.58	18.25

^{***} p<0.01, ** p<0.05, * p<0.10. Robust z-statistics in parentheses.

Appendix: Previous studies in the literature (in chronological order)

Author (Date)	Data used in the Study	Location of the Study	Summary			
Vesper and Gartner (1997)	941 business schools in the United States, 42 in Canada, and 270 overseas	United States, Canada and overseas.	, i i i i i i i i i i i i i i i i i i i			
Low, van Eeden, Bosh & Venter (2003)	Sampling method with 1,215 undergraduate selected tertiary institutions: University of Port Elizabeth, the Port Elizabeth Technician, and Vista University.	Republic of South Africa	The primary objectives of this article are to report on the levels of students' entrepreneurial traits, to establish whether these traits are interrelated, and to determine the extent of the impact that demographic variables have on these entrepreneurial traits. The best developed entrepreneurial traits observed included: "Competing against self-imposed standards", "Self-confidence" and "Dealing with Failure". Statistically significant relationships were also identified between the entrepreneurial traits of students and the tertiary institution attended, and students' gender, race and age.			
McLarty (2003)	Interviews with 39 graduate business owners within 5 years of start-up.	England (East Anglia)	The article focuses on a detailed study into entrepreneurial activities of graduates and examines issues impacting on their business. One of the main conclusions was that the students were poorly prepared for business activity in marketing and finance.			
Rosa (2003)	2 surveys of graduate career aspirations of 5,375 students drawn from 10 Universities and 594 students drawn from Scottish Institutions	England and Scotland	The article re-examines and compares data from surveys conducted in the 1980s on the entrepreneurial aspirations of graduates. The data shows unimaginative businesses. The study shows that the type of business is significantly determined by the nature of the course taken.			
Luthje and Franke (2003)	Survey of 512 students or MIT School of Engineering	USA	The study uses a covariance structure model to test and identify the causes of entrepreneurial intent among engineering students. The study shows that personality trails have a strong impact on the attitude to self-employment and are linked to intentions to start a new venture. Entrepreneurial intent was also viewed to be directly affected by perceived barriers and support factors.			
Peterman & Kennedy, (2003)	Survey 117 students undertaking Young Achievement Australia, using a control group.	Australia	The authors examine the effect of participation in a enterprise education program on perception about the desire and possible feasibility of starting a business It measured changes in perceptions of students enrolled in the Young Achievement Australia enterprise program using a pre-test and post-test control group. After being involved in the programme students reported significantly higher perception (desirability and feasibility) when compared to the control group.			
DeMartino & Barbato (2003)	1,763 alumni graduating from a <i>Business School</i> after year 1978.	USA+	The authors analyze the motivational differences between female and male MBA entrepreneurs (who are similar in terms of business education, educational credential, etc.). They used a logistic regression to measure the relationship between career motivations and gender. The main conclusions were that women entrepreneurs preferred careers that gave them flexibility and allowed them to balance career and family obligations meanwhile male entrepreneur are motivated by careers that would allow creating wealth. Both differences become higher when comparisons are between married women and male with dependent children.			
Wang and Wond (2004)	5,326 students undergraduates technical fields from National university of Singapore	Singapore	The authors examine what determine the attitudes of undergraduate students to entrepreneurship. Three factors were fund to have an impact gender, family experience with business and educational level. Inadequate business knowledge was found to present a key barrier to students in engineering and science who were interested in			



Gürol & Atsan (2006)	Random sample of 400 students of fourth year university from two Turkish universities.	Turkey	entrepreneurial activity. A multivariate regression model was used to explore seven hypotheses using hierarchical regression. The paper found that undergraduate entrepreneurial interests are high, mirroring Western countries, but preparedness to take risk and lack of business knowledge were found to be key barriers. The question "what are you planning to do after graduation?" was asked to students in order to discriminate between those who are entrepreneurially inclined and those who are not. Respondents who have a response saying that "I'm planning to form my own business venture" are accepted as potential entrepreneurs. Then, the entrepreneurial traits of these students are subjected to a comparative analysis with other students who do not plan to start their own businesses, and thus are not included in the group of potential entrepreneurs. In short, a 40-item questionnaire is administered to students, with questions related to demographic variables, entrepreneurial inclination, and six entrepreneurial traits. The results of the t-tests showed that, except for tolerance for ambiguity and self-confidence, all entrepreneurial traits are found to be higher in entrepreneurially inclined students, as compared to entrepreneurially non-inclined students. That is, these students are found to have higher risk taking propensity, internal locus of control, higher need for achievement and higher innovativeness
Veciana, Aponte & Urbano (2005)	University students in Catalonia (Spain) and Puerto Rico, using a sample of 837 and 435 students, respectively.	Spain & Puerto Rico	The authors present an empirical study aimed at assessing and comparing the attitudes towards the entrepreneurship and enterprise training between these two groups of students. Results reveal a positive entrepreneur's image. Both samples have a favourable perception of the desirability of new venture creation, although the perception of feasibility is not so positive and only a small percentage has the firm intention to create a new company.
Souitaris, Zerbinati & Al- Laham (2007)	232 students, 154 in London and 78 in Grenoble. Control group: 220 students, 148 in London and 72 in Grenoble.	UK (London) and France (Grenoble)	The authors test the effect of entrepreneurship programmes on the entrepreneurial attitudes and intentions of science and engineering students. Among the main results the article shows that the programmes raise some attitudes and the overall entrepreneurial intention and the inspirations is the programmes' most influential benefit.
Wilson, Kickul, & Marlino (2007)	Students from high/middle schools and business schools from 2002 to 2004 in the United States.	United States	The authors found a strong gender effect on both entrepreneurial self-efficacy and intentions at the middle/high school level, supporting earlier research on self-efficacy differences in those career areas that seem to reflect gender-based role expectations. While they did not measure gender stereotyping for different career paths, the results, taken together with previous research on self-efficacy and career intentions, suggest that entrepreneurship may still be perceived as a "male" field, and that young women may be limiting their career aspirations because they feel that they do not have the requisite skills and abilities.
Coduras, Urbano, Rojas& Martinez (2008)	National Spanish GEM Survey Adult Population (2006)	Spain	The article examines the statistical relationship between university support and the level of entrepreneurship activity. The main results show that this relationship is not significantly relevant.
Matlay, H. (2008)	64 graduate entrepreneurs from 8 HEIs (High Educations Institutions)	United Kingdom	The authors explore the impact that entrepreneurship education can have on entrepreneurial outcomes. The author aims to investigate the perceived influence that various entrepreneurship education courses have had on a cohort of Semi-structured, in-depth telephone interviews conducted annually over a ten year period (1997 to 2006) to document, measure and analyze respondent progression from graduation and into entrepreneurship. Results indicate



			that graduate needs for entrepreneurship education does not match actual outcomes in terms of entrepreneurial skills, knowledge and attitudes. This mismatch influences an entrepreneur's perceptions of actual and future educational needs. Most of the graduate entrepreneurs, however, seem to be satisfied with the outcomes of their entrepreneurship education, both in relative and in absolute terms.
Wright, Piva, Mosey & Lockett (2009)	42 interviews with technology transfer, business school deans, and business school entrepreneurship faculty and scientists from 8 Universities.	United Kingdom	The authors want to identify and understand the challenge to business schools contributing to the transfers of knowledge to enable academic entrepreneurship. The findings suggest that the ability of business schools to fill knowledge gaps in the development of business academic entrepreneurship is constrained by the institutional structures of universities which influence: strategies of the universities and the business school; links between business schools and process issues relating to differences in language and codes.
Athayde (2009)	Cross group control-sectional design was used to investigative impact of participation in a Young Enterprise company Program, with was based on the U.S. Junior Achievement model, in 6 secondary schools in London, (UK)	England (London)	Using an instrument developed by the author, measuring what she calls "enterprise potential" this is the attitudes towards the characteristics associated with entrepreneurship. Among the main results she found that exist are differences between groups based on demographics (eg. ethnic groups) or family history.
Levi, Hart and Anyadike- Danes (2009)	5,000 adults aged 18 to 44 GEM-UK database	United Kingdom	This paper attempts to overcome methodological challenges in demonstrating the effect of enterprise training on opportunity perception and entrepreneurial skills perception of trainees. Logistic regression shows that, controlling for demographic effects, experience and attitudes, different types of training had different effects on opportunity perception and entrepreneurial skills perception. The results suggest that a combination of college-based training and work placements may provide a better all-round entrepreneurial capability for both graduates and non-graduates.
Zellweger, Siege & Halter (2010)	Information from 87 universities from 8 countries.	Austria Belgium Hungary Finland Germany Norway New Zeeland Switzerland	The authors investigate how intentional founders, successors, and employees differ in terms of locus of control and entrepreneurial self-efficacy as well as independence and innovation motives. We find that transitive likelihood of career intent depends on degree of entrepreneurial self-efficacy and the independence motive. Unexpectedly, we see that high levels of internal locus of control lead to a preference of employment, which challenges traditional entrepreneurship research and suggests that the feasibility of an entrepreneurial career path does not automatically make it desirable. Their findings suggest that students with family business background are pessimistic about being in control in an entrepreneurial career, but optimistic about their efficacy to pursue an entrepreneurial career. Their findings offer a nuanced perspective on career choice intentions of students with family business backgrounds. Not only do they provide a prospective and detailed analysis of their underlying motives and behavioural control perceptions, but also explicitly compare intentional founders, successors, and employees. They contribute to research in a number of ways and hope to inspire other researchers to conduct additional work in the fascinating field of entrepreneurial intentions.



Highlights

- Online MBA programs give postgraduate students the opportunity to develop skills and abilities to develop entrepreneurship intention and start-up behaviour.
- Entrepreneurial intention increases when the students come from an entrepreneurial family.
- Female students are more likely to have entrepreneurial intention and to engage in start-up behaviour if she comes from an entrepreneurial family, while it is less likely if they have children.
- Non-risk adverse personality can motivate entrepreneurial intention and start-up behaviour.