



University Students' Attitudes Towards Entrepreneurship: A Two Countries Comparison

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Abstract. There is general agreement that attitudes towards the entrepreneur, entrepreneurial activity, and its social function are determinant factors for university students to decide an entrepreneurial career.

This empirical study aims at assessing and comparing the attitudes of university students towards entrepreneurship and enterprise formation in Catalonia and Puerto Rico, using a sample of 837 and 435 students, respectively.

Results reveal a positive entrepreneur's image. Both samples have a favorable perception of desirability of new venture creation, although the perception of feasibility is by far not so positive and only a small percentage has the firm intention to create a new company.

Keywords: university students, attitudes, entrepreneurship, Catalonia, Puerto Rico, institutional theory

Problem statement and research objectives

It is now generally accepted that institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction (North, 1990:3). Therefore, the institutional context affects the performance of economies, particularly through the influence over the entrepreneur's behavior, and therefore should be explored and analysed closely.

Institutional Economic Theory serves to analyse, in a holistic way, the contextual factors as determinants of entrepreneurship. According to this framework, institutions include any form of constraint that human beings devise to shape their interaction. They can be either *formal*—such as political and economic rules and contracts— or *informal*—such as codes of conduct, attitudes, values, norms of behavior, and

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conventions. In fact, it has been stated that this theory currently supplies the most consistent and appropriate conceptual framework to probe the influence of the environmental factors on entrepreneurship in a region or country (Veciana, 1999:25).

This paper is focused on the informal factors and the empirical research presented has two main objectives. In the first place, the authors aim is to probe university students' beliefs and attitudes toward new venture creation and the entrepreneur in Catalonia and Puerto Rico. In addition, their objective is to test six hypotheses with regard to two demographic variables associated with the principal aspects of the model applied.

Catalonia and Puerto Rico were selected for the comparison taking into consideration their common latin tradition which makes them culturally similar. On the other side the comparison was considered interesting since the economic models implemented in each country are very different. While Catalonia has based its model on Small and Medium Enterprises (SMEs), Puerto Rico has based it on fiscal incentives to attract foreign capital particularly from the United States.

The specific research questions are the following:

- (1) Do university students consider desirable to start a new firm?
- (2) Do university students have a positive or negative perception of new venture feasibility?
- (3) Do university students have a serious intention to create their own firm?
- (4) Which is the student's image of the entrepreneur? How do they evaluate the entrepreneur's social and economic role in society?
- (5) How do university students rank the prestige of the entrepreneur compared to other professions?
- (6) Does there exist a relationship between gender and the variables of desirability, feasibility and intention to create a new firm?
- (7) Does there exist a relationship between *entrepreneurs among relatives* and the variables of desirability, feasibility and intention to create a new firm?

The results of this research are important for two reasons. First, perceptions of desirability and feasibility of new venture creation are products of the cultural and social environment, that is, the *informal* institutional environment. The knowledge of this part of the environment could and should be used to take actions by the public policy decision-makers. Second, the EU in an attempt to promote job creation has drawn the attention to the so called "job beds" ("*gisements d'emploi*", "*yacimientos de empleo*"). Veciana has, however, pointed out that we should rather look for "seed beds for entrepreneurs" and that in the knowledge society the most promising sources of entrepreneurs are the university students (Veciana, 1998b). Therefore, identifying university students' perceptions of new venture desirability and feasibility is the first step to do something in awakening and stimulating students' interest in an entrepreneurial career.

Table 1. Models equivalencies.

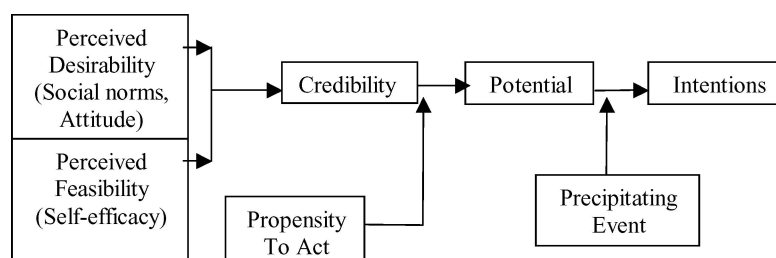
Shapero's Model	Ajzen TPB
• Perceived venture desirability	• Attitude towards the behaviour
• Perceived venture feasibility	• Subjective norm
	• Perceived behavioural control

Theoretical framework

Krueger and Brazeal have developed an entrepreneurial potential model that fits Institutional Economic Theory and can be used to underpin our research and conceptualize the notion of entrepreneurial potential. Their model takes a social psychology perspective and is a “process-based, theory-driven micro model with macro consequences” (Krueger and Brazeal, 1994:91). The model draws upon Shapero's work on the entrepreneurial event and Ajzen's Theory of Planned Behavior.

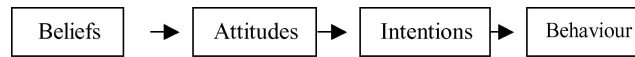
Shapero's model of entrepreneurial event formation focuses on how the cultural and social environment affects the choice of an entrepreneurial path. He states that the *intent* to start a business derives from perceptions of both, desirability and feasibility. On the other hand, Ajzen's Theory of Planned Behavior (Ajzen, 1991), designed to predict and explain human behavior, centers on the individual's intention to perform a given behavior. Krueger and Brazeal's entrepreneurial potential model places Shapero's work within the context of the intention process. According to the authors, Ajzen's theory of planned behavior and Shapero's model of the entrepreneurial event overlap in the following way (see Table 1).

Using Shapero's terminology, Krueger and Brazeal's entrepreneurial model (Figure 1) emphasizes the constructs of perceived venture desirability and perceived venture feasibility, integrating in the conceptualization of these constructs, concepts from both models.



Source: Krueger and Brazeal, 1994:95

Figure 1. Model of entrepreneurial potential.



Source: Ajzen, 1991:189

Figure 2. Theory of planned behaviour. Behaviour as a function of beliefs.

As can be seen in Figure 1, credibility requires that the behavior be seen both desirable and feasible. These antecedents affect the intentions toward the behavior or action of new venture creation. The model allows for the case that although the individual perceives the new venture creation desirable and feasible, and therefore credible, he/she has not the intention to realize the behavior because the precipitating event may be lacking.

Perceived venture desirability

Krueger and Brazeal's model state that this construct embraces the two "attractiveness components" of the Theory of Planned Behavior: attitude toward the act and social norms.

According to the Theory of Planned Behavior, attitude toward the act refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. Social norms, on the other hand, refer to the perceived social pressure to perform or not to perform the behavior. These are tied to our perceptions of what important people in our lives would think about our launching a venture. The theory of planned behavior, in its intent to explain human behavior deals also with the antecedents of attitudes toward the behavior and subjective norms.

As illustrated in Figure 2, the theory of planned behavior postulates that behavior is a function of *beliefs* relevant to the behavior. It is these salient beliefs that are considered to be the prevailing determinants of a person's attitudes, intentions and behavior (Ajzen, 1991:189).

Behavioral beliefs are assumed to influence attitudes toward the behavior. Each belief links the behavior to a certain outcome, which is already valued positively or negatively. Therefore, people automatically acquire an attitude toward the behavior. In this way, people form favorable attitudes toward behaviors believed to have desirable consequences and negative attitudes toward behaviors associated with undesirable consequences (Ajzen, 1991:191). In the case of subjective norms, normative beliefs constitute their underlying determinants. Normative beliefs are concerned with the likelihood that important referent individuals or groups approve or disapprove of performing a given behavior (Ajzen, 1991:195).

On the other hand, Shapero (1982) examines the concept of desirability using data on the family, peer groups, ethnic groups, educational and professional contexts of potential entrepreneurs. In the case of the family, he states that particularly the father or mother plays the most powerful role in establishing the desirability and credibility of the entrepreneurial action for an individual. In the same way, the larger the number

and variety of entrepreneurs in a particular culture, the greater the probability that the individuals in that culture will form companies (Veciana, 1988).

Perceived venture feasibility

As indicated above, in Krueger and Brazeal's model, perceived feasibility in Shapero's terminology, corresponds to perceived behavioral control in the theory of planned behavior.

Perceived behavioral control plays an important part in the Theory of Planned Behavior (Ajzen, 1991:183). According to this theory, the resources and opportunities available to a person must to some extent dictate the likelihood of behavioral achievement. However, of greater psychological interest than the actual control is the *perception* of behavioral control and its impact on intentions and actions. Perceived behavioral control is defined in the Theory of Planned Behavior as the people's perception of the ease or difficulty of performing the behavior of interest (Ajzen, 1991:183). The antecedents of perceived behavioral control are the control beliefs. These beliefs deal with the presence or absence of requisite resources and opportunities. These control beliefs may be based in part on past experience with the behavior, but they will usually also be influenced by second hand information about the behavior, by the experiences of acquaintances and friends, and by other factors that increase or reduce the perceived difficulty of performing the behavior in question (Ajzen, 1991:196).

Related to this construct, Shapero emphasizes the perception of the availability of financial support, although he mentions also the perception of the availability of other supports as advice, consultation and education that make the act of venture creation feasible to the potential entrepreneur (Shapero, 1982).

According to the Theory of Planned Behavior, the relative importance of attitude, subjective norm and perceived behavioral control in the prediction of intention is expected to vary across behaviors and situations (Ajzen, 1991:188). In the same way, Shapero states that in the new venture creation process, no single variable or factor can account for the outcome of the process. A number of outcomes are necessary but no one is sufficient. However, Krueger presents evidence that perceived credibility, perceived desirability and propensity to act explain well "over half" of the variance of the intentions toward entrepreneurship, with feasibility perceptions explaining the most (Krueger, 1993). Therefore Krueger and Brazeal state as their most important conclusion the primacy of perceived feasibility and the need to research what factors contribute the most to perceptions of feasibility (Krueger and Brazeal, 1994).

Research hypotheses

Entrepreneurship literature includes an extensive body of research which analyzes the relationship between gender and family background with new venture creation. Demographic models, however, have been criticized because they provide little insight on *how* family background and social forces shape the individual's decision process

(Katz, 1992). Models that focus on *intentions* as predictors of entrepreneurial behavior, such as Krueger and Brazeal's, have been suggested as alternatives to the demographic models, among others. This group of research also has a growing literature of empirical works that studies the relationship between gender and family background with entrepreneurial *intentions*.

The hypotheses tested in this paper respond to the demographic variables extensively studied in the literature crossed with the principal aspects of Krueger and Brazeal's model. The variables of gender and entrepreneurs among relatives were crossed with desirability, feasibility and intention to create a new firm to test six hypotheses.

The variable gender

Among the growing body of literature which analyzes the relationship between gender and attitudes towards new venture creation or entrepreneurial behavior (Delmar and Davidsson, 2000; Kolvareid, 1996; Kourilsky and Walstad, 1998; Matthews and Moser, 1995; Scherer et al., 1989), several have found that males have a higher preference for entrepreneurship behaviour than females (Delmar and Davidsson, 2000; Matthews and Moser, 1995; Scherer et al., 1989).

Kolvareid (1996), in its application of the Theory of Planned Behaviour to predict employment status choice, found that males have a significantly higher preference for self-employment than females. The author concluded that gender influence self employment intentions indirectly through their effect on attitude, subjective norm, and perceived behavioural control.

Taking into consideration the preceding works presented in the literature the following three hypotheses were developed in this research concerning the variable gender.

Hypotheses:

H1: There is a relationship between the student's *gender* and the perception of new venture *desirability*

H2: There is a relationship between the student's *gender* and the perception of new venture *feasibility*

H3: There is a relationship between the student's *gender* and the serious *intention* to create a new firm

The variable entrepreneurs among relatives

The literature on family background evidences a positive relationship between the presence of role models in the family and the emergence of entrepreneurs. Collins, Moore and Unwalla (1964) were the first authors to verify through an empirical research that the influences over a new venture idea go back to the childhood and the family circumstances of the entrepreneur (Veciana, 1988:14). Among more recent works treating this theme the following can be mentioned: Brockhaus and Horwitz (1986), Cooper (1986),

Matthews and Moser (1995), Scherer et al. (1989), and Scott and Twomey (1988). Advocates of demographic models have suggested and found empirical support for the hypothesis that family background is related to entrepreneurial intentions (Mathews and Moser, 1995).

Among the literature that focuses on intentions Scherer et al. (1989) as well as Krueger (1993), argue that role models affect entrepreneurial intentions, but only if they affect attitudes.

Kolvreid (1996), in its application of the Theory of Planned Behaviour to predict employment status choice, also studied the role of family background. The relationship between family background and intentions, although positive, was not statistically significant. However, the author concluded that family background influence self employment intentions indirectly through its effect on attitude, subjective norm, and perceived behavioural control.

Based on the previous empirical works presented, the following three hypotheses were developed in this research concerning the variable entrepreneurs among relatives.

Hypotheses:

H4: There is a relationship between entrepreneurs among relatives and the perception of new venture desirability

H5: There is a relationship between entrepreneurs among relatives and the perception of new venture feasibility

H6: There is a relationship between entrepreneurs among relatives and the serious intention to create a new firm.

Methodology

This research is based on a survey carried out in the early eighties in Spain (Genescà and Veciana, 1984) which since then has been replicated several times in Spain by other colleagues. The questionnaire used in the present research has been complemented with additional questions regarding the entrepreneur's image and the perception of new venture feasibility according to the framework used. Moreover, six hypotheses related to the mentioned aspects have been tested in this research and the comparative dimension between the two countries has been added. The adapted questionnaire was administered to the students during a class session.

The information obtained was analysed using the statistical software package SPSS version 10.0. Statistical techniques of univariable analyses (frequencies and percentages) and bivariable (cross tabulation and mean test) were used. As for the opened questions, the information was transcribed to a text file from processing software, grouping by information categories.

Concerning the statistical details, Table 2 presents the technical characteristics of the empirical research:

The detailed samples characteristics are presented in Appendix A. However, a few differences between Puerto Rican and Catalan sample are worth mentioning. First, in

Table 2. Technical details about the empirical research.

	Puerto Rico	Catalonia
Population	15.000 university students (from 2° to 4° or 5° year) enrolled in Business Administration, Economics and Engineering majors in the following Puertorrican Universities: UPR, Río Piedras, Mayagüez; Cayey, UIA and Metro (academic year 1998–99).	18.641 university students (from 2° to 4° or 5° year) enrolled in Business Administration, Economics and Engineering majors in the following Catalan Universities: UAB, UB, UPC UdG, URV and UdL (academic year 1998–99).
Geographical setting (Universities)	Puerto Rico (UPR, Río Piedras Mayagüez, Cayey; UIA and metro)	Catalonia (UAB, UB, UPC, UdG, URV and UdL)
Sample size	435 university students enrolled in Business Administration, Economics, and Engineering majors in the stated universities.	837 university students enrolled in Business Administration, Economics, and Engineering majors in the stated universities.
Sample error	±4.70%	±3.31%
Confidence level	95% $Z = 1.96$ $p = q = 0.5$	95% $Z = 1.96$ $p = q = 0.5$
Design of sample	Proportionally stratified random sample. The stratification variables are the university where they come from and the major in which they are enrolled.	Proportionally stratified random sample. The stratification variables are the university where they come from and the major in which they are enrolled.
Date of field work	February to March 1999	December 1999 to April 2000

the Catalan sample the students are older than in the Puerto Rico one. They are also in a more advanced stage of their studies (64% in the 4th year vs. only 38.2% in Puerto Rico). Second, the percentage of females in Puerto Rico is higher than in Catalonia (54.3% vs. 40.6%). Third, the Puerto Rican sample contains more students in Business Administration (74.4% vs. 44.6%) and less in Engineering (22.2% vs. 42.4%) than the Catalan sample.

Results and discussion

New venture desirability

Table 3 shows the results of the answers to the question: Do you consider desirable to create a new firm?

In both countries, Puerto Rico and Catalonia, the majority of students answered *Yes* to this question, but the percentage of affirmative answers is higher in the case of Puerto Rican students than in Catalonia (92.2% vs. 74%).

Table 3. New venture desirability.

	Puerto Rico (%)	Catalonia (%)
Affirmative	92.2	74.0
Negative	7.8	25.6
N.A	–	0.4

These percentages are much higher than those identified through the previous research (Genescà and Veciana, 1984) both for whole Spain (56.8%) and Catalonia (66.7%). This means that students' desirability to create a new firm has increased considerably in the past decades in Spain.

Among the Puerto Rican students who answered affirmatively to this question 50.4% are male and 49.6% female; 57.3% come from families in which there are entrepreneurs and the majority (77.1%) come from Business Administration studies. In the case of Catalan students 61.3% are male and 38.7% female; 49.6% come from families in which there are entrepreneurs and the majority 46.8% come from Business Administration studies.¹

New venture feasibility

Table 4 shows the results to the question: Do you consider that it is easier or more difficult to create a new firm at present than in the past decades?

In both countries Puerto Rico and Catalonia, the majority of students answered that at present it is more difficult to create a new firm than in the past decades, although the percentage is higher in Catalonia (66.1%) than in Puerto Rico (53.5%). Among the Puerto Rican students who answered *more difficult*, 48.6% are male and 51.4% female, 58.5% come from families in which there are entrepreneurs and also the majority (80.7%) comes from the Business Administration studies.

In the case of the Catalan sample 58.6% are male and 41.4% female; 47.7% come from families in which there are entrepreneurs and also the majority 42.9% come from the Business Administration studies.

The perception of the degree of new venture feasibility depends on a number of factors, some of which may foster and others may inhibit new venture creation. According

Table 4. Perception of new venture feasibility.

	Puerto Rico (%)	Catalonia (%)
Easier	44.4	31.1
More difficult	53.5	66.1
N.A	2.1	2.9

Table 5. Student's intention to create a new firm.

	Puerto Rico (%)	Catalonia (%)
No, never	10.8	26.8
No, but I plan to join a family business	2.1	4.2
Yes, vaguely	40.3	51.0
Yes, seriously	28.7	12.1
Yes, I have the firm intention to create my own business	16.1	4.1
N.A	2.0	1.8

to both countries student's perceptions among the factors which foster new venture creation are governmental support and access to financing. On the other side, among the factors that inhibit the entrepreneurial process the students mentioned competition, lack of start up capital, excessive regulation and market saturation as the principal ones (Veciana, Aponte and Urbano, 1999).

Students' intention to create a new firm

Table 5 shows the results to the question: Have you seriously thought about creating your own business?

In both countries, Puerto Rico and Catalonia, the majority of students have a vague intention to create a new firm, but the percentage is higher in the Catalan sample (51.0%) than in the Puerto Rican sample (40.3%). The percentage of students who have never *seriously* thought of creating a new firm is also higher in the Catalan sample (26.8%) than in the Puerto Rican one (10.8%). Furthermore, the percentage of students who have the *serious intention* to create a new company is higher in Puerto Rico than in Catalonia (28.7% vs. 12.1%). The same applies to the *firm intention* answers (16.1% vs. 4.1%).

Entrepreneur's image

Related to the desirability to become an entrepreneur, it is important to consider the entrepreneur's image in society. Tables 6 and 7 present the ranking of the entrepreneur's prestige compared to other professions and the valuation of the attributes related to the image of the entrepreneur in both countries, Puerto Rico and Catalonia.

Concerning the ranking of the entrepreneur's prestige compared to other professions, the students were asked to value fourteen professions in terms of prestige. Table 6 shows the means of professions for both samples. In this case the highest possible valuation is 7.

The entrepreneur profession was ranked sixth in both countries with no significant differences between the means.

Table 6. Ranking of the prestige of 14 professions.

Puerto Rico Profession	Mean	Catalonia Profession	Mean	T value
1. Physician	5.84	1. Physician	5.92	2.06
2. Engineer	5.43	2. Engineer	6.08	18.42**
3. Executive of a large firm	5.20	3. Executive of a large firm	5.97	17.19**
4. Lawyer	4.91	4. Lawyer	4.93	0.50
5. Chemist	4.55	5. Chemist	5.63	1.72
6. Entrepreneur	4.48	6. Entrepreneur	5.50	23.83
7. Physicist	4.41	7. Physicist	4.46	1.00
8. Journalist	4.14	8. Journalist	4.20	1.15
9. Economist	4.11	9. Economist	5.54	32.82**
10. Teacher	4.06	10. Teacher	3.98	-1.72
11. Publicist	3.94	11. Publicist	4.22	-23.50**
12. Psychologist	3.88	12. Psychologist	3.79	5.81
13. Sociologist	3.62	13. Sociologist	3.23	-8.13**
14. Translator	3.27	14. Translator	4.18	16.88**

**Statistically significant difference at the 0.05 level of significance (*T* test) among Puerto Rican and Catalan mean.

Table 7. Attributes related to the image of the entrepreneur.

Attributes of the image if entrepreneur	Puerto Rico Mean	Catalonia Mean	t value
● Entrepreneurs are dynamic persons	3.20	3.16	-1.83
● Entrepreneurs have good organizational skills	2.88	2.97	3.74*
● Entrepreneurs have good financial and management skills	2.46	2.91	16.69*
● Entrepreneurs are very innovative	2.86	2.80	-1.90
● Entrepreneurs are professionally well prepared	2.89	2.55	-11.78*
● Entrepreneurs are able and willing to take risks	3.04	2.77	-9.51*
● Entrepreneurs have a good entrepreneurial vision	2.83	2.78	-1.73
● Entrepreneurs invest	2.97	2.94	-1.06
● Entrepreneurs create jobs	3.12	2.72	-16.95*
● Entrepreneurs help the economic development of the country	3.14	3.13	-0.23
● Entrepreneurs earn a lot of money	2.80	2.76	-0.03
● Entrepreneurs engage in a dialogue with the employees	2.57	2.53	-1.51
● Entrepreneurs are honest and moral	2.47	2.54	1.24
● Entrepreneurs have a sense of social justice	2.42	2.44	0.64

**Statistically significant difference at the 0.01 level of significance (*T* test) among Puerto Rican and Catalan mean.

On the other hand, Table 7 shows the means of the attributes of the entrepreneur obtained from the two samples. The highest possible valuation is 4.

The same attributes were placed in the first two positions by both samples with no significant differences between the means. The attributes that were ranked in the first two positions are: *entrepreneurs are dynamic persons and entrepreneurs help the economic development of the country*. Comparing the actual results for the Catalan sample with the results obtained in Spain by Genescà and Veciana (1984) there can be seen that the entrepreneur's image among the university students has improved.

Hypotheses testing

Cross tabulation and Pearson Chi-square were used to analyze the data obtained from the questionnaires. Desirability, feasibility and intention to create a new firm were crossed with the variables of gender and entrepreneurs among relatives to test the six hypotheses.

H1: There is a relationship between the student's *gender* and the perception of new venture *desirability*

Table 8 shows the statistical test for hypothesis number 1.

Hypothesis number 1 is only confirmed for the Catalan sample. In the Catalan sample there seems to exist a positive relationship between the student's gender and the perception of new venture desirability: The male percentage who answered affirmatively to this question is higher and statistically significant than the female percentage, and also higher than the total percentage of the Catalan sample.

H2: There is a relationship between the student's *gender* and the perception of new venture *feasibility*

Table 9 shows the statistical test for hypothesis number 2.

Although the female percentage (for the Puerto Rican sample) and male percentage (for the Catalan sample) who answered that *it is easier to create a new firm at present*

Table 8. Cross tabulation between "Gender" distribution and desirability perception to create a new firm (%).

	Puerto Rico		Catalonia	
	Affirmative	Negative	Affirmative	Negative
Male	95.7	4.3	76.9	23.1
Female	93.0	7.0	70.7	29.3
Total desirability	94.4	5.6	74.4	25.6
Statistical test	Chi-square value = 1.2054		Chi-square value = 4.000**	

**Sig < .05.

Table 9. Cross tabulation between "Gender" distribution and feasibility perception to create a new firm (%).

	Puerto Rico		Catalonia	
	Easier at present than in the past decades	Difficult at present than in the past decades	Easier at present than in the past decades	Difficult at present than in the past decades
Male	48.8	51.2	32.4	67.6
Female	49.4	50.6	31.5	68.5
Total feasibility	49.1	50.9	32.1	67.9
Statistical test	Chi-square value = 0.14		Chi-square value = 0.72	

than in the past decades is higher than the male percentage (for the Puerto Rican sample) and female percentage (for the Catalan sample), and also higher than the total percentage of both samples, respectively, there is no statistical evidence at the 0.05 level of significance to confirm hypothesis number 2 for the Catalan and the Puerto Rican samples.

H3: There is a relationship between the student's *gender* and the serious *intention* to create a new firm

Table 10 shows the statistical test for hypothesis number 3.

Hypothesis number 3 is only confirmed for the Catalan sample. Among the Catalan sample there seems to exist a positive relationship between the student's gender and the firm intention to create a new firm. The male percentage who answered *Yes, seriously* to this question is higher than the female percentage who answered *Yes, seriously*, and also higher than the total percentage of the sample that answer *Yes, seriously* to this question.

H4: There is a relationship between the variable *entrepreneurs among relatives* and the perception of new venture *desirability*

Table 11 shows the statistical test for hypothesis number 4.

Although the percentage of the Catalan and Puerto Rican samples *with entrepreneurs in their families* who answered affirmatively to the question about the perception of new venture desirability is higher than the percentage *without entrepreneurs in their families* and also than the total percentage of both samples, respectively, there is no statistical evidence at the 0.05 level of significance to confirm hypothesis number 4.

H5: There is a relationship between *entrepreneurs among relatives* and the perception of new venture *feasibility*

Table 10. Cross tabulation between "Gender" distribution and intention to create a new firm (%).

	No, never	No, but I plan to join a family business	Yes, vaguely	Yes, seriously	Yes, I have the firm intention
Puerto Rico					
Male	10.5	0.6	36.5	34.8	17.7
Female	10.3	3.3	45.7	25.5	15.2
Total Intention	10.4	1.9	41.1	30.1	16.4
Statistical test	Chi-square value = 8.30127				
Catalonia					
Male	25.0	3.9	51.6	14.8	4.7
Female	31.0	4.8	52.1	8.7	3.3
Total intention	27.4	4.3	51.8	12.3	4.1
Statistical test	Chi-square value = 9.764**				

**Sig < .05.

Table 11. Cross tabulation between "Entrepreneurs among relatives" and desirability perception to create a new firm (%).

	Puerto Rico		Catalonia	
	Affirmative	Negative	Affirmative	Negative
Entrepreneurs among relatives	95.8	4.2	75.9	24.1
Non entrepreneurs among relatives	93.3	6.7	72.7	27.3
Total feasibility	94.7	5.3	74.2	25.8
Statistical test	Chi-square value = 1.16		Chi-square value = 1.59	

Table 12 shows the statistical test for hypothesis number 5.

For both samples, data reflects that there is no statistical evidence at the 0.05 level of significance to confirm hypothesis number 5.

Although without statistical test support, in the case of Puerto Rico the percentage of the sample *without entrepreneurs in their families* who answered that *it is easier to create a new firm at present* is higher than percentage *with entrepreneurs*, and also higher than the total percentage of the sample. On the contrary, for Catalan sample, the percentage *with entrepreneurs in their families* who answered in this sense is higher than percentage *without entrepreneurs* and also higher than the total percentage of the sample.

H6: There is a relationship between *entrepreneurs among relatives* and the serious *intention* to create a new firm

Table 13 shows the statistical test for hypothesis number 6.

Table 12. Cross tabulation between "Entrepreneurs among relatives" and feasibility perception to create a new firm (%).

	Puerto Rico		Catalonia	
	Easier at present than in the past decades	Difficult at present than in the past decades	Easier at present than in the past decades	Difficult at present than in the past decades
Entrepreneurs among relatives	47.2	52.8	32.9	67.1
Non entrepreneurs among relatives	52.3	47.7	31.3	68.7
Total feasibility	49.4	50.6	32.1	67.9
Statistical test	Chi-square value = 0.89		Chi-square value = 0.25	

Table 13. Cross tabulation between "Entrepreneurs among relatives" and intention to create a new firm (%).

	No, never	No, but I plan to join a family business	Yes, vaguely	Yes, seriously	Yes, I have the firm intention
	Puerto Rico				
Entrepreneurs among relatives	8.3	2.4	38.3	31.6	19.4
Non entrepreneurs among relatives	15.0	1.2	43.7	27.5	12.6
Total intention	11.3	1.9	40.8	29.8	16.4
Statistical test	Chi-square value = 8.23				
Catalonia					
entrepreneurs among relatives	21.6	6.9	52.3	15.0	4.3
Non entrepreneurs among relatives	32.9	1.9	51.6	9.6	4.0
Total intention	27.4	4.3	52.0	12.2	4.1
Statistical test	Chi-square value = 26.25**				

**Sig < .05.

Hypothesis number 6 is confirmed for the Catalan sample. There seems to exist a positive relationship between the *variable entrepreneurs among relatives* and the *firm intention* to create a new firm. The percentage of students with entrepreneurs in their families who have thought seriously to create a new firm is higher than the students without entrepreneurs in their families. This percentage is also higher than the total percentage of the sample that answered *Yes, seriously* to this question.

Conclusions

The main conclusions of the research are the following:

1. The survey reveals that the university students both in Puerto Rico and in Catalonia have a positive perception of new venture *desirability*. The majority of the students (92.2% in Puerto Rico and 74.0% in Catalonia) answered that they consider desirable to create a new firm.
2. Comparing these results to the results of the survey made in Spain by Genescà and Veciana (Genescà and Veciana, 1984) the desirability has increased considerably in the past decades.
3. The questions regarding the perceptions of *feasibility* show that 53.5% of Puerto Rican students and 66.1% of Catalan students consider that it is more difficult to create a firm at present than in the past decades. In this sense, both Puerto Rican and Catalan university student's beliefs and attitudes toward new venture creation show a favorable perception of *desirability* of new venture creation, although the perception of *feasibility* is by far not so positive.
4. A high percentage of the students in both samples has *vaguely* (40.3% in Puerto Rico and 51% in Catalonia) or *seriously* (28.7% in Puerto Rico and 12.1% in Catalonia) considered to create a new firm as a career path, but only a small percentage has the *firm intention* (16.1% in Puerto Rican sample and 4.1% in Catalan sample) to do so.
5. In Catalonia, there seems to exist a relationship between the student's *gender* and the perception of new venture *desirability* as well as with their *intention* to create new firms, the males being the ones with higher *desirability* and serious *intention* to create new firms.
6. On the other hand, in Catalonia there only seems to exist a relationship between the variable *entrepreneurs among relatives* and *intention* to create a firm. Students with entrepreneurs in their families have thought more seriously to create a new venture.
7. In Puerto Rico there seems not to exist a relationship between *gender* and *entrepreneurs among relatives* and the variables *desirability*, *feasibility* or the *intention* to create a new firm.
8. There exists a positive image of the entrepreneur among the students both in Puerto Rico and in Catalonia. It is interesting to note that the same attributes were placed in the first two positions by both samples with no significant differences between the means: *entrepreneurs are dynamic persons* and *entrepreneurs help the economic development of the country*.
9. If we compare these results with other studies (Genescà and Veciana, 1984; Suárez, 1985) an important improvement of the entrepreneurs image in Spain has taken place. This may explain the increase in the desirability during the past decades.
10. The prestige of the entrepreneurial activity as a profession compares relatively well with other professions. It is interesting to note that the profession of entrepreneur was ranked sixth in both countries after the same five professions and in the same order: physician, engineer, executive of a large firm, lawyer and chemist. This shows that the student's perceptions are quite homogeneous in the two samples.

Appendix A: Characteristics of Puerto Rican and Catalan Sample

	Puerto Rico (%)	Catalonia (%)
Age		
Less than 20 years old	31.0	2.7
Between 20 and 25	60.5	82.7
Between 26 and 35	5.1	12.5
More than 35 years old	1.8	2.0
No Answer (N.A)	1.6	–
Gender		
Male	45.7	59.4
Female	54.3	40.6
University studies		
Business Administration	74.4	44.6
Economics	0.9	13.1
Engineering	22.2	42.4
Other	3.4	–
University academic year		
3 th	33.3	25.6
4 th	38.2	64.0
Other	28.5	9.9
N.A.	–	0.5
Father's profession		
Liberal profession	3.2	14.1
Entrepreneur	19.5	15.8
Executive of a large firm	9.2	10.4
Worker	18.6	18.3
Administrative employee	12.4	5.9
Public sector employee	16.3	8.2
Other	18.1	26.3
N.A	2.8	0.8
Mother's profession		
Liberal profession	2.0	11.7
Entrepreneur	8.2	8.2
Executive of a large firm	4.0	3.5
Worker	10.7	6.9
Administrative employee	20.1	8.1
Public sector employee	20.6	9.2
Other	31.1	51.3
N.A	3.4	1.1
Entrepreneurs among relatives		
Affirmative	52.9	48.3
Negative	47.1	51.5
N.A	–	0.2

Note

1. It should be noted that this survey did not included students from other majors outside economics, engineering and business. This would be an interesting future research.

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