

# **Determinant Factors in Panamenian College Students Entrepreneurship**

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## **ABSTRACT**

This paper aims to determine the characteristics of human resources that have influence in the attitude toward entrepreneurship and the typology of Panama potential entrepreneurs. A primary test questionnaire was applied to 323 Panamanian students of engineering and business management. Multivariate regression analysis was used to differentiate the factors that allow the explanation of attitudes toward entrepreneurship and the taxonomy of the potential entrepreneur. The study allows the determination of the factors that influence the attitudes toward entrepreneurship for the determination of recruitment activities for the Panamanian Incubation System (SIDEPE). There are just a few studies that analyze the factors that influence the university student's attitudes toward entrepreneurship, in Panama. The result of this paper serves as a tool to develop a model that will predict relevant factors of Panamanian entrepreneurial activity, which have implications for policy makers and entrepreneur's development, especially for the Panamanian Incubation System (SIDEPE). Our limitations are that the sample was only taken in Panama City and not in the whole the country. Future research on the topic of the paper can help to better understand the significant variables.

**Keywords:** Entrepreneurship, Determinant factors, Panama.

## **1. INTRODUCTION**

This study analyses the characteristics of university students, looking forward the profile of Panama potential entrepreneur. It was observed the characteristics of a sample of Panama university potential entrepreneurs. Multivariate regression analysis was used to differentiate the factors that allow the explanation of attitudes toward entrepreneurship and the taxonomy of the potential entrepreneur. The results showed that in Panama the most important factors to model the attitude toward entrepreneurship are the entrepreneur personal abilities, and his social contacts. Given this results we can establish strategical proposals for helping in the elaboration of university policies that favor the business creation in Panama and to improve the function of the SIDEPE.

## **2. DETERMINANT CHARACTERISTICS OF HUMAN CAPITAL TOWARD ENTREPRENEURSHIP**

Many authors have studied about the importance of the personal attributes of the entrepreneurs (Grandi and Grimaldi, 2005; O'Shea et. al., 2007; Aceytuno and Paz, 2008), among other determinant factors. Meyer (2003) got the conclusion that what boost the business creation is within the entrepreneur, and that his personal attributes are the most important factor for business creation.

The entrepreneur's characteristics have been identified. The experts agree that are some determinant factors such as the social capital, the academic training, the influence of family and friends, culture, and others. These characteristics are the ones that dispose an individual to take risks and exploit opportunities to start a business. To

determine the explanatory variables of entrepreneurship, we have chosen the factors that are more cited by scholars as determinants of the entrepreneurial attitude (table 1).

**Table 1 Theoretical justification of the variables investigated by means of the questionnaire to entrepreneurs**

Variable		Authors
Knowledge Level		Shapero & Sokol, 1982; Roberts, 1991; Autio et. al., 1996; Shane & Stuart, 2002; Graña, 2002; Sapienza et. al., 2004; Clarysse & Moray, 2004; Grandi & Grimaldi, 2005; Wright et. al., 2006; Montañez, 2006; Saboia & Martín, 2006; O’Shea et. al., 2007; Ortín et. al., 2007; Marvel & Lumpkin, 2007; Aidis et. al., 2008; Cooper & Park, 2008; Lee & Jones, 2008; Prodan & Drnovsek, 2010; Autio et. al., 2010; Knockaert et. al., 2010; Ramos et. al., 2010; Alvarez et. al., 2010; Marvel, 2011
Entrepreneur Motivation		McClelland, 1967; Roberts, 1991; Ortín et.al., 2007
Area		Doutriaux, 1991; Mustar, 1994; Shane, 2004; Fontes, 2005; Ortín et.al., 2007
Reference Models	Family	Shapero & Sokol, 1982; Kolvereid, 1996; Veciana, 1998; Clarysse & Moray, 2004; Liñán & Chen, 2004; Aponte, 2006; Montañez, 2006; Saboia & Martín, 2006; O’Shea et. al., 2007; Aidis et. al., 2008; Aceytuno & Paz, 2008; Prodan & Drnovsek 2010
	Friends	Shapero & Sokol, 1982; Shane & Stuart, 2002; Meyer, 2003; Neck et. al., 2004; Venkataraman, 2004; Bollingtoft & Ulhoi, 2005; Landry et. al., 2006; Aidis et. al., 2008; Prodan & Drnovsek, 2010; Ramos et. al., 2010; Liñán et. al., 2011

## 2.1 KNOWLEDGE LEVEL

### 2.1.1 ACADEMIC LEVEL

Marvel and Lumpkin (2007) have analyzed the technological entrepreneurs that have started businesses in US incubators, and he argues that 40% of them have a doctoral degree, and a 26% have masters degree; have almost 20 years of labor experience, and have worked for four enterprises before opening their own business. In the Spanish universities spin offs, the academic entrepreneur (the one that starts a business with university support), is characterized by having the higher academic level: doctoral degree (Ortín et. al., 2007). In the same way, Wright et. al. (2006) argues that the academics with more scientific production (the academics cited the most) are the entrepreneur academics; so well academics of middle level also encounter technological opportunities. Definitely, the education increases the information baggage and abilities, including the verbal and written communication abilities (Lee and Jones, 2008) as well as the abilities for recognizing business opportunities and for successfully exploiting them (Marvel and Lumpkin, 2007; Ramos et. al., 2010); these abilities are beneficial for the internationalization as well as for the investors and capital search in other countries. Through education and work experience individuals develop key skills and enhanced knowledge. Technological exploitation requires know-how in diverse knowledge domains (Cooper and Park, 2008)

### 2.1.2 WORK EXPERIENCE

Work experience of new entrepreneurs, previous to opening their companies, is an important factor for the successful development. (Sapienza et. al. 2004; Ortín et. al. 2007; Cooper and Park, 2008; Autio et. al., 2010) Entrepreneurs can be better at detecting opportunities than others when they have specific knowledge generated by their previous entrepreneurial experiences (Shane and Stuart, 2002). Work experience gives business ideas, knowledge and abilities for the strategic formulation, and for the acquisition of the resources and the organization of the business (Marvel and Lumpkin, 2007). This is important for the understanding of the area, the clients, the providers, the types of negotiation, the capital requirements and all the other particularities inherent to any activity; and it also reduces the entrepreneur risk, and has a positive incidence on business survival rate, and business growth rate (Shane and Stuart, 2002; Cooper and Park 2008; Marvel and Lumpkin, 2007).

It is recommended to university entrepreneurs to create mechanisms to inhibit their inexperience, so as having in the team individuals with large experience, and with contacts and strong business knowledge (Cooper and Park, 2008). Wright et. al. (2007) concludes that there isn't any substitute for the labor experience of the entrepreneur for business success.

## **2.2 MOTIVATION**

Coduras (2006) points out that other sources to measure the entrepreneurial motivation is to know the length of time in which the entrepreneur intends to start the business.

## **2.3 AREA OF BUSINESS**

Fontes (2005) has argued that this is also a very important variable related to the business creation. Since the passage of Bayh Dole Act in 1980, universities have experienced tremendous growth in the number of companies forming around academic inventions, particularly in biotechnology and software (Shane, 2004). In the period 1984-1991 in France also the main area for establishing companies was in the information and technology sector, followed by biotechnology, medicine, pharmacy and chemistry, according to the survey conducted by Doutriaux (1991). Also in Canada a high percentage of researchers and academics spin offs, founded between 1964 and 1992, belong to the sector of biotechnology, medicine and computers and Software (Mustar, 1994). In Spain also prevailed the computer sector, according to the research made in 58 Spanish universities that belong to the Technology Transfer Offices Network (Ortín et. al., 2007).

## **2.4 REFERENCE MODELS**

In so many countries and cultures, the ones under socialism and the ones under capitalism (Aidis et. al., 2008), in American countries and in European countries; role models are a fundamental factor for business creation.

### **2.4.1 BUSINESS FAMILY BACKGROUND**

Some authors have analyzed the attitudes toward entrepreneurship using information about family, friends, education and the professionalism of potential entrepreneurs, among other factors. In the case of the family, it has been claimed that the father and the mother have a particular influence over the attitude toward entrepreneurship (Shapiro and Sokol, 1982). There are other studies that have proved the dependence relation between the family background (Aponte et. al., 2006).

### **2.4.2 SOCIAL CAPITAL**

The most successful entrepreneurs are the ones that build strong networks of collaboration. Ramos et. al. (2010) in their article titled "*The role of intellectual and social capital in opportunity recognition*" analyze the entrepreneur's contacts, and the social networks in which they participate in the development of the capacity to recognize business opportunities. They conclude that undoubtedly the most valuable social network in the field of entrepreneurship is one that contains other entrepreneurs. Some authors have mentioned that the success or the bankrupt of the business has a near relation with the entrepreneur collaboration network (Druilhe and Garnsey, 2004). Shane and Stuart (2002) concluded that the social capital of company founders represents an important endowment for early-stage organizations.

### 3. METHODOLOGY.

Some studies analyze the potential entrepreneurial behavior, using college students as the subject of study (Liñán and Chen, 2004; Veciana, 2005). Students represent one of the collective susceptible keys to become entrepreneurs (Veciana, 1998). To select a sample of college students as subjects of study has the advantage of uniformity, in terms of age and qualification (Liñán and Chen, 2004).

The methodology used is exploratory type, because it corresponds to a not studied research problem. There is currently a lack of studies of the Panamanian University entrepreneurship. It is a quantitative research. The technique used was a survey of a sample (321 students), and a statistic analysis by SAS 9.2 (*Statistical Analysis System*), and Enterprise Guide 4.3.

The hypothesis is "the desirability of creating a company by a Panamanian University potential entrepreneurs is determined by their knowledge level, their experience, skills and the reference models they have (both family and friends)."

### 4. RESULTS

Entrepreneurial intentions are derived from the perception of "desirability" and the "tendency to seize the opportunities" (Shapero and Sokol, 1982); and the perceived "desirability" is the degree in which the individual feels he "can do". The information collected showed that 90% of Panamanian students, at some point in their life have had the idea of setting a company; which confirms the results of GEM Panama (2009), that a large number of Panamanians have this idea. Also 90% expressed that they are sure they have the necessary skills to build their businesses.

**Table 2: Variables crossing in search of relation between “desirability of creating a business” and “entrepreneur’s self efficacy”**

		Do you have the necessary skills for setting your own business?		Total
		No	Yes	
Do you want to create your own business?				
No	Observed Frequency	5	10	15
	Expected Frequency	13	2	
Yes	Observed Frequency	18	215	233
	Expected Frequency	26	207	
Total	Observed Frequency	23	225	248

**Hypothesis:**

**H<sub>1</sub>:** There is a relation between the “desirability of creating a business” and “entrepreneur’s self efficacy”.

$$X^2 = \sum_{i=1}^k \left[ \frac{(O_i - E_i)^2}{E_i} \right]$$

$$X^2 = \left[ \frac{(5-13)^2}{13} \right] + \left[ \frac{(10-2)^2}{2} \right] + \left[ \frac{(18-26)^2}{26} \right] + \left[ \frac{(215-207)^2}{207} \right]$$

$$X^2 = 4.92 + 32.00 + 4.46 + 0.31 = 41.69$$

$\alpha = 0.05$

**Degree of Freedom = 1**

**Decision:** Given that the calculated  $X^2 >$  tabular  $X^2$  (3.84) we conclude that there is a significant relationship, therefore we accept  $H_1$ , which means that the population in which the sample was taken there is a dependency relationship between the “desire of creating business”, and the feeling of “self efficacy of the entrepreneur”.

## **4.1 KNOWLEDGE LEVEL**

### **4.1.1 WORK EXPERIENCE**

The University system in Panama is designed so that the student could work at least during his last year at the undergraduate, by letting him have some work experience at the end of his career. Measures such as compulsory evening classes are used in the two final years of the career. Therefore, many of the students we interviewed, has had some work experience. 68% are currently working, and the vast majority has worked on something that has to do with their professional careers (61%), which is a good indicator when establishing a company. Comparative studies in seven countries of Latin America indicate that about 50% of entrepreneurs have prior work experience. (Kantis et. al., 2004)

## **4.2 MOTIVATION**

The survey asks several questions to investigate entrepreneurial motivation from different edges such as:

- If they have the idea of establishing their own businesses.
- The preference of the interviewee whether working as a public employee, in a private company, or have his own company.
- Where does the idea come from?
- What would be his main motivation for funding a company?

Comparing GEM Panama (2009), and these research results we were able to:

- Confirm that a lot of Panamanians has the idea of putting a company.
- Observe that in the University community the “desire of creating businesses” and the “individuals self efficacy” feelings, increases. Can we say that studies can increase the self efficacy feelings for funding an own business?
- While in the general population investigated by GEM Panama (2009) 63% of people express that they possess the abilities to create a company. Among the University population, the percentage of people who made this statement was even greater than the number of people who yearn to create company (91%).
- Both percentages ("desirability of creating enterprise" and "skills for starting a business") rise among the University community.
- According to the results of this study, the level of knowledge increases the security of the entrepreneur to create a company; whether the interviewee wishes to create company or not.

The above data confirm that the University is a good starting point for the creation of enterprises, because of the knowledge and support it can give, for increasing the desire and abilities for the business creation. There should be some designed mechanisms to filter the ideas, and make good use of resources, just with the best entrepreneurial ideas. Also, there must be a follow up on each selected project, so that entrepreneur’s motivation would not be diluted or diminished.

#### 4.2.1 SOURCE OF THE BUSINESS IDEA

We also asked about the source that led to the business idea. While 30 % of entrepreneurs received the idea from the study subjects, a 23% got the idea from a similar business they knew. We found that 78% of respondents have not yet settled a specific date for the start of their companies. 12% plan to do so in the next 24 months, and only 10% plan to do so in the next twelve months. One of the negative aspects we visualize in this sample is that the majority of the student don't set a specific date to start their own business. Setting a specific date ensures that the entrepreneur performs actions towards this purpose. On the other hand, in regard to entrepreneur motivations, the second most mentioned motivation for creating businesses was: "to exploit an opportunity". This type of business (unlike the ones that are self employment) needs more specialized advice. The profile of the entrepreneur confirms, once again, the need for advice in the entrepreneurial process. In Panama, in addition of family background, interviewees were asked about their motivation to create company, to which the main reason was a "greater economic independence". In the GEM Panama Report (2009), 26% of the entrepreneurs by opportunity also had as their main motivation to have greater independence.

Students that completely reject the idea of establishing a company, do it mainly because of their ignorance in the business sector (47%). This aspect confirms once again the necessity of development of a proactive labor by universities and business training abilities; because as we were able to observe with a greater training, there is much greater level security on personal abilities for starting a business.

#### 4.3 BUSINESS AREA

In this research it was shown that areas of preference for Panamanian potential entrepreneurs, is headed by tourism (20%), followed by information and communication technology (19%), and the services sector (19%). This last item reflects the national reality, where 70% of enterprises in Panama are in the services sector.

#### 4.4 REFERENCE MODELS

77% of respondents claimed to have business in the family, and when there is a businessman in the family, the area in which the entrepreneur wants to set the business corresponds to the area of the company of the family businessman. In addition, 40% of the students have received their business idea from someone of their family.

#### Panamanian Potential Entrepreneur Profile

Table 3 shows up Panamanian potential entrepreneur characteristics:

**Table 3: Panamanian Potential Entrepreneur Profile**

Characteristic	Description	Recommendations
Work Experience	Around two years	
Motivation	By opportunity	It is necessary to filter the ideas for incubating only the best projects. "By opportunity" businesses have a higher level, and require specialized advice.
	Plans to set a company in a not near future.	This aspect must be emphasized
Area	Tourism, ICT and Services	
Reference Models	-77% has businessmen in the family. -40% who have the idea of setting a company has been influenced by family	

## SWOT Analysis of the university potential entrepreneur

The potential entrepreneur analyzed, has great potential which must be exploited. He also has weaknesses and minimal threats that may be offset by their strengths and opportunities (Table 4).

**Table 4: SWOT Analysis of the university potential entrepreneur**

<i>STRENGTHS</i>	<i>WEAKNESSES</i>
<ul style="list-style-type: none"> <li>-Young</li> <li>- Trained by subjects that have been inserted in the curricular structure of their career.</li> <li>-Has some work experience.</li> <li>- It is aimed at creating technology based companies.</li> <li>-Has "self-efficacy" feelings.</li> <li>-A large percent has reference models.</li> </ul>	<ul style="list-style-type: none"> <li>- Does not have wide business experience or wide specialization.</li> <li>- Ignorance of existing government, universities, and other entities to support the entrepreneur.</li> </ul>
<i>OPORTUNITIES</i>	<i>THREATS</i>
<ul style="list-style-type: none"> <li>-Good economic situation in the country.</li> <li>-Support for the entrepreneurs by various institutions.</li> <li>-Incubators available in the universities.</li> <li>-High desirability in the creation of enterprises.</li> <li>-Is easy to find business "opportunities"</li> </ul>	<ul style="list-style-type: none"> <li>-Risk that the entrepreneur may not finish his studies, when they start the company in the last year of the career.</li> <li>-Lack of specialized technical support and equipment that the universities may have for the development of new technologies.</li> </ul>

In the correlation matrix of all the variables included in the analysis, a significance test was made for the value between "work experience" and "age", for  $r = 0.2205$ .

### Hypothesis:

**H<sub>1</sub>**: In the population in which the sample was extracted there is a relation between the entrepreneur's age and entrepreneur's skills for creating a business.

$$r = 0.2205$$

$$n = 321$$

$$r^2 = 0.048$$

$$t = r \sqrt{(n - 2) / (1 - r^2)}$$

$$t = 0.2205 \sqrt{(319) / (1 - 0.048)}$$

$$t = 0.2205 * 18.32$$

$$t = 4.0395$$

$$\alpha = 0.05$$

$$\text{Degree of Freedom} = n - 2$$

**Decision:** Given that the calculated value 4.0395 is greater than the table (2.8073), we conclude once more there is some significant relationship and we accept H<sub>1</sub>, which means that in the population the simple was drawn exists a dependence relation between the age of participants and their ability to create a company (in terms of their work experience).

## 5. CONCLUSIONS AND IMPLICATIONS

- The study of the Panamanian University potential entrepreneur, allowed to recognize their personal attributes, and allowed to recognize the profile of entrepreneurs with the greatest potential, to take into account, in case that the physical space of University incubators do not permit the admission of all applicants.
- The factor which resulted with the highest incidence in the intentionality of business creation of the potential entrepreneur was the abilities he possesses to create the company; which confirms the wise decision to use the universities as a starting point for the Panama's incubation system.
- Allows us to become aware of the important work that universities have in the increase of business skills of the potential entrepreneurs, to increase the quality of the companies they establish.
- According to regression applied to all the analyzed variables, the entrepreneur's "business background in the family" and the entrepreneur's "social capital" were significant although had a minor degree of significance in the desire of creating businesses.
- According to these results, the policies must be focused on strengthening the network of contacts of potential entrepreneurs and of the incubatees, to enhance their positive influence in potential entrepreneurs.
- If the study would have applied to graduate students who have greater experience, the approximation of the influence of work experience in the desire of creating a business, would be significant.
- Students who reject completely the idea of establishing a company, do so mostly for "ignorance of the sector and the business world", hence the need of a helping hand in the process.
- While much of the analyzed variables were not significant in the attitude toward entrepreneurship, this doesn't affect the validity of the significance of the influence of entrepreneur's skills in the desirability of creating a business, in which the role of the University is very important.

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