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RESUMO/ABSTRACT

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Entrepreneurship is a major element in fostering the dynamics of an economy and bringing new types of competitive business. The value of this new business depends a lot on the capabilities of the entrepreneurs. Having a university degree is a relevant aspect to the establishment of high value added new ventures that capture knowledge and innovative technologies. Thus the purpose of this paper is to understand the propensity to entrepreneurship among university students and the factors that influence this propensity. Therefore we contribute to the literature on entrepreneurship by analysing the factors that determine the propensity for starting a new business among a specific segment of individuals that due to their education can foster the creation of high value ventures and positively influence the economic development of an economy. We use a sample of university students in Portugal to test a framework of variables that tries to weight the influence of socio-demographic variables, psychological characteristics and contextual factors, namely the type of universities and course and national institutional framework, applying a probabilistic model to test the relative importance of these factors. The results show nationality, gender, enrolment in academic associations and family background are the more significant factors that differentiate students that consider starting a new business. Other relevant elements are the level of income, sports activity engagement and travelling abroad experience.

Keywords: Entrepreneurship, propensity, universities, new ventures, entrepreneur's characteristics

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ABSTRACT

Entrepreneurship is a major element in fostering the dynamics of an economy and bringing new types of competitive business. The value of this new business depends a lot on the capabilities of the entrepreneurs. Having a university degree is a relevant aspect to the establishment of high value added new ventures that capture knowledge and innovative technologies. Thus the purpose of this paper is to understand the propensity to entrepreneurship among university students and the factors that influence this propensity. Therefore we contribute to the literature on entrepreneurship by analysing the factors that determine the propensity for starting a new business among a specific segment of individuals that due to their education can foster the creation of high value ventures and positively influence the economic development of an economy. We use a sample of university students in Portugal to test a framework of variables that tries to weight the influence of socio-demographic variables, psychological characteristics and contextual factors, namely the type of universities and course and national institutional framework, applying a probabilistic model to test the relative importance of these factors. The results show nationality, gender, enrolment in academic associations and family background are the more significant factors that differentiate students that consider starting a new business. Other relevant elements are the level of income, sports activity engagement and travelling abroad experience.

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Introduction

Entrepreneurship has an important role in a country's economy, contributing decisively for the creation of new businesses or business opportunities in companies that already exist, according to Global Entrepreneurship Monitor Portugal (GEM) report of 2004.

Therefore, entrepreneurship carries a series of advantages for the countries/regions, with the creation of new businesses that generate more investments in the local economy, creates new jobs, and increases competitiveness by developing innovative working tools. This way, this phenomenon is considered a major element in fostering dynamics of an economy and bringing new types of competitive business (GEM Portugal, 2004).

The main purpose of this paper is to understand the propensity for entrepreneurship among university students and the factors that influence this propensity. It's important to know the extent of the propensity for entrepreneurship of those who finish their university degrees since these are the type of entrepreneurs that could be more able to generate high value entrepreneurship. Therefore, we aim to contribute with new elements for the understanding of the levels of entrepreneurship in Portugal and getting to know better what are the factors that contribute for bursting entrepreneur's behaviours.

For the accomplishment of this objective we have used an inquiry, which was handed-out to the finalist students from the Universities of the Azores, Porto and Technical University of Lisbon (ISEG) and Polytechnic Institutes of Guarda and Setúbal, in order to obtain the necessary information. Regarding the samples' selection there was the preoccupation of embracing several geographical areas of the country (North, Centre, South and Islands), as well as the two models of higher education (university and polytechnic).

Literature Review

Virtanen (1997) sees entrepreneurship as a dynamic process which the main purpose is to create value in the market, through the exploration of economic innovations. The entrepreneur, by creating value and by exploring innovative processes, is also contributing for the growth of their business and the economy.

The definition of entrepreneurship has been seen according to two criteria: the first involves the knowledge and the individual's capacity of recognizing economic opportunities existent in the market, which may be exploited through the creation of a new business; the second criteria involves the economic behaviour and the creation of the new business in order to aggregate the economic value to knowledge (Audrestsch and Keilbach, 2004).

According to Bygrave and Hofer (1991) and Bygrave (1993), entrepreneurship is a process which involves all the functions and activities related to the individuals' perception of opportunity and respective creation of enterprises in order to undertake these opportunities. Involves several precedent conditions and is started by an act of willingness, occurring at a individual level, implies a state of change and uniqueness, and its final results are sensitive to the initial conditions.

Virtanen (1997) considers that the definitions of Bygrave and Hofer (1991) on entrepreneurship grasp some of the most important features, but ignore other equally important aspects such as objective and purpose of the entrepreneurship process, that is, these definitions don't answer the following questions: Why does occur the entrepreneurship process? What is the purposes of its activity?

In Venkataraman (1997) opinion, quoted by Shane and Venkataraman (2000), the entrepreneurship phenomenon cannot be explained based on what the entrepreneur is or does. For this author the focus should be on the relation between the existence of profitable opportunities and the presence of entrepreneurial individuals. Entrepreneurship undertakes the evaluation of opportunities' sources, comprehending the discovery, estimation and exploration, plus a set of individuals that discover, evaluates and explores it (Shane and Venkataraman, 2000).

The entrepreneurship phenomenon involves uncertainty and venture, management skills and creative opportunism, (Brockhaus, 1987). As stated by Audrestsch and Keilbach (2004), the predominant aspect in entrepreneurship relies upon the perception for new economic opportunities and on the consequent introduction of new ideas on the market. The same way entrepreneurs are agents of change, entrepreneurship refers to the process of change.

There are several theories which study the influence of different factors on the levels of entrepreneurship. These theories cover economics, personality features, sociological and anthropological aspects.

The economic theories on entrepreneurship have mounted to the Classical Economic Theory and allege that the entrepreneur activity results from the economic environment. From this point of view, entrepreneurs achieve success not because of their personal features, but as a product of the contextual environment and from the rational evaluation of it (Gordon, 2004).

Another perspective is the one in which the individual's decision in becoming a entrepreneur is not influenced only by economic factors, such as the potential profit and the current income levels, but also by non-economic factors and by the social context in which the individual is set (Philipsen, 1998). For McClelland and Winter (1971), quoted by Virtanen (1997), psychological theories give more emphasis to personality features, motivations and benefits to individuals.

According to Philipsen (1998) features' theories sustain that the individuals with propensity for entrepreneurship have certain characteristics which distinguishing them from the remaining individuals. These theories seek to identify the key-features of successful entrepreneurs, including psychological, sociological and anthropological variables.

According to Casson (1982) the fundamental features, associated with the entrepreneur, such as imagination, are inherent and cannot be learned. In these terms, one of the many criticisms that are made to features' theory is that it doesn't enable us to distinguish inherent personality features from those that can be taught (Gordon, 2004).

The inaptitude of the psychological features' theory to explain entrepreneurship may result from the lack of knowledge regarding the social context and the choices that individuals do in the decision moment whether they should or not become entrepreneurs (Reynolds, 1991). According to Virtanen (1997) the sociological theories rely on the ethnical identification and try to explain entrepreneurship as being a process where the individuals' sociological past constitutes a decisive factor for he, or she, becoming an entrepreneur.

For Gartner (1989) behavioural theories suggest that the organization results from several influences. The creation of a business is the key-moment, since the entrepreneurial behaviour ends as soon as the organization is created. This approach puts the organization at the first level of analysis and the individual as a mere tool to make the organization operational. According to this author to understand the entrepreneurship phenomenon, in order to trigger its growth, we should focus on organization's creations process, that is, give emphasis to the entrepreneurs' behaviour and not to its personal features, once personal features are seen as behaviour backup.

Jenks (1950) and Kilby (1971), quoted by Gartner (1989) have encouraged research based on entrepreneurs' behaviours and activities and criticized those that seek to develop personality features. Brockhaus (1980), Brockhaus and Nord (1979), Sexton & Kent (1981), quoted by Gartner (1989) in their empirical researches have concluded that is not possible to differentiate entrepreneurs from the general population and from the managers in particular based on the assumption that entrepreneurs have certain personality features.

According to Virtanen (1997), it's worth adding to sociological theories of entrepreneurship, the anthropological theories, being these responsible by the explanation of opportunity acknowledgement from the entrepreneur. Anthropological studies of entrepreneurship are centred on social and cultural processes.

Based on this conception, Virtanen (1997) argues that economic theories apply expectations and sociological and anthropological theories employ performance evaluation. According to this author we have here a wide range of theories on entrepreneurship that may be used to analyse this phenomenon. Nonetheless, he mentions the fact that different theories, as well as different definitions must be used in different contexts.

Verheul et al (2001) appears with a new theory on entrepreneurship that isn't just about economic theories, but also about the psychological features and social behaviours. This theory is denominated of "Entrepreneurship Eclectic Theory" and proves that none of the three theories mentioned previously may, alone, explain the entrepreneurship phenomenon, but that altogether and interacting among them may explain the constant mutations that are verified in the entrepreneur activity.

A research done by Baron and Brush (1999) indicates that studies on entrepreneurship should focus on the individual's behaviour instead of their features. In this research, the authors point out the social skill (as an ability that entrepreneurs have to interact with others) as a factor that can influence their success, being a fundamental condition to solidify internally an organization.

Baron and Brush (1999) quote researches done by Duck, (1994); Segrin and Kenney, (1995); Weber and Harvey, (1994); Tsui, (1998) that show different aspects of social skill, such as: persuasion, social perception, good capacity to communicate, have a positive impact on results achieved by individuals in several contexts, including the ones of negotiation.

Duchesneau and Gartner (1990), in their study on factors that influence the success of new entrepreneurs concluded, that entrepreneurs which companies are more successful, communicate more (clients, suppliers and employees), and are more efficient in their activities than the remaining businessmen. This way, they concluded that a high level of communication is a success factor for the new entrepreneurs.

On the other hand, according to Baron and Markman (2003), social skills may also influence entrepreneurs' financial success. Cable and Shane (1997), quoted by Baron and Brush (1999), stress that the cooperation existent between entrepreneurs and banks may grow case there is a positive business or social relation.

According to Baron and Markman (2003), social skills may also perform an important role in the discovery or exploration of new business opportunities. Not all individuals have the information that may lead to opportunity recognition, and this may be an important reason why some individuals recognize and explore the opportunities and others don't (Shane and Venkataramam, 2000).

Baron and Markman (2003) also distinguish social skills and social capital. Social capital is based on entrepreneur's reputation, in their work relations, which sometimes allows them to access important people to achieve success (potential clients, capitalist entrepreneurs, employees). Once these achievements are assured, the results obtained are influenced by the interaction of the entrepreneur with others, that is, by his social skills.

Social capital alludes to standards and values to which people hold on to which result from connections negotiated collectively and socially. In turn, social capital is totally associated to other ways of capital, such as humane (ability and qualifications), economic (wealth), cultural (ways of thinking) and symbolic (prestige and personal qualities). Economic capital amplifies social capital and cultural capital may be rapidly transformed in human and social capital (Edwards, 2004).

According to Edwards (2004), social capital has impact in societies', politics and economy, since people that share a type of identity detain similar values, what eases collective action in economic and political terms. According to this author social capital emphasis is on social networks which supply the access to a resources' group, which enable achieving economic rewards and social power.

Based on this set of references about the conditions that determine the level of entrepreneurship, we have established a conceptual model of analysis which is presented in the next section and which integrates aspects of social-demographical, psychological and contextual nature.

Hypothesis

The propensity for entrepreneurship depends on several factors. In this study we define a conceptual framework based on social-demographical, contextual and psychological features, according to the following structure.

Table 1 : Conceptual Model

Social-Demographic Characteristics	Contextual Characteristics	Psychological Characteristics
- Age\sex	- University attendend	- Associativism
- Nacionality	- Undergraduate Program	- Team Sports
- Family Backgroundf	- Numer Disciplines on Entrepreneurship	- Fortune Games
- Income Level	- Oriented Incentives Programs	- Openness

Verheul et al (2001) refer to the research done Van Praag (1996), De Wit and Van Winden (1991), and Evans and Leighton (1989b), regarding the individual's decision in becoming entrepreneur. These researches were concerned with the educational level, personality features, financial assets, family background and individual's professional experience.

According to Reynolds et al (2001), an individual's decision to start an entrepreneurial activity may be influenced by several factors that, in turn, may be divided in three groups. The first group is constituted by demographical variables such as age and sex, while the second is constituted by the situation that individuals' face in that moment, as well as their perceptions, capacities to start a new business, perception of the opportunities existent in the market, fear of failure, connections to other entrepreneurs, perception of the economic perspectives for the family and from economy. The third group sums up to the educational level effects, the importance of family income upon the entrepreneurial activity and the individual's current labor activity.

People that present higher propensity for entrepreneurship are the ones that have a better educational level, a higher family income, as well as a high paid job, since they have the capacities required to identify opportunities as well as the trust and necessary resources to develop a new business (Reynolds et al, 2001).

Trigo (2002) has analysed the impact that contextual variables have over entrepreneurship, quoting for that matter Morris (1998), who mentions that variables should be grouped in three major aggregates: institutional infrastructures; the level of organization that exists in society and individual's personal experiences. It's the interaction of these three major variables' groups that explains the levels of entrepreneurship. Institutional infrastructures include legal, financial, political, logistic, educational and social structures, which differentiate a society, the environment turbulence characterized by the levels of hostility, dynamics or complexity of the society, and lastly, personal experiences provided by environment.

With the first hypothesis is our purpose to gauge at what extent the social-demographical features of the inquiries may influence their propensity for entrepreneurship.

Verheul et al (2001) considers that the age structure of a population may affect the levels of entrepreneurship, once that people in certain age stages are more available to create a business. On the other hand, he quotes Peters et al (1999) since for these authors there are several factors, such as net contacts, financial resources, social and personality features, which depend on the entrepreneurs' age and that, can have indirect influence upon the levels of entrepreneurship.

According to Holtz-Eakin et al (1994) the individuals' age may be connected with certain aspects of entrepreneurship, for instance attitudes towards venture, professional experience and consequently human capital and other non-pecuniary aspects. Nonetheless, Blau (1987), quoted by Cowling and Taylor (2001), has a different opinion, stating that individuals' age has no influence upon entrepreneurship.

Verheul and Thurik (2001) mention that women have a distinct approach on entrepreneurship, interpreting that the differences go through the way they finance their businesses, which is directly related to the differences in style of management between both sexes, with the type of the chosen businesses and with the experiences as entrepreneurs. On the other hand, the authors concluded the women entrepreneurs, in the beginning of their activity, use smaller amounts of capital (this because the initial investment is lower), but are not very different from men, in the type of capital used.

Verheul and Thurik (2001) refer to the differences between women and men's education, and mention that male entrepreneurs have more education in technological areas, while female reveal a higher level of education in the economic, administrative and commercial areas.

Cowling and Taylor (2001) have carried out a study with the purpose of identifying the differences regarding personality and demographical features existent between men and women and their influence in the decision of creating a business.

Through this study, they have concluded that entrepreneurship is superior in men and that women entrepreneurs have a higher level of education than men. The low participation of women in the creation of businesses is due to different factors amongst which highlight the difficulty that they have in obtaining financial support to start their business (Verheul and Thurik, 2001).

Sexton and Bowman-Upton (1990) have accomplished a study on entrepreneurial features of both sexes and concluded that one of the detected differences relies on the levels of energy and propensity to assume risks, revealing women a lower capacity for such. However, if the analysis falls upon the openness to change and autonomous capacity, then women reveal higher capacities than men.

The individuals' nationality may be a factor that influences the levels of entrepreneurship, through cultural and social factors and a country's economic development. According to De (2001), a country's culture has influence upon entrepreneurship since the individuals' decisions are affected by their cultural level. This author points out the example of the level of entrepreneurship in Europe and Japan, noticing that the level of entrepreneurship in Europe is higher than in Japan, due, not only, to the cultural differences but also to the role that each society gives to individuality and to hierarchies. While in Japan is still given more importance to hierarchies, in Europe the emphasis is on individuality.

Social factors are totally connected to the cultural level of a country which becomes more evident with the notion of women's role in society, the family and minority's role (De, 2001).

The individuals' propensity for entrepreneurship is part of a country's culture, since, this is influenced by the idea one has about entrepreneurship. This way, Verheul et al (2001) conclude that a country's culture may influence their levels of entrepreneurship.

For Noorderhaven et al (2003) a country's economic development and the business cycle phase have influence upon the levels of entrepreneurship, since resources and market opportunities depend on these two factors.

Noorderhaven et al (2003) make references to studies that conclude that the creation of businesses is prone to decrease as economy grows. In an economy which is in recession or stagnated the level of income is low, which in turn has some influence in the sense that increases the level of entrepreneurship.

The way how a family helps an individual that decides to undertake an entrepreneurial career cannot be dissociated from their values, which in turn are strongly influenced by society (De, 2001). According to Birley (1985) the family is an integrating part of the informal nets which has influence in the enterprise nature. According to a study made by the author, family, friends and colleagues contacts are an important link in the access to materials, equipments, supply, jobs and spaces.

Entrepreneurial leaders of successful companies have a positive correlation to having entrepreneurial parents and benefiting from previous experience of business (Duchesneau and Gartner, 1990).

According to Casson (1990) many successful entrepreneurs are sons of other entrepreneurs and owe their success to the family teachings as well as the net of contacts they have.

Based on these concepts we have established the first hypothesis which aims to determine the influence of social-demographical factors on the propensity for entrepreneurship among university finalist students

H1: The propensity for new ventures among university finalist students depends on socio-demographic aspects:

According to the results obtained in a study accomplished by Rees and Shah (1986), individuals' education is an important factor of entrepreneurship's success, given that individuals with a higher educational level tend to have a better performance, besides the fact that they are more aware of the opportunities existent in the market.

Borjas and Bronars (1989), quoted by Cowling and Taylor (2001) defend that the creation of a business is more likely to happen to individuals with a higher educational level rather than to individuals that are less educated.

A strong bet on education, whether in general, or in entrepreneurship, in particular, is justified in all the national contexts, since individuals with a lower educational level have minor propensity to start an entrepreneurial career and also demonstrate a tendency to flatten their businesses objectives with their level of knowledge and capacities. One concludes that they give more emphasis to businesses that imply lower ambition (Reynolds et al, 2001).

For the OCDE (1998a), quoted by Verheul et al (2001), universities may contribute significantly for the development of individuals' entrepreneurial capacities, offering undergraduate programs that deal with entrepreneurship and incorporating in its undergraduate programs courses that focus on this subject.

Rasheed (2004) concluded that an education on entrepreneurship and companies' experience can influence the students' entrepreneurial features. According to this author, students that have preparation on entrepreneurship enjoy of the characteristics presented by entrepreneurs, namely: a high level of self-control, the need of fulfilment, innovative capacity and a strong self-esteem when compared to other individuals.

An education oriented to business may constitute a major driving factor for entrepreneurship, giving not only technical tools to individuals (accounting, marketing, finance), but also helping individuals to re-orient their self-confidence, being creative, having a flexible thought and acting independently (Mueller and Thomas, 2000).

Therefore, the undergraduate program students attend may also be a driving factor of entrepreneurship, once that programs like engineering, economics and management, in general, influence positively individuals about this subject, while programs associated to social sciences or humanistic don't.

This way, hypothesis 2 was established based on these evaluations, having the following structure:

H2: The propensity for new ventures among university finalist students depends on contextual features.

The government, through fiscal benefits, subsidies from the educational system, labour market legislation and bankruptcy may influence the levels of entrepreneurship of a country (Verheul et al. 2001). According to Trigo (2002), Schumpeter (1934) has noticed that in a capitalist economy bank institutions represent a strong influence on the levels of entrepreneurship, since that any innovation needs financing. For Reynolds et al (2001), financing is the fuel that drives new companies and the origin of this financing depends on the level of entrepreneurship in which the company stands.

According to the study accomplished by Reynolds et al (2001) the political context along with the social and cultural context create the level of economic development of a country, which in turn, as mentioned before, has influence on their levels of entrepreneurship. A country's infrastructures have impact on the creation of new businesses. Good physical and legal infrastructures contribute positively to increment the levels of entrepreneurship.

With the following hypothesis, we seek to analyze the relation between propensity for entrepreneurship, among university finalist students and their psychological features, given that, according to the mentioned in the literature review, entrepreneurs differentiate themselves from the remaining population by those features.

Therefore, Markman and Baron (2003) suggest that the higher is the proximity between individuals' personal features (for instance: effectiveness, ability to recognize opportunities, perseverance, social and human capital) and the necessary features of the entrepreneur, the higher the propensity for the entrepreneur to be successful.

Markman and Baron (2003) mention studies accomplished by other authors, according to which success and entrepreneurial performance result from certain psychological features, such as: tolerance to ambiguity (Bhidé, 2000), capacity to be innovative, need of fulfilment and propensity to take risks, (Steward et al, 1999).

According to McClelland (1965) whenever people have a great need of fulfilment they work hard, provided with an opportunity to reach something. These individuals are interested in getting profits because those are the driving force for their success.

Individuals with great need of fulfilment compete with their own patterns of excellence, seeking to perfect their performance continuously (Begley and Boyd, 1987). Individuals open to experience are people that are independent, fanciful, original, without conventionalisms, are more creative than others and have a divergent thought (McCrae, 1987), quoted by Judge and Cable (1997).

Woodman et al (1993), are also mentioned by Judge and Cable (1997) and concludes that individuals' creativity is a factor with a strong impact on organizations, since contributes, at a large extent, to innovation.

The propensity to assume risks may be defined as the guideline individuals have to risk in decision-making situations. Entrepreneurs are seen as individuals with a moderate propensity to assume risks (Sexton and Bowman, 1985).

According to Brockhaus (1987) studies accomplished by other researchers have concluded that propensity to assume risks is not an exclusive feature of entrepreneurs, but common to individuals related to the business scene.

For Judge and Cable (1997) the most visible feature of extroversion is sociability. Extrovert individuals, besides being sociable people, are also assertive, spirited and energetic (Goldberg, 1990). Are people with a strong proneness to belong to organizations, reason why they like spending their spare time in social activities and in team sports, Emmons et al (1986) quoted by Judge and Cable (1997).

Finally, one may consider that the fact individuals travel abroad allows them to know other cultures, which contributes for them to be open minded and this may constitute an inspiration factor.

Considering all these assumptions, was defined the fourth hypothesis.

H3: The propensity for new ventures among university finalist students depends on psychological features.

Therefore, and considering the literature review done in this study, the previous hypotheses were established in order to understand which factors have influence on the propensity for entrepreneurship from university finalist students. The methodology used throughout this empirical work is described in the next chapter.

Methodology

In this paper we measure the levels of entrepreneurship and the environment's influence on the decision of becoming entrepreneur. For such purpose we thought of studying the creation of recent companies and appealing associations of young entrepreneurs for that matter. However, we have chosen to restrict the analysis to finalists students of universities, considering it to be more important to understand the level of propensity of these individuals in creating a business, as well as outline their psychological profile and getting to know the main external factors which help to engage entrepreneurial behaviours.

This option relies on the fact that these individuals are a group of potential entrepreneurs that can contribute in a near future, to increase the levels of entrepreneurship of a country and consequently its economic development. On the other hand, it allowed working with a bigger sample, since if this study fell upon individuals that have already created companies, this would be more reduced, allowing also the possibility of distinguishing potential entrepreneurs from individuals that don't intend to create a company.

Therefore, in order to reach the outlined purpose, we proceeded, based on the literature survey, to choose the variables to include in the study, and develop the questionnaire. This questionnaire had twenty-five questions, and in order to facilitate the data treatment and analysis, all the questions were closed, enabling to obtain qualitative and quantitative answers from the inquiry.

By selecting the sample, it was aimed to embrace several geographical areas of the country (North, Centre, South and Islands) and the two models of higher education (university and polytechnic). On the other hand, there was the concern in sending the inquiries to the teachers that taught courses in programs, at first sight, more cut out to entrepreneurship, namely management, economics, engineering, accounting and auditing and marketing.

The data used in this study was gathered by inquiring the finalist of course in the University of the Azores, University of Oporto, Technical University of Lisbon, Guarda Polytechnic Institute and Setubal Polytechnic Institute. After the data gathering and treatment, we proceeded to develop the statistic analysis which enabled the sample's characterization using data frequencies and taking the first conclusions through crossing data tables.

By crossing the levels of propensity for entrepreneurship, with the explaining variables considered in this study we tried to determine the factors with significant influence in triggering the entrepreneurial behaviours. This analysis, done through chi-square test, allows us to measure the levels of significance and conclude if the variable contributes, or not, to explain the entrepreneurship propensity. Subsequently, and with the purpose of studying the variables together, we used an ordered probit model with a set of the total variables in order to verify its relative importance when analyzed jointly.

Given the ordinal characteristic of the alternative answers, the selected model – ordered probit model, seems proper. This model will be presented summarized (see Greene, 1998).

Considering that the subsidiary's propensity in grabbing a specific answer (level) is determined by the following equation:

$$L_i^* = \beta' X_i + \varepsilon_i \quad i=1, 2, \dots, N \quad (1)$$

Being L_i^* the latent variable (not observed), β is the vector of the parameters to be estimated, X_i is the vector of the explicative variables and ε_i shows a stochastic component which assumes itself as being iid $N(0, 1)$.

However, what is observed in the sample is not the variable L_i^* but an L indicator which represents the level to which belong the subsidiaries. According to the model we may observe:

$$\begin{aligned} I = 0 & \quad \text{if} \quad I^* \leq \mu_0 \\ I = 1 & \quad \text{if} \quad \mu_0 < I^* \leq \mu_1 \\ I = 2 & \quad \text{if} \quad I^* > \mu_1 \end{aligned} \quad (2)$$

The boundaries μ_k ($k=0,1$) constitute a parameters division of standard normal distribution to be estimated along with β .

The probabilities that the subsidiary will be found in one of the three possible alternatives are given by:

$$\begin{aligned} P(L = 0 | X_i) &= P(I^* \leq \mu_0) = P(\varepsilon_i \leq \mu_0 - \beta' X_i) = \Phi(\mu_0 - \beta' X_i) \\ P(L = 1 | X_i) &= P(\mu_0 < I^* \leq \mu_1) = P(\mu_0 - \beta' X_i < \varepsilon_i \leq \mu_1 - \beta' X_i) = \\ &= \Phi(\mu_1 - \beta' X_i) - \Phi(\mu_0 - \beta' X_i) \\ P(L = 2 | X_i) &= 1 - P(I^* \leq \mu_1) = 1 - \Phi(\mu_1 - \beta' X_i) \end{aligned} \quad (3)$$

where Φ indicates the cumulating standard normal distribution function.

Estimation Method

The model can be estimated through the maximum probabilities method. Given the probabilities defined in (3), the maximum probabilities function is presented as follows:

$$L = \prod_{i=1}^N \prod_{j=0}^2 \left\{ \Phi(\mu_j - \beta' X_i) - \Phi(\mu_{j-1} - \beta' X_i) \right\}^{Z_{ij}} \quad (4)$$

where Z_{ij} is the indicative function of the following type:

$$Z_{ij} = 1 \quad \text{if} \quad i \in j$$

$$Z_{ij} = 0 \quad \text{if} \quad i \notin j \quad \quad i = 1, \dots, N \quad \quad j = 0, 1, 2$$

However, what is usually maximized is the following function:

$$\text{Log}L = \sum_{i=1}^N \sum_{j=0}^2 Z_{ij} \log \left\{ \Phi(\mu_j - \beta' X_i) - \Phi(\mu_{j-1} - \beta' X_i) \right\} \quad (5)$$

As long as X_i encloses a constant term, the parameters to be estimated are not identified. To overcome this problem is usual to define $\mu_0 = 0$.

Data Treatment and Results

This chapter was based on the study of entrepreneurial potential evaluation in Portugal “Global Entrepreneurship Monitor” (GEM) 2004, given that this is the major worldwide study on entrepreneurship and has quite recent data. GEM has seek to study the level of entrepreneurship of several countries (34), amongst them Portugal, relating it with its economic development and concluding which factors have influence (positive or negative) on each countries’ entrepreneurship.

To contextualize this study we considered the Portuguese context in terms of entrepreneurship. The main indicator used by Global Entrepreneurship Monitor (GEM) is the Entrepreneurial Activity Rate (EAR), which computes the number of individuals, with ages between 18 and 64, whom are involved in an entrepreneurial activity.

This activity may be at a starting phase (are businesses in which people weren't paid for more than 3 months) or may correspond to a new business management (between 3 to 42 months). Portugal has a low entrepreneurial activity rate, with a EAR rate around the 4% resultant from EAR having amount to 4%, which means that a year, only 4 out of 100, between 18 and 64 years old, were involved in a growing or new business.

The results obtained show that Portugal is below the average of the GEM countries, of 9.4%, and from the 16 countries European Union countries, included in the GEM analysis, which is 5.4%.

Given the importance of entrepreneurship for the economic development of a country and/or region and the factors that interfere with their levels, one seek to built a model with the variables that may have influence on the propensity for entrepreneurship among finalists students from higher education in Portugal.

Therefore, turning to the chi-square analysis and applying the Pearson test we have tested each one of the variables individually, in explaining the focused subject, in order to reject the null hypothesis that variables have no explicative power.

Based on table analysis and according to the chi-square test, we can verify that sex, nationality, existence of entrepreneurial background in the family, the type of course the student is enrolled, the existence of incentives, openness to experience, sports practice and the participation in academic associations show significant statistically effects on the propensity for entrepreneurship among the university finalists, a level of 1% of significance.

The age of the inquired and the existent infra-structures, also have explicative power, for a level of significance of 5%, and for the parents' profession and the level of family income, at a level of significance of 10%, also contribute to explain the propensity for entrepreneurship.

The remaining variables represented on table 1 don't have explicative power, since the null hypothesis is not rejected.

Since the levels of entrepreneurship don't depend on isolated factors, but involve the combination and interaction of different factor, we estimated a ordered probit model, so that we were able to verify the variable's behaviour when analyzed jointly.

Given the nature of the ordered probit model it wasn't possible to introduce all the variables which were considered in the hypothesis test, as such we selected those which presented a higher explicative power when analysed jointly. This way, the results of the ordered probit model estimation regarding the propensity for University finalist students creating a business are in presented in table2.

Table 2: Results of the analysis model

Variable	Codigo	Classification	Impact	Coeficients	Probability	Significance
Entrepreneurship	0	No	Ref			
	1	In the Future	vd			
	2	After Graduation	vd			
Constant				0,838	0,0107	**
University	1	Porto	Ref			
	2	Guarda	-	-0,861	0,6486	n.s.
	3	Açores	-	-0,157	0,5335	
	4	Setubal	-	-0,261	0,1975	
	5	Iseg	-	-0,064	0,8053	
Age	0	< 20	Ref			
	1	21 - 25	+	0,071	0,7878	
	2	> 25	+	0,035	0,9104	
Sex	0	Male	Ref			
	1	Female	-	-0,036	0,0135	**
Nacionality	0	Foreign	Ref			
	1	Portuguese	+	0,970	0,0243	**
Income	0	< 5000 / moth	Ref			
	1	> 5000 / moth	+	0,465	0,0178	**
Family Tradition	1	Yes	Ref			
	0	No	-	-0,138	0,3333	n.s.
Team Sports	1	yes	Ref			
	0	No	-	-0,067	0,6808	n.s.
Fortune Games	1	yes	Ref			
	0	No	+	0,067	0,5271	n.s.
Associativism	1	Yes	Ref			
	0	No	-	-0,490	0,0006	*
Travelling Abroad	1	Yes	Ref			
	0	No	+	0,095	0,6351	n.s.
Um(1)		2,5139	*			
Log-L		251,0107				
Log-L (slopes=0)		275,3397				
Chi-squared		48,6581				
N		358				

* Significant at 1%; ** Significant at 5%; *** Significant at 10%; n.s. Non Significant.

The null hypothesis that exogenous variables don't have explicative power is rejected at a level of 1%, since the Chi-Square test is above critical values.

These results have revealed that sex, with a level of significance of 5%, explains the propensity for entrepreneurship. In fact, we may notice that the propensity for creating a business decreases (going from level 0 to level 2) when the individuals are women. This corroborates the Cowling and Taylor (2001) and Verheul and Thurik (2001) approach that the levels of entrepreneurship are superior amongst men rather than women, and Hofsetede et al (2004) opinion that the increase of women's participation in the labour market doesn't imply an increase of women choosing to have an entrepreneurial career.

Regarding nationality, the results obtained revealed that it presents statistically significant effects on the propensity for entrepreneurship, with a significance of 5%. The fact of individuals being Portuguese increases the propensity for entrepreneurship. However we have to notice that the remaining individuals that have participated in this study are mostly from African Countries of Portuguese Official Language (PALOPS). This result seems to support the references made by Verheul et al (2001) and De (2001) which conclude that a country's levels of entrepreneurship suffer influences of their culture.

For a level of significance of 5% individuals from families with superior incomes (above 5.000€/month) also present more willingness to create a business. Such a fact confirms the idea of Reynolds et al (2001) that individuals with superior income levels show higher propensity for entrepreneurship and this is because they will have more ease in identifying opportunities, in acquiring the necessary resources to start activity and access to a privileged network of contacts.

The fact that individuals belong to an association has a positive influence on the propensity for entrepreneurship. This variable was the one that presented a superior level of significance (1%), so that it's the one that better explains the propensity for entrepreneurship. This result proves that entrepreneurs are extroverted and sociable as mentioned by Sexton and Bowman (1985) and according to Emmons et al (1986) quoted by Judge and Cable (1997) extroverted individuals like to belong to associations.

Based on these results, factors like the universities individuals attend, their age, the existence family business tradition, practice team sports and they have travelled abroad didn't revealed explicative capacity. The course and university attended, might be a vehicle for entrepreneurship's development according to OCDE (1998 a), quoted by Verheul et al (2001). However, this variable has no explicative power since there aren't major differences on the number of courses on the subject attended by the students in the different universities

Regarding the age, the result obtained opposes the approach defended by Verheul et al (2001), by Peters et al (1999) quoted by Verheul et al (2001) and by Holtz-Eakin et al (1994) that individuals' age has influence on the propensity for entrepreneurship and its levels. However, this result meets the approach of Blau (1987), quoted by Cowling and Taylor (2001), that individuals' age has no influence on entrepreneurship. Nevertheless is worthy noticing that there is no major age differences in the sample given the it's configuration.

The fact that the family entrepreneurial background doesn't show explicative capacity, contradicts the opinion of the authors referred in the hypothesises that family is a factor which has influence on the propensity for entrepreneurship.

Based on these results, of the ordered probit model and the chi-square test, we may conclude that there are several variables (age, corporate background in the family, practicing sports, gambling on lottery, travelling abroad) that when considered jointly with other factors no longer have explicative power.

Discussion and Conclusions

Through this study, we have studied the levels of the propensity for entrepreneurship among finalists of universities, and tried to understand the factors that influence the propensity for entrepreneurial activities.

We have managed to identify that around 3.8% of inquired intent to create a new business when they finish the course, 63.9% consider creating a business in the future and 32% don't intend to create a business. However, it's worth noticing that from these 63.9% which have answered that they intended to create a business in the future, many of them may change their mind as time goes by, preventing that this situation is accomplished.

Another important aspect is that one third of sample, answered that doesn't intend to create a business neither immediately nor in the future, which shows little entrepreneurial capacity among universities finalist students.

In order to test the hypothesis and analyze the influence of the social-demographical, contextual and individuals' psychological features on the propensity to create a business, were performed a chi-square hypothesises test.

Regarding the demographical variables, we have concluded that, age, nationality, existence of entrepreneurial background in the family, parents' profession and the level of family income have influence on the propensity for entrepreneurship among university finalist students in Portugal.

Contextual variables considered in the hypothesis test, such as incentives and existent infrastructures, show to have influence on the propensity for entrepreneurship. Concerning the contextual variables such as the attended university, the number of courses which focus on the subject, the political framework and the existent financing, we have to conclude that these didn't have influence on the inquired willingness to create a business.

As for the personality features, only openness to experience/being innovative, practice of sports and belonging to an association showed to have influence on the propensity to create business. Features like the need of personal fulfilment and achieving success, assuming risks and overcome challenges, gambling in the lottery or travelling abroad didn't prove to have explicative power.

Since with these hypothesis test wasn't possible to analyze the variables jointly, based on the formulated hypothesises we have elaborate an ordered probit model, in order to analyze the variables' interaction. The results obtained with the ordered probit model allow us to conclude that the inquired propensity for entrepreneurship suffers influences of variables as sex, nationality, level of parents' income and belonging to an association.

The results have demonstrated that male students have more appetite for entrepreneurship and that Portuguese students also demonstrate higher propensity for entrepreneurship. However, it's important to notice that the individuals that have answered the inquiry and that aren't Portuguese are almost all from PALOPS.

On the other hand, we have noticed that the inquired that belong to a family with medium incomes, medium/high also have more intention for creating a business. Lastly, belonging to an association has positive influence on the propensity for entrepreneurship.

The results obtained with the model allow us to conclude that the variables university, age, entrepreneurial antecedents practice of sports, travelling abroad loose significance when considered together with the factors mentioned above in explaining students' entrepreneurial intentions.

Based on what was described here we may prove the opinion of some authors quoted on the literature review that variables like sex, nationality, family income and belonging to an association have influence in triggering entrepreneurial behaviours.

Regarding age, and the existence of entrepreneurial background in the family it wasn't possible to confirm some of the authors' opinions who defend that these variables also have influence on the propensity for entrepreneurship.

The results permit us some deductions about the levels of entrepreneurship in our country and therefore suggest some policies that may contribute to increment entrepreneurship in Portugal. One the measures that could contribute to increase the propensity for entrepreneurship in our country, relies on the possibility of incrementing the number of courses on this subject, as well as to incentive individuals' creativity, since elementary school and encourage young people to participate in innovative activities.

Another policy would be regarding the development of internships in the companies in order to create a appetite for an entrepreneurial career. On the other hand, it would also be advantageous to consider the creation of a study regime that alternates academic courses with internships, because it would enable students to interchange curricular activity with the work in the companies.

Finally, a better linkage between universities and corporate associations in the creation of "business incubators" would also give an important contribute for the growth of the levels of entrepreneurship in Portugal.

The results obtained with this study may provide new clues for future research. However, it's necessary to have in attention that this work presents some limitations. The first limitation which we may point out is the fact that this paper relies on the study of a small fraction of the Portuguese population, which doesn't mean that these results work for understanding the factors that influence the entrepreneurial behaviour of the population in general. Another aspect has to do with the nature of the ordered probit model, which hasn't allowed using all the variables that were considered in the hypothesis tests,.

However and despite off the presented limitations, this research provides some contributes for a better comprehension of the factors that contribute to trigger entrepreneurial behaviours of the individuals that are just entering the labour market and that have a superior level of education, being able to give a contribution to define measures which allow increasing the levels of entrepreneurship in our country and this way compete for its economic development.

It would interesting in future research, to compare the propensity for entrepreneurship among university students in different countries, for instance European Union and compare the triggering/inhibiting factors of the entrepreneurial behaviours of different countries.

Referências

- Audretsch, D.B.; Keilbach, M. (2004). Entrepreneurship capital and economic performance. *Regional Studies*, 38/8, 949-959.
- Baron, R. & C.G. Brush. (1999) "The Role of Social Skills in Entrepreneurs Success: Evidence from Videotapes of Entrepreneurs' Presentations." In Reynolds, P.D., Bygrave, W.D., Manigart, S., Mason, C., Meyer, G.D., Sapienza, H., & Shaver, K. *Frontiers of Entrepreneurship Research, Proceedings of the Babson-Kauffman Entrepreneurship Research Conference*, 45-57.
- Baron, R.A.; Markman, G.D. (2003). Beyond social capital: the role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing*, 18, 41-60.
- Begley, T.M.; Boyd, D.P. (1987). Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing*, 2, 79-93.
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1, 10-117.
- Brockhaus, R.H. (1987). Entrepreneurial folklore. *Journal of Small Business Management*, 25/3, 1-6.
- Brockhaus, R.H. (1980). Risk taking propensity of entrepreneurs. *Academy of Management Journal*, 23/3, 509-520.
- Bygrave W.D.; Hofer, C.W. (1991). Theorizing about entrepreneurship. *Entrepreneurship Theory and Practice*, 16(2), 13-22.
- Bygrave, W.D. (1993). Theory building in the entrepreneurship paradigm. *Journal of Business Venturing*, 8, 255-280.
- Casson, M. (1982). *The entrepreneur. An economic theory*. Edward Elgar Publishing, Northampton, M.A.
- Casson, M. (1999). *Entrepreneurship*. Hardcover.
- Casson, Mark C. (1990) (ed.), *Entrepreneurship (International Library of Critical Writings in Economics)*, Edward Elgar, Cheltenham.
- Cowling, M.; Taylor, M. (2001). Entrepreneurial women and men: two different species? *Small Business Economics*, 16/3, 167.
- De, D (2001). Fostering entrepreneurship in Europe. in A. Lundstrom e L. Stevenson (eds), *Swedish Foundation for Small Business Research*.

Duchesneau, D.A., Gartner, W.B. (1990). A profile of new venture success and failure in an emerging industry. *Journal of Business Venturing*, 5, 297-312.

Edwards, R. (2004). Social capital. *Organization Management Journal*, 1/1, 81-88.

Gartner W.B. (1989). Who is an entrepreneur? Is the wrong question, *Entrepreneurship Theory and Practice*, Vol. 13 No.4, pp.47-68.

Goldberg, L.R. (1990). An alternative "Description of personality": the Big – Five Factor Structure. *Journal of Personality and Social Psychology*, 59/ 6, 1216-1229.

Gordon, R. (2004). Entrepreneurs are born, not created. Working paper, University of Whales.

Greene, W. (1998) LIMDEP V.7 Manual do utilizador. Castle Hill: Econometrics Software Inc.

Hofstede, G., Noorderhaven, N.G., Thurik, A.R., Uhlaner, L.M., Wennekers, A.R.M., Wildeman, R.E. (2004). Culture`s role in entrepreneurship: self-employment out of dissatisfaction, in *Innovation, Entrepreneurship and Culture: The Interaction between Technology, Progress and Economic Growth*, J Ulijn and T. Brown (eds) Cheltenham, UK and Brookfileds, US Edward Elgar.

Holtz-Eakin, D., Joulfaian, D. e Rosen, H.S. (1994). Entrepreneurial decision and liquidity constraints. *The Rand Journal of Economics*; 25/2, 334-347.

Judge, T.A e Cable, D.M. (1997). Applicant personality, organizational culture, and organization attraction. *Personnel Psychology*, 50/2, 359-394.

Markman, G.D. e Baron, R.A. (2003). Person – entrepreneurship fit: why some people are more successful as entrepreneurs than others. *Human Resource Management Review*, 13, 281-301.

McClelland D.C. (1965). Achievement Motivation Can Be Developed. *Harvard Business Review*, (Novembro-Dezembro), 178, 6-24.

McCrae, R.R e Costa, P.T. (1997). Personality trait structure as a human universal. *American Psychologist*, 52/5, 509-516.

Mueller, S.L. e Thomas, A.A. (2000). Culture and entrepreneurial potential: a nine country study of locus of control and innovativeness. *Journal of Business Venturing*, 16, 51-75.

Noorderhaven, N., Thurik, R., Wennekers, S. e van Stel, A. (2003). Self-employment across 15 european countries: the role of dissatisfaction. *SCALES – paper N200223, Scientific Analysis of Entrepreneurship and SME, EIM*.

Philipsen, K. (1998). Entrepreneurship as organizing. *Presentation Paper: DRUID Summer Conference*, Denmark.

Rasheed, H. & Rasheed B. (2004). Developing entrepreneurial characteristics in minority youth: The effects of education and enterprise experience. *Ethnic Entrepreneurship: Structure and Process*. eds Stiles, Curt H; Galbraith, Craig S. v. 4, 2004. p. 261-277.

Rasheed, H. & Rasheed B. (2003), *Developing Entrepreneurial Characteristics in Youth: The Effects of Education and Enterprise in Experience in Ethnic Entrepreneurship: Structure and Process* (ed: Stile, C. & Gabraith, C.); Elsevier Science, Amsterdam.

Rees, H. e Shah, A. (1986). An empirical analysis of self-employment in the U.K. *Journal of Applied Econometrics* (1986-1988), 1/1, 95-108.

Reynolds, P. D., Camp, S. M., Bygrave, W. D., Autio, E. and M. Hay (2002) *Global Entrepreneurship Monitor. 2001 Executive Report*, Babson College, London Business School.

Reynolds, P.D. (1991). Sociology and entrepreneurship: concepts and contributions. *Entrepreneurship Theory and Practice*, Vol. 16 No.1, pp.47-70.

Sexton, D.L. e Bowman, N. (1985). The Entrepreneur: a capable executive and more. *Journal of Business Venturing*, 1, 129-140.

Sexton, D.L. e Bowman-Upton, N. (1990). Female and male entrepreneurs: psychological characteristics and their role in gender-related discrimination. *Journal of Business Venturing*, 5, 29-36.

Shane, S e Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25/1, 217-226.

Trigo, Virginia, (2003), *Entre o Estado e o Mercado: Empreendedorismo e a Condição do Empresário na China*, Edições Ad Litteram.

Verheul, I., Wennekers, S., Audretsch, D. and Thurik, A.R. (2001) *An eclectic theory of entrepreneurship: Policies, institutions and culture*. Discussion Paper 01-030/3. Tinbergen Institute.

Verheul, I. e Thurik, R. (2001). Start-up capital: "Does gender matter?" *Small Business Economics*, 16/ 4, 329.

Virtanen, M. (1997). The role of different theories in explaining entrepreneurship. In S. Kunkel (Ed.), *Entrepreneurship: The engine of global economic development*. Journal of Best Papers of the 42nd World Conference, International Council for Small Business 1997, San Francisco.