# *Determinants of entrepreneurial attitudes, intentions and behaviours in diverse geographic regions with different levels of economic development: a study with Portuguese-Speaking Countries (Angola, Brazil and Portugal)*

## Introduction

Increasingly, entrepreneurship is seen as a factor of economic and social development of regions and countries (Chen and Ravallion, 2008; Naudé,2010). Thus, entrepreneurship has been receiving growing interest from business and academic communities as well as politics, particularly because of its potential positive impact on the competitiveness, jobs creation, including self-employment, and wealth's creation in general, (Birch, 1981, 1987; CEC, 2003; Acs and Audretsch, 2005; Dahl and Reichstein, 2007; Reynolds and White, 1997; Hisrich, 2009; Kane, 2010; Horrel and Litan, 2010). The theme of entrepreneurial intention, has received particular attention because it is a predictor of entrepreneurial activity (Ajzen, 1991; Krueger and Carsrud, 1993; Davidsson, 1995) Entrepreneurial intention is a necessary and crucial element of entrepreneurial behavior (Fayolle, and Gailly, 2008; Turker and Selcuk, 2009), but intention to perform a particular behavior depends on the personal attitudes to face this behavior (Ajzen, 2008; Fayolle and Gailly, 2008; Turker and Selcuk, 2009). Several studies have attempted to relate personal characteristics, behaviors and attitudes with entrepreneurial intention (e,g Bird, 1988, Matthews and Moser, 1995;.Liñán et al, 2011; Fayolle and Gailly, 2013). However this studies are in great extend carried out with samples of students and/or based in one single country. Comparative studies with data from an adult population are scarce or absent at all. This study fulfills this gap. Based in GEM 2010 Adult Population Survey (APS) Global Individual Level Data, it focuses on the identification and comparison of the determinants of entrepreneurial intentions among Portuguese-Speaking Countries (PSC) with different levels of economic development: Portugal - an innovation driven economy, Brazil - an efficiency driven economy and Angola - a factor driven economy. Using the common language and history as a control factor, the study intends to

answer two questions: (i) what factors influence positively and/or negatively entrepreneurial intentions in these countries? and (ii) Does this factors differ according to the level of economic development of the countries? The comparison of the three countries with different levels of economic development but with common language and history makes this comparison more reliable. The study includes a theoretical revision on entrepreneurial intention and factors affecting it, from where 5 hypothesis are derived (see table 1). Then, the methodology section describes the sample and variables used, as well as the statistical methods employed. Section fourth is dedicated to analysis and discussion of the results. Finally, in conclusions, implications of the study, limitations and lines for further research are presented.

***Methodology***

The study is based on *Global Entrepreneurship Monitor* (GEM) 2010 – Adult Population Survey (APS), Global Individual Level Data[1] of three countries: Brazil, Angola and Portugal. In table 2 is presented the distribution of the sample. The variables selected for the study are all GEM variables and are presented in table 3. Analysis includes the creation of a quantitative index for entrepreneurial attitudes, intention and behaviours (*Entrepreneurial Index*) and multiple linear regressions in order to asses which factors affect the entrepreneurial index. Other complementary statistic were performed in order to assess the reliability of the analysis, namely KR–20 test (internal consistency of the index); Kolmogorov-Smirnov test (normality of distribution), Kruskal-Wallis and multiple comparison of means (to compare differences between countries); ANOVA and t-student tests in order to assess the reliability of the regression models and analysis of the residuals, to test the assumptions of the regression. Data was analysed using SPSS (Statistical Package for the Social Sciences).

[1] http://www.gemconsortium.org/docs/3133/gem-2010-aps-global-national-level-data.

***Results***

In order to develop the entrepreneurial index, composed exclusively by dichotomous variables, it was performed an internal consistency analysis through KR-20 coefficient.

The *Entrepreneurial Index*, composed by 9 items (dependent variables in table 3)[2], is the result of the sum of answer to each item. The resulting score, is a quantitative variable assuming values between 0 and 9. Table 4 presents the results of this score as well as some descriptive statistics associated to this variable. This index presents an acceptable level of internal consistency (0,674)[3]. The Kolmogorov-Smirnov (K-S) test (Maroco, 2011; Pestana e Gageiro, 2005) was applied to test the normality of the distribution. Once the hypothesis of normality of the distribution was rejected (significance of K-S was 0.000), a non-parametric test – Kruskal-Wallis - was applied, to compare the entrepreneurial scores between the three countries. This test reveals significant differences in entrepreneurial scores between at least two countries (P=0.000). The multiple comparison of means, illustrated in the Error-bar (figure 1), allows to conclude with 95% of confidence that there is a higher entrepreneurial score in Angola and that Portugal presents a lower entrepreneurial score.

In order to understand which factors affect the entrepreneurial intention in each country multiple linear regressions were performed. This was a two-phase process: first, all the dependent variables were introduced and then, to each parameter, was applied a t-student test in order to assess how significant was each variable for the regression. Results (see table 5) indicate that only the variable "education" was not relevant in all the three countries. Thus a second regression without this variable was performed, resulting in the final model (table 5), This final model are highly significant explaining 48%, 58% and 40%, in Brazil, Angola and Portugal, respectively, of the variability of the entrepreneurial scores (see table 6). In order to test the existence of multicolinearity among the dependent variables, the VIF test was also

[2] Because "*Suact"* variable presented a very low percentage of answers (less than 22%) it was excluded from the analysis. The exclusion of the "*nofearfail*" variable improved the internal consistency of the índex.
[3] > than 0,9= very good; 0,7-0,8=good; 0,6-0,7= aceptable; lower than 0,6= weak

performed (see last columns of table 5). Since all VIF>10, it is possible to conclude about the inexistence of multicolinearity. In face of the results of the regression obtained for the final models (table 5), it can be concluded that in these PSC, i) Entrepreneurial attitudes, intentions and behaviours are, on average, higher for male than for a female respondents; ii) meeting some entrepreneurs and iii) the perception of good possibilities to create a new business in the area of residence are two factors that, on average, increase attitudes, intentions and behaviours of the individuals; iv) motivation for creating an entrepreneurial project , both by opportunity and necessity, on average, increases attitudes, intentions and behaviours. On the contrary, results show that attitudes, intentions and behaviours are not affected by the level of education of the individuals. In sum results confirm hypothesis 1, (influence of gender), hypothesis 3 (influence of personal networks), hypothesis 4 (influence of a mix of necessity and opportunity motivations), hypothesis 5 (influence of the perception of opportunities in the area of residence). Hypothesis 2 (influence of educations), was not confirmed.

The analysis of the values of standardized regression coefficients (table 5) allows to understand which variables have higher relative contributions to explain attitudes, intentions and behaviours. In the three countries under review, it was found that the most determining factors are the location (perception of opportunities in the area of residence), then the motivations for opportunity and then motivations for necessity. Thus, aspects related to opportunity present, in all countries, the highest values. Furthermore, Portugal, comparing with the other two countries, but especially with Brazil, presents the higher score concerning the influence of gender, Angola, in turn, presents the lowest value relative to the influence of entrepreneurial networks[4].

Finally some tests were performed in order to validate the assumptions that fall on the error component of the model (residual analysis). The Durbin-Wason statistics allows to assume

[4] The question associated with networks make reference to “someone who started a firm” which in Angola can be associated with a “formal business”, not as usual as informal businesses.

the independence of the error[5] (see table 6). To assess the assumption of normality of the error, P-plots were draw for each regression (see figures 2 to 4), confirming the assumption of normal distribution of the errors[6]. Finally, Cook distance, reveal the outliers did not affect the model[7] (see table 7).

***Conclusions***

Results indicate that (i) gender, (ii) entrepreneurial networks, (iii) the perception of opportunities in the place of residence and (iv) motivation, are determinants of entrepreneurial attitudes, intentions and behaviours in the Portuguese Speaking Countries (PSC) under analysis. On the contrary education do not reveal any significant influence. Results also indicate that this factors are common to all the countries under analysis but the weight of each factor differs between countries: gender seems to be more determinant in Portugal than in the other PSC and motivation by necessity is more determinant in Angola than in the other countries under analysis. This study has both theoretical and practical implications. From the theoretical side, it confirms the importance gender studies applied to entrepreneurship and in different contexts. The fact that gender issue is more determinant in a European country than in an African or American countries deserves further research. The study also confirms the centrality of *opportunity* and the importance of networks in the entrepreneurial processes. On the other hand, the influence of education on the entrepreneurial process remains unclear. In face of the results, education do not exerted a significant influence on intention or creation of a business, however it can be decisive in the type of firm created and its growth and sustainability. This is and aspect that clearly demands more research. From the practical side, this study highlight that gender issues, promotion of entrepreneurial networks and the promotion of visibility/perception of opportunities are aspects that should be incorporated in polices that aim to increase entrepreneurship.

[5] There autocorrelation when these values are quite higher than 2 (Maroco ,2007:587)
[6] All the points are situated near the diagonal
[7] All values lower than 1.

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Table 1 – Hypothesis

| | |
|---|---|
| H1 | In Portuguese Speaking Countries (PSC), Entrepreneurial Intentions and Behaviours (EI&B) are affected by the gender of the individual with men presenting more EI&B than woman |
| H2 | In PSC, EI&B are positively influenced by the level of education of individuals |
| H3 | In PSC, EI&B are positively influenced by the presence of entrepreneurs in the personal networks of the individuals |
| H4 | In PSC, EI&B are affected by a combination of necessity and opportunity motivations |
| H5 | In, PSC, the perception of location of individuals in places with more opportunities affects the EI&B |

Table 2 – Characterization of the sample: demographic data

| | | **Country** | | | |
|---|---|---|---|---|---|
| | | **Brazil** | **Angola** | **Portugal** | **Total** |
| **Individuals** | n | 1996 | 1979 | 2002 | 5977 |
| | % | 33.4% | 33.1% | 33.5% | 100% |
| **Gender** | | | | | |
| Male | n | 948 | 1116 | 1040 | 3104 |
| | % | 47,50% | 56,40% | 51,90% | 51.9% |
| Female | n | 1047 | 863 | 962 | 2872 |
| | % | 52,50% | 43,60% | 48,10% | 48.1% |
| **Education** | | | | | |
| Did not attend secondary school | n | 660 | 380 | 317 | 1357 |
| | % | 33,10% | 19,40% | 15,80% | 23% |
| Attended secondary school | n | 192 | 827 | 546 | 1565 |
| | % | 9,60% | 42,20% | 27,30% | 26% |
| Completed secondary education | n | 865 | 639 | 582 | 2086 |
| | % | 43,40% | 32,60% | 29,10% | 35% |
| Attended Post-Secondary Education | n | 220 | 109 | 557 | 886 |
| | % | 11,00% | 5,60% | 27,80% | 15% |
| Higher Education | n | 54 | 5 | 0 | 59 |
| | % | 2,70% | 0,30% | 0,00% | 1% |
| **Age** | | | | | |
| Average | | 37,01 | 30,12 | 40,49 | |
| Standard deviation | | 13,287 | 10,43 | 12,891 | |
| Maximum | | 18 | 18 | 18 | |
| Minimum | | 64 | 64 | 64 | |

Table 3 – Independent and Dependent Variables

| Variables | Type of scale | Values of the variable |
|---|---|---|
| **Independent variables** | | |
| **Demographic variables** | | |
| **Country** | Qualitative (Nominal) | 55- Brazil<br>244-Angola<br>351-Portugal |
| **Gender** | Dichotomous | 0-Female<br>1-Male |
| **Gemeduc3 = E**ducation (three categories) | Ordinal | 0- Below secondary school<br>1- Secondary school<br>2- Above secondary school |
| **Entrepreneurial networks** | | |
| **Knowent=** Personally knows someone who started a firm in the past two years | Dichotomous | 0- No<br>1- Yes |
| **Motivations** | | |
| **Teayyopp=** Opportunity-driven early-stage entrepreneur | Dichotomous | 0- No<br>1- Yes |
| **Teayynec =** Necessity-driven early-stage entrepreneur | Dichotomous | 0- No<br>1- Yes |
| **Localization** | | |
| **Opport=** Perceives good opportunities to start a business in the area where you live | Dichotomous | 0- No<br>1- Yes |
| **Dependent variables** | | |
| **Entrepreneurial attitudes, intentions and behaviours** | | |
| **Bstart=** Currently setting up a business, individually? | Dichotomous | 0- No<br>1- Yes |
| **Bjobst=** Currently setting up a business, sponsored? | Dichotomous | 0- No<br>1- Yes |
| **Futsuppy=** Entrepreneurial intentions - expecting to start a new business in the next three years (correction) | Dichotomous | 0- No<br>1- Yes |
| **Opportyy=** Perceives good opportunities to start a business | Dichotomous | 0- No<br>1- Yes |
| **Teayy =** Involved in early-stage entrepreneurial activity | Dichotomous | 0- No<br>1- Yes |
| **Suskill=** Perceives to have the required knowledge and skills to start a business<br>"Do you have the knowledge, skill and experience required to start a new business?" | Dichotomous | 0- No<br>1- Yes |
| **Nofearfail** = Fear of failure would not prevent you from starting a business | Dichotomous | 0- No<br>1- Yes |
| **Nbgoodc =** People consider starting a business a desirable career choice | Dichotomous | 0- No<br>1- Yes |
| **Suacts=** Active in the past 12 months | Dichotomous | 0- No<br>1- Yes |
| **Busangyy=** Respondent is informal investor | Dichotomous | 0- No<br>1- Yes |
| **Nbstatyy =** In my country those successful at starting a business have a high level of status and respect | Dichotomous | 0- No<br>1- Yes |

Table 4. Entrepreneurial Index (Attitudes, Intentions and behaviours): descriptive statistics and normality tests

| | | Total | Brazil | Angola | Portugal | p-value |
|---|---|---|---|---|---|---|
| **N** | Valid | 4015 | 1806 | 1087 | 1122 | |
| | Missing values | 1962 | 190 | 892 | 880 | |
| **Mean** | | 3,49 | **3,2** | **5,08** | **2,41** | 0,000* |
| **Mode** | | 2 | 3 | 5 | 2 | |
| **Standard desviation** | | 1,98 | 1,52 | 2,23 | 1,32 | |
| **Mínimun** | | 0 | 0 | 0 | 0 | |
| **Máximun** | | 9 | 7 | 9 | 8 | |
| **Percentiles** | 25 | 2 | 2 | 4 | 2 | |
| | 50 | 3 | 3 | 5 | 2 | |
| | 75 | 5 | 4 | 7 | 3 | |
| **Kolmogorov-Smirnov Test** | | | | | | |
| | | | | | **Statistic** | 0,161 |
| | | | | | **gl** | 4015 |
| | | | | | **sig** | 0,000 |

**p-value<0.001*

Figure 1. Entrepreneurial Index: mean scores by country

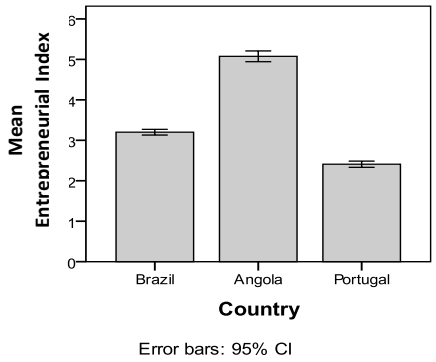


Table 5: Regression results

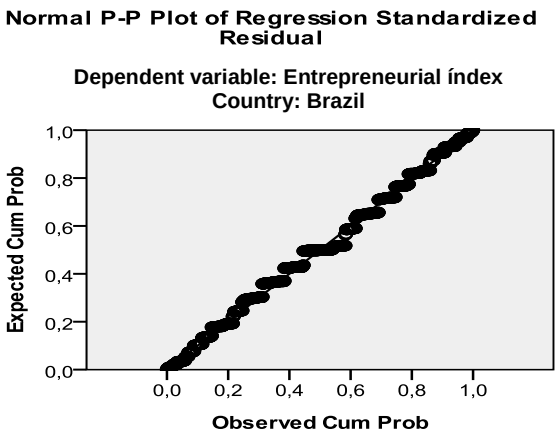
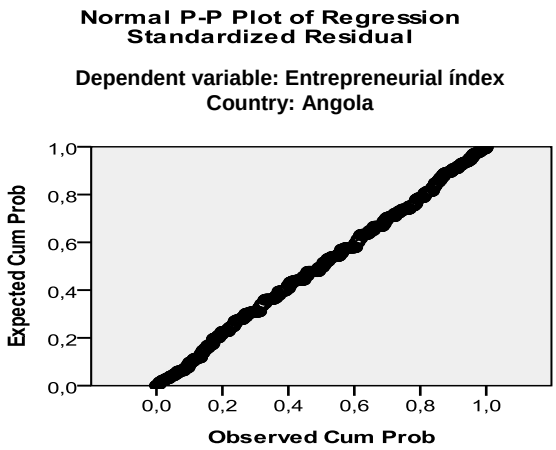
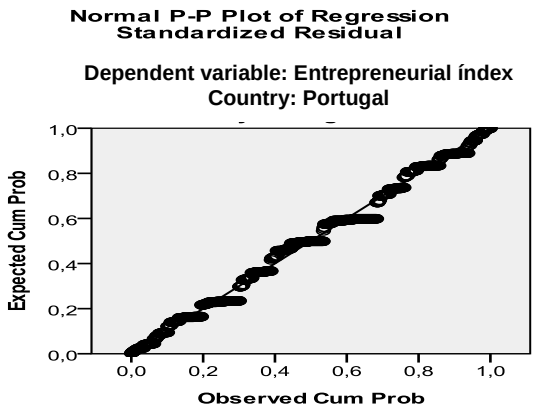
| | | Inicial Model | Final model | | | |
|---|---|---|---|---|---|---|
| **Country** | **Independent Variables** | **Coefficients B (EP)** | **Coefficients B (EP)** | **Standardized Coefficients B** | **Collinearity Statistics Tolerance** | **VIF** |
| **Brazil** | Constant | 2,002 (0,052)* | 2,008 (0,046)* | | | |
| | Gender | 0,200 (0,052)* | 0,199 (0,052)* | 0,066 | 0,982 | 1,019 |
| | Education | 0,006 (0,039) | | | | |
| | Entrepreneurial network | 0,384 (0,055)* | 0,383 (0,054)* | 0,125 | 0,939 | 1,065 |
| | Opportunity in localization | 1,367 (0,053)* | 1,365 (0,053)* | **0,449** | 0,941 | 1,062 |
| | Opportunity motivation | 1,609 (0,082)* | 1,611 (0,081)* | **0,343** | 0,965 | 1,036 |
| | Necessity motivation | 1,628 (0,116)* | 1,627 (0,115)* | **0,242** | 0,984 | 1,016 |
| **Angola** | Constant | 2,224 (0,113)* | 2,248 (0,110)* | | | |
| | Gender | 0,361 (0,09)* | 0,396 (0,089)* | 0,088 | 0,988 | 1,012 |
| | Education | 0,131 (0,074) | | | | |
| | Entrepreneurial network | 0,272 (0,103)** | 0,281 (0,102)* | 0,056 | 0,936 | 1,069 |
| | Opportunity in localization | 2,224 (0,099)* | 2,220 (0,099)* | **0,457** | 0,942 | 1,062 |
| | Opportunity motivation | 2,300 (0,109)* | 2,336 (0,107)* | **0,444** | 0,934 | 1,071 |
| | Necessity motivation | 2,661 (0,143) * | 2,653 (0,142)* | **0,378** | 0,953 | 1,050 |
| **Portugal** | Constant | 1,743 (0,059)* | 1,752 (0,050)* | | | |
| | Gender | 0,26 (0,064)* | 0,258 (0,064)* | 0,097 | 0,962 | 1,039 |
| | Education | 0,011 (0,038) | | | | |
| | Entrepreneurial network | 0,346 (0,068)* | 0,350 (0,067)* | 0,126 | 0,946 | 1,057 |
| | Opportunity in localization | 1,435 (0,078)* | 1,436 (0,078)* | **0,443** | 0,949 | 1,054 |
| | Opportunity motivation | 2,079 (0,174)* | 2,079 (0,174)* | **0,284** | 0,978 | 1,023 |
| | Necessity motivation | 2,018 (0,267)* | 2,016 (0,267)* | **0,177** | 0,999 | 1,001 |

**p<0.001 **p<0.05 ; B-Beta; EP-Erro Padrão*

Table 6. Summary of Regression Models by Country: initial and final adjusted models

| | Initial Model | | | Final Model | | |
|---|---|---|---|---|---|---|
| **Country** | **$R^2_a$** | **Standard error of estimate** | **Durbin-Watson** | **$R^2_a$** | **Standard error of estimate** | **Durbin-Watson** |
| Brazil | **0,481** | 1,095 | **1,655** | **0,480** | 1,095 | **1,657** |
| Angola | **0,580** | 1,439 | **1,703** | **0,581** | 1,440 | **1,711** |
| Portugal | **0,401** | 1,027 | **2,139** | **0,402** | 1,027 | **2,138** |

Table 7. Error Statistics

| Cook distance | Minimum | Maximum | Average | Standard deviation | N |
|---|---|---|---|---|---|
| Brazil | 0,000 | 0,019 | 0,001 | 0,001 | **1800** |
| Angola | 0,000 | 0,012 | 0,001 | 0,001 | **1075** |
| Portugal | 0,000 | **0,072** | 0,005 | **0,009** | **1085** |

Figures 2-4. Normal Probability Plot of Errors