

Entrepreneurship and Economic Development In Search of Evidence for Portugal

An Empirical Investigation and Proposed Model

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Abstract

The analysis, based on the statement in the Portuguese economy, that high rates of entrepreneurship do not lead to a process of economic growth suggests the existence of a set of factors that create rigidity in the transmission mechanism of entrepreneurship to economic growth. Therefore, there is some merit in examining this phenomenon empirically by developing a research model and the analysis benefits from using the database of the Global Entrepreneurship Monitor (GEM) providing harmonized datasets all over the world.

Thus the purposes of the present paper are: to provide deeper insights into the effect of entrepreneurship on national economic growth, to identify those factors that create rigidity in the transmission mechanism of entrepreneurship to economic growth, to assist the Portuguese entrepreneurship in what went well in the conditions that drove entrepreneurship, but also what could have been transmitted to the economic growth and was not.

This research takes as its conceptual framework a four-step approach to answer the following question: "What is the evidence for Portugal in the relationship between entrepreneurship and economic growth?"

Introduction

This paper follows the trend of the last decade of the twentieth century, the interest being in entrepreneurship that goes beyond the academy and which is the subject in political circles and the general public as a result of the concerns about economic growth in advanced economies. Portugal, is in the list of these economies, and has the highest rate of entrepreneurship European Union, EU-15, in 2007, such as in 2001 already, although the rate of national economic growth has not progressed over the last six years.

The findings of some recent relevant empirical works emphasized that entrepreneurship influences economic growth (Carree et al. 2002, 2007), (Wennekers et al. 2005 e 2010) Lundstrom e Stevenson (2001, 2005) Reynolds et al. (1999; 2005).

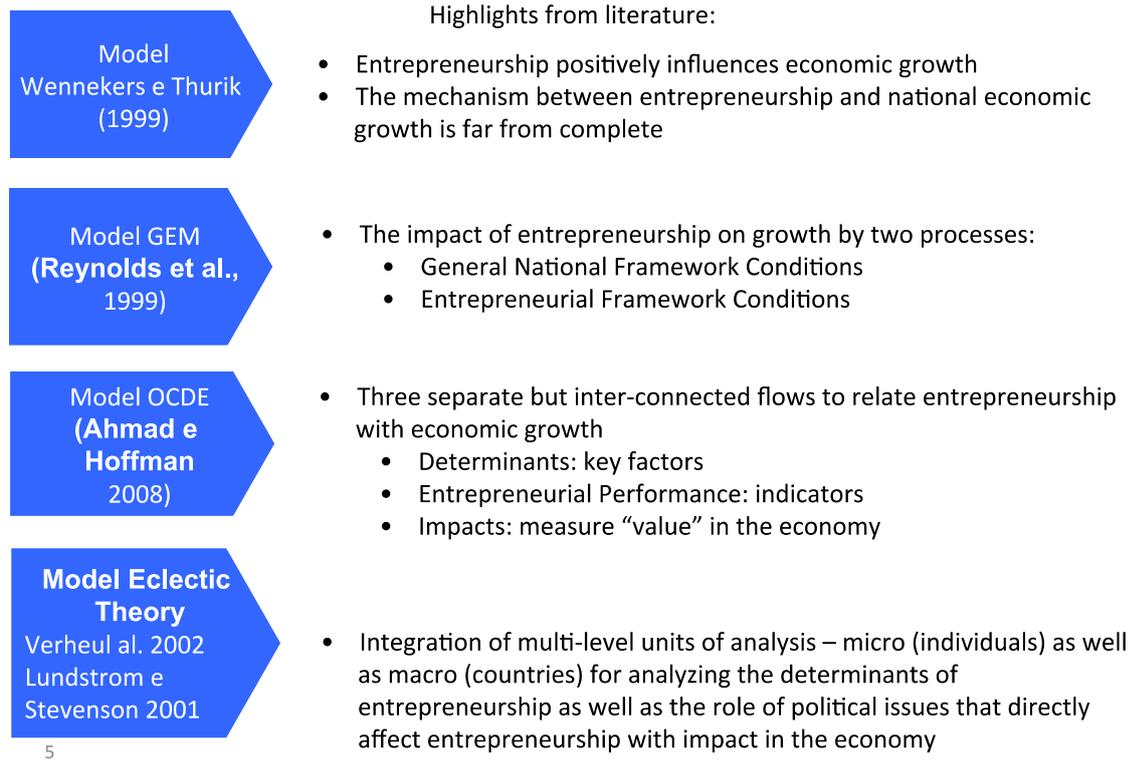
Turning our attention to entrepreneurship determinants, with an emphasis on innovation, influenced by the definition of entrepreneur (Schumpeter, 1934), to the exploitation of profitable opportunities (Venkataraman, 2000), to policies and institutions (Lundstrom and Stevenson, 2005) and to the various interactions as the environment (Davidsson et al. 2011).

Expressing the same theoretical concepts in economic growth that has been studied extensively over the years by Solow (1956, 1970); Romer (1986, 1990); Lucas (1988); Rebelo (1991) and more recently, attention in the literature has focused on the role that institutions play in promoting economy (North, 1991). These studies have defined variables of great

importance in the theory of economic growth, which led to several empirical studies noting the existence of correlation between economic growth and a set of factors selected.

Literature review

Literature and past researches were reviewed and integrated sequentially, including a wide range of recently published works, in order to develop more effectively the research model



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Then we can focus on five different groups of factors (FE) as derived from the literature: culture, institutional environment, socio-demographics and micro and macro-economic conditions.

Research Problem, Objectives and Plan

The objective of this study is to explore the factors that influence the entrepreneurship interaction - economic growth, which is complex. The simplification is to take the process into four stages, using the framework of the models on entrepreneurship and the modern theory of economic growth, the study will go through the segmentation between the middle-income economies and the high-income ones and to take the Portuguese case in particular as reference.

With the empirical work conducted we seek to answer the following research questions:

1. Is the rate of entrepreneurship solely explained by the economic performance of a country?

2. Do the factors of entrepreneurship differ in how they influence the middle-income economies in relation to high-income economies?

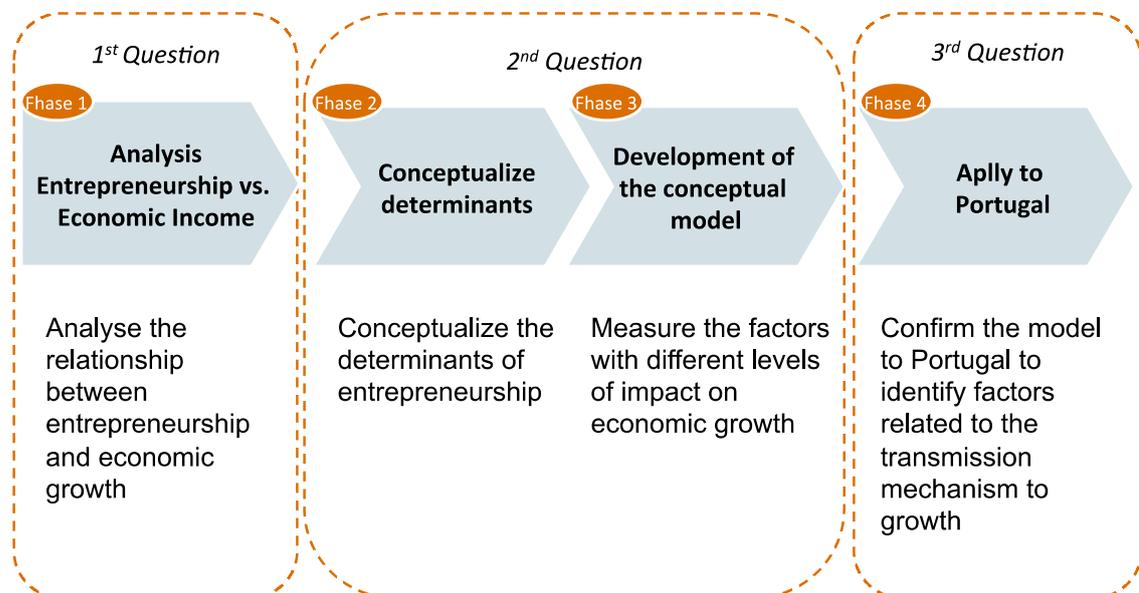
3. Why, during the study period, did the increase in entrepreneurial projects in Portugal turn out to be of little or of no influence on economic growth?

Developing the research model

The analytical method employed has the following grounds: i) the set of ideas and concepts discussed in an investigation by authors Frederick al. (2011), based on entrepreneurship models and ii) the modern theory of economic growth, using academic research from Solow to the main models used to study the growth process.

From these bases we propose the model in four phases of figure 1 in order to achieve the main goal and get answers to specific questions on the topic of the relationship between entrepreneurship and economic growth.

Fig. I – Conceptual model



Population and Sample design

We explicitly adopt the approach of the international program of the Global Entrepreneurship Monitor (GEM), which has a competitive advantage compared to other surveys of a standardized questionnaire on the subject, adding hundreds of thousands of results by national teams in over 30 countries. Other sources used were the World Bank (WB) with indicators of good governance in countries, the International Monetary Fund (IMF), the indicators of the IMD (World Competitiveness Yearbook) and the Index of Economic Freedom (Heritage Foundation). With this collection of empirical data strategy we try to prevent one of the most frequently cited research in entrepreneurship: the collinearity of sources.

Research Design and Data Collection

Given the complexity of the phenomenon under study, it has become indispensable in the first stage: to model data using the statistical technique of regression to obtain the level of

entrepreneurship adjusted to the GDP per capita of each country, defining the rate of entrepreneurial activity (TEA) as the dependent variable and the GDP per capita as the independent variable and proceed to estimate the differential between the real rate of entrepreneurship and the adjusted rate calculated by the regression equation to determine the fraction of entrepreneurship not influenced by the GDP and influenced by other factors, in phase two: to conceptualize the determinants of entrepreneurship, in phase three: to use the statistical correlation between the differential of entrepreneurship that is a function of factors, the explanatory variables, segmented by groups of economy and additionally measure the normalized effect factors of entrepreneurship to identify the respective top list of these factors, in final stage, Phase 4: to use statistical procedures of average difference to compare dimensions between Portugal and groups of economies under consideration.

The model, figure I, consists of two main equations. The first equation deals with the change in the rate of TEA whereas the second deals with its consequences. From the first equation we derive the adjust rate of entrepreneurship as a function of GDPpc_PPP. It is assumed to be a quadratic function. In the second we estimate the effect on economic growth of deviations from the adjust rate.

$$TEA^* = \beta_0 + \beta_1 GDPpc_PPP + \beta_2 (GDPpc_PPP)^2 \quad (1)$$

$$\Delta TEA = f(FE), \text{ where } \Delta TEA = TEA - TEA^* \quad (2)$$

We have used GEM's so-called of *total entrepreneurial activity (TEA)* measures the proportion of the working population, between 18 and 64 years of age, engaged in business either at a starting stage (business which provided salaries for a period not exceeding 3 months) or in managing a new business (business that provided salaries for a period between 3 months and 3 ½ years). Also, used a 'proxy' for economic development the GDP *per capita* (accounting for purchasing power parity) (GDPpc_PPP).

We cluster countries in two groups according to GDPpc_PPP (IMF data base) using level of US\$20,000 to separate high-income countries from the middle-income countries. We do not have any low-income countries, <\$5,000.

We test a sample for the year 2007 of 40 OECD (in total) countries, 155,183 randomly selected adults.

Data analysis and model testing

Resolving the issues that were stated in the preceding methodology section, the data were processed using statistical software packages (SPSS). For equation (1) regression analysis was conducted and the associated statistical inference tests with regression techniques were performed for testing the overall regression equations (F test) as well as specific partial regression coefficients (t test on b).

Next (equation 2), the correlations coefficients between ΔTEA and the available FE is compute separately for the middle and high-income countries depending on the statistical significance. We calculate *Pearson's r* and their significance and *Fisher's z* Transformation. To determine if the subset of these variables contributes to Portugal relatively high TEA level, it is necessary to compute a normalised measure of Portugal entrepreneurial factors (FE), relatively to the two populations of middle and high-income countries.

The results

1st Question:

We can accept the following:

Topic	Literature Review	Empiric Evidence
Entrepreneurship is explained by the economic performance of a country	<ul style="list-style-type: none"> The U-shaped relationship between GDP and TEA with inflection point between \$20-25 thousand (Acs al. 2005; Bosma al. 2008) Countries with middle GDP are more likely to be entrepreneurs Countries with high GDP entrepreneurial activity is lower (Stel al 2005) 	<ul style="list-style-type: none"> GDP explains 46% of the rates of entrepreneurship in all countries There is entrepreneurial differential (Δ TEA) explained by entrepreneurship factors (FE)

2nd Question:

The statistical tests using the differential of entrepreneurship as the dependent variable against national comparative variables to answer the following:

Which variables differentiate between middle-income and high-income countries in terms of their position on the TEA/GDPpc curve? Which variables tend to have positive, negative or differential influences on a country's entrepreneurial activity and economic growth? We found 24 variables that had a significant effect size of <0.10 .

The effect size aggregated in five FE groups are summarized below:

	Culture is the top factor in economic growth through the entrepreneurship process explained by high levels of risk taking and individual responsibility that encourages creativity and innovation culture and the more moderate but significant influence of the media on entrepreneurship	Z= 3,4 Z= 2,5 Z= 1,95
	Institutional environment have high impact on economic growth through the conditions that push entrepreneurship as internationalization, programmes and government legislation	Z= 2,5 Z= 1,3 Z= 1,7
	Microeconomic conditions decomposed in the perception of opportunities, number of owners and informal investment have medium impact, while innovation in start-ups comes with limited relevance	Z= 2,5 Z= 1 Z=0,47
	Macroeconomic conditions with smaller impact only reveal meaning in terms of agriculture, services and industry productivities, since the results of the expenditure of public and private health and income tax are low impact	Z= 1,96 Z= 1,58 Z= 1,0 Z<0,4
	Demographic resources have little influence, with only some meaning female entrepreneurship at the age of 45-54 as a result in the high income economics	Z= 1,9

3rd Question: Results Model for Portugal

Entrepreneurial Factors (FE)	Middle-income (RM) $\Delta(\mu_{\text{Portugal}} - \mu_{\text{RM}})/\sigma_{\text{RM}}$	High-income(RE) $\Delta(\mu_{\text{Portugal}} - \mu_{\text{RE}})/\sigma_{\text{RE}}$
A. Entrepreneurial framework conditions (EFC)		
A.1 Culture		
1. Entrepreneurial risk-taking	- 1,33 *	- 1,1 *
2. Creativity and innovativeness	- 0,29	- 0,95
3. Individual responsibility	- 0,87	- 0,94
4. Inventor's rights	+ 1,09 *	- 0,61
5. <i>Media</i>	- 1,25 *	- 1,07 *
A.2 Institutional environment		
6. Innovation	- 0,43	- 0,71
7. Internationalization	+ 0,77	- 0,41
8. Selective programs government	+ 1,61 *	- 0,14
9. Effective government programs	+ 0,60	- 0,59
10. Intellectual property rights (IPR)	+ 1,59 *	- 0,93
11. Patents, copyrights and trademarks	+ 3,38 **	+0,00
B. Sociodemographics		
12. % male population 55-64 yrs	+ 1,45 *	- 0,76
13. % females aged 45-54 yrs	+ 0,39	- 0,66
C. Microeconomic conditions		
14. Males opportunity type of entrepreneurial activity	- 0,07	+ 1,32 *
15. Average number of Start-Ups owners	- 0,4	+ 1,03 *
16. Informal investment	- 0,33	+ 0,06
D. Macroeconomic conditions		
17. Agricultural sector productivity	+ 0,10	- 1,51 *
18. Industry sector productivity	- 0,20	- 1,36 *
19. Services sector productivity	+ 2,41 **	- 1,18 *
20. Tax revenue (% GDP)	+ 0,93	+ 0,02
21. Public health spending (%GDP)	+ 2,32 **	+ 0,54
22. Private health spending (%GDP)	+ 0,41	+ 0,35
23. Unitary Cost Labor (US Statistics)	+ 2,60 **	+ 0,03
24. Index of Economic Freedom	+ 0,65	- 0,95

Note: + p < 0,10; * p < 0,05; ** p < 0,01; *** p < 0,001

Source: Author calculations based GEM, World Bank, OCDE, Heritage Foundation e IMD

Discussions and Conclusion

The current work highlighted the growing importance of the relationship between entrepreneurship and economic growth. The results of the empirical analysis revealed a clear notable effect of some factors on the impact of entrepreneurship in economic growth. It has been found that these factors explain a large proportion of the variability observed in economic growth.

To sum up, the rate of entrepreneurship in a country (TEA) depends on the level of national economic output (GDP per capita). However, it only explains a fraction of that. The factors of entrepreneurship (FE) which -depend on the culture, environment, micro and macro constraints- help explain the remaining portion of entrepreneurship by the respective influence they have on the ability of a country to create new enterprises and new businesses.

The model also shows how these determinants (FE) affecting the rate of entrepreneurship is not independent from the level of development of the economy, the reason why we proceeded with the segmentation of the sample of countries in a group of high-income economies and the other in middle-income.

On the other hand, these determinants (FE) that influence on the one hand the level of entrepreneurship can become both a transmission mechanism of the advantages of entrepreneurship that enhances the economic yield or a mechanism that limits the propagation of those same advantages for the economy. To generate a sustained process of economic growth it is urgent to act on those factors that constitute a barrier in the dynamics transmission of entrepreneurship to the economy.

Furthermore, the findings arising from analysis have enabled to state that Portugal is culturally an open economy, but it does not display any economic progress, the explanation being in the major impact of cultural effects observed in high-income economies counterparts in relation to the values of the national economy.

Portugal compared to the reference group, high-income countries, shows in the proposed conceptual model weak variables: (i) the culture of risk tolerance, (ii) the culture of individual responsibility (iii) creativity and innovativeness, besides (iv) the absence of a culture of promotion by the media of the role of the entrepreneur in society. However, it is these weak factors in this study that limited the transmission mechanism of the advantages of entrepreneurship to enhance national economic performance. Another factor that should be "let loose" in the terminology already used, is the effectiveness of government programmes considered equally weak on this review with comparable countries.

Limitations and Further research

It is already a generality to state that the use of the Global Entrepreneurship Monitor database shows important restrictions, which were mitigated here for convenience in accessing information, by its international character and the possibility of repeating the empirical research to other years and to other countries.

The study suffers equally from the generic nature of identified weaknesses for all theoretical models that are proposed as it merely considers an incomplete list of determining factors and uses measured data from index numbers, given that the incorporation of new variables and other research techniques could improve the work.

Let us also mention the use of several "proxy" variables while others referenced in the literature were not tested. In terms of statistics, the number of the sample may not be representative of countries, or the number of observed cases of countries, "N", may be insufficient.

Finally it is worth noting that the values observed and taken from the survey done to the experts can differ greatly in terms of quality and statistical performance of macroeconomic variables.

The opportunities for future research arise from the investigation process carried out in this study and the limitations detected as well as all the work that the academy has developed on this theme. It seems advisable to focus future studies on other countries that are part of the economies of both the middle-income and high-income as well as the production of longitudinal analyses using the GEM database, of which there is scarcity of work.

Additionally, test the structural stability of the equations used over a long period. Factorial or multivariate statistic methods should also be implemented whenever possible to obtain larger samples, as well as test correlations with time lag for causal benchmarking and not only simple correlations like those done in this work. A consequence of this line of research consists in making qualitative analysis using case studies to deepen the knowledge about the issue under investigation and also as a privileged means to better understand the phenomena of entrepreneurial activity in Portugal as well as its submission to the successive analysis time.

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