Modeling some Entrepreneurship Factors

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Entrepreneurship is increasingly recognized as a major factor of economic growth, productivity and competitive economy. Many countries are making efforts to support entrepreneurship and are interested in knowing how government policies and other factors can influence the amount and type of entrepreneurship. For this purpose they need to understand the determinants of and obstacles to entrepreneurship.

In spite of the large interest in entrepreneurship, due to the lack of internationally comparable data, the understanding of this phenomenon and its determinants remains still an open problem.

In 2006 OECD launched the Entrepreneurship Indicators Programme (EIP), which was joined by Eurostat in 2007. In Measuring Entrepreneurship: A Digest of Indicators (2008) a common set of concepts and definitions is presented. Furthermore, consistent data across different countries are published: even if these data do not represent the whole set of indicators which is needed for studying the entrepreneurship process, they represent a preliminary database of internationally comparable statistics.

Using this database (Structural and Demographic Business Statistics (SDBS)) and others (R&D database, Market Regulation database and Education at a Glance) we perform initial analysis of entrepreneurship across countries. Our interest is in understanding its determinants and in particular those related to education. Preliminary conclusions about the role of different educational level on entrepreneurship are obtained as a reference theoretical frame for more detailed analyses based on single country data.

Keywords: Entrepreneurship, education, regression analysis, multidimensional scaling

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1. Introduction

The recognition that entrepreneurship and entrepreneurs are important drivers of economic growth, employment, innovation and productivity is generally accepted. However, the development of policies related to entrepreneurship has been limited for long time since the statistical base for entrepreneurship research was weak, especially in terms of international comparability. The increasing interest in how government policies may affect the amount and types of entrepreneurship has drawn more and more attention on this issue.

In order to address this information-gap, in 2006 OECD launched the Entrepreneurship Indicator Programme (EIP), which was joined by Eurostat in 2007. The purpose of this programme was to build internationally-comparable statistics on entrepreneurship[3].

The first challenge for the EIP was to give a definition of entrepreneurship in such a way to enable valid indicators to be introduced and collected across countries. Indeed, there was no widely-accepted definition of the word 'entrepreneurship': on the one hand, many definitions had an essentially theoretical basis with little concern for measurement; on the other hand, many papers bypassed the discussion of the definition of entrepreneurship and simply equate entrepreneurship to a specific empirical measure (readily available).

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[3] The advantage of this project is to try to set up some harmonized definitions. Indeed, many sources and approaches on entrepreneurship are available, each one using its own concepts and definitions and/or with reference to selected countries.

For instance, the International Consortium on Entrepreneurship (ICE) recently released a report ranking selected countries on four performance indicators and 66 business environment indicators. Furthermore, this report provides a comprehensive overview of all available policy-relevant indicators relating to entrepreneurship, along with a quality assessment in order to enable policy-makers to evaluate the quality of policy analysis based on the given indicators.

The Kauffman Foundation releases an Index of Entrepreneurial Activity which measures the rate of business creation at the individual owner level. Presenting the percentage of the adult, non-business owner population that starts a business each month, the Kauffman Index captures all business owners, including those who own incorporated or unincorporated businesses, and those who are employers or non- employers. This index is published for years 1996 to 2008 for each state in the US (Fairlie 2009).

The *World Bank Group Entrepreneurship Survey* measures entrepreneurial activity around the world. The database includes cross-country, time-series data on the number of total and newly registered businesses for 84 countries (Klapper et al. 2008).

The OECD-Eurostat approach (Ahmad-Seymour 2008) has tried to combine both approaches, that is to give a theoretical definition paying attention to the measurement issue. In this context, the following definitions were established:

- *Entrepreneurs* are those persons (business owners) who seek to generate value through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.
- *Entrepreneurial activity* is enterprising human action in pursuit of the generation of value through the creation or expansion of economic activity, by identifying or exploiting new products, processes or markets.
- *Entrepreneurship* is the phenomenon associated with entrepreneurial activity.

From its definition it is clear that entrepreneurship is a multi-faceted phenomenon both in its manifestations and in its impacts and that it cannot be measured by a single indicator but rather by a set of indicators. In this direction a first model was proposed in Ahmad and Hoffman (2008). This model identifies three separated but inter-connected stages, all of which are important in the formulation and assessment of policy measures: the first stage identifies various '*determinants*', which policy can affect and which in turn influence '*entrepreneurial performance'*; '*entrepreneurial performance*' reflects the target indicators that policy makers believe have an impact on some ultimate objectives ('*impacts*'), such as economic growth, job creation or poverty reduction.

Within this framework, the EIP has proposed a range of indicators that allow to understand and distinguish different types of entrepreneurial performance. The list of adopted indicators reflects relevance and measurability and is introduced in Section 2.1. As far as determinants are concerned, the EIP has not created specific databases, but other sources are available.

The present work falls within the framework presented above. We try to investigate the relationship between determinants and entrepreneurial performance. In particular, we focus attention on factors related to education and how they influence different types of entrepreneurship.

The rest of the paper is organized as follows. In Section 2 we introduce the set of indicators that we consider. Section 3 is devoted to the statistical analysis and Section 4 contains some preliminary conclusions.

2. Indicators

In this section we present the indicators that we use in the rest of the paper. In Section 2.1 we introduce indicators measuring the entrepreneurial performance of coun-

tries. In Sections 2.2 to 2.4 we present some indicators of the determinants, paying particular attention to those related to education.

2.1 Entrepreneurial Indicators

From the definition given above, it is clear that entrepreneurship is a phenomenon difficult to measure and that, given the diversity of its manifestations, no single indicator can ever measure it adequately. It is also clear that entrepreneurship has to do with something 'new': the creation of new markets and new value through new products and processes.

Before introducing the indicators that have been proposed by OECD-Eurostat, we highlight some aspects that help understand how they should be interpreted.

First of all, all the indicators are to be considered as proxies for the definition of entrepreneurship, each one describing a specific aspect of this phenomenon. They have to be interpreted as measures of entrepreneurship that have loose or strict interpretation of the word 'new'. For example, if one takes a liberal interpretation of 'new', all new businesses (enterprise birth) could be considered as creating new markets. On the other hand, it is clear that not all businesses are necessarily entrepreneurial.

Taking a stricter interpretation of the word 'new', one can consider that those firms that have had rapid growth (high-growth enterprise) are more likely to have demonstrated 'pure' entrepreneurship. In this case it is assumed that there was something significantly different about their product or process or market that led to significant growth. It is also assumed that firms do not need to be new to be entrepreneurial.

One could tighten further the definition of 'new' and require that high-growth firms also need to be young (gazelles).

In the light of the previous observations, we consider three indicators of entrepreneurship: those related to enterprise birth, high growth enterprises and gazelles. In the following we give exact definitions of these indicators. Other manifestations of performance are also considered in the EIP, such as firms death and survival rates, but we are not going to take them into consideration. The interested reader is referred to OECD/Eurostat (2007) and OECD/Eurostat (2008).

We start by defining an enterprise. *Enterprise* is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit. (Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community). By *employer enterprise* is meant an enterprise with at least one employee.

An *employer enterprise birth* refers to the birth of an enterprise with at least one employee. This population consists of enterprise births with at least one employee in the birth year and of enterprises that existed before the year under consideration but were below the threshold of one employee.

The indicator *employer enterprise birth rate* is compiled as the number of births of employer enterprises as a percentage of the population of active enterprises with at least one employee.

High growth enterprises as measured by employment (or by turnover) are all enterprises with average annualised growth in employees (or in turnover) greater than 20% a year, over a three-year period, and with ten or more employees at the beginning of the observation period.

The formulas describing high growth enterprises are

$$\sqrt[3]{\frac{employees_{(xx)}}{employees_{(xx-3)}}} - 1 > 0.2 \quad \text{(as measured in employment)}$$

$$\sqrt[3]{\frac{turnover_{(xx)}}{turnover_{(xx-3)}}} - 1 > 0.2 \quad \text{(as measured in turnover),}$$

where $employees_{(xx)}$ denotes the number of employees in year xx and $employees_{(xx-3)}$ the number of employees in year $xx-3$. Similarly $turnover_{(xx)}$ and $turnover_{(xx-3)}$ denote the turnover in year xx and $xx-3$, respectively. In practice, average annualised growth of 20% over three years would be equal to 72.8% growth from $xx-3$ to year xx.

The *rate of high-growth enterprises* is computed as the number of high-growth enterprises as a percentage of the population of enterprises with ten or more employees.

Gazelles are the subset of high-growth enterprises which are up to five years old. In other words, they are enterprises up to five years old with average annualised growth (in employees or in turnover) greater than 20% per annum, over a three year period and with ten or more employees at the beginning of the observation period.

The *share of gazelles* is computed as the number of gazelles as a percentage of the population of enterprises with ten or more employees. For details on the different approaches to high growth firms and gazelles definition see Ahmad and Gonnard (2007).

The source of data about entrepreneurial performance is the OECD Database Structural and Demographic Business Statistics (SDBS), which has been developed within the EIP. In this database activities are classified according to the International Standard Industrial Classification of all Economic Activities (ISIC) Revision 3.

We considered data (and performed the analysis) on the Manufacturing sector (ISIC3 15-37).

2.2 Education Indicators

Indicators about education are taken from Education at a Glance 2007, an OECD publication that provides a comparable set of indicators on the performance of education systems in the OECD's member countries and in a number of partner economies.

In particular, we considered indicators about educational attainment (Education at a Glance, Table A1.1a): they are computed as percentage of the population aged 25-64 having obtained a certain degree (as highest level of education).

The classification is based on the International Standard Classification of Education (ISCED) 1997, which supplies the instruments for computing internationally comparable indicators.

In the following we define the indicators that we took into consideration:

- *Upper secondary education* (ISCED LEVEL 3): this level of education typically begins at the end of full-time compulsory education for those countries that have a system of compulsory education. The entrance age to this level is typically 15 or 16 years.
- *Tertiary education* (ISCED LEVEL 5): this level consists of tertiary programmes having an educational content more advanced than those offered at the lower level 3. Entry to these programmes normally requires the successful completion of ISCED level 3 or a similar qualification. This level corresponds to Bachelor's degree in English-speaking countries. Tertiary education is subdivided into:
  - *Tertiary type A* (ISCED LEVEL 5A), which is largely theoretically based and intended to provide sufficient qualifications for gaining entry into advanced research programmes and profession with high skills requirements.
  - *Tertiary type B* (ISCED LEVEL 5B), which is typically shorter than type A and focuses on occupationally specific skills geared for entry into the labour market.
- *At least upper secondary education:* this category comprises the population that has attained at least an upper secondary education.

More detailed information about these education levels are found in UNESCO (1997).

2.3 Research and Development (R&D) Indicators

A factor that we thought could be a determinant of entrepreneurship is the investment in new knowledge, since this is the basis of innovation and technological progress. And it is known that innovation and technological progress are the main sources of economic performance.

A major input that stimulate innovation is the investment in R&D. The indicator that we considered is built by considering business R&D by size classes of firms. Indeed, both small and large firms play an important role in countries' innovative performance, but their relative importance for business R&D varies. In OECD countries, the share of R&D performed by small and medium-sized enterprises (SMEs) (defined here as firms with fewer than 250 employees) is generally greater in small economies than in larger ones.

Small and medium-sized firms play an important role in innovation: they are a constant source of renewal of technology and of competitive pressures for large firms. However, SMEs face specific problems for innovating and for adopting new technologies (access to funds, markets and skilled labour).

On the other hand, the role of large firms should not be ignored: they play leading role in structuring markets, carrying out large-scale innovations and even in co-ordinating smaller firms. The complementary roles of small and large firms may vary across industries and across countries.

We argue that countries where a lot of SMEs perform R&D have a more active economy. Indeed it is quite obvious that large firms perform R&D. This is the reason why we considered the indicator '*SME share of business R&D*', computed as the number of SMEs performing R&D as a percentage of the business R&D.

The source of data about R&D is the OECD R&D Database.

2.4 Product Market Regulation (PMR) Indicators

PMR measures the degree to which policies promote or inhibit competition in areas of the product market where competition is viable.

The source for indicators of PMR is the OECD Market Regulation Database, where the indicators cover regulations in three areas: state control of business enterprises, legal and administrative barriers to entrepreneurship and barriers to international trade and investment (see Conway et al. 2005 and Nicoletti et al. 2000).

For the purpose of identifying determinants of entrepreneurship we considered indicators relative to *barriers to entrepreneurship*.

This indicator assumes values increasing with the degree of the restrictions imposed on market mechanism and it is constructed as the combination of detailed indicators that coincide with more specific features of the regulatory regimes. The detailed indicators can be classified into three main sub-domains: administrative burdens on start-ups, regulatory and administrative opacities (including the features

of the licences and permits system and the communication and simplification of rules and procedures) and barriers to competitions (including legal limitations on the number of competitors and exemptions to antitrust provisions for public enterprises).

3. Statistical analyses and results

In this section we present the analyses that have been performed. Section 3.1 contains the results of the regression analysis, which has been carried out using the SAS system, version 9.1. Section 3.2 is devoted to multidimensional scaling, performed by means of the program ALSCAL, developed by Forrest W. Young.

3.1 Regression Analysis

The hypotheses under study is that education plays a role as determinant of entrepreneurship. In order to validate this hypothesis we perform some regression analysis using as measures of entrepreneurship the variables employer enterprise birth rate and rate of high-growth enterprises. It would have also been interesting to consider the share of gazelles, but, due to insufficient number of observations, it has not been possible. Even for the other variables, the number of observations (countries) is not high; for this reason the models have to be kept quite simple. In the regression models, we consider the following independent variables: barriers to entrepreneurship, SME share of business R&D, tertiary, upper secondary and at least upper secondary educational attainments.

The results of the analysis are summarized in Table 1. Concerning the variable employer enterprise birth rate we found that the most significant education variable is the upper secondary education (p-value=0.0269) and that another significant factor is R&D through the variable SME share of business R&D squared (p-value=0.0591). The R^2 for this model is 0.6925.

As far as the variable rate of high-growth enterprises is concerned, we found a significant model containing the variables at least upper secondary education squared (p-value=0.1033) and the logarithm of barriers to entrepreneurship (p-value=0.0598). The R^2 for this model is 0.6032. The relations between dependent variables and explanatory variables are plotted in Figures 1 to 4.

The p-values for the model are quite high, but since the number of observations is very low we can perform tests at the 0.1 level of significance.

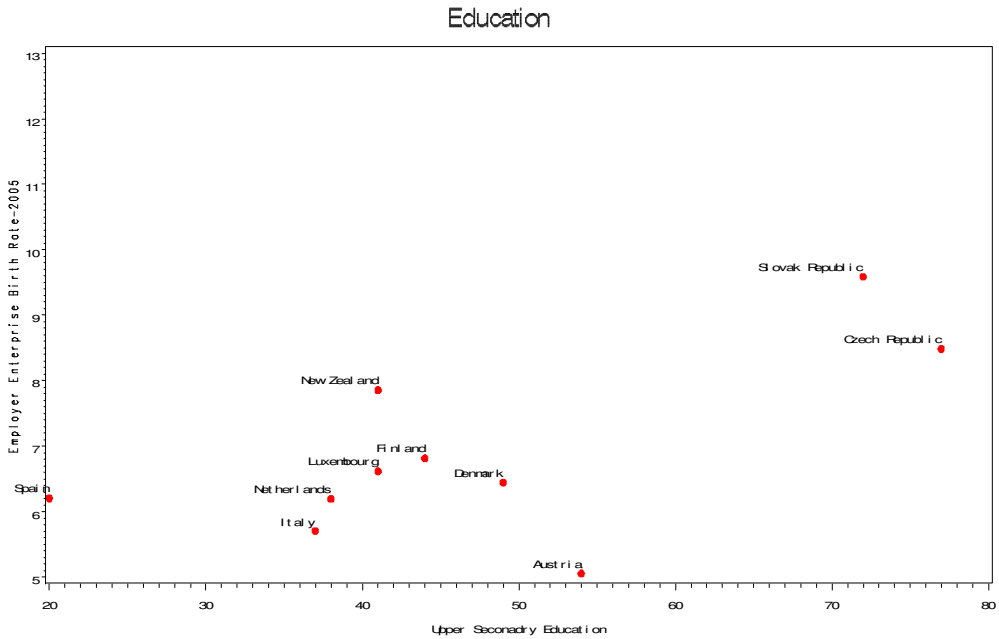
Notice that for each model we checked for multicollinearity using the Variance Inflation Factor (VIF) index and performed residual analysis (see Table 2).

From these analysis we can conclude that the birth of new enterprises is influenced by quite a low level of education (upper secondary) and by the percentage of SMEs which perform R&D. Indeed this variable denotes an active economy, which

promotes the birth of new enterprises. On the other hand, in order to have high-growth enterprises a higher level of education is needed. In fact we found that the most significant education variable is at least upper secondary education (which contains upper secondary, tertiary and higher education). This means that highly skilled workers are needed to have an enterprise quick growth, proving that education play a significant role in entrepreneurship competitiveness.

A second factor significant for high-growth enterprises is barriers to entrepreneurship. This fact can be interpreted as follows. Analysing how the variable barriers to entrepreneurship is defined, we see that this variable mainly interests enterprise births. Therefore, in countries where barriers to entrepreneurship are high it is more difficult to have an enterprise birth and this helps existing enterprises to grow faster.

Figure 1. Relation between upper secondary education and enterprise birth rate.



Source: own creation

Figure 2. Relation between SME share of business R&D and enterprise birth rate.

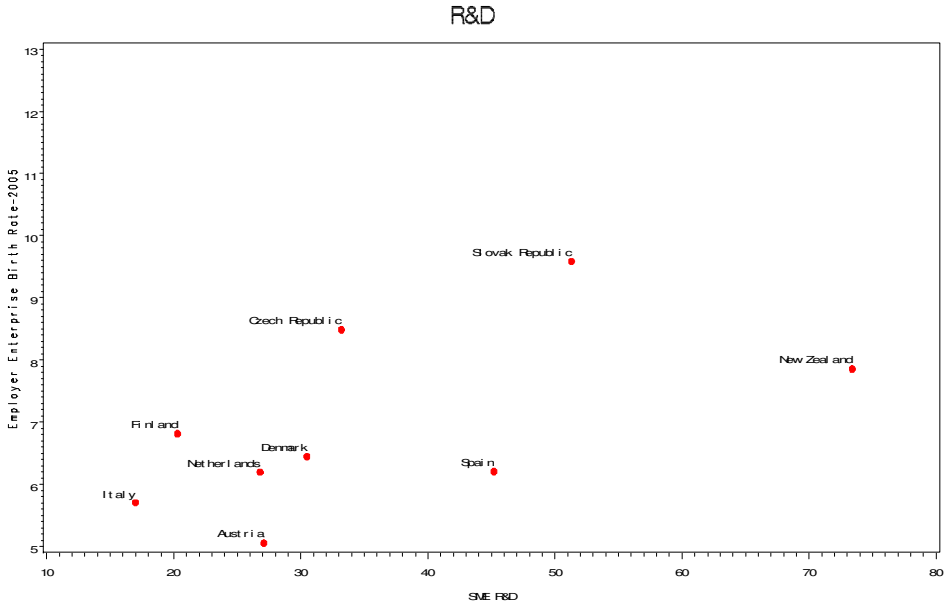


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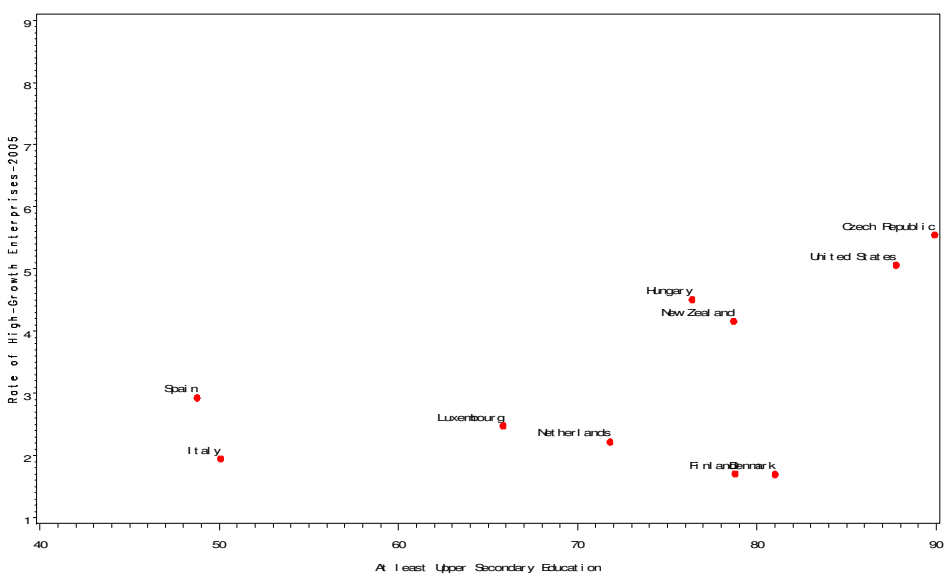
Figure 3. Relation between at least upper secondary education and rate of high-growth enterprises.



Source: own creation

Table 1. Regression analysis.

Manufacturing (ISIC3 15-37)		
Model	**R^2**	**N. Observations**
Employer Enterprise Birth Rate= 3.618+0.05358 (Upper Secondary Education)+0.00047(SME R&D)^2 (p-value=0.0269) (p-value=0.0591)	0,6925	9
Rate of High-Growth Enterprises= 0.00034(At least Upper Secondary Education)^2+6.77ln(Barriers to Entrepreneurship) (p-value=0.1033) (p-value=0.0598)	0,6032	10

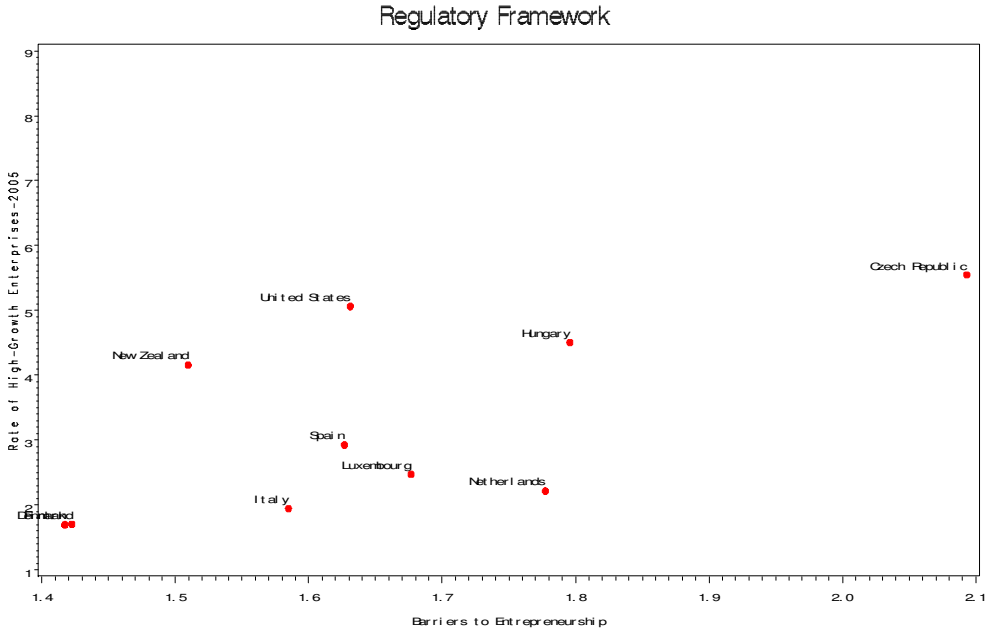
Source: own creation

Table 2. Residual analysis (Shapiro-Wilk test and Kolmogorov-Smirnov test for testing normality) and Variance Inflation Factor for multicollinearity.

Manufacturing (ISIC3 15-37)			
Dependent Variable	**S-W**	**K-S**	**VIF**
Employer Enterprise Birth Rate	0.1599	>0.1500	1.00079
Rate of High Growth Enterprises	0.6933	>0.1500	1.04161

Source: own creation

Figure 4. Relation between barriers to entrepreneurship and rate of high-growth enterprises.



Source: own creation

3.2 Multidimensional Scaling

To shed further light on the relationship among countries and variables we applied multidimensional scaling (MDS) techniques to produce a spatial representation of the data. This exploratory data tool allows to take advantage of the fact that for each observation we have many variables and moreover it is not affected by the small number of observations.

The obtained mapping shows the 'hidden structure' of the data and allows to understand the degree of relation between variables and countries.

Among the various types of MDS techniques we choose the classical multidimensional unfolding (CMDU). This type of MDS is suitable when the data form a rectangular matrix. CMDU represents both sets of objects (in our case countries and variables) as points in a single space, called joint Euclidean space.

The information in the data that is used to form the space is the degree of relation between rows and columns (countries and variables). The higher the value of a variable for a certain country, the nearer the country point will be to that variable point in the joint space.

Therefore country points will be located close to points for variables that take high values for that country, and far from points for variables that take low values for that country.

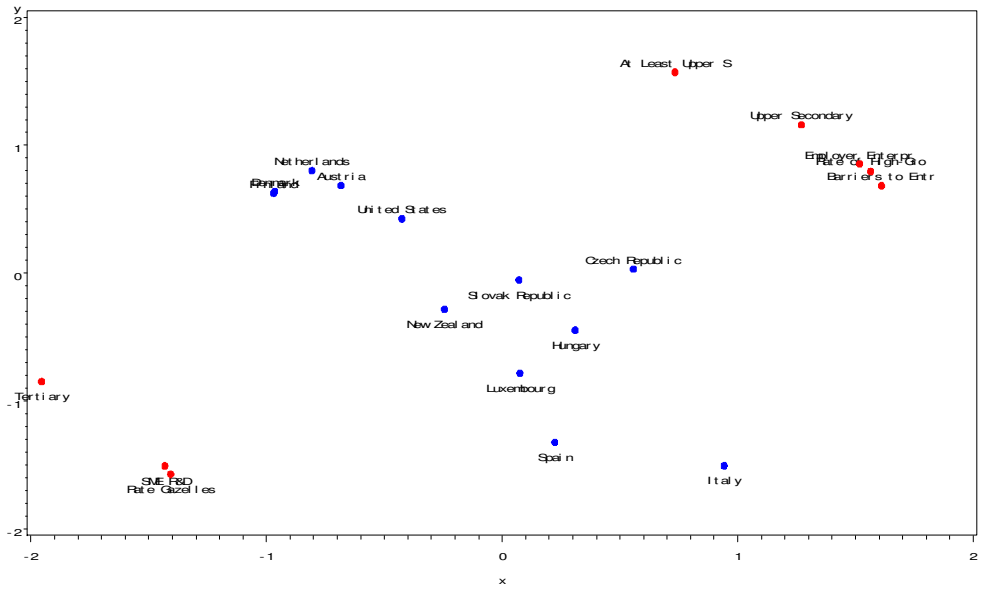
Conversely, each variable point will be located close to points for countries which assume high values of that variable and far from points for countries which assume low values.

Moreover, those countries which are near each other in the joint space have a similar behaviour with respect to the variables that are considered; those which are far from each other have different behaviour. For more details about MDS please refer to Borg-Groenen (1997), Kruskal-Wish (1981) and Schiffman et al. (1981).

The variables that we consider concern entrepreneurship indicators (employer enterprise birth rate, rate of high-growth enterprises and share of gazelles), education indicators (upper secondary, tertiary and at least upper secondary education), R&D indicators (SME share of the business R&D) and PMR indicator (barriers to entrepreneurship). Countries have been chosen in order not to have more than two missing values.

After standardization of the variables, we performed CMDU by means of the program ALSCAL. The result is displayed in Figure 5. In order to facilitate the interpretation of the map, disparities (which correspond to distances between points in the map) are shown in Table 3.

Figure 5. CMDU map.



Source: own creation

Looking at the picture and looking at the data in Table 3, we see that country points form some clusters, denoting similar behaviour: Denmark and Finland, Netherlands and Austria, Italy quite close to Spain.

Denmark and Finland are the countries closest to tertiary education, meaning that in these countries tertiary education is the highest among the countries represented. They are also not far from at least upper secondary education. Concerning the entrepreneurship indicators, they are closer to the variable share of gazelles than to employer enterprise birth rate and rate of high-growth enterprises. This fact clarifies which kind of entrepreneurship characterizes these countries: it is dynamic and involves highly skilled workers.

Netherlands and Austria are quite close to the variable at least upper secondary education, denoting that the education level of these countries is quite high but still with a good percentage of people having an upper secondary education. Indeed, with respect to Denmark and Finland they are farther from tertiary education and closer to upper secondary education.

As far as the entrepreneurship indicators are concerned, these countries are equidistant from the three indicators and quite far away from all of them, meaning that entrepreneurship is not very much differentiated and it does not present a high level.

Table 3. Disparities for CMDU

	EEBR	RHGE	SG	BE	R&D	TE	USE	ALUSE
Austria	2.208	2.251	2.368	2.294	2.315	1.990	2.011	1.670
Czech Republic	1.264	1.264	2.534	1.238	2.514	2.661	1.334	1.547
Denmark	2.492	2.534	2.252	2.576	2.194	1.784	2.295	1.937
Finland	2.498	2.540	2.237	2.581	2.179	1.769	2.303	1.948
Hungary	1.773	1.763	2.053	1.720	2.040	2.301	1.869	2.058
Italy	2.427	2.381	2.350	2.286	2.374	2.972	2.683	3.081
Luxembourg	2.180	2.168	1.679	2.121	1.672	2.032	2.279	2.441
Netherlands	2.325	2.372	2.446	2.421	2.389	2.007	2.108	1.722
New Zealand	2.096	2.105	1.735	2.091	1.705	1.801	2.091	2.093
Slovak Republic	1.706	1.716	2.119	1.705	2.091	2.177	1.704	1.751
Spain	2.530	2.505	1.650	2.436	1.666	2.230	2.692	2.935
United States	1.990	2.024	2.222	2.052	2.176	1.988	1.848	1.629

Note: EEBR=Employer Enterprise Birth Rate, RHGE=Rate of High Growth Enterprises, SG=Share of Gazelles, BE=Barriers to Entrepreneurship, R&D= SME R&D, TE=Tertiary Education, USE=Upper Secondary Education, ALUSE=At Least Upper Secondary Education

Source: own creation

Czech Republic is the closest to employer enterprise birth rate and rate of high-growth enterprises; this fact is probably related to its rapid economic growth. As far as education is concerned, Czech Republic is the closest to upper secondary education, denoting quite a low level of education, and it is far away from tertiary education.

Hungary and Slovak Republic are quite close to Czech Republic, denoting a similar behaviour; with respect to Czech Republic they are closer to tertiary education and share of gazelles, meaning that entrepreneurship is more dynamic.

4. Conclusions

From these preliminary analysis, it seems that the birth of new enterprises is influenced by quite a low level of education and by the percentage of SMEs which perform R&D.

On the other hand, in order to have an enterprise quick growth a higher level of education is needed.

We have also seen how MDS techniques can be used to analyse entrepreneurship across countries and in particular to identify countries with similar entrepreneurial characteristics.

Due to the very small number of observations, it is clear that we have to be very careful in drawing general conclusions. These first results need to be further investigated using more detailed data. In this respect we intend to analyse single country data and for this purpose we have already asked for the access to the Kauffman Firm Survey (KFS) confidential database. From this further investigation we hope to obtain results confirming for the US the conclusions we have drawn in this analysis. At the same time other aspects specific to the US economy may rise and shed further light on the phenomenon.

Sources

OECD, Education at a Glance, 2007
OECD, Market Regulation Database, October 2007
OECD, R&D Database, May 2007
OECD, Structural and Demographic Business Statistics (SDBS) Database

References

Ahmad, N. – Hoffman, A. 2008: A Framework for Addressing and Measuring Entrepreneurship. *OECD Statistics Directorate Working Paper*, STD/DOC(2008)2

Ahmad, N. – Seymour, R.G. 2008: Defining Entrepreneurial Activity: Definitions Supporting Frameworks for Data Collection. *OECD Statistics Directorate Working Paper*, STD/DOC(2008)1

Ahmad, N. – Gonnard, E. 2007: High Growth Enterprises and Gazelles, The International Consortium on Entrepreneurship (ICE), Meeting 22-23. February, 2007. Copenhagen, Denmark.

Borg, I. – Groenen, P. 1997: *Modern Multidimensional Scaling*. Springer, New York

Conway, P. – Janod, V. – Nicoletti, G. 2005: Product market regulation in OECD countries: 1998 to 2003. *OECD Economics Department Working Paper*, ECO/WKP(2005)6

Fairlie, R. W. 2009: Kauffman Index of Entrepreneurial Activity, 1996-2008, Erwing Marion Kauffman Foundation

Klapper L. – Raphael A. R. – Guillén M.F. 2008: Entrepreneurship and Firm Formation Across Countries.

Kruskal, J.B. – Wish, M. 1981: *Multidimensional Scaling*. Sage Publications, London.

Nicoletti, G. – Scarpetta, S. – Boylaud, O. 2000: Summary indicators of product market regulation with an extention to employment protection legislation. *OECD Economics Department Working Paper*, ECO/WKP(99)18

OECD /Eurostat 2007: *Eurostat-OECD Manual on Business Demography Statistics*, OECD, Paris

OECD/Eurostat 2008: *Measuring Entrepreneurship: A digest of indicators,* OECD, Paris.

Schiffman, S.S. – Reynolds, M.L. – Young, F.W. 1981: *Introduction to Multidimensional Scaling: Theory, Methods and Applications*. Academic Press, New York.

UNESCO 1997: *The International Standard Classification of Education: ISCED-97*. UNESCO, Paris.