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## Article

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## ENTREPRENEURIAL CLUSTERS IN EUROPEAN UNION. A MACROECONOMIC COMPARATIVE ANALYSIS

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### Abstract

Entrepreneurship represents the mechanism by which economic change leads to progress and development. Although at EU level a common framework exists for supporting entrepreneurship, there are significant differences among Member States. The purpose of this article was to identify different categories of EU countries according to their entrepreneurship dynamics and to investigate the relationship between this phenomenon and the business environment. Statistical data were provided by harmonized international sources, which allow comparisons, and cluster analysis method was used. The research results indicate the existence of four clusters (Experimentalists, Ambitious, Prudentials and Moderates) each having a distinct profile. For each group, macroeconomic factors that explain these variations were identified. Based on these results, suggestions for future research directions and recommendations for policy makers were formulated.

**Keywords:** entrepreneurship, nascent entrepreneurship rate, discontinuation of businesses rate, economic freedom

**JEL classification:** L26

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### Introduction

Recently, a major shift has taken place in developed countries, from a managed economy towards an entrepreneurial economy. If in the first case, the economic performance is determined by firms' size, economies of scale and standardization of production processes, in the second case it is conditioned by the emergence and development of innovative companies and open innovation processes (Thurik, Stam and Audretsch, 2013).

Until lately, unfortunately, the endogenous growth theories ignored the role of entrepreneurship, although it represents the mechanism through which economic change

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leads to progress and growth (Minniti and Lévesque, 2008). Because there are significant differences in entrepreneurship at national and even regional level (Bosma, Hessels, Schutjens, Van Praag and Verheul, 2012; Ács, Autio and Szerb, 2014), it is necessary to identify the factors that influence entrepreneurial performance.

Although researchers tend to agree on categories of factors influencing entrepreneurship, empirical studies have shown that the importance of the same factor differs from one context to another; even more the same factor can have a positive effect in one case and negative in other case (Thai and Turkina, 2014). Moreover, while there are many studies investigating the relationship between entrepreneurship and various factor, the analysis is limited to a single country (Jennings, Greenwood, Lounsbury and Suddaby, 2013) and comparative research between groups of countries is relatively rare (Simón-Moya, Revuelto-Taboada and Guerrero, 2014).

A special case is the European Union (EU) which, in 2008, developed a regulatory framework - Small Business Act - to be implemented in all Member States. EU's future prosperity depends on its ability to stimulate growth and innovation potential of SMEs (European Commission, 2011). Therefore, Small Business Act provides a public policy framework to create a favourable business environment for SMEs, a regulatory environment based on "*Think Small First*" principle, to facilitate SME's financing, to help them seize the opportunities created by the single European market and to support the development of their innovative skills (European Commission, 2008).

Therefore, the present research led to the grouping of EU countries in terms of entrepreneurship dynamics and macroeconomic factors that influence this dynamic within each group.

This article is organized as follows: the first section contains a review of entrepreneurship literature and its determinants; the second section presents the research methodology of an empirical study followed by the presentation of results and finally a section of conclusions.

## 1. Literature review

To understand entrepreneurship, is necessary, first of all, to define the entrepreneur. Currently there are several definitions because scholars didn't reach a consensus. The term entrepreneur was first introduced by Cantillon in 1755 and designated "an agent who contracts with suppliers at known prices in order to produce goods that could be sold later at uncertain prices" (Ricketts, 2008, p.41). Entrepreneur definition was further developed by many researchers (Ricketts, 2008): Knight introduced the idea of an agent who takes risks, Schumpeter focused on technological innovation, Kirzner has shown that he is an agent alert to unexploited opportunities while Casson said he is a decision making specialist in coordination of scarce resources.

Alongside these definitions, which focus on a behavioural dimension, others tried to define the entrepreneur based on its personality traits, motivations and characteristics, but without success (Gedeon, 2010). Over time, the entrepreneurship concept has diversified and there are various types that have been classified according to six criteria (Gedeon, 2010): how? (business, social, academic, political entrepreneurship), who? (independent, corporate, female entrepreneurship), how? (innovative, imitative, adaptive, speculative entrepreneurship), why? (necessity, opportunity, lifestyle entrepreneurship), when?

(nascent, start-up, transformative entrepreneurship,) where? (international, local, diaspora entrepreneurship).

In terms of business entrepreneurship, the most commonly used taxonomies are necessity versus opportunity entrepreneurship (Wong, Ho and Autio, 2005; Naude, 2011), innovative versus high impact entrepreneurship (Estrin, Korosteleva and Mickiewicz, 2013; Stenholm, Acs and Wuebker, 2013), own account worker versus employer (Spencer and Gomez, 2004; Román, Congregado and Millán, 2013; Congregado, Millán and Román, 2014; Millán, Congregado and Román, 2014a). Obviously, this variety of definitions and types of entrepreneurs makes measurement difficult. For example, if the entrepreneur is an agent buying at certain prices and selling at uncertain prices the self-employment rate could be used; if the entrepreneur is one who takes risks, the business ownership rate could be employed; if the entrepreneur is an innovator, firm entry/exit rates or survival rate may be representative indicators (Thai și Turkina, 2014).

But the number of entrepreneurs represents only one dimension of the entrepreneurship. The Organisation for Economic Co-operation and Development (OECD, 2009) uses a comprehensive set of indicators that includes: *indicators of entrepreneurial determinants* (regulatory policy, R&D and technology, entrepreneurial capabilities, culture, access to finance, market conditions), *indicators of entrepreneurial performance* (firm and employment-based indicators) and *indicators of entrepreneurial impact* (economic growth, job creation, poverty reduction).

Although entrepreneurship has attracted policy-makers attention and there are numerous country level studies, until the late 1990s internationally comparable data were scarce (OECD, 2009). Currently, there are four major international initiatives that measure entrepreneurship: Global Entrepreneurship Monitor (GEM), OECD / Kauffman Entrepreneurship Indicators Programme (EIP), World Bank Enterprise Data/Survey and Entrepreneurship Eurobarometer Survey (Global Entrepreneurship Monitor, 2012). These four initiatives use different methods (surveys, statistical analyses) and provide complementary data, given that there are differences in terms of:

- unit of analysis (the individual in GEM and Entrepreneurship Eurobarometer, the firm in EIP and World Bank Enterprise Data/Survey);
- geographical coverage (global in GEM and World Bank Enterprise Data/Survey, OECD countries in EIP and EU Member States in Entrepreneurship Eurobarometer);
- frequency (annual in GEM, EIP and World Bank Enterprise Data/Survey, periodical in Entrepreneurship Eurobarometer);
- approach (broad in GEM, selective in EIP and World Bank Enterprise Data/Survey and limited to entrepreneurs attitudes, motivations and obstacles in Entrepreneurship Eurobarometer).

Regarding the *entrepreneurship determinants*, there is a rich literature on institutions influence on economic activity, in general, and entrepreneurship, in particular (Veciana and Urbano, 2008; Couyoumdjian, 2012). As defined by North (1990, p.4), “institutions include any form of constraint that human being devise to shape human interaction”. They can be formal – such as laws and contracts aimed at protecting property rights, rule of law, economic and political freedom, and informal – such as codes of conduct, norms of behaviour and conventions.

For example, an institutional environment rich in laws and regulations that support entrepreneurial initiative is a decisive factor for developing economies, while for knowledge-based economies is less important (Stenholm, Acs and Wuebker, 2013). A "friendly" bankruptcy law has a positive impact on start-up rate, as it encourages entrepreneurs to take risks (Lee, Yamakawa, Peng and Barney, 2011). The number of days and procedures required to register a firm, the length of contract enforcement procedures (Troilo, 2011), high levels of corruption and weak property rights (Estrin, Korosteleva and Mickiewicz, 2013) have a negative effect on high growth ambitions entrepreneurs. The high cost of setting-up a firm discourages the emergence of new companies while incumbents have lower growth rates (Klapper, Laeven and Rajan, 2006). Furthermore, institutional factors may act in different directions: what encourages necessity entrepreneurship could discourage innovative entrepreneurship and vice versa (Harbi and Anderson, 2010).

The level of economic development (Spencer and Gomez, 2004), the degree of internationalization (Norbäck, Persson and Douhan, 2014), education (Millán, Congregado, Román, van Praag and van Stel, 2014b) religion and social structure (Audretsch, Bönte and Tamvada, 2013) are also variables that influence entrepreneurship.

At microeconomic level, entrepreneurs form a heterogeneous group: from semi-skilled workers to highly specialized professionals. Researches show that the most important variables that influence individual entrepreneurial activity are their social capital (Bauernschuster, Falck and Heblich, 2010; Bosma, Hessels, Schutjens, Van Praag and Verheul, 2012; Kim and Kang, 2014; Leyden, Link and Siegel, 2014) and human capital (Lofstrom, Bates and Parker, 2014).

There are several reports that measure various determinants of entrepreneurship: National Experts' Survey-GEM (Global Entrepreneurship Monitor, 2014a), Doing Business Report-World Bank (The World Bank, 2014), Global Competitiveness Index-World Economic Forum (World Economic Forum, 2014), EIP Reports-OECD (OECD, 2014), Index of Economic Freedom-Heritage Foundation (The Heritage Foundation, 2014), Global Entrepreneurship & Development Index-GEDI Institute (Global Entrepreneurship Development Institute, 2014), Institutional Quality of Business Environment-IQBE (Marinescu, 2013). All these initiatives offer complementary information that can be used by researchers and policymakers. For example, the National Experts' Survey-GEM and Doing Business Report-World Bank are based on consultations with experts. But National Experts' Survey-GEM collects subjective opinions regarding the variables that influence entrepreneurs, while Doing Business Report-World Bank asks for objective data regarding the regulatory environment affecting economic activity in general. Furthermore, data from some reports are used to build other indicators: Global Entrepreneurship & Development Index builds on the Index of Economic Freedom (Ács, Autio and Szerb, 2014).

## **2. Research methodology**

The *goal* of this research was to identify clusters of countries from the European Union based on the dynamics of entrepreneurship phenomenon. The starting point of the present research was represented by the necessity to investigate the relationship between entrepreneurship and the business environment, from a macroeconomic perspective, in order to identify explanatory factors for differences between countries.

Considering the purpose and usefulness of the information obtained, the research *objectives* aimed to: (a) determine homogenous groups of countries according to entrepreneurship dynamics; (b) establish a macroeconomic profile for each group; (c) identify determinants which explain the differences between groups of countries.

The *studied universe* in this research was represented by EU Member States. We have selected these countries because in EU exists a common framework, grounded by Small Business Act for Europe (Commission of the European Communities, 2008), and a joint Entrepreneurship 2020 Action Plan (European Commission, 2013). Although this plan establishes a common set of initiatives to support entrepreneurship in EU, statistics reveals significant differences between countries. Through this research the main differences have been identified, as well as groups of countries with similarities regarding the entrepreneurial phenomenon.

As previously mentioned, there are numerous measurement methods of entrepreneurship, each based on different indicators, determined either by statistical analysis or by direct research among entrepreneurs. This research used data provided by Global Entrepreneurship Monitor (Global Entrepreneurship Monitor, 2013a; Global Entrepreneurship Monitor, 2014b) and the Index of Economic Freedom (The Heritage Foundation, 2014), two of the most important entrepreneurship studies worldwide. It should be noted, however, that GEM does not provide data for three EU countries: Bulgaria, Cyprus and Malta. This is, however, the disadvantage of most statistical indicators – the inability to cover all geographic areas.

The *research method* used was cluster analysis, which is a statistical classification method that allows dividing the analysed elements into groups (clusters) consisting of similar (but not identical) elements inside the group and different from the elements of other groups. Given the research objectives, cluster analysis was performed using *k-means* partitioning procedure that enabled elements to migrate from one cluster to another one to obtain the highest degree of homogeneity within each group.

To describe entrepreneurship, two cluster *variables* were chosen – *nascent entrepreneurship rate* and *discontinuation of businesses rate*, using data provided by Global Entrepreneurship Monitor for 2012 and 2013 (for each variable, the average for two years was computed). Nascent entrepreneurship rate is the percentage of people who have made - in the past 12 months - efforts to launch a new business (for example, searching for location, equipment, identifying other people to work with, developing a business plan, saving money or any other activity that could help launch a business). Discontinuation of businesses rate represents the percentage of people that have closed, sold or discontinued their business in the last 12 months (Reynolds, Bosma, Autio, Hunt, DeBono, Servais, Lopez-Garcia and Chin, 2005).

The decision to use these two variables was based on several reasons. First of all, because they measure behaviour. Although variables such as entrepreneurs intentions, motivations and attitudes are important, entrepreneurship is a process, a series of actions, which means that measuring entrepreneurs actions is relevant. Second, the two variables measure behaviours at individual not business level. This individual perspective provides a complete nationwide image, because limiting the analysis to only registered or closed companies will exclude individual initiatives that are not officially registered as commercial enterprises.

Third, entrepreneurship means taking the risk that the initiative could fail, which means that it is not enough to capture only aspects of starting a business but also interrupting it.

To define the profile of each cluster, the following indicators were used (which form the Index of Economic Freedom): property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labour freedom, monetary freedom, trade freedom, investment freedom and financial freedom.

The research method from this article – cluster analysis – involves some requirements: sufficient sample size, low levels of collinearity among variables and finding the correct number of groups. Regarding the sample size, this research comprised 25 countries (taking into account that there are 28 Member States, but data was missing for three of them). The minimum number of elements is  $2^m$ , where  $m$  is the number of cluster variables (Formann, 1984, quoted in Mooi and Sarstedt, 2011, p. 243). For this study, considering two cluster variables, resulted a minimum sample of 4 countries, therefore this condition was fulfilled.

The collinearity between the variables was verified using Pearson correlation coefficient, which should not be higher than 0.90 (Sarstedt and Mooi, 2011, p.266). In our case, Pearson coefficient between nascent entrepreneurship rate and discontinuation of businesses rate was 0.59 and consequently the second requirement was also met.

Deciding on the number of clusters is a combination of theory and researcher's intuition, given the fact that there is no universal method to set the optimal number of clusters, but only theories that support the decision taken by the researcher. One of these theories was proposed by Calinski and Harabasz in 1974 (Mooi and Sarstedt, 2011, p. 255) – Variance Ratio Criterion (VRC). The authors propose to calculate this indicator for several data grouping solutions, based on the following formula:

$$VRC_k = (SS_B / (K - 1)) / (SS_W / (N - K)) \quad (1)$$

where  $N$  is the number of analysed objects,  $K$  the number of groups,  $SS_B$  sum of the squares between the groups and  $SS_W$  the sum of the squares within the groups. The value is determined using the Analysis of Variance test, called ANOVA. Table no. 1 presents the results of ANOVA for grouping data into four clusters.

**Table no. 1: ANOVA test for four clusters**

	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
<b>Discontinuation of businesses rate</b>	6,1254	3	0,4367	21	14,026	0,000
<b>Nascent entrepreneurship rate</b>	22,4750	3	0,3242	21	69,321	0,000

In order to identify the correct number of clusters,  $\omega_K$  was calculated for each grouping solution, using the following formula:  $\omega_K = (VRC_{K+1} - VRC_K) - (VRC_K - VRC_{K-1})$  (2)

In other words, a comparison was conducted between all the VRC values for different data grouping solutions, and finally the solution that provided the lowest value of  $\omega_K$  was chosen. Table no. 2 shows the calculated values for grouping EU countries in 3, 4 and 5 clusters.

Table no. 2: VRC and  $\omega_K$  values for grouping in 3, 4 and 5 clusters

Number of Clusters	VRC	$\omega_K$
2	68,755	
3	61,385	29,332
4	83,347	<b>-21,132</b>
5	84,177	10,169
6	95,176	

As can be seen, the lowest value of  $\omega_K$  is recorded for grouping the elements in 4 clusters. Thus, the decision was to segment EU Member States into four groups of countries in terms of entrepreneurial activity.

### 3. Results and discussions

After running k-means cluster analysis, there were four groups of countries based on nascent entrepreneurship rate and discontinuation of business rate, as can be seen in Figure no.1.

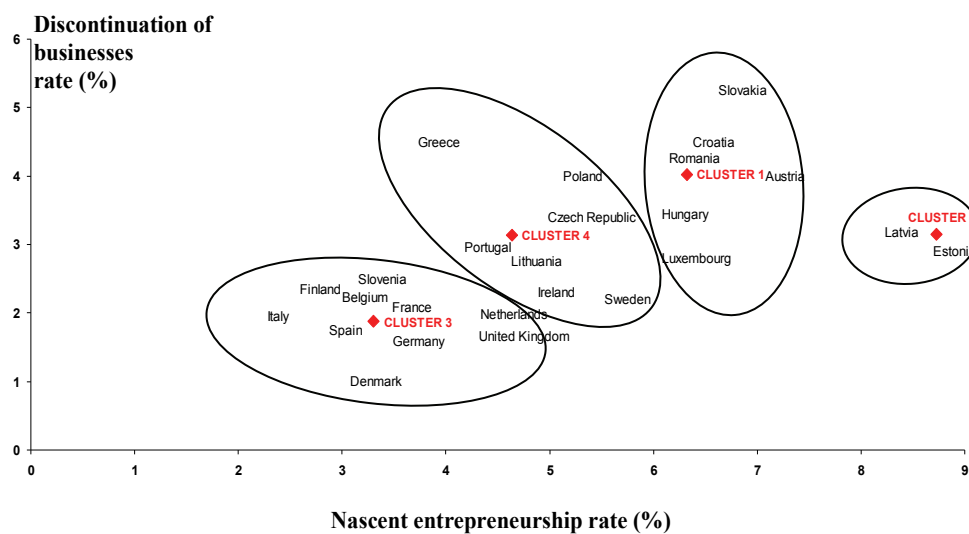


Figure no. 1: Country clusters

Each cluster is characterized by a centroid, determined by the average values of the variables for each group (Table no. 3), which indicates a specific entrepreneurial behaviour with major influence on the survival rate of firms.

As a result, a first characterization of these four clusters can be done according to entrepreneurial dynamics (described by nascent entrepreneurship rate and discontinuation of businesses rate):

Cluster 1 - *Experimentalists* – this group is characterized by a high rate both in terms of starting up new businesses and in closing existing businesses;

Cluster 2 - *Ambitious* – this group comprises two countries with a very high nascent entrepreneurship rate, while the discontinuity rate is maintained within „normal” limits;



Cluster 3 – *Prudentials* - this group includes mature countries in terms of entrepreneurship, with a below average nascent entrepreneurship rate and also below average discontinuation rate, indicating an experienced market;

Cluster 4 – *Moderates* – countries in this group resemble cluster 3 in terms of „survival” rate, but they are at European average both in terms of nascent entrepreneurship and discontinuation of businesses rate.

The next step of analysis consisted in profiling each cluster. To do this, the analysis used information provided by Index of Economic Freedom. This is an index of 10 indicators rated on a scale from 0 to 100 (the more favourable to entrepreneurship the situation is, the higher the score), all indicators having equal weight in determining the overall economic freedom score. The average values for each cluster is presented in Table no. 3.

**Table no. 3: The average values of the indicators of economic freedom  
(on a scale from 0 to 100)**

Indicator	Cluster				EU
	1	2	3	4	
Nascent entrepreneurship rate (%)	6.33	8.73	3.30	4.64	4.83
Discontinuation of businesses rate (%)	4.03	3.15	1.89	3.14	2.85
Property rights	<i>63.3</i>	65.0	<b>79.0</b>	70.0	71.6
Freedom from corruption	<i>55.3</i>	<i>54.0</i>	<b>73.1</b>	59.4	63.5
Fiscal freedom	<i>73.5</i>	<b>81.7</b>	<i>55.4</i>	69.6	65.8
Government spending	<b>39.1</b>	<b>41.3</b>	<i>18.2</i>	28.5	27.9
Business freedom	<i>71.8</i>	75.8	<b>87.7</b>	79.3	80.6
Labour freedom	58.6	58.0	56.7	58.0	57.6
Monetary freedom	79.8	79.2	81.1	79.0	80.0
Trade freedom	87.2	87.1	86.6	86.4	86.7
Investment freedom	78.3	<b>85.0</b>	80.0	<i>75.0</i>	78.6
Financial freedom	<i>66.7</i>	65.0	<b>72.0</b>	70.0	69.6
Average score of economic freedom	<b>67.4</b>	<b>69.2</b>	<b>69.0</b>	<b>67.5</b>	<b>68.2</b>

\* Legend: *italic* – minimum; **bold** – maximum; for Labour, Monetary and Trade freedom there is no highlight for minimum or maximum value, due to the fact that there are no significant differences between clusters

Source: average values calculated from the Index of Economic Freedom  
(The Heritage Foundation, 2014)

According to these results, the overall index of economic freedom does not differ significantly between clusters. Differences between clusters are registered at indicators level (for example, fiscal freedom) or sub-indicators level (fiscal freedom is based on income taxes for individuals and corporate taxation).

**Cluster 1 “Experimentalists”** is characterized by three indicators with values below the European average: property rights, freedom from corruption and business freedom. Typically, these indicators provide confidence in the business environment, and low levels indicate a weak control that the entrepreneur has on his own business.

This group of countries is also characterized by two indicators above European average: fiscal freedom and government spending. At the macroeconomic level, there is a direct relation between level of taxation and government spending, lower tax rate resulting in low levels of government revenues.

Although fiscal relaxation encourages entrepreneurial initiative, entrepreneurs face difficulties along the way (a judicial system facing delays in enforcing contracts, corruption and insecurity generated by high levels of bureaucracy), which determines a relatively high percentage of entrepreneurs to give up along the way.

**Cluster 2 “Ambitious”** is characterized by high values of fiscal freedom and investment freedom, factors that explain the highest nascent entrepreneurship rate (8.73%). Fiscal freedom translates into low tax burden for entrepreneurs, which stimulates the desire to engage in businesses. This superior rate is also explained by the investment policy in these two countries (Estonia and Latvia). KPMG report (2011) on the investments in the Baltic area presents Estonia as one of the most liberal countries in terms of trade and investment policies in Europe. The high nascent entrepreneurship rate is explained by the fact that Estonia is the first country in Europe which introduced flat tax system, coupled with the fact that its accession to the Eurozone in 2011 opened the market to foreign investments.

According to GEM (Global Entrepreneurship Monitor, 2013b), the high nascent entrepreneurship rate in Latvia is generated also by a high percentage of entrepreneurs who start a business out of necessity (25%) and, thus, we can draw the conclusion that some of this entrepreneurs venture to open a business not because of their ability to develop it, but due to lack of other employment opportunities. The main cause of closing a business in these two countries is lack of profitability, a reason much more common here than in other EU countries (Global Entrepreneurship Monitor, 2013b).

**Cluster 3 “Prudentials”** includes countries with mature markets, which stand out through powerful property rights, freedom from corruption, business and financial freedom. Although all these factors should stimulate entrepreneurial initiative, excessive taxation (this cluster having the lowest score for fiscal relaxation) discourages adventurous entrepreneurs, who assume great risks in hope of high returns. Low scores for fiscal relaxation are correlated with high levels of government spending in this cluster.

Lower discontinuation of businesses rate can be explained by a high score obtained for business freedom, calculated based on World Bank "Ease of Doing Business". In 2012, countries in this cluster were ranked in the following places (out of 189 countries): Denmark - 5, England - 10, Finland - 12, Germany - 21, Netherlands - 28, Slovenia - 31, Belgium - 36, France - 38, Spain - 52, Italy - 67 (The World Bank, 2012).

**Cluster 4 “Moderates”** consists of countries at the European average, both in terms of nascent entrepreneurship and discontinuation of businesses rate, with an overall positive “survival” rate.

By comparing the values of all 10 indicators of economic freedom with the European average, it can be observed that there are no significant differences. The only notable difference is for investment freedom, which is the lowest compared to the other three clusters, a phenomenon that may discourage foreign investments. In general, these limitations relate to restrictions on foreign land ownership, government control on foreign

investments levels in some industries or preferential treatment for domestic companies at the expense of foreign ones in case of public acquisitions.

Analysing the dispersion within this group (Figure no.1), it can be observed that Greece distances itself from the other countries, being the only one with a negative “survival” rate. The phenomenon is explained also by the World Bank’s Doing Business Index, where Greece ranks 147 out of 189 for "starting a business" indicator (The World Bank, 2012).

A synthetic description of the characteristics that define the profile of the four clusters is found in the table no. 4.

**Table no. 4: Country profile for each cluster**

<b>CLUSTER 1 „Experimentalists”</b> <ul style="list-style-type: none"> <li>• fiscal relaxation</li> <li>• problems in terms of property rights, corruption, business freedom</li> <li>• financial institutions dependence to the government</li> <li>• lack of trade barriers</li> </ul>	<b>CLUSTER 2 „Ambitious”</b> <ul style="list-style-type: none"> <li>• fiscal relaxation</li> <li>• investment freedom, supported by Eurozone membership</li> <li>• necessity based entrepreneurship exceeds the European average</li> <li>• discontinuation of businesses due to lack of profitability</li> </ul>
<b>CLUSTER 3 „Prudentials”</b> <ul style="list-style-type: none"> <li>• property rights respected</li> <li>• business freedom</li> <li>• financial freedom</li> <li>• corruption under control</li> <li>• low fiscal freedom – high level of taxation</li> </ul>	<b>CLUSTER 4 „Moderates”</b> <ul style="list-style-type: none"> <li>• investment freedom lower than European average</li> <li>• „special case” - Greece (negative rate of survival)</li> </ul>

The table shows in a comparative format the particularities of the four clusters analyzed using the indicators that define Index of Economic Freedom. Based on these particularities, micro and macro level recommendations were provided.

### Conclusions and recommendations

The research results indicate that, although at EU level there is a common framework to support entrepreneurship (Commission of the European Communities, 2008) and an action plan (European Commission, 2013), significant differences between groups of countries were recorded. Thus, four distinct clusters in terms of entrepreneurial dynamics have been identified: Cluster 1 "Experimentalists" with high values of both nascent entrepreneurship rate and discontinuation of businesses rate; Cluster 2 "Ambitious" distinguished by a high nascent entrepreneurship rate and an ability to keep under control discontinuation of businesses rate; Cluster 3 "Prudentials" with rates below the European average for both variables; Cluster 4 "Moderates" at the EU average.

Analysing the relationship between entrepreneurship and macroeconomic factors, it can be observed that:

- Nascent entrepreneurship rate is determined mainly by fiscal freedom and investment freedom;
- Discontinuation of businesses rate is primarily influenced by business freedom.

The main problem of the *first cluster* of countries is the high business discontinuation rate. Consequently, they must reduce bureaucracy and costs supported by entrepreneurs regarding permits and compliance with various laws and regulations.

Regarding the *second cluster*, although it has the highest nascent entrepreneurship rate (generated by a large number of "necessity" entrepreneurs which lack the ability to develop high performing businesses), doubts regarding the quality of this phenomenon arise. Therefore, the recommendation is to invest in entrepreneurship education to develop knowledge, skills and attitudes essential for managing and developing businesses.

Given the fact that the *third cluster* is composed of the most powerful and advanced EU countries, the low nascent entrepreneurship rate represents a potential handicap for future development. Compared to statistics from the United States and Japan, the EU records lower scores on innovation (European Commission, 2014). A possible solution could be to stimulate entrepreneurship through a more relaxed fiscal policy directed towards innovative entrepreneurship.

Although countries in the *fourth cluster* have both entrepreneurial activity rates at the European average, stimuli for developing new businesses could be offered. This can be achieved, taking into account the specific macroeconomic conditions, through a more liberal investment policy which will boost, indirectly, the national entrepreneurship.

Although this research focused on the macroeconomic level, several *managerial implications* can be synthesized. First, it is important for the entrepreneur to identify and permanently develop the necessary skills for a sustainable business. Starting a business does not guarantee its survival. Secondly, even if the entrepreneurial initiative is generated out of necessity (such as lack of other employment opportunities), the entrepreneur must not copy other business ideas, but rather be concerned with doing things differently: a differentiated product, another way of working, a different type of customer, etc. Third, the entrepreneur should not be discouraged by any negative experience. Closing a business should not be seen only as an event with negative implications: the practical experience acquired can be re-used with success in starting another business.

*Limitations and future research directions.* A limitation of this research is the lack of information for three countries (Bulgaria, Cyprus and Malta) due to missing data in GEM reports. Future analyses could be extended to other non-EU countries to better understand global entrepreneurship.

Another limitation is the use of a limited number of macroeconomic factors (which form the Index of Economic Freedom) in profiling identified clusters. Future research could consider other macroeconomic indicators (such as Global Competitiveness Index, Doing Business Report, Global Entrepreneurship & Development Index), non-economic indicators (e.g. cultural indicators - World Values Survey), or microeconomic indicators (related to social and human capital).

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