

THE IMPACT OF THE ECONOMIC ENVIRONMENT ON ENTREPRENEURSHIP: EVIDENCE FROM EUROPEAN COUNTRIES

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Abstract: *The significant importance of entrepreneurship for the economic development, job creation and innovation have increased the concerns of researchers and decision makers at different levels for the understanding and investigation of the factors that could have an impact on the level of entrepreneurial activity. Our study aims to empirically investigate the impact of some main macroeconomic and business environment factors on the level of the entrepreneurial activity in 18 EU member states in the period from 2002 - 2014. Our research is based on the data provided by the Global Entrepreneurship Monitor (GEM) and by the World Bank and uses panel data estimation techniques. We took into consideration, as dependent variable for an econometric model, three indicators that are used as proxy variables of the level of entrepreneurial activity, namely: Total Entrepreneurial Activity rate, Nascent entrepreneurship rate, and New business ownership rate. We investigated eleven macroeconomic and business environment indicators, as the explanatory variables of our models, that could influence the level of the entrepreneurial activity in European countries: GDP growth, GDP per capita, unemployment, inflation, domestic credit to private sector by banks, fear of failure, entrepreneurial intentions, perceived capabilities, cost of business start-up procedures and time required to start a business. The empirical results highlight the fact that a large part of the explicative variables are significantly affecting the entrepreneurial activity, in agreement with the results of other empirical studies. Thus, the total entrepreneurial activity is influenced by unemployment rate, total tax rate, entrepreneurial intentions, perceived capabilities, cost of business start-up procedures and domestic credit to private sector. The other two dependent variables register some differences, however, overall, our study reveals that the key determinants of the entrepreneurial activity in the European countries under investigation are represented by total tax rate, the abilities of individuals and their attitudes towards entrepreneurship, cost and time needed to establish a new business, and access to sources of financing for firms.*

Keywords: entrepreneurial activity; determinants; EU countries; econometric model

JEL classification: L26; M13; C33

1. Introduction

There is an international consensus on the major role of entrepreneurship for economic development, job creation and innovation. The importance of entrepreneurship and its impact on economic growth are highlighted in many theoretical and empirical studies. Moreover, the public authorities in a series of countries aim to promote the entrepreneurial activity in order to develop national economies. According to the literature in the field (Wennekers et al., 2005; Van Stel et al., 2007; Danakol et al., 2014), the entrepreneurial activity is influenced by many factors, the most important of which being the level of development of national economy, the institutional environment, as well as national cultural

specificities. Understanding and examining these factors, both at country level and at the level of groups of countries, has an essential role in identifying adequate measures in order to support and develop the entrepreneurial activity.

The economic recession and the significant increase in unemployment, in the context of the recent international crisis, have renewed the researchers' interest on the role of entrepreneurship and its determinant factors. In this context, our study aims to empirically evaluate and identify the key determinants of the level of entrepreneurial activity for 18 EU member states, using data for the period 2002-2014. In order to meet this objective, we have structured our study as follows: section 2 is a literature review; section 3 presents the data collected, the variables examined and the methodology used; section 4 highlights and discusses the main results of our empirical study, and the last section includes concluding remarks.

2. Literature review

The analysis of the literature highlights the existence of a significant number of studies that examine, both theoretically and practically, the factors that have an impact on entrepreneurship in different countries or groups of countries.

Grilo and Thurik (2004) discuss the determinants of entrepreneurship, which are represented by factors that influence both the demand for entrepreneurship as well as the supply of entrepreneurs. On the other hand, the authors empirically investigate on a sample of countries (also including 15 EU member states) the impact of certain explanatory variables (socio-demographic variables, as well as the perception and preference variables) on entrepreneurship.

Thurik et al. (2008) examine the relation between self-employment and unemployment rates for a panel of 23 OECD countries in the period between 1974-2002. The empirical results indicate the fact that such a relation is both positive and negative. Thus, the changes in unemployment rates have a positive impact on subsequent variations of self-employment rates. On the other hand, the changes in self-employment rates have a negative impact on subsequent unemployment rates, this effect being stronger than the one previously mentioned.

Using regression methods, Kim et al. (2010) realized an empirical analysis on the impact of public policy (finance, labour, and tax policy) on entrepreneurial activity in the 28 countries in the OECD (of which 17 EU member states). Some of their main findings regard the fact that the government expenditure on economic affairs and education have an important role in promoting entrepreneurship, and that an increase in the public expenditure for stimulating start-ups increases the level of entrepreneurial activity.

Bosma and Schutjens (2011) also conducted an empirical analysis on the national and regional conditions on entrepreneurial attitude and activity for 127 regions across 17 European countries, for the period 2001-2006. The results of the study indicate the importance of certain economic and institutional factors, but also of demographic characteristics of variations in regional entrepreneurial attitude and activity.

Albulescu and Tămășilă (2014) investigated the influence of foreign direct investments (FDI) on the entrepreneurial activity in 16 European countries for the period 2005-2011. According to the results of their study, FDI do not have an impact on the overall entrepreneurial activity. However, the inwards FDI have a positive impact on opportunity-driven entrepreneurs, while outwards FDI have a positive impact on necessity-driven entrepreneurs.

A more recent study, which is of interest for the subject under investigation, is the one carried out by Sayed and Slimane (2014), who empirically analyse the economic and institutional determinants of the entrepreneurial activity in the case of 10 MENA and GCC countries, in the period 2004-2011. The results of their empirical analysis indicate the fact that the most important determinants of the entrepreneurial activity are represented by the

stage of economic development, population growth, employment, level of education, financial development, macroeconomic stability and technological development.

The literature review shows that there are few recent studies that have analysed the determinants of the level of entrepreneurial activity in EU member states. Thus, our study makes a significant contribution in the field by supplying empirical evidence on the key determinants of the entrepreneurial activity in 18 EU member states.

3. Data and methodology

The objective of our analysis is to test if the factors considered as independent variable, comprising of macroeconomic stability indicators, perceived abilities of individuals and the attitudes towards entrepreneurship, as well as opportunities of starting a firm, have an important impact on the entrepreneurial activity from the European countries.

The studies realized by Global Entrepreneurship Monitor (GEM) identify different ways of measuring entrepreneurial activity, of which we have considered three indicators that are used as proxy for the level of entrepreneurial activity, respectively: *Total Entrepreneurial Activity (TEA) rate*, *Nascent entrepreneurship rate (ner)*, and *New business ownership rate (nbor)*. Each of these indicators will be considered as a dependent variable for an econometric model. *TEA rate* represents the percentage of working age population who are either a nascent entrepreneur or owner-manager of a new business. *Nascent entrepreneurship rate* represents the percentage of 18-64 years population who are currently a nascent entrepreneur, while *new business ownership rate* represents the percentage of 18-64 years population who are currently owner-manager of a new business.

The entrepreneurship can be affected by a series of macroeconomic and business environment indicators, indicators that we have chosen as the explanatory variables of our models (see Table 1). The annual financial data for the explanatory variable and for the dependent variables are obtained from the GEM Key indicators (2015) and World Bank DataBank, for the period 2002-2014, for 18 European Union member countries (Belgium, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Portugal, Romania, Slovenia, Spain, Sweden, and United Kingdom). In selecting EU countries included in the sample we took into account the availability of data for the entire period. We used GEM data because the national-level indicators are harmonised, making it possible to make comparisons between countries regarding entrepreneurial activity.

Table 1: The explanatory variables of the model and the expected relationship

Explanatory variables (Abbreviation)	Measurement	Expected sign
GDP growth (gdp)	Annual percentage growth rate of GDP at market prices.	+
GDP per capita (gdpc)	Annual percentage growth rate of GDP per capita.	+
Unemployment (unempl)	The share of the labour force that is without work but available for seeking employment (% of total labour force).	- / +
Inflation (infl)	Annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or change at specific intervals (yearly).	- / +
Total tax rate (tax)	Taxes on income, profits and capital gains (% of commercial profits).	-

Domestic credit to private sector by banks (dcps)	Financial resources provided to the private sector by banks (as % of GDP).	+
Fear of failure (fof)	Percentage of working age population with positive perceived opportunities who indicate that fear of failure would prevent them from setting up a business	-
Entrepreneurial intentions (eint)	Percentage of working age population who intend to start a business within three years	+
Perceived capabilities (capab)	Percentage of working age population who believe to have the required skills and knowledge to start a business	+
Cost of business start-up procedures (cost)	Cost to register a business as a percentage of gross national income (GNI) per capita	-
Time required to start a business (time)	The number of days needed to complete the procedures to legally operate a business.	-

Source: processed by the authors based on the specialized literature

The growth of *Gross Domestic Product (GDP)* and *Gross Domestic Product (GDP) per capita* are important macroeconomic variables influencing the entrepreneurial activity. The explanation is that an increase in income can lead to an increased demand for a wide range of goods and services that would stimulate entrepreneurial activity, especially new business start-up (Grilo and Thurik, 2004; Vidal-Suñé and Lopez-Panisello, 2013). So, in our study we expected a positive relationship between GDP growth and entrepreneurship.

The conditions on the market have an important influence on entrepreneurial activity, so *unemployment rates* may affect start-up rates, and implicitly the entrepreneurial activity. According to the literature (Grilo and Thurik, 2004; Thurik et al., 2008; Bosma and Schutjens, 2011; Vidal-Suñé and Lopez-Panisello, 2013; Sayed and Slimane, 2014), there is no consensus on the influence of unemployment on entrepreneurship. Thus, on the one hand, the high rate of unemployment in times of economic recession may have a negative impact on the level of entrepreneurship, through a dramatic fall in demand for goods and services that reduce business opportunities. On the other hand, unemployment can have a positive impact because it determines a bigger number of persons to choose to become entrepreneurs, by starting their own business.

Another important macroeconomic factor considered a determinant of entrepreneurial activity is the *inflation rate*, which also does not have a clear impact on entrepreneurship. Thus, according to some studies (Vidal-Suñé and Lopez-Panisello, 2013; Sayed and Slimane, 2014), if the inflation increases, it can be recorded an increase in business opportunities because a higher level of prices for products and services can lead to increased expectations of the earnings of entrepreneurs. On the other hand, inflation can have a negative impact because it increases costs for starting a business (Salman, 2014). Therefore, the relationship between inflation and entrepreneurship can be either negative or positive.

Total tax rate is another important factor affecting entrepreneurial activity. In accordance with other studies (Djankov et. al., 2010; Vidal-Suñé and Lopez-Panisello, 2013; Salman, 2014), high tax rates have a negative impact on entrepreneurship because are an obstacle for starting new business and lead to a decrease in business activity. Thus, we expect a negative relationship between tax rates and entrepreneurial activity.

Between the most important factors affecting the entrepreneurial process we find the *ease of access to finance*. Taking into account the fact that in the European countries the credits obtained from banks are the most important source of external financing of the enterprises, we consider as an independent variable the percent of domestic credit to private sector offered by banks. An increase of the share of domestic credit to private sector offered by banks may reflect and easier access of the firms to bank financing, which has a positive impact on entrepreneurship, by stimulating new business start-up and sustaining the development of firms activity (Aghion et al., 2007; Vidal-Suñé and Lopez-Panisello, 2013; Sayed and Slimane, 2014). Thus, we expect a positive sign of the relationship.

Entrepreneurship is determined also by the abilities of individuals and the attitudes towards entrepreneurship. The variable *perceived capabilities* measures the skills and knowledge that the people wanting to start a new business consider they have. So, for this variable, we expect a positive sign. In accordance with Albulescu and Tămășilă (2014), the *fear of failure* negatively influences the option of entrepreneurs to start-up a new business, while the *entrepreneurial intentions* are positively correlated with the entrepreneurial activity in all cases, so we expect a positive sign.

The demand for entrepreneurship arises from the opportunities of starting a firm, including business environment characteristics, so for our study we want to test if *cost of business start-up procedures* (Bosma and Schutjens, 2011) and *time required to start a business* have a significant impact on entrepreneurship in European countries. Some studies (Aghion et al., 2007; Klapper et al., 2006; Klapper and Love, 2011) show that entry of the firms on the market is hampered by bureaucratic barriers such as: costs, procedures and time required to start a business and also by employment rigidity. For these variables we expect a negative influence on entrepreneurship.

In order to statistically analyze the data we first applied unit-root tests on every variable included in the panel data, to test if data is stationary and control for false relationships among variables. The null hypothesis is that all panels contain unit-root. This hypothesis was rejected in almost all the cases, for the cases that it was not rejected we tested also for the first or second difference. After that we have analyzed the descriptive statistic (see Table 2), the correlations between variables considered in the analysis and regression analysis using three different models – according to the dependent variables chosen (see Table 3). **To obtain the estimated coefficients of the regression models, calculations were made using EViews 7 computer package.**

4. Results and discussions

The descriptive statistics of the explanatory and dependent variables considered for our study (see Table 2) shows that the biggest standard deviation was observed for the domestic credit to private sector. This indicator has registered a medium level of 102%, for the EU countries included in the sample, and a significant disparity which indicates important differences between countries regarding their degree of financial development. Big changes were registered also for tax rate and time needed to start a new business. Also, the negative value for the minimum of GDP and GDP per capita, show that the European countries had a period of when their economic development was seriously affected. The most stable indicator was the level of inflation, which had the smallest standard deviation.

Table 2: The descriptive statistics of the influence factors

Variable	Min.	Max.	Mean	Std. deviation
<i>tea</i>	1.88	14.11	6.2144	2.1887
<i>ner</i>	1.06	8.71	3.6581	1.3867
<i>nbor</i>	0.44	6.26	2.6654	1.1345

<i>gdp</i>	-14.35	11.90	0.8558	3.6315
<i>gdpc</i>	-12.92	12.93	0.6284	3.6664
<i>unempl</i>	2.80	27.20	9.1858	4.3890
<i>infl</i>	-4.48	15.40	2.3809	2.0887
<i>tax</i>	18.40	76.70	44.5734	13.4627
<i>dcps</i>	0.22	202.19	102.0249	44.3502
<i>fof</i>	15.12	61.29	36.6470	7.1432
<i>eint</i>	1.55	31.70	9.5119	5.0599
<i>capab</i>	14.58	60.67	42.6784	7.8704
<i>cost</i>	0.00	22.50	5.8435	6.3375
<i>time</i>	2.50	70.00	14.5988	13.1200

Source: processed by the authors after E-views results

On the other hand, the descriptive statistics of the dependent variables show that TEA rates have the higher standard deviation, and the most stable indicator is new business ownership rate. TEA rate has resumed its upward trend, which was discontinued in 2009 and 2010 after the outburst of the financial crisis (see Figure 1). The same evolution was registered also for the nascent entrepreneurship rate and new business ownership rate.

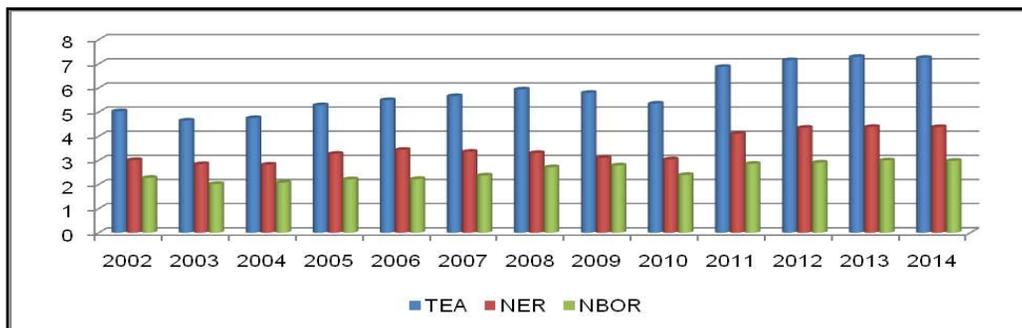


Figure 1: The evolution of indicators measuring entrepreneurship (in %)

Source: processed by the authors after GEM Key indicators (2015)

Before realizing the regression analysis, we have tested all the variables against autocorrelations. We have also taken into account the problem of multicollinearity. For our analysis we have considered the reference point for establishing a high correlation as being 0.80, according to Bryman and Cramer (2001). So, the results of the correlation test applied to our variables shows that there exists multicollinearity between some of the independent variables which may influence the results of our analysis. According to the considered reference point there exists multicollinearity between perceived capabilities and GDP, GDP/capita, tax rate, unemployment, inflation rate, entrepreneurial intentions, cost and time, and also between entrepreneurial intentions and GDP and GDP/capita, and between domestic credit to private sector, inflation rate, fear of failure and entrepreneurial intentions. So, in order to obtain accurate results in our analysis we have used separate models of regression, by eliminating the highly correlated variables.

Through the regression analysis we want to determine which of the considered indicators are between the main determinants for the entrepreneurial activity in the European countries. As we have mentioned, we use three models with three dependent variables: TEA rate, nascent entrepreneurship rate and new business ownership rate. The results of the regression model are presented in Table 3.

Based on the results of the static regression models and the statistically significant coefficients, we can conclude that total tax rate, unemployment rate, entrepreneurial

intentions, perceived capabilities, cost of business start-up procedures and domestic credit to private sector are the main determinants of total entrepreneurial activity. When we analyze the other two models we observe some differences, so the main determinants of nascent entrepreneurship rate are: total tax rate, unemployment rate, fear of failure, entrepreneurial intentions, perceived capabilities, the number of days needed to start a new business and domestic credit to private sector. The new business ownership rate is determined by total tax rate, entrepreneurial intentions, perceived capabilities and domestic credit to private sector.

Table 3: The results of the regression analysis

	<i>tea</i>		<i>ner</i>		<i>nbor</i>	
	<i>Coef.</i>	<i>Prob.</i>	<i>Coef.</i>	<i>Prob.</i>	<i>Coef.</i>	<i>Prob.</i>
<i>gdp</i>	-.305	.410	-.053	.778	-.184	.200
<i>gdpc</i>	.338	.397	.108	.584	.161	.280
<i>unempl</i>	.083***	.007	.092***	.000	-.009	.521
<i>infl</i>	.012	.896	0.020	.611	-.009	.564
<i>tax</i>	-.061***	.000	-.037***	.000	-.025***	.000
<i>dcps</i>	-.003*	.094	-.007***	.000	.004**	.018
<i>fof</i>	.029	.156	.021*	.096	.017	.994
<i>eint</i>	.254***	.000	.177***	.000	.079***	.000
<i>capab</i>	.118***	.000	.060***	.000	.060***	.000
<i>cost</i>	-.039**	.032	.006	.774	.009	.476
<i>time</i>	-.012	.157	-.015**	.014	.001	.797
Constant	7.418***	.000	5.451***	.000	3.406***	.000
F-test	5.20***	.000	28.64***	.000	6.77***	.000
R-squared	.4751		.5426		.2191	

*, ** and *** denotes that coefficients are significantly at the 90%, 95% and 99% level.

Source: processed by the authors after E-views results

We observe that the coefficients for the total tax rate are negative for all the models considered, so the tax rate is an important obstacle to entrepreneurial activity. This result is in agreement with our expectations and also with the findings of Klapper et al., 2006; Djanko et al., 2010; Salman, 2014; Sayed and Slimane, 2014.

Unemployment rate is statistically significant only for two models, and has a positive coefficient. So, the unemployment rate has an important influence on total entrepreneurial activity and nascent entrepreneurship rate. This result is in line with our expectations and according to the empirical studies mentioned.

Domestic credit to private sector has a statistically significant influence for all the models, but with different signs. For new business ownership rate the coefficient is positive, fact that shows that an increase in the share of loans provided by banks could indicate an easier access to financing, which could stimulate the creation of new businesses, in accordance with our expectations and with the empirical studies mentioned. For nascent entrepreneurship and total entrepreneurship rate the sign is negative, contrary to our expectations. However, we consider that one possible explanation could be that, in cases of decreases in loans provided by banks, the entrepreneurs, especially those from sectors that are less dependent on bank financing, turn to other sources of funding.

The abilities of individuals and their attitudes towards entrepreneurship have an important influence on entrepreneurial activity, according to our results. So, for all the models entrepreneurial intentions and perceived capabilities have a positive relationship with entrepreneurial activity, if entrepreneurial intentions and perceived capabilities are rising then entrepreneurial activity on the market will improve. These results are in accordance with our expectations. Fear of failure appears to be statistically significant only for nascent

entrepreneurship rate, but has a positive sign, not in accordance with our expectations and results of other studies.

Cost of business start-up procedures has a negative statistically significant influence on total entrepreneurship activity, in accordance with our expectations and the results of Aghion et al., 2007; Klapper et al., 2006, Klapper and Love, 2011. Time required to start a business has a negative statistically significant influence only on nascent entrepreneurship rate, although we would expect to influence new business ownership rate.

The other considered variables, such as GDP, GDP/capital and inflation rate have not statistically significant coefficients for either one of the three considered models. The effects of the considered variables combined had a medium impact on total entrepreneurship rate and nascent entrepreneurship rate as shown by R-squared value of around 50%, but for new business ownership rate the value of R-squared is relatively low. These results show that there are also other factors that may have an important influence on entrepreneurial activity and, especially, on the creation of new business on the market.

5. Conclusions

In our paper we have investigated eleven factors identified in the specialized literature that could influence the level of entrepreneurial activity in the 18 EU countries included in the analysis. The purpose of our study was to test the hypotheses and to offer evidence with respect to the impact of the considered indicators on total entrepreneurial activity, nascent entrepreneurship rate and new business ownership rate.

The empirical results of this research show that a part of the considered indicators are significantly affecting the entrepreneurial activity in the European Union countries, according to the results of other empirical studies. Thus, total entrepreneurial activity is influenced by unemployment rate, total tax rate, entrepreneurial intentions, perceived capabilities, cost of business start-up procedures and domestic credit to private sector. The other two dependent variables register some differences, so the nascent entrepreneurship rate is influenced by unemployment rate, total tax rate, fear of failure, entrepreneurial intentions, perceived capabilities, the number of days needed to start a new business and domestic credit to private sector, while new business ownership rate is determined by total tax rate, entrepreneurial intentions, perceived capabilities and domestic credit to private sector.

So, we can conclude that total tax rate, the abilities of individuals and their attitudes towards entrepreneurship, cost and time needed to establish a new business, and access to sources of financing for firms, are the most important factors affecting entrepreneurial activity in the 18 European Union countries analyzed.

The results of our study may be of interest for the policy makers, both at European and national level, in the context of the Europe 2020 Strategy, in order to adopt appropriate measures to promote and support entrepreneurship.

Given the importance of the approached subject, in future studies we aim at including in the analysis a bigger number of determining factors, the need for this procedure being observed when analyzing the values obtained for R-squared.

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