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Entrepreneurship and Business Environment: Effects of Regulations in European Countries

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ABSTRACT

Our paper analyses the link between business regulations and entrepreneurship and investigates how certain areas of business regulation affect the dynamics of creating new firms. Moreover, we aim to identify which indicators of business regulation would be most relevant for supporting and promoting entrepreneurship. The study focuses on a sample of European countries, uses panel-data estimation techniques and targets a period of seventeen years (2003-2019). In our empirical analysis, the dependent variable is alternately represented by three indicators that measure the forms of early-stage entrepreneurship. Regarding the independent variables included in the analysis, we use as proxies of business regulations different quantitative measures for six areas of business regulation. In addition, to ensure accuracy of results, we include a set of control variables, such as GDP per capita, population growth, and the educational level. The results of our empirical investigation show that regulations on starting a business, registering property, and enforcing contracts would be the most important predictors of setting up new firms in European countries analysed. Through its content, the paper underlines the vital need for improving business regulations to encourage entrepreneurship and implicitly to improve the macroeconomic performance of countries. The findings of our research may be of interest to researchers, concerned with examining the determinants of entrepreneurship evolution, and to policymakers, who should give priority to identifying appropriate measures that target those areas of business regulation that would have the greatest effect on the creation of new firms.

INTRODUCTION

Identifying the factors that affect the creation and growth of new businesses is a topic of major interest for both researchers and policy-makers because new businesses are considered vital for the growth and economic development of countries. Several studies (such as: Desai et al., 2005; Sobel, 2008; Urbano & Alvarez, 2014; Chowdhury et al., 2015; Fuentelsaz et al., 2015) have argued that institutional factors, including regulations on the business environment would be a key factor that could explain the level of entrepreneurial activity, both within a country and across countries. One of the most significant contributions to highlighting the role of institutions in stimulating entrepreneurship and economic growth is the economist William Baumol (1990). His research has led to a growing interest in researchers to examine the role of the institutional environment in influencing entrepreneurship.

An important component of the institutional environment that has a fundamental role in stimulating entrepreneurship and economic growth is business regulatory. Ensuring a sound and healthy business regulatory environment is widely considered to be crucial for the economic development of countries. Such a finding has led several institutions to develop specific indicators to measure different dimensions of regulations. Among the most popular indicators, which measure how regulations support or prevent starting and running a business in different countries, are the World Bank Group's Doing Business Indicators. They mainly assess the ease of doing business and cover ten dimensions of business regulation, namely: regulations on starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency (World Bank, 2016, p. 20). Their usefulness is given by the fact that they allow governments to assess the health of the regulatory framework and provide them with benchmarks for reform and better regulation.

In this paper, we aim to investigate how certain areas of business regulation affect the dynamics of creating new firms in 22 European countries over the period 2003–2019. Moreover, we aim to identify which business regulation indicators would be most relevant for supporting and promoting early-stage entrepreneurs. Our study aims to contribute to the expansion of empirical knowledge on the impact of business regulation on entrepreneurship by providing empirical evidence on how some aspects of business regulation influence the early-stage entrepreneurship including its forms. The remainder of this paper is structured as follows: section 1 briefly reviews the literature on the relationship between business regulation and entrepreneurial activity; in section 2, we describe the data, the variables examined and the methodology used; section 3 discusses the main findings of our empirical study. Finally, our study highlights some relevant conclusions and future lines of research.

1. LITERATURE REVIEW

In this section, we briefly present the findings of previous research regarding the influence of some components of business regulation (included in our econometric model) on the dynamics of entrepreneurship in different countries. Although the literature on entrepreneurship and business regulation is relatively young, we find that an increasing number of researchers are concerned with analyzing the relationship between changes in business regulation and entrepreneurship. From the work of Djankov et al. (2002), several studies have analyzed and tested how changes in different dimensions of business regulations affect entrepreneurship and especially the creation of new businesses. Based on a data set of start-up firms from 75 countries, Djankov et al. (2002) find that stricter regulation of new business creation would be associated with a higher level of corruption and a larger size of unofficial economy. Sobel (2008) points out that countries with strong institutions that provide high protection of property rights, an efficient judicial system, contract enforcement, and effective regulation of the tax system would have a higher level of productive entrepreneurship.

A large body of literature analyzed the effect of entry requirements and the burden of complying with government regulations on entrepreneurship. Fonseca et al. (2001) showed, with reference to OECD countries, that few people choose to enter entrepreneurship given that the costs of starting a business are high. Similarly, Ardagna & Lusardi (2008) pointed out that in countries with burdensome regulations, people who do not work are less likely to become entrepreneurs. Using data for a sample of European

firms, Klapper et al. (2006) argue that excessive entry regulations deter the creation of new businesses. In addition, Klapper and Love (2010) find that business registration reforms can only lead to an increase in the number of newly created companies if the reforms are significant. Some authors (e.g. Dreher and Gassebner, 2013; Dutta and Sobel, 2016) have pointed out that stricter regulations regarding the entry of firms in the markets discourage the creation of new businesses, but this negative impact is mitigated in conditions where corruption is high.

Paying taxes is another broad area of regulation investigated by more and more researchers, who have been concerned with examining how this type of regulation would influence the creation of new businesses. For instance, Chowdhury et al. (2015) found that higher taxes would strongly hinder the new business from entering the market. Bacher and Brühlhart (2013) showed that high taxes and complicated tax codes would lead to lower firm birth rates while tax progressivity would promote the creation of new businesses. More recent research (Braunerhjelm et al., 2019) finds that the influence of tax administrative burden would be different depending on the stages of the entrepreneurial life cycle. Thus, the authors find that the strongest negative effects would be in the case of early-stage entrepreneurship.

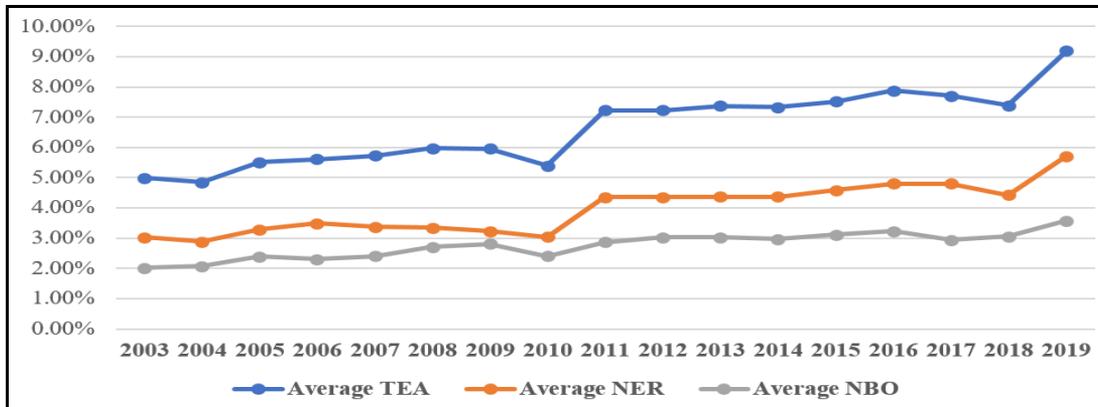
An essential role in promoting entrepreneurship, business environment development and economic growth is also played by efficient contract enforcement. According to some authors (e.g. Dam, 2006), economies that have an efficient judicial system would register a higher economic growth and an improvement of the business environment. Also, several studies (such as: Desai et al., 2005; Ardagna and Lusardi, 2008) have argued that the efficiency of the judicial system is associated with a person's decision to start a new business. Using data for a sample of firms from European countries, some researchers (Safavian and Sharma, 2007; Moro et al., 2018) have shown that in countries where the creditor protection is high and the judicial enforcement system is high quality, firms have easier access to bank financing, which would allow them to develop and grow. From the perspective of insolvency regulations, some studies (e.g. Lee et al., 2011) have argued that countries that have bankruptcy laws that are more friendly to entrepreneurs would have higher rates of starting new businesses. Our study adds to the existing literature on the relationship between business regulations and entrepreneurship by providing empirical evidence on the influence of several indicators of business regulation on early-stage entrepreneurship.

2. DATA AND METHODOLOGY

Our study analysis empirically the link between business regulations and the early-stage entrepreneurship. Taking into account the availability of data on entrepreneurship, we have chosen a sample of 22 European countries (namely: Belgium, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom) and a period of analysis that covers seventeen years (2003-2019).

In our empirical analysis, the dependent variable is represented alternatively by three indicators that measure the forms of early-stage entrepreneurship, respectively: total early stage entrepreneurial activity rate (TEA), nascent entrepreneurship rate (NER) and new business ownership rate (NBO).

Figure 1. The dynamics of average TEA, NER and NBO, between 2003 and 2019



Source: authors' own calculations after Global Entrepreneurship Monitor (2020).

The annual data for this indicators are obtained from the Global Entrepreneurship Monitor database (2020), and their evolution is exposed in Figure 1. Our focus on this type of entrepreneurship would be justified by the fact that it is of major importance for the economy of a country because the entrepreneurs involved in this phase of entrepreneurial activity are expected to create jobs and innovation. From Figure 1, we observe that new business creation decreased in the period of the recent financial crisis, 2009 and 2010. Starting from 2011, the early entrepreneurship rates had an increasing trend, with a slightly decrease in 2013 and one decrease in 2018. At the end of the period analysed (in 2019), TEA has increased with 85% compared with the year 2003, while NER has increased with 89%, while NBO has increased with 77%.

Regarding the independent variables included in the analysis, we use as proxies of business regulations different quantitative measures for six areas of business regulation, namely: starting a business, registering property, getting credit, paying taxes, enforcing contracts, and resolving insolvency (see Table 1). We focus on these components because previous studies have found that they would have an impact on the dynamics of setting up new firms and growing existing ones. In addition, they would be some of the most important regulatory constraints in different countries. For measuring the regulations of the business environment, we focus on the “Doing Business” project of the World Bank, which takes into consideration ten quantitative indicators (each with a set of sub-indicators) for evaluating the ease of doing business in a country. In our study, we considered, in particular, the forms of early stage entrepreneurship so that for the case of regulations focused on starting a business, we have considered three main measures of these regulations, respectively number of procedures, time, and costs. Comparatively, for each of the other five types of regulations, we considered the value of the general index, which measures the quality of business regulations for those regulatory areas.

Besides the explanatory variables, we include in our model some control variables that might influence the level of entrepreneurial activity from a country and which have been used in several empirical studies. We considered GDP per capita as it measures the degree of economic development of countries and has significant effects on entrepreneurship, as numerous studies in the field have shown (Van Stel et al., 2007; Dvouletý, 2017). We also included the population growth and the level of education, because they are important factors that influence entrepreneurship (Urbano and Alvarez, 2014; Dutta and Sobel, 2016). All the variables included in the econometric investigation are described in Table 1.

The studies in the field (e.g. Fonseca et al., 2001; Van Steel et al., 2007; Klapper and Love, 2010) have shown the importance of business regulations for promoting the start of new firms, and pointed out that the start-up costs, time and procedures needed for starting a business affects the creation of new firms. Also, they pointed out that substantial business registration reforms can determine the increase in the number of newly created firms. Another important dimension of business regulations included in our study and which would facilitate entrepreneurship is property registration. With regard to this indicator, it should be noted that the simplification of administrative procedures for the registration of property and

the improvement of the quality of the land administration system would be positively associated with the creation of new businesses. In economies that have a good land administration system, property transfers are faster and less expensive. In summary, we appreciate that the ease of registering property would have positive effects on early-stage entrepreneurship because it would improve access to credit for early-stage entrepreneurs.

Table 1. Description of the variables

<i>Variable</i>	<i>Symbol</i>	<i>Description</i>	<i>Unit of measurement</i>	<i>Data sources</i>
<i>Dependent</i>				
Total early-stage entrepreneurial activity rate	TEA	The percentage of 18-64 population that are in the process of starting or who have just started a business. The TEA rate comprises nascent entrepreneurs and new business owners.	%	GEM Key indicators
Nascent entrepreneurship rate	NER	Percentage of 18-64 population who are currently a nascent entrepreneur (i.e., actively involved in setting up a business they will own or co-own).	%	GEM Key indicators
New business ownership rate	NBO	Percentage of 18-64 population who are running new businesses that have been in operation between 3-42 months.	%	GEM Key indicators
<i>Explanatory</i>				
Start-up procedures to register a business	Proc	Are those required to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations.	number	Doing Business database
Time required to start a business	Time	The number of days needed to complete the procedures to legally operate a business.	number of days	Doing Business database
Cost of business start-up procedures	Cost	Cost to register a business as a percentage of gross national income (GNI) per capita.	% of GNI per capita	Doing Business database
Property registration index	Propreg	The score for registering property is the simple average of the scores for each of the component indicators: the procedures, time, cost to transfer property between two local companies, as well as the quality of land administration system.	0 - 100	Doing Business database
Getting credit index	Getcred	The score for getting credit benchmarks economies with respect to the regulatory best practice on the indicator set. The score is indicated on a scale from 0 to 100 (0-the worst regulatory performance; 100- the best regulatory performance).	0 - 100	Doing Business database
Paying taxes index	Paytax	The score for paying taxes is the simple average of the scores for each of the component indicators, respectively the payments, time and total tax and contribution rate for a firm to comply with all tax regulations.	0 - 100	Doing Business database
Enforcing contracts index	Encontr	The score for enforcing contracts is the simple average of the scores for each of the component indicators: time and cost for resolving a commercial dispute as well as the quality of judicial processes.	0 - 100	Doing Business database
Resolving insolvency index	Resinsolv	The score for resolving insolvency is the simple average of the scores for each of the component indicators: the time, cost and outcome of insolvency proceedings as well as the strength of the legal framework for insolvency.	0 - 100	Doing Business database
<i>Control</i>				
GDP per capita growth	Gdpc	Annual percentage growth rate of GDP per capita based on constant local currency.	%	World Bank Open data
Population growth	Pop	Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t.	%	World Bank Open data
Educational level	Educ	The percentage of people aged 25-64 who have successfully completed at least upper secondary education.	%	Eurostat

Source: processed by the authors based on the information provided by the data sources.

The getting credit indicator quantifies the effectiveness of movable collateral laws and credit information systems in facilitating lending. Higher values of this indicator indicate easier access to credit so that the expected influence on entrepreneurship is positive (Van Steel et al., 2007). In the case of the “Paying taxes” indicator, the expected impact on early-stage entrepreneurial activity would be negative because the high level of taxes and mandatory contributions, as well as the administrative burdens related to their payment, would discourage entrepreneurs. The enforcing contracts indicator expresses the efficiency of the judicial system in resolving a commercial dispute and the quality of judicial processes. Therefore, this indicator would positively influence the entrepreneurs in the conditions in which there is a reduction of time and cost for resolving commercial disputes, but also an increase in quality and efficiency in the commercial court system. The analysis conducted by the World Bank (2016) shows that economies that have implemented more judicial good practices tend to have a quick and less expensive settlement of commercial disputes. Under these conditions, it would ensure increased access to justice for businesses and individuals.

An essential role for economic growth and entrepreneurship development is also played by solid insolvency regulations, which promote predictability for both creditors and entrepreneurs (World Bank, 2014). This regulatory variable shows the efficiency of the insolvency system (expressed by recovery rate) and its quality (given the extent to which insolvency laws are in line with internationally recognized good practices). Considering the statements and the results obtained in the literature, we formulated the following hypothesis:

Hypothesis 1: Higher administrative burdens regarding starting a business are related to lower levels of new business start-up.

Hypothesis 2: Efficient and quality of business regulations have significant effects on early stage forms of entrepreneurship.

For the data analysis, we apply panel data regression models on our sample of 22 European countries. We have three regression models where our dependent variable is, in turn, TEA, NER and NBO. The regression contains fixed effects because they are most suited for analysing the factors that influence entrepreneurship. The general equation of our models is presented below:

$$y_{it} = X_{it} \beta_1 + Z_{it} \beta_2 + \alpha_i + u_{it} \quad (1)$$

where: i represents each one of 27 countries included in the analysis and t is time (2003...2019); y_{it} is the dependent variable; X_{it} : the indicators measuring business regulations; Z_{it} : the control variables; β_1 and β_2 : represent the coefficients; α_i : expressed the unobserved time-invariant individual effect; u_{it} : is the error term.

Our three specific models are defined through the following equations:

$$TEA_{it} = X_{it} \beta_1 + Z_{it} \beta_2 + \alpha_i + u_{it} \quad (2)$$

$$NER_{it} = X_{it} \beta_1 + Z_{it} \beta_2 + \alpha_i + u_{it} \quad (3)$$

$$NBO_{it} = X_{it} \beta_1 + Z_{it} \beta_2 + \alpha_i + u_{it} \quad (4)$$

The empirical analysis presupposes the analysis of the descriptive statistics and of the correlation matrix, followed by the panel data regression analysis.

3. RESULTS AND DISCUSSIONS

The findings regarding the descriptive statistics of the variables included in the analysis are described in Table 2. The results emphasize the existence of significant variations for several variables. The

variables measuring the business regulations vary significantly across countries and the period considered. Thus, from the regulations applied to starting a new business, the cost for register a business varies most, between a minimum of zero in France (2004-2019), Greece (2013-2019), Ireland (2003-2019), Italy (2014-2019), Latvia (2011-2019), Netherlands (2013-2019), Portugal (2011-2019) and United Kingdom (2003-2019); and a maximum of 247% of GNI in Poland, in 2004. The time needed for starting a new business varies between a minimum of 3.5 days in Denmark (2015-2019), France (2016-2018) and Netherlands (2014-2019), and a maximum of 138 days in Spain, in 2003. The number of procedures required to open a new business varies less, compared to the first two variables, and takes values between 2 procedures needed in Slovenia (in 2010) and 15 procedures in Greece, between 2003 and 2010.

Table 2. Descriptive statistics of the variables

	<i>Mean</i>	<i>Median</i>	<i>Max.</i>	<i>Min.</i>	<i>Std. Dev.</i>	<i>Obs.</i>
TEA	6.728	6.311	15.430	1.629	2.457	310
NER	4.016	3.747	10.500	0.891	1.646	309
NBO	2.850	2.707	6.500	0.328	1.167	306
Proc	6.224	6.000	15.000	2.000	2.613	374
Lproc	1.744	1.791	2.708	0.693	0.414	374
Time	17.875	12.500	138.000	3.500	17.573	373
Ltime	2.554	2.525	4.927	1.252	0.783	373
Cost	21.817	13.800	247.400	0.000	30.427	373
Lcost	2.911	2.983	5.511	-0.916	1.056	284
Propreg	71.938	74.500	94.400	33.900	14.955	330
Getcred	65.783	68.800	100.000	25.000	16.717	330
Paytax	78.437	79.550	95.300	44.700	11.000	308
Encontr	66.308	67.850	83.400	34.500	9.844	352
Resinsolv	70.570	75.950	93.900	36.400	14.449	352
Gdpc	1.709	1.668	23.985	-12.810	3.482	352
Pop	0.274	0.297	2.890	-2.081	0.669	352
Educ	75.243	79.000	92.400	22.700	13.594	352

Source: own calculations.

The worst regulatory performance for the getting credit index was registered in Croatia (in 2005) and Slovenia (2009-2011). While the best regulatory performance was obtained in United Kingdom between 2004 and 2015. For the property registration index, the regulatory performance varies between worst values of 33 in France (2007) and best values of 94 in Norway (2005-2007). Resolving insolvency index has the standard deviation value similar to that of the previous index, and records minimum values in Greece (2004) and maximum in Finland (2004 and 2017). Paying taxes and enforcing contracts indexes have smaller variations but still significant. Therefore, for the paying taxes index the worst regulatory performance was registered in Romania (44) while the best regulatory performance was obtained in Ireland (2006-2015, 95). Enforcing contracts index varied between 34 in Italia (2004-2006) and 83 in Latvia (2006-2009).

All these results show the important differences that appear between the countries in the sample regarding the regulation of the business environment. Even between countries with close levels of economic development, there are significant differences in terms of business regulations. For this reason, we believe that identifying the impact of business regulations on entrepreneurship, and especially on the one in the early stages, is important.

To normalize the variables explaining the procedure, time and cost, and to compare them with the other variables expressed as indexes, we calculated logarithm for these variables. As can be observed from Table 2 the logarithmic variables have smaller standard deviations. Before proceeding with the econometric analysis of the data we tested the variables to identify whether they are highly correlated.

Table 3. Correlation matrix of the variables considered in the analysis

	TEA	NER	NBO	LPROC	LTIME	LCOST	PROPREG	GETCRED	PAYTAX	ENCONTR	RESINSOLV	GDPC	POP	EDUC
TEA	1.000													
NER	0.899	1.000												
NBO	(0.000)	(0.000)	1.000											
LPROC	0.100	0.120	0.038	1.000										
LTIME	(0.182)	(0.112)	(0.608)	0.212	0.240	0.097	0.460							
LCOST	(0.004)	(0.001)	(0.198)	(0.000)	(0.000)	1.000								
PROPREG	-0.172	-0.154	-0.138	0.057	0.032	(0.021)	(0.040)	(0.006)	(0.449)	(0.670)	1.000			
GETCRED	0.312	0.236	0.318	-0.233	0.003	-0.244	1.000							
PAYTAX	(0.000)	(0.001)	(0.000)	(0.001)	(0.963)	(0.001)	(0.000)	0.490						
ENCONTR	0.165	0.144	0.148	0.056	0.161	-0.356	(0.000)	1.000						
RESINSOLV	(0.027)	(0.056)	(0.049)	(0.452)	(0.032)	(0.000)	(0.000)	0.282	1.000					
GDPC	0.012	-0.057	0.105	-0.309	-0.194	0.374	0.127	0.431	0.333	1.000				
POP	(0.866)	(0.451)	(0.162)	(0.000)	(0.009)	(0.000)	(0.000)	(0.998)	1.000	(0.000)	1.000			
EDUC	0.001	-0.023	0.047	-0.194	-0.224	-0.043	0.127	0.431	0.333	(0.000)	(0.000)	1.000		
	(0.979)	(0.759)	(0.531)	(0.009)	(0.002)	(0.566)	(0.090)	(0.000)	(0.000)	(0.000)	(0.000)	(0.615)	1.000	
	-0.316	-0.348	-0.132	-0.291	-0.186	0.081	0.231	0.095	0.317	0.295	-0.038	0.468	-0.155	
	(0.000)	(0.000)	(0.079)	(0.000)	(0.013)	(0.280)	(0.002)	(0.208)	(0.000)	(0.000)	1.000	(0.000)	(0.039)	1.000
	0.062	0.140	-0.067	-0.039	0.132	-0.005	0.074	0.038	-0.106	0.098	-0.038	(0.615)	1.000	
	(0.411)	(0.062)	(0.370)	(0.607)	(0.079)	(0.944)	(0.326)	(0.608)	(0.158)	(0.194)	(0.615)	1.000		
	-0.186	-0.240	-0.037	-0.171	-0.105	0.203	0.224	-0.096	0.346	-0.036	0.468	-0.155		
	(0.013)	(0.001)	(0.617)	(0.022)	(0.161)	(0.006)	(0.002)	(0.204)	(0.000)	(0.630)	(0.000)	(0.039)	1.000	
	0.310	0.386	0.094	-0.393	-0.028	0.052	0.287	0.285	0.323	0.333	-0.009	0.175	-0.112	
	(0.000)	(0.000)	(0.214)	(0.000)	(0.704)	(0.485)	(0.000)	(0.000)	(0.000)	(0.000)	(0.898)	(0.020)	(0.137)	1.000

Source: own calculations

Table 4. Effects of business regulations on early-stage entrepreneurship Note: *, ** and *** represents significant values at 10%, 5% respectively 1%.

	Variable TEA (Model A)			Variable NER (Model B)			Variable NBO (Model C)		
	1	2	3	1	2	3	1	2	3
Procedures (log)	-0.781**	-	-	-0.654***	-	-	0.016	-	-
Time (log)	(0.381)	-	-	(0.279)	-	-	(0.159)	-	-
Cost (log)	-	-0.381**	-	-	-0.200*	-	-	-0.101	-
	-	(0.180)	-	-	(0.117)	-	-	(0.125)	-
	-	-	-0.180*	-	-	0.004	-	-	-0.110*
	-	-	(0.249)	-	-	(0.188)	-	-	(0.141)
Property registration index	0.071***	0.071***	0.063***	0.045***	0.046***	0.044***	0.027**	0.027**	0.020
Getting credit index	(0.018)	(0.019)	(0.021)	(0.010)	(0.009)	(0.010)	(0.012)	(0.012)	(0.014)
Paying taxes index	0.019	0.009	-0.008	0.002	0.004	-0.008	0.002	0.003	0.001
Enforcing contracts index	(0.012)	(0.012)	(0.021)	(0.008)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)
Resolving insolvency index	0.030	0.029	0.025	0.004	0.003	0.001	0.019	0.018	0.028
GDP per capita growth	(0.021)	(0.021)	(0.025)	(0.012)	(0.013)	(0.018)	(0.013)	(0.013)	(0.018)
Population growth	1.040***	1.043***	0.858***	0.498***	0.501***	0.328**	0.466***	0.486***	0.421**
Educational level	(0.283)	(0.284)	(0.288)	(0.139)	(0.137)	(0.138)	(0.154)	(0.168)	(0.168)
Constant	0.174***	0.129***	0.082	0.081***	0.049	0.069*	0.028	0.018	-0.008
	(0.034)	(0.035)	(0.085)	(0.029)	(0.032)	(0.038)	(0.020)	(0.018)	(0.043)
Observations	-6.961**	-4.545	-0.535	-4.661*	-0.215	-3.578	-1.851*	-1.033	-2.803
Adjusted R-squared	(3.035)	(3.404)	(4.008)	(2.544)	(2.734)	(2.482)	(0.984)	(1.275)	(1.979)
	0.854	0.852	0.578	0.844	0.838	0.820	0.527	0.528	0.365

Source: own calculations.

From the results obtained in Table 3, we observe that only NER and NBO are highly correlated with TEA (coefficient of correlation higher than 0.70), which was expected given that the two are components of TEA. The other variables considered are not strongly correlated with each other, which allows us to move to the next step in econometric analysis, applying regression models. Because time, costs and number of procedures are components of the starting business index, we decided to apply different models for each of these variables.

Table 4 presents the results of the link between business regulations and early-stage entrepreneurship.

For Model A, we find that all the three components of the starting a business index would influence negatively and statistically significant the total early stage entrepreneurship rate. Therefore, increased number of days, procedures and also increased costs will discourage the creation of new firms. These results are in accordance with our theoretical predictions and also with the findings of some empirical studies which have shown that regulations regarding starting a business represents an important constraint for entrepreneurs (Fonseca et al., 2001; Klapper et al., 2006; Van Steel et al., 2007; Klapper and Love, 2010; Dreher and Gassebner, 2013; Dvouletý, 2017).

Model B has the dependent variable the nascent entrepreneurship rate. For this model only the procedures and time have a negative and statistically significant relation with starting a new business. This shows that an increased number of the procedures and days need to start a new business will have negative effects on starting new firms.

Model C considers as the dependent variable the new business owners rate (NBO). In this case, only the cost of business start-up procedures would be a significant predictor of young business dynamics. The coefficient of the regulatory variable indicates a negative and significant association with NBO. Because this type of entrepreneurs has moved beyond the nascent stage, and they have already been active for more than three months, in their case the procedures and the time required to set up a new business have been exceeded and they are not important, so they are only influenced by the level of costs involved. Therefore, increased costs will have negative effects on new business owners rate.

Analyzing the impact of other regulatory variables on the dynamics of new business creation, our results show that only regulations on property registration and enforcing contracts could be significant predictors of the dynamics of entrepreneurship for all three models. The positive and significant relationship between property registration and early stage forms of entrepreneurship shows that transparent and clear property rights and also property security will encourage new entrepreneurs by raising their confidence and will lead to improved access to credit (Estrin et al., 2013). Similar results were obtained by Chowdhury et al., (2015), Fuentelsaz et al. (2015). The data in Table 4 indicate, in particular, that a 10 percentage point improvement in the property registration indicator is associated with an increase of 0.71 percentage points an early stage entrepreneurship rate. At the same time, we find a statistically negative and significant association between the enforcing contracts indicator and all three types of entrepreneurs. Such a result would indicate that an increased number of days and higher costs for resolving a commercial dispute, but also a poor quality of judicial processes could deter people involved in starting a new business, including young entrepreneurs. The results support our hypotheses and are consistent with those of Ardagna and Lusardi (2008). Efficient and transparent courts encourage the creation of new business together with the development of new relationships because the entrepreneurs are thus insured that they can rely on the courts if a new customer fails to pay. The negative coefficient obtained for the enforcing contracts index points out the need of early-stage entrepreneurs to be offered a speed in resolving trade conflicts and an increased degree of transparency of the courts that resolve these conflicts. Under these conditions, the easiness in enforcing contracts would have a positive impact on the creation of new businesses and the growth of young ones.

The other regulatory variables considered in our analysis have resulted to have no statistically significant influence on early-stage entrepreneurs. Under these conditions, the mentioned entrepreneurs may be motivated by necessity or opportunity.

Regarding the control variables, we find first of all that the rate of population growth is positively and very strongly associated with the formation of new businesses, supporting the findings of some empirical

studies (such as: Sayed and Slimane, 2014). Such an impact would be explained by the fact that population growth could offer new opportunities for the development of new businesses, as a result of the increased demand for goods and services. We also find that the level of education has a positive and significant impact on TEA and NER (consistent with Estrin et al., 2013), which would be explained by the fact that the knowledge gained by individuals in formal education would allow them to identify various business opportunities that would encourage them to create new firms. In the case of the GDP per capita control variable (GDPC), we notice a negative and significant association between GDPC and NBO. One possible explanation would be related to people who entered entrepreneurship for reasons of necessity and who in the absence of work alternatives will consider that the only solution for survival would be to run their own business (Fuentelsaz et al., 2015). On the other hand, we find that the GDPC variable would have a positive and significant influence on NER, in accordance with our expectations, but also with the results of some studies (Van Stel et al., 2007). Higher growth rates would reflect increased demand for goods and services, which would create more opportunities for starting a new business.

The values obtained for adjusted R-squared for model A took values between 57% and 65%, which indicates that about 60% of the TEA variation for the period considered is explained by the changes that took place during this period at the level of business regulations. For model B adjusted R-squared took values between 62% and 64%, showing that about 60% of the NER variation between 2003 and 2019 is explained by the changes business regulations. For model C we obtained slightly lower values, adjusted R-squared taking values between 36% and 52% and showing that around 40% of the variation in NBO is explained by the changes in business regulations.

CONCLUSION

Our study aimed to examine the impact of some dimensions of business regulation on the dynamics of creating new firms in 22 European countries over the period 2003-2019.

Our empirical analysis shows that not all areas of business regulation would significantly affect the creation of new firms. Thus, the results indicate that the indicators starting a business, registering property, and enforcing contracts would be the most important predictors of the dynamics of new business creation in the European countries included in the sample. Regarding the regulations regarding starting a business, our research shows that they would significantly influence TEA. But, when we analyse the two components of TEA, we obtain important differences depending on the stage in which the new business is. Based on these findings, we emphasize that as policy makers seek to improve TEA, they should be concerned that the regulations on starting a business to be more friendly to entrepreneurs. In the case of property registration and enforcing contracts, the magnitude of the coefficients would highlight the importance of sound regulations to stimulate the formation of new businesses.

Overall, our results show that given that it is easier and less costly to do business more people would be encouraged to start a new business and more of the existing firms would be encouraged to expand.

Through its content, the paper may be of interest to decision makers, concerned with identifying appropriate measures to target those areas of the business regulatory environment that would have the greatest effect on the creation of new firms.

The limits of our investigation come from the relatively small number of European countries considered in the sample that are related to the availability of data on entrepreneurship. In order to extend the sample, in the future we should consider other indicators for measuring entrepreneurship whose data will be available for a larger number of countries. We also consider that it would be of interest to examine whether business regulations effects on entrepreneurship differ according to the level of economic development of the countries, but also depending on the motivations for starting a new business.

REFERENCES

- Ardagna, S., Lusardi, A. (2008), "Explaining international differences in entrepreneurship: The role of individual characteristics and regulatory constraints", *NBER Working Paper*, No. W14012, National Bureau of Economic Research, Cambridge, MA.
- Bacher, H. U., Brühlhart, M. (2013), "Progressive taxes and firm births", *International Tax and Public Finance*, Vol. 20, No. 1, pp. 129-168.
- Baumol, W. J. (1990), "Entrepreneurship, productive, unproductive, and destructive", *Journal of Political Economy*, Vol. 98, No. 5, pp. 893-921.
- Braunerhjelm, P., Eklund, J. E., Thulin, P. (2019), "Taxes, the tax administrative burden and the entrepreneurial life cycle", *Small Business Economics*, pp. 1-14.
- Chowdhury, F., Terjesen, S., Audretsch, D. (2015), "Varieties of entrepreneurship: institutional drivers across entrepreneurial activity and country", *European Journal of Law and Economics*, Vol. 40, No. 1, pp. 121-148.
- Dam, K. W. (2006), "The Judiciary and Economic Development. University of Chicago Law & Economics", *Olin Working Paper*, No. 287, <http://ssrn.com/abstract=892030> (accessed 03 March 2020).
- Desai, M., Gompers, P., Lerner, J. (2005), "Institutions, capital constraints and entrepreneurial firm dynamics: evidence from Europe", *Harvard NOM Working Paper*, No. 03-59, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=479982 (accessed 03 March 2020).
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A. (2002), "The regulation of entry", *The quarterly Journal of economics*, Vol. 117, No. 1, pp. 1-37.
- Dreher, A., Gassebner, M. (2013), "Greasing the wheels? The impact of regulations and corruption on firm entry", *Public Choice*, Vol. 155, No. 3/4, pp. 413-432.
- Dutta, A., Sobel, R. (2016), "Does corruption ever help entrepreneurship?", *Small Business Economics*, Vol. 47, No. 1, pp. 179-199.
- Dvouletý, O. (2017), "Determinants of Nordic entrepreneurship", *Journal of Small Business and Enterprise Development*, Vol. 24, No. 1, pp. 12-33.
- Estrin, S., Korosteleva, J., Mickiewicz, T. (2013), "Which institutions encourage entrepreneurial growth aspirations?", *Journal of Business Venturing*, Vol. 28, No. 4, pp. 564-580.
- European Commission (2020), "Eurostat database", <https://ec.europa.eu/eurostat/data/database> (accessed 10 March 2020).
- Fonseca, R., Lopez-Garcia, P., Pissarides, C. A. (2001), "Entrepreneurship, Start-up Costs and Employment", *European Economic Review*, Vol. 45, No. 4-6, pp. 692-705.
- Fuentelsaz, L., González, C., Maicas, J. P., Montero, J. (2015), "How different formal institutions affect opportunity and necessity entrepreneurship", *BRQ Business Research Quarterly*, Vol. 18, No. 4, pp. 246-258.
- Global Entrepreneurship Monitor (2020), "GEM Key Indicators", <https://www.gemconsortium.org/data/key-aps> (accessed 10 March 2020).
- Klapper, L., Love, I. (2010), "The Impact of Business Environment Reforms on New Firm Registration", *Policy Research Working Paper*, No. 5493, World Bank, Washington DC.
- Klapper, L., Laeven, L., Rajan, R. (2006), "Entry regulation as a barrier to entrepreneurship", *Journal of financial economics*, Vol. 82, No. 3, pp. 591-629.
- Lee, S. H., Yamakawa, Y., Peng, M. W., Barney, J. B. (2011), "How do bankruptcy laws affect entrepreneurship development around the world?", *Journal of Business Venturing*, Vol. 26, No. 5, pp. 505-520.
- Moro, A., Maresch, D., Ferrando, A. (2018), "Creditor protection, judicial enforcement and credit access", *The European Journal of Finance*, Vol. 24, No. 3, pp. 250-281.
- Safavian, M., Sharma, S. (2007), "When do creditor rights work?" *Journal of Comparative Economics*, Vol. 35, No.3, pp. 484-508.
- Sayed, O., Slimane, S. B. (2014), "An appraisal of the determinants of entrepreneurship in developing countries: The case of the Middle East, North Africa and selected Gulf cooperation council Nations", *African Journal of Social Sciences*, Vol. 4, No. 4, pp. 63-74.

- Sobel, R. S. (2008), "Testing Baumol: Institutional quality and the productivity of entrepreneurship", *Journal of Business Venturing*, Vol. 23, No. 6, pp. 641-655.
- Urbano, D., Alvarez, C. (2014), "Institutional dimensions and entrepreneurial activity: an international study", *Small Business Economics*, Vol. 42, No. 4, pp. 703-716.
- Van Stel, A., Storey, D. J., Thurik, A. R. (2007), "The Effect of Business Regulations on Nascent and Young Business Entrepreneurship", *Small Business Economics*, Vol. 28, No. 2-3, pp. 171-186.
- World Bank (2020a), "Doing Business data", <https://www.doingbusiness.org/en/custom-query> (accessed 10 March 2020).
- World Bank (2020b), "Open data", <https://data.worldbank.org/> (accessed 10 March 2020).
- World Bank (2016), "Doing Business 2016: Measuring regulatory quality and efficiency", World Bank, Washington, DC, DOI: 10.1596/978-1-4648-0667-4.
- World Bank (2014), "Doing Business 2015: Going beyond efficiency", World Bank, Washington, DC, DOI: 10.1596/978-1-4648-0351-2.