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THE IMPACT AND EFFICIENCY OF PUBLIC ADMINISTRATION EXCELLENCE ON FOSTERING SMEs IN EU COUNTRIES

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Abstract

The article investigates the impact and efficiency of bureaucracy on the development of small and medium-sized enterprises (SMEs) in the European Union (EU). For this purpose, the article applies a non-parametric approach, i.e. data envelopment analysis (DEA), to assess the best performers in terms of transforming existing bureaucratic burdens into selected SME indicators, such as growth in their numbers, employment or value added in the 2010-2014 period. The empirical results show that Luxembourg, Sweden and, in particular, the Baltic States can serve as a good benchmark for transforming a relatively favourable environment of public administration excellence into SME indicator growth. On the other hand, Denmark and the UK, despite their top ease-of-doing-business rankings could not significantly spur SME growth in the considered period. Nevertheless, the main goal for the large majority of EU member states, especially in South-east Europe and the Mediterranean region, remains a further reduction of bureaucracy that could be useful for improving the regulatory environment of SMEs and thus aid in an even more rapid recovery from the crisis.

Keywords: public administration, small and medium enterprises (SMEs), doing business, efficiency, DEA, EU

JEL Classification: C14, H83, M10

Introduction

Small and medium-sized firms (SMEs) are the engines of growth and job creation in most economies around the world (Mencinger, Aristovnik and Verbič, 2014). Policymakers have an important role in fostering a vigorous and healthy business environment for the successful development of SMEs. They place the rules to establish and explain property rights, reduce costs of resolving disputes, and increase predictability of business operations.

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The non-existence of appropriate policies hinders entrepreneurs in business start-ups and raising new business. Making it easier to formally register a business is the area of business regulatory policy that has seen the most attention from policymakers over the past decade.

Many research articles and working papers discuss how regulations and administration excellence influence economic outcomes at both macro and micro levels. Namely, bureaucracy or red tape, as it is often referred to, is a “derisive term for excessive regulation or rigid conformity to formal rules that is considered redundant or bureaucratic and hinders or prevents action or decision-making. (...) Red tape generally involves the filling out of seemingly unnecessary paperwork, obtaining unnecessary licences, having multiple people or committees approve a decision and various low-level rules that make conducting one's affairs slower, more difficult, or both” (Anti-Corruption Business Portal, 2014). Extreme bureaucracy imposes a disproportionate bureaucratic burden on SMEs, creating both incentives and opportunities for bribery and corruption (Plaias, 2014). Therefore, in this article we would like to examine this burden on SMEs by evaluating the impact and efficiency of bureaucracy on the development of SMEs in European Union countries. For this reason, the article applies an innovative non-parametric approach, i.e. data envelopment analysis (DEA), to consider the best performers in terms of transforming existing bureaucratic burdens into selected SME indicators, such as growth in their numbers, employment or value added in the 2010–2014 period.

The paper is organized as follows. After the introductory section, the first section gives an overview of public administration excellence and SMEs in the EU countries together with a literature review. Section two presents the theoretical background of non-parametric methodologies with a special focus on Data Envelopment Analysis (DEA), the specifications of the model, and information about the data. This section also outlines the results of the non-parametric efficiency analysis. The final section provides concluding remarks and some policy implications.

1. Overview of public administration excellence and SMEs in the EU

1.1. Public administration excellence – a literature review and some empirical evidence

Widespread empirical literature has assessed how the regulatory environment for business affects a broad range of economic outcomes at both the macro and micro levels. Many research articles and working papers discuss how regulations in administration excellence influence economic outcomes– including productivity, growth, employment, trade, investment, access to finance, and the informal economy. There is a growing view that costly regulations impede the setting up of businesses and stand in the way of economic growth (see Bertrand, Kramarz, 2002; Djankov, La Porta, Lopes-de-Silanes and Shleifer, 2002; World Bank, 2004; Marinescu, 2013; Marinescu and Jora, 2013).

An analysis of the regulation of entry in 85 countries by Djankov, La Porta, Lopes-de-Silanes and Shleifer (2002) shows that countries with a heavier regulation of entry have greater corruption and larger unofficial economies, but not a better quality of public or private goods. They also find that countries with less limited, less democratic, and more interventionist governments regulate entry more strongly, even controlling for the level of economic development. Entry is regulated more heavily by less democratic governments, and such regulation does not yield visible social benefits. The principal beneficiaries appear

to be politicians and bureaucrats themselves (Djankov, La Porta, Lopes-de-Silanes and Shleifer, 2002, p. 35). Van Stel, Storey and Thurik (2007) examined the relationship between regulation and entrepreneurship across 39 countries. They find that it is labour market, rather than entry, regulations which exert a stronger influence upon both the nascent and the young business rate. However, the administrative considerations of starting a business – such as the time, the cost, or the number of procedures required – are unrelated to the formation rate of either growing or young businesses.

Dreher and Gassebner (2013) investigate whether and to what extent the impact of regulations on entrepreneurship depends on corruption. Covering 43 countries over the 2003–2005 period, their results show that the existence of a larger number of procedures required to start a business, as well as larger minimum capital requirements, are detrimental to entrepreneurship. Furthermore, regulation are closely linked to corruption. The authors find, for example, that the ‘greasing’ effect of corruption kicks in when around 50 days are required to start a new business and provide support for the ‘grease the wheels’ hypothesis.

Most economies that undertake regulatory reforms as recorded by *Doing Business* do so as part of a broader reform agenda. Among the thirty countries, those with highest ranking for the ease of doing business, come from backgrounds where governments play a very significant role in creating rules and other private sector activity. The economies performing best in the *Doing Business* rankings in the EU-28 are listed in Table no. 1.

Table no. 1: Rankings for ease of doing business for the EU-28

Rank	Economy	DB 2014 reforms	Rank	Economy	DB 2014 reforms
5	Denmark	0	38	France	1
10	United Kingdom	2	39	Cyprus	0
12	Finland	0	45	Poland	2
14	Sweden	1	49	Slovak Republic	0
15	Ireland	0	52	Spain	1
17	Lithuania	2	54	Hungary	0
21	Germany	0	58	Bulgaria	0
22	Estonia	1	60	Luxembourg	0
24	Latvia	4	65	Italy	3
28	Netherlands	2	72	Greece	3
30	Austria	0	73	Romania	3
31	Portugal	1	75	Czech Republic	1
33	Slovenia	1	89	Croatia	5
36	Belgium	0	103	Malta	1

Source: *Doing Business database*

Considering all of the mentioned rankings and indicators according to *Doing Business*, we present five indicators that show the state of public administration excellence in the EU and represent inputs in the empirical part of the paper. Table 2 shows the best performances according to every indicator of public administration excellence that is used.

The first indicator explains the cost of starting up a company. It is recorded as a percentage of the economy’s per capita income. It includes all official fees and fees for legal or professional services if such services are required by law. According to this indicator, the

best performers are Denmark, the UK, and Sweden. For example, in the UK there is no capital requirement for starting up a company and in all of the best performing countries the time to complete company registration is less than one day. Mostly it takes just (20 minutes) for online company registration and 3 days for tax registration. The second indicator describes the time it takes to prepare, file and pay (or withhold) corporate income tax, value-added tax and social security contributions (in hours per year). In Luxemburg, altogether it takes 55 hours and in Ireland 80 hours, although the majority of the procedure can be done online. The cost of registering a company, as the third indicator, is recorded as a percentage of the property value, and understood to be equivalent to 50 times the per capita income. Only official costs required by law are recorded. It assumes a standardized case of an entrepreneur who wants to purchase land and a building that is already registered and free of any title disputes. According to this indicator, an entrepreneur has the fewest burdens in Estonia, but the whole procedure is shorter in Denmark – less than a day (online procedure). The average number of procedures to enforce a contract explains the list of bureaucratic steps for each economy and traces the chronology of a commercial argument before the relevant court. It follows the development of a sale of goods dispute, tracking the time, cost and number of procedures involved. With a total of 25 procedures, Austria is the best performing country. The last and fifth indicator, government effectiveness, reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The highest estimate of governance (which ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance) and the best performer goes to Finland, as the only EU country with a score exceeding 2.

Table no. 2: Best performance indicators rankings in EU-28 economies, average 2010-2014

Indicators of public administration excellence	Countries
1. Indicator: Starting a business Costs to start-up a company ¹	Denmark, UK, Sweden
2. Indicator: Tax administration Time to prepare and file tax returns and to pay taxes ¹	Luxembourg, Ireland, Estonia
3. Indicator: Registering property - Costs for registering property ¹	Estonia, Denmark, Lithuania
4. Indicator: Civil justice Enforcing contracts procedures ¹	Austria, Belgium, Luxembourg, Netherlands
5. Indicator: General Governance Government effectiveness ²	Finland, Denmark, Sweden

Sources: ¹ World Bank – *Doing Business*; ² World Bank – *Worldwide Governance Indicators*

Further on, we explain how different administrative rules and regulations influence the development of SMEs since extreme and rigid administrative procedures impose a disproportionate bureaucratic burden on SMEs. First, we analyse how the introduction of certain administrative procedures influences entrepreneurial activity in the economy and, second, present the dynamic development of SME trends in the EU-27.

1.2. SMEs and administrative (regulatory) burdens in the EU – a literature review and some empirical evidence

1.2.1. The impact of administrative (regulatory) burdens on SMEs

In the European policy discussion on administrative (regulatory) burdens a special emphasis is placed on SMEs[†]. This is because smaller firms face a disproportionately heavier regulatory burden than larger firms. Namely, several European studies undoubtedly specify that smaller businesses must bear a greater regulatory burden than larger enterprises (European Commission, 2007).

The results of Laeven and Woodruff (2007) indicate a positive relationship between firm size and the quality of the legal environment in Mexico. Overall, these results suggest that improvements in the quality of the legal system are associated with improvements in the efficiency of the economy. Laeven and Majnoni (2005) find evidence that judicial efficiency affects the cost of capital. Thus, the protection of property rights and the inefficiency of public administration might also translate into inefficient investment allocations that hamper firm growth. By selecting certain relevant institutional variables in selected European countries, Marinescu (2013) finds that the relatively low economic performances seen in the European business environment are due to the “excessive” production of European legislation.

Using a comprehensive database of European firms (their final sample includes 3,371,073 firms in 21 countries: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, the Netherlands, Norway, Poland, Romania, Spain, Sweden, and the United Kingdom), Klapper, Laeven, and Rajan (2006) study the effect of market entry regulations on the creation of new limited liability firms, the average size of entrants, and the growth of incumbent firms. They find that costly regulations hamper the creation of new firms, especially in industries that should naturally have high entry barriers. These regulations also force new entrants to be larger and cause incumbent firms in naturally ‘high-entry’ industries to grow more slowly. Their results hold even when they correct them for the availability of financing, the degree of protection of intellectual property, and labour regulations. In consequence, the legal and regulatory framework and the excellence of public administration are particularly important for both entrepreneurship and SME growth.

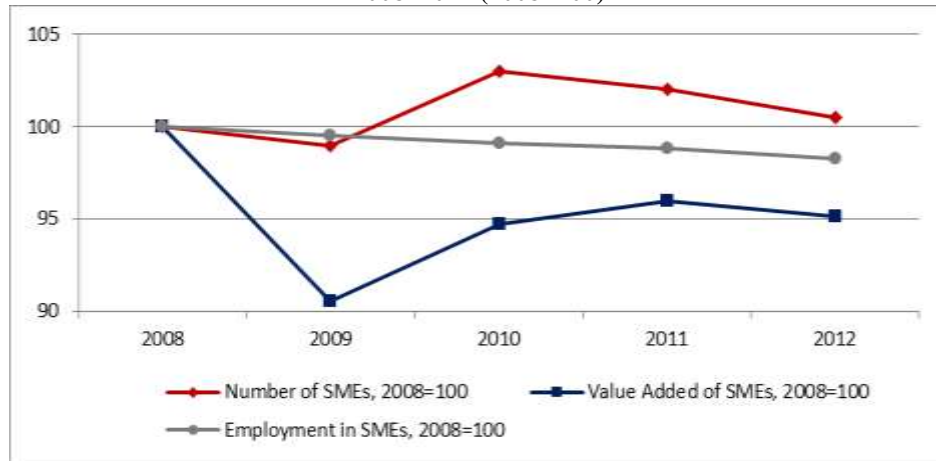
1.2.2. SMEs trends and developments in the EU

The role of SMEs is crucial for European economic recovery – their number, employment capacity, and value added comprise a large share of the European economy. The importance of SMEs in Europe is measured by the number of enterprises, total employment and total gross value added. In 2012 there were more than 20 million SMEs in Europe. These are mostly micro-enterprises[‡] that employed approximately 86.8 million people in 2012. This represents 66.5% of all European jobs in 2012 (European Commission, 2013, p. 10). The figure 1 shows the dynamics in the number of SMEs, job creation and value added which are set to 100 in 2008 in the EU-27 after the start of the financial crisis.

[†] From the point of view of the entrepreneur, however, the distinction between administrative costs and other regulatory burdens is not so important. For entrepreneurs, administrative reporting duties, the costs involved in researching and understanding the rules, the lack of service provided by officials or the misapplication of administrative discretion are all obstacles that prevent them from doing business successfully.

[‡] Micro-enterprises employing fewer than 10 people (European Commission, 2012).

Figure no. 1: Number of SMEs, employment and value-added change in the EU-27, 2008–2012 (2008=100)



Source: European Commission (2013), Eurostat Database

In 2012, the number of SMEs remained much the same as in 2008. Employment by SMEs proved to be much more flexible prior to the 2008 crisis than employment by large firms, although the period 2010–2012 proved quite challenging. At the EU-27 level, employment in SMEs did not show a particularly pronounced swing, but during the whole 2008–2012 period it revealed a declining trend.

The indicators of SME value added and employment growth in the EU are expected to be highly correlated to one another. The correlation analysis between growth in value added generated by SMEs during 2009–2011 and macroeconomic variables showed a definite association between the percentage change in SME value added with demand and credit indicators.

In Table 3 we present the best performers in terms of SME indicators in the EU. During the observed period (2011–2014), we noticed that European SMEs were significantly more flexible than large enterprises, particularly in employment trends. The output indicators of SME value added and employment growth in the EU are expected to be highly correlated to one another, which can also be seen in our table.

Namely, Latvia and Lithuania are the best performers in those two indicators and at the same time Lithuania has the best output performance in all three indicators. The number of SMEs increased on average by 6.4% in Lithuania and by just 3.9% in Sweden. Value added increased on average by 6.1% in Lithuania, but the best performer in employment growth is Latvia with an average of 2.6%.

Table no. 3: Best performance output rankings in the EU-28 economies, average 2011-2014

	Countries
1. Indicator: Growth in SME numbers (in %)	Lithuania, Luxembourg, Sweden
2. Indicator: Employment growth in SMEs (in %) ³	Latvia, Malta, Lithuania
3. Indicator: Value added growth of SMEs (in %) ³	Lithuania, Estonia, Latvia

Sources: Eurostat, DIWecon, DIW, London Economics; own calculations

The analysis of the best performance input and output indicator rankings in the EU leads us to the conclusion that those countries with the lowest costs for starting up companies (Sweden) and those that spent the shortest time on tax administration and enforcing contract procedures (Luxembourg and Estonia) at the same time have the best SME growth. The cost of registering a company seems to be a very important input indicator of the bureaucratic burden in Estonia and Lithuania as lowering it leads to the best performance ranking in all three output indicators. Based on the above, it is clear that the mentioned countries are probably very successfully transforming their relatively favourable public administration excellence environment into growth in SME indicators. In the next part of our research, by applying DEA methodology, we will explore whether those countries are really efficiently transforming the favourable business environment (in terms of public administration excellence) into SME growth, and which countries in the EU are unsuccessful in that process.

2. Empirical research

2.1. Methodology and Data

For the empirical research we adopted the mathematical development of Data Envelopment Analysis (DEA) by Charnes, Cooper and Rhodes (1978). DEA is a non-parametric programming technique that develops efficient frontier based on observed indicators from all DMUs (we refer to producers as decision-making units (DMUs) (Obadić and Aristovnik, 2011). The efficiency frontier is developed by optimizing the weighted output/input ratio of each provider, subject to the condition that this ratio can equal, but never exceed, unity for any other provider in the data set (Charnes, Cooper and Rhodes, 1978). Let's assume that there are k inputs and l outputs for n DMUs. Moreover, we can define X as ($k*n$) input matrix and Y as ($l*n$) output matrix. For the i -th DMU, y_i is the column vector of the outputs and x_i is the column vector of the inputs. The formulation of DEA model for a given i -th DMU (in our case EU member state) is as below:

$$\begin{aligned}
 & \text{Max}_{\lambda, \delta_i} \delta_i \\
 & \text{s. to } \delta_i y_i \leq Y\lambda \\
 & \quad x_i \geq X\lambda \\
 & \quad n^T \lambda = 1 \\
 & \quad \lambda \geq 0
 \end{aligned}$$

In our DEA model, δ_i is a scalar satisfying $\delta_i > 1$, and measures technical efficiency of the i -th DMU as the distance to the efficiency frontier. With $\delta_i < 1$, the DMU is inside the efficiency frontier and it is inefficient, while $\delta_i = 1$ implies that the DMU is on the frontier

and it is efficient. The vector λ is a $(n \times 1)$ vector of constants that estimates the weights used to calculate the location of inefficient decision units if it were to become efficient.

In our case, the data set for all tests in the study includes average (available) data for the 2010–2014 period in order to evaluate mid-term efficiency measures as the effects of public administration excellence on SME growth. All of the results in the empirical part of the paper will be related to DEA with an output orientation, allowing for variable returns to scale (VRS). An output orientation focuses on the amount by which output quantities can be proportionally increased without changing the input quantities used. Moreover, VRS is assumed to be the relevant model for analysis since it is difficult to change one's scale of operation in the short run, especially for SMEs. The assumption of VRS also appears appropriate given that the study includes countries of varying sizes.

Further, one of the key requirements in DEA is the homogeneity of decision-making units (DMUs) (Tiemann and Schreyögg, 2012). In our case, to avoid problems with outliers and to provide a homogeneous group of countries with a relatively good public administration environment, only EU member states with above-average values for inputs within each particular model (I-V) were included in the analysis. In this way, the homogeneity of the sample was increased significantly. Another important prerequisite for applying DEA is that inputs are positively correlated with the output set. In our selection of inputs, the majority of the values had to be inverted because four inputs (except General governance) are negatively linked to the outputs and, for this reason, the data were transformed. The purpose of this transformation was to acquire positive values of the data since this is required by the software used for the DEA analysis (Pastor and Ruiz, 2007).

The inputs utilized in our article are the cost to start up a company (% of income per capita), time to prepare and file tax returns and pay taxes (in hours per year), costs of registering property (% of property value), enforcing contract procedures (number) and government effectiveness indicator in each EU member state (the index ranges from -2.5 to +2.5; higher values indicate a better performance). The outputs comprise the growth in SME numbers (in %), the employment growth in SMEs (in %), and the growth in value added of SMEs (in %). The data for the empirical analysis come from the World Bank, Eurostat, DIWecon, DIW and London Economics databases (for Summary statistics, see Table 4). The program used for calculating the DEA scores is the Frontier Analyst 4.0 software.

2.2. Empirical Results

In the first stage of our empirical research, we evaluate the impact of public administration excellence indicators on SME growth and performance indicators by calculating correlation coefficients between selected (available) inputs and outputs (Table 5). We identify that the cost to start up a company and the cost to register property (moderately) negatively and statistically significantly affect the growth in the number, employment and value added of SMEs in the EU. Similarly, enforcing contract procedures has a (statistically significant) negative impact on employment and value-added growth, while the impact on growth in SME numbers is not statistically significant. Interestingly, time to pay taxes and government effectiveness seem to have a smaller impact, although the sign of the correlation coefficients is mainly in line with theoretical expectations. Nevertheless, all of these correlations generally provide evidence of the significant and negative impact of burdensome business regulations on SME activities in the region.

Table no. 4: Summary Statistics

	Average	St. Dev.	Min.	Max.
<i>Inputs</i>				
Model I: Starting a business - Costs to start-up a company ¹	5.33	5.24	0.00 (Slovenia)	17.22 (Greece)
Model II: Tax administration - Time to prepare and file tax returns and to pay taxes ¹	207.00	110.15	58.20 (Luxembourg)	528.00 (Bulgaria)
Model III: Registering property - Costs for registering property ¹	5.09	3.78	0.02 (Slovakia)	15.1 (Malta)
Model IV: Civil justice - Enforcing contracts procedures ¹	32.36	5.33	21 (Ireland)	61.10 (Inner London – UK)
Model V: General Governance - Government effectiveness ²	1.13	0.59	-0.29 (Romania)	2.24 (Finland)
<i>Outputs (Model I-V)</i>				
Growth in SME numbers (in %) ³	1.56	2.50	-4.79 (Cyprus)	6.45 (Lithuania)
Employment growth in SMEs (in %) ³	0.54	1.72	-3.40 (Greece)	3.07 (Estonia)
Value-added growth of SMEs (in %) ³	1.58	2.34	-4.00 (Cyprus)	6.07 (Lithuania)

Sources: ¹ World Bank – *Doing Business*; ² World Bank – *Worldwide Governance Indicators*; ³ Eurostat, DIWecon, DIW, London Economics; own calculations

In the next empirical stage, the results of the output-oriented VRS formulation of the DEA analysis (based on Models I–V in Table 5) suggest a relatively high level of inefficiency in transforming a favourable business environment (in terms of public administration excellence) into SMEs' growth/performance in the EU; conversely, that there is significant room to improve SMEs' outputs. Indeed, the empirical results show that the total number of efficient countries varies significantly from one model to another. There are only four technically efficient EU member states in Model I (see Table 6). The most efficient counties in transforming the below-average cost to start up a company into SMEs' outputs are Estonia, Lithuania, and Romania. In particular, Lithuania could serve as a good peer for less efficient member states as it stands at 11 (and at 1 within the EU) in the ranking of 189 economies on the ease of starting a business.

When testing the relative efficiency of the tax administration (as presented in Model II), only three member states have efficient scores (Croatia, Estonia, and Lithuania). However, the best benchmark country is Estonia where in terms of the time necessary to prepare and file tax returns only 81 hours are needed (the EU average is 207 hours per year in the 2010–2014 period). In addition, the scores indicate that tax administration efficiency in Estonia is well above the EU average (European Commission, 2012). In contrast, Cyprus is the worst efficiency performer in our group of countries as its relatively favourable tax administration environment (globally, Cyprus stands at 33 in the ranking of 189 economies in 2014) on the ease of paying taxes is not transformed into SME outputs. In accordance with the efficiency

scores, the output of its SMEs should be increased between 6 percent and 11 percent in order to become an efficient country.

Table no. 5: Correlation coefficients (n=28)

	Output variables		
	Growth in SME numbers (in %)	Employment growth in SMEs (in %)	Value-added growth of SMEs (in %)
<i>Input variables</i>			
Costs to start-up a company	-0.365**	-0.401**	-0.436**
Time to prepare and file tax returns and to pay taxes	-0.225	-0.175	-0.085
Costs for registering property	-0.341*	-0.392**	-0.424**
Enforcing contracts procedures	-0.289	-0.457**	-0.403**
Government effectiveness	0.137	0.125	-0.056

Note: Levels of significance: * p<0.05, ** p<0.01

Sources: World Bank – Doing Business; World Bank – Worldwide Governance Indicators; Eurostat, DIWecon, DIW, London Economics; own calculations

Model III estimates the efficiency of transforming property registration costs into SMEs' outputs. According to this model, the Baltic states and Sweden serve as best practice examples of transforming one of the elements of public administration excellence into the performance of SMEs (see Table 6). The average efficiency score is significantly high at 99.1, reflecting the large number (seven) of efficient countries and also the notion that with the same public administration environment (in terms of property registration) EU countries are producing about 1 percent less than they should if they were efficient. The worst efficiency performers are Slovakia and Slovenia where low property registration costs, particularly in the Slovak Republic, are not adequately transformed into growth in the number, employment and value added of SMEs.

Table no. 6: Relative efficiency of transforming public administration excellence into SME outputs in the EU

	Model 1 (rank)	Model 2 (rank)	Model 3 (rank)	Model 4 (rank)	Model 5 (rank)
Austria	99.3 (7)	98.5 (8)	99.8 (8)	98.4 (10)	98.8 (8)
Belgium	99.8 (5)	98.9 (6)	-	98.9 (5)	99.1 (5)
Bulgaria	97.2 (17)	-	98.0 (15)	-	-
Croatia	-	100.0 (1)	100.0 (1)	-	-
Cyprus	-	94.3 (16)	-	-	94.4 (13)
Czech R.	100.0 (1)	-	98.4 (13)	97.9 (12)	-
Denmark	98.5 (10)	98.7 (7)	98.5 (12)	-	99.1 (4)
Estonia	100.0 (1)	100.0 (1)	100.0 (1)	-	-
Finland	97.6 (15)	97.8 (13)	99.0 (11)	-	98.5 (11)
France	98.1 (13)	98.5 (9)	-	98.6 (7)	98.6 (10)
Germany	99.3 (9)	-	-	98.5 (8)	99.0 (6)

	Model 1 (rank)	Model 2 (rank)	Model 3 (rank)	Model 4 (rank)	Model 5 (rank)
Greece	-	-	-	-	-
Hungary	-	-	-	-	-
Ireland	98.3 (12)	98.3 (11)	100.0 (1)	98.7 (6)	98.9 (7)
Italy	-	-	98.2 (14)	-	-
Latvia	99.8 (6)	-	100.0 (1)	100.0 (1)	-
Lithuania	100.0 (1)	100.0 (1)	100.0 (1)	100.0 (1)	-
Luxembourg	99.3 (8)	99.3 (5)	-	99.4 (4)	100.0 (1)
Malta	-	99.9 (4)	-	-	100.0 (1)
Netherlands	-	97.5 (15)	-	97.6 (13)	98.7 (9)
Poland	-	-	99.3 (9)	-	-
Portugal	96.3 (19)	-	-	-	-
Romania	100.0 (1)	-	100.0 (1)	100.0 (1)	-
Slovak R.	97.3 (16)	-	97.3 (16)	97.3 (14)	-
Slovenia	96.5 (18)	-	97.0 (17)	97.1 (15)	-
Spain	-	97.5 (14)	-	-	-
Sweden	98.4 (11)	98.4 (10)	100.0 (1)	98.5 (9)	100.0 (1)
United Kingdom	97.7 (14)	97.8 (12)	99.3 (10)	98.1 (11)	98.2 (12)
Average efficiency scores	98.6	98.5	99.1	98.6	98.7
Standard Dev.	1.24	1.36	0.99	0.93	1.38
No. (%) of Efficient Countries	4 out of 19 (21.5%)	3 out of 16 (18.8%)	7 out of 17 (41.2%)	3 out of 15 (20.0%)	3 out of 13 (23.1%)

Note: Relative efficiency scores (models I–V; see Table 4). Only EU member states with above-average values for inputs within each model (I–V) are included in the analysis. Not included countries (-) should primarily improve their public administration excellence for each particular indicator in order to spur the output growth of their SMEs. Only the bolded efficiency scores represent peer countries.

Sources: World Bank – *Doing Business*; World Bank – *Worldwide Governance Indicators*; Eurostat, DIWecon, DIW, London Economics; own calculations

As the enforcing contract indicators also have a significant impact on SME growth and performance, model IV includes a number of enforcing contract procedures as an input variable. The results show that again some Baltic states, like Latvia and Lithuania, are the best efficiency performers of the model. In particular, Latvia could serve as a best benchmark country, with the highly efficient transformation of its relatively favourable civil justice environment (it is ranked 21 out of 189 economies in 2014) into SMEs' performance and growth. On the other hand, Ireland shows the lowest average number of procedures (21) and Luxembourg (26) even tops the global *Doing Business* rankings for the aggregate enforcing contract indicator, but this favourable business environment is not correspondingly reflected in the growth of SMEs' output variables in the two mentioned countries.

The final model (Model V) examines a composite governance indicator for assessing the quality of a public administration as an input. Although it paints a broader picture than a bulk of unstructured individual indicators, it must (like all composite indicators) be

interpreted with caution as it is derived by estimating an unobserved components model (Kaufmann, D., Kraay, A. and Mastruzzi, 2010). The empirical results show that Luxembourg, Malta and, in particular, Sweden serve as a good benchmark for the efficient transformation of public administration excellence into the growth of SMEs’ outputs. Interestingly, Finland as the best performer in terms of government effectiveness could not efficiently transform the high quality of its bureaucracy into SMEs’ quantitative indicators. In order to become efficient, Finland should, for instance, increase the number and employment of its SMEs by more than 1.5 percent.

According to the presented empirical analysis, EU countries can be grouped into four main categories (see Table 7). Group 1 consists of the most efficiency performers in most of the presented models (with a high level of public administration excellence), i.e. the Baltic States, Luxembourg, and Sweden. The second group is represented by a number of countries with relatively high public administration excellence, but poor SME activities. These countries should follow the best practices performed in group 1 countries in order to increase their SME activity levels. Group 4 consists of member states with a relatively bureaucratic environment, although recently a high level of SME activity has been recorded in these economies (Malta, Romania and Slovak R.). The final group of countries (group 3) includes the least efficient performers in both considered aspects. These countries (together with those in group 4) should urgently improve their public administration environment and follow their peer countries in order to spur SME activities and help their economies recovery more rapidly.

Table no. 7: The level of public administration excellence and SME activity in the EU

	<i>Low SME activity</i>	<i>High SME activity</i>
<i>High level of public administration excellence</i>	<u>Group 2:</u> Belgium, Czech R., Denmark, Finland, France, Ireland, Germany, Netherlands, UK	<u>Group 1:</u> Estonia, Latvia, Lithuania, Luxembourg, Sweden
<i>Low level of public administration excellence</i>	<u>Group 3:</u> Bulgaria, Cyprus, Croatia Greece, Hungary, Italy, Poland, Portugal, Slovenia, Spain	<u>Group 4:</u> Malta, Romania, Slovak R.

Sources: World Bank – Doing Business; World Bank –Worldwide Governance Indicators; Eurostat, DIWecon, DIW, London Economics; own calculations

Conclusions

Extreme bureaucracy imposes a disproportionate bureaucratic burden on small and medium-sized enterprises, creating both incentives and opportunities for bribery and corruption. Therefore, in this article we examined this burden on SMEs by evaluating the impact and efficiency of bureaucracy on the development of SMEs in countries of the European Union. For this reason, the article applied a non-parametric approach, i.e. data envelopment analysis (DEA), to consider the best performers in terms of transforming existing bureaucratic burdens into selected SME indicators, such as growth in their numbers, employment or value added in the 2010–2014 period.

The analysis of the best performance input and output indicator rankings in the EU leads us to conclude that those countries with the lowest cost of starting up a company (Sweden)

and those that spend the shortest time on tax administration and enforcing contract procedures (Luxembourg and Estonia) at the same time have the best SME growth. The cost of registering a company seems to be a very important input indicator of the bureaucratic burden in Estonia and Lithuania since lowering it leads to the best performance ranking in all three output indicators. Based on the above, it is clear that the mentioned countries are probably very successfully transforming their relatively favourable public administration excellence environment into growth in the SME indicators.

In the empirical part of our research, by applying the DEA methodology we also tested if those countries have really efficiently transformed their favourable business environment (in terms of public administration excellence) into SME growth. The results show that the most efficient performers in most tested models (with a high level of public administration excellence) are the Baltic States, Luxembourg, and Sweden. In contrast, Denmark and the UK, despite their top ease-of-doing-business rankings could not significantly spur the growth of their SMEs in the considered period. All in all, the main goal for the large majority of EU member states, especially in South-east Europe and the Mediterranean region, remain a further cutting of bureaucracy that could be useful for improving the regulatory environment of SMEs and thus an even more rapid recovery from the crisis. Nevertheless, for the future research the inclusion of the influences of different environmental factors (such as socio-economic background, political factors etc.) remains an important issue.

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