

Impact Of Economic Freedom On Economic Development: A Nonparametric Approach To Evaluation

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Abstract

The paper examines the impact of economic freedom on economic development of European countries. Economic freedom is assessed using data from Heritage Foundation (Index of Economic Freedom). Nonparametric method - data analysis method is used which allows us to set a limit on the efficiency of the relationship between economic freedom and economic development. We assess to what extent the achieved degree of economic freedom in various countries is reflected in their level of economic performance, respectively what is the potential for better "assessment" of economic freedom to increase their economic level. The analysis confirmed that economic freedom creates better conditions for increasing economic performance. The decomposition of inefficiencies indicated that in the European transition economies there is a relatively strong area for improving economic performance through the extension of individual indicators of economic freedom.

Keywords: Socio-economic development, human development index, economic freedom, measurement of development

Introduction

Economic freedom is an integral part of institutional quality that cultivates social responsibility and business environment, provides basic conditions for investment and creates an image of the country's credibility. Countries which have in general high levels of economic performance have also high quality of institutional framework and large economic impact. Countries that have good institutional framework and economic system have been consistently connected with institutional quality and at present achieve higher levels of economic performance.

According to Friedman, “free societies have arisen and persisted only because economic freedom is so much more productive economically than other methods of controlling economic activity.”(M. Friedman, in Gwartney, Lawson, Block, W., 1996). that an increase in economic performance often correlates with high quality institutions, causations are not unidirectional, i.e. that the quality of institutions may be the result of economic growth and don't have to be only its cause. Higher economic level may change moral values of society, make it more free, open, reliable and responsible, thus affects the development of the institutional quality. Individuals are economically free, as far as they are free to control their own labor force and property (Friedman, 1993). The above areas of economic freedom are prerequisites for ensuring the conditions for economic development. Human quality of life is significantly determined by the political rights and civil liberties (Körmenđi, Meguire 1985, Scully, 1988, Wight, J. B., 2011), which are the basic parameters of economic freedom. Therefore, economic freedom is regarded as an important condition for improving economic performance (Berggren, 2003 Haan and Sturm 2000).

Methodology and data

The quality of a person's life is significantly determined by his political rights and civil liberties, which are the basic parameters of economic freedom. Economic freedom is an aspect of human freedom, which deals with the material autonomy of individuals in relation to the state and other organized groups. Individuals are economically free, as far as they are free to control their own labor force and property (Friedman, 1993). Economic freedom is closely linked to economic performance (Berggren, 2003 Haan and Sturm, 2000).

Economic freedom is assessed in a way that covers a wide range of factors of institutional quality. The complex is assessed by the Fraser Institute, Freedom House and the Heritage Foundation. Index of Economic Freedom, compiled by the Fraser Institute, assesses conditions to ensure freedom of choice of the individual. Mainly evaluates the quality of the competitive environment, the quality of legislation in terms of law enforcement and protection of property rights and the quality of the regulatory framework. A positive note is that the index examines also macroeconomic stability, which incorporates space on the discretion of individual subjects. In summary, the project evaluates the quality of economic policy approaches to socio-economic, legal and cultural fields and their impact on economic growth and development. Identical mission, i.e. to examine the effect of economic freedom and the quality of institutions in developing countries, has also the economic freedom index compiled by the Heritage Foundation. It focuses on four key aspects of the economic

environment – rule of law, government size, regulatory efficiency and market openness. Evaluation mentioned four aspects of economic freedom is realized via a 10 components (10 components of economic freedom – property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, financial freedom). The components of economic freedom are rated on a scale from 0 to 100. Scores on these 10 components of economic freedom, which are calculated from a number of sub-variables, are equally weighted and averaged to produce an overall economic freedom score for each economy (Heritage Foundation 2015).

The purpose of the following part of this article is by DEA method to assess to what extent is the achieved degree of economic freedom in various countries reflected in their level of economic performance, respectively what is the potential for better "assessment" of economic freedom to increase their economic level.

Classical DEA assesses efficiency of *Decision Making Units* (DMUs) which are viewed as transforming m inputs into s outputs. Mathematical expression of transformation function as the production set boundary representation is not being focused. Assuming out stochastic shocks, the data are treated deterministically to construct the *best practice* frontier, deviation from which ascribed to inefficient performance. Interpreting efficiency in Pareto-Koopmans sense, an efficient DMU cannot improve its performance, e.g. increasing its output or reducing any input without employing additional input or reducing output respectively. In DEA, approximation of efficient boundary is carried out by linear combination of efficient units which also presents a set of benchmarks for inefficient ones. Potential improvements are represented by *slack* variables.

In the specific application of the method in this study, the approach of Tone (2001) was adopted to assess n DMUs represented by activity $(\mathbf{x}_0, \mathbf{y}_0)$ where \mathbf{x} and \mathbf{y} stand for inputs and outputs vector respectively, and DMU under assessment is indexed by 0. All inputs and outputs are arranged in matrices X and Y . Slack variables can be expressed as follows.

$$s^- \lambda = \mathbf{x}_0 - X \tag{1}$$

$$s^+ \lambda = \mathbf{y} - \mathbf{y}_0$$

As proposed in Cooper, Seiford, Tone (2007), input-oriented measure of efficiency can be constructed by excluding input slacks from the objective function assessing efficiency. The resulting optimization program takes the form

$$\min \quad 1 - \frac{1}{m} \sum_{i=1}^m s_i^- / x_{i0} \tag{2}$$

$$\begin{aligned}
 \text{s.t.} \quad & \mathbf{x}\lambda = \mathbf{s}^- + \mathbf{x}^- \\
 & \mathbf{y}\lambda = \mathbf{y}^- - \mathbf{s}^- \\
 & \mathbf{e}\lambda = 1 \\
 & \lambda \geq 0, \mathbf{s}^- \geq 0, \mathbf{s}^+ \geq 0
 \end{aligned} \tag{3}$$

Variable returns to scale assumption taking account of size of economies at considerable variance is incorporated by means of the additional constraint for λ following Banker et al. (1981). The term $\frac{1}{m} \sum_{i=1}^m s_i^- / x_{i0}$ presents the total penalty for inefficiency represented by nonzero slacks in (2), thus relative inefficiency s_i^- / x_{i0} of individual i -th input can be looked at as the contribution of the input to total penalty. Comparing individual contributions may reveal relative importance of respective inputs for DMU in terms of efficiency.

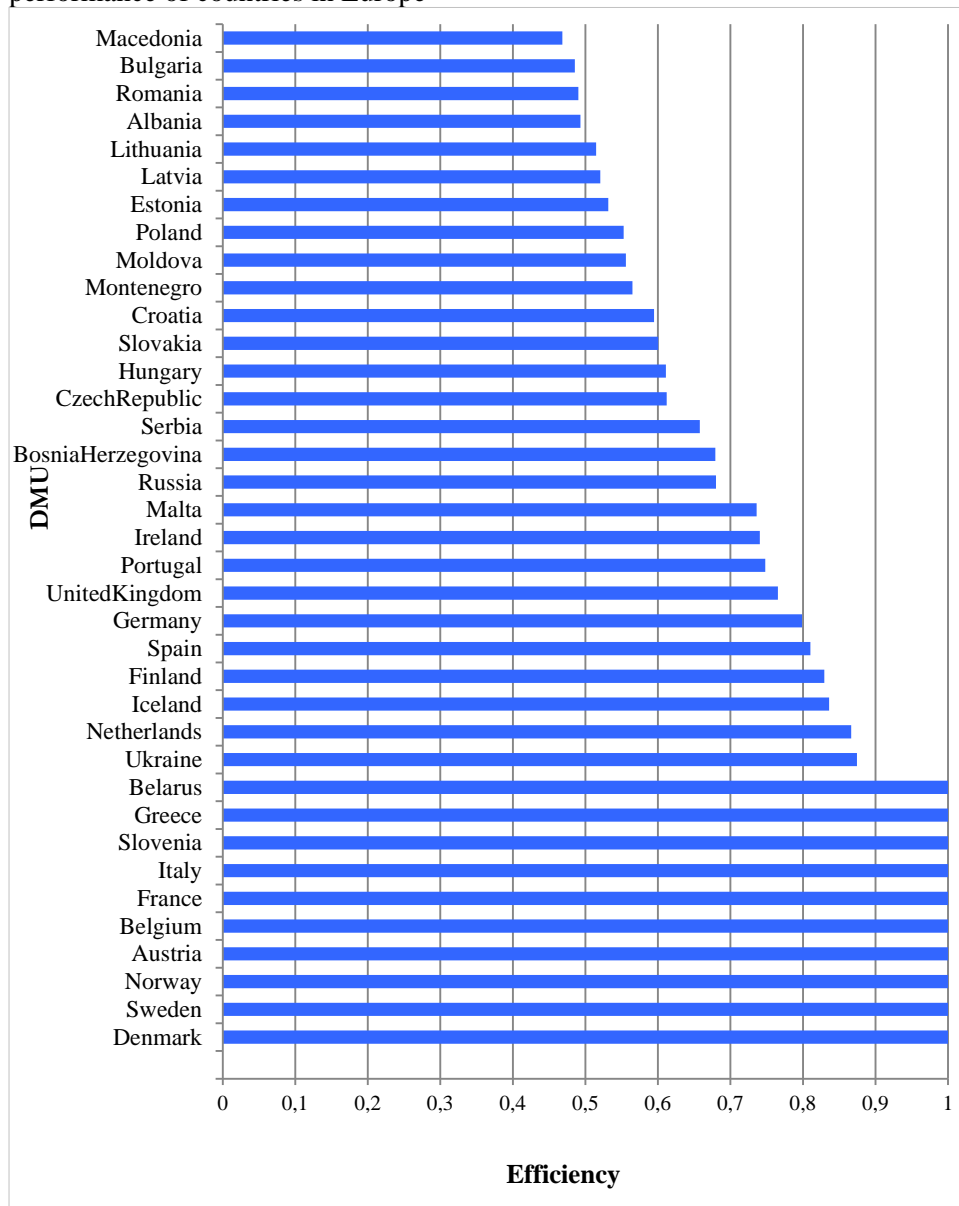
Given the large set of countries that were the subject of our investigation, we further present only the results for European countries. Inputs to the model have been individual components which form the basic framework of economic freedom index, compiled by Heritage Foundation. Subject of research were those countries of the world that had evaluated all components of economic freedom (174 countries). The "world" efficiency frontier has been constructed, which is formed by those countries of the world that have managed to entirely effectively transform the achieved degree of economic freedom into their economic performance. This means that countries located on the border of efficiency³⁰ can increase their economic performance only by increasing the degree of their economic freedom.

Results

The European countries on the global efficiency frontier are Denmark, Sweden, Norway, Austria, Belgium, France, Italy, Slovenia, Greece and Belarus (Figure 1). These countries at a given level of economic freedom achieve the highest possible economic performance and the increase can only be achieved by improving economic freedom. This fact is especially evident in the case of Belarus, whose GDP per capita at PPP only reaches 41% of Estonia and a half level of Latvia and Lithuania (these are comparable transition countries). At present, Belarus is located in the captivity of his economic freedom, which does not create any space for economic development. A similar assessment can be attributed to the Ukraine, which at the current level of economic freedom has only minimal space for economic development.

³⁰ In accordance with the Pareto-Koopmans interpretation.

Graf 1: The efficiency of transformation of economic freedom into the economic performance of countries in Europe



Source: Heritage Foundation, Index of Economic Freedom 2015, own calculations.

For those European countries that are below the efficiency can be identified in the economic freedom areas where improvements could enhance the performance of the country (Table 1). The individual components of economic freedom have different potential to support the improvement of the economic level. Property rights (the quality of the legal framework, protection of property rights, law enforcement, the possibility of

accumulation of private property) belong to the components of the institutional environment in which potential for improvement in the European countries shows most differences (from 1.19% in Finland, 1.59 % in the Netherlands up to 8.75% in Romania and 8.9% in Estonia).

In general, in the most economic developed European countries the property rights contribute almost entirely to economic development but in the European transition economies their quality improvement create a great potential for economic development (the largest potential is in Croatia, Bulgaria, Czech Republic, Albania, Lithuania, Latvia Poland, Moldova, Romania, Estonia). In transition economies represents a major potential for economic development the reduction of the level of corruption, similarly as other components of economic freedom. Particularly important place while minimizing the bottlenecks of development has in the case of transition countries Investment Freedom (assessed by the extent of barriers to investment capital), which contributes most to the overall inefficiency in Romania.

Table 1: Decomposition of inefficiencies in European countries (in %)

Rank*	DMU	Score**	Property Rights	Freedom from Corruption	Fiscal Freedom	Gov't Spending	Business Freedom	Labor Freedom	Monetary Freedom	Trade Freedom	Investment Freedom	Financial Freedom	Growth potential of economic performance
6	Switzerland	78,17	2,40	2,01	1,70	3,79	0,09	4,13	0,64	1,13	2,45	3,51	21,83
9	Estonia	53,17	8,90	7,20	0,65	4,01	5,39	4,33	0,02	3,86	6,20	6,28	46,83
10	Ireland	74,04	4,00	2,59	1,38	1,72	2,03	4,62	0,46	1,81	3,83	3,52	25,96
14	United Kingdom	76,55	4,12	2,59	0,63	2,85	1,79	2,08	0,00	0,46	3,79	5,13	23,45
16	Lithuania	51,47	8,39	6,66	1,89	4,66	5,55	4,69	0,64	3,82	5,90	6,33	48,53
17	Germany	79,87	3,67	2,63	0,00	1,58	2,19	1,84	0,21	1,54	3,50	2,96	20,13
18	Netherlands	86,64	1,59	1,39	0,00	1,95	0,24	2,55	0,23	0,32	2,46	2,64	13,36
20	Finland	82,94	1,19	2,08	2,82	3,14	1,37	2,00	0,31	0,57	2,26	1,32	17,06
24	Czech Republic	61,21	8,24	4,95	0,57	1,26	3,93	4,98	0,38	3,48	5,07	5,93	38,79
26	Iceland	83,61	3,51	2,27	1,72	0,00	1,81	1,97	0,00	0,88	1,70	2,51	16,39
35	Latvia	52,05	8,44	6,33	1,09	3,18	5,22	5,21	2,50	3,44	7,67	4,87	47,95
40	Poland	55,28	8,52	6,80	0,83	2,37	4,29	4,79	1,33	3,66	6,10	6,03	44,72
47	Spain	81,01	1,71	0,58	0,00	8,69	0,79	0,00	0,85	0,83	3,06	2,49	18,99
48	Slovakia	60,03	7,75	5,37	0,58	3,63	4,28	3,46	0,00	3,60	5,67	5,63	39,97
52	Hungary	61,09	7,78	5,70	0,92	0,00	3,74	3,40	1,79	2,56	6,39	6,62	38,91
53	Bulgaria	48,54	8,18	5,14	1,75	2,23	3,98	6,73	4,46	2,96	9,51	6,51	51,46
55	Romania	49,04	8,75	5,35	1,37	1,65	4,04	6,47	4,46	2,86	10,00	6,00	50,96
56	Malta	73,61	4,90	2,76	0,00	6,51	0,62	2,21	0,65	2,16	3,86	2,72	26,39
61	Albania	49,33	8,33	3,55	1,40	3,17	4,11	5,43	4,70	2,85	10,00	7,14	50,67
62	Portugal	74,81	4,73	3,37	0,00	1,71	3,23	0,00	2,40	1,64	4,72	3,40	25,19
64	Montenegro	56,49	7,65	4,79	2,23	0,00	3,91	5,06	3,67	2,01	8,19	6,00	43,51

79	Croatia	59,46	8,11	5,94	0,00	0,88	2,92	3,24	2,47	3,30	7,84	5,83	40,54
88	Serbia	65,76	7,29	4,10	1,50	0,00	1,30	3,31	2,35	0,94	7,45	6,00	34,24
95	Bosnia Herzegovina	67,93	3,94	4,11	1,54	0,00	0,61	2,60	3,44	1,88	7,29	6,67	32,07
109	Moldova	55,59	8,74	4,27	1,19	0,00	3,76	3,99	4,36	2,12	9,97	6,00	44,41
141	Russia	68,01	6,40	3,01	1,27	2,57	4,78	5,20	0,87	2,15	3,86	1,87	31,99
160	Ukraine	87,44	2,88	0,17	0,40	0,00	1,85	0,00	2,76	1,93	0,00	2,56	12,56

* Within 174 assessed countries in the world, ** achieve a level of efficiency,
Source: Heritage Foundation, Index of Economic Freedom 2015, own calculations As can be seen from Table 1, the improvement of individual parameters of economic freedom in the transition economies has contributed significantly to their economic development. The potential for improvement in these economies is from about 40 and 50%.

Conclusion

While creating conditions for economic development in the current period an important place is attributed to local institutions and the general recognition is that the development of the institutional quality creates better conditions for economic growth and development. The economic level of the country has long been linked to the quality of institutions. At the same time economic level changes moral values of society, makes it more free, open, reliable and responsible, thus affects the development of the institutional quality.

That is why for the assessment of individual areas of quality of institutions is great deal of attention paid to economic freedom and its impact on the economic development of the country. The data envelopment analysis method (DEA) allowed us to evaluate the impact of economic freedom on the achieved level of economic performance. On the sample of 174 countries of the world we used the data obtained from the index of economic freedom, compiled by Heritage Foundation to design a border of efficiency. Efficient scale is formed by countries that achieve the level of economic performance with effective utilization of all components of economic freedom. Creating boundary of efficiency also allowed the identification of the weaknesses of development of those economies that are below the threshold. This means that in the case of improvement of the efficiency of the component of economic freedom would increase the potential of their economic development. The countries that make efficient scale can only enhance economic performance by increasing the degree of economic freedom.

In the case of European countries has been shown that the most economically developed economies transform their high level of economic freedom into a high economic level. In economically less efficient economies (Belarus, Ukraine) is a lower degree of economic freedom limiting factor for increasing economic level. In those countries that are below the efficiency, the individual components of economic freedom have different potential to promote economic growth levels. The most significant

potential for economic development would be for all countries the improvement of property rights.

Transition countries of Europe have the potential to increase the economic level in all components of economic freedom; however they report the greatest inefficiencies in the investment freedom. In many transition economies represents an improvement of economic freedom the potential for economic development in the order of 50%.

As can be seen from Table 1, the improvement of individual parameters of economic freedom in the transition economies has contributed significantly to their economic development. The potential for improvement in these economies is from about 40 and 50%.

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