COMPARISON AND REVIEW OF COMPETITIVENESS INDEXES: TOWARDS THE EU POLICY

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Abstract

The article presents the comparison and review of competitiveness indexes in the environment of EU policy. Different approaches of authors towards competition and competitiveness indexes have been analyzed and summed up, a comparative analysis of the most popular indexes has been outlined, the main aspects how to calculate the use competitiveness index has been examined as well as advantages and disadvantages of the composite competitiveness index have been disclosed, the main aspects and obstacles of EU competitiveness policy have been enlightened. Research showed, that despite the common objectives of growth, development and raising competitiveness there is an issue of uneven allocation of structural financing for different economic sectors thus leading to a distortion of a market and as well as a threat of ineffectively allocated national budget, which part is used for co-financing EU-funded projects.

Keywords: competitiveness, competitiveness indexes, EU policy.
JEL Classification: F15, L10.

Introduction

Competition is a relevant precondition for the joint European market and globalization of economies. Economic literature (Snieska, 2008; Snieska, Bruneckiene, 2009) points out several competitiveness indexes that measure competitive ability of a country or a region. The World Economic Forum alone calculates several country indexes measuring competitiveness from different angles. Some researchers have focused on indexes attempting to single out the only formula to measure competitiveness. Analysts state that one group of those indexes refer to competitiveness by monitoring labour productivity, foreign exchange rates or production costs, the others distinguish several or even much more indexes representing the country's economy and derive just one composite index to evaluate competitiveness of a country. The value of similar indexes quite often differs depending on the data input and range, the type of scientific researches carried out, etc. All this makes difficult to compare competitiveness indexes. Therefore, the *purpose of this article* is to compare the most popular competitiveness indexes in the environment of EU policy. In the article such general scientific research methods as systemic, comparative and logical analysis have been applied.

Definitions and types of competitiveness

As many economic sources point out, competitiveness is a multidimensional concept and has many different interpretations. It has become common to describe economic strength of an entity with respect to its competitors in the global market economy in which goods, services, people, skills, and ideas move freely across geographical borders (Saboniene, 2009; Malakauskaite, Navickas, 2010). On the other hand, competitiveness could be defined as the ability of firm to design, produce and or market products superior to those offered by competitors, considering the price and non-price qualities (D'Cruz, 1992).

Competitiveness at the enterprise level according to Wint (2003) and Porter (1998) can be defined:

- the ability of enterprises to export to an array of countries without preferential treatments;
- the ability of enterprises to engage in foreign direct investment (FDI) using assets and skills developed at home;
- the ability of enterprises to operate at internationally accepted standards in terms of cost, service level, business processes, etc.;
- the ability of enterprises to earn above-average returns in a competitive market".

In today's turbulent business environment, dynamic capabilities, flexibility, agility, speed, and adaptability are becoming more important sources of competitiveness (Barney, Hesterly, 2001; Sushil, 2000; Snieska, Draksaite, 2007).

Many different interpretations of the concept "competitiveness" can be explained by few different structural ways to look at it. Competitiveness can be discussed in different levels of aggregation (Balkytė, Tvaronavičienė, 2010, p. 345): firm, sector, regional, national, block and international levels.

In their overview authors emphasize the main three categories that literature usually provides – firm, sector and national levels.

"For a firm, competitiveness is the ability to produce the right goods and services of the right quality, at the right price, at the right time. It means meeting customers' needs more efficiently and more effectively than other firms do" (Edmonds, 2000, p. 20). Porter describes competitiveness of a company as being equal to innovation ability. He states that the company, which cases to constantly improve and innovate will eventually be taken over by competitors (Porter, 1990, p. 78).

It seems there is the visceral will to blindly parallel company based competitiveness and competitiveness of a country. But what is meaningful talking about a firm is not necessarily meaningful when talking about a country. This is exactly why P. Krugman points out a good remark that countries do not compete in a way that companies do (Krugman, 1994). Begg also suggests a quotation of Ciampi that supports this idea: "Competitiveness is not a 'zero-sum game'; In other words, an increase in competitiveness in one country does not come at the expense of another" (Begg, 1999, p. 797). P. Krugman suggests that successful economy might even help the "unsuccessful" one by offering larger markets and demand. "For an industrial sector the main competitiveness criterion is maintaining and improving its position in the global market" (Balkytė, Tvaronavičienė, 2010, p. 343). In this article will be used modified Peters' (Peters, 2010, p. 3) definition since it suits findings of literature discussed above: Competitiveness of a sector is the ability to improve its position, or to maintain its position over time.

Competitiveness indexes: comparison and measuring

Comparison of competitiveness indexes As Krugman (1994) mentioned, national competitiveness takes a full swing, politics more often refer to global competitiveness scorecards. Comparative analysis of the indices consist of 10 factors that overview the objects covered, categorizing of economic variables, weighting, methods of aggregation, final scoring system.

Table 1 outlines the results of analysis of three widely discussed national competitiveness indices.

Table 1. Comparison of national-level competitiveness indices

Feature	Global Competitiveness Index (1)	World Economic Yearbook (2)	European Competitiveness Index (3)
Number of countries covered	133	59	27**
Main categories	1. Basic requirements 2. Efficiency enhancers 3. Innovation and sophistication factors	1. Economic performance 2. Government efficiency 3. Business efficiency 4. Infrastructure	1. Creativity 2. Economic performance 3. Infrastructure and accessibility
Number of key factors	12	20	5
Number of key sub-factors	111	300	36
Data	Hard data, Surveys	Hard data, Surveys	Hard data
Weighting	Equal weights for pillars under each category	5 % for each sub-factor (20 x 5 = 100%)	Unweighted
Normalization	Normalization on scale 1-to-7	Standard Deviation (STD) Method	Each variable ~N(0,1)
Other methods	Scoring economic variables on scale 1-to-7	• Sub-factors are ranked based on weighted average of STD values • Aggregate sub-factor STDs are used for factors rankings	• Factor analysis • Image factoring • Varimax (rotation method) • Kaiser Normalization
Aggregation into single-index method	Weighted average of categories scores*	Aggregate factor STDs	Data Envelopment Analysis

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Feature	Global Competitiveness Index (1)	World Economic Yearbook (2)	European Competitiveness Index (3)
Scores	Highest possible score is 7	Top economy 100 Bottom economy 0	Mean average value of EU-25 = 100 Index scores show variation from the EU-25

Notes:
* How main categories are weighted depends on country's GDP per capita level
** EU-25 plus Norway and Switzerland; overall 118 regions.
- no information available.
Sources:
(1) Global Competitiveness Index 2010-2011 (World Economic Forum, 2010); (2) World Competitiveness Yearbook (IMD, 2008); (3) European Competitiveness Index (R. Huggins Associates, 2006).

National level competitiveness indices vary in number of countries' and economic factor's covered. Global indices (GCI, WCY) are based on quantitative and qualitative data. There is a tendency to include factors that depict macroeconomic environment, infrastructure and innovation under different categories. Weights are set a priori (GCI, WCY), or not used at all (ECI). Data is always standardized and / or normalized. Indices vary in methods used for data aggregation into single composite index. There is also a number of different options for choosing the scale for displaying final ratings. Table 2 outlines the results of analysis of three sector-level competitiveness indices.

Table 2. Comparison of sector-level competitiveness indices

Feature	Travel & Tourism Competitiveness Index (1)	Global Manufacturing Competitiveness Index (2)	IT Industry Competitiveness index (3)
Number of countries covered	133	403*	66
Main categories	1. Regulatory framework 2. Business environment and infrastructure 3. Human, cultural and natural resources	1. Business confidence and current environment 2. Manufacturing competitiveness 3. Demographics	1. Overall business environment 2. IT infrastructure 3. Human capital 4. Legal environment 5. R&D environment 6. Support for IT industry development
Number of key factors	14	10	6
Number of key sub-factors	73	25	26
Data	Hard data; Surveys	Surveys	Hard data Qualitative assessments
Weighting	Unweighted	"Experience weight"**: Presence in 4 regions gives weight of 1; 3 regions – 0,75; 2 regions – 0,5; 1 region – 0,25.	Weights of categories: 1) 0,1; 2) 0,2; 3) 0,2; 4) 0,1; 5) 0,25; 6) 0,15
Normalization	Normalization on scale 1-to-7-	STD based on region competitiveness score and firm size – "Z score"	Qualitative: 1-to-5 scoring Hard data normalized
Other methods	Scoring economic variables on scale 1-to-7	• Experience weighting • Scoring on scale 1-to-10 for key factors	• Scoring 0-to-100 of the data
Aggregation into single-index method	Unweighted average	Average of key factors' scores	Weighted average of categories' scores
Scores	Highest possible score is 7	Highest possible score is 10	Highest possible score is 100

Notes:
* 403 valid CEO's responses from 6 regions of the World.
** Weighting accounts for both global experience and firm size. Research showed that sales/ distribution in multiple geographical regions led to a higher score for global experience.
- no information available

Sources:
(1) TTCI (World Economic Forum, 2009).
(2) Deloitte and U.S. Council on Competitiveness (2010).
(3) The Economist Intelligence Unit (2009).

Sector level competitiveness indices differ in number of countries' covered. Number of economic factors included is much smaller than in national level indices. Data is mainly categorized on business environment, infrastructure, human capital clusters, however economic variables underneath do not map between industrial indices like in national indices. Sector level indices differ on nature of data used, weighting techniques and displaying final scores. Basic steps on index construction are the same as in national-level indices: weighting, standardizing and / or normalizing the data, choosing methods for its aggregation into single composite index.

Measuring competitiveness. The competitiveness of can be measured in different ways: analyzing one or several factors of competitiveness, using theoretical models of competitiveness, creating composite indices, etc. According to Snieska, Bruneckiene (2009), competitiveness cannot be completely defined by one or several economic and social indicators. Thus, complex measurement of competitiveness is a must. The researches proved that the measurement by a composite index helps to solve the problem of complexity. It is quite common to use composite indicators for evaluating various objects such as „industrial competitiveness, sustainable development, quality of life assessment, globalization, innovation or academic performance" (Munda, Nardo, 2005, p. 6). Composite index is generally described as a grouping of factors combined in a standardized way, which provides useful statistical measure. OECD recognizes that composite indexes are increasingly favoured for being a useful tool when tracking economic health from different perspectives (Handbook on constructing composite indicators, 2008). Handbook cites Saltelli when explaining that for general public CIs are seemingly easier to use for interpreting general trends than trying to do the same by using many separate indicators (OECD, 2008, p. 13). Earlier version of this Handbook on constructing indices (also prepared by European Commission) cited Saisana et al. (2005) "[…] it is hard to imagine that debate on the use of composite indicators will ever be settled […] official statisticians may tend to resent composite indicators, whereby a lot of work in data collection and editing is "wasted" or "hidden" behind a single number of dubious significance. On the other hand, the temptation of stakeholders and practitioners to summarize complex and sometime elusive processes (e.g. sustainability, single market policy, etc.) into a single figure to benchmark country performance for policy consumption seems likewise irresistible" (Nardo et al. 2005, p. 6). Throughout construction of CIs there are stages where individual judgment is needed (i.e. data collection, choice of a model, assignment of weights, etc.). If the choices are not entirely appropriate there will be a large chance that CI is misleading (Chatziparadeisis, 2001). Table 3 shows advantages and possible dangers of using CIs.

Table 3. Advantages and disadvantages of composite indicators

Advantages	Disadvantages
1. Can summarize complex, multi-dimensional realities with a view to supporting decision makers 2. Are easier to interpret than a battery of many separate indicators 3. Can assess progress of countries over time. 4. Reduce the visible size of a set of indicators without dropping the underlying information base. Thus make it possible to include more information within the existing size limit 5. Place issues of country performance and progress at the centre of the policy arena 6. Facilitate communication with general public (*i.e.* citizens, media, *etc.*) and promote accountability 7. Help to construct/underpin narratives for lay and literate audiences 8. Enable users to compare complex dimensions effectively	1. May send misleading policy messages if poorly constructed or misinterpreted 2. May invite simplistic policy conclusions 3. May be misused, *e.g.* to support a desired policy, if the construction process is not transparent and/or lacks sound statistical or conceptual principles 4. The selection of indicators and weights could be the subject of political dispute 5. May disguise serious failings in some dimensions and increase the difficulty of identifying proper remedial action, if the construction process is not transparent 6. May lead to inappropriate policies if dimensions of performance that are difficult to measure are ignored

Source: Handbook on constructing composite indicators (OECD, 2008)

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EU policy: towards being the most competitive

One of EU policy priority is economic and social cohesion. Back in 2000 when Lisbon strategy was launched, European Union stated the goal to be "the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion" (Lisbon Agenda, 2000). By promoting cohesion, EU builds a strategy towards sustainable economic development, reduction of unemployment and social inequality, contributing towards environmental protection. To achieve these goals European Commission provides grants via Structural Funds and the Cohesion fund.

There are four Structural Funds – The European Regional Development Fund, the European Social Fund, the European Agricultural Guidance and Guarantee Fund, the Financial Instrument for Fisheries Guidance. These funds allocate structural support through three objectives: convergence (accounts for about 70 % of EU aid); European Territorial Cooperation and Regional Competitiveness and Employment.

During the 2004-2006 SPD Lithuania assimilated 3 090.9 million Litas (895 million Euro) of structural aid and another 1.09 million Litas (309 million Euro) was provided by Republic of Lithuania funds (in terms of co-financing). Cohesion Fund has already allocated 2 794.7 million Litas (809 million Euro) for Lithuania, and Programming for 2007-2013 – 7 690.7 million Litas (2227 million Euro) so far (according to www.esparama.lt).

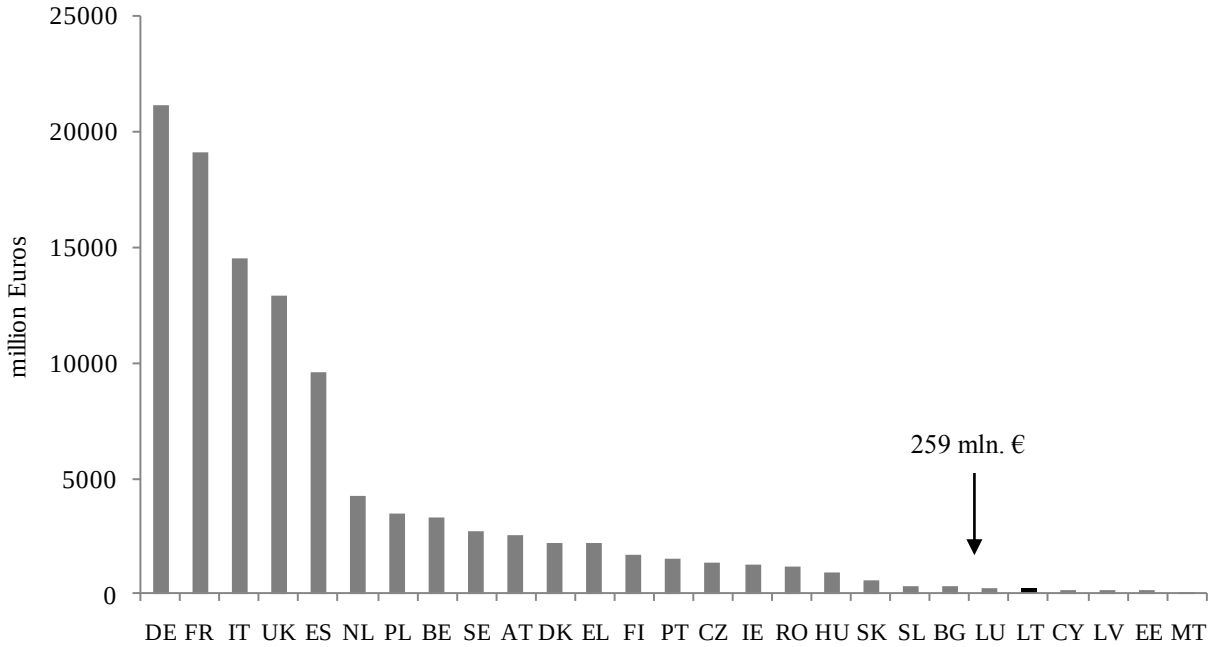
In addition, Lithuania receives EU financial support for agriculture and rural development (from the European Agriculture, forestry and fisheries funds) as well as for the participation in the European Community programs (e.g. in the fields of culture, education, and science and research), external EU border protection, and financing of the closure of the Ignalina Nuclear Power Plant.

It is estimated that there could be additional 52 billion litas of GDP created if all Programming for 2007–2013 structural support was absorbed (www.euro.lt).

When estimating the effectiveness of EU structural aid it must be realized that (Ederveena et al., 2002, p. 2):

1. Structural Funds work as income transfer;
2. Structural Funds must be co-funded by the receiver;
3. Only pre-specified projects receive this financial support.

Firstly, all countries, participating in this program (that is EU-27 countries) must contribute to European Union budget that is later divided for administrative tasks and structural support. Traditional own resources are collected by Member States (75% of a budget) the remaining national contributions (the rest 25%) are illustrated in Figure 1.



Source: European Commission, 2011

Figure 1. Breakdown by Member State of the financing of the 2011 budget of the European Union from own resources

In comparison with structural aid that Lithuania receives, the contribution to EU budget is not that big. However, despite the fact that most of EU financial assistance is in form of non-repayable grants, there are ceilings of 50-to-85% of contribution and the rest must be funded by the entity that receives this aid or by government (in terms of co-financing) (European Commission). Lithuania Free Market Institute outlines a problem of co-financing when national budget is allocated not necessarily in the most efficient way and might not contribute to long term social development strategy (LLRI, 2005, p. 5). In such case "the net growth effect may well be negative" (Ederveena et al., 2002, p. 2). According to them, the same effect applies on the feature that only pre-specified projects are funded. This could lead funds being allocated towards activities that are not potentially attractive in terms of growth. Their conclusion is that "Structural Funds are at best conditionally effective" and it depends on many factors whether net growth effect will be negative, zero or positive (Ederveena et al., 2002, p. 2).

Referring to the broader EU policy it can be outlined that after the decade of success and failure of Lisbon Strategy (Euractiv, 2008;) competitiveness is still not of the table. The need to be internationally competitive is again formed as an aim in new EU strategy "Europe 2020" (Europe, 2020). Therefore it can be assumed that analysis of policy impact on competitiveness level was and still is relevant.

Conclusions

1. Many different interpretations of the concept "competitiveness" might be explained by few structural ways to look at it: firm, sector, regional, national, block and international levels.
2. Comparison of competitiveness indexes on national as well as on sector levels showed that parallel analysis of few competitiveness indexes could guarantee both reliability and informative value of competitiveness evaluation.
3. Analysis of most recent practical researches and applications, the competitiveness index may be treated as a tool to measure economic sector's competitiveness as it is proposed to be one of the most comprehensive and easiest to interpret.
4. Despite the common objectives of growth, development and raising competitiveness there is an issue of uneven allocation of structural financing for different economic sectors thus leading to a distortion of a market and as well as a threat of ineffectively allocated national budget, which part is used for co-financing EU-funded projects.

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