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IF INSTITUTIONAL PERFORMANCE MATTERS: DEVELOPMENT COMPARISONS OF LITHUANIA, LATVIA AND ESTONIA

Manuela Tvaronavičienė[1], Virginija Grybaitė[2], Agnė Tvaronavičienė[3]

Vilnius Gediminas Technical University, Saulėtekio al. 11, LT-10223 Vilnius, Lithuania
E-mails: [1]manuela@vv.vgtu.lt; [2]virgi@vv.vgtu.lt; a.tvaronaviciene@post.lt

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Abstract. Presented paper aims to estimate and compare sustainable development processes in Lithuania, Latvia and Estonia after the European Union accession. Data embracing the 2004–2008 period is being analysed. Authors take into account that different approaches to countries' development assessment might affect their comparison results. In order to obtain a multi-faceted view, several variants of sustainable development estimations of Lithuania, Latvia and Estonia are being performed. Each variant represents a different approach to development perception. The difference lies in emphasis, which is being put on economic and institutional aspects of development. Juxtaposition of development estimation variants is expected to reveal range, within which the resulting index fluctuates and impacts ranging of countries. Integrated complex countries' development index is computed by using multi-criteria method. Authors of the paper compose a system of indicators, which is being employed for research purposes. Corollaries of investigation let us judge how much Lithuanian, Latvian and Estonian ranking according to estimated development level differs due to variations of approaches applied, and how sensitive calculations are to institutional performance and current economic downturn.

Keywords: sustainable development, institutions, Lithuania, Latvia, Estonia, multi-criteria evaluation, the EU.

1. Introduction: institutional facet of sustainable development

There is almost unanimous agreement that countries with rather similar level of economic development can differ a lot. The mostly used and statistically available indicator of countries development is GDP per capita; nevertheless, it does not reflect multi-facet differences of seemingly similar countries, which, in their turn, are reflected by other indicators. In scientific literature devoted to sustainable development, questions about taking into account various aspects of development, not embraced by *GDP per capita* indicator, are being widely discussed. Arrays of indicators tackling estimation of sustainable development levels have been elaborated by various scientists and organizations (Summers, Heston 1991; England 1998; Emes, Hahn 2001; The World Bank Group 2007; Eisner 1988; Robinson 2004; Hamilton, Clemens 1999; Dasgupta 2007; Grybaitė, Tvaronavičienė 2008). Nevertheless, the issue of development evaluation remains urgent and arguable. While aspects to be taken into account – economic, social, environmental and institutional – could be considered as conventional, specific roles, played by each development facet, still continue to be addressed in ample discussions. In that context, strand of scientific literature, tackling role of institutional development side, specifically, is to be seen as consistent with the topic. Hence, a group of scientists claim that institutions have to be perceived as a coherent part of sustainable development: from the one point, it reflects level of development, and, from the other one, it serves as a driving force pushing towards quantitative and qualitative prosperity of a country.

Scientists asserting prime importance of institutions in the process of development have a lot of disagreements on the whole range of questions, starting from definition of institution (whether political and economic institutions should be distinguished; whether institutions and organizations are synonymous, etc.). Another point of polemic concerns origin of institution, i.e. endogenous versus exogenous one. And the last, even admitting those pitfalls of interpretation, we still need to select indicators, reflecting institutional state, in order to be able to take into account institutional development input into achieved aggregated sustainable development level.

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In order to shed light on institution's definition discussion range, we can employ the World Bank working paper (Acemoglu, Robinson 2008). Authors claim that differences in economic institutions serve as the main determinant of prosperity across different countries. Economic institutions are seen as "collective choices that are the outcome of a political process", i.e. "depend on the nature of political institutions and the distribution of political power in society". If to put authors' understanding in the other way, we perceive that authors distinguish two types of institutions: economic and political. Political institutions condition efficiency of economic ones. Economic institutions, in their turn, are the main players consequently determining level of sustainable development. While admitting that economic institutions are shaped by political ones, the authors state that they have "a highly preliminary understanding of the factors that lead a society into a political equilibrium which supports good economic institutions". According to authors, some examples of political transitions leading to accomplishment of economic outcomes *ex-post* could be observed. Nevertheless, good practices do not lead to clear frameworks. We can add, that, according to Acemoglu, Robinson (2008) the role of geographic, cultural and human interaction determinants in strengthening economic institutions remains unclear. To generalize, the impression is that authors' distinguished economic and political institutions equally efficiently can be renamed, respectively, into "organizations" and "state institutions", or policies. We will return to those considerations after review of other authors' approaches. Other authors (e.g. North 1991), admit rather similarly that institutions provide the incentive structure of an economy and that, as the structure evolves, it shapes the direction of economic movement towards growth, stagnation or decline. Nevertheless, institutions, according to scientists, could obtain different meaning. North (1994) perceives institutions as humanly devised formal and informal constraints, respectively, rules, laws, constitutions, and norms of behaviour, conventions, self-imposed codes of conduct. Those formal and informal constrains, respectively, define the incentive structure of societies and, specifically, economies. North (1991) distinguishes institutions and organizations by indicating, that it is the interaction between institutions and organizations that shapes the institutional evolution of an economy. If institutions are the rules of the game, organizations and their entrepreneurs are the players. Institutions are the humanly devised constraints that structure human interaction. Organizations are made up of groups of individuals bound together by some common purpose to achieve certain objectives. To generalize that approach, it could be stated, that institutions and organizations must be two interacting parties, the first of which set rules or transmit those, which are already set, and another party (i.e. organizations), which act accordingly to the established rules. Meanwhile authors' further considerations make that understanding rather obscure by claiming, "organizations include political bodies (e.g., political parties, the Senate, a city council, regulatory bodies), economic bodies (e.g., firms, trade unions, family farms, cooperatives), social bodies (e.g., churches, clubs, athletic associations)". Frontiers between organizations and political institutions (terms introduced above by cited authors) remain rather blunt. Presented considerations appear rather consistent with North's criticism provided by other authors elaborating role of institutions in sustainable development process (e.g. Hodgson 2006). They start from distinguishing the main characteristic features of institutions, and, later, use those characteristics for comparison of organizations with institutions. Hence, authors recall, that "organizations are special institutions that involve (a) criteria to establish their boundaries and to distinguish their members from non-members, (b) principles of sovereignty concerning who is in charge, and (c) chains of command delineating responsibilities within the organization". Hodgson (2006) claims that North has been insufficiently clear. To wrap up discussion, we agree that there could be found rather differing interpretations of institutions. Nevertheless, we assert that notion of institution is much wider than notion of organization. To our mind, institutions could be considered in broad and narrow sense. In broad sense notions of institution embrace organizations, while in narrow sense North's approach can be adopted, i.e. "if institutions are the rules of the game, organizations and their entrepreneurs are the players" (North 1994: 361). It seems that in his comparatively late works North comes to similar corollary. He agrees that differences between institutions and organizations depend on the context (recall we introduced context specification as "narrow" and the "wide" one).

To conclude discussion about institution's notion or its perception let us stick to contextual framework, i.e. institutions embrace organizations in their direct understanding. If to consider further institutional impact on sustainable development processes we need to take into account both exogenous (outer) and indigenous (inner) stimuli to expand on various possible modes.

Nevertheless, for estimation purposes first of all we will consider the role of institutions as environment conditioning tools. The better institutional performance at separately taken country, the better performance of

organizations-market players, and the faster sustainable development processes. We adopt that premise, or to put it another way, hypothesis, we will employ for further elaborations.

2. Composing indicators' set in order to reflect institutional aspect of sustainable development

Despite principle agreement about impact of institutions on economic growth and sustainable development, a lot of criticism claiming comparative importance of other driving forces goes in parallel (Glaeser *et al.* 2004). Not going into polemic and basing our further elaborations on the premise about significance of institutions, let us choose a set of indicators suitable for further analysis, i.e. for processing by mathematical methods such as multi-criteria ones. As role of institutions could be partially expressed in their business environment conditioning outcomes, Economic Freedom of the World (EFW) index constructed by Gwartney and Lawson (2003) is widely discussed. Many authors (Ulubasoglu, Doucouliagos 2004) agree that both political and economic freedom impacts growth significantly and, as they claim, it has a positive effect. Alas, choosing compounding indicators for the set, reflecting institutional development facet, appears to be a much more complicated task. Authors indicate a wide array of possibly important aspects, which should be taken into account. One group of scientists (Gwartney *et al.* 2006) express an idea that institutional quality could be reflected through private investment. It means, that not only business environment (e.g. measured by EFW), but also supposed outcomes are important. Here we need to recall, that direction of relationship, i.e. whether institutional environment causes investments, whether investments just reflect quality of institutions, remains an arguable issue. Another group of scientists (e.g. Rodrik 2000) raise a question, which institutions are important, and consequently, (we reckon) what effects should be measurable. E.g., the following facets of institutional impact are being listed: property rights, macroeconomic stabilization, social insurance, and conflict management. It is obvious that listed facets of institutional performance embrace a too wide range of sustainable development facets.

To our mind, tackling institutional development impact on sustainable development it is reasonable to distinguish two general groups of indicators: economic indicators, and institutional indicators**.** It is obvious, that those groups in some respects overlap (e.g. Redek, Sušjan 2005), and any attribution to one or another group is rather conditional (Grybaitė, Tvaronavičienė 2008). Agreeing, that economic indicators would embrace major macroeconomic and some social facets (Table 1, Economic indicators), let us concentrate further very specifically on indicators, which do not fall under economic development characteristics. Taking into account the above presented considerations about direct or indirect interconnection of almost all sustainable development indicators let us select indicators, which would reflect institutions in "narrow" sense, as was distinguished in theoretical discussion about institution's perception. Hence, the following indicators, as reflecting institutional impact on sustainable development processes are being selected: *Rule of law* (measuring perceptions of the extent to which agents have confidence in and abide by the rules of society, and, in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence), *Government effectiveness index* (measuring 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), *GDP on R&D, % of GDP, Level of Internet access*, *Level of citizen's confidence in EU institutions, in per cent*, *Index of Economic Freedom*, *Corruption perception index*, *E-government online availability, in per cent*, *Voter turnout in national and EU parliamentary elections, in per cent* (Table 1, Institutional indicators). Listed indicators will comprise institutional indicator group, while estimating relative sustainable development level of Lithuania, Latvia and Estonia.

Indicators, included into the set (Table 1) meet the following requirements (Bruntland (1987); National Strategy for… (2003); Disano (2002): they do not contradict each other; could be put into the hierarchical range according to significance; are intrinsic to all considered countries; numeric values of chosen indicators are available. Indicators are attributed to two groups, representing, respectively, economic and institutional aspects of development.

3. Quantitative evaluation of relative sustainable development in Lithuania, Latvia and Estonia

Indicators' set, or we could call it a system, is composed *ad hoc* to reflect institutional aspect of sustainable development. To put it another way, we suggested the set of indicators, which is customized for research purposes, i.e. is suitable for revelation of relative impact of institutional development on aggregated level of sustainable development. Recall, that complexity of

Table 1. Indicators' set characterizing sustainable development with emphasis on institutional facets

Economic	*Institutional*
GDP – current prices (euro per inhabitant);	Rule of Law;
Real GDP growth rate, percentage of change over previous year;	GDP on R&D, per cent of GDP;
Annual average inflation rate;	Government effectiveness index;
Business investment, per cent of GDP;	Level of Internet access;
High-tech exports, as a share of total exports;	Level of citizens' confidence in EU institutions, in per cent;
Growth rate of labour productivity per hour worked, percentage of change over previous year;	Index of Economic Freedom;
General government debt;	Corruption perception index;
FDI intensity;	E-government online availability, in per cent;
Inequality of income distribution;	Voter turnout in national and EU parliamentary elections, in per cent
Unemployment rate, in per cent	

task to construct a set of indicators reflecting the level of country's sustainable development and variety of opinions has led to a situation in which, e.g. Germany uses a system, which includes 218 indicators; France's and Finland's systems include, respectively, 307 and 88 indicators (Statistical Office…2004; Department of Statistics…2007; United Nations 2007).

As it was pointed above, the presented paper does not aim to compliment devised sets of indicators already reflecting a wide range of development aspects. On the contrary, authors raise questions of practical application of complex approach, i.e. how aggregation technique of rather limited indicators' set affects country's ranging. Composing indicators' set, modelling different significances and application of multi-criteria evaluation on data of Lithuania, Latvia and Estonia, would allow us to reveal limits, within which obtained results could fluctuate. Fluctuation range, in its turn, would indicate how much results could be affected by application of different development estimation premises.

Authors have chosen presented research questions for clearly set practical purposes. Multi-criteria methods, as a rule, use experts' questioning. For countries' comparisons multi-criteria methods, which conventionally suggest participation of experts, are usually applied. We assert that the so-called "experts" in that particular case would express only their personal beliefs and values; discussion about, what aspects of development are more significant, is too great and complex to be wrapped up by experts. Opinions about more or less significant development sides can vary; experts could be biased. Switching from experts' questioning to modelling of significances of indicators included into set, would allow us to reveal how much results could change if differently thinking groups of experts would be employed. Those revealed differences are seen as tertiary data letting to judge about the impact of institutional development on sustainable development level, when different approaches to significances of economic and institutional aspects are being adopted.

3.1. Multi-criteria method and indicators' weighting

Multi-criteria method allows us to aggregate values of included indicators into system, and receive the value of one integral indicator. That integral indicator would represent measure of considered countries' development at a particular moment. Computing of such indicators for a certain period (in our case years 2004–2008) allow deriving tendency of development of a concrete country. Integral indicators computed for Baltic countries would allow comparing countries and getting insights of their development specifics.

We will use the most popular method: multi-criteria complex proportional method (MCP). This method is used to normalize (convert indicators being maximized and minimized into one direction changing ones) values of included into system indicators (Ginevičius *et al.* 2006; Ginevičius 2006, 2008; Ginevičius, Podvezko 2008a, b; Zavadskas *et al.* 2006, 2008; Zavadskas 2008; Turskis *et al*. 2009). Not going into details, we just recall principles of multi-criteria methods' application.

Multi-criteria methods are devised to connect the product of two values. The first value is significance or weight of a particular indicator included into system; the second value is the value of the indicator, for which significance has been determined. Usually significances are set as decimals, sum of which is equal to one (1):

$$\sum_{i=1}^{m} w_i = 1, \qquad (1)$$

where w_i – *i*- significance of considered indicator ; m – number of indicators included into system ($i = 1, ..., n$).

In our case multi-criteria evaluation was performed on 19 indicators' basis (Table 1). Development of Lithuania, Latvia and Estonia was estimated taking annual values of considered indicators r_{ij} ($i = 1, ... m$; $j = 1, ..., n$), where m – number of indicators, n – number of countries.

Researchers' input includes selecting indicators to include into system, characterizing elaborated phenomenon, and attributing significances to those indicators. The mostly spread approach to deciding, what significance to attribute to a particular indicator, is to employ experts. Experts are extremely useful in providing information about e.g. personal priorities, perception of stimuli for work, etc. Considering such a complicated question as estimation of countries' development we allowed that opinions of experts, which due to a variety of beliefs, can be diametrically different. Even more, there is a principal question if opinions of randomly chosen experts in our case can be employed. Different sets of experts most likely would give different weights. For those reasons we adopted an idea to model mathematically three plausibly different approaches to development; one would emphasize economic aspects of development, the second one would emphasize institutional aspects, and in the third case all indicators included into system would be considered as equally significant. Comparisons of resulting aggregated indicators' values would reveal how much adopted approach reflected by attributed significances affects the final result.

To get answers to the raised scientific question, three different situations are being mathematically modelled.

In the **first situation** economic aspects of development are considered as the most important and, appropriately, economic indicators receive the highest significances.

In the **second situation** institutional aspects are more stressed, hence, higher significances are attributed to them.

In the **third situation** economic and institutional aspects are considered equally important; hence all indicators receive the equal significances.

3.2. Results of Baltic countries' development estimation in the EU context

In the first mathematically modelled situation economic aspects of development are stressed; the highest significances are attributed to indicators included into group of economic ones (Table 1). Data employed in calculations represent mathematical averages of selected indicators, computed for years 2004–2008. Rationale behind choosing of averages lies in the following considerations. As we know, macroeconomic conditions during the last years have been changing drastically in the majority of countries. Notion of sustainable development embrace a vast array of dimensions of development, hence, to avoid distortions we decided to base our countries' comparisons on period averages, as providing more objective insights into processes of sustainable development. Aggregated indexes computed for Lithuania, Latvia, Estonia, for old European Union (EU-15), and extended European Union (EU-27) countries for averaged 2004–2008 period, let us draw the following conclusions. Emphasis on economic development puts Estonia into the first place. It is followed by Latvia and Lithuania. It is especially peculiar, that according to received results Estonia in terms of development surpasses countries of EU-15 and EU-27 blocks during the considered period (Fig. 1).

For the comparison reason, let us glance at dynamics of aggregated indexes of the Baltic countries during the time period of 2004–2008 and respective EU-15 and EU-27 ones, in that particular case, they display different tendencies for change (Fig. 2). Calculations here were performed by employing statistical data for each considered year. We can observe, that countries regroup in the year 2008, what confirms our considerations presented above, i.e. suggestions rely on period data averages, while emphasizing economic aspects of sustainable development.

In the second modelled situation we assume that institutional aspects of development are being emphasized. Hence, economic indicators are being considered as less important in comparison with institutional ones, when level of sustainable development is estimated. Application of multi-criteria method provides us with rather similar results: in the averaged period of 2004–2008 Estonia is the country, which among the Baltic countries achieved the highest level of development (after EU-27 and EU-15). Lithuania and Latvia according to calculations appear, respectively, in the second and the third places (Fig. 3). Differently, compared to the first situation, the European Union countries appear better developed than Lithuania, Latvia and Estonia. If European context is taken into consideration, EU-15 countries get into the first place, EU-27 get into the second, the third place is occupied by Estonia, the fourth and the fifth by Lithuania and Latvia respectively. Observation of development dynamics of all considered countries (Fig. 4) provides us with some additional specific insights.

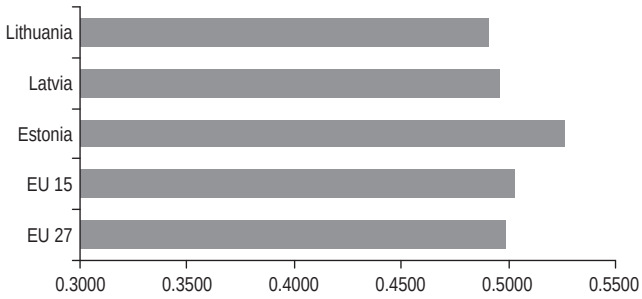

Fig. 1. Aggregated assessment of Baltic countries in the EU context during the averaged period of 2004–2008 (the first situation). Data source: Eurostat, Transparency international, The Heritage Foundation, computed by authors

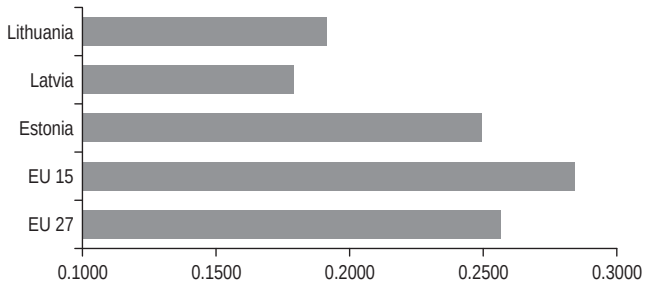

Fig. 3. Aggregated assessment of Baltic countries in the EU context during the averaged period of 2004–2008 (the second situation). Data source: Eurostat, Transparency international, The Heritage Foundation, computed by authors

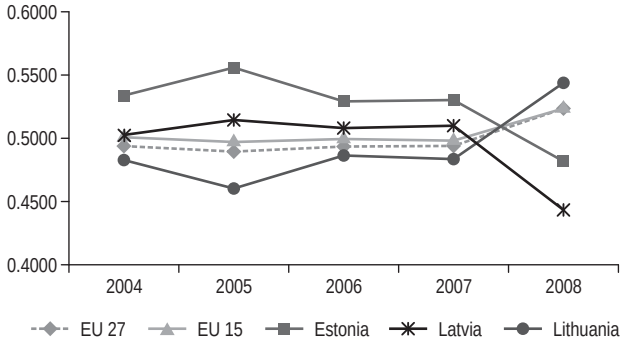

Fig. 2. Dynamics of aggregated assessment of Baltic countries in the EU context during the period of 2004–2008 (the first situation). Data source: Eurostat, Transparency international, The Heritage Foundation, computed by authors

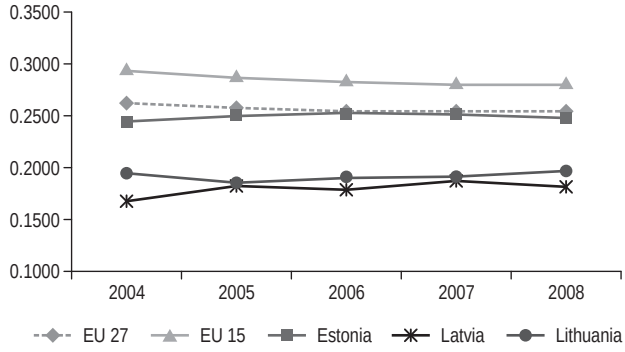

Fig. 4. Dynamics of aggregated assessment of Baltic countries in the EU context during the period of 2004–2008 (the second situation). Data source: Eurostat, Transparency international, The Heritage Foundation, computed by authors

Comparison of calculations' results based on the averaged 2004–2008 period data versus results on year-to-year data provides us with similar ranking of countries according to estimated sustainable development level. That confirms the above presented speculations about distorting impact of economic downturn on evaluation of sustainable development and adds ground to application of data averages for multi-criteria computations, especially, when economic aspects in estimations prevail.

In the third modelled situation we assume that economic and institutional aspects of development are being treated as equally important, and hence, equal significances are attributed to all indicators included into sustainable development system. Application of multi-criteria method provides us with rather similar results as in the modelled second situation, where greater significances are attributed to institutional indicators. In the averaged period of 2004–2008 Estonia is the country, which among the Baltic countries achieved the highest level of development (after EU-15 and EU-27). Differently, if to compare with the second situation, Estonia surpasses EU-27 countries. Lithuania and Latvia according to calculations appear, respectively, in the second and the third places (Fig. 5). If European context is taken into consideration, EU-15 countries get into the first place, EU-27 get into the third, the second place (third in the second situation) is occupied by Estonia, the fourth and the fifth by Lithuania and Latvia respectively. Observation of development dynamics during the period of 2004–2008 of all considered countries (Fig. 6) does not provide any additional specific insights besides described above. In the year 2008 ranking of countries regroup, obviously, because of the impact of economic downturn.

Juxtaposed Baltic States' multi-criteria sustainable development rankings' results obtained using averaged data of the 2004–2008 period are presented in Table 2.

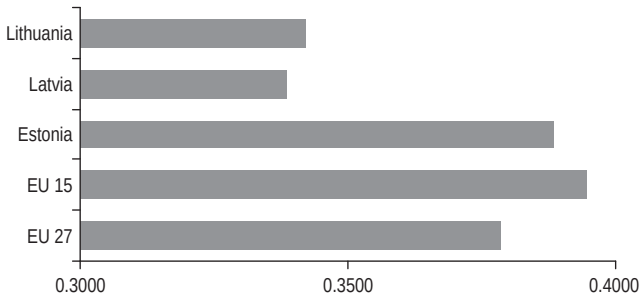

Fig. 5. Aggregated assessment of Baltic countries in the EU context during the averaged period of 2004–2008 (the third situation) Data source: Eurostat, Transparency international, The Heritage Foundation, computed by authors

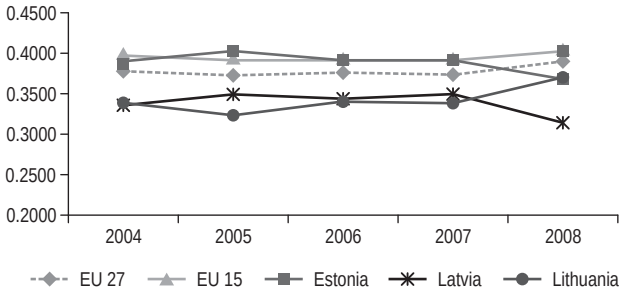

Fig. 6. Dynamics of aggregated assessment of Baltic countries in the EU context by MPC method during the period of 2004–2008 (the third situation). Data source: Eurostat, Transparency international, The Heritage Foundation, computed by authors

Table 2. Ranking of Baltic countries according to multi-criteria evaluation variants

Ranking according to multi-criteria evaluations	ESTONIA	LITHUANIA	LATVIA
1 situation (economic development aspect emphasized)	1	3	2
2 situation (institutional development aspect emphasized)	1	2	3
3 situation (economic and institutional aspects are considered as equally important)	1	2	3
Average Place	1	2	3

4. Conclusions

Research has led us to the following generalizations. Despite the strand of scientific literature is devoted to institutional performance issues and discusses the impact of institutional development on sustainable development, there is no general agreement how to perceive institution itself. We suggest that institutions in a "broad" and "narrow" sense should be distinguished. Categorization of institutions let define the object of research and select respective indicators for reflection of its development dimensions.

Selection of sustainable indicators' system is complicated and partly subjective. For multi-criteria evaluations indicators' system has to be sufficiently concise, comprising indicators quantitatively available. Hence, reflecting of, e.g., institutional performance requires short cut of other aspects of sustainable development. Significances, attributed to indicators included into system, are crucial because, finally, they affect ranging of countries. Countries' ranking changes when emphasis is switched from economic indicators' group towards institutional indicators' group.

Attributing higher significances to economic indicators distorts the concept of sustainable development during the period of economic downturn.

Modelling of significances of indicator's system suggested that institutional performance affects sustainable development level. Switching from emphasis on institutional performance indicators towards equal treat of all system indicators provided with the same Baltic State countries ranking results, what, in its turn, verifies hypothesis about high importance of institutional performance for the process of sustainable development enhancing.

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