Measurement of Entrepreneurship Macro Surrounding Advantages: Country's Economic Competitiveness Approach

Antanas Buracas[1], Algis Zvirblis[2], Izolda Joksiene[3]

[1] *International School of Management at Vilnius University*
Sauletekio al. 22, LT-10225, Vilnius, Lithuania
e-mail: antanas@buracas.com

[2, 3] *International School of Law and Business*
Laisves pr. 58, LT-05120, Vilnius, Lithuania
e-mail: info@ttvam.lt, izolda.joksiene@ttvam.lt

The economic development in the newly EU countries is oriented to the restructuring of economy also reduction of the differences in the economic development level of various regions. The enlargement of country's competitive ability and creation of a modern knowledge-based economy are the priorities of the development.

This paper concerns the measurement backgrounds of entrepreneurship macro surrounding advantages as a country's economic competitiveness determinant that applicable for reasoning of the attitudes and decisions of economic development strategy using multi-attribute decision making methods. In principle, the assumption is made that the measurement must be performed according to the approach to every key determinant as a partial economic competitiveness which is subject of essential primary competitiveness macro factors. The conceptual provisions are foremost focused on the measurement of a totality of the national macro surrounding advantages based on the generalized model which reflects the interdependencies of primary macro factors in a system with account of the impact (vector) of each of them. This study is intended to reveal the deterministic measurement possibilities oriented to the reasoned multiple criteria evaluation methods on the basis adopted for the particular task models.

The technique supposes the following procedures: the identification of essential primary macro factors, their quantifiable assessment (in points) as primary criteria allowing the different weights of the impact on economic competitiveness and the composition of task pillars. When examining the primary macro factors, the indicators of global country's competitiveness index established by the World Economic Forum were taken into account. The whole of the typical primary macrofactors selected by three task pillars (those of specific business infrastructure, common economic surroundings, fiscal and monetary policy macrofactors) is presented.

The favorability indexes of each pillar (as partially integrated criteria having different significance) and, in its turn, the generalized measure – macro surroundings favorability index have been determined by applying, in particular, Simple Additive Weighting method.

Lithuania's macro surrounding advantages were evaluated according to the proposed technique: they may be scored at 54 point (in 100 point system).

Keywords: *economic competitiveness, entrepreneurship macro surrounding advantages, competitiveness determinant, primary macro factors, macro factor pillars, multiple criteria evaluation methods.*

Introduction

The enhancement of total competitive ability in the transitional economies requests the creation of a modern knowledge-based economy, the sustainable economic growth and the enlargement of the country's economic competitiveness. The enumerated features are the priorities for the macroeconomic development in Lithuania also in other countries - newly EU members, that should coordinate their economic development with the EU policy by restructuring it also lead to the reduction of the differences in the development level of various regions. It means that programmed macroeconomic development strategy must be based on the forecast of the main competitive advantage-oriented changes and effective attitudes also development indicators determining growth

of economic competitiveness as well as entrepreneurship effectiveness (Vasiliauskas, 2007; Brauers et al., 2007). Thus, the topics of the research and evaluation of economic competitiveness (its determinants) are determined by some important aspects, first-of-all, when validating the strategic decisions of economic development according to the general criteria. The measurement also serves for the purpose of quantifying different sources of economic competitiveness. It is actual for the purposeful monitoring (or correction) of the economic development strategy and its ex-post valuation. The notion of *competitiveness* steamed from its determination at the firm level and has become a prominent concept in the assessment of regions (countries) in accordance with the conceptual framework of competitiveness and clusters introduced by M. Porter (2008). On the one hand, the researchers mostly discussed

the definition and measurement of competitiveness (economic too), on genesis of the main characteristics such as macro vs. micro, static vs. dynamic, positive vs. normative, ex ante vs. ex post (Aiginger, 2006; Siggel, 2006). On the other hand, the most important theoretical as well as empirical research works supported the analysis of substantive macroeconomic development problems. They were focused on the global problems of structural economics and entrepreneurship transformations, on economic growth and dynamic macroeconomics, effectiveness of the development processes and emphasize the expanded economic models, theorization on the economic growth effects, related mathematical techniques, when analyzing the concept of sustainable development of regions, of financial system, etc. (Biswas, 2008; Dritsaki, 2008; Snieska, Bruneckiene, 2009; Sng et al., 2009; Gries, Naude, 2010). The studies examine simple monetary and fiscal policy, level of government debt under certain conditions (it is impossible to infer how strongly monetary and fiscal instruments should be used, without explicit reference to the level of government debt), the impact of changes on the economic development (Zvirblis, 1997; Allen, Gale, 2004; Tanzi, 2008; Leith, von Thadden, 2008; Rutkauskas, 2008). The significant indicators characterizing the development of the financial sector which have the correlation with the GDP per capita foremost in the Baltic States were revealed (Lakstutiene 2008). The matter under investigation is how multinational enterprise activities have an impact on economic development in newly EU countries (Oreja-Rodriguez, Yanes-Estevez 2006; Salciuviene et al. 2009).

The investigation of the entrepreneurship development processes reveals the actual problem of the interaction between economic growth and system sustainability. The spectrum of research themes focused on entrepreneurship advancement is wide: from the development parameters (quantitative growth, qualitative advancement), to the impact of foreign direct investment (FDI) on this development, situation in business macro surroundings and governmental protections (Fairbairn, 2006; Man et al. 2008; Becchetti, Pisani, 2010; Gomez-Gras, Mira-Solves, Martinez-Mateo, 2010) till specific researches of clusterization level, implementation of innovations, corporate social responsibility (CSR), enhancement of business performance, small and medium enterprises (SMEs) working effectiveness, entrepreneurial self - efficacy, constellation of competitive advantage, SMEs marketing and product competitiveness (Fleisher, 2003; Avlonitis, Salavou, 2007; Bloom, 2009; Geoff et al., 2009; Lechner, Leyronas, 2009; Misztal 2009; McGee et al., 2009). Research of important Lithuanian entrepreneurship development priorities was performed in detail (Krisciunas, Greblikaite, 2007).

Thus, a review of related researches has shown that just few studies deal with determinants of the country economic competitiveness. To tackle the scientific problem, this study is focused on the technique of quantitative measurement of exceptional economic competitiveness determinant – the entrepreneurship macro surrounding advantages. The adequate basic models adopted have to be developed, in particular with the account of specificity of quantitative evaluation methods to be used with holistic approach to the influence of totality macro factors and the hierarchy in their influence on economic competitiveness in countries - newly EU members. The main *problem* is how to evaluate the determinants of economic competitiveness. *The object of this research* is a country entrepreneurship's macro surrounding as economic competitiveness determinant. *The aim* is to develop the measurement framework for the entrepreneurship macro surrounding advantages. *The research methods*: a systemic review and generalization of scientific publications, multi-aspect analysis of economic competitiveness as phenomenon, multiple criteria evaluation by Simple Additive Weighting (SAW) method.

The initial investigation

It is purposeful, first-of-all, to interpret a country's (or its region) economic competitiveness as a multidimensional phenomenon when discussing on its measurement principles to be analyzed on multi criteria approach. Second, it is a priority parameter of country's economic activity relative to the international economy, legal, financial, natural, etc. resources and geographic location (Rutkauskas, 2008). Vasiliauskas (2007) emphasizes the strategic decisions in the problematic (common and specific) areas when developing the methodological issues for the strategic management of Lithuanian economic development till 2020 oriented to national priorities. Common areas are indicated in detail as follows: national economic resources, abilities, distinctive competencies, physical and social infrastructure, sectorial structure of economy, sustainable regional development, international economic relations (foreign trade, economic integration), advancement of entrepreneurship and, eventually, its governmental protection level. Orientation to knowledge economy, of course, has exclusive importance for newly EU countries. So, macro surrounding advantages, that affected the economic competitiveness to a high degree, have been examined as the key competitiveness determinant. Third principal assumption consists of the measurement of country's economic competitiveness that has been performed on the basis of the evaluations of its key competitiveness determinants (defined as partial economic competitiveness') if the competitiveness of every key determinant is the subject to essential primary competitiveness macro factors. This assumption consists of the quantitative dependencies existing among the increase of competitiveness determinants and growth of general competitiveness.

The measurement of a country (region) global competitiveness may be based on the appropriate adequate methodology allowing for the partial competitiveness measures defined using reasoned quantitative methods. Of course, the assessing reliability of growing global competitiveness possibilities under different reliability levels may be allowed because the stochastic characteristics of competitiveness growth are typical (Rutkauskas, 2008). Analogous view is well-founded when tackles a problem of the measurement of macro surrounding advantages subject to the economic competitiveness and marking many

integrated characteristics. Substantially, the same measures of several advantages dimensions which are closely relative when interacting in any system, in practice not always can determinate the generalized ratios.

This paper is oriented to the requirement to apply the multi attribute decision making methods (MADM) by designing the economic development strategy in country – newly EU member. We discussed on the deterministic measurement of macro surrounding advantages determinant that assumes the complexity of the different possible macro factors (providing an outline of the relationship of different surrounding factors). The entrepreneurship macro surrounding advantages may be distinguished when examining the validation principles of programmed attitudes (indicators) oriented to the growth of economic competitiveness, conjointly with the other key determinants, such as appliance of national resources, abilities and competencies, economy structure (global, sectorial, regional). The scheme of interactions focusing on the measurement (multiple criteria evaluation) of competitiveness determinants including entrepreneurship macro surrounding advantages is presented in Figure 1.
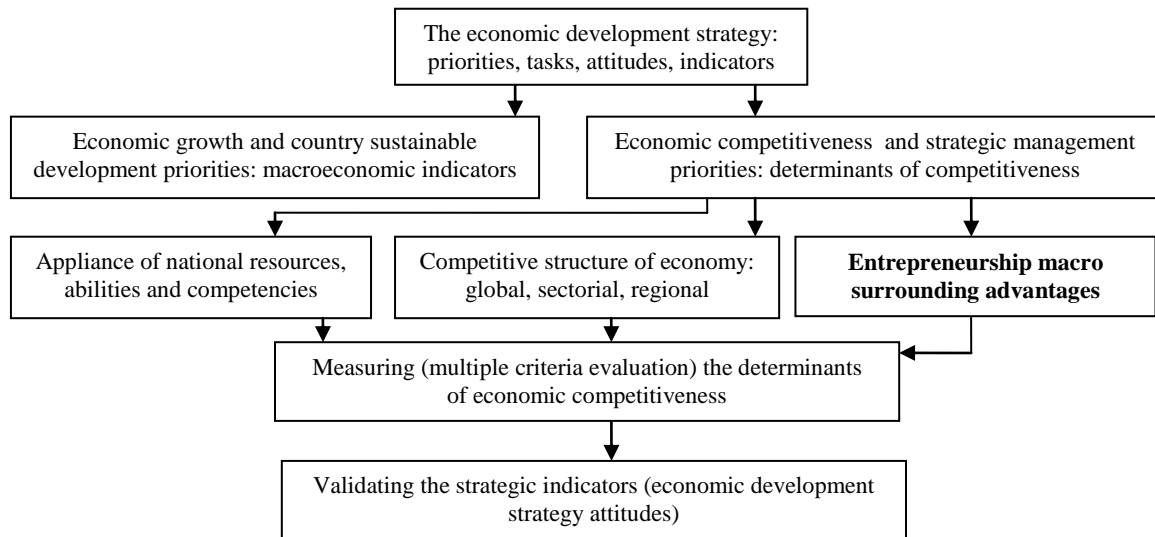

Figure 1. The scheme of interactions designing the economic development strategy: evaluating the determinants of economic competitiveness and validating the strategic attitudes Composed by the authors

The standard macroeconomic indicators determining the global country competitiveness index (attributable to entrepreneurship surroundings and having influence on economic competitiveness) and established by the World Economic Forum (WEF) may be taken into account when examining the macro surrounding advantages in a simplified way. The comparison of the Baltic States ranking in 2010/2011 (The Global...., 2010/2011) according to selected indicators is presented in Table1.

The comparison of competitiveness indicators shows some substantial differences of competitiveness indicators: for government debt adequately Lithuania - 46, Latvia 63 and Estonia - 5 places. According to the extent and effect of taxation Estonia also differs from other comparative states as having benevolent liberal influence on entrepreneurship competitiveness: its distance from the rank of other countries under review amounts up to 100 and more places.

The additional indicator evaluations can be added in the following research depending on the particular tasks of the examination of the country's economic competitiveness determinants. However, the WEF methodology, when the predetermined fixed weight values are applied, does not permit the possibility to evaluate more adequately the different significance of primary indicators; of course, it is relevant to adapt those pillars in the case of various developed countries.

Besides, WEF examination does not encompass comparative multiple criteria evaluation of the countries economic competitiveness with the account of their exceptional national development resources and, especially, strategic priorities.

The measurement technique of macro surrounding advantages

The authors provided a theoretical measurement framework and empirical viewing on a basis of the general evaluation model reflecting the principal attitudes presented above. The conceptual provisions consist first-of-all in the necessity to formalize investigated determinant and to describe the dependences of primary macro factors; the direction of the impact (vector) of each of them must be described in principle.

Therefore, an all-round (general matrix) expression of the entrepreneurship macro surrounding advantages' vector $\{A^{(M)}\}$ may be represented in the following way:

$$\{A^{(M)}\} = \begin{bmatrix} g_{11} & g_{12} & \cdots & g_{1n} \\ g_{21} & g_{22} & \cdots & g_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ g_{n1} & g_{n2} & \cdots & g_{nn} \end{bmatrix} \begin{bmatrix} \{L_1\} \\ \{L_2\} \\ \cdots \\ \{L_n\} \end{bmatrix}, (1)$$

where: g_{11}, g_{12}, ..., g_{nn} - the significances of the direct and indirect impact of essential macro factors (vectors $\{L_1\}$, $\{L_2\}$, ..., $\{L_n\}$) determining a descriptive determinant vector $\{A^{(M)}\}$; n - number of essential primary macro factors.

Table 1

The comparative ranking data of Baltic States competitiveness in 2010/11 by selected macroeconomic indicators

Selected primary macroeconomic indicators included into the global competitiveness index pillars*	Lithuania		Latvia		Estonia	
	Rank	Score	Rank	Score	Rank	Score
Government debt	46	29.3	63	36.1	5	7.2
Government budget balance	124	-8.9	125	-8.9	29	-1.7
Burden of government regulation	115	22.7	88	3.1	7	4.4
Prevalence of trade barriers	64	4.7	29	5.2	14	5.6
National savings rate	93	15.9	25	30.2	47	24.1
Country credit rating	64	52.7	80	45.1	56	57.1
Interest rate spread	13	1.9	101	8.2	51	4,6
Ease of access to loans	112	2.2	125	2	50	3
Total tax rate	75	42.7	44	33	98	49.4
Extent and effect of taxation	126	2.7	117	2.9	18	4.3
Availability of financial services/financial market sophistication	74	4.5	86	4.3	43	5.1
Soundness of banks	87	4.8	127	3.9	72	5.2
FDI and technology transfer	105	2.9	103	2.9	92	3.1
Prevalence of foreign ownership	99	4.5	63	4.9	48	5.1
Extent of market dominance	45	4.5	69	4.1	61	4.3

Composed by the authors using WEF data (The Global…, 2010/2011).
*Rank between 134 states, score for non-dimensional indicators determined by WEF experts: 1- the worst; 7 points – the best possible.
Other indicators are taken by their dimension or as % of GDP

Undoubtedly, the applicability of the model (1) is linked with the transformation according to the applicable quantitative evaluation method taking into account the essential macro factors (however having different significance) in a specified situation. This study is focused on the principles of the deterministic measurement of national entrepreneurship macro surroundings advantages; the framework is based on applying the reasoned quantitative evaluation methods and designed for this particular task model. The involvement of a great multitude of different macro factors including non-dimensional variables is imperative, they may have in principle the maximized or minimized values. Besides, it is necessary to constitute the sophisticated theoretical and methodological tools to use an adequate quantitative evaluation method for the particular purpose. The developed backgrounds foremost are oriented to the quantifiable assessment (in points) of the identified primary macro factors (as primary criteria) allowing to make different their impact weight on economic competitiveness and the composition of task pillars of primary macro factors. In this case, the indexes of each pillar (as partially integrated criteria) have been established and, in turn, according to their relative significance determined the general measure – macro surroundings favorability index.

When analyzing the applicability of the quantitative evaluation methods, specific for measurement of macro surrounding advantages, the exclusive approach may be applied when evaluating the analogous social processes (Ginevicius, Podvezko, 2009; Joksiene, Zvirblis, 2010). Thus, the multiple criteria evaluation SAW (Simple Additive Weighting), COPRAS (COmplex PRoportional ASsessment), TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) methods may be applied (Zapounidis, Doumpos, 2002; Peldschus, 2007; Ginevicius et al., 2008). The SAW method is suitable in the case when all valuated primary factors are independent and when their interaction in the system is insignificant when they determine the generalized criterion (as in the investigated

situation). This criterion reflects in full the aim of quantitative multiple criteria evaluation methods integrating the primary criteria values and weights into a single magnitude. In this case, the SAW method is expedient to be applied; moreover synthesis of SAW and scenario methods is advisable (Zvirblis, Buracas, 2010). So, the suggested measurement technique includes those consecutive procedures A, B, C, D**.**

Procedure A: Investigation of the country economic competitiveness determinants, advantages/disadvantages of entrepreneurship macro surroundings, identification of essential macro factors and composition of the pillars expanded. As it was mentioned, it is expedient to select the primary macrofactors describing the entrepreneurship macro surrounding advantages in the developed evaluation system conditionally by pillars. So, for newly EU countries three expanded pillars of typical macrofactors were composed (Table 2), a pillar of specific business infrastructure macrofactors, a pillar of common economic surroundings macrofactors and pillar of fiscal and monetary policy macrofactors.

The possibility to include additional (important for investigated country) primary macro factors is acceptable. So, such important macro factors not accounted by the WEF expertize are as follows: the free economic zones, transport infrastructure parameters, EU structural funds use, export promotion, financing of investment programs, fiscal regimes.

Procedure B: The quantifiable expert examination of primary macro factors (for example, in 100 points system) and their weights (a non-dimensional expression). The determinative primary macro factors in pillars have to be qualified according to their weights and the sum of weight coefficients for all primary macro factors in every pillar must be equal to 1. Undoubtedly, part of these typical macrofactors (unemployment level) have quantifiable measure or have been determined quantifiable by applying the derivative measures.

Table 2

The whole of typical primary macrofactors selected by expanded pillars

Pillar of macrofactors specific for business infrastructure:	Pillar of common economic surrounding' macrofactors:	Pillar of fiscal and monetary policy macrofactors:
Energetics state and policy	Unemployment level	Taxation system characteristics
Free economic zones	Foreign direct investments	Tax concessions for SMEs
Transport infrastructure parameters	Financing of investment programs	Fiscal regimes
Transit potential	Financial services sophistication	Discount ratios
Infrastructure of finance system	Country credit rating	National currency stability
Custom terminals	Knowledge economy potential	National budget balance and debt
Business incubators	Export promotion	Development of foreign relations
High technology centre	Regional policy attitudes	
	Incentive attitudes for entrepreneurship	
	Using of EU structural funds	
	Legal antimonopoly attitudes	

Nevertheless, their ultimate evaluation is advisable in points, the normalization procedure is unnecessary in the case. The reliability of expert examination was achieved by applying the methods justified theoretically, in any case, with summing-up numbers (ratings) of macro factors in a row, with calculations of concordance coefficient *W*, the concordance coefficient significance parameter χ^2 (Pearson's Chi- Square Test), etc. The necessary reliability of expert examination is achieved when the value of the concordance coefficients *W* amounted to 0.7 – 0.8; the parameter χ^2 to be acceptable by the pre-selected level α= 0.05 and by α= 0.01.

Procedure C: The estimation of the favorability indexes (in points) of designed macrofactor pillars and establishment of significances of these partially integrated criteria. So, the favorability index *P(I)* of the each pillar of macro factors may be defined according to model:

$$P(I) = \sum_{i=1}^{i=m} c_i P_i; \sum_{i=1}^{i=m} c_i = 1, \qquad (2)$$

where c_i − the weight coefficient of primary indicator P_i direct influence on index *P(I); m* - number of essential primary macro factors describing index *P(I)*.

Procedure D: The establishment (in points) of macro surroundings favorability index *FR(I)* (as generalized measure) on basis of the partially integrated criteria values (ratios) determined previously and their significances. The value of index *FR(I)* was determined by using additive criteria ratio assessment method in accordance with the following equation:

$$FR(I) = k_f M(I) + k_e E(I) + k_s S(I); \qquad (3)$$

where: *M(I)* - the favorability index of the pillar of fiscal and monetary policy macro factors; *E(I)* - the favorability index of the pillar of common economic surrounding macrofactors; *S(I)* - the favorability index of the pillar of specific business infrastructure macro factors; k_f, k_e, k_s - the significances of partially integrated criteria *M(I), E(I), S(I)* describing favorability index *FR(I)*; values *k* may be determined by expert way.

Thus, in accordance with reasoned multicriteria assessment procedures, the relative (not predetermined) weights of the primary criteria and significances of the partially integrated criteria are taken into account after the establishment of macro surroundings favorability. The simulation of the alternative programmed indicators (economic strategy attitudes) which may have positive influence on the macro surroundings favorability (at the same time growing the economic competitiveness) may be included (possible with the scenarios formation) when realizing the appropriate process algorithm. When examining the indicator alternative priorities additionally, the PROMETHEE I (Preference Ranking Organisation Method for Enrichment Evaluation) method for the confrontation of alternatives in pairs has been applicable.

These important aspects emphasize the findings of the measurement system framework developed, provided evaluation procedures could be incorporated into computer-aided decision support system (Figure 2).

The performed case study – the investigation and evaluation of Lithuania's entrepreneurship macro surrounding advantages (in 2011 situation) on the basis of a whole macro factors presented in table 2 (according to procedures A, B, C, D and applying (2) and (3) models) showed that global entrepreneurship macro surroundings favorability index is equable to 54 points (about an average score). It may be accented the following exceptional macro factors: export promotion, transit potential, tax concessions for SMEs.

The suggested technique is used when determining the competitive strength and rating the Lithuania (and other country's) in EU as well as in the region of Eastern countries according to the criterion of the entrepreneurship macro surrounding advantages and their stability over the considered period. The theoretical findings formed in this study are relevant and would allow to expand the further quantifiable assessment of other country's economic competitiveness determinants.
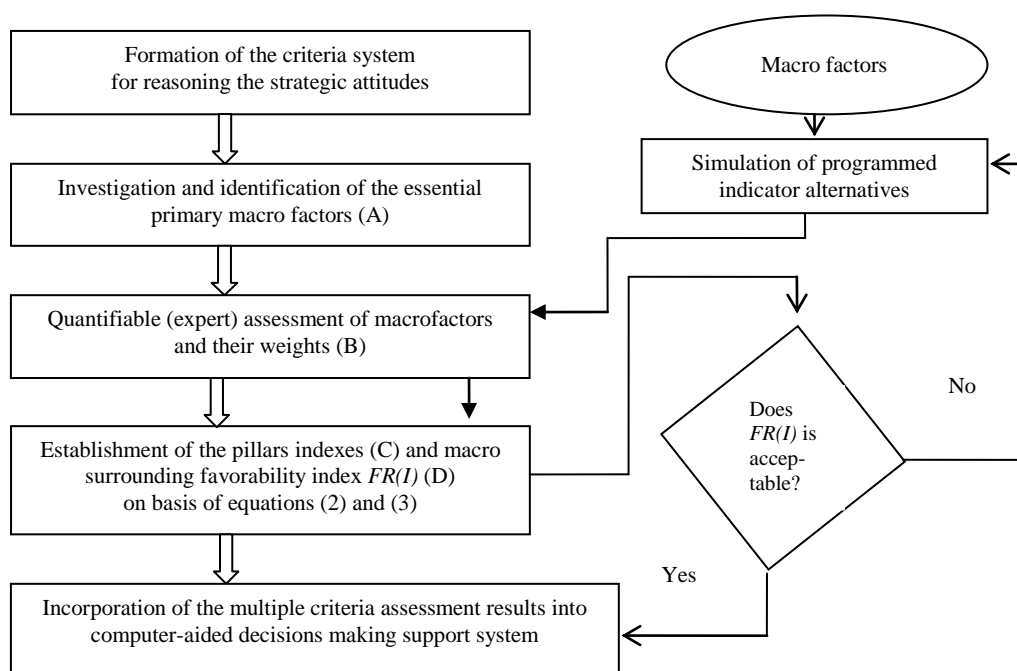
Figure 2. Principal scheme of dominant multiple criteria assessment and simulation procedures in decision making support system for economy development strategy

Conclusions

1. A review of the related researches has shown that just few studies deal with determinants of the country economic competitiveness. Actually, the economic competitiveness can be interpreted as multidimensional phenomenon, and, as a result, analyzed by multiple criteria approach. An assumption is made that it is possible to evaluate quantitatively on the basis of its determinants (defined as partial competitiveness') evaluations, if the competitiveness of every key determinant is the subject to essential primary competitiveness macro factors.

2. It is relevant to allow the reliability, when the stochastic approach is typical for the competitiveness growing measure. This makes the solution of the problem as a sophisticated task. The backgrounds for the deterministic measurement (multiple criteria evaluation) of entrepreneurship macro surrounding advantages are foremost based on the generalized model construction which reflects the interacting of primary macro factors in a system with the account of the impact vector of each of them.

3. The primary macro factors can be examined taking into account the indicators of the global country's competitiveness index established by the WEF (World Economic Forum) in a simplified way. The analysis performed for Baltic States in 2010/2011 shows some substantial differences between Lithuania and Latvia, on the one side, and Estonia, on the other side, in the government budget balance, government debt and its regulation burden.

4. The developed measurement technique was backed-up on the consecutive procedures; the whole of the indicated typical primary macrofactors has been selected adequately to newly EU countries situation by three task pillars (there are those of specific business infrastructure macrofactors, common economic surroundings macrofactors and fiscal and monetary policy macrofactors).

5. The favorability indexes of each pillar (by applying, in particular, the Simple Additive Weighting method) have been established and, in turn, the generalized measure – macro surroundings favorability index - was determined (oriented to the reasoned additive criteria ratio assessment method) on the basis adapted for this purpose models according to their relative significance. The performed investigation of Lithuania's entrepreneurship macro surrounding advantages and their evaluation in accordance with reasoned in this study measurement technique for 2011 showed that global macro surroundings favorability index was scored at 54 point (about an average score).

6. The proposed technique allows the multiple criteria evaluation of the other countries' economic competitiveness determinants oriented to the national strategic priorities and based on the constructed adequate macro factor pillars.

References

Aiginger, K. (2006). Revisiting an Evasive Concept: Introduction to the Special Issue on Competitiveness. *Journal of Industry, Competition and Trade,* 6(2), 63-66. http://dx.doi.org/10.1007/s10842-006-9471-x

Allen, F., & Gale, D. (2004). Competition and Financial Stability. *Journal of Money, Credit and Banking,* 36(3), 453-480. http://dx.doi.org/10.1353/mcb.2004.0038

Avlonitis, G. J., & Salavou, H. E. (2007). Entrepreneurial Orientation of SMEs, Product Innovativeness, and Performance. *Journal of Business Research,* 60 (5), 566-575. http://dx.doi.org/10.1016/j.jbusres.2007.01.001

Becchetti, L., & Pisani, F. (2010). Microfinance, Subsidies and Local Externalities. *Small Business Economics,* 34(3), 309-321. doi: 10.1007/s11187-008-9125-y. http://dx.doi.org/10.1007/s11187-008-9125-y

Biswas, J. (2008)**.** Does Finance Lead to Economic Growth? An Empirical Assessment of 12 Asian Economies. *The Journal of Applied Economic Research,* 2(3), 229-246.

Brauers, W. K. M., Ginevicius, R., Zavadskas, E. K., & Antucheviciene, J. (2007). The European Union in a Transition Economy. *Transformations in Business & Economics,* 6(2), 21-37.

Dritsaki, M. (2008). The Relationship between Unemployment and Macroeconomic Determinants: an Empirical Research for Greece. *Journal of World Economic Review*, 3(2), 153-160.

Fairbairn, T. I. J. (2006). Entrepreneurship and Small Business Development: A Pacific Perspective. *Journal of Small Business and Entrepreneurship,* 19 (4), 19-32.

Fleisher, C. S. (2003). *Strategic and Competitive Analysis: Methods and Techniques for Analyzing Business Competition*, New Jersey, Prentice Hall.

Geoff, S., Brychan, C. T., & Gary. P. (2009). Opportunity and Innovation: Synergy within an Entrepreneurial Approach to Marketing**.** *The International Journal of Entrepreneurship and Innovation,* 10(1), 63- 72. http://dx.doi.org/10.5367/000000009787414235

Ginevicius, R., & Podvezko, V. (2009). Evaluating the Changes in Economic and Social Development of Lithuanian Counties by Multiple Criteria Methods. *Technological and Economic Development of Economy,* 15(3), 418- 436. http://dx.doi.org/10.3846/1392-8619.2009.15.418-436

Ginevicius, R., Podvezko, V., & Bruzge, Sh. (2008). Evaluating the Effect of State aid to Business by Multi-Criteria Methods. *Journal of Business Economics and Management,* 9(3), 167- 180. http://dx.doi.org/10.3846/1611-1699.2008.9.167-180

The Global Competitiveness Report, 2010/2011. World Economic Forum. Available from internet: http://www3.weforum.org/docs/WEF_Global CompetitivenessReport_2010-2011.pdf

Gomez-Gras, J. M., Mira-Solves, I., & Martinez-Mateo, J. (2010). Determinants of Entrepreneurship: an Overview. *International Journal of Business Environment,* 3(1), 1-14. http://dx.doi.org/10.1504/IJBE.2010.031267

Gries, T., & Naude, W. 2010. Entrepreneurship and Structural Economic Transformation. *Small Business Economics,* 34(1), 13-29. http://dx.doi.org/10.1007/s11187-009-9192-8

Joksiene, I., & Zvirblis, A. (2010). Sophisticated Evaluation of the Efficiency of Functioning of National Commodity Markets. *Current Issues of Business and Law*, 5(2), 328-340. http://dx.doi.org/10.5200/1822-9530.2010.15

Krisciunas, K., & Greblikaite, J. (2007). Entrepreneurship in Sustainable Development: SMEs Innovativeness in Lithuania. *Inzinerine Ekonomika-Engineering Economics*(4), 20-26.

Lakstutiene, A. (2008). Correlation of the Indicators of the Financial System and Gross Domestic Product in European Union Countries. *Inzinerine Ekonomika-Engineering Economics*(3), 7- 18.

Lechner, Ch.; Leyronas, Ch. (2009). Small- Business Group Formation as an Entrepreneurial Development Model. *Entrepreneurship Theory and Practice* 33 (3): 645-667, http://dx.doi.org/10.1111/j.1540-6520.2009.00320.x

Leith, C., & von Thadden, L. (2008). Monetary and fiscal policy interactions in a New Keynesian model with capital accumulation and non-Ricardian consumers. *The Journal of Economic Theory,* 140(1), 279-313. http://dx.doi.org/10.1016/j.jet.2007.07.005

Man, T., Lan, T., & Snape, E. (2008). Entrepreneurial Competencies and the Performance of Small and Medium Enterprises: An Investigation through a Framework of Competitiveness. *Journal of Small Business and Entrepreneurship,* 21 (3), 690-708.

McGee, J. E., Peterson, M., Mueller, S. L., & Sequeira, J. M. (2009). Entrepreneurial Self- Efficacy: Refining and Measure. *Entrepreneurship Theory and Practice,* 33(4), 965-988, http://dx.doi.org/10.1111/j.1540-6520.2009.00304.x

Misztal, P. (2009). International Competitiveness of the Baltic States in the Transformation Period: Lithuania, Latvia and Estonia. T*ransformations in Business & Economics,* 8(18), 21-35.

Oreja-Rodriguez, J. R., & Yanes-Estevez, V. 2006. Environmental Perceptions and Risk: the Importance of the Outer Environment. *International Journal of Business Environment,* 1(1), 89 - 111.

Peldschus, F. (2007). The Effectiveness of Assessment in Multiple Criteria Decisions. *International Journal of Management and Decision Making,* 8(5/6), 519-526. http://dx.doi.org/10.1504/IJMDM.2007.013416

Porter, M. E. (2008). *On Competition*. Boston, Harvard Business School Press.

Rutkauskas, A. V. (2008). On the Sustainability of Regional Competitiveness Development Considering risk. *Technological and Economic Development of Economy,* 14(1), 89-99. http://dx.doi.org/10.3846/2029-0187.2008.14.89-99

Salciuviene, L., Chidlow, A., Ghauri, P. N., & Nguyen T. B. (2009). Multinational Enterprises and their Linkage Effects on Local Socio-Economic Environments in Emerging Markets. *International Journal of Business Environment,* 2(4), 468 - 484. http://dx.doi.org/10.1504/IJBE.2009.028797

Siggel, E. (2006). International Competitiveness and Comparative Advantage: A Survey and a Proposal for Measurement. *Journal of Industry, Competition and Trade,* 6(2), 137-159. http://dx.doi.org/10.1007/s10842-006-8430-x

Sng, H. Y., Rahman, S., & Chia, W. M. (2009). Economic Growth and Transition: a Stochastic Technological Diffusion Model. *Journal of Economic Development,* 34(2), 11-26.

Snieska, V., & Bruneckiene, J. (2009). Measurement of Lithuanian Regions by Regional Competitiveness Index. *Inzinerine Ekonomika-Engineering Economics*(1), 45-57.

Tanzi, V. (2008). Future of Fiscal Federalism. *European Journal of Political Economy,* 24(3), 705-712. http://dx.doi.org/10.1016/j.ejpoleco.2008.03.001

Vasiliauskas, A. (2007). Priorities of Economic Growth, Competitiveness and Strategic Management of Lithuanian Economy Development, in 9th *International Scientific Conference Management Horizons: Visions and Challenges*, September 27-28, 2007. Kaunas, Lithuania. Selected papers. Eds. P. Zakarevicius et al. VMU Press, 433-442.

Zapounidis, C., & Doumpos, M. (2002). Multi-Criteria Decision aid in Financial Decision Making: Methodologies and literature review. *Journal of Multi-Criteria Decision Analysis,* 11(4/5), 167-186. http://dx.doi.org/10.1002/mcda.333

Zvirblis, A. (1997). Tax Policy and Reform of the Taxation System. *In Monograph Lithuanian Economic Reforms: Practice and Perspectives*/edited by A. Buracas. Vilnius: Margi rastai, 398.

Zvirblis, A., & Buracas, A. (2010). The Consolidated Measurement of the Financial Markets Development: the Case of Transitional Economies. *Technological and Economic Development of Economy,* 16(2), 266-279. http://dx.doi.org/10.3846/tede.2010.17

Antanas Buračas, Algis Žvirblis, Izolda Jokšienė

Verslininkystės makroaplinkos pranašumų įvertinimas šalies ekonominio konkurencingumo požiūriu

Santrauka

Šalies globaliojo konkurencingumo didinimas, taigi ir dinamiško ekonomikos augimo, jos konkurencinio pranašumo užtikrinimas, yra vieni iš naujųjų ES šalių vystymosi prioritetų (Vasiliauskas 2007; Brauers ir kt. 2007). Formuluojant ekonominės plėtros koncepciją, tai išskiriama kaip pagrindiniai strateginiai tikslai, tuo pagrindžiami esminiai plėtros indikatoriai. Daug autorių analizavo bendruosius ekonominio augimo klausimus, taikydami matematinius metodus, pateikė empirinius stabilaus makroekonomikos augimo tyrimo rezultatus (Biswas 2008; Tanzi 2008; Lakštutienė 2008; Leith, von Thadden 2008; Sng, Rahman, Chia 2009; Gries, Naude 2010). Verslininkystės plėtros, kaip svarbaus subalansuotos šalies ekonomikos plėtotės komponento, tyrimams, ypač jos efektyvumo, struktūrinių pokyčių aptarimui daug dėmesio skyrė Fairbairn 2006; Man ir kt. 2008; Becchetti, Pisani 2010; Gomez-Gras ir kt. 2010. Verslininkystės efektyvumo, grupių formavimosi, inovatyvumo, socialinio kapitalo augimo, SVV marketingo strategijų ir prekių bei paslaugų konkurencingumo vertinimo, palankių verslo sąlygų sukūrimo ir jų įtakos šalies verslininkystės plėtrai tematiką plėtojo Cooke, Wills 1999; Capello 1999; Kriščiūnas, Greblikaitė 2007; Avlonitis, Salavou 2007; Bloom 2009; Geoff, Brychan, Gary 2009; Iturrioz ir kt. 2009. Strateginio valdymo problematiką įgyvendinant ekonominės plėtros strategijas aptarė Lechner, Leyronas 2009; Simmons, Thomas, Packham 2009; Parada Daza 2009; McGee ir kt. 2009. Tačiau vis dar trūksta darbų, skirtų šalies ekonomikos konkurencingumo *kompleksiniams* tyrimams, ypač aktualių pereinamosios ekonomikos šalyse. Ekonominiam konkurencingumui vertinti iš dalies gali būti panaudotas jau turimas teorinis potencialas daugiaaspekčių socialinių procesų vertinimo ir šiuolaikinių sprendimų paramos sistemų plėtotės srityje (Peldschus 2007; Žvirblis, Buračas, 2010).

Taigi sprendžiama *problema*: kaip įvertinti šalies ekonominį konkurencingumą, jo determinantus, tarp jų ir verslininkystės makro aplinkos pranašumus. Šio *darbo tikslas* – parengti verslininkystės makroaplinkos palankumą lemiančių makroveiksnių visumos vertinimo konceptą, atsižvelgiant į jų hierarchiją. *Tyrimo metodai* – sisteminė mokslo darbų analizė ir apibendrinimas, daugiakriterio vertinimo metodų taikymas įvertinant ekonominio konkurencingumo determinantus.

Koncepcija remiasi šiomis esminėmis nuostatomis: požiūriu į ekonominį konkurencingumą, kaip į daugelio dimensijų kategoriją (Aiginger 2006; Siggel 2006; Porter 2008), kurių lemia konkurencingumo determinantai (iš esmės tai daliniai konkurencingumai), pasižymintys charakteristikų, tarp jų ir stochastinio pobūdžio, įvairove (Rutkauskas 2008). Jie savo ruožtu yra priklausomi nuo pirminių makroveiksnių aibės (akcentuojant holistinį požiūrį į jų įtakos reikšmingumą), o jų tarpusavio priklausomybė, atsižvelgiant į poveikio kryptį, gali būti vektorine išraiška. Modelių determinantai gali būti kiekybiškai įvertinti taikant perspektyvius daugiakriterio vertinimo metodus. Tuo remiantis, taikant atitinkamą metodiką, gali būti nustatomas apibendrinantis dydis -- šalies ekonominio konkurencingumo matas. Konkurencingumo vertinimo požiūriu tarp kitų determinantų (pirmiausia nacionalinių išteklių, kompetencijų panaudojimas, konkurencinga ekonomikos struktūra) išskirtini ir verslininkystės makro aplinkos pranašumai. Nagrinėjant pirminius makroveiksnius, lemiančius verslininkystės makroaplinkos pranašumus, tikslinga orientuotis į tam tikrus Pasaulio ekonomikos forumo (PEF) identifikuotus indikatorius, kurie apimami supaprastintai vertinant šalių globalų konkurencingumą (ekspertiniu būdu, neatsižvelgiant į skirtingą jų įtakos reikšmingumą).

Atlikta tokių indikatorių (biudžeto balansas, valstybės skola, jos reguliavimo lygis ir pan.) 2010/2011 m. lyginamoji analizė rodo gana skirtingus Baltijos šalių vertinimus; tarkime, pagal valstybės skolos dydį itin skiriasi Lietuvos, Latvijos ir Estijos pozicijos: atitinkamai 46, 63 ir 5 (tarp 134 vertintų valstybių). Nors PEF neapima kompleksinio ekonominio konkurencingumo vertinimo, atskirų indikatorių palyginimas visgi rodo skirtingą jų įtakos šiam integriniam dydžiui laipsnį.

Parengtų išskirtinio dererminanto – verslininkystės makroaplinkos pranašumų – kiekybinio įvertinimo principų, orientuotų į daugiaaspekčio sprendimų pagrindimo (angl. MADM) metodologijos taikymo perspektyvą, formuojant ekonominės plėtros strategiją, akcentai yra šie: determinanto

formalizacija (pateiktas bendrasis modelis), pirminių makroveiksnių tikslinių blokų (atliekančių integruotų kriterijų vaidmenį) formavimas, daugiakriterio vertinimo metodų taikymas, nustatant makroveiksnių blokų indeksus ir bendrąjį verslininkystės makroaplinkos palankumo indeksą remiantis pritaikytais vertinimo modeliais.

Pagal naujųjų ES šalių situaciją suformuoti trys tipinių pirminių makrofaktorių blokai yra šie: specifinių verslo infrastruktūros makroveiksnių, bendrųjų ekonominės aplinkos makroveiksnių ir fiskalinės bei monetarinės politikos makroveiksnių. Į juos įtraukti PEF metodikoje nenumatyti makroveiksniai: transporto infrastruktūra, laisvosios ekonominės zonos, ES struktūrinių fondų panaudojimas, investicinių programų finansavimas, fiskalinis režimas.

Atlikta daugiakriterio vertinimo metodų studija apimė kriterijų reikšmių ir jų reikšmingumų sandaugų sumavimo (KRRSS), kompleksinio proporcinio daugiakriterio vertinimo (KPDV) ir kitus metodus, kurie gali būti taikomi sprendžiant analogiškus uždavinius (Ginevičius, Podvezko 2009; Ginevičius ir kt. 2008; Jokšienė, Žvirblis 2010). Tenka pabrėžti, kad kriterijų reikšmių ir jų reikšmingumų sandaugų sumavimo metodas (angl. SAW) taikytinas tuo atveju, kai visi pirminiai kriterijai sistemoje daro įtaką apibendrinančiam dydžiui neatsižvelgiant vienas į kitą, o tai atitinka sprendžiamo uždavinio sąlygas. Be to, galime apimti pirminių kriterijų reikšmes ir nustatyti jų reikšmingumus. Todėl, atliekant numatytą įvertinimą, pasirinktas būtent šis metodas. Svarbu ir tai, kad vertinant galima įtraukti įvairius scenarijus.

Taigi vertinimo metodikoje numatomos tokios procedūros:

A. Pirminių makroveiksnių (kaip pirminių kriterijų) visumos nustatymas ir esminių pirminių makroveiksnių blokų formavimas konkrečioje situacijoje (kaip pteikta, pirminius makroveiksnius tikslinga skirstyti į tris blokus, tad galima orientuotis į atitinkamus tipinius makroveiksnius).

B. Ekspertinis pirminių makroveiksnių įvertinimas (kiekybiškai, 100 balų sistemoje) ir jų įtakos reikšmingumo parametrų nustatymas, atsižvelgiant į tai, kad šių parametrų suma pagal kiekvieną bloką turi būti lygi 1. Nors dalis šių makroveiksnių turi savo dimensiją ir įvertinami kiekybiškai (nedarbo lygis) arba gali būti kiekybiškai įvertinti panaudojant išvestinius matus, vis tik remiantis pasirinktos vertinimo sistemos koncepcija, reikalingas bendras vertinimas balais. Ekspertinių vertinimų patikimumas pasiekiamas taikant atitinkamas metodikas, tarkime, pagal konkordancijos koeficiento reikšmes ir šio koeficiento reikšmingumo parametrą.

C. Makroveiksnių blokų daugiakriteris įvertinimas (palankumo indeksų nustatymas) taikant adaptuotus modelius (taikant kriterijų reikšmių ir jų reikšmingumų sandaugų sumavimo metodą), ir jų reikšmingumų nustatymas bendruoju makro aplinkos pranašumų lygiu.

D. Bendrojo verslininkystes makroaplinkos pranašumų indekso nustatymas taikant kompleksinio proporcingo vertinimo metodą pagal nustatytas integruotų kriterijų reikšmes ir jų reikšmingumus.

Ši metodika leidžia įvertinti skirtingus tiek pirminių, tiek ir integruotų kriterijų, lemiančių šalies verslininkystės makroaplinkos pranašumų lygį, reikšmingumus, nustatomus atsižvelgiant į konkrečius ekonominės plėtros prioritetus ir nacionalinius išteklius.

Atliktas Lietuvos verslininkystes makroaplinkos pranašumų tyrimas (pagal 2011 m. situaciją) ir jų bendrojo lygio vertinimas (nustatant bendrąjį palankumo indeksą) taikant pateiktą metodiką, t. y. taikant pagal numatytas procedūras suformuotus makroveiksnių blokus ir sukurtus modelius). Apibendrinus įvertinimo rezultatus, galima teigti, kad bendrasis palankumo indeksas yra 54 balai, o 50 balų atitinka vidutinišką palankumą; šį lygį kelia tokie makroveiksniai, kaip eksporto skatinimas, tranzito potencialas, preferencijos smulkiajam verslui.

Ateityje modeliuojant programines alternatyvas (plėtros scenarijus) tiek pagal pirminius indikatorius, tiek ir pagal tikslines jų grupes, be to, atsižvelgiant į skirtingus jų įtakos reikšmingumo parametrus (t. y. atliekant multivariantinius skaičiavimus), gali būti pagrindžiami programiniai sprendimai pagal verslo makro aplinkos palankumo kriterijų. Kryptingai tyrinėjant alternatyvius programinius indikatorius, papildomai taikytinas PROMETHEE I metodas, kuris leidžia sugretinti alternatyvas poromis. Algoritmizuojant šį procesą, kaip pteikta pagrindinėje schemoje, galima jį įtraukti į sprendimų paramos sistemą, skirtą strateginėms ekonominės plėtros programoms pagrįsti. Taikytina sistemingai koreguojant valstybės ekonominės plėtros koncepciją (monitoringas) pagal realiai besiklostančią šalyje situaciją, analogiškai gali buti atliekamas ir ex-post vertinimas. Analogiškas daugiakriterio vertinimo konstruktas galimas (pagal adekvačią makroveiksnių visumą suformavus jų blokus ir pritaikius vertinimo modelius) ir kitiems šalies ekonominio konkurencingumo determinantams, o tai metodologiškai svarbu efektyvinant ir aprobuojant naujųjų ES šalių ekonominės plėtros programas.