

VILNIUS GEDIMINAS TECHNICAL UNIVERSITY

Giedrė RAKAUSKIENĖ

THE INCREASE OF VALIDITY OF NATIONAL COMPETITIVENESS' PROMOTION DECISIONS

SUMMARY OF DOCTORAL DISSERTATION

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Scientific Supervisor

Assoc Prof Dr Rima TAMOŠIŪNIENĖ (Vilnius Gediminas Technical University, Social Sciences, Economics – 04S).

The dissertation is being defended at the Council of Scientific Field of Economics at Vilnius Gediminas Technical University:

Chairman

Prof Dr Habil Romualdas GINEVIČIUS (Vilnius Gediminas Technical University, Social Sciences, Economics – 04S).

Members:

Prof Dr Habil Borisas MELNIKAS (Vilnius Gediminas Technical University, Social Sciences, Economics – 04S),

Prof Dr Valentinas PODVEZKO (Vilnius Gediminas Technical University, Physical Sciences, Mathematics – 01P),

Prof Dr Vytautas SNIEŠKA (Kaunas University of Technology, Social Sciences, Economics – 04S),

Prof Dr Habil Algis ŠILEIKA (Šiauliai University, Social Sciences, Economics – 04S).

Opponents:

Dr Eglė KAZLAUSKIENĖ (Mykolas Romeris University, Social Sciences, Economics – 04S),

Assoc Prof Dr Jelena STANKEVIČIENĖ (Vilnius Gediminas Technical University, Social Sciences, Economics – 04S).

The dissertation will be defended at the public meeting of the Council of Scientific Field of Economics in the Senate Hall of Vilnius Gediminas Technical University at 9 a. m. on 13 December 2013.

Address: Saulėtekio al. 11, LT-10223 Vilnius, Lithuania.

Tel.: +370 5 274 4952, +370 5 274 4956; fax. +370 5 270 0112;

e-mail: doktor@vgtu.lt

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VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETAS

Giedrė RAKAUSKIENĖ

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Mokslinis vadovas

doc. dr. Rima TAMOŠIŪNIENĖ (Vilniaus Gedimino technikos universitetas, socialiniai mokslai, ekonomika – 04S).

Disertacija ginama Vilniaus Gedimino technikos universiteto Ekonomikos mokslo krypties taryboje:

Pirmininkas

prof. habil. dr. Romualdas GINEVIČIUS (Vilniaus Gedimino technikos universitetas, socialiniai mokslai, ekonomika – 04S).

Nariai:

prof. habil. dr. Borisas MELNIKAS (Vilniaus Gedimino technikos universitetas, socialiniai mokslai, ekonomika – 04S),

prof. dr. Valentinas PODVEZKO (Vilniaus Gedimino technikos universitetas, fiziniai mokslai, matematika – 01P),

prof. habil. dr. Vytautas SNIEŠKA (Kauno technologijos universitetas, socialiniai mokslai, ekonomika – 04S),

prof. habil. dr. Algis ŠILEIKA (Šiaulių universitetas, socialiniai mokslai, ekonomika – 04S).

Oponentai:

dr. Eglė KAZLAUSKIENĖ (Mykolo Romerio universitetas, socialiniai mokslai, ekonomika – 04S),

doc. dr. Jelena STANKEVIČIENĖ (Vilniaus Gedimino technikos universitetas, socialiniai mokslai, ekonomika – 04S).

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Adresas: Saulėtekio al. 11, LT-10223 Vilnius, Lietuva.

Tel.: (8 5) 274 4952, (8 5) 274 4956; faksas (8 5) 270 0112;

el. paštas doktor@vgtu.lt

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Introduction

Definition of the Problem

Politicians of different countries are looking for solutions how to increase and maintain a high level of competitiveness. In order to solve this task different countries establishing institutions that play important role in decision-making process, making discussions among parties that represent different interests, assessing competitiveness. On the basis of assessment results strategies are being created. In order to implement the aims of the strategies, various means are developed. According to the complexity and financial absorption of these means financial resources are allocated for their realization. Like in any other area, the financial resources to promote the national competitiveness are limited; consequently, it is obvious that there is a need to use these resources efficiently in anticipation of the maximum increase of the national competitiveness. This highlights the necessity of effective decisions on national competitiveness. Here the main problem is identified – lack of means that are designed specifically for national competitiveness’ issues solutions. The possibilities of creating such means in most cases are missed because of two related problems. First, although the scientific literature discussed the issues of national competitiveness since the sixteenth century, today there is still no clear definition of national competitiveness. Second, as researchers do not agree on conception of national competitiveness, there is no opportunity to identify the factors that describe the content of national competitiveness.

Topicality of the Research

For countries that live in conditions of globalization, economic integration and rapid development of new information technologies, particularly relevant is the question of competitiveness. In addressing this issue countries are paying high attention to the assessment of current status of competitiveness. Competitiveness’ assessments by many governments are assigned for the national competitiveness councils, partly developed for this purpose. On the basis of the assessment results the recommendations are provided to responsible decision-makers. Recognizing the importance of these recommendations in the process of the national-level decision-making, question of validity becomes particularly topical.

The significance of increasing validity of recommendations used for decision-making in promotion of national competitiveness is also confirmed by countries’ practice. The analysis of the practice reveals that for competitiveness’ assessment different countries use different methodologies and some of these methodologies do not have strong theoretical background.

Recommendations formed on the basis of inaccurate assessments and limited by insights, advices, rarely, specific decisions, decrease the validity of decisions and confuse decision-makers. Such a basis of decision-making does not allow to make effective decisions on the national competitiveness as well as to achieve the increase of the national competitiveness.

Relatively poor experience of the countries in the preparation of the decisions on the competitiveness' promotion, previously discussed problems partly aroused because of insufficient experience, the lack of appropriate means for these problems' solution and lack of scientific researches in this field reveals the importance and topicality of this work.

Object of the Researches

Object of the scientific researches – the means and approaches of the national competitiveness promotion decisions' preparation and substantiation.

Aim of the Work

The aim is to develop and test empirically national competitiveness' assessment method and national competitiveness' change optimization model that help to validate national competitiveness' promotion decisions.

Tasks of the Work

In order to achieve the main aim of dissertation, following tasks are established:

1. To analyze different countries' practice in preparation of national competitiveness' promotion decisions and to emphasize decisions' preparation problems.
2. To depict the evolution of the conception of national competitiveness in the long-term perspective, and, on the basis of analysis of the conception's interpretations presented in the scientific and practical literature, to clarify the definition of national competitiveness.
3. To identify the factors of national competitiveness, and, on the basis of the scientific literature analysis, by highlighting the most important aspects, to describe the content of each factor.
4. To propose national competitiveness' assessment method, which allows assessing the current status of national competitiveness.
5. To develop national competitiveness' change optimization model for validation of the national competitiveness' promotion decisions.
6. To examine practical acceptability of the national competitiveness' assessment method and national competitiveness' change optimization model by empirical investigations of Lithuanian case study.

Methodology of Research

Methodology of analytical research is applied in the work, it allowed to reveal the topicality of national competitiveness issue, aspects and problematic of countries' practice, to clarify the definition of national competitiveness and to identify factors that influence national competitiveness. Applied methods of comparative analysis, logics, synthesis and generalization provided possibility to suggest national competitiveness' assessment method. The development of national competitiveness' change optimization model is based on probability theory and mathematical modeling.

During the empirical research the methods of stochastic programming, statistical data processing, analytic hierarchy process, expert evaluation and empirical data analysis were used.

Scientific Novelty

Preparation of the thesis revealed the following new results in economic science:

1. Different countries' practice on preparation of competitiveness' promotion decisions was revealed. Special attention was paid on national competitiveness councils that have short operating history and for this purpose are almost unstudied by the scientists. The knowledge enriching scientific literature about activity of these councils provides preconditions for further researches.

2. Knowledge about the theories and schools that determined most often used interpretations of national competitiveness' conception supplements scientific cognition of this phenomenon. In-depth knowledge of the conception provided an opportunity to clarify the definition of national competitiveness.

3. The cognition of national competitiveness' phenomenon is also extended by the set of competitiveness' content revealing factors, which was formed on the basis of comparative analysis of sets of factors used to assess the national competitiveness and confirmed by scientific literature.

4. The scientific potential of national competitiveness topic was supplemented by two new means dedicated for national competitiveness' issues – national competitiveness' assessment method and national competitiveness' change optimization model.

Practical Value

Prepared national competitiveness' assessment method is a strong basis for creation of assessment methodology, which could be used by institutions that are responsible for decisions' preparation in order to assess the status of national competitiveness and efficiency of implemented decisions.

The usage of developed national competitiveness change's optimization model, as decision support means, will give the opportunity for institutions to provide more valid recommendations and for decision-makers – to make more effective national competitiveness' promotion decisions. Effective decisions could contribute to the effectiveness of the strategy and, finally, – to the increase of national competitiveness.

On the basis of dissertation results decisions support system for national competitiveness decision-making can be developed.

Defended Propositions

1. Acceptance of sound and unambiguous definition of national competitiveness' conception and its ground-based formation of the set of national competitiveness' factors are the main approaches that increase accuracy of assessment.

2. Accuracy of the national competitiveness' assessment is also increased by the evaluation of factors' importance on overall national competitiveness. Therefore the significances of factors must be determined.

3. The basis of national competitiveness decision-making, consisting of national competitiveness' assessment, is considered as insufficient. In order to make valid and efficient decisions, additional means should be used.

4. The plan for optimal allocation of financial resources for national competitiveness' promotion, which could be formed by national competitiveness' change optimization task's solution, provides preconditions for more efficient decision-making.

The Scope of the Scientific Work

The dissertation consists of introduction, 3 chapters, general conclusions, list of literature, list of publications and annexes. The total scope of the dissertation – 114 pages, 16 pictures, 28 tables and 4 annexes.

The topicality of issue of national competitiveness revealed, different countries' practice analyzed, the definition of national competitiveness clarified and the set of factors that influence national competitiveness developed in the chapter 1. National competitiveness' assessment method is proposed and national competitiveness' change optimization model developed in the chapter 2. Chapter 3 describes process and results of empirical investigations that examine practical acceptability of the proposals.

1. National Competitiveness: Topicality, Countries' Practice, Conception and Content

The need to survive in a changing world substantially increased the significance of national competitiveness' issue. Governments of different countries, i. e. Ireland, Armenia, Czech Republic, Egypt, Jordan and Croatia, searching for efficient national competitiveness' increase solutions have established national competitiveness councils and entrusted them with important advisory role in decision-making process. The main functions of these councils are assessment of national competitiveness and recommendations' preparation for decision-makers.

The analysis of the aforementioned councils' activities revealed that the accurate conception of national competitiveness is not always defined and assessment lacks of the theoretically well-grounded methodology. These shortcomings diminish the reliability of the assessment results and decrease the validity of the recommendations provided to responsible decision-makers. According to this, assessment of the national competitiveness is considered as insufficient basis for national competitiveness' decision-making.

In order to clarify the definition of national competitiveness scientific literature was analyzed. Analysis revealed three viewpoints that contrary explain the national competitiveness in certain periods: during the XVI –XVIII centuries mercantilists' ideas were spread and national competitiveness has been evaluated in terms of trading amounts and its economic benefits; in the XVIII–XX centuries followers of classical economics assessed national competitiveness in the terms of production costs; in the XX–XXI centuries national competitiveness started to be linked with such resources as management, innovations, knowledge and competitive country was defined as country which ensures the welfare of its citizens.

An analysis of literature suggests that still used attitude – foreign trade is the essence of national competitiveness – has to be treated as incorrect. Taking into account each country's aim to ensure the welfare of its citizens, it is meaningful to use productivity-based conception of national competitiveness. However, this conception, which basic aspect is economic achievements of the country to guarantee human material welfare, has to be supplemented with non-economic factors that are also important to welfare of citizens. Accordingly, national competitiveness is defined as ability of the country to achieve high level of productivity and to ensure versatile welfare for its citizens.

By grouping factors from sets used for national competitiveness' assessment proposed by different organizations (World Economic Forum, International Institute of Management Development and Industrial Policy

Studies Institute) in terms of content, and on the basis of the scientific literature analysis, which helped to determine the content of each factor, the original set of factors which reflects the clarified definition of national competitiveness, was proposed (Table 1).

Table 1. Factors that influence national competitiveness

Factors	Content
Institutional environment	The legal and government activity aspects: efficiency and quality of legal and regulatory framework, transparency and efficiency of government activity.
Macroeconomic situation	Macroeconomic stability describing aspects: fiscal and monetary policy, public finance.
Engineering infrastructure	The efficiency and quality of transport (roads, railroad, ports etc.) and energy supply infrastructure.
Technological infrastructure	Information and telecommunication technology availability and usage; latest technologies availability, absorption
Scientific infrastructure	Capacity of innovation, quality of scientific research institutions, science-business collaboration, availability of scientists, productivity.
Education	Primary, secondary and tertiary education and staff training
Social environment	Health and quality of health care, social welfare, ecological situation, renewable energy.
Goods market	The efficiency of goods market described by competition conditions: procedures, taxes payment and legal basis.
Labor market	The efficiency and flexibility of labor market: legal and regulatory framework, market participants relationship, productivity, brain drain, equal rights.
Financial market	Efficiency, availability and reliability of banks and stock markets.
Business progress	Clusters development, accountability of firms, management practice, culture, strategies.

2. National Competitiveness' Assessment and Change Optimization

Problematic of the methodology used to assess the national competitiveness which was revealed during the analysis of practice and the understanding of importance of national competitiveness' decisions, impose a need to increase the validity and efficiency of these decisions. In order to solve this task a new viewpoint to national competitiveness' promotion decisions preparation was proposed (Fig. 1).

The national competitiveness' decision-making process is understood as allocation of financial resources to the factors that influence national

competitiveness, hoping to improve their condition and ensure the increase of national competitiveness. According to this understanding, the main problem to be solved is efficient allocation of financial resources. Thus, in the decision-making it is important to consider not only the results of national competitiveness' assessment but also the plan for allocation of financial resources among the factors that influence national competitiveness. In order to form this plan, task of national competitiveness' change optimization must be solved. Decision-making basis, consisting of national competitiveness' assessment and national competitiveness' change optimization, allows proving and making more efficient decisions.

The basis of suggested national competitiveness' assessment method – the developed set of factors actualized in relation to suggested understanding of national competitiveness' decision-making. Thus, the macroeconomic situation factor is treated as the result of institutional environment factor's condition and is eliminated from the set.

The set of factors was specified by a set of sub-factors. The indicators of sub-factors' values were proposed. In order to ensure flexibility of the assessment method, sets of sub-factors and indicators are not exhaustive and should be adopted according to the specifics of the particular country and assessment considerations.

The values of integrated complex indexes of national competitiveness' factors and overall competitiveness found by using these formulas:

$$V_j = \sum_{i=1}^{m_j} w_{ji} v_{ji}, \quad \sum_{i=1}^{m_j} w_{ji} = 1; \quad (1)$$

$$K = \sum_{j=1}^n w_j V_j, \quad \sum_{j=1}^n w_j = 1, \quad (2)$$

here w_{ji} – significance of i sub-factor of j factor; v_{ji} – i sub-factor of j factor; m_j – number of sub-factors of j factor; w_j – significance of j factor; V_j – j factor; n – number of factors.

For determining of factors' significances it is proposed to use the method of Analytic Hierarchy Process. This method is chosen because of its mathematical validity. In order to determine the changes of factors' condition due to invested financial resources it is proposed to use expert evaluation method. Experts' estimates, on the basis of probability theory, are considered to be random variables, distributed according to the normal distribution and described by numerical characteristics of probability distributions – average, standard deviation, dispersion.

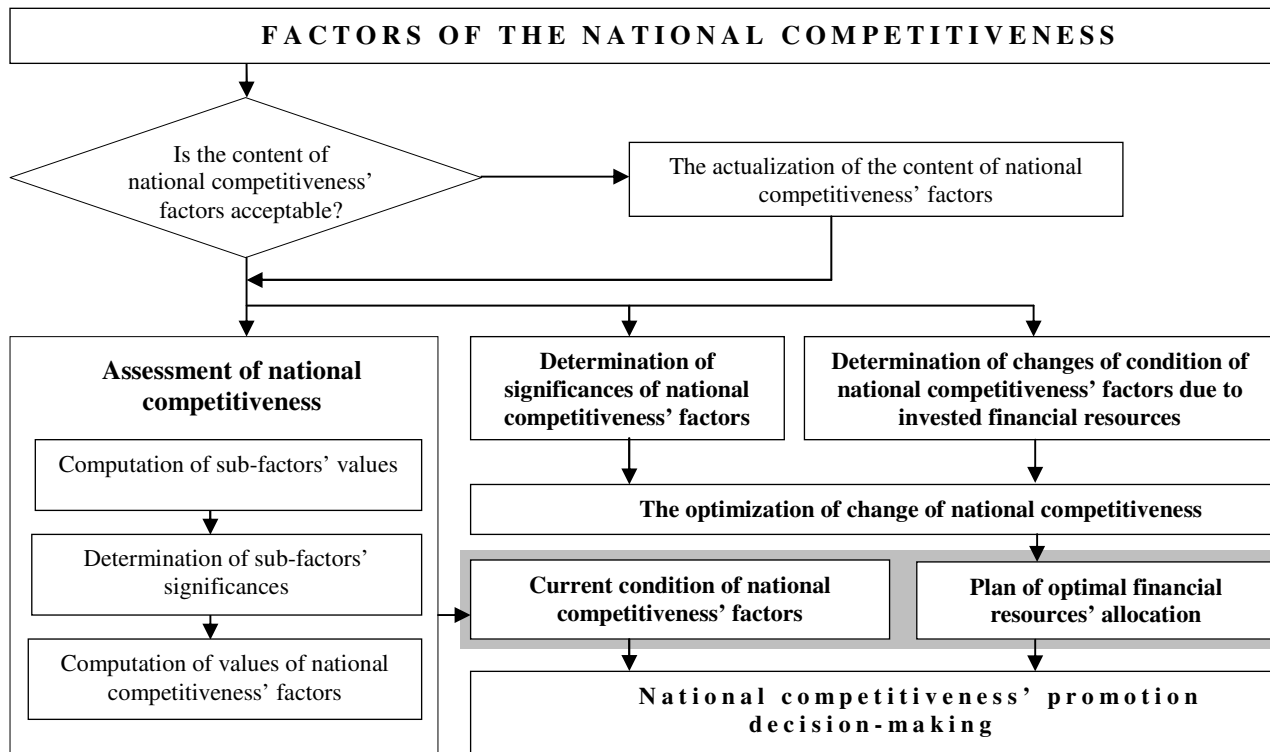


Fig. 1. The principal scheme of preparation of national competitiveness' promotion decisions

As the changes of factors' condition due to invested financial resources are considered to be random variables, stochastic programming task must be solved. The national competitiveness' change optimization model is:

$$\max \Delta K; \quad (3)$$

$$P(\sum_{j=1}^n w_j s_j x_j \geq \Delta K) \geq 1 - \alpha;$$

$$\sum_{j=1}^n x_j \leq c; \quad x_j \geq 0, j = 1, \dots, n.$$

here w_j – significance of j factor; s_j – random variable, describing change of j factor; x_j – financial resource amount for j factor; n – number of factors; c – financial resource amount for national competitiveness' promotion; $1-\alpha$ – confidence level (probability); ΔK – lower limit of national competitiveness' change $\sum_{j=1}^n w_j s_j x_j$.

The equivalent for the model (3) is this nonlinear programming task's model:

$$\max \Delta K; \quad (4)$$

$$\sum_{j=1}^n w_j E s_j x_j - u_\alpha z \geq \Delta K;$$

$$z^2 - \sum_{j=1}^n w_j^2 D s_j x_j^2 = 0;$$

$$\sum_{j=1}^n x_j \leq c; \quad x_j \geq 0, j = 1, \dots, n; \quad z \geq 0,$$

here $E s_j$ – average of random variable s_j ; u_α – critical value of the normal distribution; z – additional variable; $D s_j$ – dispersion of random variable s_j .

The optimization task solved according to this model would give the answer to the question how the financial resources should be allocated among the national competitiveness' factors in order to achieve optimal change of national competitiveness.

3. Empirical Investigations on Competitiveness' Assessment and Change Optimization in Lithuania

The empirical investigations, which aimed to examine practical acceptability of the proposed solutions, were implemented in case of Lithuania.

Assessment of Lithuania's competitiveness revealed that, in comparison to other areas, currently the condition of institutional environment is the best –

evaluated by 0.72 points. The worst situation is in Lithuania's engineering infrastructure (0.38 points). Assessment of the national competitiveness factors' significances revealed that currently the most important factors in the case of Lithuania are labor market and goods market. These areas were evaluated by equal significances – 0.13 points. The least significant factors to Lithuania's competitiveness are business progress and institutional environment – 0.07 and 0.06 points, respectively. Calculated value of Lithuania's competitiveness $K = 0.531$.

Assessment of the impact of LTL 100 million investments to the factors that influence competitiveness of Lithuania revealed that the highest positive change would be in the conditions of factors of business progress (6.7 percent), scientific infrastructure (5.8 percent) and social environment (5.7 percent). The lowest positive change would be in the condition of factor of engineering infrastructure (3.3 percent).

While solving optimization task of Lithuania's competitiveness change, it was assumed that the investment in promotion of the competitiveness is LTL 1 billion. Solution of the task by choosing different probabilities, revealed a plan of financial resources' allocation (Table 2), which allows choosing among different options.

Table 2. The Financial resources' allocation plan among competitiveness' factors according to probability, units

$1 - \alpha$	Institutional environment	Engineering infrastructure	Technological infrastructure	Scientific Infrastructure	Education	Social environment	Goods market	Labor market	Financial market	Business progress	ΔK
	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	
0.6							6.06	3.94			0.059
0.7					2.53		3.68	3.49	0.30		0.052
0.8				1.79	2.23	0.23	2.27	2.41	1.07		0.046
0.9			1.42	2.08	1.59	0.57	1.37	1.55	0.96	0.45	0.039
0.95		0.32	1.83	2.03	1.35	0.62	1.09	1.26	0.87	0.62	0.035
0.99	0.01	0.84	2.09	1.92	1.13	0.63	0.84	1.01	0.78	0.73	0.028

1 unit = LTL 100 million

Under the probability of 0.6, the optimal change of Lithuania's national competitiveness will be achieved if all the financial resources would be allocated to improve the conditions of goods market and labor market factors, LTL 606 million and LTL 394 million, respectively. If the highest probability

(0.99) is selected, it is appropriate to allocate financial resources among all the factors that influence competitiveness of Lithuania, with the largest funding – about LTL 200 million to the scientific infrastructure and technological infrastructure. While deciding what scheme of the allocation of financial resources to choose, it is important to consider that a high change in the competitiveness of Lithuania is unlikely. If all financial resources would be allocated to goods and labor markets, in a case of success, the Lithuania's competitiveness would increase at least 11 percent (from $K = 0.53$ to $K = 0.59$). However, probability of failure is high as well – 0.4. If financial resources would be allocated among all the factors of Lithuania's competitiveness, optimal change of competitiveness would be twice lower (not less than 5 percent) (from $K = 0.53$ to $K = 0.56$), but almost guaranteed.

General Conclusions

1. Countries' need to meet the challenges of changing world substantially increased topicality of the national competitiveness issue in the second half of the last century. Governments of different countries that were searching for efficient solutions to increase the national competitiveness have established national competitiveness councils and entrusted them with important functions – assessment of national competitiveness and provision of assessment results based recommendations to responsible decision-makers. However, the analysis of countries' practices revealed problems, namely, there is no unambiguous definition of the conception of national competitiveness; no sound set of competitiveness' factors; recommendations are based on inaccurate assessments without a strong justification. These problems indicated insufficient basis of decision-making and the need of means that could increase the validity of the decisions.

2. The analysis of scientific literature revealed three viewpoints that contrary explain the national competitiveness in certain periods: during the XVI–XVIII centuries national competitiveness has been evaluated in terms of trading amounts and economic benefits; in the XVIII–XX centuries it has been assessed in the terms of production costs; in the XX–XXI centuries national competitiveness started to be connected with management, innovations, knowledge and competitive country was defined as country which ensures the welfare of its citizens. Today still used attitude – foreign trade is the essence of national competitiveness – has to be treated as incorrect. Taking into account each country's aim to ensure the welfare of its citizens, it is meaningful to use productivity-based conception of national competitiveness. However, this conception, which basic aspect is economic achievements of the country to

guarantee human material welfare, has to be supplemented with non-economic factors that are also important to welfare of citizens. Accordingly, national competitiveness is defined as ability of the country to achieve high level of productivity and to ensure versatile welfare for its citizens.

3. Analysis and synthesis of the content of different factors' sets used for national competitiveness' assessment let to identify the factors that are consistent with a clarified definition of national competitiveness: institutional environment, macroeconomic situation, engineering infrastructure, technological infrastructure, scientific infrastructure, education, social environment, goods market, labor market, financial market and business progress. The analysis of scientific literature confirmed the importance of each identified factor to the national competitiveness and allowed to define the content.

4. In order to increase the validity of decisions on national competitiveness, a viewpoint was proposed, according to which the decision-making process is understood as allocation of financial resources to the factors that influence national competitiveness, hoping to improve their condition and ensure the increase of national competitiveness. Under this understanding, in the decision-making it is important not only to assess the national competitiveness but also to solve the national competitiveness' change optimization task, which will give the plan for allocation of financial resources among the factors that influence national competitiveness. Such a decision-making basis allows proving and making more efficient decisions.

5. The basis of suggested national competitiveness' assessment method is the developed set of factors, in accordance to analysis results of factors' sets used in practice and scientific literature, which was adapted in relation to the proposed conception of national competitiveness decision-making. Set of factors was specified by a set of sub-factors. The set of indicators of sub-factors was proposed. In order to ensure flexibility of the assessment methodology, sets of sub-factors and indicators are not exhaustive and should be adopted according to the specifics of the particular country and assessment considerations. Assessment of the condition of national competitiveness (factors) is based on the synthesis of factors' and sub-factors' evaluation. For this purpose integrated complex indicators that reflect factors and overall national competitiveness are calculated.

6. In order to assess the competitiveness as accurate as it possible and to create real conditions to solve the task of national competitiveness' change optimization; it is recommended to determine the importance of each national competitiveness factor and its sub-factors by calculations of significances. It is suggested to use the Analytic Hierarchy Process method for this purpose. In

order to determine the change of factors' condition due to invested financial resources (another important task in optimization) it is proposed to use expert evaluation method. Experts' estimates, basing on the probability theory, are considered to be random variables, distributed according to the normal distribution. Thus, stochastic programming task must be solved. Accordingly, national competitiveness' change optimization model is developed.

7. The empirical research results revealed that the task of national competitiveness' change optimization that is being solved by choosing different confidence levels provides an opportunity to choose from the different options of financial resources allocation among the competitiveness factors in national competitiveness' decision-making. It was found, that the higher is the confidence level the lower is the national competitiveness' optimal change. For decision-makers it is important to responsibly assess the country's needs while choosing the financial resources allocation scheme.

8. Application of the national competitiveness' change optimization model, which was developed in this work, allows validating decisions on national competitiveness, increasing efficiency of use of financial resources allocated to promote competitiveness, achieving greater increase of national competitiveness. National competitiveness' assessment method not only enables to determine the current status of competitiveness, but also can potentially serve as a mean for assessing efficiency of decisions. The proposed means can be used as a foundation for development of national competitiveness' promotion decisions support system.

List of Published Works on the Topic of the Dissertation

In the Reviewed Scientific Periodical Publications

Rakauskienė, G.; Tamošiūnienė, R. 2013. Šalies konkurencingumo pokyčio optimizavimas, *Verslo sistemos ir ekonomika* [Business Systems & Economics] 3(2): 167–176. ISSN 2029-8234 (online). (EBSCO)

Rakauskienė, G.; Tamošiūnienė, R. 2013. Šalies konkurencingumą lemiantys veiksniai, *Verslas: teorija ir praktika* [Business: Theory and Practice] 14(1): 177–187 DOI: 10.3846/btp.2013.19. ISSN 1648-0627. (EBSCO, *Business Source Complete*)

Tamošiūnienė, R.; Staskevičiūtė (Rakauskienė), G. 2011. Nacionalinio konkurencingumo politikos formavimo praktika, *Socialinių mokslų studijos* [Social Sciences Studies] 3(2): 487–503. ISSN 2029-2236. (EBSCO)

Staskevičiūtė (Rakauskienė), G.; Tamošiūnienė, R. 2010. Šalies konkurencingumas: sampratos raida laiko perspektyvoje, *Verslas: teorija ir praktika* [Business: Theory and Practice] 11(2): 159–167. DOI: 10.3846/btp.2010.18. ISSN 1648-0627. (EBSCO, *Business Source Complete*)

In the Other Editions

Staskevičiūtė (Rakauskienė), G.; Tamošiūnienė, R. 2010. The Evaluation of the National Competitiveness: Analysis of Existing Means, *The 6th International Scientific Conference Business and Management 2010: selected papers*. Vilnius: Technika. 495–503. DOI: 10.3846/bm.2010.066. ISSN 2029-4441. (*ISI Proceedings*)

Staskevičiūtė (Rakauskienė), G.; Tamošiūnienė, R. 2010. The Analysis of Factors Influencing Competitiveness of Lithuania, *III International Science Conference "Knowledge society"*. Sozopol: KSI Transactions on Knowledge Society; Sofia: Knowledge Society Institute. 19–24. ISSN 1313-4787

Tamošiūnienė, R.; Staskevičiūtė (Rakauskienė), G. 2009. Knowledge as a Main Factor Influencing National Competitiveness, *Second International Science Conference "Knowledge society"*. Nessebar: KSI Transactions on Knowledge Society; Nessebar: Knowledge Society Institute. 10–12. ISSN 1313-4787.

About the author

Giedrė Rakauskienė was born in Marijampolė, on 4 of June 1982.

The bachelor degree in Mechanical Engineering, Faculty of Agricultural Engineering, Aleksandras Stulginskis University, 2004. Master of Science in Business administration and management, Faculty of Business Management, Vilnius Gediminas Technical University, 2007. Master thesis was awarded by the Research Council of Lithuania in the category of high schools students' scientific works in 2007. In 2008–2013 – PhD student of Vilnius Gediminas Technical University, Business Management faculty. From year 2005 working in Vilnius Gediminas Technical University; at present – in Strategic Analysis Division.

ŠALIES KONKURENCINGUMO SKATINIMO SPRENDIMŲ PAGRISTUMO DIDINIMAS

Problemos formulavimas

Įvairių šalių politikos atstovai ieško sprendimų, kaip padidinti ir išlaikyti aukštą šalies konkurencingumą. Tam tikslui įvairiose šalyse steigiamos svarbų vaidmenį sprendimų priėmimo procese atliekančios institucijos, diskutuojama tarp skirtingus interesus atstovaujančių subjektų, vertinimas šalies konkurencingumas ir, atsižvelgiant į gautus rezultatus, kuriamos strategijos. Siekiant įgyvendinti šalių strategijose užsibrėžtus tikslus, kuriamos įvairios priemonės, kurioms įgyvendinti, atsižvelgiant į jų sudėtingumą ir finansinį imlumą, skiriami finansiniai ištekliai. Kaip ir bet kuriai kitai sričiai, šalies konkurencingumo skatinimui skiriami finansiniai ištekliai yra riboti, todėl

natūralu, kad kyla poreikis juos panaudoti efektyviai tikintis didžiausio galimo šalies konkurencingumo augimo. Čia išryškėja efektyvių šalies konkurencingumo skatinimo sprendimų būtinybė, kuri atskleidžia pagrindinę problemą – pasigendama priemonių, konkrečiai skirtų šalies konkurencingumo klausimams spręsti. Galimybės sukurti tokias priemones didžiąja dalimi prarandamos dėl dviejų tarpusavyje glaudžiai susijusių problemų. Pirma, nors mokslinėje literatūroje šalies konkurencingumo klausimu diskutuojama jau nuo XVI amžiaus, tačiau šiandien vis dar nėra aiškus šalies konkurencingumo apibrėžimas. Antra, mokslininkams nesutariant ir neprieinant vieningos nuomonės dėl šalies konkurencingumo sampratos, prarandama galimybė nustatyti šalies konkurencingumo turinį atskleidžiančius veiksniai.

Darbo aktualumas

Globalizacijos, ekonominės integracijos ir sparčios naujų informacinių technologijų plėtros sąlygomis gyvenančioms šalims itin aktualus yra jų konkurencingumo klausimas. Sprendžiant šį klausimą, šalyse daug dėmesio skiriama esamos konkurencingumo būklės vertinimui, kurio atlikimą ne vienos šalies vyriausybė patikėjo iš dalies tam tikslui įkurtoms nacionalinio konkurencingumo taryboms. Konkurencingumo vertinimo metu gautų rezultatų pagrindu formuojamos rekomendacijos, kurios teikiamos už sprendimų priėmimą atsakingiems subjektams. Suvokiant tokių rekomendacijų svarbą nacionalinio lygio sprendimų priėmimo procese, ypač aktualus tampa jų pagrįstumo klausimas.

Šalies konkurencingumo skatinimui reikalingų sprendimų priėmimui skirtų rekomendacijų pagrįstumo didinimo aktualumą pagrindžia ir šalių patirtis, kuri atskleidžia, kad šalies konkurencingumo vertinimui naudojamos skirtingos, kai kuriais atvejais silpnai teoriškai pagrįstos vertinimo metodikos. Netikslių vertinimų pagrindu formuluojamos rekomendacijos ir jų apsiribojimas įžvalgomis, patarimais, rečiau, konkrečiais sprendimais, menkina sprendimų pagrįstumą ir klaidina už sprendimų priėmimą atsakingus subjektus. Toks sprendimų priėmimo pagrindas nesuteikia galimybės priimti efektyvius šalies konkurencingumo skatinimo sprendimus ir pasiekti šalies konkurencingumo augimą.

Palyginti menka šalių patirtis rengiant konkurencingumo skatinimo sprendimus, dalinai dėl to atsiradusios anksčiau aptartos problemos, jų sprendimui reikiamų priemonių nebuvimas ir mokslinių tyrimų šioje srityje trūkumas rodo šio darbo svarbą ir aktualumą.

Tyrimų objektas

Darbo mokslinių tyrimų objektas – šalies konkurencingumo skatinimui skirtų sprendimų parengimo ir pagrindimo būdai ir priemonės.

Darbo tikslas

Šio darbo pagrindinis tikslas – parengti ir empiriškai patikrinti šalies konkurencingumo vertinimo metodą ir konkurencingumo pokyčio optimizavimo modelį, kurių taikymas leistų pagrįsti šalies konkurencingumo skatinimo sprendimus.

Darbo uždaviniai

Siekiant darbo tikslo formuluojami tokie uždaviniai:

1. Išanalizuoti įvairių šalių patirtį rengiant konkurencingumo skatinimo sprendimus ir atskleisti sprendimų rengimo problemas.
2. Atskleisti šalies konkurencingumo sampratos kitimą laiko perspektyvoje ir, atlikus mokslinėje bei praktinėje literatūroje pateikiamų sampratos interpretacijų analizę, patikslinti šalies konkurencingumo apibrėžimą.
3. Nustatyti šalies konkurencingumą lemiančius veiksnius ir, remiantis mokslinės literatūros analize, išryškinant svarbiausius aspektus, atskleisti kiekvieno veiksnio turinį.
4. Pasiūlyti šalies konkurencingumo vertinimo metodą, leidžiantį galimai tiksliau nustatyti esamą šalies konkurencingumo būklę.
5. Parengti šalies konkurencingumo pokyčio optimizavimo modelį, sudarantį prielaidas pagrįsti šalies konkurencingumo sprendimus.
6. Patikrinti šalies konkurencingumo vertinimo metodo ir šalies konkurencingumo pokyčio optimizavimo modelio praktinį priimtinumą atliekant empirinį tyrimą Lietuvos atveju.

Tyrimų metodika

Darbe taikyta analitinio tyrimo metodologija, leido atskleisti šalies konkurencingumo klausimo aktualumą, šalių patirties aspektus ir problematiką, patikslinti šalies konkurencingumo apibrėžimą ir nustatyti konkurencingumą lemiančius veiksnius. Taikyti lyginamosios analizės, logikos, sintezės ir apibendrinimo metodai leido pasiūlyti šalies konkurencingumo vertinimo metodą. Šalies konkurencingumo pokyčio optimizavimo modelio sudarymas grindžiamas tikimybių teorija ir matematiniu modeliavimu.

Atliekant empirinius tyrimus taikyti stochastinio programavimo, statistinių duomenų apdorojimo, analitinės hierarchijos proceso, ekspertinio vertinimo ir empirinių duomenų analizės metodai.

Darbo mokslinis naujumas

Rengiant disertaciją buvo gauti šie ekonomikos mokslui nauji rezultatai:

1. Atskleista įvairių šalių patirtis rengiant konkurencingumo skatinimo sprendimus, išskirtinį dėmesį skiriant trumpą veiklos istoriją turinčioms ir dėl to mokslininkų beveik netyrinėtoms nacionalinio konkurencingumo taryboms. Mokslinę literatūrą praturtinančios žinios apie minėtų tarybų veiklą sudaro prielaidas tolimesniems tyrinėjimams.

2. Susistemintos žinios apie dažniausiai šiandien pateikiamas šalies konkurencingumo sampratos interpretacijas nulėmusias teorijas ir mokyklas papildė mokslinį šio reiškinio pažinimą. Nuodugnus šios sampratos pažinimas leido patikslinti šalies konkurencingumo apibrėžimą.

3. Šalies konkurencingumo reiškinio pažinimą taip pat praplečia šalies konkurencingumui vertinti naudojamų veiksnių rinkinių analizės pagrindu sudarytas bei mokslinės literatūros analize pagrįstas šalies konkurencingumo turinį atskleidžiantis veiksnių rinkinys.

4. Mokslinis potencialas šalies konkurencingumo tema papildytas dvejomis naujomis šalies konkurencingumo klausimams spręsti skirtomis priemonėmis – šalies konkurencingumo vertinimo metodu ir šalies konkurencingumo pokyčio optimizavimo modeliu.

Darbo rezultatų praktinė reikšmė

Parengtas šalies konkurencingumo vertinimo metodas yra tvirtas pagrindas vertinimo metodikos sukūrimui, kuri už sprendimų rengimą atsakingose institucijose gali būti naudojama nustatant šalies konkurencingumo būklę ir priimtų sprendimų efektyvumą.

Sudaryto šalies konkurencingumo pokyčio optimizavimo modelio, kaip sprendimų paramos priemonės naudojimas suteiks galimybę institucijoms pateikti labiau pagrįstas rekomendacijas, o už sprendimų priėmimą atsakingiems subjektams priimti efektyvesnius šalies konkurencingumo skatinimo sprendimus. Priimti efektyvūs sprendimai prisidėtų prie strategijos efektyvumo didėjimo ir galiausiai – šalies konkurencingumo augimo.

Darbe pateiktų sprendimų pagrindu gali būti sukurta šalies konkurencingumo sprendimų paramos sistema.

Ginamieji teiginiai

1. Pagrįsto vienareikšmio šalies konkurencingumo sampratos apibrėžimo priėmimas ir, remiantis juo, konkurencingumo veiksnių rinkinio sudarymas yra pagrindiniai vertinimo tikslumą didinantys būdai.

2. Šalies konkurencingumo vertinimo tikslumą taip pat didina šalies konkurencingumą lemiančių veiksnių svarbos bendram konkurencingumui įvertinimas. Todėl turi būti nustatomi veiksnių reikšmingumai.

3. Su šalies konkurencingumu susijusių sprendimų priėmimo pagrindas, kurį sudaro konkurencingumo vertinimas, yra nepakankamas. Siekiant priimti pagrįstus ir efektyvius sprendimus turi būti pasitelkiamos papildomos priemonės.

4. Šalies konkurencingumo skatinimui skirtų finansinių išteklių efektyvaus paskirstymo planas, gautinas išsprendus šalies konkurencingumo pokyčio optimizavimo uždavinį sudaro prielaidas už sprendimų priėmimą atsakingiems subjektams priimti efektyvesnius sprendimus.

Disertacijos struktūra

Disertaciją sudaro įvadas, trys skyriai, bendrosios išvados, literatūros sąrašas ir keturi priedai. Disertacijos apimtis – 114 puslapių, neskaitant priedų. Darbe yra 36 numeruotos formulės, 16 paveikslų ir 28 lentelės. Rašant disertaciją panaudoti 222 šaltiniai.

Pirmame skyriuje atskleistas šalies konkurencingumo klausimo aktualumas, atlikta šalių patirties analizė, patikslintas šalies konkurencingumo apibrėžimas ir sudarytas šalies konkurencingumo veiksnių rinkinys. Antrame skyriuje pasiūlytas šalies konkurencingumo vertinimo metodas, sudarytas šalies konkurencingumo pokyčio optimizavimo modelis. Trečiame skyriuje aprašyti empirinių tyrimų, kuriais patikrintas pasiūlymų praktinis priimtumas, eiga ir rezultatai.

Bendrosios išvados

1. Šalių poreikis atremti besikeičiančio pasaulio iššūkius praeito amžiaus antroje pusėje itin padidino šalies konkurencingumo klausimo aktualumą. Ieškomos efektyvių sprendimų, kai kurių šalių vyriausybės įsteigė nacionalinio konkurencingumo tarybas, kurioms patikėjo svarbias funkcijas – šalies konkurencingumo vertinimą ir jo rezultatų pagrindu suformuotų rekomendacijų pateikimą už sprendimų priėmimą atsakingiems subjektams. Tačiau, analizuojant šalių patirtį nustatytos problemos – vienareikšmės šalies konkurencingumo sampratos ir pagrįsto veiksnių rinkinio nebuvimas, remiantis netiksliu vertinimu suformuluotos ir tvirto pagrindimo neturinčios rekomendacijos, atskleidė sprendimų priėmimo pagrindo nepakankamumą ir sprendimų pagrįstumui didinti skirtų priemonių poreikį.

2. Mokslinės literatūros analizė atskleidė tris požiūrius, skirtingai aiškinančius šalies konkurencingumą tam tikrais laikotarpiais: XVI–XVIII a. pradžioje šalies konkurencingumas buvo vertinamas atsižvelgiant į prekybos

apimtis ir jos ekonominę naudą; XVIII–XX a. pradžioje šalies konkurencingumas vertintas produkcijos gamybos sąnaudomis; XX–XXI a. šalies konkurencingumas pradėtas tapatinti su vadyba, inovacijomis, žiniomis ir konkurencinga šalimi laikoma ta, kuri geba užtikrinti savo gyventojų gerovę. Šiandien labiausiai paplitęs požiūris, šalies konkurencingumą tapatinantis su sėkminga jos užsienio prekyba, vertintinas kaip netikslus. Atsižvelgiant į tai, kad kiekvienos šalies siekis yra užtikrinti gyventojų gerovę, prasmę įgauna našumu grindžiama šalies konkurencingumo samprata, tačiau ji, kertiniu aspektu išlaikant šalies ekonominius laimėjimus, kurie garantuoja materialinę gerovę, turi būti papildyta ir neekonominiais veiksniais. Atsižvelgiant į tai, šalies konkurencingumas apibrėžiamas kaip jos gebėjimas pasiekti aukštą našumą ir užtikrinti visapusišką gyventojų gerovę.

3. Atlikus skirtingų šalies konkurencingumui vertinti naudojamų veiksnių rinkinių turinio analizę ir sintezę nustatyti patikslintą konkurencingumo apibrėžimą atitinkantys šalies konkurencingumą leimiantys veiksniai: institucinė aplinka, makroekonominė situacija, inžinerinė infrastruktūra, technologinė infrastruktūra, mokslinė infrastruktūra, švietimas, socialinė aplinka, produktų rinka, darbo rinka, finansų rinka, verslo pažanga. Atlikta mokslinės literatūros analizė patvirtino kiekvieno veiksnio svarbą šalies konkurencingumui ir leido apibrėžti turinį.

4. Siekiant padidinti šalies konkurencingumo sprendimų pagrįstumą, darbe pasiūlytas požiūris, pagal kurį sprendimų priėmimo procesas suvokiamas kaip tikslingai tam skirtų finansinių išteklių nukreipimas į konkurencingumą lemiančius veiksnius, tikintis jų būklės pagerėjimo ir šalies konkurencingumo didėjimo. Remiantis šiuo požiūriu, priimant sprendimus tikslinga ne tik atlikti šalies konkurencingumo vertinimą bet ir išspręsti šalies konkurencingumo pokyčio optimizavimo uždavinį, pateikiantį finansinių išteklių paskirstymo tarp šalies konkurencingumą lemiančių veiksnių planą. Toks sprendimų priėmimo pagrindas sudaro prielaidas pagrįsti ir priimti efektyvesnius sprendimus.

5. Šalies konkurencingumo vertinimui siūlomo metodo pagrindas – remiantis veiksnių rinkinių ir mokslinės literatūros analize sudarytas ir, atsižvelgiant į pasiūlytą šalies konkurencingumo sprendimų priėmimo koncepciją, patikslintas veiksnių rinkinys. Rinkinį sudarantys veiksniai detalizuoti iki dalinių veiksnių, kurių reikšmėms apskaičiuoti, remiantis Lietuvos pavyzdžiu, pasiūlytas rodiklių rinkinys. Dalinių veiksnių ir juos apibūdinančių rodiklių rinkiniai, suteikiant vertinimo metodui lankstumo, nėra baigtiniai ir turi būti tikslinami atsižvelgiant į konkrečios šalies ypatybes ir vertinimo aplinkybes. Šalies konkurencingumo (veiksnių) būklės vertinimas pagrįstas dalinių veiksnių ir veiksnių vertinimų sinteze, apskaičiuojant veiksnių ir bendro konkurencingumo integruotus kompleksinius rodiklius.

6. Siekiant galimai tiksliau įvertinti šalies konkurencingumą ir sudaryti realias sąlygas išspręsti šalies konkurencingumo pokyčio optimizavimo uždavinį, siūloma, naudojantis analitinės hierarchijos proceso metodu, kiekvienam šalies konkurencingumo veiksnui ir juos sudarantiems daliniams veiksniams nustatyti skirtingą svarbą atskleidžiančius reikšmingumus. Kitam optimizavimo uždavinio išsprendimui svarbiam klausimui – šalies konkurencingumo veiksnių būklės pokyčių dėl investuotų finansinių išteklių nustatymui, spręsti siūlomas ekspertinio vertinimo metodas. Gautini ekspertų įverčiai, remiantis tikimybių teorija, laikomi atsitiktiniais dydžiais, pasiskirsčiusiais pagal normalųjį dėsnį. Atsižvelgiant į tai, turi būti sprendžiamas stochastinio programavimo uždavinys, kuriam darbe sudarytas šalies konkurencingumo pokyčio optimizavimo modelis.

7. Empirinių tyrimų rezultatai atskleidžia, kad sprendžiamas šalies konkurencingumo pokyčio optimizavimo uždavinys, pasirenkant skirtingus pasiklovimo lygmenis, suteikia galimybę, priimant šalies konkurencingumo sprendimus, rinktis iš skirtingų konkurencingumui skatinti skirtų finansinių išteklių paskirstymo tarp konkurencingumą lemiančių veiksnių variantų. Nustatyta, kad kuo didesnis pasiklovimo lygmuo pasirenkamas, tuo optimalus šalies konkurencingumo pokytis bus mažesnis. Už sprendimų priėmimą atsakingiems subjektams renkantis finansinių išteklių paskirstymo variantą svarbu atsakingai įvertinti šalies poreikius.

8. Darbe sudaryto šalies konkurencingumo pokyčio optimizavimo modelio taikymas sudaro prielaidas pagrįsti šalies konkurencingumo sprendimus, padidinti konkurencingumo skatinimui skiriamų finansinių išteklių panaudojimo efektyvumą, pasiekti didesnę šalies konkurencingumo augimą. Šalies konkurencingumo vertinimo metodas ne tik įgalina nustatyti esamą konkurencingumo būklę, bet ir yra priimamų sprendimų efektyvumo vertinimo priemonė. Pasiūlytų priemonių pagrindu gali būti sukurta šalies konkurencingumo skatinimo sprendimų paramos sistema.

Trumpos žinios apie autorę

Giedrė Rakauskienė gimė 1982 m. birželio 4 d. Marijampolėje.

2004 m. įgijo mechanikos inžinerijos bakalauro laipsnį Aleksandro Stulginskio universiteto Žemės ūkio inžinerijos fakultete. 2007 m. įgijo vadybos ir verslo administravimo magistro laipsnį Vilniaus Gedimino technikos universiteto Verslo vadybos fakultete. Už magistro darbą 2007 m. skirta Lietuvos mokslo akademijos aukštųjų mokyklų studentų mokslinių darbų premija. 2008–2013 m. – Vilniaus Gedimino technikos universiteto Verslo vadybos fakulteto doktorantė. Nuo 2005 m. dirba Vilniaus Gedimino technikos universitete, šiuo metu – Strateginių tyrimų skyriuje.

Giedrė RAKAUSKIENĖ

THE INCREASE OF VALIDITY OF NATIONAL
COMPETITIVENESS' PROMOTION DECISIONS

Summary of Doctoral Dissertation
Social Sciences, Economics (04S)

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Vilniaus Gedimino technikos universiteto
leidykla „Technika“,
Saulėtekio al. 11, 10223 Vilnius,
<http://leidykla.vgtu.lt>
Spausdino UAB „Ciklonas“
J. Jasinskio g. 15, 01111 Vilnius