

Assessment of Innovativeness and Competitiveness of Lithuania in the International Context

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Abstract

The paper deals with the innovativeness and competitiveness rates of Lithuania in the international context. Having considered that the need of innovations and scientific knowledge in the economic development is becoming more and more relevant, and the efficient science and business cooperation is necessary solving the topical economic development and technological progress problems, the research results on the innovativeness and competitiveness rates of Lithuania in the international space have been presented in this research work. Recently a number of the scientific works have been published where different topics on innovative activities and competitiveness have been discussed and analyzed, however, some relevant issues have not been dealt comprehensively. It lacks of a common approach defining the innovation as well as innovative activity and it lacks of the studies on the factors having the largest impact on the competitiveness assessing the progress level in the international context.

The research results showed that Lithuania assessing the innovativeness and competitiveness rates in the international context appears among the lagging countries. It is claimed that not all possibilities to increase the national competitiveness through the global economic conditions have been exploited.

Keywords: innovation, innovativeness, competitiveness assessment.

Introduction

In the global economic conditions business environment inevitably changes, which is formed by intensive worldwide competition, fast technology and market condition changes. These changes determine the shorter duration of the business performance process development as well as the shorter production life-cycle, and in this way change the competitiveness environment in the business sector (Santoro ir Chakrabarti, 2002; Schiller, Diez, 2007). The experience of the advanced countries show that the economic growth based on the traditional production factors is inevitably short-lived and only the company performance based on the innovations can ensure the high productivity of the national system for a long time period (The innovation development in business: strategic priorities and actions, 2007). It is recognized that even in the economic recession conditions the novel-

ty implementation can become the main measure in order to overcome the consequences of the economic cycle decline (Jakubavičius, Strazdas, Gečas, 2003).

Recently a number of the scientific works have been published dealing with the problems of the different possibilities of the national competitiveness improvement in the international space. These scientific works proved that economic growth depends on the technological progress and innovative activity (Solow, 1957; Abramowitz, 1986; Griliches, 1995; Toole, 1999; Tijssen, 2001; McMillan, Hamilton, 2002; Martin, 2007 and other). Through the high innovations the national economics is able to adapt to the changes in the international market, therefore the Innovation Strategy of 2010-2020 of Lithuania prepared by the Economic Ministry seeks for the efficient management of the national resources, which are needed while creating the competitive knowledge economics based on the qualified human resources as well as the new technologies. In this document the strategic goal has been emphasized – to create the creative and innovative society, to increase the Lithuanian integration into the global markets, to develop the different innovations, including social and public innovations, to implement the systemic attitude to the innovations (Lithuanian Republic Government report of 2010).

Considering the relevant measure implementation provisions emphasized in the Lithuanian innovation strategy documents the paper deals with *the issues on:*

- though there is a number of the scientific publications on the theoretical innovation and innovative activity insights, however, the link between the innovative activity and the national economic competitiveness has not been defined;
- what factors have the largest impact on the competitiveness assessing the progress level in the international context.

The research aim: to analyze and assess the innovativeness and competitiveness rates of Lithuania in the international context.

The research methodology: systemic literature analysis, mathematical statistics methods.

Theoretical aspects of innovative activity as one the most important competitive factor in a country

Scientific literature lacks of one common approach defining the innovation and innovative activity, however, it is agreed that *innovation* is manufacturing and implementation of novelty, new product creation or improving the manufactured ones, development of new production ways and application of new organizational and managerial methods, searching for new clients and new product realization markets. An innovative activity includes all scientific, technological, organizational, finance and commercial measures, what make the conditions for novelty creation. The innovative activity also includes the STP (scientific technological potential), which is not directly related to the particular novelty creation (OECD, 2005; Jakubavičius, Strazdas, Gečas, 2003). In some research works innovations have been related to knowledge transformation, because the implementation of new and potentially useful ideas, activity forms or products in the particular situation, when the innovations have been mastered, are related to new activity for people and initiate changes (Mckie, 2004; Melnikas, Jakubavičius, Strazdas, 2000). The importance of radical change initiated by innovations and related to social relation transformation (usage of electronics and virtual opportunities) was analyzed in the research works of Chesbrough (2003). The innovation development tendencies and internationalizing conditions were analyzed and assessed by Paškevičius, Staškevičius, 2001; Ramanauskas, 2007 and others. The analysis of the literature sources showed that the innovations are related to the scientific research and experimental development. The opportunities of the scientific and technological potential usage were analyzed and assessed by Ploss, (2007); Cohendet, Stojak, 2005; Calori, Atamer, Nunes, 1999; David, Foray, 2002 and by the Lithuanian researchers such as Bagdanavičius, (2002); Čiegis, Gavėnauskas, Petkevičiūtė, Štreimikienė, (2008); Melnikas, (2008); Damašienė, Matuzevičiūtė (2002); Dapkus, (2006) and others. Still, for reasons of clarity to identify the concept of innovations with the concept of the scientific technological potential is not accurate; because the innovation creation using the scientific technological potential is assigned to the innovative activity, while the results of such activity – to innovation (Keršys, 2008). In summary it can be claimed that analyzing the innovation nature and the content approach some different attitudes have been found, what highlight the complexity of innovative activity and its result.

However, it is agreed that the innovations, related to the science and technological development, increase the competitive ability in a country and stimulate the economic growth. According to the research results justifying the impact of innovations on the economic growth it was noticed that this dependence was surveyed applying the linear model (Ballard, 1989), where science was approached as the basement of economic development and it was considered that the transfer of the scientific achievements to the industry guarantees the long-term development. Still, this attitude is not correct, because the links between science and innovation technologies and economic growth are complex, interacting with each other and repeating. The research proved that economic growth depends on the technological progress (Solow, 1957; Abramowitz, 1986; Grilliches, 1995; Toole, 1999; Tijssen, 2001; McMillan, Hamilton, 2002; Martin, 2007 and other). As the result of the scientific arguments – recently the particular attention is paid on the content of the competitive ability in a country, its development and measures by both the researchers and society. In the strategy ‘Europe 2020’ it is claimed that during the period of the limited budget, large demographical changes and increasing worldwide competition the competitive ability in Europe, the ability to create new workplaces or rebuild lost ones because of the financial crisis as well as the future living standard depend on the ability to stimulate the innovations of the products, services and social processes and models. Therefore, the innovations in this strategy have been considered a lot, because they are the best way successfully to solve the main society problems (‘Europe 2020’ model initiation ‘Innovation Union’, 2010). In conclusion it is claimed that the competitive ability in a country or a region is related to the improvement of the living standard, the development of the workplaces and the ability to realize the international liabilities.

Justification of the research methodology

Assessing the innovative activity as one of the most important factor of competitive ability in a country or a region (in this study in the EU) it is faced with the problem of its measurement. Both theoretical and practical scientific work is often discussed: may the quantified national innovativeness reflect the peculiarities of the whole Europe Union as the complex cultural, economic, technological, political and social system? What measurement instruments can be applied assessing the national innovativeness considering the cultural variety and openness and democratic traditions?

In the national works of the researchers the competitiveness of the particular region is often related to and assessed in the level of a company (Dis-

kienė and other, 2008; Snieška, Bruneckienė, 2009; Kriščiukaitienė, 2008; Rutkauskas, 2008 and other). In the global economic conditions the conception of the country got the international context and became the political instrument, therefore assessing the competitiveness in a country in this study the Global Total Innovation Index (GTII) has been applied, which was adapted by prof. Dutta and INSEAD Research Association. GTII is counted evaluating the contributions – as all measures stimulating the innovations in economics – the result of the economic innovative activity. The contribution to the innovations depends on the institutional and political, human resource, general and IT infrastructure, market and business complexity. The benefit of innovations shows up during their application in the economics: knowledge development, competitiveness and welfare creation. This index has been developed using the data of the Global Economics Forum, World Bank Group and International Telecommunication Union. Calculating the index the quantitative and qualitative records have been checked (Global Innovation Index 09/10 Report). In the EU the national innovativeness is estimated and assessed applying the total innovation index (TII). The generalized total innovation index (TII) is counted calculating 19 most spread statistical rates (including study, science, business, finance and other areas), which are used to compare the innovative state in the different countries. According to the methodology of the generalized innovation index, the lowest rate in the EU-27 group is 0 points, while the highest is 1 point. To estimate the links among the rates the multiple correlation regression analysis has been applied in this study.

Results of the research rates on innovativeness and competitiveness

The innovation index (in this research the SII) allows the EU Commission in its annual innovative activity review to assess and compare the innovative activities in the EU and other countries. In previous years the published SII rates in Lithuania have steadily increased: in 2007 it made 0.27; in 2008 – 0.29, and in 2009 it was 0.31. According to the new assessment methodology the Innovation Union presented SII of Lithuania, which made 0.227 in 2010 (while the average rate in the EU was 0.516). According to the total innovation index (SII) published in the ‘European Innovation Scoreboard 2011’ document the EU countries can be put into four country groups:

- *Countries, what are the innovation leaders* – Denmark, Finland, Germany and Sweden (their SII index is higher than the average EU index);
- *Countries, what are the innovation followers* – Austria, Belgium, Cyprus, Estonia, France, Ireland, Luxemburg, the Netherlands, Slovenia and UK (their SII index is approximate to the average EU index);
- *Countries, where the moderate innovators and their SII index is a little lower than the average EU index* – the Czech Republic, Greece, Hungary, Italy, Malta, Poland, Portugal, Slovakia, Spain and Lithuania;
- *Countries, where the modest innovators and their SII index is much lower than the average EU index* – Bulgaria, Latvia and Romania.

Generalizing the results it was noticed that the innovations leaders remain the old EU countries, where the SII index is 20 and more per cent higher than the average EU index. Countries, the innovation followers, have about 10 per cent higher index than the average SII index in the EU. However, the SII index of Lithuania is twice lower than the average EU-27 index. It is thought that such situation in Lithuania was determined by the misbalance of ‘outgoing’ and ‘incoming’ innovations, i.e. too little innovation return. The scientific research proved that the innovative growth is the long-term process; therefore the results of the innovative activities will be able to observe only in the long-term perspective.

Having considered that in 2010 the SII calculation method changed it is difficult to compare the change of this rate, however, estimating the SII index component increase the presumption can be made that the stronger part – human resources and incomes for innovation created without the scientific research - had impact on it. The weaker parts, that still aggravate the average EU index striving, are as follow: the openness and attractiveness of the scientific research system, intellectual resources (patent application under the Patent Cooperation contract, the Community trademarks, and design), innovators (the part of the innovative small and medium-sized enterprises) and the economic innovation effect (the knowledge-intensive service sector export, the number of employees in the knowledge-intensive activities).

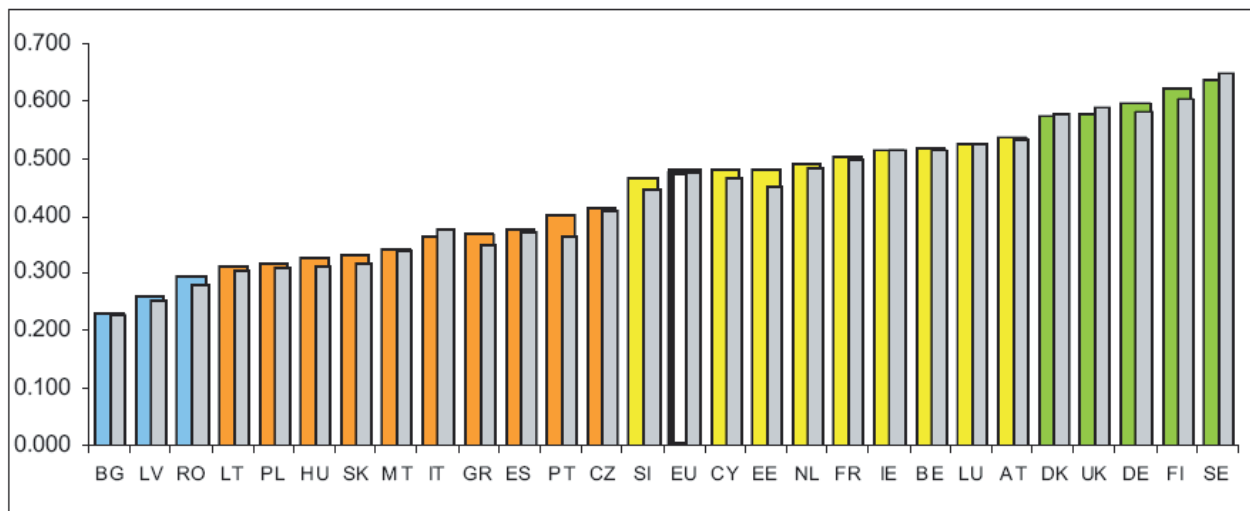


Fig. 1. The average total innovation index (SII) of the EU-27 in 2008-2009
 Source: European innovation scoreboard, 2011

The World Economic Forum forms the annual global competitiveness index, which assesses the competitiveness of the different countries. The competitiveness in this study is described as the group of institutional, political, economic and other factors determining the productivity level in a country. The global competitiveness index is counted, assessing each country according to twelve competitiveness factors: the institutions and infrastructure in a country, macroeconomic stability, health and primary education, higher educational system and professional training, goods and labor market efficiency, development of the financial market, market size, business progress and novelty implementation. The innovation input index includes the institutional rate, human resources, general and communicative and telecommunication infrastructure, market and business conditions (Lithuanian Free Market Institute, 2010). The global competitiveness index in 2009-2010 made 4.3 points from 7 maximal in Lithuania and it reached the 53rd place from all 133 estimated countries. The estimation of Lithuania has been decreasing during the recent two years, comparing it with the results of 2008-2009 Lithuania fell down for 9 positions (The review of the competitiveness tendencies in a country in 2010).

The global total innovation index GTII is counted estimating the contributions – as all measures to stimulate innovations in economics and the benefit – the result of economic innovative activity; therefore the innovation input index includes the institutional rate, human resources, general and communicative and telecommunicate infrastructure, market and business condition complexity. The benefit is assessed through: the scientific achievements through the high technological export, patents and the scientist number; the competitive ability, the welfare as the created result from novelty. Having assessed the coun-

tries according to four groups, Finland, Sweden, Switzerland, Japan, Singapore and Israel go to the world *innovation leader* group. The countries, *innovation followers*, but a little bit lagging behind the innovation leaders, are these: Germany, Denmark, Holland, Canada, the United Kingdom, South Korea, France, Island, Norway, Belgium, Australia, Austria, Ireland, Luxemburg, New Zealand. The countries which go to the *moderate innovator* group are Hong Kong, Russia, Slovenia, Italy, Spain, the Czech Republic, Croatia, Estonia, Hungary and Malta. In the *modest innovator* group Lithuania is one of the leading countries and it overtakes Greece, China, Slovakia, South Africa, Portugal, Bulgaria, Turkey, Brazil, Latvia, Mexico, Poland, Argentina, India, Cyprus and Romania. Lithuania enters the European region and takes the 22nd position among 44 regional countries. It overtakes such the EU members as Cyprus, Hungary, Greece, Poland, Latvia, Romania and Bulgaria (INSEAD, 2009). Lithuania according to the GTII index (3.43) in the world rating is in the 42nd place of 130 countries. It lags behind many EU countries–members. Lithuania according to the innovation stimulation rate takes only the 37th place and according to its innovation input index (2.79) Lithuania is in the 46th position. The GTII is counted as the average score of income and expenditure, therefore the main reason why Lithuania’s rating is so low is a great difference between income and expenditure, which is very important, because the absolute investment is not high such as in Sweden or the USA.

Analysis of innovative company activities

In 2006-2008 in Lithuania 28.8 percent of all service and production companies performed the innovative activity, where 47 percent of all company employees worked there. The turnover of these compa-

nies made more than a half of all company turnovers in Lithuania (in 2006 – 57 percent, and in 2008 – 58,9 percent) (Statistical Annual, 2010). Though the number of innovative companies is increasing and their turnover rates are growing up, still the index of innovative activity remains lower than the average EU-27 index. In 2004 the expenditures on the company turnovers in Lithuania made 81 percent of the average EU-25 index (according to this index Lithuania's rating is the 12th), the number of the companies implemented non-technological innovations was less than the third (31 percent) and this made only 63 percent of the average EU-25 index (according to this index Lithuania is in the 16th position). Innovative company activity often appears in program equipment, pharmacy, biotechnology, communication, optical and laser equipment areas.

Assessing the EU countries innovative rates it was noticed that the wider distribution appeared among old members and new ones. According to the productivity of material and energy applying the innovation the first position goes to Portugal, where even 20.4 percent of the productivity of the company activities depends on innovations, while the EU-27 rate equals 9.5 percent. Lithuanian rate is 7.2 percent. It can be assumed that the companies in order to avoid risk beside the new technologies for material and energy usage apply the older ones, too.

The results of the World Bank research 2011 estimated assessing the business environment acceptance, in 2010 this rate increased for three positions comparing it with the rate of 2009, however, it was only the 23rd place among 183 states beneficial for business. The criteria beneficial for business estimation are shown in Table 1.

Table 1

Estimation of business acceptance (World Bank, 2011)

No.	Criterion	Rating of 183 countries acceptable for business		
		Research results in 2009	Research results in 2010	Change
1	Business beginning	98	87	+11
2	Construction permit	60	59	+1
3	Property registration	7	7	0
4	Obtaining credits	44	46	-2
5	Investor protection	92	93	-1
6	Tax payment	50	44	+6
7	Foreign trade	29	31	-2
8	Contracts	16	17	-1
9	Business failure	36	39	-3

According to the results of the business acceptance research it is seen that in Lithuania the business beginning criterion is best evaluated (+11 positions) as well as the tax payment criterion that rose up for 6 positions. The World Bank evaluated the property registration criterion as the most beneficial in Lithuania, which is stable and remains in the 7th position during the researched period. However, according to the research results of the Innovation Union Competitiveness Report (2011) it is noticed that new companies face difficulties related to the lack of financial resources as well as bureaucratic barriers starting a new business.

Technologies according to the dependence are divided into two groups: patented and unpatented. The first group belongs to and is controlled by one particular person or organization, while the dependence of the unpatented technology group is not defined and its technologies are free to everyone. The patents protect the inventions from the other market participations who try to push out companies from the market. According to the data of the State Patent Bureau, in 2009 98 national patent applications were fi-

led, where 91 applications were from the Lithuanian applicants. During 2005-2009 patent applications were filed by 23 applications more (34 percent). 2108 national trademark applications were filed, which is 87 percent (1833 applications) from Lithuanian applicants. So it can be assumed that the conditions for innovations in Lithuania are good. However, assessing Lithuania's position according to the patent rate in the international level it was noticed that in 2004-2007 only 0.506 advanced technologies were created for one million people and Lithuania overcomes only Romania (0.21025) and Bulgaria (0.409). The advanced countries according to the patent number are Finland, the Netherlands and Sweden. Estonia is the first among the Baltic States with 3.459 high technology patent for 1 million people.

Having analysed the high technology export from Lithuania it was noticed that the largest part of the high technology production export includes the transport means and additional transportation equipment, what exceeds the medical and optical equipment for more than 6 times. However, this export makes only 5.3 percent of all the country export. The

average high technology production trade in the Europe Union made 193.105 billion EUR in 2004-2008. The largest high technology production exporters are Germany (49.644 billion EUR), Great Britain (28.55 billion EUR), and France (36.73 billion EUR). The Lithuanian export made 218.951 million EUR and during the recent five years it increased for 5.4 times. The largest amount of the export was recorded in 2008 (450.86 million EUR), however, the rate of the high technology export in Lithuania made only 0.12 percent of the total EU-27 export, therefore Lithuania is among the followers according to this rate.

National competitiveness in Lithuania assessing the progress level in the international context

According to the rate group defined by the Lithuanian Statistics Department, which is important for the competitiveness of the country economics, it was noticed that a part of them is directly related with the scientific and technological factors. Table 2 shows the research results which reflect the national competitiveness in Lithuania assessing its progress level according to the average Europe Union rate.

Table 2

Assessment of competitiveness rates in Lithuania and EU-27 (2009)

Criterion	Lithuania	EU-27	Differences
SRED foundation rates			
Expenditure on the scientific research activities comparing it with the GDP, in percent. The rate shows what proportion of GDP is devoted to the scientific research activities.	0,78	1,85	High
A proportion of financial resources from the business companies in the total expenditure on the scientific research and experimental development (SRED), in percent.	22,56	54,80	High
A proportion of State financial resources in the total expenditure on the scientific research and experimental development (SRED), in percent.	56,58	33,66	High
A number of patents			
A number of patent applications in Europe Patent Organization (EPO) for 1 mln people, ps.	3,20	114,46	Very high
A number of patent applications in the US Patent and Trademark Organization (USPTO) for 1 mln people, ps.	5,30	33,98	High
A number of high technology production applications in Europe Patent Organization (EPO) for 1 mln people, ps.	0,51	17,27	Very high
Employment rates			
Employment in the knowledge adopted sector, in percent.	25,81	32,61	Not high
Employment in the high and middle industry sector, in percent.	2,69	6,66	High
A proportion of SRED employees of all the total employment, in percent.	1,06	1,40	Not high
Other economic rates			
The export of high technology production comparing with the total export, in percent.	4,92	17,04	High
Gross domestic product for one inhabitant in the standard of the purchasing power.	12675	23560	High

Sources: EU-Barriers to entrepreneurship 2009. Innovation Union Competitiveness Report 2011; European innovation rate board 2011; EUROSTAT.

Assessing the SRED foundation in Lithuania great difference is noticed from the average EU-27 rate (this rate in Lithuania is 2.4 times lower). It is thought that one of the reasons is mean input of the business sector, whose proportion comparing with the State financial resource input is 20 percent lower than the average EU-27 rate. Therefore, in this rate group Lithuania has competitive ability only for the State sector input into the scientific and technological potential creation. The assumption can be made that it lacks financial resources for the development of

the innovative activities. Besides, the innovative activity is risky, so it is difficult to get bank loans and other private company foundation.

Assessing the *number of patent applications* Lithuania is one of the last in the EU-27 positions (this rate is 35 times smaller than the average EU rate). The results of the correlation analysis made by the authors of this research showed that a clear link exists between the high technology patent in Europe Patent Organization for 1 mln people and GDP for 1 inhabitant ($r = 0.56$; $p = 0.05$). The calculation

results allow making a presumption that the scope of high technology has the impact on the economic growth in a country. The important link was found out between the scope of patent applications and the competitiveness index ($r = 0.66$; $p = 0.05$). The presumption can be made that the rate of the competitiveness in a country and the progress level in the international space is determined by the scope of new advanced technology creation.

Assessing *the employment rates* in Lithuania oriented to the SRED and knowledge adopted sectors it was estimated that there is no great differences between the average EU-27 rate of the employment in the knowledge adopted sectors and the total SRED employee proportion of all employment (the employment in the high and middle industry sectors is 2.5 times lower than in the EU-27).

Assessing the high technology production export in Lithuania comparing it with the total export, it was noticed that this rate is 3.5 times lower than the average EU-27 rate. Generalizing the results it can be claimed that the high technology export in Lithuania faces the difficulties entering the international markets, and one of the reasons is small State support and incapable strategic decision system promoting the innovative activities.

Conclusions

1. In summary it can be claimed that analyzing the innovation nature and the content approach some different attitudes were found, what highlight the complexity of innovative activity and its result. However, it is agreed that the innovations, related to the science and technological development, increase the competitive ability in a country and stimulate the economic growth.

2. The research results showed that Lithuania remains in the followers group assessing the innovativeness and competitiveness rates in the international context. It is claimed that not all abilities have been used today to increase the competitiveness in the global economic conditions.

3. The research results proved that the scope of high technologies has a great impact on the economic growth in a country; however, the innovative activity development is limited by the large expenditures on innovations and the lack of the financial resources. The innovative activity is risky, so it is difficult to get a bank loan or other private company foundation. The funds of risk capital performance have not been developed in Lithuania yet.

4. Summarizing the research results it can be claimed that one of the most important conditions for the economic growth in Lithuania is the development of the future technology and innovative activities. Se-

eking for the results in this area it is necessary to promote the innovative activities through the system of coordinated actions, wide spread informative, methodological and financial support for the scientific research institutions as well as the businessmen and educational institutions.

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Lietuvos inovatyvumo ir konkurencingumo vertinimas tarptautiniame kontekste

Santrauka

Straipsnyje analizuojami Lietuvos inovatyvumo ir konkurencingumo rodikliai tarptautiniame kontekste. Įvertinus tai, jog inovacijų bei mokslo žinių poreikis šalių ekonomikos vystymuisi darosi vis aktualesnis, o nuolatinis mokslo ir verslo bendradarbiavimas būtinas sprendžiant aktualias ekonominės raidos ir technologijų pažangos problemas globaliu mastu, straipsnyje pateikiami Lietuvos inovatyvumo ir konkurencingumo rodiklių tyrimo rezultatai tarptautinėje erdvėje. Pastaruoju metu publikuojama

nemažai mokslinių darbų, kuriuose aptariami ir analizuojami įvairūs inovacijų, inovatyvios veiklos ir šalių konkurencingumo klausimai, tačiau kai kuriems aktualiems klausimams aptarti skiriama nepakankamai dėmesio. Mokslinėje literatūroje pasigendama vieningo požiūrio ne tik siekiant apibrėžti inovaciją ir inovatyvią veiklą, bet nepakankamai dėmesio skiriama veiksniams, turintiems didžiausią poveikį konkurencingumui, vertinant jo pažangos lygį tarptautiniame kontekste. Šiame straipsnyje vertinamas Lietuvos

inovatyvumo ir konkurencingumo indeksai, juos lyginant su ES šalių analogiškais rodikliais.

Esant globalios ekonomikos sąlygoms, neišvengiamai kinta verslo aplinka, kurią formuoja intensyvi pasaulinė konkurencija, greitai technologijų ir rinkos pokyčiai. Šie pokyčiai sąlygoja trumpesnę verslo veiklos procesų vystymosi trukmę bei pačių produktų gyvavimo ciklą, taip pat keičia daugelio verslo sektoriaus įmonių konkurencinę aplinką (Santoro, Chakrabarti, 2002; Schiller, Diez, 2007). Pažangių šalių patirtis rodo, kad tradiciniais gamybos veiksniais grindžiamas ekonomikos augimas neišvengiamai yra trumpalaikis, o aukštą nacionalinės sistemos produktyvumą ilguoju laikotarpiu gali garantuoti tik inovacijomis grindžiama įmonių veikla (Inovacijų versle plėtra: strateginiai prioritetai ir veiksmai, 2007). Pripažįstama, jog net ekonominės recesijos sąlygomis naujovių įgyvendinimas gali tapti pagrindine priemone, siekiant bent iš dalies įveikti ekonomikos ciklo smukimo padarinius (Jakubavičius, Strazdas, Gečas, 2003). Pastaruoju metu publikuojama nemažai mokslinių darbų, kuriuose aptariamos ir analizuojamos įvairios šalies konkurencingumo didinimo galimybių tarptautinėje erdvėje problemos. Mokslininkų darbuose įrodyta, kad ekonominis augimas priklauso nuo technologinės pažangos ir inovatyvios veiklos (Solow, 1957; Abramowitz, 1986; Grilliches, 1995; Toole, 1999; Tijssen, 2001; McMillan, Hamilton, 2002; Martin, 2007 ir kt.). Dėl aukšto inovatyvumo šalies ekonomika geba gerai prisitaikyti prie pasikeitimų tarptautinėje rinkoje, todėl Ūkio ministerijos parengtoje Lietuvos inovacijų strategijoje 2010–2020 m. siekiama, kad būtų efektyviai valdomi valstybės išteklių, būtini kuriant konkurencingą žinių ekonomiką, kuri būtų grindžiama ne tik kvalifikuotais žmogiškaisiais išteklių, bet ir naujausiomis technologijomis. Atliepian Lietuvos inovacijų strategijos dokumentuose ak-

centuojamas pagrindines įvardytų priemonių realizavimo nuostatas, straipsnyje sprendžiamos *šios problemos*:

- nors mokslinėje literatūroje skiriama nemažai dėmesio teorinėms inovacijų, inovatyvios veiklos išvalgoms, tačiau nepakankamai aiškiai apibrėžiamos inovatyvios veiklos sąsajos su šalies ekonominiu konkurencingumu;
- aiškinamasi, kokie veiksniai turi didžiausią poveikį konkurencingumui vertinant pažangos lygį tarptautiniame kontekste.

Atlikto tyrimo rezultatai parodė, jog Lietuva tarptautiniame kontekste, vertinant šalies inovatyvumo ir konkurencingumo rodiklius, išlieka besivejančių gretose. Konstatuotina, kad ne visos galimybės šalies konkurencingumui didinti globalios ekonomikos sąlygomis šiuo metu šalyje yra išnaudotos.

Atlikto tyrimo rezultatai parodė, kad aukštųjų technologijų apimtys daro poveikį šalių ekonomiam augimui, tačiau inovacinės veiklos plėtrą riboja didelės inovacinės išlaidos ir lėšų trūkumas. Inovacinė veikla susijusi su rizika, todėl ganėtinai sudėtinga gauti bankų ar kitų privačių įstaigų finansavimą. Rizikos kapitalo fondų veikla Lietuvoje neišplėtotą.

Apibendrinant atlikto tyrimo rezultatus, galima teigti, kad viena svarbiausių Lietuvos ekonomikos tolesnio augimo sąlygų – ateities technologijų ir inovacinės veiklos plėtra. Siekiant rezultatų šioje srityje, reikalinga koordinuotų veiksmų sistema inovacinei veiklai skatinti, siekiant suteikti visokeriopą informacinę, metodologinę ir finansinę pagalbą ne tik mokslinio tyrimo institucijoms ir verslininkams, bet ir švietimo bei mokymo įstaigoms.

Pagrindiniai žodžiai: inovacija, inovatyvumas, konkurencingumo vertinimas.