ISSN 1392-3110
Socialiniai tyrimai / Social Research. 2010. Nr. 3 (20), 83–91

Assessing European Union Innovation Policy: Case Study of Lithuania and Romania

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Abstract

This study represents a few issues related to innovations in the European Union. At first the European Union documents and European scoreboard are analyzed. Based on the analysis, a huge innovation gap between the European Union member-states is identified and the EU authorities consider that innovation-friendly society is a crucial element for its innovation policy. The second part of the article copes with methodological issues that arose around the research on innovations. The methods of the 4th generation of measuring innovation are implemented in the research that aims to evaluate the European Union policy according to population's perception of innovations in Lithuania and Romania. Comparative study in Lithuania and Romania is done. The research shows social attitudes towards innovations and its relation to life quality and financial situation. The study shows that local consumption of innovative products and services not necessary leads to better innovativeness of the country.

Keywords: innovation policy, measurement of innovations, the European Union, statistical evaluation.

Introduction

In the early 80's the erosion of traditional industrial policy started, since it did not manage to ensure adequate growth of the European economies. Unlike in other major world economies, the deindustrialization and transformation of economy towards the innovation in Europe were hampered. This stall was caused by severe restrictions on the economies and political fragmentation (both internal and transnational). However, over the past twenty years, this shift towards innovation-based economy is becoming more and more accelerated. Admittedly, because of the above-mentioned problems the European Union's innovative system lagged quite far behind the United States of America and Japan and the backlog has remained until now (European innovation scoreboard, 2009). This lag of innovation processes is growing concern for the European Union authorities.

The importance of innovations is increasing; both policy makers and academicians are more and more interested in the possibilities that are brought by innovations. The term "innovation" in the modern sense was used for the first time by Schumpeter (1934) and denoted five cases of innovation: the introduction of a new good, the introduction of a new method of production, the opening of a new market, a new source of supply of raw materials, and a new organization of industry – the creation of a monopoly position, for example.

But only at the end of the 20 century it has been finally realized that innovation is a pivot that can and should push modern economies. Countries and global organizations started to define and to collect data related to innovation processes. The OECD in its Oslo Manual (1996) defines innovation as new or significantly improved products or production processes of implementation and delivery. The third edition of the Oslo Manual (2005) extends the definition by including new methods of organization of business activity, labour organization or external relations. U.S. Department of Commerce (2008) defines innovation as new or improved products, services, processes, organizational structures and business models, design, development and implementation in order to create additional value for customers and financial return to the firm. Despite these wide definitions policy makers are likely to continue thinking about innovations essentially as inventions that can be stimulated by support of R&D investment. In fact, the science-push model based on R&D is still the most dominant model in the use today by both academicians and the policy community. Its continued success is partly due to its successful incorporation of many of the features of modern innovation theory (Nauwelaers, Wintjes, 2008). However it ignores the role of innovations that are not created by the results of R&D.

In the globalization the rise of innovations, political stimulation of scientific researches and development become one of the most important factors that influence economic status and the prospects of econo-

mic development (Melnikas, 2008, Dzemyda, Melnikas, 2009). Efficient combination of innovations and human resource strategies is crucial for emerging economies, where successful catch-up is mainly driven by innovation (Le Bas, Lauzikas, 2009). In order to achieve this goal, there is a need to implement efficient and purposeful policy on European, national and regional levels, which is interconnected with micro motives and attitudes of society. This creates many challenges, because social, economical and cultural conditions are different in various nations and countries, and needs more specific decisions.

The European Union is firmly determined to encourage innovation processes all over Europe, but it is not so easy, because every member state has different historical, economical, and cultural background. The attitudes of society can prevent successful implementation of the EU innovation policy. Therefore our aim in the research is to evaluate the perception of innovations in countries that are below the EU average in the sphere of innovations and to compare the obtained results with the principles of the EU innovation policy in order to evaluate the adequacy of this policy in cases of Lithuania and Romania. The research method for the evaluation of the European Union Policy is path model as the logical extension of multiple regression models that belong to structural equation models' family (Hayduk, Pazderka-Robinson, 2007, Chen, Bollen, Paxton, Curran, Kirby, 2001, Dilalla, 2000, Freeman, 2007). The data used in the research is taken from "Eurobarometer 63.4 survey European Union Enlargement, the European Constitution, Economic Challenges, Innovative Products and Services" (2005) that represents attitudes towards innovations of population in stable economy (Rakauskiene, 2007, Svetikas and Dzemyda, 2009, Rakauskiene and Krinickiene, 2009).

Scientific research and innovation in the European Union

The scientific research and innovations in the European Union are observed by Dragan (2009), Dzemyda (2009), Dzemyda and Melnikas (2009).

The board of results on innovation at the European level (European Innovation Scoreboard, EIS) 2009 shows that, prior to the financial crisis, the European Union achieved important progress in the field of innovation. The relative discrepancy compared with the US and Japan in the innovation field decreased, especially due to significant achievements of the new member states, such as Cyprus, Romania, and Bulgaria. The European Union achieved progress especially in the field of human resources and funds available for innovation. However the investments of companies in innovation remain relatively lower compared to the situation in the US and Japan. The 2009's report on science, technology and competitiveness also offers a deep analysis of trends in the field of public and private research and development, technological performance and progress achieved in putting the European research area into operation.

"A period of crisis is not the right time to give up the investments in research and innovation. They are vital if Europe wants to get through the economical crisis even stronger and to approach the challenge of climate changes and globalization", pointed out Gunter Verheugen, the EU vice-president, responsible for policy regarding the enterprises and industry.

The European countries are divided into 4 groups of innovation ranking, and all countries improved the performances, even though the progress rate varies:

1) Leaders in innovation (ranking far above the EU average): Switzerland, Sweden, Finland, Germany, Denmark, and the UK; of them, Switzerland and Germany have the highest rate of improving the performance.

2) Innovation followers (above the EU average): Austria, Ireland, Luxembourg, Belgium, France, Netherlands, Estonia, Cyprus, Iceland, Slovenia.

3) Moderate innovators (below the EU average): Czech Republic, Norway, Spain, Portugal, Greece, Italy, Lithuania, Hungary, Malta, Poland, Slovakia.

4) Poor innovators (far below the EU average): Croatia, Serbia, Romania, Latvia, Bulgaria and Turkey; these countries are in the process of filling the gaps, Bulgaria and Romania having the highest rate of improving the performances.

The analysis of information at the EU level shows the important progress that has been achieved, both in absolute terms (compared with the level 5 years ago) and in comparison with the US and Japan.

Comparison with a larger group of countries shows that the EU also had a relatively good evolution in relation to the emergent economies. Progress was achieved in the field of human resources involved in the innovation process (licentiates, college graduates), access to broadband internet, and availability of risk capital. Nevertheless weaknesses continue existing with regards to private investments, where the EU comes after the US and Japan, from the point of view of spending on research, development and informatics. Also, despite the report showing the important role of the non-technological innovation, the spending of the EU companies on such innovation activities (professional training, design, marketing, new equipment) decreased.

The EU has an extraordinary innovation potential. Europe has a long standing tradition of breakthrough inventions. It has laid the basis for one of the largest single markets in the world, where innovative products and services can be commercialized on a lar-

ge scale. It also has a tradition of a strong and responsible public sector, which should be capitalized on.

The communication from the European Commission, "Putting knowledge into practice: an innovation strategy extended for the EU", mentions that the agreement on financial framework 2007–2013, including cohesion policy, the 7th Research and Development Framework Programme and the Competitiveness and Innovation Framework Programme are significant innovation-friendly financial packages.

The Commission's communication "More research and innovation" of Oct. 2005 sets out a programme of 19 fields of action for both community and the member states, which are being implemented as planned. The member states are taking action in favour of innovation in the framework of the National Reform Programmes, based on the integrated guidelines of the updated Lisbon Strategy for Growth and Jobs. The European Trend Chart on innovation has given a clear picture of the European innovation performance and of the national innovation systems of the EU member states and of their strengths and weaknesses. It enables progress to be closely monitored.

Despite this already strong policy focus on innovation, the EU deficiencies have not been sufficiently tackled, and its economy has not yet become the comprehensively innovative economy that it needs to be.

The report on "Creating an innovative Europe" (the Aho report) identified the main reasons explaining why this potential has so far not been fully exploited and called for urgent action 'before it is too late'. It identified the need to make the business environment more innovation-friendly as a core concern.

The Commission is convinced that even more is needed – Europe has to become a truly knowledge-based and innovation-friendly society where innovation is not feared but welcomed by the public, is not hindered but encouraged, and where it is part of the core societal values and understood to work for the benefit of all its citizens. That is why the European Council called on the European Commission to present 'a broad based innovation strategy for Europe that translates the investments in knowledge into products and services'. The EU authorities consider innovation-friendly society to be a crucial element for its innovation policy.

This Communication COM (2006) 502 Final presents such a strategy, in particular by responding to the recommendations contained in the Aho report. It presents a framework to take innovation forward bringing together different policy areas that have a bearing on innovation. It is intended to frame policy discussions on innovation at national and European levels. It outlines the most important planned or ongoing initiatives, identifies new areas for action, and in particular produces a more focused strategy to facilitate the creation and marketing of new innovative products and services in promising areas – the 'lead markets'.

To implement this broad agenda, the Communication does not propose to create new structures, but instead it builds on the existing legal and institutional framework of the renewed Lisbon Partnership for Growth and Jobs, which has already established a political platform for partnership between the member states and the Commission.

The member states must be ready to invest in anticipating and accompanying structural change. This requires, in particular, a reallocation of resources to education, cybernetics and information technology, research and to the creation of high value jobs and growth.

The new EU Financial Framework for the period of 2007-2013 is the first step in this direction. The same change of priorities needs to be seen at national levels.

The EU can become comprehensively innovative only if all actors become involved and in particular if there is a market demand for innovative products. This broad strategy needs to engage all parties: business, public sector, and consumers. This is because the innovation process involves not only business sector, but also public authorities at national, regional and local level, civil society, organizations, trade unions and consumers.

Such a wide partnership for innovation will create a virtuous circle, where supply of new ideas and demand for new solutions will both push and pull innovation. Innovation depends on a strong demand from consumers and citizens for new and innovative products and services. Therefore, besides creating the optimal framework and possibilities to innovate, there must be an innovation-friendly market and demand for outputs. This, in particular, requires consumer's trust and confidence in these products and services not least in their (demonstrable) safety. Consumer confidence in unknown products and services depends in part on the knowing that robust systems of consumer protection exist. Markets where consumer confidence is high are also easier for new entrants with innovative products.

Methodological Issues Related to Assessing the Innovations

In order to implement successful measures of innovation policy in the EU, at first we must be able to measure the outcome of these measures. Though the theoretical structure of the term "innovation" is universally accepted and there is no radically different interpretations related to this subject, however, a number of methodological problems related to the measu-

rement of values of innovation, especially at regional or national level, arise. And what is more, the measurement of regional or national innovative potential is increasingly becoming more popular along academicians and politicians, because it can give them guidelines for choosing one or another innovation policy. Innovation is a complex process. Innovation process can be seen as interaction of micro and macro factors, the macro-structure leads to micro-dynamics and vice versa, the macro-structure is built around micro-processes. In other words, innovativeness of firms (micro level) determines regional or national parameters of innovation and, on the contrary, the education of country's population, innovation-friendly environment or the public policy (macro level) has an impact on innovations processes in corporations. Accordingly, the choice of priorities (micro or macro) determines the research strategy of innovation, which can be divided into two dimensions. Wide dimension prefers macro-elements (it includes not only the creation of innovation, but also its distribution and diffusion), and narrow dimension prefers micro-elements (innovation in hardware and software are equated to inventions). Another cause of methodological problems is that creation, development and use of innovations include not only tangible processes that have numerical representation, but also disparate, intangible processes. In many cases, these methodological issues are preceded due to complexity of innovation as the object of research. The innovation and its creation encompass tangible assets: information, communication, etc., but innovations also include intangible assets: patents, databases, R&D progress, etc. This duality leads to a large variety of methods used for research on innovations, because there is no single approach that could encompass both elements which can and cannot be numerically evaluated.

Table 1

Tangible and intangible assets

Tangible Assets	Intangible Assets
Information and communications	Patents
Technology infrastructure	Databases
Production materials	R&D progress
Production machinery and facilities	Organizational processes
	Knowledge and skills of labour force

Source: Susan Rose, Stephanie Shipp, 2009

To sum up, innovation is such a complex process that it cannot be easily reduced to measurable elements (e.g., R&D dollars spent; number or value of patents obtained). Nor it is linear. Instead, it is often iterative – the outputs of early activities become the inputs for later processes. Innovation also is neither a linear combination of component factors nor limited within the boundaries of firms.

Innovations were begun to be measured after the Second World War. Measurement of innovation can be divided into several generations of innovation measuring indicators.

Table 2

Generations of innovation indicators

First Generation Input Indicators (1950s-60s)	Second Generation Output Indicators (1970s-80s)	Third Generation Innovation Indicators (1990s)	Fourth Generation Process Indicators (2000s plus foreseeable future)
• R&D expenditures • S&T personnel • Capital • Tech intensity	• Patents • Publications • Products • Quality change	• Innovation surveys • Indexing • Benchmarking innovation capacity	• Knowledge • Intangibles • Networks • Demand • Clusters • Management techniques • Risk/return • System dynamics

Source: Egils Milbergs, Nicholas Vonortas, 2006

The first generation was characterized by the fact that innovation processes were perceived as a linear process. In view of the linear nature of innovation processes, the main objects of innovation research were inputs, such as R&D expenditure, investment in education, capital costs, research staff, university graduates, technological intensity, and so on.

The second generation supplemented the input indicators with intermediate outputs created as result of activities of S&T. Typical measurement examples of this generation are patents, scientific publications, new products or processes, calculations, high-tech trade.

The third generation focused on innovation indicators and indices that are calculated by means of surveys and integration of publicly available information. The main objective is to compare and to rank States by their abilities to create innovations. The main challenges at present are the validity of international data for comparing states and incorporation of service sector innovations into polls. In other words, these surveys have shown that R&D and innovations are not identical; however they did not bring any changes to specific political instruments directed towards encouragement of innovations. This is partly due to the fact that the questionnaire should be short and simple to understand, so they do not provide the necessary depth of information to policy makers.

Relatively infant fourth generation of innovative methods of measurement encompasses these new spheres (Susan Rose, Stephanie Shipp, 2009):

• **Knowledge indicators**. Knowledge is more important because it paves the way for creation, development and diffusion of the mentioned elements. However the measurement of a multi-layered concept such as knowledge requires sophisticated, composite indicators. Such indicators may include composite knowledge investment indicators and composite performance indicators.

• **Networks.** The striking feature of modern innovations is the fact that hardly any organization can innovate alone. Most innovations involve a multitude of organizations. This is particularly true in innovations that require a lot of knowledge and complex technologies. Such networks work not only at regional but also at national or even at global level.

• **Conditions for innovation**. Economic demand, public policy environment, infrastructure conditions, social attitudes and cultural factors are critical for successful innovation. What is called for here is building systemic innovation metrics that capture the context in which organizations form and match expectations and capabilities to innovate. To the extent that they exist, these 4th generation metrics of the knowledge-based networked economy remain ad hoc and are, thus, of limited analytical value. They can be improved only through a concerted, coordinated and internationally visible effort.

The type of research in this article is of 4th generation, because it investigates social attitudes of society. The analysis based on path model will try to explore conditions for innovation in both Lithuania and Romania. Path model will show us relations between various social attitudes in Lithuania and Romania towards innovations.

Methodology and Data

The main aim of the research is to explore theoretical relationships between social attitudes towards innovation and to make comparative study of Lithuania and Romania. The article analyzes theoretical relationships between attraction, purchase and trust of innovation on the one side and life quality and financial situation of people in Lithuania and Romania on the other side. The research is an example of implication of structural equation modelling in innovation policy research.

To evaluate the European Union Policy using survey data a path model is chosen in the article as the logical extension of multiple regression models. Path analysis belongs to structural equation models family that aims to systemize the representation of causal effects, and the unavoidable implications of these effects (Hayduk and Pazderka-Robinson, 2007). Thus path models require the analysis of several multiple regression equations using observed variables (Schumacker, Lomax, 2004). Path analysis could be used as a method for studying the direct and indirect effects of variables (Wright, 1960). Path analysis does not investigate causes, but it tests theoretical relationships. The model helps to perform experimental research on certain variables and to assess the change in other variables that are closer to causation.

The hypothetical Path model is presented in Figure 1. The variables are defined in Table 3. The observed variables “Life Quality” and “Financial” are exogenous. The observed variables “Attracted”, “Purchase” and “Trust” are endogenous, correlations between these variables are evaluated. Recursive (non-reciprocal) relation between exogenous and endogenous variables is evaluated as well.

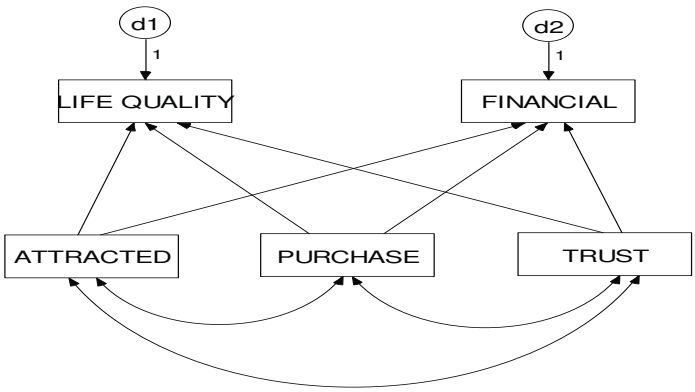

Fig. 1. Hypothetical theoretical path model

Table 3

Variables and their definition

Variable name	Definition
Life Quality	Responses to questions that evaluate the quality of life.
Financial	Responses to questions that evaluate the financial situation.
Attracted	Responses to questions that evaluate to what extent respondents are attracted towards innovative products or services.
Purchase	Responses to questions that evaluate in general a person's (dis)inclination to purchase innovative products or services comparing with the attitudes of his/her family and friends.
Trust	Response to questions that evaluate in general person's (un)willingness to stay with product or service they are used to, or to try innovative new product or service in place of the older one.

The research was based on "Eurobarometer 63.4 European Union Enlargement, the European Constitution, Economic Challenges, Innovative Products and Services" (May-June 2005) survey. This survey has been chosen for the research because this period is considered a case of stabile economy in Lithuania (Rakauskiene, 2007, Svetikas and Dzemyda, 2009, Rakauskiene and Krinickiene, 2009). The data of Romania (1004 cases) and Lithuania (1002) is analyzed.

Reliability test for Romanian and Lithuanian data is sufficient. Cronbach's coefficient Alpha for Lithuanian data is 0.589 and for Romanian data is 0.673, which are considered adequate. Measurement errors (d1 and d2) in observed exogenous variables are evaluated.

Version 5 of Amos (Analysis of Moment Structures; Arbuckle, 2003) was used for the research.

Approaches to Evaluate the European Union Policy in Case of Lithuania and Romania

During the research we explored theoretical relationships between attraction, purchase and trust of innovation and life quality and financial situation of people in Lithuania and Romania. The study shows social attitudes towards innovations in Lithuania and Romania. Results of Lithuania are presented in Figure 2 and results of Romania are shown in Figure 3.

Results of Lithuania show that there is statistically significant relationship between attraction and purchase of innovation, but relationships ATTRACTED ↔ TRUST and PURCHASE ↔ TRUST are weak, which implies that Lithuanian society does not consume innovative products or services so much. Besides, statistical relationship between attraction and trust of innovation is negative, which shows that people in Lithuania do not always trust innovative products or services even if they are attracted to them. These results are different from Romania, where statistical relationships ATTRACTED ↔ PURCHASE, ATTRACTED ↔ TRUST and PURCHASE ↔ TRUST are much stronger. That implies that Romanian society is more willing to consume innovative products and services than Lithuanian society is.

Theoretical recursive relations between ATTRACTION, PURCHASE, TRUST and LIFE QUALITY, FINANCIAL SITUATION show differences in attitude towards innovations between Romania and Lithuania. Recursive relations between variables ATTRACTED → LIFE QUALITY, ATTRACTED → FINANCIAL, TRUST → LIFE QUALITY and TRUST → FINANCIAL are almost the same in Lithuania and in Romania, it shows that people who are more attracted towards innovations and trust innovative products and services, statistically have better life quality and financial situation in both countries. But

recursive relations between variables PURCHASE → LIFE QUALITY and PURCHASE → FINANCIAL are different in Lithuania and in Romania. Growth model of Lithuania shows that people who tend to purchase innovative products and services have better life quality and financial situation, however this is different in Romania according to its growth model.

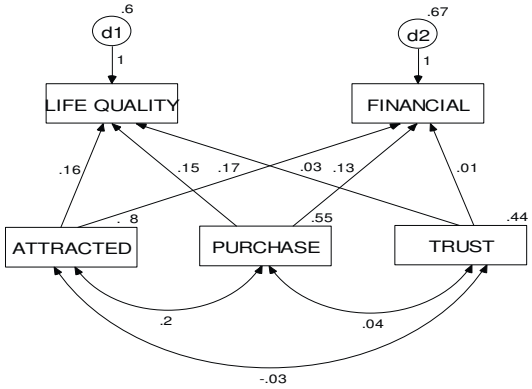

Fig. 2. Results: growth model for Lithuania

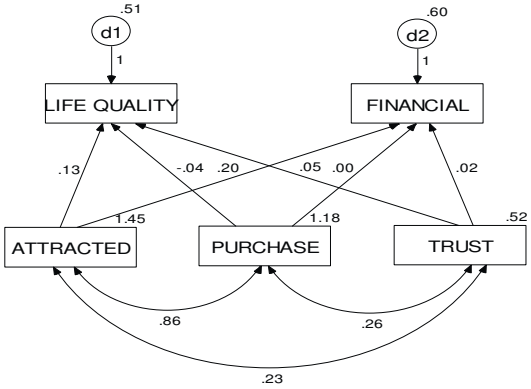

Fig. 3. Results: growth model for Romania

The results of the study (e.g. measurement errors in observed variables d1 and d2) show different attitudes towards innovative products and services between Romanian and Lithuanian populations. These differences could have been influenced not only by social and economical circumstances, but also they could have been caused by historical, political, geographical and other conditions. This implies horizons for further studies of national innovation systems, poses a number of specific characteristics regarding the national institutes, featured of historical development, transformation and self-organizing under the control of the state (Uskelenova, 2009).

Conclusions

Theoretical relationships between attraction, purchase and trust of innovation and life quality and financial situation of people in Lithuania and in Romania allow us to explore the European Union policy for countries the innovativeness in which is below the EU average. The study shows that local consumption of innovative products and services not necessary leads to better innovativeness of the country.

Commission of the European Union is convinced that stimulus of innovativeness is innovation-friendly society. This thesis is frequently repeated in the communications of the European Union. Without positive attitudes of society the European innovation policy will stay only in the EU papers. As our research has shown citizens of innovatively weaker nations such as Lithuania and Romania have very innovation-friendly attitude, but their countries still lag behind more developed countries of the European Union and the gap is remains huge. Positive social attitude towards innovation and consumption of innovative products may not be a pivot that could improve nation's innovativeness, because citizens of Lithuania and Romania can choose and purchase various innovative products and services from foreign countries (including the European Union member states that have higher innovativeness level than Lithuania and Romania). According to this national innovative industry does not get proper stimulus from their own population for producing more innovative products despite the fact that the population has positive attitudes. In respect to that the European Union authorities and member states with lower innovative indexes should have very purposeful and consistent innovation policy; because of their technological lag the free market would not solve their problems related to innovativeness or, to be precise, lack of innovativeness. Therefore the innovation policy should be implemented through close collaboration of authorities of the EU and member states. This hypothesis should be examined in further studies using other data.

The research is an example of implication of structural equation modelling in innovation policy research and could be used for further studies.

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Dragan N., Dzemyda I., Karčiauskas A.

Europos Sąjungos inovacijų politikos vertinimas: Lietuvos ir Rumunijos atvejų studija

Santrauka

9-ojo dešimtmečio pradžioje prasidėjo tradicinės pramoninės politikos erozija, nes ji nebegebėjo užtikrinti tinkamo Europos ekonomikų augimo. Nors Europos Sąjunga turi ypatingą inovacinį potencialą (Europa ilgą laikotarpį istorijoje pirmavo naujų išradimų kūrimo srityje), o jos rinka yra viena didžiausių integruotų rinkų pasaulyje, kur inovatyvūs produktai ir paslaugos galėtų būti komercializuojami didelėmis apimtimis, tačiau skirtingai nuo kitų di-

delių pasaulio ekonomikų, deindustrializacija ir persiorientavimas į inovacijomis grįstą ekonomiką Europoje stringa. Šį strigimą iš dalies lėmė griežti apribojimai ekonomikoje ir politinis susiskaidymas (tiek vidinis, tiek tarptautinis). Tačiau per pastaruosius dvidešimt metų perėjimas prie inovacijomis grįstos ekonomikos įgauna vis didesnį pagreitį. Tiesa, dėl minėtų problemų Europos Sąjungos inovacijų sistemos gana stipriai atsiliko nuo JAV ir Japonijos, atsilikimas lieka ir dabar (Europos inovacijų rezultatų suvestinė, 2009). Europos Sąjunga pasižymi gerais žmogiškųjų išteklių, plačiajuosčio interneto prieinamumo ir rizikos kapitalo disponavimo rodikliais, lyginant su kitomis kylančiomis ekonomikomis. Tačiau Europa atsilieka nuo JAV ir Japonijos pagal privačias investicijas į mokslinius tyrimus, eksperimentinę plėtrą ir informacines technologijas. Nors tyrimai rodo, kad netechnologinės inovacijos, tokios kaip profesionalūs mokymai, projektavimas, marketingas ir pan., vaidina svarbų vaidmenį ekonomikoje, tačiau, remiantis paskutiniais duomenimis, Europos Sąjungos kompanijų skiriamos lėšos turi tendenciją mažėti. Šis inovacijų diegimo atsilikimas kelia vis didesnį susirūpinimą Europos Sąjungos institucijoms.

Inovacijų svarba vis didėja; tiek politikos formuotojai, tiek mokslininkai vis dažniau domisi galimybėmis, kurias atveria inovacijos. Terminas „inovacija“ pirmą kartą buvo pavartotas Schumpeterio (1934). Pasak jo, inovacijos gali būti naujo produkto įvedimas, naujo gamybos metodo sukūrimas, naujos rinkos atvėrimas, naujų žaliavų šaltinių atradimas, naujas pramonės organizavimo metodas. Šiame straipsnyje nagrinėjami keli klausimai, susiję su inovacijų plėtote Europos Sąjungoje. Pirma, analizuojami Europos Sąjungos dokumentai ir Europos Sąjungos šalių inovatyvumo švieslentė (angl. *European innovation scoreboard*). Pagal atliktą šių šaltinių analizę buvo nustatytas didžiulis inovacinis atotrūkis tarp Europos Sąjungos valstybių-narių: šis atsilikimas ypač pastebimas posovietinėse šalyse (taip pat ir nagrinėjamus Lietuvos ir Rumunijos atveju). Antra, Europos Sąjungos institucijos inovatyvumui ir inovacijoms numato svarbų vaidmenį. Inovatyvumas gali išsaugoti ir sustiprinti Europos Sąjungos pozicijas globalios konkurencijos sąlygomis. Be to, inovacijos yra galingas įrankis, galintis padidinti Europos Sąjungos šalių ekonominę lygybę.

Nepaisant šio teigiamo Europos Sąjungos požiūrio į inovacijas, inovacinių procesų sudėtingumas kelia nemažai iššūkių europinei politikai. Siekiant įgyvendinti sėkmingas Europos Sąjungos ir / ar nacionalinės inovacijų politikos priemonės, pirmiausia reikia gebėti išmatuoti inovacijų procesus ir suteikti jiems skaitinę išraišką, leisiančią lyginti inovatyvumo skatinimo strategijas. Inovacijos yra kompleksinis procesas, kuris negali būti lengvai redukuojamas į išmatuojamus elementus dėl kelių priežasčių: inovacijų procesus sudaro tiek materialūs, tiek nematerialūs elementai; inovacijų procesas nėra linijinis, veikiau daugiakryptis (ankstesnių veiklų rezultatas, tampa įeiga tolesniems procesams); inovatyvumas neapsiriboja tik veiksniais, esančiais firmos ribose, jam įtakos turi ir platesnis socioekonominis, politinis kontekstas.

Antroje straipsnio dalyje apžvelgiami metodologiniai klausimai, kylantys atliekant inovacijų tyrimus. Inovacijos pradėtos tirti po Antrojo pasaulinio karo. Inovacijų tyrimai išgyveno keturias kartas, grindžiamas skirtingais inovacijų matavimo indikatoriais. Pirmoji karta traktuoja inovacijas kaip tęstinį procesą, todėl inovacijų procesus apibrėžia įeigos elementai: išlaidos moksliniams tyrimams ir eksperimentinei plėtra, išlaidos švietimui, mokslininkų skaičius ir pan. Antroji karta akcentuoja inovacijų procesų išeigą: patentus, mokslinius straipsnius, naujus produktus ir pan. Trečioji karta orientuojasi į indikatorius, kurie apskaičiuojami pasitelkiant apklausas ir viešai prieinama informacija. Ši karta susiformavo kaip siekis išmatuoti ir palyginti šalių gebėjimus kurti inovacijas. Ketvirtoji yra dar besiformuojanti, tačiau ryškėja jos skiriamasis bruožas – siekis išmatuoti sunkiai išmatuojamus inovacijų procesų aspektus, tokius kaip žinių kūrimas ir perdavimas, visuomenės požiūrio įtaka inovacijų plėtrai. Šiame straipsnyje tiriama indikatoriais grįsta (struktūrinių lygčių modeliavimas) ketvirtoji karta, kuris sieks įvertinti Europos Sąjungos inovacijų politiką remiantis Lietuvos ir Rumunijos gyventojų nusistatymą inovacijų požiūriu.

Šis tyrimas yra struktūrinių lygčių modeliavimo pritaikymo inovacijų politikos tyrimams pavyzdys, kuris gali būti naudojamas ir tolesnėms studijoms. Tyrime atlikta lyginamoji Lietuvos ir Rumunijos studija, kuri atskleidžia visuomenės požiūrį į inovacijas ir jų santykį su gyvenimo kokybe ir finansine padėtimi. Teorinė inovacijų tyrinėjimo konstrukcija susideda iš kelių elementų: žmonių potraukis inovacijoms, santykinis polinkis pirkti naujus produktus, prieraišumas naudojamiems produktams (paslaugoms), gyvenimo kokybė ir finansinė situacija. Tyrimas rodo, kad vietinis inovatyvių produktų ir paslaugų vartojimas ir palankus požiūris nebūtinai veda prie geresnių šalies inovatyvumo rodiklių. Tai prieštarauja Europos Komisijos įsitikinimui, kad inovatyvumo akstinas yra inovacijoms palanki visuomenė. Atliktas tyrimas parodė, kad piliečiai iš žemesnio inovatyvumo šalių, tokių kaip Lietuva ir Rumunija, turi labai teigiamą požiūrį į inovacijas, tačiau jų šalys vis dar atsilieka nuo labiau išsivysčiusių Europos Sąjungos šalių. Teigiamas visuomenės požiūris į inovacijas ir inovatyvių produktų vartojimas gali būti nepakankamas stimulas, kuris leistų pagerinti šalies inovatyvumo rodiklius, nes tiek Lietuvos, tiek Rumunijos piliečiai gali pasirinkti ir įsigyti įvairių novatoriškų produktų ir paslaugų iš kitų šalių (įskaitant Europos Sąjungos valstybes, turinčias aukštesnį inovatyvumo lygį nei Lietuva ir Rumunija). Todėl šių šalių inovacijomis grįsta pramonė negauna tinkamos paskatos iš savo gyventojų gaminti daugiau novatoriškų produktų, nepaisant gyventojų teigiamo požiūrio į juos. Europos Sąjungos institucijos ir valstybės narės su mažesniais inovatyvumo indeksais turėtų turėti labai tikslingą ir nuoseklią inovacijų politiką, nes dėl jų technologinio atsilikimo laisvoji rinka yra nepajėgi išspręsti jų problemų, susijusių su inovatyvumu arba inovatyvumo trūkumu. Ši hipotezė turėtų būti tiriama tolesniuose tyrimuose, pasitelkiant kitus duomenys bei skirtingus tyrinėjimo metodus.

Pagrindiniai žodžiai: inovacijų politika, inovacijų matavimas, Europos Sąjunga, statistinis vertinimas.

The article has been reviewed.
Received in September, 2010; accepted in October, 2010.