# The Analysis of Factors Influencing Competitiveness of Lithuania

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*Abstract.* **There are many attempts to define and evaluate national competitiveness, but still there is no accredited theory and classification of the factors. Many organizations are presenting national competitiveness evaluation reports in which using different evaluation methodologies, factors sets. Thought most of these reports have limitations policymakers still can get view about competitiveness of countries. This paper reviews factors influencing national competitiveness, identifies the essential factors for Lithuania's competitiveness and analyses its current conditions.**

*Keywords* – **national competitiveness, Lithuanian competitiveness, factors of competitiveness.**

## I. INTRODUCTION

Every country facing with new challenges searches for strategic decisions, which would help to increase and maintain national competitiveness. Policy makers of developing countries such as Lithuania are dealing with two main challenges today. First, they must to identify factors which are essential for increasing competitiveness. Second, they must to create strategies for those factors. Many organizations are presenting national competitiveness evaluation reports. Thought most of these reports have limitations and attains criticism policymakers still can get view about competitiveness of countries. The evaluation helps to identify factors which are essential for national competitiveness and then to create strategies.

The aim of this paper is to review factors influencing national competitiveness, classification of these factors and competitiveness evaluation practice and to identify essential factors for Lithuania's competitiveness, analyze the current conditions of these factors.

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## II. THE FACTORS INFLUENCING NATIONAL COMPETITIVENESS

The concept of competitiveness has always been subject to a great interest for both researchers and people involved in practical business. In the course of the recent years it has become widely used term in economic literature. However, wide and frequent usage of the term is not always based on the clearly defined contents of the word. Still there is no agreed definition of competitiveness, and the term seems to mean different things to different researchers – some may stress a country's ability to create welfare, others a country's productivity or international trades success. Thus defining national competitiveness usually the main factors influencing it are highlighted. Kitzmantel (1995) [1] even suggests to see competitiveness as a "general welfare" and all other interpretations, including trade issues, – as major factors of competitiveness.

The understanding, what influences the national competitiveness, has changed over the years. As it was find out analyzing different national competitiveness definitions [2-5] most important and best known factor is ability to sell (ability to export). Mercantilists (XVI-XVIII) understood competitiveness as country's ability to export as much as possible and the "winner" is the one whose export volume exceeds import [6-8]. Ability to sell is one of the important competitiveness factors till now; just now there are opinions that foreign trade is not the final goal in itself and it is not so important whether a company is creating income by producing for foreign or domestic market. A country becomes more or less competitive if its ability to sell on international and domestic market will improve or decline. This is mainly based on production costs, which indicate the efficiency of using resources. Production costs as factor arose later on XVIII century, when the *zero-sum* theory of trade under mercantilism was gradually replaced by classical economists Adam Smith's stress on the value of the free market. In his theory of Absolute advantage Smith (1776) states that the one that is able to produce with the lowest cost in the world has the absolute advantage and thereby it determines basis of competitiveness. Ricardo (1817) according to Smith suggested Relative advantage theory. According to this theory specialized production and international trade are worth implementing also if ratios of production cost by countries are different. Ricardo's view is that international trade is created by the difference of labor productivity in countries. Nowadays the basis for relative advantage might be the difference in technology.

In the century XX competitiveness of the country started to be identifying with developing resources. Important factors such as culture (Weber, 1905), businessmen's role (Schumpeter, 1942), effective management (Sloan, 1963; Drucker, 1969), science, innovations and technologies (Solow, 1957) information and knowledge (Negroponte, 1995) [9] were identified.

According to Thurow (1992) [10] in the near past countries achieved success with the existence of natural resources, more modern technology or greater capital and skills that made them wealthier than their competitors. Optimum combination of these four factors was of cardinal importance when defining the level of competitiveness. At the present day the quality of labor, its education and skills has become an essential key for success, as a success of the country means high living standards of its citizens.

Trabold (1995) [11] in his work systemized all factors into groups. Using these groups the author formed a hierarchic system, whereas "ability to earn" rests on the three other aspects. This approach sees ability to earn (level of earnings) as the most general indicator of country's competitiveness, whereas ability to export, attractiveness (location) and ability to adjust are seen as factors. At the same time, in regard to (foreign) investment, ability to export and attractiveness function as sophisticated phenomena are independent indicators of competitiveness of a country. Their level and dynamics is determined by the wider complex of factors with complicated internal structure. Knowledge in this hierarchic system takes place between basic factors and the final goal of country's competitiveness – ability to earn.

The ability to sell has significant influence to countries competitiveness – country become more or less competitive if, as a result of cost-and-price developments or other factors, her ability to sell in foreign or domestic markets has deteriorated or improved (Balassa, 1962) [12]. Countries attractiveness is understood as the possibility to attract outside investments such as financial capital and even human capital. One of the most important single indicators to assess place attractiveness for investments is the level of foreign direct investment [13]. Investors, in regard to investing capital, will look for the best location to invest the money and will choose the place which will yield the highest possible returns. The inflows of capital from abroad therefore stand for competitiveness as the places with the highest possible returns will be more competitive and therefore will attract more investments.

The competitiveness also significantly depends on the ability to react on the various challenges of the modern society. Thus the ability to adjust to changes in the environment is seen as being crucial for the competitiveness of countries as a whole. Two different concepts here can be summarized: the ability to adjust political procedures as well as the economic system as a whole (social level) and the ability to adjust via innovations and technological change (business level) [12]. Under conditions of changing environment to stay competitive countries must continuously look for the ways of improvement in use of all productive inputs – people, raw materials, technologies etc. To make the decision right the importance of knowledge arises. Investing in knowledge is certainly the best, and maybe the only, way to foster economic growth and create more and better jobs, and, at the same time, to ensure social progress and environmental sustainability.

The ability to earn, in one hand, is understood as one of the factors influencing country's competitiveness, and on the other hand, it is the main goal of the competitiveness. As a factor, it defines the "result" of an economy. It is assumed that a higher degree of competitiveness leads to a higher GDP or income and, therefore, to the main goal of competitiveness – increase of living standards level.

## III. THE ATTEMPTS TO CLASSIFY FACTORS AND TO ESTIMATE NATIONAL COMPETITIVENESS

Many different factors influencing national competitiveness are identified in the literature. But still there is no generally received classification system of these factors. Many authors and organizations suggest different factors sets, which are made according to different national competitiveness definitions and other aspects.

The increased importance of national competitiveness has influenced a demand for means by which national performance can be evaluated. Authors of these means also suggest different classification systems of factors influencing national competitiveness.

A key turning point in analysis of competitiveness is Porters' work. He defines the competitiveness of a location as the productivity that companies located there can achieve. Porter (1990) uses this definition of competitiveness to understand the drivers of sustainable economic prosperity at a given location [14]. Porter's "Diamond" model consists of four components that interact and collectively determine a country's international competitiveness. The first component is local demand conditions. The presence of very sophisticated and demanding buyers spurs the development of strong competitive advantages that can be applied in international markets. Factor conditions (natural resources, education and infrastructure) are the second component. The mere presence of these factors, however, is not enough. Countries must continually upgrade and improve factors so that specialized advantage is created. To have successful industries, countries must also have the third component, internationally competitive suppliers and related industries. Finally, the fourth component, competitive strategy, structure and rivalry, also helps create competitive advantage. Tough competition at home creates strong international competitors. Besides the diamond components, government and chance both have an effect, but they act through the other components and do not directly create competitive advantage [15, 16].

According to Reiljan *et al.* (2000) [8] factors influencing competitiveness can be classified as controllable and uncontrollable. In this case the "core" of competitiveness is absolutely uncontrollable factors such as geographical conditions. Uncontrollable factors are considered as exogenous conditions which determine the level of its potential competitiveness. Also in short-run uncontrollable factors, such as level of education, R&D, infrastructure, are marked. These factors are considered absolutely uncontrollable in a short period and become controllable in the long run. Some factors are controlled by an institution of higher level (governmental social and economic policy from the point of view of a company, etc.). The level of controllability depends on the support of policymakers and "lobby work". Economic entity can influence controllable factors itself and thus have an impact on the development of its competitiveness. These factors are directly controllable factors (resources and means available for an economic entity).

The National Competitiveness Council (NCC) [17] sees national competitiveness as a pyramid in which distinguishes two stages – "inputs" to national competitiveness over which policymakers can have greatest control and the "essential conditions" for national competitiveness. The inputs represent the foundation stones of the economy and are the primary drivers of competitiveness, such as business environment, physical infrastructure and knowledge infrastructure. The NCC believes that it is within these particular areas that policymakers can have the greatest impact on competitiveness. Measuring countries competitiveness at the input level and then benchmark it in relation to countries economic peer group allows policymakers to identify weaknesses and opportunities and thus design specific policies to address these concerns. The second stage of the competitiveness pyramid – "essential conditions" – captures such drivers as business performance, productivity, price and costs, labour supply.

Recognizing the lack of impartial theoretical backgrounds and pertinent methodologies of existing reports, the Institute for Industrial Policy Studies (IPS) [18] and the Institute for Policy & Strategy on National Competitiveness (IPS-NaC) began publishing the "IPS National Competitiveness Research Report" in 2001, founded on new evaluation methods. 9-Factor model evaluates national competitiveness using physical and human factors. Physical factors are composed of factor conditions, demand conditions, related industries, and business contexts. Human factors are comprised of workers, politicians and bureaucrats, entrepreneurs, and professionals.

The World Competitiveness Yearbook (WCY) of International Institute for Management Development (IMD) [19] ranks and analyzes the ability of nations to create and maintain an environment in which enterprises can compete. IMD assumes that wealth creation takes place primarily at enterprise level (whether private or state owned). The methodology of the WCY divides the national environment into four main factors: economic performance, government efficiency, business efficiency and infrastructure.

Most well-known is Global Competitiveness Report every year presented by World Economic Forum (WEF) [20]. Since 2005, the WEF has based its competitiveness analysis on the Global Competitiveness Index (GCI), a highly comprehensive index, which captures the microeconomic and macroeconomic foundations of national competitiveness. WEF defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the sustainable level of prosperity that can be earned by an economy. In other words, more-competitive economies tend to be able to produce higher levels of income for their citizens. The productivity level also determines the rates of return obtained by investments in an economy. Because the rates of return are the fundamental drivers of the growth rates of the economy, a more-competitive economy is one that is likely to grow faster in the medium to long run.

The GCI captures this open-ended dimension by providing a weighted average of many different components, each of which reflects one aspect of the complex concept that is competitiveness. WEF groups all these components into 12 pillars of competitiveness: institutions, infrastructure, macroeconomic stability, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market sophistication, technological readiness, market size, business sophistication, innovation. Different pillars affect different countries differently. According to the GCI, in the first stage, the economy is factor-driven and countries compete based on their factor endowments: primarily unskilled labor and natural resources. Companies compete on the basis of price and sell basic products or commodities, with their low productivity reflected in low wages. Maintaining competitiveness at this stage of development hinges primarily on well-functioning public and private institutions, well-developed infrastructure, a stable macroeconomic framework, and a healthy and literate workforce.

As wages rise with advancing development, countries move into the efficiency-driven stage of development, when they must begin to develop more efficient production processes and increase product quality. At this point, competitiveness is increasingly driven by higher education and training, efficient goods markets, well-functioning labor markets, sophisticated financial markets, a large domestic and/or foreign market and the ability to harness the benefits of existing technologies.

Finally, as countries move into the innovation-driven stage, they are able to sustain higher wages and the associated standard of living only if their businesses are able to compete with new and unique products. At this stage, companies must compete through innovation, producing new and different goods using the most sophisticated production processes.

Thus, there are many organizations presenting national competitiveness evaluation studies, reviews and reports. Thought most of these works has limitations and attains

criticism still policymakers of the countries still can get view about current situation of the country, conditions of the main factors essential for the competitiveness.

## IV. THE ESSENTIAL FACTORS OF LITHUANIAN COMPETITIVENESS AND THE ANALYSIS OF THESE FACTORS CONDITION

According to the GCI Lithuania as well as Latvia, Poland and other 11 countries takes position at transition from the efficiency-driven stage to the innovation-driven stage. Lithuania has target as soon as possible to reach innovation-driven stage, but according to results of the most new – 2009-2010 report it will take some time. Rank of Lithuania has felt by 9 positions – from 44th to 53rd – this year (see Table 1). In the worse position (among neighboring countries) is just Latvia, which rank has felt by 14 positions. The largest improvement among the new EU members is registered by Poland, up seven places to 46th rank this year. Poland benefits from its strong educational system and large market size, and has seen measurable improvements in the quality of its public institutions, with greater confidence in the efficiency and honesty of the country's public servants.

TABLE 1. GLOBAL COMPETITIVENESS INDEXES OVER THE YEARS

| Country | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Lithuania | 34 | 39 | 38 | 44 | 53 |
| Estonia | 26 | 26 | 27 | 32 | 35 |
| Latvia | 39 | 44 | 45 | 54 | 68 |
| Poland | 43 | 45 | 51 | 53 | 46 |

*Source:* The Global Competitiveness Reports, 2005-2009

Lithuania among other countries which are at transition from the efficiency-driven stage to the innovation-driven stage is strong at higher education and training, technological readiness and infrastructure (see Table 2). As competitive advantages the secondary and tertiary enrollment, quality of math and sciences education and internet access in schools are distinguished. Number of computers with internet access in schools increased from 28138 in 2006 to 45628 in 2009 [21]. The quality of the educational systems still is one of the biggest disadvantages in Lithuania. Striving to increase the quality of the educational system the reform was started in 2009. This educational reform attained a lot of controversies in Lithuania. Thought there are some lacks, which should be corrected, it is expected that eventually the advantages of the reform will show up. According to specialists the results of the educational reform will be seen not earlier than several years.

TABLE 2. STRENGTHS AND WEAKNESSES OF COMPETITIVENESS OF LITHUANIA

| | Competitive advantage | Competitive disadvantage |
|---|---|---|
| **Strengths** | | |
| Higher education and training | Secondary enrollment; Tertiary enrollment; Quality of math and science education; Internet access in schools. | Quality of the educational system; Quality of management schools; Local availability of research and training services; Extent of staff training. |
| Technological readiness | Availability of latest technologies; Laws relating to ICT; Mobile telephone subscriptions; Internet users; Personal computers; Broadband Internet subscribers. | Firm-level technology absorption; FDI and technology transfer. |
| Infrastructure | Quality of overall infrastructure; Quality of roads; Quality of railroad infrastructure; Quality of port infrastructure; Quality of electricity supply. | Quality of air transport infrastructure; Available seat kilometers; Telephone lines |
| **Weaknesses** | | |
| Innovations | Quality of scientific research institutions; University-industry collaboration in R&D; Utility patents. | Capacity for innovation; Company spending on R&D; Government procurement of advanced tech products; Availability of scientists and engineers |
| Market size | | Domestic market size index; Foreign market size index. |
| Financial market sophistication | | Financial market sophistication; Financing through local equity market; Ease of access to loans; Venture capital availability; Restriction on capital flows; Strength of investor protection; Soundness of banks; Regulation of securities exchanges; Legal rights index. |
| Institutions | Business costs of terrorism; Business costs of crime and violence; Organized crime; Strength of auditing and reporting standards; Efficacy of corporate boards. | Property rights; Intellectual property protection; Diversion of public funds; Public trust of politicians; Judicial independence; Favoritism in decisions of government officials; Wastefulness of government spending; Burden of government regulation; Efficiency of legal framework in settling disputes; Efficiency of legal framework in challenging regs; Transparency of government policymaking; Reliability of police services; Ethical behavior of firms; Protection of minority shareholders' interests. |
| Goods market efficiency | No. of procedures required to start a business; Prevalence of trade barriers; Tariff barriers; Burden of customs procedures; Degree of customer orientation | Intensity of local competition; Extent of market dominance; Effectiveness of anti-monopoly policy; Extent and effect of taxation; Total tax rate; Time required to start a business; Agricultural policy costs; Prevalence of foreign ownership; Business impact of rules on FDI; Buyer sophistication |

*Source:* The Global Competitiveness Report, 2009-2010

Technological readiness of Lithuania looks strong from the perspective of availability of latest technologies, laws relating to ICT, mobile telephone subscriptions, internet users, personal computers and broadband internet subscribers. According to the Communications Regulatory Authority [22] the number of broadband internet subscribers increased about 2 percent on the first quarter of this year, 8 percent per year and amounts about 807 thousands. Broadband connection penetration reached 24,3 percent this year. Totally per year it increased 1,8 percent. Weak side is technology absorption in firms and FDI and technology transfer.

Lithuania successfully used EU support for transportation infrastructure improvement. This reflects in competitiveness evaluation: Lithuania is competitive according to its good quality roads, railroad and port. One of the biggest problems on this moment is still not enough competitive air transport infrastructure.

To reach innovation-driven stage disturbing bad situation in such important spheres as innovations, market size, financial market sophistication, institutions and goods market efficiency. Thought the quality of scientific research institutions, degree of university-industry collaboration in R&D and utility patents are seen as competitive advantages, but situation in government procurement of advanced tech products and availability of scientists and engineers is in bad condition. Also the capacity for innovation and companies spending on R&D are not enough. Companies spending on R&D on the beginning of 2009 amounted 61,2 million Eu and was 5,1 million Eu less than year before [23]. Weak institutional environment of Lithuania is most related to not enough intellectual property protection, judicial independence, weak public trust of politicians, large wastefulness of government spending, lack of transparency of government policymaking and reliability of police services. This is not helping to increase competitiveness of the country.

One more important sphere the better situation of which would help to increase Lithuanian competitiveness is goods market efficiency. Thought the number of procedures required to start a business decreasing over the years, but still it takes too much time. Lithuania also can't to make boast of effective anti-monopoly policy, taxation system and agricultural policy. The respondents of Lithuania as most problematic factors for doing business also identified access to financing, which is not so ease accessible after banks tightened crediting policy reacting to global financial crisis. Other problematic factors are tax rates and its regulation, inefficient government bureaucracy.

## V. Conclusions

According to analysis of the literature earlier such factors as international trade, production costs, labour productivity were most important for national competitiveness. Thought these factors still are important today national competitiveness evaluated more attention paying to such developing resources as culture, businessmen's role, effective management, science, innovations and technologies, information and knowledge.

Many organizations present different national evaluation reports. Factors influencing national competitiveness are classified also differently according to different national competitiveness definitions, analysis levels and targets and other aspects.

According to the Global competitiveness index presented by most well-known Global Competitiveness Report Lithuania takes position at transition from the efficiency-driven stage to the innovation-driven stage. Among other countries being in the same stage Lithuania is strong at higher education and training, technological readiness and infrastructure. To reach innovation-driven stage disturbing bad situation in such important spheres as innovations, market size, financial market sophistication, institutions and goods market efficiency.

## References


[1] Kitzmantel E. (1995), A Multi-Faceted Concept. 35 Years of Free Trade in Europe. Message for the Future, *Proceedings of EFTAs 35th Anniversary Workshop*, p. 106-112

[2] Scott B., Lodge G. US Competitiveness and the World Economy. Boston: Harvard Business School Press, 1985

[3] Klemetti T. International Competitiveness and Business Strategies. Golf Industry. Helsinki School of Economics. Arrto-Project, 1989, Nr. 31, 177 p.

[4] Organisation for Economic Co-operation and Development (OECD), <http://www.oecd.org/findDocument/0,3354,en_2649_34109_1_119666_1_1_1,00.html>.

[5] Figueroa A. (1998), Equity, foreign investment and international competitiveness in Latin America, *The Quarterly Review of Economics and Finance* Vol. 3, No. 38, p. 391-409.

[6] Humphrey T. M. (1999), Mercantilists and classicals: Insights from doctrinal history, *Economic Quarterly*, Vol. 2, No. 85, p. 55-82.

[7] Cho D. S., Moon H. Ch. From Adam Smith to Michael Porter: evolution of competitiveness theory. World Scientific Publishing Co. Pte. Ltd., 2002.

[8] Reiljan J., Henrikus M., Ivanov A. Key Issues in Defining and Analysing the Competitiveness of a Country. Tartu: Tartu university press, 2000, 59 p.

[9] Garelli S. Competitiveness of nations: the fundamanetals. IMD World compettiveness yearbook, 2006.

[10] Thurow L. Head to Head: The Coming Economic Battle among Japan, Europe and America. New York: William Morrow and Co, 1992.

[11] Trabold H. (1995), 'Die internacionale Wettbewerbsfähigkeit einer Voppswirtschaft' *Deutsches Institute für*

*Wirtschaftsforschung. Vierteljahrshefte zur Wirtschaftsforschun.* Berlin: Dunker&Humblot, p. 169-183
[12] Berger T. (2008), 'Concepts of National Competitiveness' *Journal of International Business and Economy*, No. 9 (1), p. 91-111.
[13] Gilmore A. et al. (2003), 'Factors influencing foreign direct investment and international joint ventures – A comparative study of Northern Ireland and Bahrain', *International Marketing Review*, Vol. 20(2), p. 195-215.
[14] Ketels H. M. Christian (2006), Michael Porter's competitiveness framework: Recent learnings and new research priorities, *Journal of Industry, Competition and Trade*, Vol. 2, No. 6, p. 115 – 136.
[15] Grein A. F., Craig C. S. (1996), Economic performance over time: does Porter's diamond hold at the national level? *The International Executive* , Vol. 3, No. 38, p. 303 – 322.
[16] Moon H-C., Rugman, A. M., Verbeke, A. (1998), A generalized double diamond approach to the international competitiveness of Korea and Singapore, *International Business Review*, Vol. 2, No. 7, p. 135 – 150.
[17] The National Competitiveness Council (NCC), <http://www.competitiveness.ie/>.
[18] The Institute for Industrial Policy Studies (IPS), <http://www.university-directory.eu/Korea-Republic/IPS---The-Institute-for-Industrial-Policy-Studies.html>.
[19] International Institute for Management Development (IMD), <http://www.imd.ch/>.
[20] World Economic Forum (WEF), <http://www.weforum.org/en/index.htm>.
[21] Statistical yearbook of Lithuania 2009, <http://www.stat.gov.lt/lt/catalog/list/?cat_y=2&cat_id=1>.
[22] The Communications Regulatory Authority, <http://www.rrt.lt/>.
[23] Department of Statistics to the Government of the Republic of Lithuania, <http://www.stat.gov.lt/>.