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## **THE RELASHIONSHIP BETWEEN LABOUR FORCE AND GLOBAL COMPETITIVENESS INDEX**

### **Abstract**

The article aims at presenting the world-wide discussion on what elements and factors should be included in national, regional and global competitiveness indicators. It is also vital to emphasise that World Economic Forum is working intensively on the methodology of growth competitiveness index coming up with a more improved version each year. This article will introduce the shifts and argumentations in this process. Besides, labour force factor will be viewed and evaluated in each model and scheme. Finally, some evidence of global competitiveness indicator will be presented in the scope of global, European and Lithuanian levels.

**Keywords:** labour force, competitiveness, labour productivity, national competitiveness, global competitiveness, GCI (Growth Competitiveness Index), Lithuania.

**JEL classification:** J01, J24, F12, P2.

*The world economy is not a zero-sum game. Many nations can improve their prosperity if they can improve productivity. The central challenge in economic development, then, is how to create the conditions for rapid and sustained productivity growth.*

**Michael E. Porter,**

Bishop William Lawrence University Professor, Harvard Business School

### **Introduction**

Prosperity is determined by the productivity of an economy, which is measured by the value of goods and services produced per unit of the nation's human, capital, and natural resources. Productivity depends both on the value of a nation's products and services, measured by the prices they can command in open markets, and the efficiency with which these products can be produced.

Productivity supports high wages, a strong currency, and attractive returns to capital – and with them a high standard of living. Competitiveness, then, is measured by productivity. Globalization has increased the returns to productivity by opening up large new markets for competitive countries. Globalization has also raised the costs of low productivity, by reducing the ability to sustain low-productivity companies or provide high-paying jobs for less-skilled employees. The central challenge for any economy is to create the conditions in which companies and employees throughout the economy can upgrade their productivity.

Identifying the drivers of productivity (and ultimately prosperity) across countries is one of the oldest occupations of economic research. Theoretical models initially concentrated on the role of capital accumulation in economic growth. Over the last decades, they have fo-

cused increasingly on the role of knowledge.

*The top rankings of Switzerland and the Nordic countries show that **good institutions and competent macroeconomic management**, coupled with **world-class educational attainment and a focus on technology and innovation**, are a successful strategy for **boosting competitiveness in an increasingly complex global economy**.*

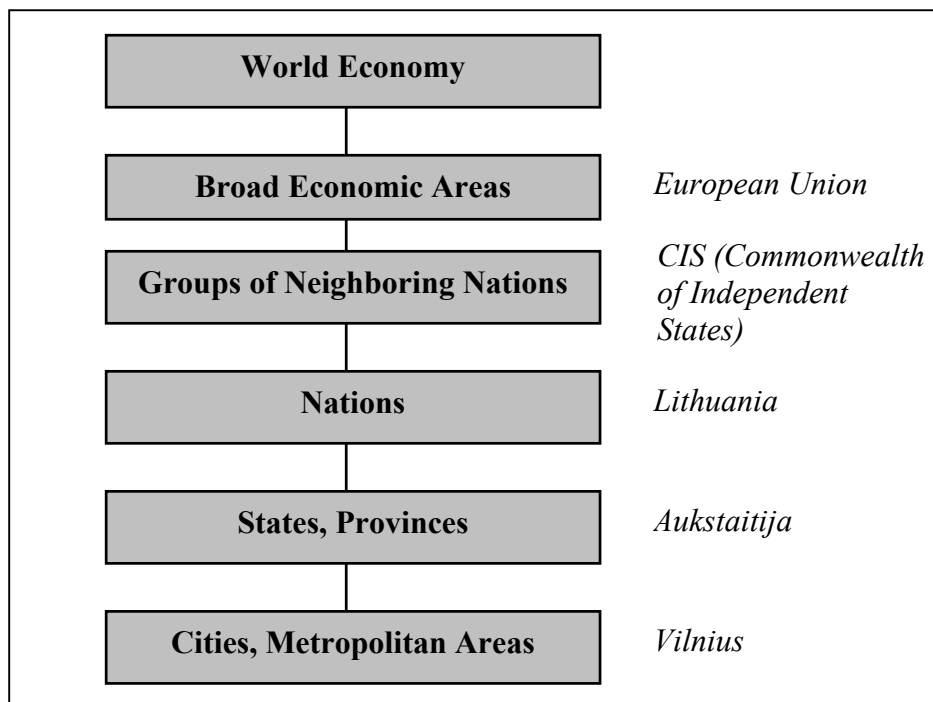
**Augusto Lopez-Claros,**

Chief Economist; Director, Global Competitiveness Network

### Defining Competitiveness: National and Global Levels

The determinants of competitiveness are many and complex. For hundreds of years, economists have tried to understand what determines the wealth of nations. This attempt has ranged from Adam Smith's focus on specialization and the division of labor to neoclassical economists' emphasis on investment in physical capital and infrastructure, and, more recently, to interest in other mechanisms such as education and training, technological progress (whether created within the country or adopted from abroad), macroeconomic stability, good governance, the rule of law, transparent and well-functioning institutions, firm sophistication, demand conditions, market size, and many others.

Figure 1. Global-National Interface in World Economy (Applied to Lithuania)



Source: adopted for Lithuania after Porter, 1998.

Each of these conjectures rests on solid theoretical foundations and makes common sense. The central point, however, is that they are not mutually exclusive - so that two or more of them could be true at the same time. Hundreds of econometric studies show that many of these conjectures are, in fact, simultaneously true. This also can partly explain why, despite the present global financial crisis, we do not necessarily see large swings in competitiveness ratings, for example in the United States. Financial markets are only one of several important components of national competitiveness, embracing a wider perceptive as defined in Figure 1.

The OECD defines competitiveness as *the degree to which a country can, under **free and fair market conditions**, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long-term.*

### **Defining National Competitiveness**

Microeconomic factors operate directly on firms in affecting productivity. These factors are influenced by multiple discrete stakeholders. Government is an important player, but many different agencies and administrative units at several levels of geography with differing degrees of autonomy, not just the central government, are involved in decision making and policy action. Companies, academic institutions, and many business associations and other mixed groups organized to facilitate collaborative action, are essential in defining the microeconomic environment in which business takes place.

- With the globalization phenomenon, the increased mobility of corporate assets, and the requirement to recruit productive human resources, this question is becoming very difficult to answer.
- When economic and financial data of a particular country is used to compare with another country's, the analyst must be very careful with its consistency.
- Various countries employ **different terminology** to compare its competitiveness with the rest of the world. There is no "one finite" set of data, which provides for the full meaning of competitiveness.

Competitiveness would involve **a series of six factors** to be considered:

- (a) Size-effect
- (b) Population at a particular point in time
- (c) Factors of Productions (e.g. land, labour, capital, & time)
- (d) Use of New Technology
- (e) Macro-economic policies (e.g. financial performance)
- (f) External Factors

The **World Competitiveness Report** suggests **eight major factors** which influence the competitiveness of companies and nations, where quality of labour force is of equal importance:

1. Internationalization
2. Domestic Economy
3. The State (Government)
4. Finance
5. Infrastructure
6. Management
7. Science & Technology
- 8. Quality of Labour Force**

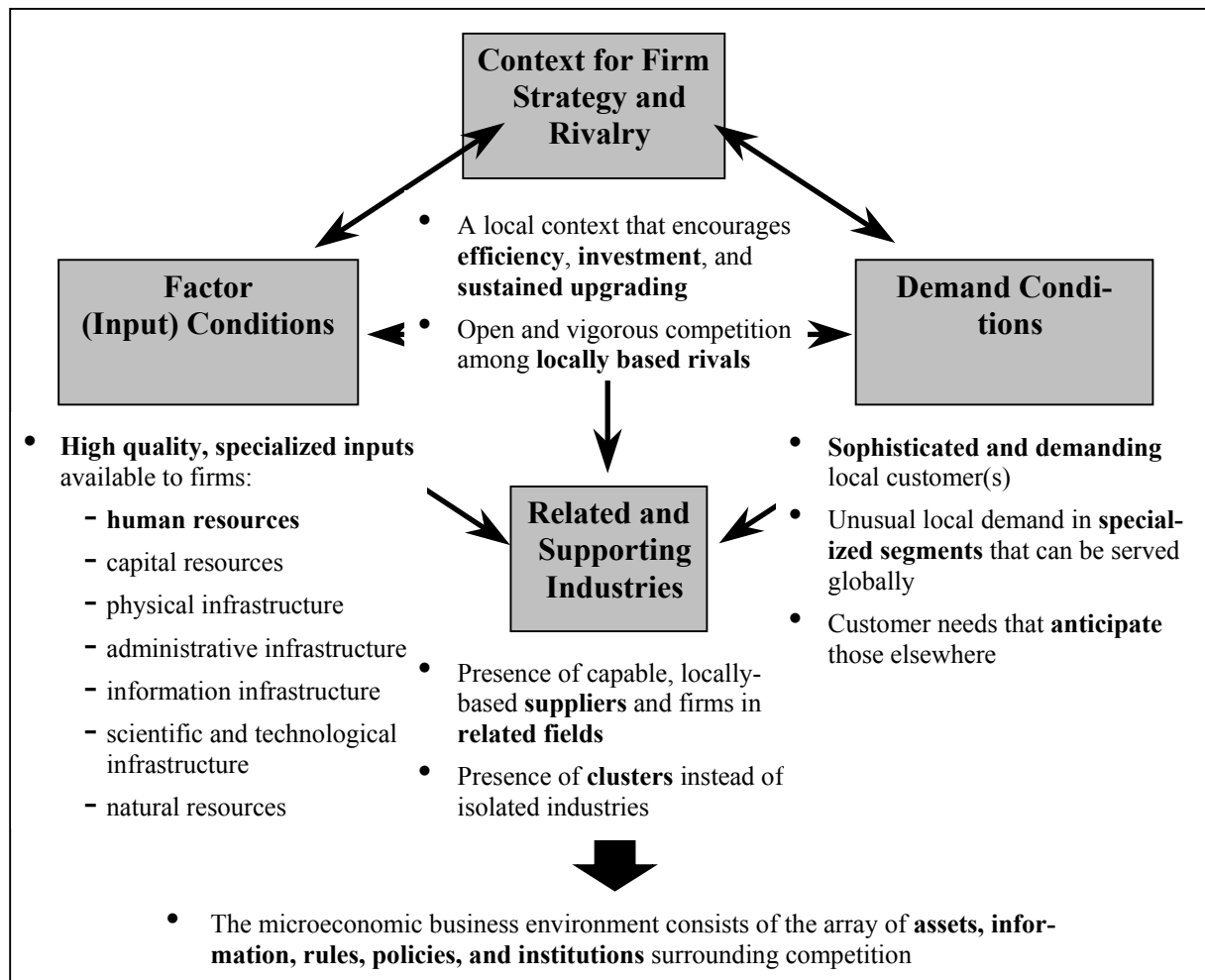
**National competitiveness** is understood as the set of factors, policies and institutions that determine the level of **productivity of a country**. The guru of competitiveness of nations is considered prof. M. Porter. Therefore, his Diamond Model is of any study and research, related to competitiveness and productivity on microeconomic business environment (Figure 2).

The more competition there is in the *domestic economy* the more productive and competitive the domestic firms are likely to be abroad and the higher value-added productivity and country prosperity.

Direct state intervention in business activities is minimized. Government policies concentrate on creating a competitive environment for enterprises and on providing macro-

economic and social conditions that are predictable and thus minimizing the external risks for economic activities. It is flexible in adapting its economic policies to a changing **international environment**.

Figure 2. Porter's Diamond of National Competitive Advantage, Productivity and the Micro-economic Business Environment Including

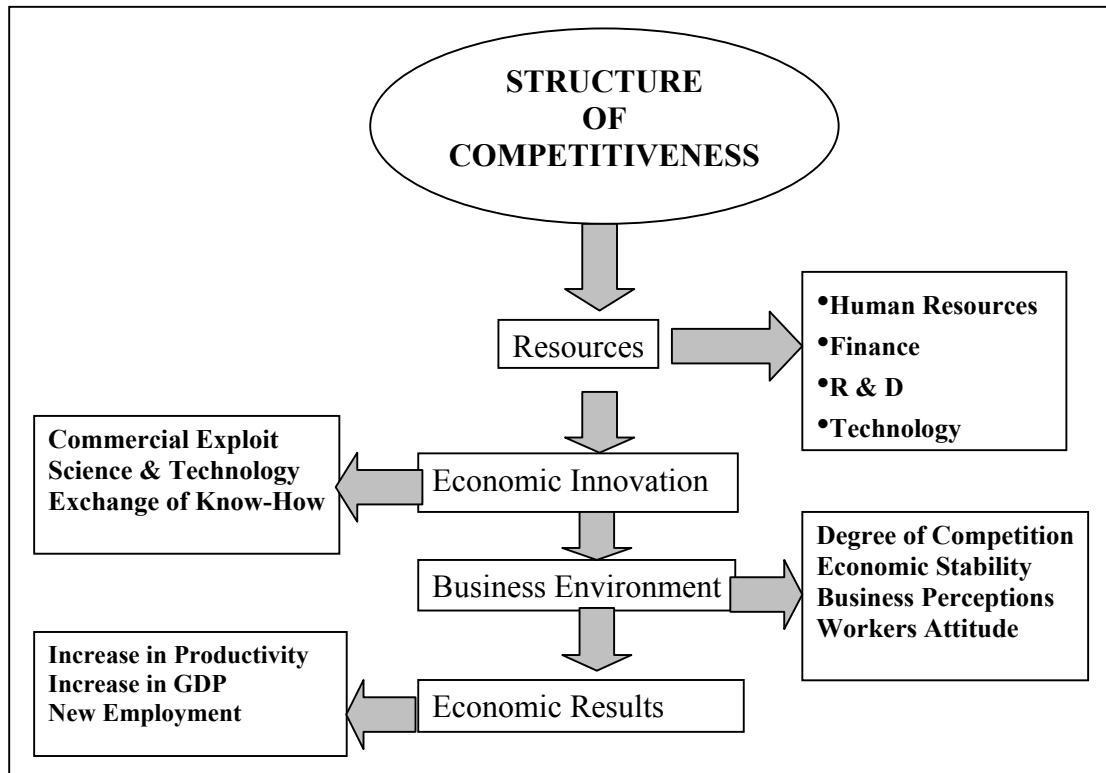


Source: compiled after Porter, 1990.

The *labour force factor* is also very important in national competitive advantage, as demonstrated in Figure 2 under the section of *factor (input) conditions*. Another model of national competitiveness, proposed in Figure 3, comprises four major elements, namely a) resources (where human resources play a major role); b) economic innovation; c) business environment and d) economic results (where *labour force* has direct impact on productivity, increase of GDP and new employment).

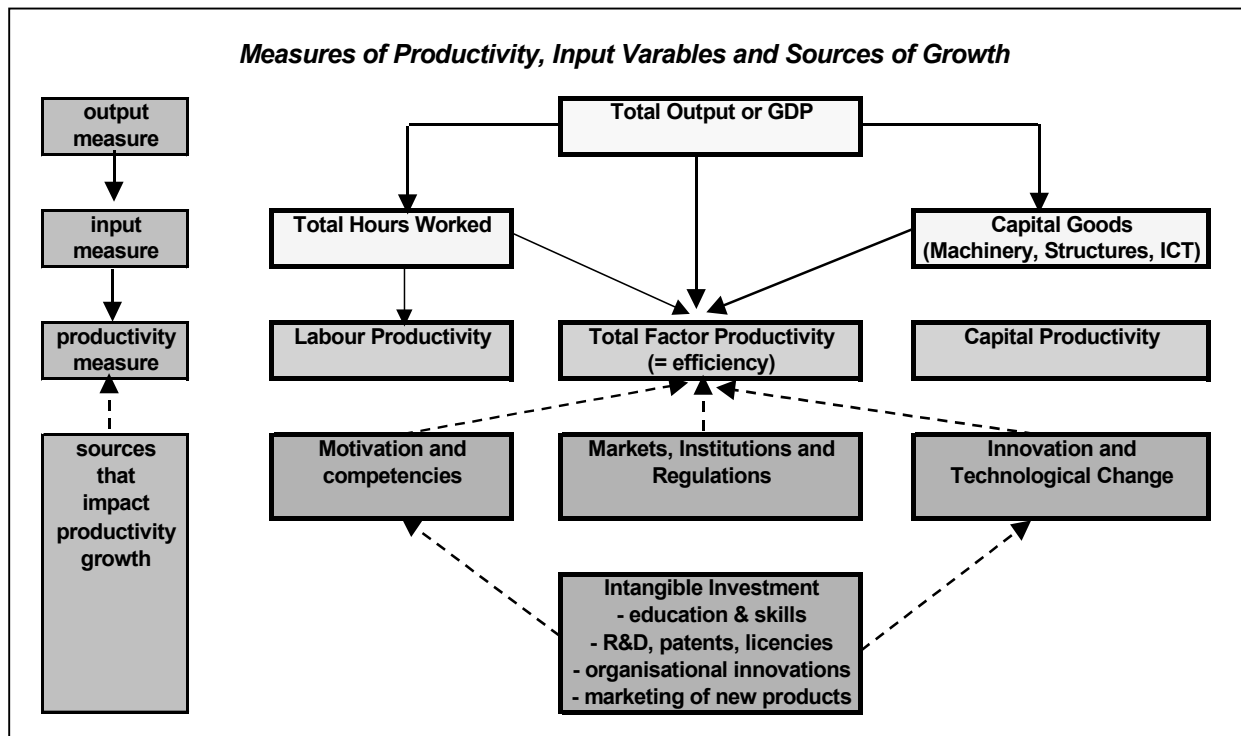
Figure 4 indicates a more deep perspective of productivity, input resources and sources of growth. *Labour productivity* stands alongside with capital productivity, both being responsible for *Total Factor Productivity* (i.e. efficiency of the economy). Productivity measures capture the efficiency with which the production process transforms inputs into outputs. Efficiencies can stem from improvements in technology, increases in firm size that allow for cost reductions arising from large-scale production, and other organizational changes in the firm (Kaci, 2006).

Figure 3. Proposed Structure of National Competitiveness



Source: compiled by the author after

Figure 4. Measures of Productivity, Input Variables and Sources of Growth



Source: compiled and improved by the author based on Rogers, 1998; Diewert and Fox, 1999; Diewert and Nakamura, 1999; Schreyer, 2005.

**Regional Economic Performance Measures**

Tracking the health of regional economies has long been a difficult job. Analogs to traditional measures of national economic performance such as GSP (GDP analog) are produced with a significant lag and only at an annual frequency, limiting their usefulness for most research endeavors. Other measures of performance including employment growth, commercial and residential building permits, or personal income growth, while more current, are less complete, capturing only a part of the picture of economic activity in a region (Figure 5). The incompleteness of single measures of economic activity is well recognized (Zarnowitz, 1992), prompting the NBER to look across many series to date business cycles (Rudebusch, 2001).

Building on the work by Stock and Watson (1989) who develop a coincident index for the national economy, Crone (1994) began developing composite indices of regional economic activity. The indices produced proved useful for tracking regional economic trends and for dating regional business cycles (Crone, 1999). In 2002, Crone produced a set of consistent economic indexes for the 50 states. The indexes are produced at a monthly frequency and cover the period from 1978 through 2002.

As constructed by Crone (2002) the coincident indexes for the 50 states include three monthly indicators – nonagricultural employment, the unemployment rate, and average hours worked in manufacturing – and one quarterly indicator – real wage and salary disbursements – of regional economic conditions. To ensure consistency, Crone (2002) applies the following criteria:

- (1) The indexes are constructed from the same set of indicators for each state
- (2) The timing of the index is benchmarked to employment in each state.
- (3) The trend for the index corresponds to (GSP) in each state.

Figure 5. Possible Competitiveness Indicators for the Region

Overall Economy	Innovation Output
<p><b>Employment Growth</b></p> <ul style="list-style-type: none"> <li>● Rate of employment growth</li> </ul> <p><b>Unemployment</b></p> <ul style="list-style-type: none"> <li>● Percentage of persons unemployed</li> </ul> <p><b>Workforce Participation</b></p> <ul style="list-style-type: none"> <li>● Proportion of population in the workforce</li> </ul> <p><b>Average Wages</b></p> <ul style="list-style-type: none"> <li>● Payroll per person</li> </ul> <p><b>Wage Growth</b></p> <ul style="list-style-type: none"> <li>● Growth rate of payroll per person</li> </ul> <p><b>Cost of Living</b></p> <ul style="list-style-type: none"> <li>● Cost of living index</li> </ul> <p><b>Productivity</b></p> <ul style="list-style-type: none"> <li>● Output per employee or total factor productivity</li> </ul> <p><b>Exports</b></p> <ul style="list-style-type: none"> <li>● Value of manufactured and commodity exports per worker</li> </ul>	<p><b>Patents</b></p> <ul style="list-style-type: none"> <li>● Number of patents and patents per worker</li> </ul> <p><b>Establishment Formation</b></p> <ul style="list-style-type: none"> <li>● Growth rate of establishments</li> </ul> <p><b>Venture Capital Investments</b></p> <ul style="list-style-type: none"> <li>● Value of venture capital invested</li> </ul> <p><b>Fast Growth Firms</b></p> <ul style="list-style-type: none"> <li>● Number of firms on the Inc. 500 list</li> </ul> <p><b>Initial Public Offerings</b></p> <ul style="list-style-type: none"> <li>● Number of initial public offerings</li> </ul> <p><b>Productivity growth</b></p> <ul style="list-style-type: none"> <li>● Growth in output per employee or total factor productivity</li> </ul>

Source: compiled by the author after Porter, 1990; 1998.

### ***Defining Global Competitiveness***

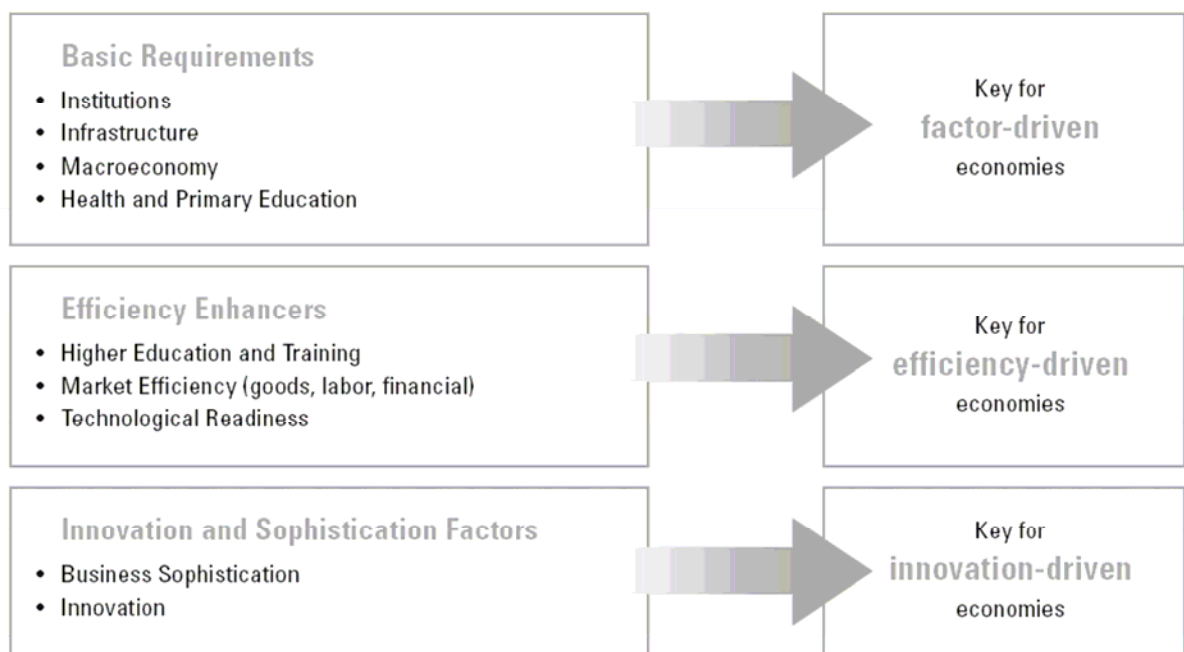
The Growth **Competitiveness Index** (Growth **CI**) was developed by Jeffrey Sachs and John McArthur to assess the **competitiveness of nations** and incorporates the following indicators:

1. *Institutions*
2. *Infrastructure*
3. *Macroeconomy*
4. *Health and primary education*
5. *Higher education and training*
6. *Market efficiency*
7. *Technological readiness*
8. *Business sophistication*
9. *Innovation*

Growth Competitiveness Index (GCI) **does not incorporate any indicators able to capture the efficiency of labour markets**, an important shortcoming in the context of discussions about economic reform in Europe, where *labour market rigidities* are seen as being at the center of the region's *lagging growth performance* as compared to the United States and Asia.

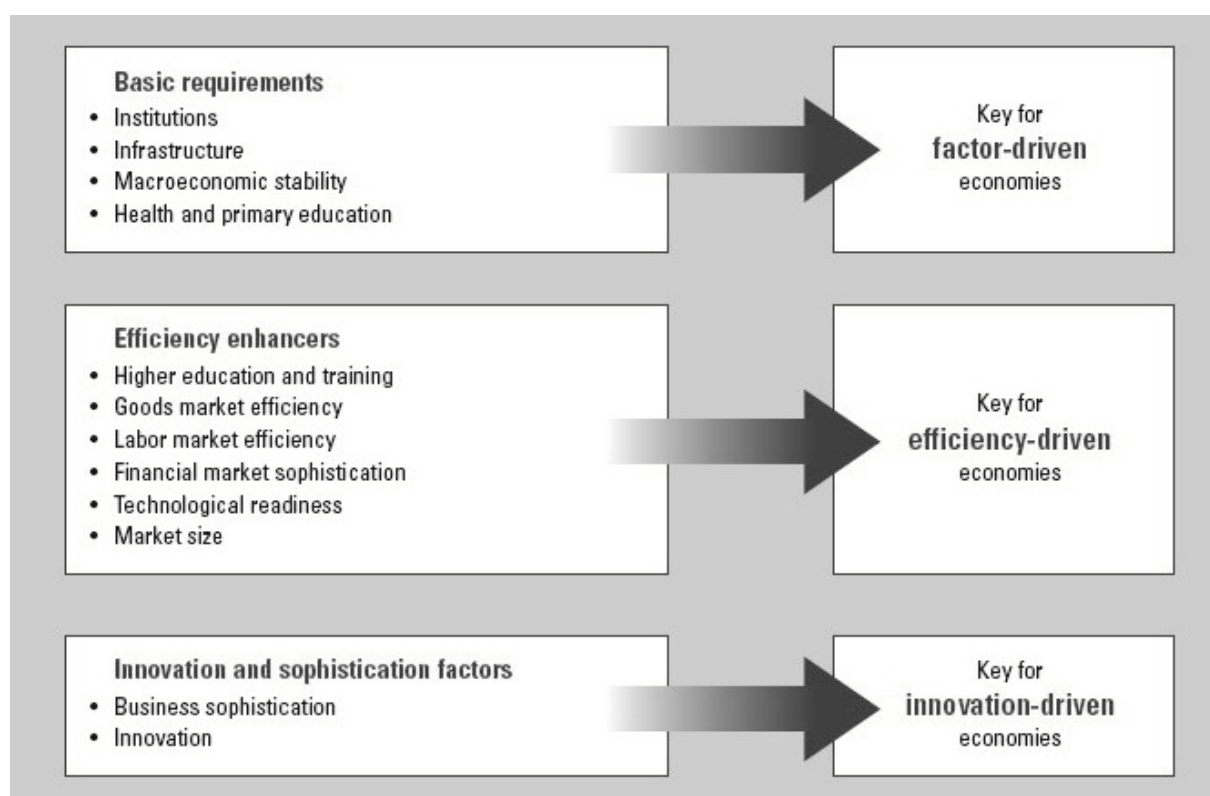
The Growth Competitiveness Index (Growth CI) was developed by Jeffrey Sachs and John McArthur to assess the competitiveness of nations and incorporates the following indicators (9 pillars) worked out for the World Economic Forum in 2005 as indicated in Figure 6.

Figure 6. The Growth Competitiveness Index (9 pillars), 2005



Source: World Economic Forum, 2005.

Figure 7. The Growth Competitiveness Index (12 pillars), 2008



Source: World Economic Forum, 2008.

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 reality that we call competitiveness. We group all these components into *12 pillars of economic competitiveness* (Figure 7) as of 2008, with three extra indicators, including **labour market efficiency**.

### Global Competitiveness Index: Evidence from Europe and the World

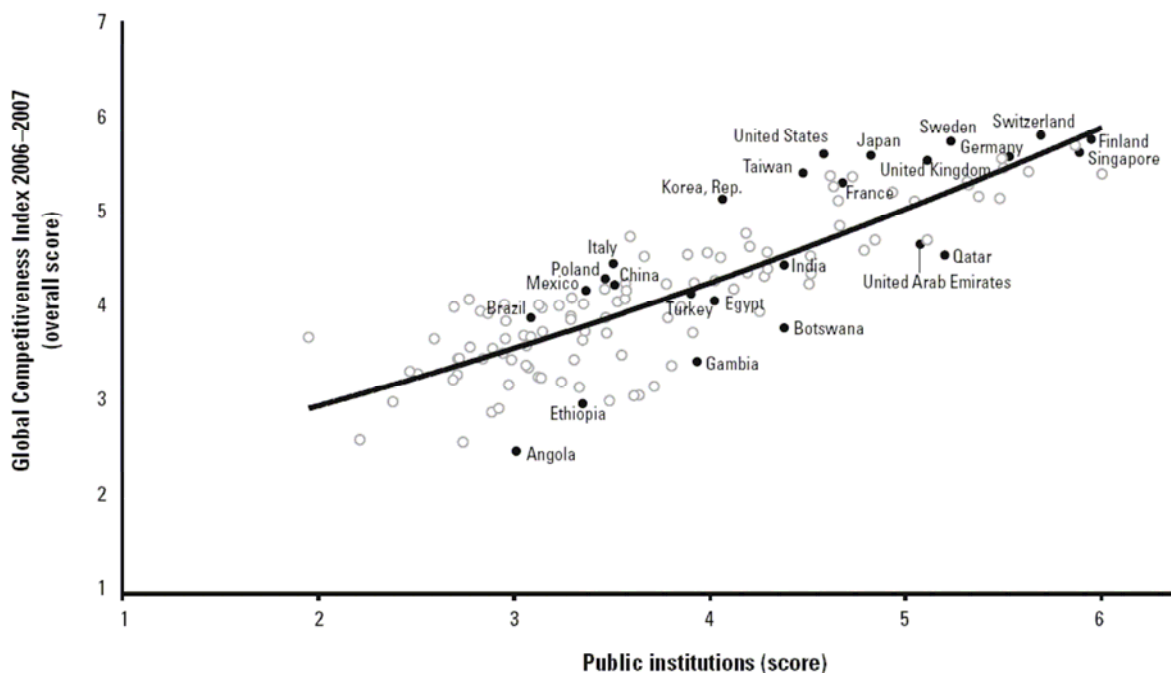
The first pillar of the GCI relates to basic requirements as the key for factor driven economies, where *public institutions* stand for a major indicator in the whole system of GCI. Although, in a market economy, wealth is largely created by private businesses, these businesses have to operate within a country and have to deal with the institutions created and maintained by the government. It is important, for example, that property rights are guaranteed by a legal and judicial system. Private companies cannot operate efficiently in environments where contracts cannot be enforced or where the rule of law is weak or nonexistent.

Firms may find it too expensive (maybe prohibitive) to do business in countries where corruption is rampant. One of the most exciting areas of economic research today tries to quantify the importance of institutions for long-run economic growth. As a result, the GCI measures the soundness of the public institutions and it introduces it as one of the three pillars of economic growth and development.

Therefore, Figure 8 represents the data on Global Competitiveness Index and public institutions of 2006-2007, where Switzerland dominates the list with Sweden, Germany, Japan and United Kingdom left behind.



Figure 8. Global Competitiveness Index and Public Institutions, 2006-2007



Source: World Economic Forum, 2006.

When the indicator of institutions is discussed, usually the corruption index is also taken into consideration. With this purpose on mind, we present the dynamics of corruption index in selected Central and Eastern European countries in the period of 1999-2008 (Table 1). Three countries could be pointed out as having high transparency in the country, namely Slovenia (it is on the increase since 2004), Estonia (again a notable improvement is identified in 2004), and Hungary, which averages around 5.2 (out of 10). Lithuania in this spectrum had a considerable improvement in 2001, but since then the corruption index has not moved much, balancing at 4.7 on average (2001-2008).

Table 1. Corruption Index in Selected CEE countries, 1999-2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Czech R.	4.6	4.3	3.9	3.7	3.9	4.2	4.3	4.8	5.2	5.2
Estonia	5.7	5.7	5.6	5.6	5.5	6	6.4	6.7	6.5	6.6
Hungary	5.2	5.2	5.3	4.9	4.8	4.8	5	5.2	5.3	5.1
Latvia	3.4	3.4	3.4	3.7	3.8	4	4.2	4.7	4.8	5
<b>Lithuania</b>	<b>3.8</b>	<b>4.1</b>	<b>4.8</b>	<b>4.8</b>	<b>4.7</b>	<b>4.6</b>	<b>4.8</b>	<b>4.8</b>	<b>4.8</b>	<b>4.6</b>
Poland	4.2	4.1	4.1	4	3.6	3.5	3.4	3.7	4.2	4.6
Slovakia	3.7	3.5	3.7	3.7	3.7	4	4.3	4.7	4.9	5
Slovenia	6	5.5	5.2	6	5.9	6	6.1	6.4	6.6	6.7

Legend: where 10 – is a transparent country, 0 – a very corrupted country.

Source: Transparency International, 2008.

In 2006-2007 global competitiveness rankings, **Switzerland** came out first, leaving the USA in 6<sup>th</sup> position (Table 2).

Table 2. Global Competitiveness Index rankings and 2006-2007 comparisons (top 18)

Country/Economy	GCI 2006-07 rank	GCI 2006-07 score	GCI 2005-06 rank
Switzerland	1	5.81	4
Finland	2	5.76	2
Sweden	3	5.74	7
Denmark	4	5.70	3
Singapore	5	5.63	5
United States	6	5.61	1
Japan	7	5.60	10
Germany	8	5.58	6
Netherlands	9	5.56	11
United Kingdom	10	5.54	9
Hong Kong SAR	11	5.46	14
Norway	12	5.42	17
Taiwan, China	13	5.41	8
Iceland	14	5.40	16
Israel	15	5.38	23
Canada	16	5.37	13
Austria	17	5.32	15
France	18	5.31	12

Source: World Economic Forum, 2005.

But the **United States** tops the overall ranking in *The Global Competitiveness Report of 2008-2009*, released by the World Economic Forum. **Switzerland** is in second position followed by **Denmark**, **Sweden** and **Singapore**. European economies continue to prevail in the top 10 with **Finland**, **Germany** and the **Netherlands** following suit. The **United Kingdom**, while remaining very competitive, has dropped by three places and out of the top 10, mainly attributable to a weakening of its financial markets. The **People's Republic of China** continues to lead the way among large developing economies, improving by four places this year and joining the top 30. All of the BRIC economies figure in the top half of the ranking, with China followed by **India**, **Russia** and **Brazil**. Several Asian economies perform strongly with **Japan**, **Hong Kong SAR**, **Republic of Korea** and **Taiwan, China** in the top 20. In Latin America, **Chile** is the highest ranked country, followed by **Panama**, **Costa Rica** and **Mexico**.

A number of countries in the Middle East and North Africa region are in the upper half of the rankings, led by **Israel**, **Qatar**, **Saudi Arabia**, **United Arab Emirates**, **Kuwait** and **Tunisia**, with particular improvements noted in the Gulf States since last year. In sub-Saharan Africa, South Africa, Botswana, Mauritius feature in the top half of the rankings, with several countries from the region measurably improving their competitiveness. [Click here](#) to read the highlights of the report.

### Impact of Globalization on Small States

Small states face many challenges in the context of a global economy. The principal economic constraint is the "size-effect", which prevents the small states to gain economies of scale in production.

This problem may not necessarily be representative of all small open economies because some of them are very competitive. It is a reflection of the macro-economic policies of the Government of the day that makes the difference between competitiveness or lack of it.

Table 3. Global Competitiveness Index Rankings and 2005-2006 comparisons (40-54)

Lithuania	40	4.53	34
Hungary	41	4.52	35
Italy	42	4.46	38
India	43	4.44	45
Kuwait	44	4.41	49
South Africa	45	4.36	40
Cyprus	46	4.36	41
Greece	47	4.33	47
Poland	48	4.30	43
Bahrain	49	4.28	50
Indonesia	50	4.26	69
Croatia	51	4.26	64
Jordan	52	4.25	42
Costa Rica	53	4.25	56
China	54	4.24	48

Source: World Economic Forum, 2006.

Table 3 carried the data of some CEE countries, including Lithuania (No 40), Hungary (No 41), Cyprus (No 46), Poland (No 48), and Croatia (No 54).

Competitiveness depends on a coherent policy strategy to address the future development of a country in an integrated manner rather than in a piecemeal style.

#### **Advantages of Globalization Trade on Small States:**

- Scope of access to new markets for exports.
- New labour skills and specialists.
- New sources of funding for economic development.
- Access to advanced telecommunication system and information technology.
- Scope for economic diversification and national income growth.

#### **Disadvantages of Globalization Trade on Small States:**

- Difficulty to attract Foreign Direct Investment (FDI).
- Competition from low-cost producing countries.
- Severe competition for export in major markets.

### **National Competitiveness at Stake: the Case of Lithuania**

Successful *economic development* is a process of successive upgrading, in which a nation's business environment evolves to support and encourage increasingly sophisticated and productive ways of competing by firms (including subsidiaries of multinational corporations) located there. Nations at different levels of development face distinctly different competitiveness challenges, where the relative importance of different dimensions of microeconomic and macroeconomic competitiveness for sustainable prosperity is changing.

As nations develop, modes of competing and nature of competitive advantages move through several characteristic stages, though rates of progress and the specific development path will vary by country. In the factor-driven stage, basic factor conditions such as low-cost labor and unprocessed natural resources represent the dominant basis of competitive advantage and sources of exports. Firms produce commodities or relatively simple products or components of products designed in other, more-advanced countries.

Technology is assimilated through imports, supply agreements, foreign direct investment, and imitation. In this stage, companies compete on price and normally lack direct access to foreign consumers. Companies have limited roles in the value chain, focusing on assembly, labor-intensive manufacturing, and resource extraction. Factor-driven economies are

highly sensitive to world economic cycles, commodity prices, and exchange rate fluctuations, mitigated only in very large countries such as China, which have a large internal market to attract investment independent of export potential.

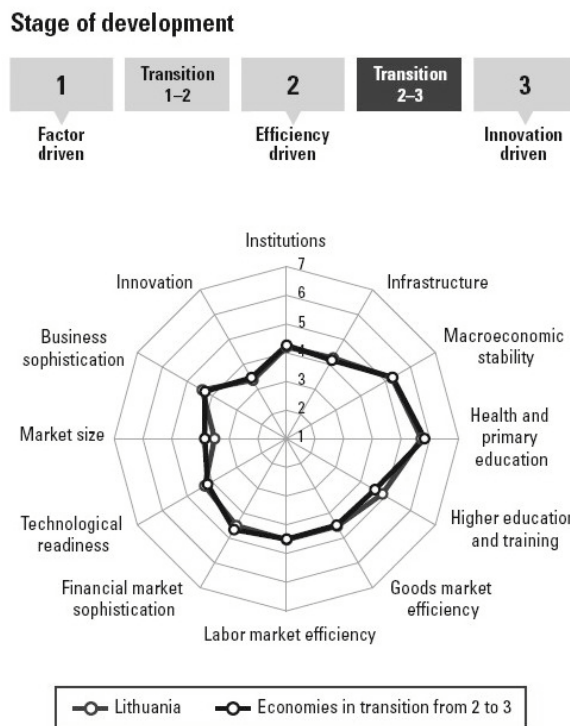
In Table 4, Lithuania’s global competitiveness index for 2008-2009 dropped even to 44<sup>th</sup> position from No 34 in 2005 by ten points, this is due to corruption index and inflation stagnation in the country.

Table 4. Global Competitiveness Index for Lithuania, 2008-2009

	Rank (out of 134)	Score (1-7)
<b>GCI 2008–2009</b> .....	<b>44</b>	<b>4.4</b>
GCI 2007–2008 (out of 131).....	38	4.5
GCI 2006–2007 (out of 122).....	39	4.5
<b>Basic requirements</b> .....	<b>46</b>	<b>4.8</b>
1st pillar: Institutions.....	55	4.2
2nd pillar: Infrastructure.....	46	4.2
3rd pillar: Macroeconomic stability.....	52	5.2
4th pillar: Health and primary education.....	52	5.7
<b>Efficiency enhancers</b> .....	<b>43</b>	<b>4.4</b>
5th pillar: Higher education and training.....	26	4.9
6th pillar: Goods market efficiency.....	48	4.5
7th pillar: Labor market efficiency.....	49	4.5
8th pillar: Financial market sophistication.....	56	4.5
9th pillar: Technological readiness.....	38	4.3
10th pillar: Market size.....	69	3.5
<b>Innovation and sophistication factors</b> .....	<b>49</b>	<b>3.9</b>
11th pillar: Business sophistication.....	49	4.4
12th pillar: Innovation.....	55	3.3

Source: The Global Competitiveness Report 2008-2009.

Figure 9. Lithuania’s Stage of Development according to World Economic Forum, 2008-2009



Source: The Global Competitiveness Report 2008-2009.

The 12 pillars for Lithuania (2008-2009) are defined in Figure 9, the economic competitiveness of which is allotted to the transition stage between II and III (a transition from efficiency driven to innovation driven economy). In fact, Figure 9 also proves that Lithuania's competitive performance is very close the average standard of economies in transition from Stage 2 to Stage 3, with somewhat lower performance in market size and a much higher efficiency in higher education and training.

Table 5. 7th pillar of GCI - Labour Market Efficiency in Lithuania, 2008-2009

7.01	Cooperation in labor-employer relations .....	62	.....	■
7.02	Flexibility of wage determination.....	9	.....	■
7.03	Non-wage labor costs* .....	112	.....	■
7.04	Rigidity of employment* .....	99	.....	■
7.05	Hiring and firing practices .....	95	.....	■
7.06	Firing costs* .....	51	.....	■
7.07	Pay and productivity.....	23	.....	■
7.08	Reliance on professional management .....	65	.....	■
7.09	Brain drain.....	84	.....	■
7.10	Female participation in labor force* .....	15	.....	■

**LEGEND:** ■ Competitive **Advantage**, ■ Competitive **Disadvantage**

Source: The Global Competitiveness Report 2008-2009.

Considering that the focal study is about establishing the relationship between labour force efficiency in the global competitiveness index, it is obvious from Table 5 that Lithuania scores a variety of underperformance, e.g. in the spheres of non-wage labour costs (112), rigidity of employment (99), hiring and firing practices (95). But at least three elements in labour market efficiency keeps Lithuania at pace with other CEE countries, namely a) flexibility of wage determination (9), b) female participation in labour force (15), and c) pay and productivity (23).

## Conclusions and Recommendation

The paper investigated the relationship between labour force indicator and global (& growth) competitiveness index. As it appeared from a literature review, labour force was not even included in Global Competitiveness Index (GCI), proposed by World Economic Forum, which comprised so-called 9 pillars. Only recently, in 2008, World Economic Forum proposed a new methodology, the backbone of which are 12 pillars; labour market here is one of major indicators for determining country's GCI.

Lithuania's position in the GCI scale varied from year to year: sometimes being with top 40 countries, but recently, in 2008-2009 dropping to No 44. This proves that small countries should seriously consider well-grounded economic strategies to catch up with innovation driven factors in order to remain competitive in the future.

### Strategies to Remain Competitive in the Future

- Maintain stable macro-economic policy.
- Maintain stable prices for the commodities and services.
- Seek for ways and means to become more innovative.
- Keep an openness to trade and foreign capital.
- Ensure that the human resources of the country are well equipped.

- Promote new ideas concept.
- Invite for strategic alliances, when deem necessary.
- Invest in more R&D costs.
- Encourage the use of new technology.
- Ensure that the **Labour Market** is well protected.
- **Priorities for measuring competitiveness:**
  - Sectoral and industry measures are important.
  - Extend framework to include intangible investment.
  - More transparency on measurement is generally needed.
  - More harmonization across Europe (and beyond) is helpful.
  - Interaction between research and statistics, and between producers and users of statistics is important.
  - Good statistics require funding.

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