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NATIONAL COMPETITIVENESS DEVELOPMENT AND INTELLECTUAL CAPITAL

In today's world, when globalization spreads, countries employ all their efforts and use all their capacities for the improvement of business competitiveness to achieve a greater share of international markets. On the other hand, today's intellectual capital is the most important intangible asset. This article attempts to show the relationship between intellectual capital and national competitiveness development through panel data methods in both developing and developed countries in the period of 1996 – 2011.

Keywords: *National Intellectual Capital, Competitiveness Development, Panel Data.*

JEL classification: D24, D29, F20, F23

1. Introduction

In today's world, when globalization spreads, countries make all their efforts to use all their capacity to gain a larger share of international markets by improving their competitive strength. Although the concept of competitiveness is important in all meanings and dimensions, today, competitiveness on the macro level is more important than other dimensions considering the issues such as privatization, high-speed technical and technological changes, increased proliferation of knowledge, expansion of markets and the phenomenon of globalization. For this reason, economic policy makers in different countries have tried to modify the relative prices of factors, structural and technological changes, facilitate the production and reproduction of knowledge, using creativity in productive activities, to diversify export products, facilitate reform rules of production and trade, provide a variety of markets to increase efficiency, improve the business environment and improve competitiveness of

goods produced in these countries and help maintain or increase their share of international markets. Therefore, it is necessary to understand the factors affecting national competitiveness in order to achieve sustained and sustainable economic growth. In the simplest analysis, competitiveness depends on the "efficiency" that shows how a nation can make use of labor, capital and natural resources for its economic development. On the other hand, one of the most important factors which shows efficiency is intellectual capital. Intellectual capital efficiency for any country depends on its human and structural efficiency. So if these indexes have been measured, it will be possible to estimate the impacts of national efficiency on competitiveness development.

Hence, in the present research, an attempt was made to construct a new model which introduces the human capital and structural capital on the national level. After this process, the effectiveness of ingredients of national intellectual capital on competitiveness development was investigated in the 10 selected developing countries in the period of 1996 to 2011. To achieve better results the same test was done in 10 OECD member countries in the same time period.

For this purpose, the present paper consists of four sections. After the introduction, review of statement has been done and importance of intellectual capital and competitiveness has been expressed in the second part of the research. The third section introduces the implemented model and its variables and the results of model estimation and conclusions are provided in the fourth section.

2. *LITERATURE REVIEW*

2.1. *Definition of Competitiveness*

The concept of competitiveness emerged in the 16th century regarding the issue of “why some countries are more competitive than other countries?”

There are three views of the competitiveness in three different time periods. (Staskeviciute, Tamosiuniene, 2010).

- In the 16th to the 18th centuries, competitiveness of countries was based on the balance of trade. At that time, mercantilism theory was popular (Humphery 1999, Reljan et. al. 2000). In this period, gold, silver, and trade were known as the main capital of a nation. The country was competitive if national gold reserve was growing. In this view, there were barriers to foreign trade in order to encourage exports and discourage imports of goods, in order to keep growing gold reserve.
- In the 18th-20th centuries, national competitiveness was as low as production costs. In this period, different opinions dominated in classical economics. Classical economics was associated with the idea that free markets could regulate themselves. A nation, which could produce goods at lower costs and sell them in international market, got competitive advantage over other nations. From classical economics perspective, national economy’s competitiveness meant the ability to produce goods and services at lower prices than foreign goods and quality not worse than that of goods of foreign producers (Nurmukhanova, 2008). Evaluation of national competitiveness, is

important from the standpoint of business productivity and efficiency, but it is too complex to explain global economy by traditional theories.

– With the beginning of the 20th century, there was a disagreement on the low production costs theory. Keynesian economics defined national competitiveness by new factors and argued that governments' economic policy was the factor influencing national competitiveness (Thurow, 1992). Also, Vernon (1966) states that production life cycle and innovation are key factors in competitiveness (Staskeviciute, Tamosiuniene, 2010). J. Schumpeter (1942) also emphasizes the role of innovation and entrepreneurship competition. He argues that only entrepreneurship and innovation are growth factors (Dabic, 2011). So innovation has become the key factor of competitiveness. In the modern view of economics, knowledge is the key factor of competitiveness (Staskeviciute, Tamosiuniene, 2010). Innovation is extremely important because it leads to knowledge and knowledge leads to the increase of competitiveness. Porter combined all theories and introduced the Diamond model where four broad factors of competitiveness and their relations were included: factor conditions, demand conditions, relating and supporting industries, and company strategy, structure, and rivalry, which create the environment in which companies are born and learn how to compete (Subarna & Rajib, 2010). From this perspective, national economy's competitiveness is defined as the nation's ability to create environment, which helps enterprises innovate faster than foreign competitors. Porter emphasizes productivity growth as the focus for national strategies. At the end of the 20th century, a competitive nation should ensure high quality of life and social welfare: high living standards, quality education, social security, freedom of choice etc. (Aiginger, 2006). High employment rate is also a feature of national competitiveness.

Balkyte and Tvaronaviciene (2010) argue that competitiveness implies the overall economic performance of a country and its ability to provide services to its citizens create higher living standards on a sustainable basis and create jobs for people who want to work.

National competitiveness is defined as the facts and policies that form the ability of a nation to create and retain higher value for its companies and greater prosperity for the people (Subarna and Rajib, 2010).

Thompson (2004) stated that national competitiveness is a series of institutional and systemic issues related to macro political economy and the ways which affect microeconomic activities of firms in their competitive environment that included 9 aspects of the national competitiveness which were recently used in the scientific literature.

Those 9 aspects are:

– High living standards
– High employment
– Productivity
– Trade balance
– Nation's attractiveness

- Ability to implement goals
- Ability to implement policy
- Flexibility
- Ability to sustain development.

These cases describe the most important features of the nation's competitiveness and commonly use them to measure and evaluate the nation's competitiveness.

International Institute for Management Development (IMD) and the World Economic Forum (WEF) are the two most popular institutions publishing national competitiveness reports. Both institutions have changed over time in the definition of competitiveness and models that determine it. The first definition of IMD was as follows:

"The ability of a country to create added value and thus increase national wealth" (IMD, 1996). This definition shows that productivity and GDP are proxies for competitiveness; But IMD shows that competitiveness will not fall just into the mere productivity or GDP (IMD, 1996).

In contrast, the WEF defines competitiveness as follows:

"The ability of a national economy to achieve sustained high rates of economic growth, as measured by the annual change in gross domestic product per person" (WEF, 1996). It also confirms that GDP and/or productivity affect Proxies on the competitiveness.

Note that the two institutions have different definitions but the factors affecting competitiveness are almost the same.

The expressed factors of competitiveness by IMD and WEF are compared in Table 1.

Table 1

The factors of competitiveness in IMD and WEF reports

IMD Report (1989 – 2012)	*WEF Report (1996 – 2012)*
• Domestic Economy	• Civil Institutions
• Internationalization	• Openness
• Government	• Government
• Finance	• Management
• Infrastructure	• Finance
• Science and Technology	• Infrastructure
• People	• Technology
	• Labor

Source: Dong-Sung Cho and Hwy-Chang Moon 2005

2.2. Introducing National Intellectual Capital

Intellectual capital of a nation includes all individuals', enterprises', institutions', communities' and regions' values which are hidden. These hidden values are potential sources for wealth creation and the roots for future wellbeing. Therefore, it is necessary to develop a method and plan to calculate the intellectual capital of nations (Bontis 2004).

National intellectual capital (NIC) refers to the hidden value of intellectl and management on the macroeconomic level, and this is the way that helps the

future economic development (Andriessen and Stam, 2004). For this reason, research on intellectual capital is crucial in the development of knowledge-based economy and the excellent support for national foresight. However, there is still insufficient knowledge about the economic impact of intellectual capital. Some research indicates that intellectual capital is a significant and promoter factor in economics (e.g. Choo and Bontis, 2002; Lerro et al., 2005; Alexander, 2006; Cabrita and Vaz, 2006), But some studies have shown that intellectual capital hasn't had significant effects on economic growth (e.g. Firer, 2003).

Necessarily, these conflicting results don't confirm the lack of relationship between the economy and IC. This discrepancy may be a result of defects in models and methods of measurement and scaling IC metrics.

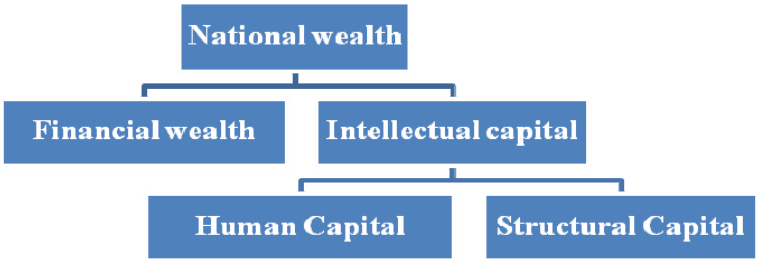

Figure 1: *Intellectual capital of nations*

Human capital includes knowledge, skills and abilities of employees. But the human capital of a nation begins with the intellectual wealth of its citizens. This wealth contains knowledge about the facts, rules and principles, as well as specialized skills, teamwork and communication (OECD, 2006).

Structural capital is owned by the organization and even when employees leave the organization, it is available in organization. Structural capital of the company consists of whatever is left after employees go home at night. Structural capital includes things like buildings, hardware, software, processes, patents and trademarks, and corporate image, proprietary information systems and databases.

2.3. Developments of National Intellectual Capital and Competitiveness

National intellectual capital and national competitiveness are much closer to each other conceptually, and on the other hand, the future of a nation in national competition is based on national intellectual capital and the ability to extract value from it. On the other hand, the global economy is a factor that creates competitive advantage for countries in different conditions. Competitive advantage includes material and immaterial resources and combination of them, moreover, in developed countries; the competitive advantage includes national intellectual capital (e.g. Teece 2000, Castells & Himanen 2002, Ståhle & Grönroos 2000).

3. *Methodology*

This part of the paper introduces methods of measurement which are related to national human capital and national structural capital. So the most important affecting indicator on NHCI & NSCI is introduced.

3.1. The Model of Measurements of Ingredients of National Intellectual Capital

3.1.1. National Human Capital Index (NHCI)

Based on the Bontis 2004, to calculate NHCI, five metrics were used which were available from each of the 10 representative countries in each group. Tables 2 and 3 show the summary of these proxies in two categorized groups of countries. For measuring this variable, the weighting average of the following variables was used. Literacy rate (LR) was selected to have the largest weighting (30 %) due to its significance as an important antecedent for knowledge absorption. Table 2 shows a sample of the method for calculating NHCI for 2011.

Table 2

National Human Capital Index Calculation in 2011 for a Developing Country

Index / Country	Education		Labor & Social Protection	Health	Infra-structure	National Human Capital Index (NHCI)
	LR	EPS	LPR	HE	IU	
ARGENTINA	97.7987	19.0656	60.5	8.0961	40	9.76
ARMENIA	99.5515	7.4570	58.2	4.4041	18.97	8.64
BRAZIL	90.3354	29.9345	69.9	9.0082	40.65	10.18
EGYPT	72.0478	23.7895	48.8	4.6561	30.2	7.76
IRAN	86.9865	19.2255	44.3	5.6043	16	8.05
MALAYSIA	93.1178	64.9453	60.5	4.394	56.3	11.95
NIGERIA	61.3385	11.5332	55.5	5.0678	24	6.6
RUSSIA	99.5762	15.7532	62.7	5.0748	43.3145	9.71
SOUTH AFRICA	89.1231	14.7628	52	8.9415	18.0509	8.36
URUGUAY	98.0727	21.9443	65.4	8.3518	46.5686	10.21
Weighting (%)	30%	25%	15%	20%	10%	-----

These variables are defined as follows:

- **LR** (Literacy rate, totally % of adult people are aged above15) = Adult (+15) literacy rate (%). Total percent of the population aged above 15 who can read and write and comprehend a short, simple statement.
- **LPR** (Labor participation rate, totally % of total population ages +15) = Labor force participation rate is the proportion of the population aged above 15 who are economically active: all people who supply labor for the production of goods and services during a specified period.

Table 3

National Human Capital Index Calculation in 2011 for a Developed Country

Index / Country	Education		Labor & Social Protection	Health	Infra-structure	National Human Capital Index (NHCI)
	LR	EPS	LPR	HE	IU	
DENMARK	100	56.7766	64.6	11.41505	88.7593	13
FRANCE	100	39.9736	56.4	11.8833	77.28358	11.71
GERMANY	100	46.2416	59.6	11.63	82.5269	12.21
JAPAN	100	25.25403	60.4	9.48	77.6487	11
NETHERLANDS	100	43.5696	64.8	11.92	90.7068	12.41
NORWAY	100	49.0535	65.8	9.47	93.2727	12.67
SPAIN	97.88	29.1734	59.3	9.54	65.8086	10.8
Switzerland	100	44.8862	67.8	11.52	90.0149	12.54
U.K	100	20.5522	61.9	9.63	77.7546	10.82
USA	100	19.5549	63.7	17.89	74.2474	11.09
Weighting (%)	30%	25%	15%	20%	10%	-----

- **EPS** (Expenditure per student, tertiary % of GDP per capita): Public expenditure per pupil as a % of GDP per capita. Tertiary is the total public expenditure per student in tertiary education as a percentage of GDP per capita.
- **HE** (Health expenditure, totally % of GDP); Total health expenditure is the sum of public and private health expenditure. It covers the provision of National Health Account database of World Health Organization[7].
- **IU** (Internet users per 100 people); Internet users are people with access to the worldwide network.

So;

$$NHCI = \frac{0.3(LR) + 0.15(LPR) + 0.25(EPS) + 0.2(HE) + 0.1(IU)}{5}$$

3.1.2. National Structural Capital Index (NSCI)

To calculate NSCI, five metrics were used available from each of the 10 representative countries in each group. Tables 4 and 5 show a summary of these proxies. For the measurement of this variable, weighting average of the following variables was used. Production of ICT goods was selected to have the largest weighting (30 %). Information era depends primarily on the information technology, and then the highest weight is allocated to the ICT. Tables 4 and 5 show a sample of the method for the calculation of NSCI for 2011.

[7] . see http://apps.who.int/nha/database for the most recent updates

Table 4

National Structural Capital Index Calculation in 2011 for a Developing Country

Index / Country	Technological infrastructure		Physical infra-structure	R&D infra-structure	Urban Development	National Structural Capital Index (NSCI)
	ICT	MC	RP	RE	ISF	
ARGENTINA	0.11188	132.88	33.24	0.52384	92	6.78
ARMENIA	0.75285	125.008	93.5626	0.2730	95	9.15
BRAZIL	1.006	104.1	6.3	1.0857	85	4.99
EGYPT	0.13505	87.1056	89.356	0.211092	97	8.24
IRAN	0.03547	73.0689	79.34561	0.810954	100	7.67
MALAYSIA	34.0056	119.217	87.65	0.87345	96	10.85
NIGERIA	0.00478	55.1041	19	0.27456	35	2.92
RUSSIA	0.23150	166.264	83.98	1.25259	74	8.98
SOUTH AFRICA	0.97211	100.477	23.78	0.939856	86	5.64
URUGUAY	0.08645	131.71	11.34	0.722	100	6.12
Weighting (%)	30%	10%	20%	25%	15%	-----

Table 5

National Structural Capital Index Calculation in 2011 for a Developed Country

Index / Country	Technological infrastructure		Physical infra-structure	R&D infra-structure	Urban Develo-pment	National Structural Capital Index (NSCI)
	ICT	MC	RP	RE	ISF	
DENMARK	3.63167	125.78	100	3.1263	100	9.89
FRANCE	4.4139	100.65	65.47	2.3567	100	8.01
GERMANY	5.0863	127.04	100	2.8894	100	9.99
JAPAN	10.6698	97.43	80.11	3.5198	100	8.97
NETHERLANDS	12.4566	115.44	80.11	1.8846	100	9.35
NORWAY	1.4182	115.67	80.7	1.8590	100	8.72
SPAIN	2.1907	111.98	99.89	1.4123	100	9.44
Switzerland	1.6430	125.83	100	3.0745	100	9.77
U.K	5.9265	130.75	100	1.8243	100	10.06
USA	10.5354	89.856	69.45	2.8498	100	8.35
Weighting (%)	30%	10%	20%	25%	15%	-----

The former table variables are defined as follow:

- **ICT** (ICT goods exports % of total goods exports); Information and communication technology goods exports include telecommunications, audio and video, computer and related equipment; electronic components; and other information and communication technology goods. Software is excluded.
- **MC** (Mobile cellular subscriptions per 100 people); Mobile cellular telephone subscriptions are subscriptions to a public mobile telephone service using cellular technology, which provide access to the public

switched telephone network. Post-paid and prepaid subscriptions are included.

- **RP** (Roads, % of total roads are paved); Paved roads are those surfaced with crushed stone (macadam) and hydrocarbon binder or bituminized agents, with concrete, or with cobblestones, as a percentage of all the country's roads, measured in length.
- **RE** (Research and development expenditure % of GDP); Expenditures for research and development are current and capital expenditures (both public and private) for creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development.
- **ISF** (Improved sanitation facilities, urban % of urban population with access); Access to improved sanitation facilities refers to the percent of the population with at least adequate access to excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta. Improved facilities range from simple but protected pit latrines to flush toilets with a sewerage connection. To be effective, facilities must be correctly constructed and properly maintained.

So;

$$NSCI = \frac{0.3(ICT) + 0.1(MT) + 0.2(RP) + 0.25(RE) + 0.15(ISF)}{5}$$

3.1.3. Introducing Research Model

In order to investigate the impact of variables that influence the national competitiveness required to maintain the effect of other factors potentially affecting our national competitiveness we should know ***Economic Performance, Government Efficiency***, ***Business Efficiency*** and ***Infrastructure*** impacts as the most important factors affecting the national competitiveness development in developing and developed countries.

According to the IMD Report (2001) division, the most important factors affecting the development of competitiveness that is addressed in this paper are as follows:

1. Economic Performance
2. Government Efficiency
3. Business Efficiency
4. Infrastructure

Using explaining variable for each section, Table 6 has been introduced to the model used in this paper;

Thus:

$$NCD = f (INF, EMP, GE, NHCI, NSCI)$$

According to the panel data method, two tests have been conducted:

The F-test and Haussmann test was performed to select the appropriate model (fixed or random effects).

To determine the equivalent of the intercept of the countries the F test was used and to determine fixed effect test methods or random effects, Haussmann test was used.

Table 6

Variables Used in the Model, Definitions and Statistical Sources

Factors affecting Competitiveness development		*Explaining variable*	*Symbol*	*Source*
Economic Performance	Inflation	Inflation, consumer prices (annual %)	**INF**	WDI 2010
	The Level of Employment	Employment to population ratio, +15, total*(%)*	**EMP**	WDI 2010
Government Efficiency	Government Effectiveness	One of the six indicators of good governance	**GE**	Governance Matter *201*1
Business Efficiency	National Human Capital Index	Weighted average of five indicators	**NHCI**	Calculated by Researcher
Infrastructure	National Structural Capital Index	Weighted average of five indicators	**NSCI**	Calculated by Researcher

It is noteworthy that the lack of statistical data makes inevitable some variables in some courses of unbalanced approach. Also after studying assumptions of the classical model, since that is the problem of non-homogeneity between groups, the method of generalized least squares (GLS) is estimated in order to resolve this problem.

The main Equation of this paper is as follows:

$$NCD_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 EMP_{it} + \beta_3 GE_{it} + \beta_4 lnNHCI_{it} + \beta_5 lnNSCI_{it} + U_{it}$$

It is noteworthy that the NHCI and NSCI have entered two variables into the model as the logarithm.

In this paper, the following hypotheses will be verified:

– *The main hypothesis*:

- The improvements of national intellectual capital (human and structural capital), lead to the improvement of the national competitiveness.

– *Secondary hypothesis*:

- There is a negative and significant relationship between inflation rate and national economic competitiveness development.
- There is a positive and significant relationship between the level of employment and national competitiveness development.
- The relationship between government efficiency and competitiveness development is positive and significant.

4. Results

The mentioned Equation has estimated 10 developing countries and 10 developed countries over the period of 1996-2011, using the panel data based on fixed effects. The computing F statistic is used to test the equity of the intercepts. Because the computing F is larger than the Table's F, the H_0

hypothesis, i.e. heterogeneity of the countries, is rejected. Thus, the effects of the country groups are confirmed, so different intercepts should be considered in the estimation. In addition, in order to test the selection between the fixed effects and random effects, the Haussmann statistic is used. According to the results, because the computing X_2 statistic is larger than the table's X_2, the H_0 is rejected, i.e. the random effects are heterogeneous and we should use the fixed effect method to estimate them. Results for estimated model are reflected in Table 7.

Table 7

Results for Estimated Model over the Period of 1996-2011

Explanatory variables		*Developing Countries*		*Developed Countries*	
		Coefficients	*Probability*	*Coefficients*	*Probability*
Economic **Effects**	*Inflation*	-0.0373*	0.0000	-0.0071#	0.2391
	The Level of Employment	0.0056**	0.0565	0.0129*	0.0034
Government Efficiency	*Government Effectiveness*	0.0195**	0.0766	0.4031*	0.0023
Business Efficiency	*National Human Capital Index*	0.0024#	0.4553	0.3421*	0.0000
Infrastructure	*National Structural Capital Index*	0.0045*	0.0227	0.2217*	0.0437
R^2		83%		85%	

Source: Researcher's findings
* indicates the significance of the parameters at 5% level
** indicates the significance of parameters at 10% level
# indicates that the numbers shown are not meaningful

5. *Conclusions*

Now we continue with the analysis of the obtained coefficients and values in the conducted estimations.

- Two variables of inflation and the level of employments have illustrative economic impact on the competitiveness. The negative coefficient of ***inflation*** on the results shows that a decrease in the level of inflation has created a unit increase in the level of national economic development of competitiveness in both countries. As you can see, the estimated coefficient is negative for inflation index. Inflation remains as one of the destructive economic and social aspects. With a sharp and sustained rise in the prices of goods and services and due to the impact on income distribution, the purchasing power of the fixed and low salary groups and decision-making power to produce is reduced and also it can distort trade and investment directing human and material resources into unproductive activities. It weakens the value of the national currency and makes it difficult for the application of principled economic reconstruction and development. Thus, inflation is affected; it achieves two important goals of economic development in each country; increases the productive capacity and improves the distribution of income and welfare status of vulnerable groups.

It should be noted that the effect of reducing inflation on improving the level of the development of national economic competitiveness isn't significant for developed of countries. In developed countries, inflation has reduced to a low level and its level has been established in recent years. Due to the constant inflation rate in recent years, the effects on the development of competitiveness are insignificant.

- In both countries, ***the level of employments*** coefficient is positive and significant in the proposed model. The degree of influence in the OECD countries is much higher than that in developing countries. So, the level of employments in each country is the factor on the level of the development national economic competitiveness. Today, in the development of countries, work has taken a new form and moved towards self-employment. So innovation and entrepreneurship and entrepreneurs have a key role in the economic development of communities. Experiences of countries such as Japan, South Korea, Malaysia and India are filled with substantial activities of entrepreneurs' innovations leading to the development of their countries. Some scholars such as Schumpeter state that the entrepreneur is the most important factor in economic development. He believes that an entrepreneur is a creative thinking owner manager who creates golden opportunities with creativity, risk taking, intelligence, thoughtfulness and breadth of vision. He is able to make changes with the discoveries and cause a company with losses to achieve a profit. The bigger factor influencing the developed countries suggests high-impact innovation in creating jobs and increasing competitiveness.
- The coefficients of ***government effectiveness*** are positive and significant in the model estimated. This means that improvement of government efficiency will raise the level of competitiveness development. Greater effect of government effectiveness on the level of national economic competitiveness in developed countries than developing countries shows that the results are applicable to models with outer reality. The views on competitiveness in literature on the state and its effects on competition are greatly varied. In Diamond Model of Porter, the state has an indirect effect on the competitiveness of countries, by affecting four internal factors, demand conditions, related and supporting industries and strategy, structure and rivalry. This is also true in the case of the generalized double diamond model, However, in this model, the role of the government is not only limited to domestic issues; but also the government plays a more active role in the international arena unlike in Porter's Diamond Model. Indirect effect is true in most developed countries where the government plays a regulatory role. However, in developing countries where many commercial and financial activities are carried out by the government, and even in some industries and activities, the major part of the four factors located in the state, government's decision making and performance can be the most effective in creating the development of competitiveness.
- Significant positive relationship between ***national human capital index*** and development of competitiveness indicator shows that if the business efficiency improves, development of competitiveness index will increase. This coefficient has no meaning in selected developing countries. Everyone agrees

that people are key assets in each market and other assets are the only items that can be purchased at market prices just because human assets have only potential for learning, growth and contribution to the organization. Policies, programs and activities of the human resources enable economic units to gain access to competitiveness by their employees. Human capital management in large organizations seeking to improve the performance of organizations is regarded as a support to achieve competitiveness by the employees. Significance of this indicator in the level of competitiveness in developing countries confirms the existence of the traditional and mechanical approach that makes low human capital contribution in these countries, despite the enormous potential. In developing countries, development of machine tools has priority, and when we talk about renewal, equipment of resources and moving toward the development, managers think about their old machines, whereas human resource is a development engine and human capital is considered as the most effective factor in the course of development.

- The coefficients of ***national structural capital*** are positive and significant in the model estimated in both groups of the countries. Infrastructures of each country are a set of public facilities, private public investment or which allows offering essential services and the standard of living. The collection of interconnected public facilities which leads to mobility and transportation facilities, security and shelter, communication services and utilities include the collection of highways and an efficient transport network, bridges, rail and road transport of goods (transit). Also they include sewers, water supply and water supply reservoirs, water dams, waterways and ports and power stations, gas and energy. Infrastructure development can be effective in the development of competitiveness through:
- Goods and services produced by the infrastructure can be helpful as a production factor.
- Infrastructure as a mediating data directly can raise productivity of factors of production, land, labor and physical capital.

In general, if there is a strong management in infrastructure, infrastructure can have positive effects on the economy by increasing efficiency, saving time and reducing costs. (Eric, 2002)

The results of the estimates for the period of 1996-2011 using pooled data are shown as follows:

– In developing countries, the level of importance of the factors affecting national competitiveness development is as follows:

- **Inflation**
- **Government Effectiveness**
- **Level of Employment**
- **National Structural Capital**
- **National Human Capital** (No significant coefficient)

– In developed countries, the level of importance of the factors affecting national competitiveness development is as follows:

- **Government Effectiveness**
- **National Human Capital**
- **National Structural Capital**

- **Level of Employment**
- **Inflation** (No significant coefficient)

5.1. Suggestions

According to the results of the given research in developing countries and compared with those of developed countries, the following suggestions have been made:

- Foreign inflation and exchange rate increase the price of competitiveness and an increase in domestic inflation reduces it. The existence and persistence of inflation reduce the competitiveness of export goods. Thus, to compensate the loss of price competitiveness created by inflation, exchange rate should be increased proportionally. But if the exchange rate is determined by market forces, it may not change in proportion to inflation, or if it is not set by competitive forces, production costs of export goods or stimulate inflationary expectations may increase with the increasing exchange rate. So, if it is not possible to easily change exchange rate or do it without cost, attempt should be made to reduce inflation.
- Studies in this paper show that Government has an effective role in competitiveness and lack of attention to it will create huge barriers to competition in the country and its industries. Therefore, in order to improve the level of competitiveness, it is necessary to identify the government tools to enhance competitiveness and carry out the optimal policy according to it.

Due to the positive effects on the level of intellectual capital development, it is recommended to improve the level of factors affecting human capital and structural capital:

- By enhancing the quality of human capital through regular training courses for all employees; creating a plan for the development of human resource management, creating job security for employees by submitting long-term contracts, creating conditions for employee participation in decision-making.
- Comprehensive support by the government in the development of economic, political and social infrastructure to facilitate and improve the production, distribution and sale of goods.

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ՄՈՀԱՄԱԴ ԱՇՐԱՖԻՓՈՒՐ
ԵՊՀ տնտեսագիտության ֆակուլտետի ասպիրանտ

Ազգային մրցունակության զարգացումը և մտավոր կապիտալը.- Այսօր համաշխարհայնացման հարաճուն պայմաններում երկրների մեծ մասն իր գործունեությունը նպատակաուղղում է գործարարության մրցունակության ակտիվացմանը՝ արտաքին շուկաներում սեփական մասնաբաժնի մեծացման ակնկալիքով: Մյուս կողմից՝ ներկայումս մտավոր կապիտալը հանդես է գալիս որպես կարևորագույն ոչ նյութական ակտիվ: Հոդվածում հեղինակը ներկայացնում է մտավոր կապիտալի և ազգային մրցունակության զարգացման միջև առկա փոխադարձ կապը զարգացած և զարգացող երկրներում՝ 1996-2011 թվականների ընթացքում:

МАГОМЕТ АШРАФИПУР
Аспирант экономического факультета ЕГУ

Развитие национальной конкурентоспособности и интеллектуальный капитал.- В современном мире в условиях глобализации большинство стран мира направляют свою деятельность на активизацию конкурентоспособности в сфере бизнеса с ожиданием увеличения своей доли на мировых рынках. С другой стороны, в настоящее время интеллектуальный капитал выступает как важнейший нематериальный актив. В статье автор представляет взаимную связь между интеллектуальным капиталом и национальной конкурентоспособностью в развитых и развивающихся странах в период 1996-2011 гг.