

## **LIVING STANDARD, QUALITY OF LIFE, GLOBALIZATION AND COMPETITIVENESS IN THE EU AND THE NEIGHBOUR COUNTRIES – AN EMPIRICAL ANALYSIS**

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**Abstract.** This paper deals with the theoretical and empirical relations between living standard, quality of life, globalization and international competitiveness of countries. While economists are not convinced that competitiveness of countries is a useful concept, because firms and industries compete economically and not countries, the general public, journalists and politicians seem to feel that competitiveness is important. E.g., one of the goals of the European Union is to become the most competitive economy in the world. Furthermore, economists argue, that economic globalization has the potential of increasing economic welfare for all. In this case, the general public is more sceptical. Finally, the general public but even other scientists than economists, seem to believe that living standard and the quality of life are only weakly related to each other. The following results can be mentioned. We found strong positive correlations between our main variables. Our hypotheses are with other words supported.

**Key words:** Living standard, quality of live, globalization, competitiveness, Gross Domestic Product, the Lisbon Agenda, correlations, European countries

### **INTRODUCTION**

Economists, politicians and journalists are concerned about whether economic development and growth are sustainable or not. Environmental, climate and population changes could have a negative influence on the economic situation and development. While economic development often is described by GDP in total and GDP per head of population, the question is whether these measures are connected with welfare (see e.g. [Vogel & Wolf 2004]). After all, GDP is a measure of production, incomes and final demand. Therefore it is often asked, how living standard and the quality of life is influenced

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by GDP and GDP per head of population (GDP pc). Furthermore, people are concerned about the connection between globalization and national living standard. Finally, it is often asked, whether it is important for a country to be internationally competitive to cope with the challenges of globalization and to be able to make a rising living standard and quality of life possible for its citizens.

This work is inspired by Koreleski [2007], and is based on the work presented in Schuller [2008] and Schuller [2009a]. We use here a similar approach, but chose a larger number of countries and a wider perspective by including globalization and international competitiveness.

The purpose of the project is to analyse theoretically and empirically the connections between globalization and international competitiveness on one hand and average living standards and the quality of life on the other hand.

The paper is organized in the following way. After the introduction, section 2 presents some methodological remarks. In section 3 the empirical variables and relations are discussed and hypotheses are formulated in a rather intuitive way. Section 4 describes the size of Europe, measured as population and GDP. Section 5 mentions some previous results. In section 6 we present correlations between variables and rankings of countries. Section 7 consists of the summary. In section 8 the references are shown. Appendix 1, Appendix 2 and Appendix 3 finish the paper.

## SOME METHODOLOGICAL REMARKS

In our investigation, we use several variables: GDP per person, the human development index, the global competitiveness index and others. Some of the variables are indices. For example, the UN constructed the human development index as a combination of several components. When you create an index, you have many alternatives to consider. Each component,  $c$ , included in the index has a specific weight,  $w$ . You need to determine what components to use, and how important they are. An index is often calculated as a weighted sum of index components:  $I = \sum_i w_i c_i$ . An alternative construction of an index is to use a multiplicative structure,  $I = \prod_i w_i c_i$ . Many choices have to be made, and there is no correct construction. In some cases, a country performs relatively well, while in other it does not. For a fuller description of these issues we refer you to Hagén et al [2003] and Olsson [2010]. To some extent, you can form an index to get to the result you want. Lobbyists and political parties use it to argue in favor of their agenda [Olsson 2010]. In our comparisons, we use all indices as they are. We have not changed the components or their weights.

We want to investigate if two variables are related, and if so to what degree. We use correlation as the measure of association. Let us call one variable  $x$  and one  $y$ . We relate the variables to each other:  $y = \alpha + \beta x + \varepsilon$ .

The correlation between them is  $\rho = \frac{\sigma_x \sigma_y}{\sigma_{xy}}$ .

In Figure 1, you find an illustration of the case with no correlation between the variables to the left. In the right graph, the correlation is positive, but not perfect.

Variables can be related for many reasons: i) there may be an underlying factor influencing both variables, ii) one variable may cause the effect on the other, or iii) both variables influence each other in a simultaneous system. In this investigation we often expect positive correlation for these reasons. For a detailed description we refer you to Rodgers and Nicewander [1988].

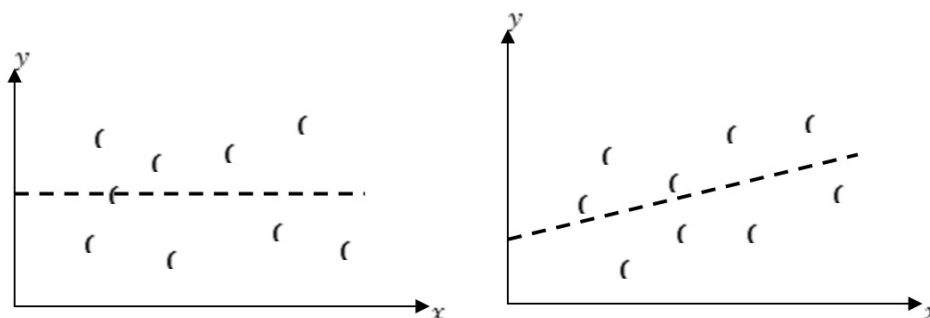


Fig. 1. To the left: No correlation between the two variables,  $\rho = 0$ . To the right: A positive correlation,  $0 < \rho < 1$ , between the two variables

Rys. 1. Po lewej stronie: brak korelacji pomiędzy dwiema zmiennymi,  $\rho = 0$ . Z prawej strony: pozytywna korelacja,  $0 < \rho < 1$ , pomiędzy dwiema zmiennymi

Source: own elaboration

Źródło: opracowanie własne

## VARIABLES AND HYPOTHESES

We use data for 46 countries, which are European or in the geographical neighbourhood of Europe. The variables and rankings are from 2007.

Gross Domestic Product (GDP) can be expressed either in current prices or in constant prices, which are related to a base year. Usually the GDP of a country is expressed in national currency units. If we want to compare a country's GDP internationally, we have to change to a common measure: either with the help of the exchange rate or the purchasing power parity (PPP), which can be seen as a price level adjusted exchange rate. The PPP shows the national purchasing power relative to the one of other countries, while the exchange rate shows, how many national currency units have to be paid to buy one foreign currency unit. Differences between countries in PPP and exchange rates indicate, that the countries have different price levels.

When should we use PPP and when exchange rates to make international economic figures comparable? If we want to compare the average living standard, expressed as GDP per head of population, we use PPP. If we instead want to deal with international economic transactions like foreign trade or international financial flows, we use exchange rates.

In this paper we analyze the relations between: (I) Average standard of living and quality of life, (II) Globalization, and (III) International competitiveness of nations. These

concepts are expressed by the empirical variables presented in this section. Furthermore, some possible relations between the variables are discussed. These can even be seen as our hypotheses.

(I) Average standard of living and Quality of life

- **Gross domestic product per head of population in purchasing power parities (GDPpcPPP)**, which is assumed to give a picture of average living standard in a country.
- **Human Development Index (HDI)**, which is a summary of GDPpcPPP, Life expectancy at birth and an education index (Combined Gross Enrollment Ratio – CGER). Yet, including life expectancy, which can be seen as a health indicator, and education, HDI describes important aspects of Human capital, which according to Weil [2009] is an important factor of production.
- **Quality of Life index (QLI)** consists of the following sub-indices: (a) Cost of living, (b) Leisure and culture, (c) Economy, (d) Environment, (e) Freedom, (f) Health, (g) Infrastructure, (h) Risk and safety, (i) Climate.

The three mentioned variables describe the countries' average standard of living. Positive statistical relations are expected.

(II) Globalization

- **Exports of goods and services, relative to GDP (EXGS)**
- **Imports of goods and services, relative to GDP (IMGS)**

International trade theory (see e.g. [Krugman & Obstfeld 2009]) argues that a country can rise its national income, e.g. expressed by GDP, by participating in international trade because of absolute and comparative advantages and of economies of scale<sup>2</sup>. By trading internationally, a country can increase its productivity, which should lead to increasing incomes. We would expect a positive relation between exports and imports, because exports use production resources/factors and generate incomes, which makes imports necessary and possible. The expected positive relation between exports and imports can be explained in different ways:

- as mentioned, exports need production resources/factors. Rising exports means fewer production resources for domestic demand, which can be satisfied by rising imports.
- exports partly consists of imported inputs. Rising exports of e.g. oil-based chemicals from Sweden need rising imports of oil products to Sweden.
- imports of final products have probably normal goods character: when exports lead to rising national incomes, imports too will rise.
- a final aspect of trade globalization consists of the **balance of exports and imports of goods and services (EX – IMGS)**, relative to GDP. Many observers (for a discussion, see [Porter 1998]) believe that a positive trade balance is a sign of strong international competitiveness of a country, while a negative balance means weak competitiveness. Yet, Krugman [1994] argues strongly against this opinion. Both Porter and Krugman maintain that international competitiveness is more a question for companies and not so much of countries<sup>3</sup>. In this paper we argue – though we agree with Porter

<sup>2</sup>Another aspect is the following one: a country which is trading internationally can demand products, which are impossible to produce nationally. This rises probably welfare.

<sup>3</sup>Krugman mentions, that non-competitive companies can go bankrupt, but not countries.

and Krugman – that because politicians and journalists – and therefore the public opinion – believe that international competitiveness of countries is important (see as an example [The Presidency Conclusions of the Lisbon European Summit 2000]), we should as economists not neglect this concept. We follow in this paper the example of the World Economic Forum (WEF), which both constructs measures of national competitiveness and discusses possible consequences of competitiveness for the economic welfare of countries.

### **The KOF index of Globalization**

While we in this paper are more interested in the relations between international trade, standard of living and quality of life, the public discussion about globalization is often both more comprehensive and more vague. Therefore, we include the KOF-index, which expresses globalization in economic, social and political terms. The three features of the KOF<sup>4</sup> Index have the following weights:

Economic Globalization – 37 per cent

Social Globalization – 39 per cent

Political Globalization – 25 per cent

We expect positive relations between economic globalization, living standards and the quality of life. Furthermore, the purpose of political globalization is often to make international economic and financial flows easier, which would lead to the believe of a positive relation between economic and political globalization. Finally, it seems probable that there are even positive connections between social and economic globalization aspects.

### **(III) International Competitiveness of Countries:**

**The Global Competitiveness Index (GCI) of the World Economic Forum (WEF)**, consisting of 12 pillars, which are divided in three groups (see [WEF 2010]):

- (a) Basic requirements: institutions, infrastructure, macroeconomic environment, health and primary education
- (b) Efficiency enhancers: higher education and training, goods markets efficiency, labour markets efficiency, financial market development, technological readiness, market size
- (c) Innovation and sophistication factors: business sophistication, innovation.

**The Business Competitiveness Index (BCI) of the WEF** [WEF 2007], which consists of

- (a) Quality of the national business environment ranking and
- (b) Company operations and strategic ranking

According to the WEF, a competitive country can “...maintain high rates of growth and employment in the medium term” [WEF 2002]. “This concept<sup>5</sup> focuses on the country’s ability to provide its citizens with high and rising standards of living in the medium- and the long run” [WEF 2002]. We would therefore expect positive statistical relations between the variables describing international competitiveness and living standard.

As a conclusion we are expecting to find positive relations between standard of living, trade globalization and international competitiveness.

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<sup>4</sup>More detailed information in Appendix 2.

<sup>5</sup>The one of international competitiveness.

The following sources for our variables are to be mentioned. GDPpcPPP and HDI are from the United Nations Development Report [UNDP 2009]. QLI are from The Economist Intelligence Unit [2010]. Exports and imports are from WEF, The Global Competitiveness Report 2009–2010. From the same source we even took the GLI and the BCI. Finally, the KOF Globalization index is from ETH.

1) Economic and population size of Europe and its Neighbour Countries

In this section, we describe the size of the EU, its candidate and potential candidate countries plus a number of other European and neighbourhood countries. The size is expressed by GDP and population. To make GDP comparable between countries, it can either be expressed in exchange rates or in purchasing power parities (PPP).

In GDP terms EU is one of the largest economies in the world (Table 1). Including candidates, potential candidates and other European countries, Europe and some neigh-

Table 1. EU27 and its neighbours – Population and GDP, 2007  
Tabela 1. Kraje UE-27 oraz sąsiadujące – Populacja i PKB, 2007

	GDPExrmrd	GDPpppmrd	Population mio	GDPpcExr	GDPpcPPP
<b>EU27</b>	16849.1	14811.8	493.3	34156	30026
3 Candidates	714.9	1046.8	79.4	9004	13184
4 Potential Candidates	69.5	134.3	17.3	4017	7763
5 Neighbouring Countries (ENP)	196.2	436	66.1	2968	6596
4 Countries	1402.4	2277.9	169.3	8284	13455
3 West European	832.8	569.7	12.5	66624	45576
Sum 46 countries	20064.9	19276.5	837.9	23947	23006
World	54583.8	64909.7	6670.9	8182	9730
% of World	(37)	(30)	(13)		
<b>USA</b>	13751.4	13751.4	308.7	45592	45592
% of World	(25)	(21)	(5)		
<b>China</b>	3205.5	7096.7	1329.1	2432	5383
% of World	(6)	(11)	(20)		
<b>Japan</b>	4384.3	4297.2	127.4	34313	33632
% of World	(8)	(7)	(2)		

mrd: milliards

mio: millions

Sum % of World: 46 countries

GDPEx: GDP in exchange rates, US\$

GDPppp: GDP in purchasing power parities, US\$

GDPpc: GDP per head of population, US\$

In Appendix 1, the countries are mentioned

mrd: miliardy

mio: miliony

Sum % of World: 46 krajów

GDPEx: PKB według kursu walutowego, US\$

GDPppp: PKB według parytetu siły nabywczej, US\$

GDPpc: PKB na mieszkańca, US\$

Kraje zostały wyszczególnione w załączniku nr 1

Source: UNDP 2009; WEF, The Lisbon Review 2010

Źródło: UNDP 2009; WEF, The Lisbon Review 2010

bourhood countries have 30–37 percent of world GDP, depending on whether GDP is expressed in exchange rates or in PPP. We can even observe that – with the exception of the 3 West-European countries – all membership candidates, potential candidates and neighbour countries have significantly lower living standards compared with the average EU27 member. Because the figures are related to the USA, the GDP in PPP and in exchange rates of this country are the same. Furthermore, the conclusion is that the EU27 has a higher price level than the USA, because GDP in exchange rates in the EU27 is larger than GDP in PPP. The price level in Japan is according to the figures in table 1 about the same as in the USA, while China has a lower price level.

## SOME PREVIOUS RESULTS

In this section we show some earlier results [Schuller 2009a and 2009b]. We start with the variables forming the HDI (Table 2). Furthermore, we look at HDI, GDP pc and QLI (Table 3).

Table 2. Pearson correlation coefficients: Human Development Index (HDI), GDP pc PPP (GDP pc), Life Expectancy at Birth (LEB), Combined Gross Enrolment Ratio (CGER), 32 European Countries

Tabela 2. Współczynnik korelacji Pearsona: Human Development Index (HDI), PKB per capita wg parytetu siły nabywczej, oczekiwana długość życia (LEB), Combined Gross Enrolment Ratio (CGER), 32 kraje europejskie

	HDI	GDPpc	LEB
<b>GDPpc</b>	0.874		
<b>LEB</b>	0.834	0.709	
<b>CGER</b>	0.846	0.639	0.513

Sources: [UNDP 2007, Schuller 2009a]

Źródło: [UNDP 2007, Schuller 2009a]

Table 3. Pearson correlation coefficients: HDI Rank, GDP pc Rank, Quality of life Rank (QLI Rank), 32 European countries

Tabela 3. Współczynniki korelacji Pearsona: ranga wg HDI, ranga PKB per capita, ranga jakości życia (QLI), 32 kraje europejskie

	HDI Rank	GDPpc Rank
<b>GDPpc Rank</b>	0.941	
<b>QLI Rank</b>	0.829	0.809

Sources: [UNDP 2007, Schuller 2009a]

Źródło: [UNDP 2007, Schuller 2009a]

Finally we investigate the statistical relations between living standards, quality of life, globalization and international competitiveness (Table 4).

The high and positive correlation coefficients are no surprise; after all, the HDI is a summary of the three other variables GDP pc, LEB and CGER.

Table 4. Pearson correlation coefficients: Country rankings with respect to the following variables: Globalization Index (GlobalInd), Global Competitiveness Index (GLCI), Business Competitiveness Index (BCI), GDP pc, HDI, QLI, 58 countries all over the world

Tabela 4. Współczynniki korelacji Pearsona: Rankig krajów uwzględniający następujące zmienne: indeks globalizacji (GlobalInd), wskaźnik globalnej konkurencyjności (GLCI), wskaźnik konkurencyjności biznesowej (BCI), PKB per capita, HDI, QLI, 58 krajów świata

	<b>GlobalInd</b>	<b>GLCI</b>	<b>BCI</b>	<b>GDPpcPPP</b>	<b>HDI</b>
<b>GLCI</b>	0.803				
<b>BCI</b>	0.767	0.964			
<b>GDPpc</b>	0.834	0.880	0.828		
<b>HDI</b>	0.790	0.790	0.859	0.783	
<b>QLI</b>	0.768	0.775	0.729	0.887	0.894

Source: [Schuller 2009b]

Źródło: [Schuller 2009b]

There are high and positive correlations between the variables forming the HDI. Furthermore, countries which are highly ranked regarding GDP pc, are highly ranked regarding QLI and HDI. Finally, countries which are highly ranked regarding HDI are also highly ranked regarding QLI.

As Table 4 illustrates, the correlation coefficients between the country rankings of the GlobalInd, GLCI and BCI are high and positive. An interpretation would be that countries, which are highly globalized, are also highly competitive. Furthermore, countries, which are highly ranked regarding GDP pc, are even highly ranked regarding HDI and QLI. Finally, countries which are highly ranked regarding globalization and international competitiveness, are even highly ranked regarding standard of living (GDP pc, HDI) and quality of life (QLI).

## CORRELATIONS OF VARIABLES AND COUNTRY RANKINGS

In this section we present and discuss the correlations between the 9 variables. We use four approaches: (I) EU27: correlations between the variables, (II) EU27 plus the other countries (in total 46 countries): correlations between the variables, (III) EU27: the correlations between the rankings of countries, (IV) EU27 plus other countries (46 countries): the correlations between the rankings of countries. In general we expect positive correlation. According to our hypotheses, standard of living, quality of life, international competitiveness and globalization have positive relations with each other.

In table 5 you find correlations for the 27 EU members. In table 6 we present the correlation coefficients for the 46 countries. We combine the comments for Tables 5 and 6.

We start with HDI, GDP pc and QLI. Because GDP pc is a part of HDI, the positive and quite high correlation coefficients between HDI and GDP pc is no surprise. As we can observe in the tables, the correlation coefficient for the 46 countries is larger than the one for the EU members. The correlation coefficients for HDI and QLI are positive and quite high. Even here we can observe that the correlation coefficient for the 46 countries is higher. Finally, the correlation coefficient for GDP pc and QLI is positive but somewhat lower in the EU case, but quite high for the 46 countries. The correlation coefficients



Table 5. The nine variables, correlations between absolute values, EU27

Tabela 5. Dziewięć zmiennych, korelacja pomiędzy wartościami absolutnymi, UE-27

	HDI	GDPpc	EXGS	IMGS	EX-IM	GCI	BCI	QLI	KOF
<b>HDI</b>	1								
<b>GDPpc</b>	0.767	1							
<b>EXGS</b>	0.044	0.529	1						
<b>IMGS</b>	-0.238	0.268	0.940	1					
<b>EX-IM</b>	0.650	0.855	0.654	0.357	1				
<b>GCI</b>	0.743	0.577	0.055	-0.179	0.549	1			
<b>BCI</b>	-0.822	-0.645	-0.129	0.131	-0.646	-0.942	1		
<b>QLI</b>	0.632	0.494	0.105	-0.068	0.439	0.574	-0.610	1	
<b>KOF</b>	0.684	0.522	0.251	0.008	0.670	0.679	-0.731	0.577	1

Source: authors' own research

Źródło: opracowanie własne autorów

between HDI, GDP pc and QLI are all positive, but substantially higher in the 46 country case, compared with the EU 27.

We continue with globalization on one hand and HDI, GDP pc and QLI on the other hand. Regarding exports and imports, the correlation coefficients are low and some even negative with an exception: The correlation coefficient for Export and GDP pc is positive and above 0.5. We can observe that the correlation coefficients for the EU members are positive and of reasonable size – with the exception perhaps of export and import balance and QLI. We observe that the coefficients are positive, but smaller for the 46 countries. Finally, regarding globalization we can observe that the correlation coefficients are positive and above 0.5. Here the coefficients for the 46 countries are larger than the ones for the EU members.

What about international competitiveness (GCI), HDI, GDP pc, QLI and KOF? All correlation coefficients are positive and above 0.5. We observe that the ones for the 46 countries are larger than the ones for the EU members. There is yet, one surprise, regarding the older Business competitiveness index (BCI): the coefficients for BCI are negative. This can be explained with the construction of the variable: having BCI only in rankings, there is a negative correlation between all other variables of interest and BCI: while the BCI ranking number is rising with deteriorating rank, all other variables are falling.

We even want to mention the high and positive correlation coefficients between exports and imports (0.94 for the EU countries and 0.854 for the 46 countries). If these correlations can be seen as generally valid, the struggle of generations of politicians to expand exports and put obstacles on imports must be seen as rather futile.

Finally, we want to mention the quite large positive correlation coefficients between KOF and GCI. Even here the correlations for the 46 countries are larger than the ones for the EU members.

Let us now have a look at Tables 7 and 8, where the correlations for the countries' rankings are shown. Starting with HDI, GDP pc and QLI, we can observe that the correlations are quite high. Countries, which are highly ranked regarding HDI are even highly ranked regarding GDP pc and QLI. Even here the correlations for the 46 countries are larger than the ones for the EU members.

Table 6. The nine variables, correlations between absolute values, 46 countries, 2007  
 Tabela 6. Dziewięć zmiennych, korelacja pomiędzy wartościami absolutnymi, 46 krajów, 2007

	HDI	GDPpc	EXGS	IMGS	EX-IM	GCI	BCI	QLI	KOF
<b>HDI</b>	1								
<b>GDPpc</b>	0.858	1							
<b>EXGS</b>	0.284	0.537	1						
<b>IMGS</b>	0.038	0.235	0.854	1					
<b>EX-IM</b>	0.483	0.662	0.579	0.072	1				
<b>GCI</b>	0.858	0.794	0.286	-0.036	0.601	1			
<b>BCI</b>	-0.897	-0.818	-0.363	-0.050	-0.612	-0.951	1		
<b>QLI</b>	0.883	0.730	0.326	0.167	0.361	0.767	-0.820	1	
<b>KOF</b>	0.883	0.729	0.377	0.174	0.446	0.799	-0.850	0.879	1

Source: authors' own research  
 Źródło: opracowanie własne autorów

Table 7. The nine variables, rankings of countries, EU27, 2007  
 Tabela 7. Dziewięć zmiennych, ranking krajów, UE27, 2007

	HDI	GDPpc	EXGS	IMGS	EX-IM	GCI	BCI	QLI	KOF
<b>HDI</b>	1								
<b>GDPpc</b>	0.944	1							
<b>EXGS</b>	0.012	0.132	1						
<b>IMGS</b>	-0.275	-0.143	0.924	1					
<b>EX-IM</b>	0.695	0.752	0.511	0.179	1				
<b>GCI</b>	0.728	0.770	0.056	-0.198	0.614	1			
<b>BCI</b>	0.781	0.821	0.089	-0.195	0.667	0.964	1		
<b>QLI</b>	0.650	0.627	0.176	-0.075	0.552	0.619	0.665	1	
<b>KOF</b>	0.690	0.671	0.292	0.013	0.730	0.661	0.687	0.609	1

Source: authors' own research  
 Źródło: opracowanie własne autorów

Having a look at the globalization variables, we can observe that the correlation coefficients between exports and imports on one hand and HDI, GDP pc and QLI are quite low and some are even negative. Yet the balances of exports and imports and KOF on one hand have high correlation coefficients with HDI, GDP pc and QLI on the other hand. Countries which are highly ranked regarding export and import balances and KOF, are also highly ranked regarding HDI, GDP pc and QLI.

Finally, we found the following correlations between rankings of international competitiveness, expressed as GCI and BCI on one hand and HDI, GDP pc, QLI and KOF on the other hand. As expected, the correlation coefficients between rankings of GCI and BCI respectively and KOF are high: for the EU27 above 0.6 and for the 46 countries above 0.8. Countries, which are highly ranked regarding international competitiveness, are even highly ranked regarding globalization. The picture is similar, regarding the rankings for GCI and BCI and HDI, GDP pc and QLI: countries, which are highly ranked,

regarding international competitiveness, are also highly ranked regarding HDI, GDP pc and QLI. The correlations for the 46 countries are even larger than the ones for the EU members.

Finally, it can be mentioned, that the correlations between rankings of BCI and other variables are as expected positive. E. g. the ones for GCI and BCI rankings are 0,964 (EU27) and 0,982 (46 countries).

Table 8. The nine variables, rankings of countries, 46 countries, 2007  
Tabela 8. Dziewięć zmiennych, ranking krajów, 46 krajów, 2007

	HDI	GDPpc	EXGS	IMGS	EX-IM	GCI	BCI	QLI	KOF
<b>HDI</b>	1								
<b>GDPpc</b>	0.969	1							
<b>EXGS</b>	0.268	0.351	1						
<b>IMGS</b>	0.032	0.054	0.772	1					
<b>EX-IM</b>	0.530	0.639	0.527	-0.066	1				
<b>GCI</b>	0.868	0.911	0.353	-0.009	0.656	1			
<b>BCI</b>	0.886	0.928	0.363	0.001	0.651	0.982	1		
<b>QLI</b>	0.842	0.835	0.354	0.139	0.467	0.814	0.817	1	
<b>KOF</b>	0.832	0.846	0.448	0.199	0.565	0.846	0.847	0.865	1

Source: authors' own research

Źródło: opracowanie własne autorów

When we look at the 27 EU members (table 5), the correlation coefficients between the variables describing living standards (GDP pc and HDI), global competitiveness (GCI), quality of life (QLI) and globalization (KOF) are high and positive. In our material, countries with high livings standard are also internationally competitive, have high quality of life and are strongly globalized.

When the material consists of the 27 EU members plus 19 other countries (the 46 countries, Table 6), the correlation coefficients are even higher, compared with the EU members. Tables 5 and 6 obviously support our hypotheses.

When the EU 27 members are ranked according to the variables expressing living standards, global competitiveness, quality of life and globalization (Table 7), we observe that the correlation coefficients for the rankings of EU members are strongly positive. Countries which are highly ranked regarding living standards are also highly ranked regarding competitiveness, quality of life and globalization. This situation is confirmed, when we look at the 46 countries and there rankings (Table 8). The correlations coefficients are positive and even higher, compared with the EU members. Our hypothesis are obviously supported.

## SUMMARY

In this paper, we investigate the theoretical and empirical relations between three groups of variables: (1) Average standard of living and quality of life, (2) Globalization, and (3) International competitiveness of countries. The focus is on the 27 EU member

countries and 19 other countries. According to our hypotheses, several positive correlations between different aspects of living standard, the quality of life, globalization and international competitiveness can be expected.

Politicians and journalists are rather concerned about the competitiveness of Europe. Economists argue that firms and industries compete and not countries. Furthermore, the general public seems to be rather sceptical about economic globalization and fears that economic progress in one part of the world must automatically implicate losses in other parts. Economists present both theoretical and empirical arguments for the welfare enhancing capacity of economic globalization.

The above mentioned three groups of phenomena are expressed quantitatively in nine different variables for 2007 and coefficients of correlations have been calculated. Furthermore, we have separately presented correlations for the 27 EU members and for 46 countries, consisting of the EU members and 19 other European and European neighbouring countries. Finally, we have ranked the countries according to the nine variables and presented correlations between the rankings.

As expected, we found positive and mostly quite high correlations between the Human development index (HDI) on one hand and Gross domestic product per head of population (GDP pc), the Global competitiveness index (GCI), the Quality of life index (QLI), and some aspects of globalization (balance of foreign trade and the KOF index) on the other hand. As Tables 5 and 6 illustrate, the correlations for the 46 countries are often higher than the ones for the EU members.

We can even observe as expected positive correlation coefficients between GDP pc on one hand and GCI, QLI, KOF and the balance of foreign trade on the other hand. Finally the correlations for the KOF index on one hand and the balance of foreign trade, GCI and QLI on the other hand are positive too.

The conclusions are that the correlations mostly support our hypotheses.

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## **Appendix 1**

The following countries are included in our samples: **EU27**: Ireland, Netherlands, Sweden, France, Luxembourg, Finland, Austria, Spain, Denmark, Belgium, Italy, United Kingdom, Germany, Greece, Slovenia, Cyprus, Portugal, Czech Republic, Malta, Estonia, Poland, Slovakia, Hungary, Lithuania, Latvia, Bulgaria, Romania; **3 Candidates**: Croatia, Macedonia, Turkey; **4 Potential candidates**: Albania, Bosnia & Herzegovina, Montenegro, Serbia; **5 ENP countries**: Armenia, Azerbaijan, Georgia, Moldova, Ukraine; **4 other countries**: Kazakstan, Kirgiz Republic, Russia, Tajikistan; **3 West European countries**: Iceland, Norway, Switzerland – in total 46 countries in Europe or the geographical neighbourhood of Europe.

Table A1. The nine variables in absolute values, 46 countries, 2007

Tabela A1. Dziewięć zmiennych w wartościach absolutnych, 46 krajów, 2007

	HDI	GdppcPP	EXGS	IMGS	EX-IM	GCI	BCI R	QOL	KOF
Ireland	0.965	44613	81	70.4	10.6	5.03	24	74	86.92
Netherlands	0.964	38694	75.3	67.3	8	5.4	7	85	91.90
Sweden	0.963	36712	52.4	44.7	7.7	5.54	4	75	89.75
France	0.961	33674	26.6	28.5	-1.9	5.18	17	87	86.18
Luxembourg	0.960	79485	165.0	131.5	33.5	4.88	18	79	85.84
Finland	0.959	34526	44.8	40.1	4.7	5.49	3	77	87.31
Austria	0.955	37370	58.1	51.8	6.3	5.23	8	78	92.51
Spain	0.955	31560	26.2	32.7	-6.5	4.66	27	78	85.71
Denmark	0.955	36130	52.3	51.3	1	5.55	5	81	89.68
Belgium	0.953	34935	89.3	85.8	3.5	5.1	15	78	92.95
Italy	0.951	30353	29.1	29.4	-0.3	4.36	42	80	82.26
United Kingdom	0.947	35130	25.9	29.5	-3.6	5.41	11	72	80.18
Germany	0.947	34401	46.7	39.7	7	5.51	2	78	84.16
Greece	0.942	28517	22.6	35.4	-12.8	4.08	53	71	75.83
Slovenia	0.929	26753	71.4	73.2	-1.8	4.48	35	74	78.78
Cyprus	0.914	24789	47.9	52.7	-4.8	4.23	45	71	82.45
Portugal	0.909	22765	32.7	39.9	-7.2	4.48	30	76	87.54
Czech Republic	0.903	24144	78.9	74.3	4.6	4.58	32	74	86.87
Malta	0.902	23080	84.7	84.2	0.5	4.21	40	77	76.42
Estonia	0.883	20361	72.8	81.7	-8.9	4.74	26	74	79.49
Poland	0.880	15987	41.3	43	-1.7	4.28	56	70	81.26
Slovakia	0.880	20076	86.4	86.8	-0.4	4.45	44	72	85.07
Hungary	0.879	18755	80	77.7	2.3	4.35	47	75	87
Lithuania	0.870	17575	55.4	67.4	-12	4.49	39	72	74.73
Latvia	0.866	16377	44.4	64.7	-20.3	4.41	54	74	71.61
Bulgaria	0.840	11222	63.4	85.5	-22.1	3.93	83	72	75.41
Romania	0.837	12369	29.3	44.6	-15.3	3.97	73	70	71.51
Croatia	0.871	16027	47.3	56.3	-9	4.2	60	77	76.85
Macedonia	0.817	9096	48.1	67.1	-19	3.73	95	62	62.18
Turkey	0.806	12955	23	28	-5	4.25	46	64	64.91
Albania	0.818	7041	20.6	43.3	-19.7	3.48	122	64	55.64
BosniaHercegovina	0.812	7764	28.3	66.3	-38	3.55	107	60	64.68
Montenegro	0.834	11699	26	65.1	-39	3.91	85	60	xxx
Serbia	0.826	10248	21.8	44.7	-22.9	3.78	91	60	65.97
Armenia	0.798	5693	15.2	29	-13.8	3.76	108	61	54.99
Azerbaijan	0.787	7851	63.8	35.6	28.2	4.07	78	55	55.18
Georgia	0.778	4662	30.7	47.2	-16.5	3.83	100	61	61.29
Moldova	0.720	2551	xxx	96.1	xxx	3.64	99	68	63.98
Ukraine	0.796	6914	40.2	44.2	-4	3.98	81	65	68.15
Kazakistan	0.804	10863	48.9	40.2	8.7	4.14	72	53	60.84
Kirgiz Republic	0.720	2006	33.7	64.7	-31	3.34	116	53	58.97
Russia	0.817	14690	30.3	21.9	8.4	4.19	71	57	68.91
Tajikistan	0.688	1753	52.9	64.4	-11.5	3.37	104	52	34.5
Iceland	0.969	35742	35.3	46	-10.7	5.02	16	71	70.66
Norway	0.971	53433	46.4	30	16.4	5.2	13	78	83.53
Switzerland	0.960	40658	56.3	47	9.3	5.62	6	82	90.55

Source: authors' own research

Źródło: opracowanie własne autorów

Table A2. The nine variables, ranking for 46 countries, 2007

Tabela A2. Dziewięć zmiennych, ranking 46 krajów, 2007

	HDIR	GDPpcR	ExGSR	IMGSR	EX-IMR	GCIR	BCIR	QOLR	46KOFR
Ireland	3	3	5	10	4	12	14	18	10
Netherlands	4	5	8	12	8	7	6	2	3
Sweden	5	7	17	26	9	3	3	16	5
France	6	14	37	44	22	10	12	1	12
Luxembourg	7	1	1	1	1	14	13	6	13
Finland	9	12	25	33	12	5	2	12	8
Austria	10	6	13	21	11	8	7	7	2
Spain	10	15	38	39	27	16	16	7	14
Denmark	10	8	18	22	16	2	4	4	6
Belgium	13	11	2	4	14	11	10	7	1
Italy	14	16	35	42	18	23	22	5	19
UK	15	10	40	41	23	6	8	23	21
Germany	15	13	23	35	10	4	1	7	16
Greece	17	17	42	37	34	32	27	27	26
Slovenia	18	18	10	9	21	19	19	18	23
Cyprus	19	19	21	20	25	27	24	27	18
Portugal	20	22	31	34	28	19	17	15	7
Czech Republic	21	20	7	8	13	17	18	18	11
Malta	22	21	4	6	17	28	21	12	25
Estonia	23	23	9	7	29	15	15	18	22
Poland	24	29	27	31	20	25	29	30	20
Slovakia	24	24	3	3	19	21	23	23	15
Hungary	26	25	6	7	15	24	26	16	9
Lithuania	28	26	15	11	33	18	20	23	28
Latvia	29	27	26	16	40	22	28	18	29
Bulgaria	30	34	12	5	41	36	36	23	27
Romania	31	32	34	28	36	35	33	30	30
Croatia	27	28	22	19	30	29	30	12	24
Macedonia	35	37	20	13	39	41	39	36	38
Turkey	38	31	41	45	26	26	25	34	35
Albania	34	40	44	30	38	44	46	34	42
BosniaHerz.	37	39	36	14	55	43	43	39	36
Montenegro	32	33	39	15	45	37	37	39	xxx
Serbia	33	36	43	26	42	39	38	39	34
Armenia	40	42	45	43	35	40	44	37	44
Azerbaijan	42	38	11	36	2	33	34	43	43
Georgia	43	43	32	23	37	38	41	37	39
Moldova	44	44	xxx	2	xxx	42	40	32	37
Ukraine	41	41	28	29	24	34	35	33	33
Kazakstan	39	35	19	32	6	31	32	44	40
Kirgiz Republic	44	45	30	16	43	46	45	44	41
Russia	35	30	33	46	7	30	31	42	32
Tajikistan	46	46	16	18	32	45	42	46	45
Iceland	2	9	29	25	31	13	11	27	31
Norway	1	2	24	40	3	9	9	7	17
Switzerland	7	4	14	24	5	1	5	3	4

R indicates ranking positions for the 46 countries

R wskazuje pozycje rankingowe dla 46 krajów

Source: authors' own research

Źródło: opracowanie własne autorów

## Appendix 2: The KOF Index of Globalization

The KOF (Konjunkturforschungsstelle – Business-cycle Research Center) Index of Globalization consist of three aspects (ETH, 2010 KOFIndex of Globalization):

**A. Economic Globalization** (Weight 37%) (1) Actual Flows: Trade (percent of GDP), Foreign Direct Investments, flows (percent of GDP), Foreign Direct Investment, stocks (percent of GDP), Portfolio Investments (percent of GDP), Income Payments to Foreign Nationals (percent of GDP); (2) Restrictions: Hidden Import Barriers, Mean Tariff Rate, Taxes on International Trade (percent of current revenue), Capital Account Restrictions.

**B. Social Globalization** (Weight 39%): (1) Data on Personal Contact: Tefephone Traffic, Transfers (percent of GDP), International Tourism, Foreign Population (percent of total population), International Letters (per capita); (2) Data on Information Flows: Internet Users (per 1000 people), Television (per 1000 people), Trade in Newspapers (percent of GDP); (3) Data on Cultural Proximity: Number of McDonald's Restaurants (per capita), Number of Ikea (per capita), Trade in books (percent of GDP).

**C. Political Globalization** (Weight 25%): Embassies in Country, Membership in International Organizations, Participation in U.N. Security Council Missions, International Treaties.

## Appendix 3: List of variables

GDPpcPPP: Gross Domestic Product per head of population in purchasing power parities

HDI: Human Development Index, consisting of (1) GDPpcPPP, (2) life expectancy at birth and (3) an education index

QLI: Quality of Life Index, consisting of (1) Cost of living, (2) Leisure and Culture, (3) Economy, (4) Environment, (5) Freedom, (6) Health, (7) Infrastructure, (8) Risk and Safety, (9) Climate

EXGS: Exports of goods and services, relative to Gross Domestic Product (GDP)

IMGS: Imports of godds and services, relative to GDP

EX-IMGS: balance of exports and imports of goods and services, relative to GDP

KOF: KOF Index of Globalization, consisting of (1) Economic Globalization, (2) Social Globalization, (3) Political Globalization

GCI: The global competitiveness index, consisting of 12 pillars: (1) Basic requirements: institutions, infrastructure, macroeconomic environment, health and primary education, (2) Efficiency enhancers: higher education and training, goods markets efficiency, labour markets efficiency, financial market development, technological readiness, market size, (3) Innovation and sophistication factors: business sophistication, innovation

BCI: The business competitiveness index, consisting of (1) Quality of the national business environment ranking, and (2) Company operations and strategic ranking



## **STANDARD ŻYCIA, JAKOŚĆ ŻYCIA, GLOBALIZACJA I KONKURENCYJNOŚĆ W UE I W KRAJACH SĄSIADUJĄCYCH – ANALIZA EMPIRYCZNA**

**Streszczenie.** Artykuł podejmuje problem teoretycznych i empirycznych zależności pomiędzy standardem życia, jakością życia, globalizacją i konkurencyjnością krajów. Pomimo iż ekonomiści nie są przekonani co do przydatności koncepcji konkurencyjności krajów, argumentując, iż to przedsiębiorstwa i gałęzie przemysłu a nie kraje konkurują gospodarczo, opinia publiczna, dziennikarze i politycy wydają się być zdania, że problem konkurencyjności jest ważny. Przykładem tego jest fakt, iż jednym z celów Unii Europejskiej jest stać się najbardziej konkurencyjną gospodarką w świecie. Co więcej, ekonomiści twierdzą, że globalizacja gospodarcza może doprowadzić do poprawy dobrobytu dla wszystkich. W tym przypadku opinia publiczna jest bardziej sceptyczna. Co więcej, nie tylko ogólna opinia publiczna, ale również naukowcy inni niż ekonomiści wydają się twierdzić, iż standard życia i jakość życia są w niewielkim stopniu skorelowane ze sobą. Autorzy uzyskali w niniejszych badaniach wyniki wskazujące na silną korelację pomiędzy głównymi zmiennymi. Innymi słowy, przyjęte hipotezy zostały potwierdzone.

**Słowa kluczowe:** standard życia, jakość życia, globalizacja, konkurencyjność, Produkt Krajowy Brutto, Agenda Lizbońska, korelacja, kraje europejskie

Accepted for print – Zaakceptowano do druku: 25.01.2012