

## Economic, Social and Political Globalization and Human Development

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### Key Words

Developed countries, developing countries, Human Development Index, institutional quality, KOF Globalization Index.

### Abstract

*Increased global economic integration, global forms of governance, globally inter-linked social and environmental developments are often referred to as "globalization". The target of this article is to prove the dependency of globalization on human development. The first part provides the methodology of measuring overall globalization with emphasis on the KOF Index of Globalization 2007. The Index of Globalization includes economic, social, and political contexts. The second part introduces one of the parameters of institutional quality – HDI (or rather IHDI as the real indicator of the level of human development) and its methodology. The Inequality-adjusted Human Development Index combines three dimensions: A long and healthy life, access to knowledge, and a decent standard of living. The third part compares indices and scores together, analyzes them, and confirms or refutes the empirical relationships between the Index of Globalization and its parts and the Inequality-adjusted Human Development Index. It is possible to conclude from the results achieved in the study that globalization remains primarily, a very strong and powerful economic phenomenon. But spurring growth rates and reducing poverty in countries with poor institutions cannot be done simply by globalizing their economies.*

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### 1. Introduction

Increased global economic integration, global forms of governance, globally interconnected and interdependent social and environmental developments are often referred to as "globalization". Depending on each individual commentator or researcher, the term "globalization" can be extended with other meanings, such as the growing integration of markets, the threat to national sovereignty by transnational actors, the transformation of national economies, the spread of inequalities or disparities, the increased degree of integration of emerging markets into world finance etc. During the last two decades, political relations, social networks, movement of labor, and institutional change have become more and more involved. Globalization measures or indices have been employed to intermediate an insight into the investment climate, the current developments of growth, and for understanding the international business environment as well as providing a world perspective that the policy initiatives will be operational within (Heineman 2000).

The authors of this article focus on one of the potential factors of the higher rate of globalization – the quality of institutions (represented by human development). The main role of institutions is the creation (and reproduction) of a predictable environment for repetitive, thereby reducing transaction costs and the risk associated with searching for new information (Vymětal *et al.* 2005). Although not empirically proved, the connection between the rate of globalization and the quality of institutions seems obvious. Those countries with poor institutions that repress growth and promote poverty (e.g. Rwanda or Zimbabwe), countries with the lowest growth rates,

are also the less globalized countries in the world. The conclusion is that spurring growth rates and reducing poverty in countries with poor institutions cannot be done simply by globalizing their economies.

The main hypothesis of this paper is that higher human development means a more globalized economy. We provide a unique empirical study about the dependency between economic globalization, social globalization, political globalization and human development.

At the beginning the methodology of measuring globalization and human development will be introduced. The back-bone of the article consists of verifying and testing the strength of mutual relationships between three dimensions of globalization (economic, social, and political) and human development. The paper will show the results for a selected sample of countries (in the range of 121 states), analyze it, and confirm or reject the hypothesis about dependency of globalization and institutional factors.

## 2. Methods

For purposes of this article, the Inequality-adjusted Human Development Index (IHDI) and the KOF Globalization Index (KOF) were selected.

The **KOF Globalization Index** produced by the KOF Swiss Economic Institute was first published in 2002 (Dreher 2006). Globalization is conceptualized as the process of creating networks among actors at multi-continental distances, mediated through a variety of flows including people, information and ideas, capital and goods. KOF globalization index is based on the variables used in ATK/FP (A. T. Kearny / Foreign Policy Globalization Index), but it covers a far larger number of countries and has a longer time span. The overall index covers the economic, social, and political dimensions of globalization (Dreher *et al.* 2010):

- **Economic globalization** (weight 36 %) includes the long distance flows of goods, capital, and services and has two dimensions: 1) actual economic flows and 2) international trade and investment restrictions.
- **Social globalization** (weight 38 %) has been classified by the KOF index into three categories: 1) personal contacts, 2) information flows, and 3) cultural proximity.
- **Political globalization** (weight 26 %) is characterized by the diffusion of government policies.

In constructing the indices of globalization, each variable is transformed to an index ranging from zero to ten. Higher values denote higher degree of globalization. The year 2000 is used as the base year. An updated version of the original 2002 index was introduced in 2007 as the so-called **2007 KOF Index of Globalization**. The 2007 KOF Index of Globalization features a number of methodological improvements on the original version. Each of the variables is transformed to an index on a scale from 1 to 100. Higher values again denote higher levels of globalization. The data are transformed according to the percentiles of the original distribution (KOF Index of Globalization 2011).

**Human Development Index** (HDI) was first published in 1975 and since 1990 has been published in periodical Human Development Reports (HDR) within the United Nations Development Program (UNDP). The last comparison in November 2011 included 194 countries and territories, but only 187 to calculate the HDI values (7 countries lacked at least one indicator

required for the calculation). The annual HDR in November 2010 brought a new methodology and a change in some of the index parameters:

- a partial factor approach to education was investigated using the **education index**, which is expressed using a new indicator of expected years of schooling (the expected number of years a five-year-old child is about to spend in school) and the average number of years of school attendance in the adult population (number of years spent in school by 25-year-old citizens);
- factors in life expectancy and level of health care were refined using the **life expectancy index**;
- New use of **income index** (calculated from Gross National Income per capita in PPP USD data) as an indicator of standard of living.

HDI classifications are relative – based on quartiles of HDI distribution across countries and denoted very high, high, medium and low HDI. Because there are 187 countries, the four groups do not have the same number of countries: the very high, high and medium HDI groups have 47 countries each, and the low HDI group has 46 countries.

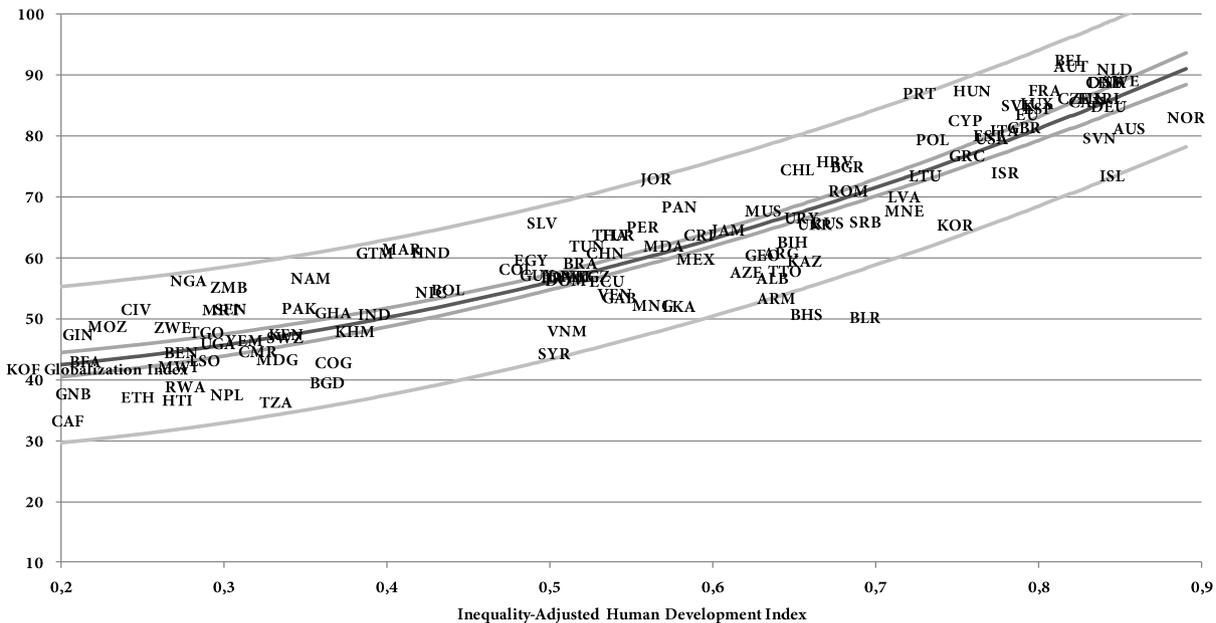
An accompanying indicator of human development is the new multidimensional **Inequality-adjusted Human Development Index (IHDI)** which is based on the same principles as the HDI (i.e. life expectancy, education, and economic level), but also reflects the unequal distribution of each sub-factor in the population (the inequality of access to the available resources). It is calculated for 134 countries as a geometric mean of the whole population for each one of the sub-indices (inequalities in income, access to education, and health care). It can be concluded that IHDI is the real indicator of the level of human development, while HDI can be interpreted as an index of human development potential, or maximum level of IHDI, which could be achieved in the absence of inequalities in the distribution of wealth. The “loss” caused by the human development inequalities is responsible for the difference between IHDI and HDI, and can be expressed as a percentage. The average loss in the HDI due to inequality is about 23 percent – that is, adjusted for inequality, the global HDI of 0.682 in 2011 would fall to 0.525. Countries with less human development tend to have greater inequality in more dimensions – and thus larger losses in human development (International Human Development Indicators 2011).

Norway, Australia, and the Netherlands lead the world in the 2011 Human Development Index (HDI), while the Democratic Republic of the Congo, Niger, and Burundi are at the bottom of the Human Development Report’s annual rankings of national achievement in health, education and income, released by the United Nations Development Programme (UNDP). The United States, New Zealand, Canada, Ireland, Liechtenstein, Germany and Sweden round out the top 10 countries in the 2011 HDI, but when the Index is adjusted for internal inequalities in health, education and income, some of the wealthiest nations drop out of the HDI’s top 20: the United States falls from 4<sup>th</sup> to 23<sup>rd</sup> place, the Republic of Korea from 15<sup>th</sup> to 32<sup>nd</sup>, and Israel from 17<sup>th</sup> to 25<sup>th</sup>. The United States and Israel drop in the Report’s Inequality-adjusted HDI (IHDI) mainly because of income inequality, though health care is also a factor in the US ranking change, while wide education gaps between generations detract from the Republic of Korea’s IHDI performance. Other top national achievers rise in the IHDI due to greater relative internal equalities in health, education and income: Sweden jumps from 10<sup>th</sup> to 5<sup>th</sup> place, Denmark climbs from 16<sup>th</sup> to 12<sup>th</sup>, and Slovenia rises from 21<sup>st</sup> to 14<sup>th</sup> (Human Development Index 2011).

### 3. Results

There are countless economic and econometric papers on the impacts of globalization. Yet, not many of them use the KOF Globalization Index to quantify the level of globalization on a national basis and only a few put this indicator into relationship with human development or wider with the overall quality of institutions. Amavilah proves in his paper (Amavilah 2009) using a sample of 88 countries, significant positive effects of globalization on human development. Still, at the time of publishing his paper, only the standard HDI was available.

Today the original HDI has been updated to inequality-adjusted HDI and the authors of the article use for their analyses the latest available data for both IHDI as well as KOF Globalization Index (and of their components). For the following study, 121 world economies have been chosen (the main criterion was complete data matrix for both indicators and their components). Analyzing the link between the two indices brought proof of a very strong and significant relationship (see Fig. 1. and Appendix for details).



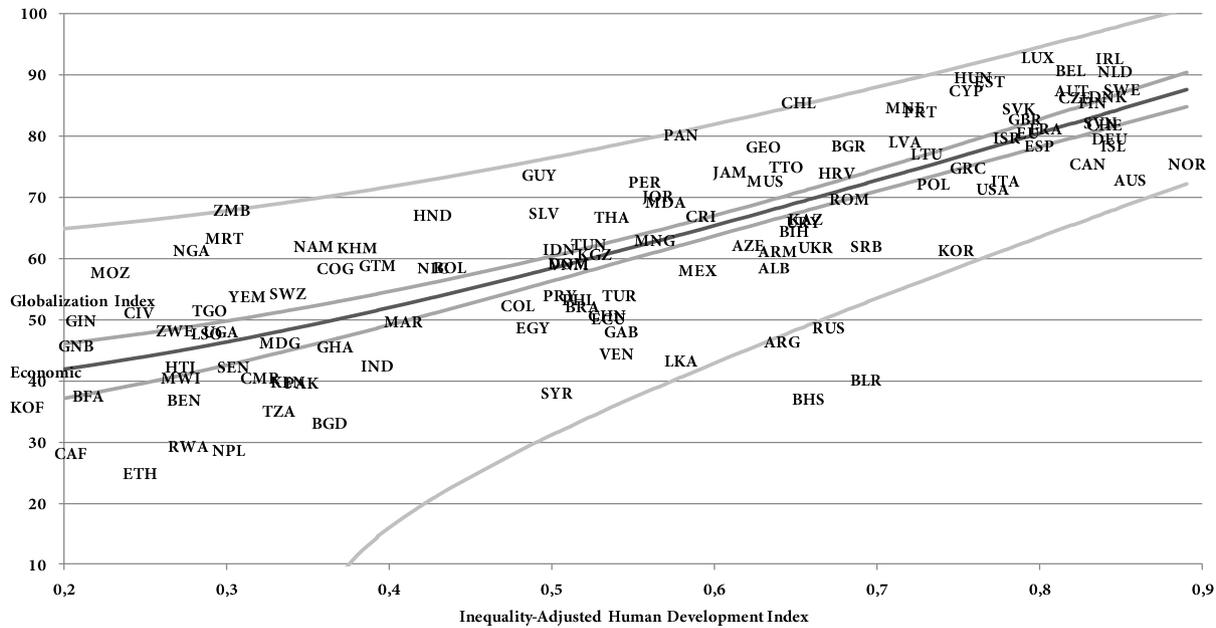
**Fig. 1.** Relationships between Inequality-adjusted Human Development Index and KOF Globalization Index

Note: The dark line illustrates the fitted model, the limits for forecast means are depicted by the narrow band, the limits for predictions by the wide band; all at the 95.0 % confidence level. The authors of this paper described this relationship using a squared-X regression model. The equation of the best fitted model is (1). The *R*-Squared statistic indicates that the model as fitted explains 83.5035 % of the variability in *KOF*. Since the *P*-value in the analysis of variance (ANOVA) is less than 0.05, there is a statistically significant relationship between *KOF* and *IHDI* at the 95.0 % confidence level

$$KOF = 39.9051 + 64.6963 \times IHDI^2 \tag{1}$$

The fitted model shows following fact: the higher the value of *IHDI* is for a particular country, progressively the higher the corresponding values of *KOF* is reached. Basically, only two

countries fall outside of the confidence interval for predictions: Belarus and the Bahamas do not follow this general conclusion. Both of them recorded lower *KOF* values compared to the reached levels of *IHDI*, or higher *IHDI* values compared to the reached levels of *KOF*. We will address this issue later.



**Fig. 2.** Relationships between Inequality-adjusted Human Development Index and KOF Economic Globalization Index

Note: The dark line illustrates the fitted model, the limits for forecast means are depicted by the narrow band, the limits for predictions by the wide band; all at the 95.0 % confidence level.

Since both analyzed indices are composite, one can obviously “dig” deeper under the surface of the aggregate numbers. Analyzing the relationships between *IHDI* and economic globalization shows very similar results (see Fig. 2. and Appendix for details), only the double squared regression model has been chosen. The equation of the most successfully fitted model is (2). The *R*-Squared statistic indicates that the model as fitted explains 67.4157 % of the variability in *EG\_KOF*. Since the *P*-value in the analysis of variance (ANOVA) is less than 0.05, there is a statistically significant relationship between *EG\_KOF* and *IHDI* at the 95.0 % confidence level.

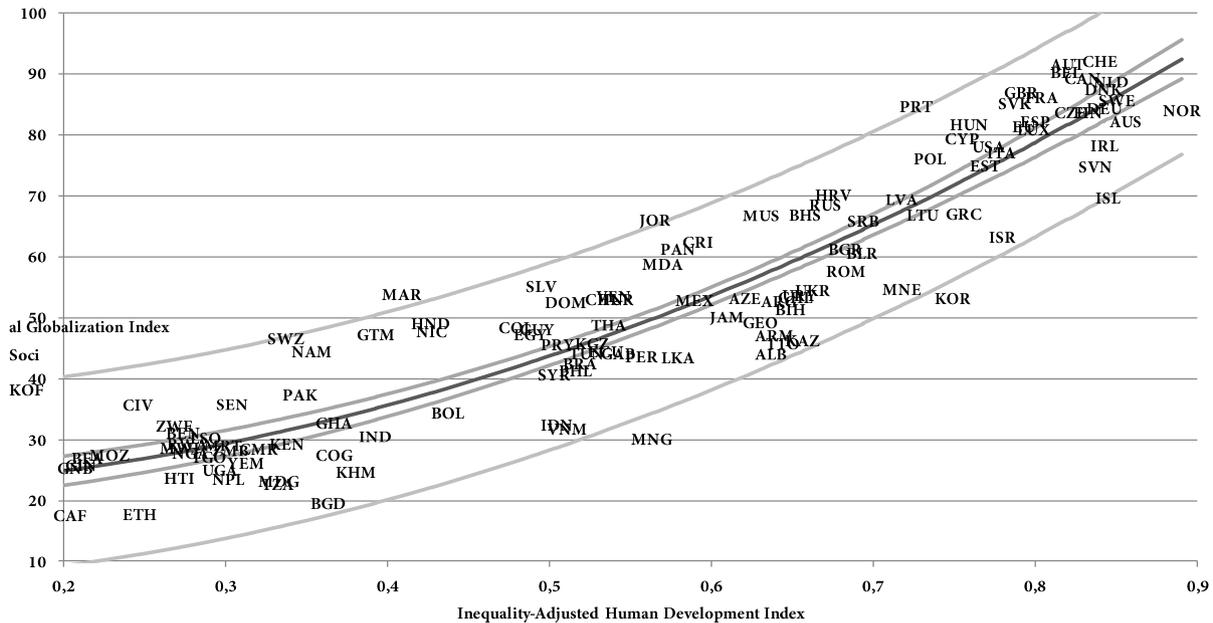
$$EG\_KOF = \sqrt{1437.63 + 7902.19 \times IHDI^2} \tag{2}$$

Besides Belarus and the Bahamas, Russia also does not fit into the 95% confidence interval for predictions of the regression model. The overall *KOF* index of globalization in Belarus and the Bahamas is therefore pulled down by their low levels of economic globalization (see Fig. 3. and Fig. 4. and Appendix for details). Despite the low level of economic globalization of Russia, the total *KOF* index of this country is pushed up by social and political globalization (see Fig. 3. and Fig. 4.).

The following figure illustrates the relationship between KOF Social globalization index and IHDI. The best fitted regression model described by equation (3) is of the same type (square-X) and of a very similar shape as *KOF vs. IHDI* model.

$$SG\_KOF = 21.2687 + 89.8635 \times IHDI^2 \tag{3}$$

The *R*-Squared statistic indicates that the model as fitted explains 87.0403 % of the variability in *SG\_KOF*. The *P*-value in the ANOVA is less than 0.05, which indicates a statistically significant relationship between *SG\_KOF* and *IHDI* at the 95.0 % confidence level.



**Fig. 3.** Relationships between Inequality-adjusted Human Development Index and KOF Social Globalization Index

Note: The dark line illustrates the fitted model, the limits for forecast means are depicted by the narrow band, the limits for predictions by the wide band; all at the 95.0 % confidence level.

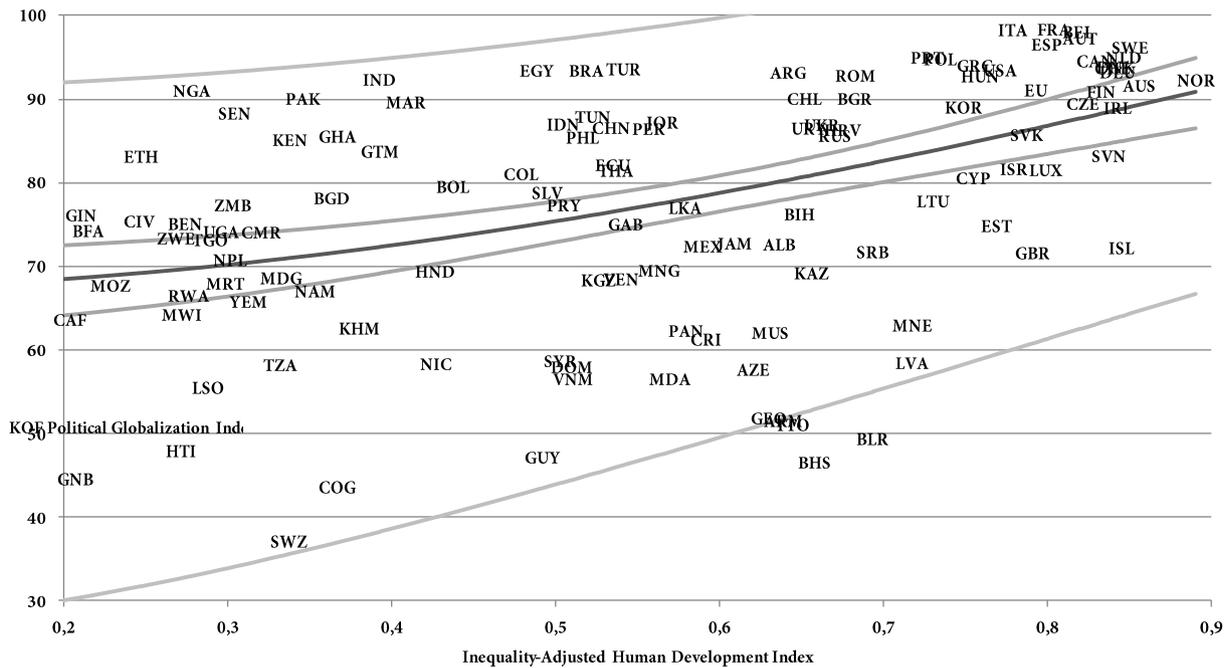
In the case of relationships between the KOF Social globalization index and IHDI, the 95% confidence interval for predictions has been exceeded by Mongolia and the South Korea. Since the level of overall globalization of these two countries is reduced by their low social globalization, the total KOF index must be supported by economic and political globalization.

The relationship between IHDI and KOF Political globalization index is the weakest linkage of the analyzed indicators (see Fig. 4. and Appendix for details). Therefore, the width of the confidence interval bands is here much wider than in the above described cases.

The fitted regression model described by equation (4) is of the same type (double squared) and of a very similar shape as *EG\_KOF vs. IHDI* model.

$$PG\_KOF = \sqrt{4492.26 + 4754.68 \times IHDI^2} \tag{4}$$

The R-Squared statistic indicates that the model as fitted explains 24.0077 % of the variability in PG\_KOF. The P-value in the ANOVA is less than 0.05, which indicates a statistically significant relationship between PG\_KOF and IHDI at the 95.0 % confidence level.



**Fig. 4.** Relationships between Inequality-adjusted Human Development Index and KOF Political Globalization Index

Note: The dark line illustrates the fitted model, the limits for forecast means are depicted by the narrow band, the limits for predictions by the wide band; all at the 95.0 % confidence level.

The Fig. 4 shows the relative political isolation of Belarus and the Bahamas, which together with low economic globalization decreases their total value of KOF indicator, although each of the two countries has most probably different reasons for being less politically integrated.

Globalization measured by the KOF Globalization Index and institutional quality represented by the Inequality-adjusted Human Development Index have multiple connections in between. This complexity makes it difficult to distinguish and indentify the causes and their consequences. The findings of the research showed a strong relationship between economic globalization and human development as well as between social globalization and human development. The analysis of the linkage between political globalization and human development brought quite a different conclusion. Only a weak connection between the two variables was found. The overall index of globalization and IHDI are very tightly connected. It is necessary to point out that the results of the research do not prove in which direction the two phenomena – globalization and institutions – affect each other. And yet, the reseerch brought a very fundamental message: It seems crucial to search for and discover the interdisciplinary structures joining different dimensions of human development.

#### 4. Discussions and Conclusions

It is possible to conclude from the results achieved in the study that globalization remains firstly, a very strong and powerful economic phenomenon. The impacts of globalization on economic growth have been quite frequently tested. It is possible to divide these studies into two

groups: The first one is also the more numerous one. It includes studies presenting only cross sectional estimates (e.g. Chanda 2001, Garret 2001) or studies providing very detailed analysis of individual sub-dimensions of globalization (e.g. Dollar *et al.* 2004, Greenaway *et al.* 1999, Borensztien 1998), but none of them studies the consequences of globalization on economic growth in a more detailed way (Dreher *et al.* 2005). The second group consists of studies trying to measure overall globalization; the G-index introduced by World Markets Research Centre (WMRC 2001), the co-operation between A. T. Kearney Consulting group and Foreign Policy Magazine has brought ATK/FP globalization (ATK/FP 2002), Ernst & Young global index, KOF globalization index presented by Swiss Economic Institute, Maastricht globalization index (MGI) and others. The task of this paper is not testing the effects of globalization on growth. Recently empirical studies have proved that globalization is good for growth. On average, countries that globalized more experienced higher growth rates (ATK/FP 2002, Dreher 2006).

Among the first to use KOF Index for empirical analysis was Ekman (2003), who finds a positive, non-linear correlation between the KOF Index and population health measured by life expectancy at birth. In later studies, Sameti (2004) found that globalization increased the size of governments, while Tsai (2007) has shown that globalization increased human welfare. Bjørnskov (2006) analyses the three dimensions of the KOF Index and shows that economic and social globalization affect economic freedom, while political globalization does not.

This paper is focused on the question of the links between human development (or wider institutional quality) and not only economic, but also social and political dimension of globalization as measured the components of the KOF globalization index. The social dimension as a "spontaneous and less politicized layer of globalization is remarkably efficiently helping people all around the world to improve their standards of living, their health conditions, and access to education" (Bednářová *et al.* 2011).

It also seems quite obvious that the life expectancy component and the education component of IHDI should be more sensitive to the factors of social and political globalization than to economic globalization. For example Amavilah (2009) discovered that the social aspects of globalization have the most intensive effects on the human development. Bergh and Nilsson (2010) proved positive effects of globalization (measured with KOF Globalization Index) on the life expectancy.

Various researchers have analyzed the effects of globalization on democracy (Dreher *et al.* 2010), on increases in government spending and taxes (Ekman 2003), and government consumption (Garret 2001) by using proxies such as trade and capital flows or openness to these flows to measure the globalization (Greenaway 1999). "The political side of globalization has shown only inconclusively that it supports and encourages institutional or social development. The reasons are probably manifold: from the lack of interest on the side of developed countries, deep, complex, and difficult problems in the developing countries, through dysfunctional economic or strategic integrations and alliances of states across the Third World to low or inoperability of international organizations such as the United Nations and their agencies" (Bednářová *et al.* 2011).

The conclusions provided an important base for future research. One of the possible challenges for future research should be identification of the direction of the causality between human development and globalization (in other words, whether the progress in globalization is

supporting the human development and institutional quality, or vice versa). Another perspective of research can be observed in cluster analysis, as different groups of countries are probably characterized by different intensities of dependence between globalization and human development.

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## Appendix

The following appendix summarizes the results calculated using software package Statgraphics Centurion XVI.

**Equation (1):**  $KOF = 39.9051 + 64.6963 \times IHDI^2$

Coefficients					Analysis of Variance					
Parameter	Least Squares Estimate	Standard Error	T Statistic	P-Value	Source	Sum of Squares	D.f.	Mean Square	F-Ratio	P-Value
					Model	25004.5	1	25004.5	607.43	0.0000
Intercept	39.9051	1.07393	37.1581	0.0000	Residual	4939.77	120	41.1648		
Slope	64.6963	2.62502	24.646	0.0000	Total (Corr.)	29944.3	121			

Correlation Coefficient = 0.913802

R-squared = 83.5035 percent

R-squared (adjusted for degrees of freedom) = 83.366 percent

Standard Error of Estimate = 6.41598

Mean Absolute Error = 5.07704

Durbin-Watson Statistic = 1.8448 (P=0.1968)

Lag 1 Residual Autocorrelation = 0.0663885

**Equation (2):**  $EG\_KOF = \sqrt{1437.63 + 7902.19 \times IHDI^2}$

Coefficients					Analysis of Variance					
Parameter	Least Squares Estimate	Standard Error	T Statistic	P-Value	Source	Sum of Squares	D.f.	Mean Square	F-Ratio	P-Value
					Model	3.73039E8	1	3.73039E8	248.28	0.0000
Intercept	1437.63	205.174	7.0069	0.0000	Residual	1.80302E8	120	1.50252E6		
Slope	7902.19	501.511	15.7568	0.0000	Total (Corr.)	5.53341E8	121			

Correlation Coefficient = 0.821071

R-squared = 67.4157 percent

R-squared (adjusted for degrees of freedom) = 67.1442 percent

Standard Error of Estimate = 1225.77

Mean Absolute Error = 982.551

Durbin-Watson Statistic = 2.11279 (P=0.7322)

Lag 1 Residual Autocorrelation = -0.0699248

**Equation (3):**  $SG\_KOF = 21.2687 + 89.8635 \times IHDI^2$

Coefficients					Analysis of Variance					
Parameter	Least Squares Estimate	Standard Error	T Statistic	P-Value	Source	Sum of Squares	D.f.	Mean Square	F-Ratio	P-Value
Intercept	21.2687	1.295	16.4237	0.0000	Model	48242.1	1	48242.1	805.95	0.0000
Slope	89.8635	3.1654	28.3893	0.0000	Residual	7182.89	120	59.8574		
					Total (Corr.)	55425.0	121			

Correlation Coefficient = 0.932954

R-squared = 87.0403 percent

R-squared (adjusted for degrees of freedom) = 86.9323 percent

Standard Error of Estimate = 7.73676

Mean Absolute Error = 6.2407

Durbin-Watson Statistic = 1.97046 (P=0.4356)

Lag 1 Residual Autocorrelation = 0.00667892

**Equation (4):**  $PG\_KOF = \sqrt{4492.26 + 4754.68 \times IHDI^2}$

Coefficients					Analysis of Variance					
Parameter	Least Squares Estimate	Standard Error	T Statistic	P-Value	Source	Sum of Squares	D.f.	Mean Square	F-Ratio	P-Value
Intercept	4492.26	315.924	14.2195	0.0000	Model	1.35052E8	1	1.35052E8	37.91	0.0000
Slope	4754.68	772.218	6.15717	0.0000	Residual	4.27485E8	120	3.56238E6		
					Total (Corr.)	5.62537E8	121			

Correlation Coefficient = 0.489976

R-squared = 24.0077 percent

R-squared (adjusted for degrees of freedom) = 23.3744 percent

Standard Error of Estimate = 1887.43

Mean Absolute Error = 1560.71

Durbin-Watson Statistic = 1.95711 (P=0.4069)

Lag 1 Residual Autocorrelation = 0.020802