# CONSIDERATIONS ON THE RELATIONSHIP BETWEEN INSTITUTIONAL QUALITY AND HUMAN DEVELOPMENT ACROSS NATIONS

**ANDREEA-OANA IACOBUȚĂ**
ALEXANDRU IOAN CUZA UNIVERSITY OF IASI, FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION, Romania
andreea_iacobuta@yahoo.com

*Abstract*
*Numerous studies have shown a strong relationship between the quality of a country's institutions and its level of socio-economic development. This paper aims at providing more insights into this relationship and contributing to the existing international literature. It presents a cross-national examination of the linkage between institutions and human development, at the level of 182 countries, using World Bank's Governance Indicators and Human Development Index released by United Nations, both categories of variables being registered for 2011. The correlation results and the graphical representation with simple scatter plots confirm that human development index is higher in countries which are better governed and less corrupt, where political stability is higher and where citizens trust and abide the rules and benefit from a higher degree of involvement in political life, freedom of expression, freedom of association, and a free media.*

*Key words:* *institutions, human development, governance, corruption, freedom.*

*JEL classification:* O11, O15, O43.

## INTRODUCTION

Institutions have become a major field of interest in the study of economic performance and human development.

The existing studies range from explaining the existence of positive relations between institutional quality and economic growth (Pejovich, 1999; Chong&Calderon, 2000; Rodrik, 2000; North, 2003; Jutting, 2003; Glaeser, La Porta et al. 2004; Butkiewicz&Yanikkaya, 2006; Ebben&de Vaal, 2009; Estache, 2009 etc.) to investigating the relationship between institutions and more complex aspects such as human development (Tsai, 2006; Vollmer&Ziegler, 2009) and sustainable development (Anderson& Huggins, 2003).

We investigate in this paper the relationship between institutions and human development within a cross-national database, including rich and poor countries – a total of 182 countries. The dependent variable is Human Development Index and the independent variables are the World Bank's Governance indicators.

## DATA AND METHODS

In order to analyze the relationship between institutional quality and human development we use the six governance indicators, released by World Bank, as independent variables and Human Development index value (HDI), as the dependent variable.

Table 1 presents the description of the six governance indicators.

**Table 1 Governance Indicators Description**

| No. | Indicator | Description (from Data Source) |
|---|---|---|
| 1. | Voice and Accountability | *Reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.* |
| 2. | Rule of Law | *Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.* |
| 3. | Political Stability and Absence of Violence | *Reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.* |
| 4. | Government Effectiveness | *Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.* |
| 5. | Control of Corruption | *Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.* |
| 6. | Regulatory Quality | *Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.* |

*Source: Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi, The Worldwide Governance Indicators, World Bank.*
*Available from http://info.worldbank.org/governance/wgi/resources.htm*

The scores for these 6 indicators, in standard normal units, range between -2,5 and +2,5, with higher values corresponding to better governance.

The Human Development Index takes into consideration three dimensions – health, education and living standards- and four indicators - life expectancy at birth, mean years of schooling, expected years of schooling, gross national income per capita (Figure 1). The value of the index ranges between 0 and 1; the higher the index value is, the higher the level of human development.

**Figure 1 Components of Human Development Index**



*Source: http://hdr.undp.org/en/statistics/hdi/*
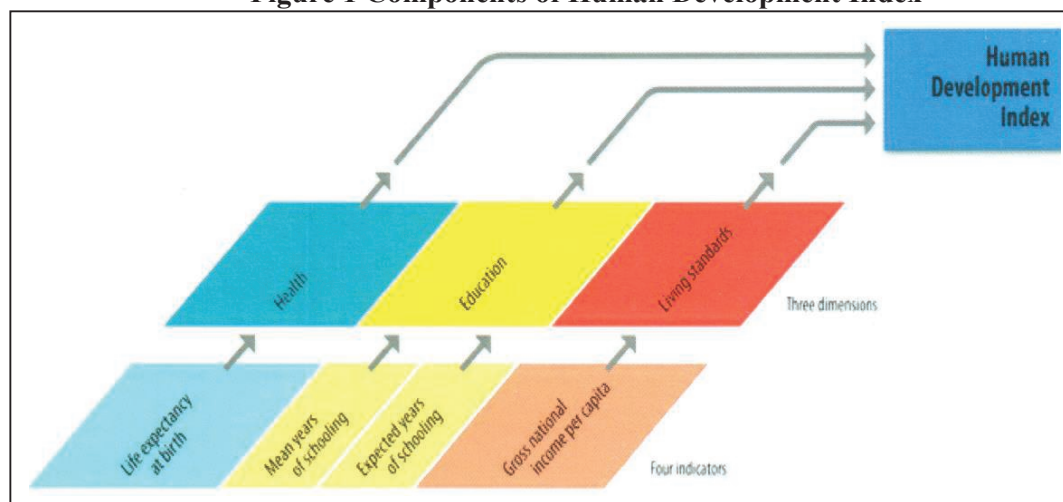
Both categories of data are recorded at country level for 182 countries, the reference year being 2011.

In order to study the relationship between Human Development Index and Governance Indicators we apply correlation analysis to observe the interaction between the variables and to measure the strength of the relationships between them. We studied the bivariate correlation between Human Development Index and the Governance Indicators, using Pearson correlation coefficient. The statistical significance of the Pearson correlation coefficient is tested using Student t - test.

According to the results of this analysis we aimed at identifying an econometric model to explain the variation of Human Development Index in relation with the considered governance indicators. We aimed at estimating the multiple linear regression equation between the dependent variable Human Development Index and the independent variables which, according to the above results, are significantly correlated with the dependent variable Human Development Index.

We also use graphical representation with simple scatter plots and regression analysis. At the same time, the regression equations obtained are used in order to predict the HDI value for Romania, when the six governance indicators register the maximum values at the sample level.

## RESULTS

For the sample of 182 countries, we studied the bivariate correlation between Human Development Index and the Governance Indicators, using Pearson correlation coefficient. The statistical significance of the Pearson correlation coefficient is tested using Student t - test.

Table 2 presents, for each analyzed correlation the estimated value of Pearson correlation coefficient ($r$) and Sig probability associated to the computed value of Student statistic.

**Table 2 The correlation coefficient between Human Development Index and the Governance Indicators**

Correlations

| | | HDI | Voice and Accountability | Rule of Law | Regulatory Quality | Control of Corruption | Political Stability | Government Effectiveness |
|---|---|---|---|---|---|---|---|---|
| HDI | Pearson Correlation | 1 | .621** | .765** | .743** | .697** | .598** | .796** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Voice and Accountability | Pearson Correlation | .621** | 1 | .816** | .775** | .780** | .698** | .775** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 | .000 | .000 |
| | N | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Rule of Law | Pearson Correlation | .765** | .816** | 1 | .895** | .945** | .774** | .947** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 | .000 | .000 |
| | N | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Regulatory Quality | Pearson Correlation | .743** | .775** | .895** | 1 | .847** | .614** | .924** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 | .000 | .000 |
| | N | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Control of Corruption | Pearson Correlation | .697** | .780** | .945** | .847** | 1 | .762** | .929** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | | .000 | .000 |
| | N | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Political Stability | Pearson Correlation | .598** | .698** | .774** | .614** | .762** | 1 | .692** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | | .000 |
| | N | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Government Effectiveness | Pearson Correlation | .796** | .775** | .947** | .924** | .929** | .692** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | |
| | N | 182 | 182 | 182 | 182 | 182 | 182 | 182 |

**. Correlation is significant at the 0.01 level (2-tailed).

From the table above, we can notice that for a risk of 1% we accept the existence of a strong positive relationship between Human Development Index and the Governance Indicators and also between the governance indicators.

In order to estimate the multiple linear regression equation between the dependent variable Human Development Index and the independent variables which, according to the above results, are significantly correlated with the dependent variable Human Development Index, we firstly tested the absence of multicollinearity. Our tests showed that the independent variables are strongly intercorrelated and, consequently, we could not obtain a valid model.

In this context we proceeded at analysing the relationship between Human Development Index and each governance indicator and to run simple regression analysis.

Figure 1 shows simple scatter plots with governance indicators on the horizontal axis and the level of human development on the vertical axis.

**Figure 1 Governance Indicators and Human Development**
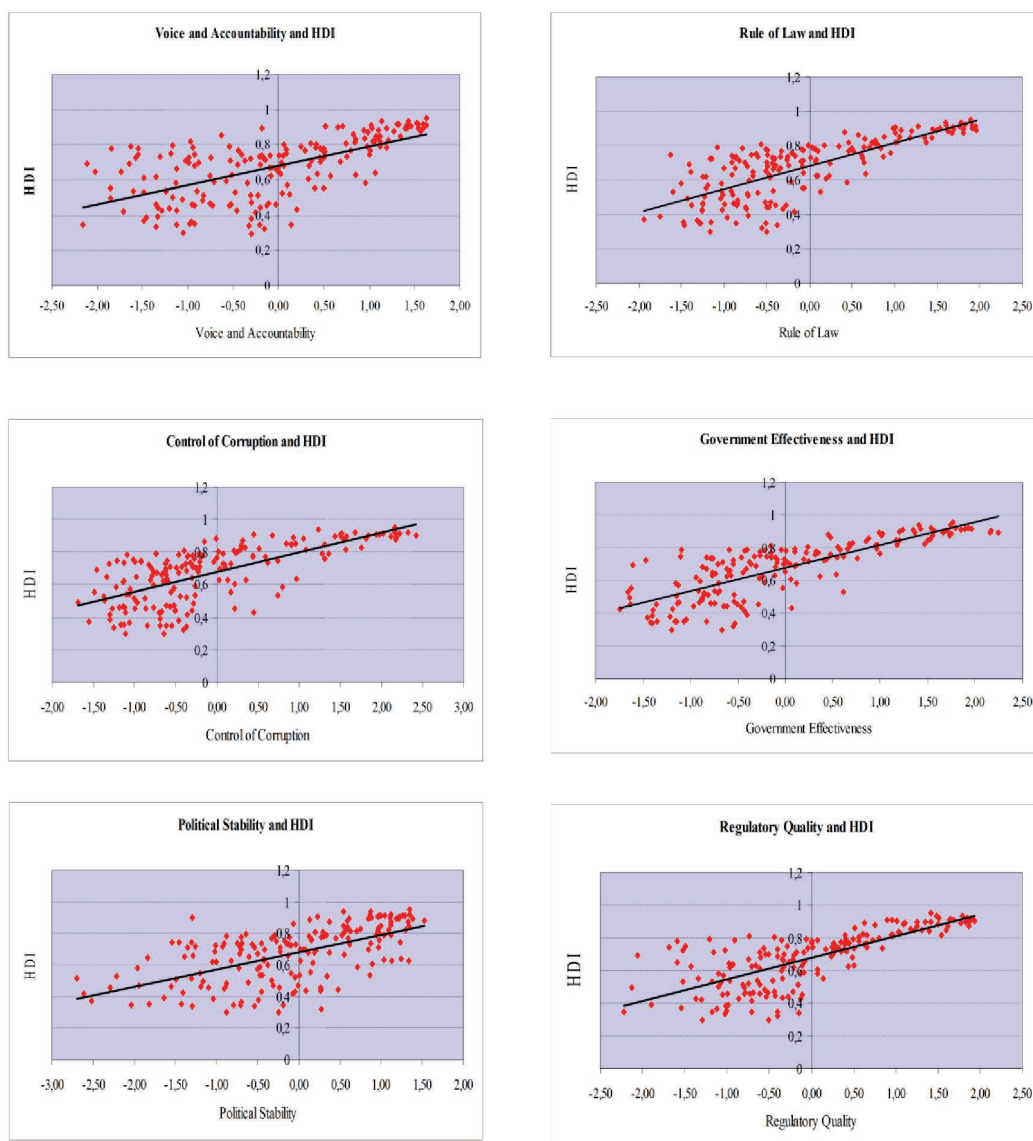
The scatter plots suggest some evidence for the relationship between the level of human development and the quality of institutions that is, a positive linear relationship. We explore this in more detail by running regression analysis between Human Development Index (the dependent variable y) and Governance Indicators - *Voice and Accountability*, *Rule of Law*, *Political Stability*, *Government Effectiveness*, *Control of Corruption*, *Regulatory Quality* (as independent variables, x). Table 3 presents a synthesis of the regression analysis results.

**Table 3 HDI and Governance Indicators. Regression Analysis Results**

| Variable | Coefficient (Standard error) | R Square | P-value | Regression equation |
|---|---|---|---|---|
| Voice and Accountability | 0,1094 (0,0103) | 0,3853 | 9,01E-21 | y = 0,1094x + 0,6796 |
| Rule of Law | 0,1349 (0,0085) | 0,5848 | 3,38E-36 | y = 0,1349x + 0,6822 |
| Political Stability | 0,1086 (0,0108) | 0,3578 | 4,79E-19 | y = 0,1086x + 0,6809 |
| Government Effectiveness | 0,1412 (0,0080) | 0,6334 | 4,4E-41 | y = 0,1412x + 0,6757 |
| Control of Corruption | 0,1210 (0,0093) | 0,4858 | 8,47E-28 | y = 0,1210x + 0,6782 |
| Regulatory Quality | 0,1326 (0,0089) | 0,5518 | 3,44E-33 | y = 0,1326x + 0,6753 |

The P-values obtained for the six simple regressions are very small (smaller than 0, 01) which implies that our models are statistically valid.

The values of the square of the coefficient of correlation (R Square, in the table above) point out that: 38,53% of variation in HDI is explained by the variation in Voice and Accountability; 58,48% of variation in HDI is explained by the variation in Rule of Law; 35,78% of variation in HDI is explained by the variation in Political Stability; 63,34% of variation in HDI is explained by the variation in Government Effectiveness; 48,58% of variation in HDI is explained by the variation in Control of Corruption; 55,18% of variation in HDI is explained by the variation in Regulatory Quality.

Also, the coefficients show that for every additional unit of Voice and Accountability, Rule of Law, Political Stability, Government Effectiveness, Control of Corruption, and Regulatory Quality, HDI goes up by 0,1094; 0,1349; 0,1086; 0,1412; 0,1210 and respectively, 0,1326 units.

## CONSIDERATIONS ON THE EVOLUTION OF GOVERNANCE INDICATORS AND HUMAN DEVELOPMENT IN ROMANIA

Although progress has been made, the quality of institutions is still very low in Romania. Figure 2 presents the evolution of Governance Indicators in Romania from 2005 to 2011. For three of them – Voice and Accountability, Political Stability and Regulatory Quality – Romania registered positive but very small scores. We can also notice the downward trend for Political Stability and Voice and Accountability from 2009 to 2011. On the other side, Romania constantly registered negative scores for Government Effectiveness and Control of Corruption. For the Rule of Law indicator

there is a slight improvement from 2008 to 2011 but still, the score, even if positive, is very close to zero.

**Figure 2 The evolution of Governance Indicators in Romania, 2005-2011**
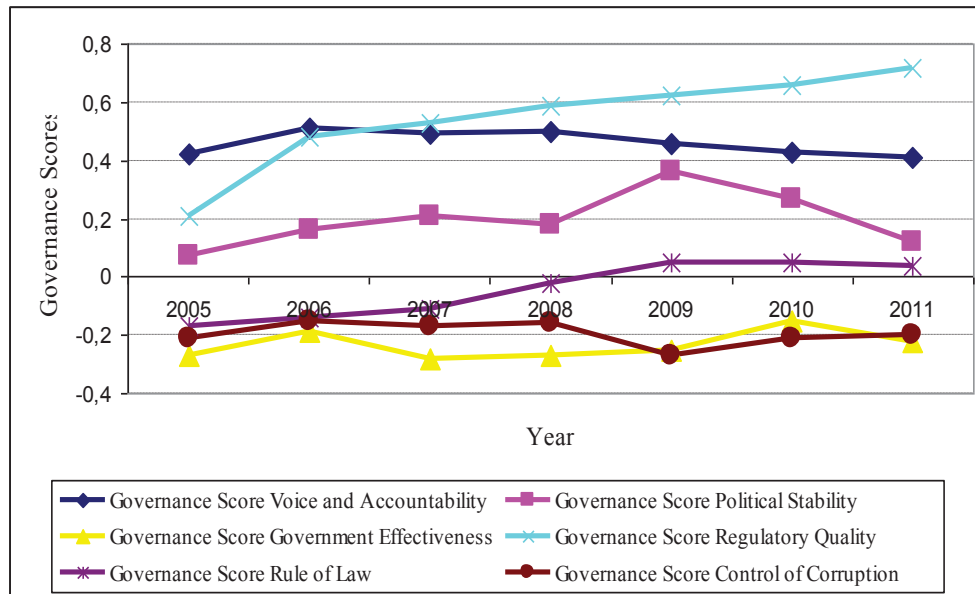


*Source: http://info.worldbank.org/governance/wgi/sc_country.asp*

The evolution of HDI points out a positive evolution in Romania, from 2005 to 2011, with a slight decrease from 2009 to 2010 (Figure 3), Romania being included in the "high-human development" category. However, it ranks among the lasts of the European Union countries, all of them, except Bulgaria, being included in the "very high human development" category.

**Figure 3 The evolution of Human Development Index in Romania, 2005-2011**



*Source: http://hdrstats.undp.org/en/tables/*
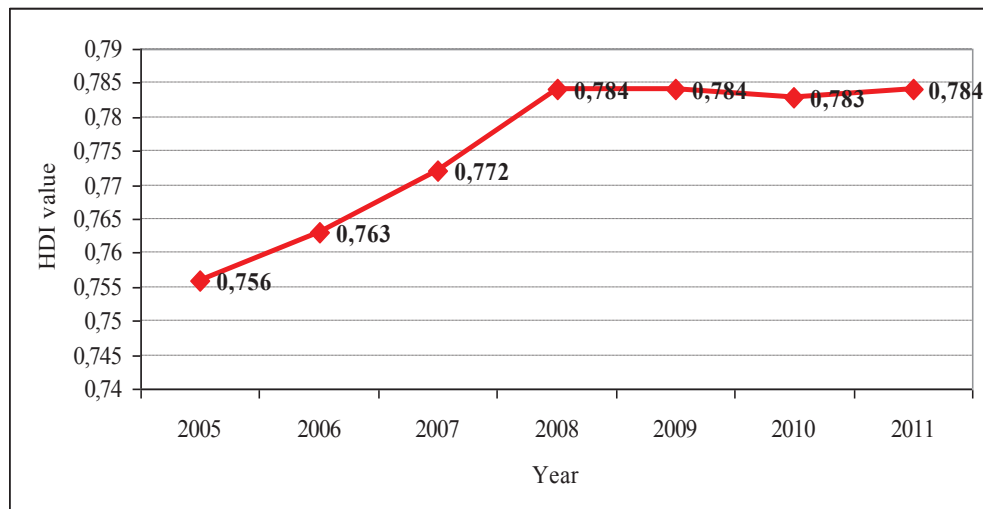
Using the regression results obtained above and presented in Table 3, we predict the HDI value for Romania, when its governance scores reach the maximum level

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registered at the sample level. We calculate the difference between the maximum value for each governance score and the value registered in Romania. Table 4 presents the results.

**Table 4 Prediction of HDI value for Romania**

|  | Romania's governance score 2011 | Maximum value at the sample level (country) 2011 | Increase in Romania's score (x) | Predicted value for HDI |
|---|---|---|---|---|
| Voice and Accountability | 0,41 | 1,63 (Switzerland) | 1,22 | 0,813 |
| Rule of Law | 0,04 | 1,96 (Finland) | 1,92 | 0,941 |
| Political Stability | 0,12 | 1,53 (Liechtenstein) | 1,41 | 0,834 |
| Government Effectiveness | -0,22 | 2,25 (Finland) | 2,47 | n.a. |
| Control of Corruption | -0,20 | 2,42 (Denmark) | 2,62 | n.a. |
| Regulatory Quality | 0,72 | 1,93 (Denmark) | 1,21 | 0,835 |

*Note: n.a. - values are not within the range of data used to develop the equation*
*Source: http://info.worldbank.org/governance/wgi/sc_country.asp and own calculations based on regression equations*

We can notice that Romania needs an increase with 1,22 units in the score for Voice and Accountability, 1,92 in Rule of Law, 1,41 in Political Stability, 2,47 in Government Effectiveness, 2,62 in Control of Corruption and 1,21 in Regulatory Quality in order to reach the maximum values registered for the 182 countries sample. For the values obtained for Voice and Accountability, Rule of Law, Political Stability, and Regulatory Quality we predicted the value for HDI in Romania. When considering Government Effectiveness and Control of Corruption, we cannot use the equation in predicting HDI since these values are not within the range of data used to develop the equation.

Considering that the value of HDI in Romania in 2011 was of 0,784 and the predicted value for HDI is higher in all cases, we can conclude that significant improvements can be obtained in the level of human development by improving the quality of institutions.

**CONCLUSIONS**

This study has investigated the role of institutions in human development. The results are in line with the ones in previous published studies in this area. They show that the relationship between the quality of institutions and human development is a positive one, meaning that citizens' ability to participate in selecting their government, freedom of expression, freedom of association, a free media, the confidence they have in the rules of the society they live in, political stability and the absence of violence, the quality of public services, the level of corruption, the ability of government to promote private sector development, they all have significant effects on human development.

Such conclusion can be of significant importance for Romania, considering the fact that it ranks among the lasts of the European Union countries both in institutional quality and in the level of human development.

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