II. A MODEL FOR MEASURING THE NATIONAL GLOBAL PERFORMANCE AND ANALYZING ITS DETERMINANTS – THE CASE OF ROMANIA

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Abstract

Interdependencies – in time and in space – between (the most) different phenomena and processes, as well as entities (at global – national – local/regional – firm level) – characterize all the domains and levels of the society and humankind. The main idea and the general purpose of the paper is to measure and to compare in terms of a unique, definitive and comprehensive index – diachronically and synchronically – a country's (national global) performance (the National Global Performance Index), especially and particularly for Romania, in order to position it properly among the other countries, on one hand, and to analyze dynamically its determinants, on the other hand.

1. Introduction

It is more and more obvious that "interactions and interdependencies between economy and the social structures and values attract many researchers from the social and economic sciences. It is a promising research area revealing social variables that influence economic development and vice versa" (Bavec, 2007). The main idea – starting point and conclusion as well, which is confirmed by the majority of those studies – is that "the assessment of a country's performance cannot be limited solely to either the economic or the non-economic aspects. Both aspects must be considered simultaneously, and within a consistent framework" (Cracolici, Cuffaro and Nijkamp, 2009). But, we also have to take into consideration that "there is some

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tension between the task of providing a comprehensive report on the state of the nation and providing easily digestible, general-user friendly, timely reports. The total picture requires a comprehensive report, but the most potential users will generally not be interested in the total picture. For the most potential users, then, the reports should be relatively easily divisible with various parts distributed to carefully targeted audiences" (Michalos, 2003).

Some of the most recent and significant works (regarding the national performance) and their findings (in terms of weaknesses and of strengths as well) – are summarized in the second section of the paper, which also includes the explanation of the composite indicators we use in order to develop our model of national global performance. The third section of the paper is dedicated to the description of the methodology we have applied and to the empirical results we have obtained: that is where we have proposed a model, materialized as an index in order to measure the national global performance (the National Global Performance Index – NGPI) and we did our forecasting of the moment in time (the year) when Romania has reached such an NGPI score allowing it to be placed among the countries characterized by a high level of national performance. The fourth section summarizes the conclusions of the study.

2. Literature Review

In his research *Composite Indicators of Country Performance: A Critical Assessment*, Michael Freudenberg stands for the composite indicators but also highlights some of their limits; thus, he argues that "using composites, countries have been compared with regard to their competitiveness, innovative abilities, degree of globalization and environmental sustainability. Composite indicators are valued for their ability to integrate large amounts of information into easily understood formats for a general audience. However, composite indicators can be misleading, particularly when they are used to rank country performance on complex economic phenomena and even more so when country rankings are compared over time. They have many methodological difficulties which must be confronted and can be easily manipulated to produce desired outcomes" (Freudenberg, 2003).

Another paper, developed in a similar register, belongs to Bowen and Moesen – *Benchmarking the performance of nations: Non-uniform weighting and non-economic dimensions*: "the paper presents a method that endogenously determines country-specific weights that explicitly take account of a country's own choices and achievements across primitive dimensions of performance. The method is then used to construct a composite inclusive index that combines economic performance with two other performance dimensions: environmental sustainability and governance." And that is because of the findings that: "Comparison of the endogenous weight method with the method of using fixed and uniform weights indicates a bias in the latter that penalizes countries, in terms of indicating lower relative performance, which are more diverse in their achievements among primitive performance dimensions" (Bowen and Moesen, 2007).

In a relatively distinct type of research and analysis – *The Measurement of Economic, Social and Environmental Performance of Countries: A Novel Approach* – (which

introduces the time factor), the authors aim "to combine relevant economic and 'non-economic' (mainly social) aspects of a country's performance in an integrated logical framework". Moreover, they "define an operational scheme based on the argumentation that, in the long run, the causal relationship between the economic and the non-economic aspects may reveal two paths: high levels of economic well-being contribute to high levels of non-economic well-being through households, firms and the public sector. (…) Conversely, high levels of non-economic well-being contribute to high levels of economic well-being through various channels" (Cracolici, Cuffaro and Nijkamp 2009).

2.1. Economic Freedom – The Index of Economic Freedom

"Most economists would call it the *free market system* or *capitalism*. Some identify it with *globalization*. Some call it the *Washington consensus*, because it represents the consensus of views and policies espoused by the World Bank, the International Monetary Fund and, at least until recently, the government of the United States. At The Heritage Foundation, we call it *economic freedom*, and we measure it each year in the *Index of Economic Freedom*, which we publish jointly with *The Wall Street Journal*" (Miller, T, 2009).

Therefore, since 1995 The Heritage Foundation evaluates and ranks, based on its own studies and calculus, what it was called the *economic freedom score,* based on 10 *benchmarks* – representing 10 different viewpoints of economic freedom: Business Freedom, Trade Freedom, Fiscal Freedom, Government Spending, Monetary Freedom, Investment Freedom, Financial Freedom, Property Rights, Freedom from Corruption, Labor Freedom. All these dimensions of the economic freedom are *measures of*: economic openness, regulatory efficiency, the rule of law and competitiveness; the *basic principles* of economic freedom emphasized in the *Index* are: individual empowerment, equitable treatment and promotion of competition.

Despite the present global (financial) crisis and recession, the 2010 Index of Economic Freedom yet reveals some very important *characteristics*, confirming that *economic freedom matters*: *(1)* the strong positive relationship between economic freedom and the level of *prosperity* within a given country (measured in terms of Gross Domestic Product per capita); *(2)* economic freedom improves the overall *quality of life*, promotes *political and social progress*, and supports *environmental protection* (see *Highlights of The 2010 Index of Economic Freedom. The Link between Economic Opportunity&Prosperity,* Miller&Holmes, 2010).

2.2 National Competitiveness – The Global Competitiveness Index

"Since 2005, the World Economic Forum has based its competitiveness analysis on the *Global Competitiveness Index* (GCI), a highly comprehensive index, which captures the microeconomic and macroeconomic foundations of *national competitiveness*. We define *competitiveness* as *the set of institutions, policies, and factors that determine the level of productivity of a country.* The level of productivity, in turn, sets the sustainable level of prosperity that can be earned by an economy" (Sala-I-Martin *et al*., 2009).

Given the complexity of the concept and of its consequences, it is obvious that the determinants of the national competitiveness are very heterogeneous – in time and in

space. In order to identify, evaluate and measure accurately the dynamics of competitiveness, in volume as well as in structure, WEF identified and developed (within the Global Competitiveness Report that it prepares each year) 12 *pillars of competitiveness* serving as benchmarks: Institutions, Infrastructure, Macroeconomic stability, Health and primary education, Higher education and training, Goods market efficiency, Labor market efficiency, Financial market sophistication, Technological readiness, Market size, Business sophistication, and Innovation.

Regarding the findings of the most recent report (2009-2010), it emphasizes: "What began as a financial crisis in the United States and the United Kingdom quickly turned into the largest global recession in decades. (…) Today's difficult economic environment underscores the importance of not losing sight of long-term competitiveness fundamentals amid short-term urgencies. Competitive economies are those that have in place factors driving the productivity enhancements on which their present and future prosperity is built" (see *The Global Competitiveness Index 2009–2010: Contributing to Long-Term Prosperity amid the Global Economic Crisis,* Sala-I-Martin *et al.*, 2009).

2.3. Country Risk Classification

As the Arrangement on Officially Supported Export Credits of OECD's Trade and Agriculture Directorate argues: "Countries shall be classified according to the likelihood of whether they will service their external debts (i.e. country credit risk)" (OECD, 2010).

The classification of countries is achieved through the application of a *methodology* comprising two *basic components*: *(1)* the Country Risk Assessment Model (CRAM), which produces a quantitative assessment of country credit risk, based on three groups of risk indicators (the payment experience of the participants, the financial situation and the economic situation) and *(2)* the qualitative assessment of the model results, considered country-by-country to integrate political risk and/or other risk factors not taken (fully) into account by the model (http://www.oecd.org/).

Of course, "it is extremely difficult to make *long-term forecasts* in this field, given the number of very different *variables* that must be considered" (Iranzo, 2008). But, into a recent analysis, made at the beginning of the present global recession, Silvia Iranzo has identified "four *types of risk* that could end the current benign country risk cycle" (and which have become, since then, very real in their impact): *(1)* a *general economic risk* that owes to the possibility that a large country could suffer a substantial recession, with adverse effects on the rest of the world for a long period of time; *(2)* the risk of *break-out of a large-scale military conflict*; *(3)* the risk that *global warming*, as a long-term tendency, could have a net damaging effect on the world economy; *(4)* the *development of economic protectionism* by advanced countries against the commercial threat of the largest emerging countries (Iranzo, 2008).

2.4. Knowledge Economy – The Knowledge Economy Index

"*The Knowledge Economy Index* (KEI) takes into account whether the environment is conducive for knowledge to be *used effectively* for economic development. It is an aggregate index that represents *the overall level of development of a country or region towards the Knowledge Economy*. The KEI is calculated based on the average of the

normalized performance scores of a country or region on all *4 pillars* related to the knowledge economy – *economic incentives and institutional regime* (Tariff&Non-tariff Barriers, Regulatory Quality, Rule of Law), *education and human resources* (Adult Literacy Rate, Secondary Enrollment, Tertiary Enrollment), *the innovation system* (Royalty and License Fees Payments and Receipts, Patent Applications Granted by the US Patent and Trademark Office Scientific and Technical Journal Articles) and *ICT* (Telephones per 1.000 people, Computers per 1.000 people, Internet Users per 10.000 people)" (http://web.worldbank.org/).

Based on the importance of the KE, The World Bank Institute has developed a set of *Advances Strategies for Development* capable to build *Knowledge Economies*, emphasizing the following *messages*: *(1)* knowledge and innovation have played a crucial role in development from the beginnings of human history, but with globalization and the technological revolution of the last few decades knowledge has clearly become the key driver of competitiveness and is now profoundly reshaping the patterns of the world's economic growth and activity; *(2)* in order to become successful knowledge economies, the countries have to rethink and act simultaneously on their education base, their innovation systems, and their information and communication technology infrastructure, while also building a high-quality economic and institutional regime; *(3)* many, if not most of the countries that made rapid progress have staged nationwide KE-inspired programs of change characterized by: the need to promote trust and societal cohesion around the KE program; the need to work on the four pillars through a combination of top-down reforms and bottom-up initiatives; and the need for a well-communicated KE vision (IBRD/WB, 2007).

2.5. Human Development – The Human Development Index

"*Human development* is about *putting people at the centre of development*. It is about people realizing their potential, increasing their choices and enjoying the freedom to lead lives they value. (…) Since 1990, the Human Development Report has been a major force in thinking about development, not only by highlighting the inadequacy of per capita income as the sole measure of a society's progress, but also by exploring how *a people-centered approach affects the way we should think about key challenges*" (http://hdr.undp.org).

Thus, "for 20 years, the Human Development Report (HDR) has used the *Human Development Index (HDI)* to measure human development by averaging a small set of simple indicators of *health, education and living standards*" (Rodriguez, 2010): health is measured by *life expectancy at birth*; knowledge is measured by a combination of the *adult literacy rate* and the *combined primary, secondary, and tertiary gross enrolment ratios*; and standard of living by *GDP per capita* (in PPP US$). As a result, "the (HDI) was a pioneer of multi-dimensional measurement and has become a widely referenced indicator of wellbeing. It tells us that income alone is an incomplete measure of wellbeing, and that *living a long and healthy life and gaining knowledge are equally critical*" (Klugman, 2010).

The biggest challenge now, 20 years after its launching – when "in the age of Twitter and Wikipedia, information is literally at anyone's fingertips" (Rodriguez, 2010) –

consists in "seeking to analyze and present multidimensional poverty and inequality, showing disparities within nations, and discussing how to reflect critical dimensions of empowerment and political and civic freedoms". Environmental sustainability and vulnerability are also issues for a new agenda, considering that "each HDR seeks to push the frontier in development thinking, by innovating in terms of concepts, measures and policy" (Klugman, 2010).

3. Methodology and Empirical Results

In this study we would like, first of all, to propose a model, materialized as an index, in order to measure the **national global performance** (the National Global Performance Index – NGPI) based on the following variables:

- Index of Economic Freedom – IEF;
- Global Competitiveness Index – GCI;
- Country Risk Classification – CRC;
- Knowledge Economy Index – KEI;
- Human Development Index – HDI.

The variables are mutually independent, but they are inevitably influencing each other – given their composition and structure.

Table 1

Romania	IEF[1]	GCI[2]	CRC[3]	KEI[4]	HDI[5]
1995	42.9	-	-	-	-
1996	46.2	-	-	-	-
1997	50.8	-	-	-	-
1998	54.4	-	-	-	-
1999	50.1	-	6	-	-
2000	52.1	-	6	-	0.690
2001	50.0	-	6	-	0.699
2002	48.7	-	6	-	0.708
2003	50.6	3.38	5	-	0.716
2004	50.0	3.86	4	-	0.726
2005	52.1	3.67	4	5.27	0.733
2006	58.2	4.02	4	5.37	0.743
2007	61.2	3.97	3	5.86	0.754
2008	61.7	4.1	3	6.37	0.765
2009	63.2	4.11	4	6.43	0.764
2010	64.2	4.16	4	6.55	0.767

Sources:

[1] *Heritage Foundation & Wall Street Journal.*

[2] *World Economic Forum, Global Competitiveness Report.*

[3] *OECD, Country Risk Classification.*

[4] *World Bank Institute, Knowledge for Development.*

[5] *UNPD, Human Development Report.*

Secondly, after we build up the model, we will calculate the NGPI score for Romania in order to identify its global performance.

Modeling and calculating NGPI will be done by using as instrument the **discriminative analyzing technique** – a function of multiple regression which has as main characteristic to allow the explanation of an exogenous phenomena (which is, generally, qualitative) with the help of some (quantitative) endogenous variables.

The model we propose is based on a multiple linear regression as follows:

$$NGPI = a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + a_5x_5 + \sum_{i=1}^{5} b \qquad (1)$$

where, $a_1, a_2, a_3, a_4, a_5, b$ – represent parameters

x_1 - IEF

x_2 - GCI

x_3 - CRC

x_4 - KEI

x_5 - HDI

In order to determine the $a_1, a_2, a_3, a_4, a_5, b$ parameters we use the following formulas:

a) for the indicators that optimize by maximum:

$$a_i = \frac{1}{x_{\max im_i} - x_{\min im_i}} \qquad (2) \qquad\qquad b_i = \frac{-x_{\min im_i}}{x_{\max im_i} - x_{\min im_i}} \qquad (3)$$

a) for the indicators that optimize by minimum:

$$a_i = \frac{1}{x_{\min im_i} - x_{\max im_i}} \qquad (4) \qquad\qquad b_i = \frac{-x_{mazim_i}}{x_{\min im_i} - x_{\max im_i}} \qquad (5)$$

where: $x_{\min im_i}$ - the minimum value of the *"i"* variable registered during the whole analyzed period,

$x_{\max im_i}$ - the maximum value of the *"i"* variable registered during the whole analyzed period.

Thus, x_1, x_2, x_4, x_5 are optimizing by maximum, while x_3 is optimizing by minimum. After the calculus, we will get for the a and b parameters the results presented in Table 2.

Table 2

Variabile	x_{minim}	x_{maxim}	a	b
x_1 – IEF	1	100	0.0101	- 0.0101
x_2 – GCI	1.2	7	0.1724	- 0.2068
x_3 – CRC	0	7	- 0.1428	0
x_4 – KEI	0	10	0.1	0
x_5 – HDI	0.048	0.996	1.0548	- 0.0506

After analyzing country ranks (elaborated by The Heritage Foundation, WEF, OECD, WB, UNDP) during the period 1995-2010, we identified the following maximum and minimum values for the 5 variables that we introduced into the model. We also calculated, with the help of the discriminative analysis, the values for the a and b parameters from the multiple linear regression.

In conclusion, the model that we propose in order to calculate the NGPI is defined by the following equation:

$$NGPI = 0.0101x_1 + 0.1724x_2 - 0.1428x_3 + 0.1x_4 + 1.0548x_5 - 0.3404 \tag{6}$$

or

$$NGPI_i = 0.0101IEF_i + 0.1724GCI_i - 0.1428CRC_i + 0.1KEI_i +$$
$$1.0548HDI_i - 0.3404 \tag{7}$$

where: i – the succession of the year for which we calculate the score, having as benchmark a chronological series.

The extremities of the interval of variation are determined by calculating the values of NGPI$_{minim}$ and NGPI$_{maxim}$.
Thus:

$$NGPI_{\min im} = 0.0101 \times 1 + 0.1724 \times 1.2 - 0.1428 \times 7 + 0.1 \times 0 +$$
$$1.0548 \times 0.048 - 0.3404 = -1.07 \tag{8}$$

$$NGPI_{\max im} = 0.0101 \times 100 + 0.1724 \times 7 - 0.1428 \times 0 + 0.1430 \times 10 +$$
$$1.0548 \times 0.996 - 0.3404 = 4.36 \tag{9}$$

The interval of variation for NGPI is [-1.07, 4.36], where -1.07 is the minimum and 4.36 is the maximum.

In order to determine the points of modulation for each variable, we considered the following:

- The IEF groups the countries into the following categories: [100, 80] – free countries, [79.9, 70] – mostly free countries, [69.9, 60] – moderately free countries, [59.9, 50] – mostly non-free countries and [49.9, 0] repressed countries;
- The GCI groups the countries into the following categories: [7, 4.5] – countries with high national competitiveness, (4.5, 3.5) – countries with medium national competitiveness and (3.5, 1.2) – countries with low national competitiveness;
- The CRC groups the countries into the following categories: [7, 5] – countries with high country risk, (5, 2) – countries with medium country risk an [2, 0] – countries with low country risk or without country risk;
- KEI groups the countries into the following categories: [10, 8] – high knowledge economy, (8, 5) – medium knowledge economy, (5, 0) – low knowledge economy;
- The HDI groups the countries into the following categories: [0.996, 0.900] – countries with very high human development, [0.899, 0.800] – countries with high human development, [0.799, 0.500] – countries with medium human development and [0.499, 0] – countries with low human development.

Under these circumstances, the points of modulation that we choose for each one of the five variables and the framing intervals are the following:

- IEF: [1, 50], [50, 70], [70, 100]
- GCI: [1.2, 3.5], [3.5, 4.75], [4.75, 7]
- CRC: [0, 2], (2, 5), [5, 7]
- KEI: [0, 5], [5, 8], [8, 10]
- HDI: [0.048, 0.500], [0.500, 0.800], [0.800, 0.996]

In order to determine the modulation points for the NGPI, we calculate their values based on the modulation points that we identified for each one of the five variables considered.

Thus:

$$NGPI_1 = 0.0101 \times 50 + 0.1724 \times 3.5 - 0.1428 \times 5 + 0.1 \times 5 +$$
$$1.0548 \times 0.500 - 0.3404 = 1.08 \tag{10}$$

$$NGPI_2 = 0.0101 \times 70 + 0.1724 \times 4.75 - 0.1428 \times 2 + 0.1 \times 8 +$$
$$1.0548 \times 0.800 - 0.3404 = 2.54 \tag{11}$$

If:

- NGPI takes on values within the interval [-1.07, 1.08], the X country may be considered to be a low national global performance country;
- NGPI takes on values within the interval [1.08, 2.54], the X country may be considered to be a medium national global performance country;
- NGPI takes on values within the interval [2.54, 4.36], the X country may be considered a high national global performance country.

Table 3

Romania	IEF	GCI	CRC	KEI	HDI	NGPI
2005	52.1	3.67	4	5.27	0.733	1.55
2006	58.2	4.02	4	5.37	0.743	1.69
2007	61.2	3.97	3	5.86	0.754	1.92
2008	61.7	4.1	3	6.37	0.765	2.01
2009	63.2	4.11	4	6.43	0.764	1.88
2010	64.2	4.16	4	6.55	0.767	1.92

The NGPI results for 2005-2010 place Romania among the medium national global performance countries. Based on these results, we propose the factor analysis of the NGPI, in order to determine the causes and the variables that led to its change from one year to the other.
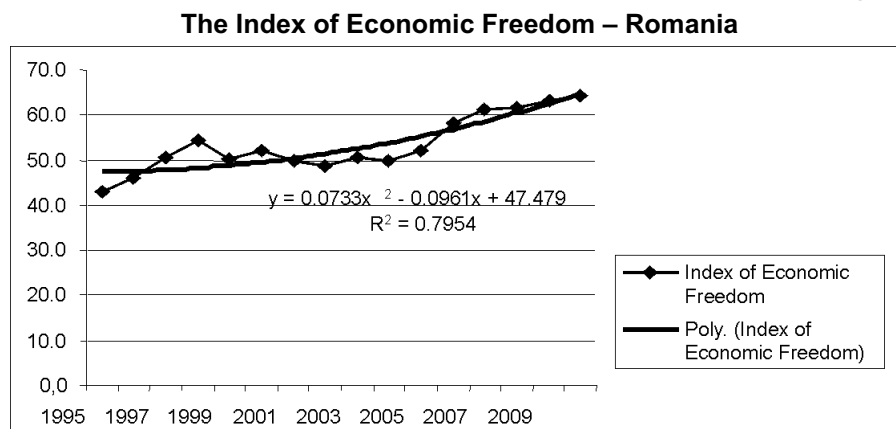
Table 4

	$\Delta NGPI_{2006/2005}$	$\Delta NGPI_{2007/2006}$	$\Delta NGPI_{2008/2007}$	$\Delta NGPI_{2009/2008}$	$\Delta NGPI_{2010/2009}$
	0.14	0.23	0.09	- 0.13	0.04
ΔIEF	0.06161	0.0303	0.00505	0.01515	0.0101
ΔGCI	0.06034	- 0.00862	0.022412	0.001724	0.00862
ΔCRC	0	0.1428	0	- 0.1428	0
ΔKEI	0.01	0.049	0.051	0.006	0.012
ΔHDI	0.010548	0.0116028	0.0116028	- 0.0010548	0.0031644

As one may see, the largest NGPI increase for the reporting period was in 2007 (0.23 percentage points increase as compared to 2006); the CRC had the most powerful influence on this phenomena, by downsizing from 4 to 3. In 2009, the NGPI decreased by 0.13 percentage points as compared to 2008; the most powerful influence was given by the CRC as well, which increased from 3 to 4.

The following figures, based on the data in Table 3, represent graphically the variables of the model; we then determine the functions which define the trend for all of the five variables in order to calculate Romania's score over the analyzed period.

Figure 1

The Index of Economic Freedom – Romania

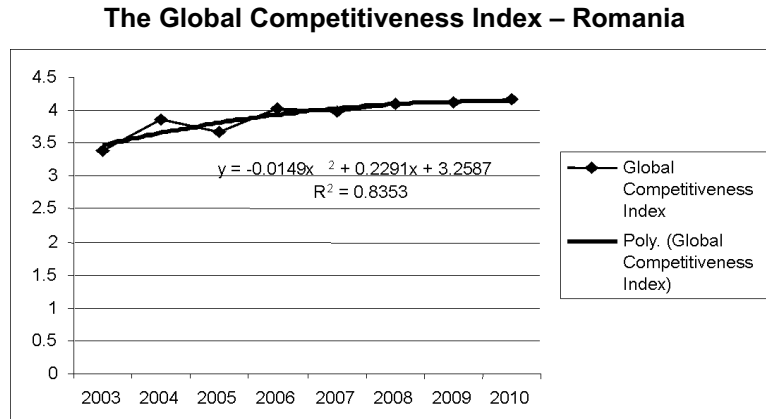$$y = 0.0733x^2 - 0.0961x + 47.479$$
$$R^2 = 0.7954$$

The dynamic analysis of the IEF for Romania (better modeled by the polynomial function shown in Figure 1 with a 0.7954 R^2) reveals the following:

- In 1998, Romania has considerably improved its monetary freedom as compared to 1997, from 39.1 to 52.1 (the monetary freedom combines a measure of price stability with an assessment of price control) and its freedom from corruption, from 30 to 50 (corruption erodes economic freedom by introducing insecurity and uncertainty into the economic relationships), which led to a 54.4 IEF score as compared to a 50.8 score in 1997;
- In 1999, the situation changed, with a 50.1 value for IEF; the downsizing as compared to 1998 was due to the lower level registered by the monetary freedom and the freedom from corruption;
- Starting with 2001, the situation improved, and in 2007 Romania entered the category of moderately free countries, with a 61.2 score and most of the sub-indexes having values over 50.

As one may see in Figure 2, the score that Romania had for GCI in 2005 was lower than in 2004. This decrease was caused by the *government efficiency* and *infrastructure and technology* pillars, which registered values of 3.53 and 3.84 in 2005, as compared to 4.13 and 3.94 in 2004.

Figure 2

The Global Competitiveness Index – Romania

$$y = -0.0149x^2 + 0.2291x + 3.2587$$
$$R^2 = 0.8353$$

After 2005, the trend increased, as Romania made efforts toward raising its competitiveness. However, it still remains among the medium national competitiveness countries, with registered results between 4.5 and 3.5.

Figure 3 reveals that since 2003 Romania has improved its country risk – from 6 to 5; it stabilized at 4 from 2004 for a three-year period. For two years, 2007 and 2008, Romania entered the category of countries with a 3 value for the country risk – which led to the attraction of foreign direct investments and to the improvement of the business environment. In the middle of the global economic and financial crisis and the political instability of the country, Romania returned to a 4 classification according to OCDE, which placed it within the countries characterized by a medium country risk.
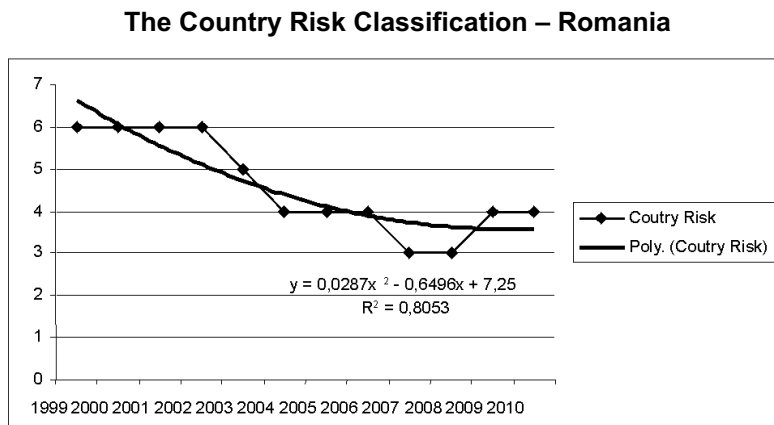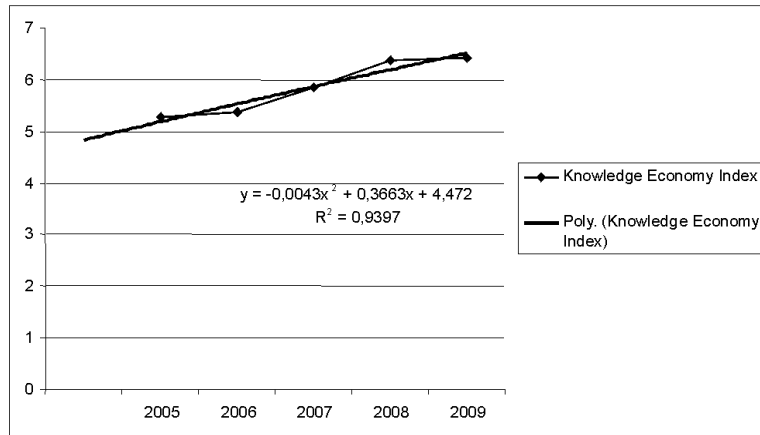
Figure 3

The Country Risk Classification – Romania

$$y = 0,0287x^2 - 0,6496x + 7,25$$
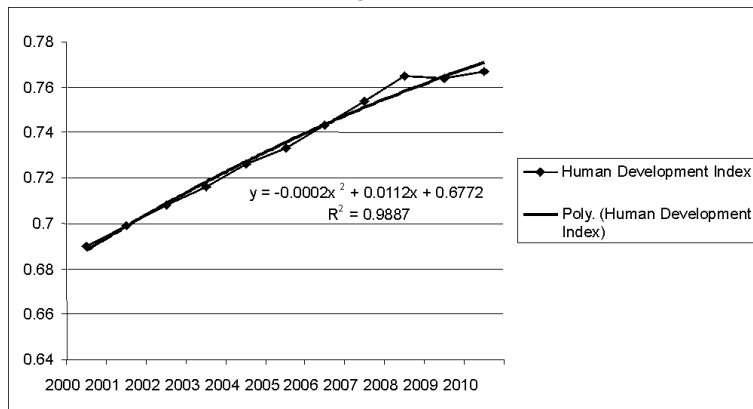$$R^2 = 0,8053$$

Figure 4

The Knowledge Economy Index – Romania

The KEI for Romania had an ascendant trend between 2005 and 2010 (the time period with available data), as one may see in Figure 4. This trend was mostly due to the 4th pillar of the index, namely the ICT. We can say that Romania is a medium knowledge economy.

Figure 5

The Human Development Index – Romania

Modeling the HDI growth for Romania according to the polynomial function in Figure 5 is representative, given the 0.9887 value of R^2. During the whole period of analysis (2000-2010) Romania did not change its statute; it remained a country with medium human development, but if this trend would continue Romania could reach the 0.800 inflection point that would place it among the countries with high human development.

Starting from the graphical representation of the five variables (Figures 1-5), where the functions that model them were also identified, we can calculate the NGPI on the basis of the following formula:

$$f(NGPI) = \begin{cases} 0.0101 \times f(IEF) = \left(0.0733x^2 - 0.0961x + 47.479 \right) \\ + 0.1724 \times f(GCI) = \left(-0.0149x^2 + 0.2291x + 3.2587 \right) \\ - 0.1428 \times f(CRC) = \left(0.0287x^2 - 0.6496x + 7.25 \right) \\ + 0.1 \times f(KEI) = \left(-0.0043x^2 + 0.3663x + 4.472 \right) \\ + 0.901 \times f(HDI) = \left(-0.0002x^2 + 0.0112x + 0.6772 \right) \\ - 0.3404 \end{cases} \quad (12)$$

where:

x represents the succession of the periods of time that we considered in our analysis.

Based on the functions of the variables, we adjust the real variables in Table 3 in order to recalculate the NGPI.

Table 5

Romania	IEF	GCI	CRC	KEI	HDI	NGPI
2005	55.29	3.81	4.1	4.79	0.737	1.55
2006	56.88	3.94	3.89	5.03	0.746	1.65
2007	58.62	4.03	3.72	5.53	0.754	1.76
2008	60.5	4.1	3.62	5.86	0.762	1.85
2009	62.53	4.13	3.57	6.2	0.769	1.92
2010	64.71	4.14	3.58	6.52	0.776	1.99

As one may see, during the 2005-2010 period Romania registered an adjusted NGPI score that places it within the interval [1.08, 2.54), which means that Romania was a medium national global performance country.

4. Conclusions

There are many studies, models and benchmarks that evaluate, compare and set up hierarchies of countries, based on different types of (more or less) integrated indexes reflecting economic – social – political – environmental realities and figures.

In this study, we tried to build an index able to measure the national global performance (NGPI), by using the discriminative analysis technique; we considered five indexes as pillars of the NGPI model, which we considered to be relevant for a country: the Index of Economic Freedom, the Global Competitiveness Index, the Country Risk Classification, the Knowledge Economy Index and the Human Development Index.

The NGPI offers the opportunity to compare different countries, to benchmark them and to place them within different performance stages. According to our calculus,

Romania had a 1.92 NGPI score in 2010, which placed it in the second interval, namely that of medium NGPI countries.

Even so, Romania might obtain a better result, higher than 2.54 – the inferior limit of the interval for countries with high national global performance – if it improves all the five indicators, and mostly the country risk, because the factor analysis of the NGPI has revealed that it had the most important influence.

Acknowledgement:

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