

**The Impact of Social Factors on Economic Growth: Empirical  
Evidence for Romania and European Union Countries**

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**ABSTRACT**

This study analyzes the relationship between the social factors and the economic growth. A summary of social and economic environment is presented for Romania. As such, the paper analyzes the global evolution of social and economic environment over time and establishes a direct correlation between human development and economic welfare. An econometric model and a clustering model are tested for European Union countries. The results of the paper reveal the social factors that are positively correlated with the economic growth (i.e. the expected years of schooling and the life expectancy) and, respectively, the factors that are negatively correlated with the economic growth (i.e. the population at risk of poverty and the unemployment rate).

**Keywords:** Economic growth, Social factors, Human development

**JEL codes:** E60, O15, O47

**1. Introduction**

None of the economic topics captured the attention of the economists, physicians and politicians, as the concept of the economic growth. This is due to the major significance of the topic upon the entire population in a country, which made the maintenance or improvement of the economic environment an objective of the macroeconomic policy, on short, medium and also long term.

The purpose of this paper is to reveal the importance of social factors upon economic growth, considering that the most used macroeconomic indicator, GDP per capita, is not the most proper measure for the nation welfare. GDP per capita fails to take into consideration some specific sectors of the economy, such as the black market and grey economy.

Until recently, the economists were reluctant to rely on culture as a possible determinant of economic phenomena. However, in recent years, better techniques and more data made it possible to identify systematic differences in people's preferences and beliefs and to relate them to various measures of cultural legacy. These developments suggest an approach to introduce cultural-based explanations that can be tested and are able to substantially enrich the understanding of economic phenomena.

The increased importance of social factors relies on a basic concept. For centuries the fiscal and monetary policies focused on increasing the national income, which lead consequently to economic growth. The reason most of them encountered difficulties is that they were based on a wrong hypothesis, according to which the nation welfare is based only on the level of income.

The paper points out the necessity for a society to sustain the human development (which is measured by Human Development Indicator, further on referred to as "HDI"), taking into consideration the economic benefits which arise from it on a long term.

The study of social factors is performed within two stages: at the Romanian level and at the EU level (performing an econometric analysis and a clustering model).

In 1880, for most of the countries, the life expectancy was around 40 years. The changes encountered within over 200 years of evolution were determined by the two global wars, the industrialization process, the technologic progress, the medical evolution, the scientific research, but were also related to internal causes, specific to each country. Thus, the differences are significant and are linked both to life expectancy level and the GDP / capita.

Also, in 200 years, the differences between countries, both social and economic, increased significantly: in respect of life expectancy, the level of the indicator increased for all the countries, but in respect of the economic wellness, not all the countries enjoyed the same evolution. The Western European countries and the USA registered the most significant evolutions, while Africa and Asia are still facing major economic and social issues. The access to a healthy life and medical services are still long terms objectives for countries with low life expectancy.

The evolutions of economic and social environment in the world are mostly important for the future development. In order for the poor countries to eliminate the barriers to a decent living standard, outside resources and support are needed. The clustering phenomena may amplify globally, based on the fact that the developed countries will continue to enforce

their position, while poor countries will struggle with social and economic difficulties.

The paper is organized as follows: the next section presents the review of literature in order to establish a framework for the study of social indicators, Section 3 consists in an analysis of the statistical data revealing the social and economic developments in Romania, and also in European Union; Section 4 describes the econometric model and the empirical results for the EU countries concerning the study of the correlation between economic growth and a number of social indicators; Section 5 summarizes the conclusions of the paper.

## **2. Literature Review**

According to Harrison and Huntington (2000), the analysis of social factors helps understanding the human behavior with respect to consumption, savings, investment system, expectations and attitude towards the economic circumstances, which also have a major impact on the economic growth.

In this paper, it was considered a split of social factors into demographic and cultural factors, in order to determine the significance of each of those two classes when studying their impact on the economic growth. For example, the population's structure represents a very important social indicator, as it influences the distribution of the public income.

### ***The cultural influence upon economic growth***

Barro and Sala-i-Martin (1996) defined culture as the sum of symbols, meanings, habits, values, institutions, behaviors and social artifacts which characterize a distinctive and specific human population group.

The culture can be defined in a sufficiently narrow way that makes it easier to identify a causal link from culture to economic outcomes. As such, another basic definition can be that of Guiso et al. (2004): those customary beliefs and values that ethnic, religious and social groups transmit fairly unchanged from generation to generation. This definition provides an approach to identify a causal effect from culture to economic outcomes and focuses on those dimensions of culture that can have an impact on the economic outcomes, beliefs (i.e. priors) and values (i.e. preferences).

Birdsall (2001) analyzed the decision of saving money as the culture's main mechanism to influence the economic preferences, through the relation between religion and the preference for savings (indicator measured as the percentage of population that educate their children to make savings). His paper showed that religious people are more likely to educate their children to make economy than the non-Christians. Furthermore, the author suggested that sharing a specific religion can have an influence on a country's economic performances.

According to Guo (2006), culture can be studied through three main elements – ethnicity, language and religion. This can be explained by the fact that the ethnicity provides a genetic basis in which socioeconomic behaviors between groups of people can be easily differentiated, the language is an effective tool of communication and the religion can provide insights into the characteristics of culture.

The author suggested that the distribution of language speakers reflected the distribution of economic power in the world. Latin, for example, was a universal language in Europe during the Middle Ages and the Renaissance. French was once known as the universal language of diplomacy, and English today is often said to fill such a role in world commerce. During the supremacy of the Soviet Union, Russian was the language which was thought in most countries. The decline of the Russian power has been accompanied by a parallel decline in the use of Russian as a second language. Since the late twentieth century, China’s economic power has stimulated the learning of Chinese in other countries. However, none of those has been able to become a universal language. With the aim of making international communication simpler, numerous efforts have also been made to create artificial languages during the past centuries (i.e. Volapuk, created by Johann Martin Schleyer in 1880, or Esperando, created by Ludwig L. Zamenhof in 1887).

**Figure 1 The most spoken languages in the world (millions of speakers), 2010**



The graph above presents the most spoken languages in the world in 2010 and as stated above, it shows that the two most spoken languages are also the greatest economic powers in the world.

***The demographic influences upon economic growth***

For decades, economists and social thinkers debated the influence of population change on economic growth. Bloom et al. (2001) defined three alternative hypotheses: that population growth restricts, promotes, or is independent of economic growth. Each hypothesis was

sustained with strong arguments, and all the arguments mostly focused on population size and growth. The debates revealed other important issues, such as the age structure of the population – the way in which the population is distributed across different age groups.

The author revealed that due to the fact that people's economic behavior varies at different stages of life, changes in a country's age structure can have significant effects on its economic performance. In this respect, nations with a high proportion of children are likely to devote a high proportion of resources to their care, which tends to depress the pace of economic growth. By contrast, if most of a nation's population falls within the working-ages, the added productivity of this group can produce an increase in the economic growth. This is how the combined effect of this large working-age population and health, family, labor, financial and human capital policies can create virtuous cycles of wealth creation. On the other hand, if a large proportion of a nation's population consists of the elderly, the effects can be similar to those of a very young population: a large share of resources is needed by a relatively less productive segment of the population, which likewise can inhibit economic growth.

Further, Bloom et al. (2001) analyzed the three main mechanisms of population's structure for determining economic growth (labor supply, savings and human capital) and their dependence of policy environment:

- a growing number of adults will only be productive if there is sufficient flexibility in the labor market to allow its expansion, and macroeconomic policies that permit and encourage investment;
- people will only save if they have access to adequate saving mechanisms and have confidence in domestic financial markets;
- the demographic transition creates conditions where people will tend to invest in their health and education, offering great economic benefits, especially in the modern world's increasingly sophisticated economies.

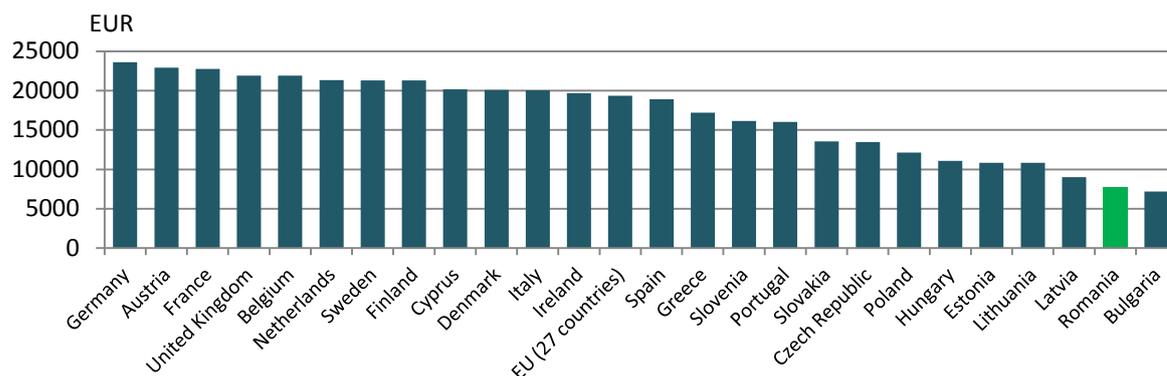
### **3. Statistics on Social and Economic Developments in Romania and European Union**

This paper analyzes the social and economic developments in Romania by comparison with other European Union countries, in order to identify the major distinctions and the source of gaps. Romania is an emerging country and it registered a high economic growth in the last ten years, which was not accompanied by corresponding social development, due to the

huge inequality of income distribution within the population, measured by Gini coefficient<sup>1</sup>.

The Romanian financial crisis from 2008 was one of the most powerful crises, in comparison to other EU countries. Its deepness was affected by the increased level of debt. Such context pointed out that the country was one of the poorest countries from EU. In this respect, in 2010, the annual average income per capita in EU was EUR 19,359, while in Romania the level was EUR 7,799. Only Bulgaria recorded a smaller level in 2010, of EUR 7,180.

**Figure 2 Annual average income per capita, 2010**



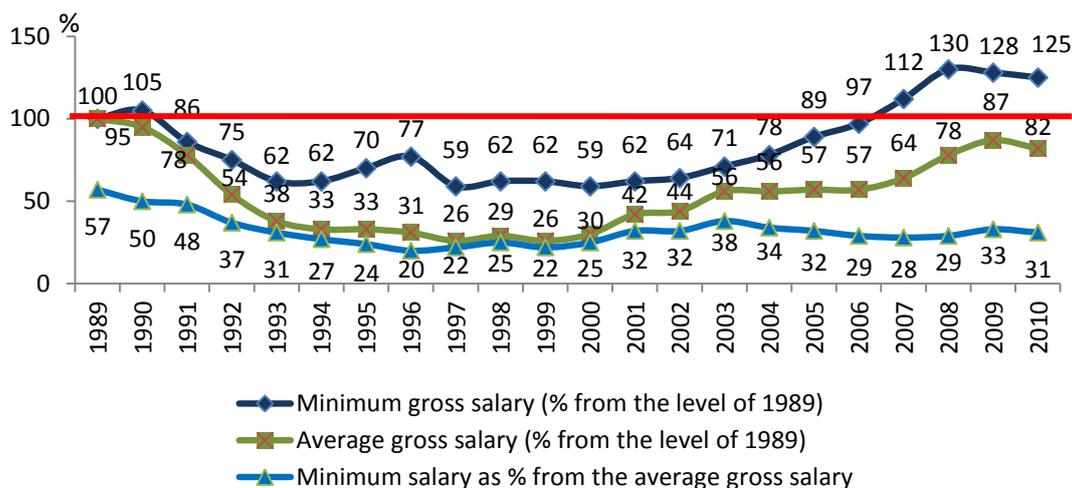
Source: Eurostat<sup>2</sup>, <http://epp.eurostat.ec.europa.eu>

Considering the salary level of Romanian employees, during the period 1989 – 2010, it recorded significant decrease. As it can be seen from the below figure, after 2007 the average salary exceeded the level corresponding to the year 1989.

<sup>1</sup> The Gini coefficient measures the inequality among the levels of income within the population. A Gini coefficient of zero expresses perfect equality where everyone has an exactly equal income, while a Gini coefficient of one expresses that one person has all the income

<sup>2</sup> No data available in 2010 for Malta and Luxembourg

**Figure 3 The evolution of salary in Romania, during 1989 – 2010**



Source: INSSE Data, [www.insse.ro](http://www.insse.ro)

Romania is one of the eight countries which, during 2009 – 2010, did not raise the level of minimum salary, and considering the increasing inflation rates, the real minimum salary registered a significant decrease.

As a consequence of the evolution of the Romanian salary, the income stopped being an adequate indicator of the living standard. Furthermore, there are two main sources of the salary's evolution: the decrease of the number of employees and the salary clustering, which means that high-value salaries increased significantly, while small-value salaries continued to decrease. In 1989 the minimum salary encountered almost 57% of the average salary, while in 2010, it represented only 31% of the average salary.

**Figure 4 Number of employees vs. number of retired people and farmers**

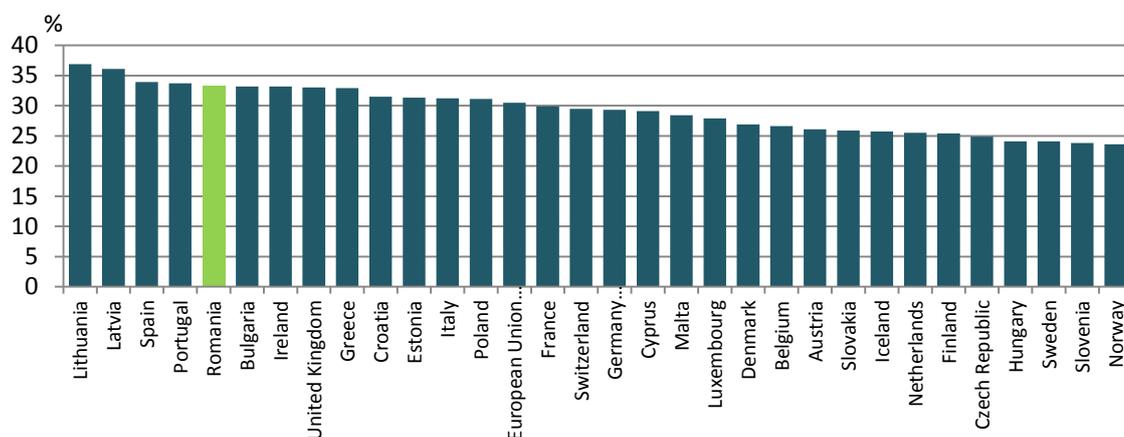


Source: INSSE Data, [www.insse.ro](http://www.insse.ro)

The significant decrease of the number of employees was accompanied by the ascendant

trend of the retirement. This was due to the favorable anticipated retirement policy of Romania. In this respect, income from salaries was replaced by income from pensions, which led to substantial loss in the national domestic product.

**Figure 5 Gini Coefficient, 2010**

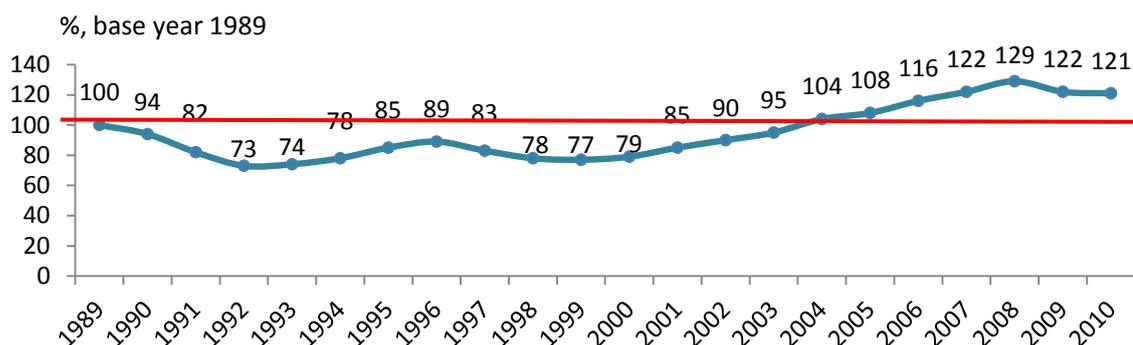


Source: Eurostat, <http://epp.eurostat.ec.europa.eu>

Romania recorded in 2010 one of the highest Gini coefficients (35%), suggesting a significant inequality of income distribution among its population.

The figure below presents the evolution of Romanian GDP as compared to the year 1989. As can be seen, it was just in 2004 that the GDP exceeded the level from 1989. Also, starting with 2008, it recorded a new descendent trend.

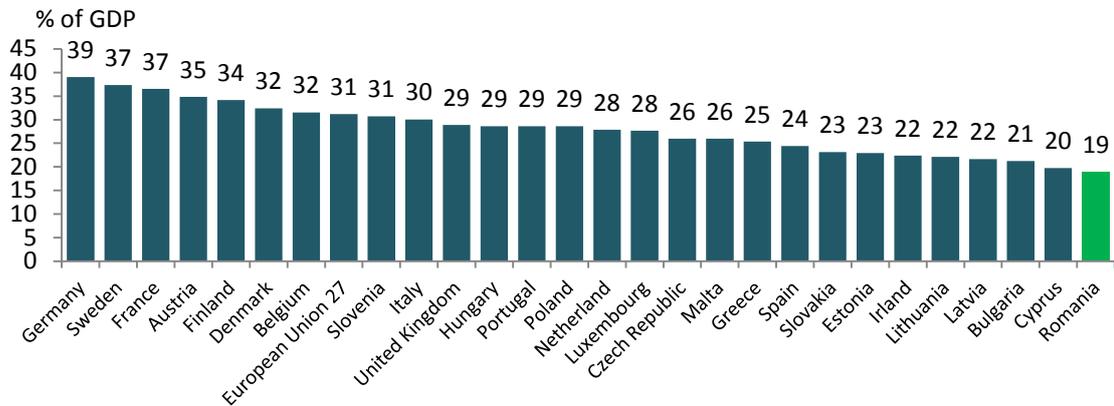
**Figure 6 Evolution of GDP in Romania**



Source: Eurostat, <http://epp.eurostat.ec.europa.eu>

In Romania, the social public expenditures are undersized as compared to the other European countries. In 2008, the average European level of the social public expenditures was 56.2%, while in Romania the level reached only 37.3% of the GDP.

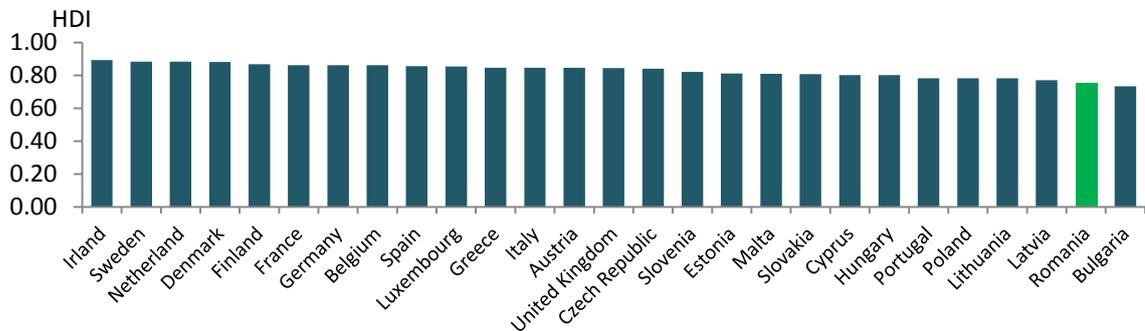
**Figure 7 Social public expenditures, % of GDP, average 2000 – 2008**



Source: Eurostat, <http://epp.eurostat.ec.europa.eu>

With respect to the average Human Development Indicator during 2005 – 2009, Romania recorded one of the lowest levels, being closely followed by Bulgaria. On the other hand, the levels of HDI within EU countries are slightly different.

**Figure 8 HDI Average in EU countries, 2005 – 2009**



Source: Eurostat, <http://epp.eurostat.ec.europa.eu>

As a result of the uncertain developments in the Romanian economy, the living standard did not registered significant improvements during 1989 – 2010. From 2008, the country was affected by the global economic crisis. In this respect, one solution may be the increasing of foreign investments, which could help the local economy recovering.

#### **4. Econometric Model and Empirical Results for EU countries**

The econometric model tested in this section aims to identify the social factors which are correlated with the economic growth and their impact upon a country's welfare.

The econometric analysis is performed using a panel data consisting in annual data extracted from 2005-2009 for EU countries<sup>3</sup>. The real GDP per capita indicator is used as dependent variable, while the independent variables are as follows:

- population at risk of poverty,
- unemployment rate,
- life expectancy and
- expected years of schooling.

For the expected years of schooling, population at risk of poverty, life expectancy and GDP / capita the logarithmic values were used, in order to have to ensure data consistency (due to the fact that the unemployment rate was expressed as percentage rate).

In order to choose the most adequate estimation method within the econometric estimation, the Hausman test is performed. As shown in the table below, the test returns a value equal to 0.00 and considering the null hypothesis of this test (that individual errors of the panel data are not correlated with the independents variables), the estimation with no effects is further performed.

**Table 1 Result of Hausman Test**

Correlated Random Effects - Hausman Test

Equation: panel\_model

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	58.276556	4	0.0000

Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
LN_RISK_POVERTY	-0.039532	-0.044916	0.000003	0.0031
UNEMPLOYMENT	-2.026851	-2.095464	0.000141	0.0000
LN_LIFE_EXPECTANCY	2.914816	3.551845	0.008933	0.0000
LN_YEARS_SCHOOLING	-0.042254	-0.059056	0.000130	0.1399

According to the multiple model tested, the independent factors have a significant influence on the economic growth. In going further, the impact of each factor upon the GDP/capita is presented in the Table 2:

<sup>3</sup> Data source: Eurostat, <http://epp.eurostat.ec.europa.eu>

**Table 2 Results of the tested model**

Independent variable	Coefficient	Probability	R <sup>2</sup>	Adjusted R <sup>2</sup>	Prob (F-statistic)	Durbin Watson
C	-50.84373	0.0000	0.789133	0.782645	0.0000	0.096512
LN_RISK_POVERTY	-0.539843	0.0004				
UNEMPLOYMENT	-4.110177	0.0012				
LN_LIFE_EXPECTANCY	13.06569	0.0000				
LN_YEARS_SCHOOLING	1.068611	0.0072				

Considering the above results, the regression equation can be written as follows:

$$\begin{aligned} \ln(gdp\text{capita}) = & -50.84 - 0.53 * \ln(\text{population at risk of poverty}) - 4.11 \\ & * \text{unemployment rate} + 13.06 * \ln(\text{life expectancy}) + 1.06 \\ & * \ln(\text{expected years of schooling}) \end{aligned} \quad (1)$$

The Fisher test shows the model is valid (the probability associated is 0.00). Also, the coefficient of independent factors are considered statistically different of 0, at a confidence level of 5% (the probabilities associated to each coefficient is smaller than 0.05), and therefore they are statistically significant. Appendix A presents the result of the analysis and the econometric model.

The cumulative variance of the four independent variables conducts to the 78.91% of the variance of the gross domestic product (i.e. R-squared is equal to 0.7891).

The result of Durbin Watson test (i.e. 0.096512) confirms that the errors are not correlated. Also, the test Jarques Bera returns a probability value of 0.12 (which is higher than 0.05), which leads to the conclusion that the errors are normally distributed. Appendix B presents the distribution of errors within the tested model.

The results of the estimated model for EU countries identify the social factors which are correlated with the economic growth and the extent to which each of those factors influence the economic growth.

The life expectancy and expected years of schooling have positive impact upon the level of real GDP per capita, meaning that increases of these two indicators lead to increase of real GDP per capita, which subsequently reflects economic growth. On the other side, the unemployment rate and the population at risk of poverty are negatively correlated with the real GDP per capita. In this respect, if these two indicators register increases, it can lead to a decrease of the real GDP per capita.

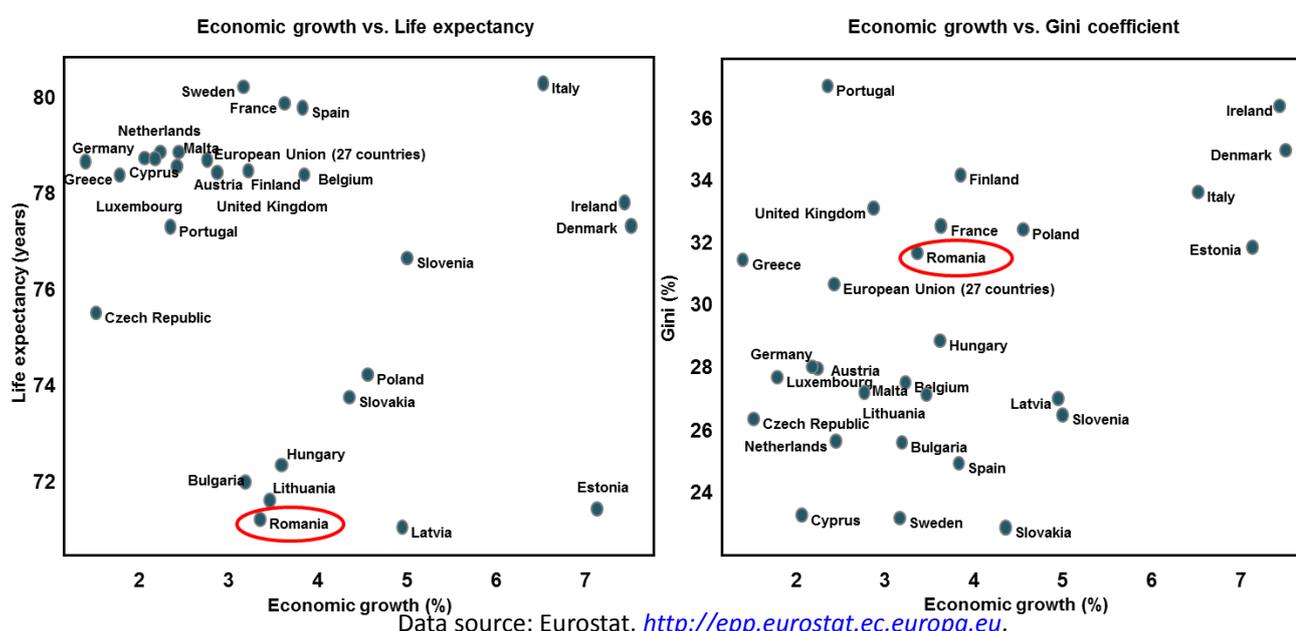
Furthermore, considering an indirect approach, for obtaining economic growth, countries can focus on social development, by increasing the life expectancy, by improving the

education and raising the expected years of schooling, by reducing the poverty (more specifically, the population at risk of poverty) and also by controlling the unemployment rate.

Considering the above, it can be stated that the continuous investment in human capital development, through various channels (e.g. education, standard of living, poverty reducing), contributes to economic benefits on long term. The analysis performed proves the relevance of cultural and demographic influences when analyzing the economic growth.

The figure below also reveals relation between the economic growth and the life expectancy, respectively, the relation between economic growth and Gini coefficient, for the EU countries.

**Figure 9 Correlation of economic growth – life expectancy – Gini coefficient**



Data source: Eurostat, <http://epp.eurostat.ec.europa.eu>,

Own graph computations

Based on these results, the countries were grouped into the following categories, based on the position in the chart:

- developed countries (the ones in the upper left corner of the chart) – countries which recorded a small, but sustainable economic growth, having a high standard of living and high life expectancy (between 78 and 80 years) in the analyzed period<sup>4</sup>;
- developing countries (the ones in the lower right corner of the chart) – the ones that registered high levels of economic growth, due to the catching-up process (Romania belongs to this category).

<sup>4</sup> In order to eliminate the effect of economic global crisis from 2008, for the two charts, the average value for the period 1997 – 2007 are considered.

Also, by considering the relation between the Gini coefficient and the economic growth, the figure points out that along with the high level of income, the countries should also focus on the distribution of the income within the population.

For further analysis, there were determined the clusters within the EU countries<sup>5</sup> based on the real GDP per capita along with other social indicators (i.e. Gini coefficient, life expectancy, total socio-cultural expenditures, unemployment rate, population at risk of poverty, expected years of schooling, degree of enrolment in education).

The results are presented in the Appendix of the paper. The analysis reveals that, from a social and economic perspective, the highest similarities are between the following couples of countries: Finland and Sweden, Romania and Bulgaria and Germany and Italy.

On the other hand, the countries are grouped into 3 clusters, which also reflect the economic stability and the membership status within the EU:

- Cluster 1 – developed countries: founder countries (e.g. Belgium, France, Germany, Italy), and countries that have accessed EU until 1995. These countries made significant investments in human capital and they enjoyed long term economic development.
- Cluster 2 – developing countries: part of countries that accessed EU in 2004 and in 2007. Romania belongs to this cluster. The countries are mainly focused on economic growth and financial stability, the decrease of the export dependence and the debt level. Also they invest in technological progress and innovation. The main challenges those countries are facing are related to the migration of the work force, the weaknesses within the education and health systems;
- Cluster 3 – small countries, but with financial stability. The cluster is composed by a part of the countries which accessed EU in 2004 (Czech Republic, Cyprus, Malta, Slovakia and Slovenia) and Luxembourg. They are not part of the first cluster due to the smaller economy and also not part of the second cluster to human capital development.

Also, the position of a country within a cluster is strongly correlated with the value of HDI indicator, as shown below:

**Table 3 Correlation between HDI value (year 2010) and position in the cluster**

Cluster	Countries	HDI values
1	Ireland, Germany, Sweden, France, Finland, Belgium, Denmark, Spain, Greece, Italy, Austria, Great Britain, Portugal	0.849 – 0.895 <sup>6</sup>
2	Luxembourg, Czech Republic, Slovenia, Slovakia, Malta, Cyprus	0.810 – 0.852
3	Estonia, Hungary, Poland, Lithuania, Latvia, Romania, Bulgaria	0.743 – 0.812

Source (HDI value): <http://hdrstats.undp.org/>

<sup>5</sup> Netherland is not included in the analysis, because part of data was not available.

<sup>6</sup> Except Portugal, which in 2010 recorded an HDI value of 0.795.

The above results show the correlation between the human development and economic growth, as the countries from cluster 1 (develop countries) encounter the highest levels of HDI indicator (except Portugal), being followed by countries from cluster 3 (small countries, but which invested in human capital) and countries from cluster 2 (developing countries).

## **5. Conclusions**

The analysis of correlation between the social factors and the economic growth reveals the impact of human development upon the economic development, both through direct and indirect mechanisms.

As it was showed, both cultural and demographic factors have specific influences on the economy. More specifically, the culture defines the way population's preferences, the way they take decision, the perception upon living and the perspective for the futures. On the other site, the demographic factors are important, mainly because of the population structure and the capacity of working and contributing to the GDP.

In respect of the analysis of social and economic environment in Romania, the study identified that the main difficulties are related to the fact that the country registered one of the highest Gini coefficient, one of the lowest HDI Indicator and a very small increase in the level of the GDP after the events from 1989.

The results of the econometric analysis performed for EU countries pointed out the factors that are positively correlated with the economic growth (i.e. the expected years of schooling and the life expectancy) and, respectively, the factors that are negatively correlated with the economic growth (i.e. the population at risk of poverty and the unemployment rate). Further, considering a long term approach, social development and the improvement of the living standard can lead to sustainable economic growth.

On the other side, the clustering analysis and the presentation of the global evolution of social and economic environment has also determined a strong relation between the human development within a country and its economic development.

Moreover, the correlation between the factors measuring the social wellness and the economic growth should be completed with the analysis of other complex factors (e.g. financial, political and legislative) and should also be leveraged for each country. Nevertheless, the analysis performed within the paper is relevant and is relies on a concept that has a significant importance for the macroeconomic policy: the analysis of social factors can reflect the differences between the degrees of development among multiple countries.

Thus, continuous investment in human capital leads to sustainable development and should be considered within the economic policies as one of the basic objectives of any country wishing to achieve high standards of living and economic welfare.

## **Acknowledgements**

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## APPENDIX – Output of cluster analysis

### Case Processing Summary<sup>a,b</sup>

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
26	96.3	1	3.7	27	100.0

a. Squared Euclidean Distance used

b. Ward Linkage

### Agglomeration Schedule

### Cluster Membership

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage	Case	3 Clusters
	Cluster 1	Cluster 2		Cluster 1	Cluster 2			
1	8	26	.870	0	0	9	1:Austria	1
2	3	22	2.013	0	0	22	2:Belgia	1
3	10	14	4.099	0	0	8	3:Bulgaria	2
4	21	27	6.265	0	0	18	4:Cipru	3
5	15	16	8.437	0	0	12	5:Cehia	3
6	5	24	11.704	0	0	19	6:Danemarc	1
7	1	9	15.699	0	0	14	7:Estonia	2
8	10	11	19.756	3	0	10	8:Finlanda	1
9	6	8	23.931	0	1	14	9:Franta	1
10	10	13	28.343	8	0	20	10:Germania	1
11	7	12	33.821	0	0	17	11:Grecia	1
12	15	20	40.268	5	0	17	12:Ungaria	2
13	4	18	47.694	0	0	16	13:Irlanda	1
14	1	6	55.462	7	9	23	14:Italia	1
15	2	25	63.997	0	0	18	15:Letonia	2
16	4	17	73.227	13	0	21	16:Lituania	2
17	7	15	83.145	11	12	22	17:Luxembou	3
18	2	21	93.366	15	4	20	18:Malta	3
19	5	23	107.298	6	0	21	20:Polonia	2
20	2	10	125.042	18	10	23	21:Portugal	1
21	4	5	144.312	16	19	24	22:Romania	2
22	3	7	166.590	2	17	24	23:Slovacia	3
23	1	2	197.300	14	20	25	24:Slovenia	3
24	3	4	240.208	22	21	25	25:Spania	1
25	1	3	331.189	23	24	0	26:Suedia	1
							27:Regatul	1