

HAPPINESS AND ITS SOCIO-ECONOMICS FACTORS. OVERVIEW AND ECONOMETRIC ESTIMATION

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ABSTRACT

This article synthesizes the main results of some specialty studies of the economical profiled magazines regarding the individual happiness and the economic - social factors which influence it. Using the cluster analysis for the classification of 31 European countries according to the Human Development Index (HDI) and the happiness index (HPI) has resulted four groups, homogeneous on the inside and different one from another. The dates were extracted from the 2006 Human Development Report and from the 2006 nef report. Throughout three econometric models we have tested the influence of HDI, GINI and the number of marriages of 1000 persons over some indicators which synthesize the life satisfaction.

Keywords: *life satisfaction, Human Development Index, Happy Planet Index, cluster analysis, OLS.*

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1. INTRODUCTION

This study makes a classification of the EU 27 member states, of Croatia (an EU adhering candidate), of three EFTA (European Free Trade Association) member countries: Iceland, Norway, Switzerland, and also deals with the finding of some factors which influence happiness. In 2005, the year from which the information of this article dates, the European Union had 25 state members and Bulgaria, Romania and Croatia were running for EU adhesion.

The information gathered in this study is from the 2006 Human Development Rapport made by UNDP (United Nation Development Programme), from the 2006 “The (Un) Happy Planet” rapport made by nef (New Economic Foundation), from the studies made by Eurostat and also by World Bank. The analyzed variables refer to two lines of study and interest such as human development and happiness of the above mentioned European countries.

The 31 analyzed states are classified upon two complex variables: HDI (Human Development Index) and HPI (Happy Planet Index), making four classes for each case. Another aspect of this study will focus on finding the influence factors of happiness. Some authors (FERRER - I – CARBONELLA A., 2005) consider the notions of happiness, welfare and life satisfaction as being equivalent. This matter of happiness, welfare and personal satisfaction doesn't represent a novelty for the world of science, being dealt by economists, psychologists, sociologists trying to solve “the mystery”, to find out what makes us happier or unhappier. The following articles make reference to different factors of influence, but also explain the concept of “happiness”. Thus, BINSWANGER M (2006) adds two other concepts, besides those already existent in literature (hedonic treadmill, positional treadmill), such as: multi- option treadmill and time- saving treadmill. All these four modalities of the lifestyle have an effect upon the happiness of an individual.

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There is a tendency of people to relate to a reference group, to its way of life, and as much as they struggle for happiness, the less happy they are, giving them less time for personal pleasures. KEELY L. C. (2005) analyses welfare as a dependent function of the income growth and the variety of consumer goods. The conclusion they reach is that, although income and the variety of products are growing continuously in the developed countries, this growth doesn't lead to a likewise evolution of happiness up to a certain point.

ALESINA (2004) had studied the inequality effect in society over the individual happiness, making a comparison between Europeans and Americans, reaching to the conclusion that individuals have the tendency to consider themselves less happy when a bigger inequality is shown between social classes. GRAHAM C. et. al. (2004) had shown on a sample number of persons from Russia that there are many different elements which affect human welfare, among which one part is determinate by individual behavior: self esteem, optimism and others are determinate by socio- economic and demographic variables: marital status modifications, income fluctuations, educational level. People with a high level of happiness have more chances to enlarge their income in the future.

2. REPRESENTATIVE INDICATORS – HDI, GINI, HPI

HDI, Human Development Index, represents an important alternative of other traditional indicators for measuring the human development level, for example the GDP or the adjusted GDP. For further, more detailed explanations see SAGAR & NAJAM, 1998.

According to the **nef (new economic foundation)** rapport: "The (Un) Happy Planet Index" (July 2006), an improved alternative of HDI is HPI (Happy Planet Index). This new indicator takes into account objective data, but also subjective ones, doesn't use income as a explicit variable and take into consideration the planet's resources which lead to a longer and happier life. The purpose of development is to offer high standards of human welfare taking into account a responsible behavior of the resource consume. HPI reflects the way in which every country of those analyzed (178) fulfills the above mentioned goal..

GINI coefficient measures the degree of inequality of income levels, representing the relative average difference between everyone's incomes. The coefficient size shows the part of the total income which should be redistributed if it be wanted to obtain an equal distribution of income.

The GDP is criticized for the fact that it doesn't capture the changes for the entire population, while GINI shows how the income distribution changed for the wealthy and poor people.

The most developed European countries have a coefficient between 0,24 and 0,36 while the coefficient of the United States of America is bigger than 0,4. The Americans confront with a more accentuated inequality concerning the income distribution. GINI coefficient was estimated between 0.56 and 0.66 for the entire world.

Demographic data

The analysis made upon the 31 European countries used also some demographic variables such as: activity rate, unemployment rate, number of divorces and marriages of 1000 persons and the percentage of smokers/ non- smokers. The data were taken from the studies made by Eurostat.

3. RESULTS AND DEBATES

G8 international forum made of Canada, France, Germany, Italy, Japan, United Kingdom, Russia and USA gathers 65% of economic world power, but also the military one (7 of these countries taking top positions in the most powerful states classification from the military point of view). United Kingdom, USA, Russia and France hold 98% of the declared nuclear weapons.

Although G8 forum members considers themselves to be the most industrialized democracies of the world (the used criteria of classification is GDP), if we take into account other indicators this fact leaves room for discussions.

If HDI would be taken into account as an indicator of ranking industrialized democracies, then the present G8 would just include Canada, Japan and USA, classifying on the last three positions of the most developed 8 states. The other members of G8 would be, in decreasing order of the human development level: Norway, Iceland, Australia, Ireland and Sweden. On the other hand, if G8 would take into consideration the happiest 8 countries of the world and with the lowest negative impact on the natural environment (HPI), then none of the present members would hold the nowadays positions. In the HPI hierarchy these countries take the last places, however Italy is the best ranked, on the 66 place.

For the developed countries, Footprint significantly increases with the GDP and it is the cause for the diminution with 50% of the happiness index, while life expectancy doesn't modify and life satisfaction increases very little. On the other hand, for the states with a low level of development, life satisfaction is the main cause of the modification of HPI level. This means that, at a national level, the most significant increases of welfare are due to a low to moderate income.

The classification of countries based on HDI

The countries which are recording high values of the human development level are considered to be the best places for establishing the residence. These states have an excellent healthcare system, GDP/person and a high level of education. In accordance with the latest United Nation rapport, Human Development Report 2006, the first countries are Norway, Ireland and Austria. We might believe that many residents of these countries are very content with their life. But most of the states labeled as being well developed (based on HDI) have a mediocre level of welfare.

Having done the classification based on the HDI variable had resulted 4 groups. The cluster analysis was preferred instead of a simple segmentation because it allows an "optimal" grouping, taking into account the homogeneity of the resulted groups. The groups are being validated through ANOVA analysis.

The first group, the largest one, gathers 15 countries which record the highest values of the human development index: 0.947 (see The groups componence classified on HDI variable), on average, these countries being also the first ones in the hierarchy made by UNDP. These countries' residents from group 1 have a high level of education, reflected by the literacy rate variable, with a medium value of 98.89%, approximately 71% of those with an age from 25 – 64, graduates of high school at least. The level of the activity rate proposed by The European Council from Lisbon (March 2000) as an aim for the year 2010, that is 70% for the age group 15 – 64 and 60 % for women, was surpassed by the countries from this group in 2005 with 0.05%, respectively with 3.28%. This can be explained by the fact that the inhabitants have a high level of education which easily permitted them to get a job, the persons with a superior level of qualification having a 42.44 % and those with

elementary occupations having 8.57%. The medium value of GDP/ person, in this group, is in average of 34, 216 USD (PPP), the value close to that of Norway, considered the most developed country. The highest value is recorded in Luxembourg. The life expectancy is, in average, of 79.1 years, the highest value being recorded in Iceland (80.7 years) and the lowest in Denmark (77.2 years). This variable reflects a well organized health system and a big percentage from GDP given to the health system.

The groups compenence classified on HDI variable

Table no. 1

Group 1	Group 2	Group 3	Group 4
Austria Belgium Denmark Switzerland Finland France Ireland Island Italia Luxembourg United Kingdom Norway Holland Spain Sweden	Bulgaria Romania	Czech Republic Croatia Estonia Latvia Lithuania Malta Poland Slovakia Hungary	Cyprus Germany Greece Portugal Slovenia
<i>HDI</i> : 0.947	<i>HDI</i> : 0.811	<i>HDI</i> : 0.861	<i>HDI</i> : 0.914

Norway, the first place occupant in the global hierarchy, succeeded to become the most developed country, after that in 1970 it ranked among the last in Europe. The explanation of this ascension is given by the fact that the Norway's economy has a favorable growth period, with low rates of unemployment and inflation. All these reflect the globalization effects, from which Norway fully benefited (more than other members of The Organization for Economic Cooperation and Development - OECD): it supplies electric power and other goods at high prices and imports other goods at low prices. The liberalization of the economy, the tradition in commerce, the embracement and a fast spread of new technologies and a stable macroeconomic politic are some characteristics that led to this success. At the same time, Norway is one of the most productive countries from OECD.

The second group is made up of only Bulgaria and Romania, these two countries having the lowest values of HDI, 0.816 and respectively 0.805. Romania is situated on the last place of the 31 countries took into account. This could be explained by the evolution of the GDP that increased only from 2000 with a 1.8% increase in 2000. In 2001 Romania had the highest rate of inflation in comparison with the other former communist countries. It must be taken into account the fact that the used data are from 2005, before the adhesion to the European Union. Probably that the present situation has changed, but another studies could not be done due to the lack of information and because the calendar year is not over. However, Bulgaria surpassed us, being a little more developed than we are.

Between group 1 and group 2, being at extremes, situate groups 3 and 4.

In **the third group** there are 9 countries with a level of development closer to the countries from group 2 than to the countries from group 1, having a HDI average value of 0.861. Most of the countries from this group were former communist one, but apparently they have succeeded to reach to a medium level of development. From certain points of

view, these countries are not doing so well: it has been recorded a lower rate of activity (the unemployment rate being higher – approximately 5%), a higher percentage of inactive persons (especially in countries with a lower level of education), farmers are more numerous than in the first group countries (less persons with a high level of qualification). The highest inactivity rate is recorded in Lithuania, both in the case of youngsters and women (approximately 70%).

Group 4 has only 5 countries with a pretty high level of development, close to the values recorded in the countries from group 1 (a 0.914 average). Cyprus and Portugal, although having a high level of development (0.904), have the lowest level of education, only 46% of its inhabitants graduate high school. In Portugal there is also the lowest value of the literacy rate variable (only 92%). The average GDP per capita in this group is 22, 776 USD (PPP), a significantly smaller value than the one recorded in the first group.

The classification of countries based on HPI

A factor not taken into account by HDI is the price paid for welfare by the rich countries. For example, Norwegians consume in average 3.5 times more than their share of world's resources (value quantified by the Footprint dimension, a HPI component). Since global resources are limited, it is not possible as all the countries of the world to "buy" welfare at the same price to which developed western countries got used to. But a high level of resource consumption doesn't lead to a high level of welfare, and what is the most important, a high level of welfare can be acquired with smaller resource consumption.

HPI supplies precise data referring to the fact that in the economic development model there is a certain threshold. More precisely, once that GDP/ person reached a certain level, the economic growth has negative effects, causing more damage than good and reduces the welfare level for the next generations with a very small or zero effect for the current generation. This hypothesis was initially given in the "Index of Sustainable Economic Welfare". This aspect is very well illustrated by three Mediterranean countries: Greece, Portugal and Spain. All three had as a government form the military dictatorship until 1970 and adhered to European Union in the 80's. They can be considered as a typical example of a successful development.

While inhabitants' welfare had to gain, the negative impact upon the natural environment is more accentuated and continues to accentuate.

HPI gives an alternative, namely the need for development to stay in the limit of moderate resource consumption and to take also in consideration the personal satisfaction of the inhabitants.

The 31 European countries were grouped according to the happiness index in 4 classes. These classes were validated with the help of the ANOVA analysis.

The 4 groups' composition is given in the table below:

The first class is made of the countries with the highest level of happiness (the HPI average in this group is 49.398). Malta takes the leading position in Europe regarding the level of happiness (HPI = 53.3), but it ranks only on the 40th place in the world. Although it is situated in the green zone of two of the component dimensions of the happiness index, namely life satisfaction with a 7.5 value and with a life expectancy at birth of 78.4 years. Regarding the impact upon the natural environment it is seen that Malta is in the yellow zone, having a Footprint of 3.5, which denotes an irresponsible behavior towards the present consumption and also an inefficient allocation of resources. Although the other four countries from this group record values of life satisfaction and life expectancy components which takes them on the green color, the Footprint variable lowers them in the

classification. To sustain these states' population it would be needed more than four planets like Earth at the present resource consumption.

The groups compenence classified on HPI variable

Table no. 2

Group 1	Group 2	Group 3	Group 4
Austria Switzerland Iceland Italia Malta	Belgium Cyprus Croatia Germany Luxembourg Holland Slovenia Spain	Bulgaria Estonia Latvia Lithuania	Czech Republic Denmark Finland France Greece Ireland United Kingdom Norway Poland Portugal Romania Slovakia Sweden Hungary
<i>HPI</i> : 49.398	<i>HPI</i> :44.533	<i>HPI</i> : 27.707	<i>HPI</i> : 37.844

The 2nd group includes 8 countries with a medium level of happiness of approximately 44. It is noticed that the individuals living in these countries are satisfied by their private life, having a life expectancy at birth of more than 75 years, but denotes an irresponsible behavior regarding their impact upon the natural environment (the Footprint dimension is on the red zone).

Among **the third class** we find the most unhappy European inhabitants, respectively Bulgarians, Estonians, Lithuanians and Latvians. They are extremely unsatisfied by their life, with an average life expectancy of 72 years, but with a red Footprint.

In **the last group**, which records a medium level of happiness of 37.844, is also situated Norway, among other 13 states. According to the level of development, Norway takes the first place, but in the **nef** classification Norway is on the 115th position. A possible cause of this could be the very high value of the ecological Footprint dimension of the HPI, of 6.2, meaning a major negative impact upon the natural environment. According to the Kyoto Agreement, Norway wants to develop a series of policies and instruments to reduce pollution. In October 2006, a commission proposed a strategy for reducing GHG (Greenhouse gas) emissions with 50 to 80% until 2050. Romania is a component of this class situating on the 120 position in the **nef** classification. The Romania's proximity to Norway is explained the 2.7 value of the ecological Footprint variable, compensating in the HPI calculus the lower value for life satisfaction (5.2), comparing to that of Norway of 7.4. What happens in the case of Poland regarding the Footprint variable? Its value dropped from 4.88 in 1989 to 3.34 in 2002, despite the fact that in that period an economic growth also took place. This made possible by introducing new technologies.

In time, different hypothesis were made regarding the elements and factors which influence happiness. Most of the studies have shown the happiness dependence to the income growth, determining also the happiness growth up to a certain point, when income increase doesn't determine the modification of the happiness level. But happiness is not influenced just by its own income, but also of its reference group, individuals being more happy as their income is bigger than the reference group (FERRER -I- CARBONELLA A. 2005, "Income and well- being: an empirical analysis of the comparison income effect").

This study tries to find other factors which determine happiness. To quantify happiness, life satisfaction was considered as a dependent variable, having an equivalent relation with happiness. Earlier was mentioned that life satisfaction is determined in quantitative researches as an answer to the question: "How happy are you momentarily compared with your life so far?"

Life satisfaction is used by HDI in a 77% proportion and as more factors are being introduced in this model, the proportion increases to 83%.

The most important factor which influences happiness is the human development level. This indicator subsumes life expectation at birth, literacy and enrollment rate and GDP per capita. There is a strong correlation between life satisfaction and HDI (0.879), this being possible because the dimensions of the development level contribute to the increase of personal satisfaction and individual welfare. As bigger the development level of a country is, as easier is for the resident population to have access to a qualitative educational system, which assures a work place adequate to his professional training and therefore a bigger income. All these elements contribute to the increase of the happiness level of an individual. The model has the following formula:

$$\text{Life Satisfaction} = \beta_0 + \beta_1 * \text{HDI} + \mathcal{E} \quad (1)$$

- where \mathcal{E} - the effect of other factors upon Life Satisfaction

Regression 1

Table no. 3

Source	SS	df	MS	Number of obs	=	31
Model	28.117	1	28.117	F(1, 29)	=	98.96
Residual	8.239	29	0.284	Prob > F	=	0.000
Total	36.357	30	1.212	R-squared	=	0.773
				Adj R-squared	=	0.766

Life Satisfaction	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
HDI	20.836	2.095	9.95	0.000	16.552 25.119
_cons	-12.268	1.905	-6.44	0.000	-16.163 -8.373

According to table no. 3, relation (1) becomes:

$$\text{Life Satisfaction} = -12.268 + 20.836 * \text{HDI} + \mathcal{E} \quad (2)$$

By introducing another factor in the model it was expected to explain the endogenous variable, life satisfaction, in a greater deal:

$$\text{Life Satisfaction} = \beta_0 + \beta_1 * \text{HDI} + \beta_2 * \text{GINI} + \mathcal{E} \quad (3)$$

In the table below shows that by introducing another exogenous variable, happiness can be explain in a proportion of 80% by the level of the human development and by the unequal distribution of income.

According to table no. 4, relation (3) has the following formula:

$$\text{Life Satisfaction} = -10.294 + 20.466 * \text{HDI} - 0.052 * \text{GINI} + \mathcal{E} \quad (4)$$

As long as there is a bigger discrepancy between the rich and the poor, the less happy people are, a hypothesis shown by relation (4) through the GINI index coefficient (-0.052). Regarding the level of development it was noticed that its influence on the happiness by introducing another factor hadn't significantly modify.

Regression 2**Table no. 4**

Source	SS	df	MS	Number of obs	=	31
Model	29.426	2	14.713	F(2, 28)=	59.45	
Residual	6.930	28	0.248	Prob > F	=	0.000
				R-squared	=	0.809
				Adj R-squared	=	0.796
Total	36.3568	30	1.212			

Life Satisfaction	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
HDI	20.466	1.961	10.43	0.000	16.448	24.484
GINI	-0.052	0.023	-2.30	0.029	-0.099	-0.006
_cons	-10.294	1.974	-5.21	0.000	-14.338	-6.250

For a better explanation of happiness a new exogenous variable (3) was introduced in the above model looking like this:

$$\text{Life Satisfaction} = \beta_0 + \beta_1 * \text{HDI} + \beta_2 * \text{GINI} + \beta_3 * \text{Marriage} + \mathcal{E} \quad (5)$$

- where Marriage - number of marriages to 1000 persons

By introducing the number of marriages to a thousand persons in the model, the happiness explained by HDI, GINI and the number of marriages increased with 2% apart from the happiness presented in the previous model.

Regression 3**Table no.5**

Source	SS	df	MS	Number of obs	=	31
Model	30.761	3	10.254	F(3, 27)	=	49.48
Residual	5.595	27	0.207	Prob > F	=	0.000
				R-squared	=	0.846
				Adj R-squared	=	0.829
Total	36.357	30	1.212			

Life Satisfaction	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
HDI	21.220	1.819	11.66	0.000	17.487	24.953
GINI	-0.052	0.021	-2.48	0.020	-0.095	-0.009
Marriage	0.242	0.095	2.54	0.017	0.046	0.437
_cons	-12.224	1.960	-6.24	0.000	-16.246	-8.203

Relation (5) becomes:

$$\text{Life Satisfaction} = -12.224 + 21.220 * \text{HDI} - 0.052 * \text{GINI} + 0.242 * \text{Marriage} + \mathcal{E} \quad (6)$$

Happiness is also influenced by the marital status of the persons, meaning that married persons are happier. Divorces have a negative influence upon life satisfaction, although this influence has little significance in the present study. Although marriage makes people happier, a personal satisfaction increase doesn't determine the individuals to commit themselves in a marriage.

Recent psychology studies show that persons who give great importance to material aspects like money, fame, physical appearance and their possessions are less content by their life than those who consider these things of less importance.

The psychologist Tim KASSER states that the need of material possessions represents an extrinsic motivation (a motivation not valuable in itself; come from the need of acceptance

by the others). Intrinsic motivations are associated with the feelings of autonomy and happiness, and the extrinsic ones are associated with dissatisfaction and anxiety.

Life satisfaction is positively bound with variables like loyalty, creativity, need for adventure and negatively associated with a stable government, welfare. In other words, those who consider loyalty and creativity as being the most important characteristics are happier than others.

5. CONCLUSIONS

The anthropologist Jared DIAMOND explains in his book "Collapse" that over the centuries, civilizations disappeared because they haven't realized when their way of life outrun the limits imposed by the natural environment. Common sense tells us that is impossible that every country to carry on its activity like the western countries, when this way of life means a resource consumption which outruns the physical limits of the planet. HPI shows that are another ways to reach the wanted level of development; similar levels of welfare can be reached with a lower ecological cost.

More and more, in recent researches, it is said that life is less idyllically in the contemporaneous western societies that what is seemed to indicate GDB, HDI or other indicator of progress. The rate of those who suffer from depression increased in all groups of age, being an ascendant trend in drug consumption, suicides and crimes made by young people in these developed countries.

It is worth mentioning that HPI doesn't try to find the country in which we wish to live, from the all points of view. It is highly possible to be persons extremely satisfied by their life in every country of the world; as well as persons completely dissatisfied by their life. A good HPI score doesn't indicate that in the respective country there are no problems, that the current level of welfare is a high one or the resource consumption is equitable.

It has to be mentioned the fact that very poor countries benefit locally and nationally, in a certain way, from the economic growth. In the latest researches, **nef** suggests that a development based on a global increase is inefficient from the poverty reduction perspective. If welfare and not richness is the purpose of development, efforts must be made to ensure that the respective country doesn't have a development with a negative impact upon certain aspects of life like its social aspect, the community.

For this study made upon a sample of 31 European states, a classification according to two indexes, human development and happiness, leads to groups of different components. This is possible due to the calculus methodology of those two indicators. There are differences between classes when making classifications on the HDI and HPI variables, however there are some resemblances. The happiest countries (Austria, Switzerland, Iceland, Italy) records also the highest level of human development, Malta being the only exception. Anyway, Malta has the best score for happiness from Europe, from the development point of view it is less developed, situating in the third group with an average HDI score of 0.861. The rest of the countries which are considered as highly developed (Belgium, Denmark, Finland, France, Ireland, Luxembourg, United Kingdom, Norway, Holland, Spain, Sweden) have a medium level of happiness ($HPI = 40.99$). About the less developed countries we can say that Bulgaria has a very unhappy population, the citizens of Romania are a little bit happier than Bulgarians. Estonia, Latvia and Lithuania fits in the same group with Bulgaria from the Happy Planet Index perspective.

It could be seen that the level of happiness, measured through the life satisfaction variable, was influenced in a great proportion (0.809) by HDI and also by the GINI inequality

coefficient in a negative way and the number of marriages. These independent variables explain the endogen variable, life satisfaction, in a 84.6% percentage. Thus, it is said that people who have made a family in the countries with a high level of human development, where there is a big discrepancy between the poor and the rich, are happier. Other factors on which human happiness depends are the political stability ($R^2 = 0.27$) and the Voice and Accountability Index ($R^2 = 0.67$).

The obtained results on the factors which influence happiness are in concordance with the results obtained by other studies mentioned in the first part of the article (1. Introduction).

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