WELFARE, EDUCATION AND LONGEVITY – TO A SUSTAINABLE HUMAN RESOURCE DEVELOPMENT

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Abstract:
The problems regarding human capital are important to be considered as long as the level of development for human being is stated as basis for the future evolution of the society. The present paper aims to illustrate the main issues that establish a linkage between human capital and the overall development of both enterprises and society, on the purpose to attract attention for this category of resources. It completes previous studies by introducing a correlation between the indicators and presents a more detailed analysis of the results obtained.

Key words: *welfare, education, development, human resource*

JED Classification: I25; O15

1. INTRODUCTION – THEORETICAL BACKGROUND

According to literature, „the effects of educational process upon the life of individuals and their participation in economic activities, also on the overall economic development, are various" (Michaelowa, 2000). The most important foundation for development remains thus the educational level, still, the overall performance is codependent on the financial part and other aspects as well, mainly because education cannot sustain itself independently. The educational system performance depends on the spending and the investments that the institution of the state allocates year by year.

Also, we cannot speak about education without linking it to human development, and we cannot attain a proper level of human development without education.

According to Ranis (2004), "human development finds its theoretical underpinnings in Sen's capabilities approach which holds "a person's capability to have various functioning vectors and to enjoy the corresponding well-being achievements" to be the best indicator of welfare (Sen, 1985). At the same time, "Individual resources, emancipative values and effective rights represent the means, motives and rules components of human development, aspects that are provided not only by democratization"(Welzel, Inglehart, Klingemann, 2003).

The United Nations Development Programme offers regular reports on the problem of human development, still, for these to be developed, it is first necessary to know the real situation of three aspects:

- 1 – the level of welfare
- 2 – the level of education
- 3 – the situation regarding the health of the population in a country.

The index regarding human development it is thus different as level from a region / country / continent to another, being observed "large differences across HDI groups" but also in those aspects referring to its components: life expectancy, mean years of schooling and income" (HDI Report, 2013).

2. HDI WORLDWIDE

According to the latest report published by this agency, Romania occupied in 2013 the 54th place regarding HDI, down four places from 2011, the first 10 positions in the ranking being occupied by the following countries: Norway (with an index value for HD of 0.944), Australia (0.933), Switzerland (0.917), the Netherlands (0.915), USA

(0.914), Germany (0.911), New Zealand (0,910), Canada (0.902), Singapore (0.901), Denmark (0,900) while the HDI for Romania amounts to 0,785. European countries listed above are joined in the top 10 of the HDI values in Europe following: Ireland - 0.899, Sweden - 0.898, Iceland - 0.895, UK - 0.892, Liechtenstein - 0.889.

The main components of the human development index are*:* the level of education, life expectancy at birth, and the standard of living (Mărginean, 2010). If we consider the level of education, the secondary major indices taken into account are the literacy rate and the school enrollment rate by level of education, while the standard of living is expressed mainly through GDP / capita. The maximum level considered for the literacy rate is 100% and according to Noorbakhsh (1998), „Knowledge is presented by a measure of educational achievement based on a weighted sum of adult literacy rate

(2/3) and the combined first, second and third level gross enrolment ratio (1/3)."

Data provided by the World Bank indicate the highest literacy rate in the case of Finland and Luxembourg, while the lowest can be identified in Greece and Malta.

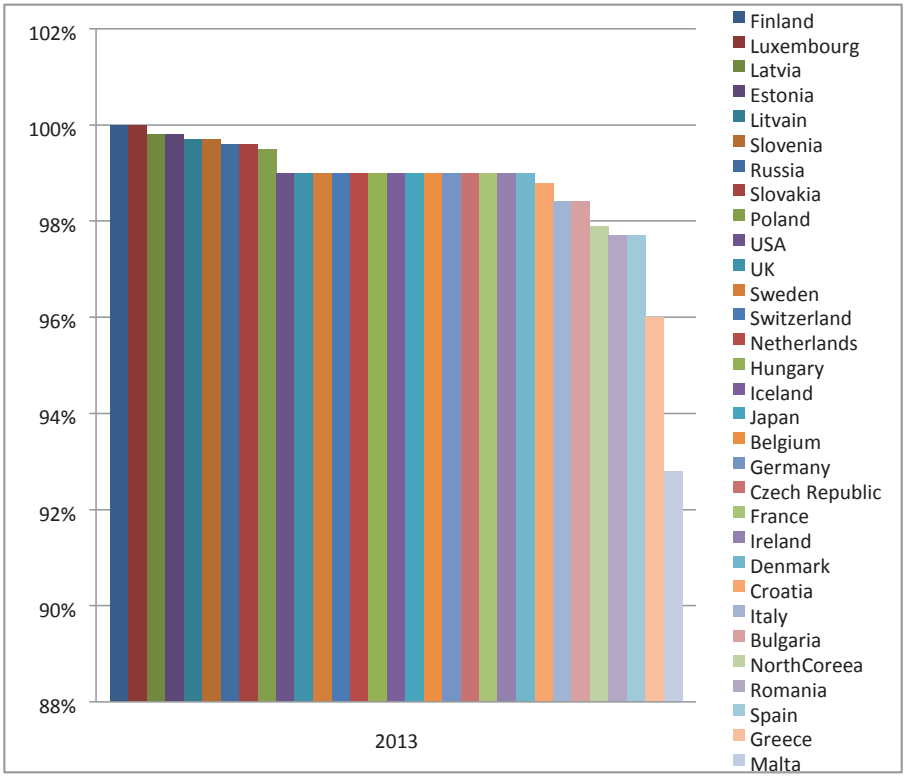

Figure no 1 Literacy rate in Europe
(Source: http://data.worldbank.org/indicator/SE.ADT.LITR.ZS accessed on 10/04/2015)

The dimension of longevity, on the other hand, "is directly measured by life expectancy at birth"(Noorbakhsh, 1998). According to the World Factbook, "life expectancy at birth compares the average number of years to be lived by a group born in the same year, if mortality at each age remains constant in the future", measuring also the "overall quality of life in a country".

Life expectancy at birth in Romania is illustrated on the following chart (data.worldbank.org, accessed on 10.04.2015):

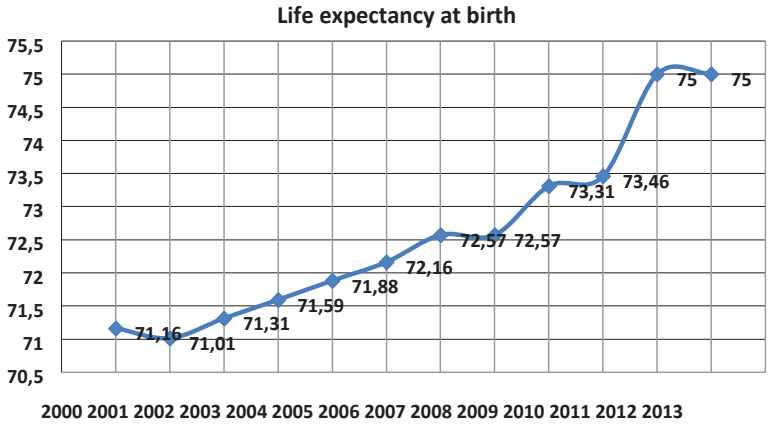

Figure no 2 - Life expectancy at birth – evolution of Romania 2001-2012
(Source: http://data.worldbank.org/indicator/SE.ADT.LITR.ZS accessed on 10/04/2015
And information provided by the Global Health Observatory)

"Another essential component of human development and the HDI is command over resources, as measured by income per capita." (HDI 2013)**.** In accordance to this affirmation, welfare level is expressed by the Gross Domestic Product per capita (general rules establishing a minimum $ 100 and maximum 40,000 dollars).

The table below presents the situation of public expenditure, expressed as a percentage, regarding the educational system in the world through a selective list of European countries, joined by the US and Japan. In the second column we find the values of the HDI for the year 2012, followed by the life expectancy at birth.

Table no. 1.
The situation of public expenditure on education

	Public expenditure on education (% of GDP)	**Human Development Index**	**LEB – Life expectancy at birth**
	2012	**2012**	**2012**
United States	5,6	0,912	79.8
Japan	3,8	0,888	86.2
Belgium	6,6	0,880	81
Bulgaria	4,1	0,776	74.5
Czech Republik	4,2	0,861	78
Denmark	8,7	0,900	79.5
Germany	5,1	0,911	81
Estonia	5,7	0,839	76.1
Ireland	6,5	0,901	81.4
Greece	4,1	0,854	81
Spain	5,0	0,869	82.5
France	5,9	0,884	81.5

Italy	4,5	0,872	83.1
Cyprus	7,3	0,848	81.2
Latvia	5,0	0,808	74.5
Litvain	5,4	0,831	75.9
Luxembourg	:	0,880	82
Hungary	4,9	0,817	75
Malta	5,4	0,827	81
Netherlands	6,0	0,915	81.5
Austria	6,0	0,880	81.5
Poland	5,2	0,833	77.5
Portugal	5,8	0,822	80
Romania	**4,2**	**0,782**	**74**
Slovenia	5,7	0,874	80
Slovakia	4,2	0,829	76.3
Finland	6,8	0,879	81
Sweeden	7,0	0,897	83
United Kingdom	5,6	0,890	81
Iceland	7,8	0,893	83.3
Liechtenstein	2,1	0,888	80.7
Norwegia	6,9	0,943	81.9
Switzerland	5,4	0,916	82.5
Croatia	4,3	0,812	77.5
Turkey	2,9	0,756	74.4

(Source: processing made by the authors, after the data provided by the Global Health Observatory, and information available at http://epp.eurostat.ec.europa.eu and worldbank.org)

The highest rates correspond to the Scandinavian countries: Denmark, Sweden, Norway and Iceland, all assigned values close to or above 7% of GDP. It is worth mentioning that the United States, as Japan, though it ranks lower, about 5.6% and 3.8%, calculate their investment value is much higher budget, since this is a domestic product Gross much higher than in other states. The general trend is of stagnation or even increase in the percentage of public expenditure in 2012 compared to 2010 values taken as the reference year. Maintaining or increasing public expenditure ratios lead to the conclusion that, although recent years have been dominated by the economic crisis, education and training were not considered elements of sacrifice.

3. RESULTS AND DISCUSSIONS

We further analyzed through Eviews 7, the influence of the public expenditure level for education and of the life expectancy at birth upon the human development index. For this, we consider the sample consisting of the 35 countries in the above/bellow tables. We will further analyze the impact that the percent of GDP allocated to education (in terms of public expenditures – PEX variable), manifests on the development of HDI and also the influence of life expectancy at birth – further named LEB index.

Table no 2

HDI, PEX and LEB Indicators

obs	HDI	PEX	LEB
1	0.912000	5.600000	79.80000
2	0.888000	3.800000	86.20000
3	0.880000	6.600000	81.00000
4	0.776000	4.100000	74.50000
5	0.861000	4.200000	78.00000
6	0.900000	8.700000	79.50000
7	0.911000	5.100000	81.00000
8	0.839000	5.700000	76.10000

9	0.901000	6.500000	81.40000
10	0.854000	4.100000	81.00000
11	0.869000	5.000000	82.50000
12	0.884000	5.900000	81.50000
13	0.872000	4.500000	83.10000
14	0.848000	7.300000	81.20000
15	0.808000	5.000000	74.50000
16	0.831000	5.400000	75.90000
17	0.880000	5.100000	82.00000
18	0.817000	4.900000	75.00000
19	0.827000	5.400000	81.00000
20	0.915000	6.000000	81.50000
21	0.880000	6.000000	81.50000
22	0.833000	5.200000	77.50000
23	0.822000	5.800000	80.00000
24	0.782000	4.200000	74.00000
25	0.874000	5.700000	80.00000
26	0.829000	4.200000	76.30000
27	0.879000	6.800000	81.00000
28	0.897000	7.000000	83.00000
29	0.890000	5.600000	81.00000
30	0.893000	7.800000	83.30000
31	0.888000	2.100000	80.70000
32	0.943000	6.900000	81.90000
33	0.916000	5.400000	82.50000
34	0.812000	4.300000	77.50000
35	0.756000	2.900000	74.40000

(source: processing made by the authors, using Eviews 7 software)

While the HDI is considered to be the dependent variable, the other two indexes considered are the independent ones.

HDI = f (PEX, LEB)

The relationship between the three variables can be illustrated by the following regression line:

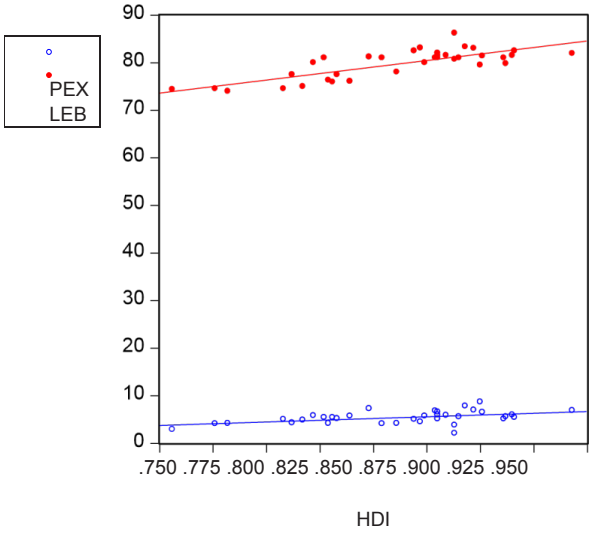

Fig. no 3 – linear regression for the above listed variables

*(*Source: Eviews 7 processing data provided by the official reports)

Considering the equation:

$$HDI=C(1)+C(2)*PEX+C(3)*LEB$$

Replacing the c(1), c(2), c(3) variables, it becomes:

$$HDI = 0{,}013084 + 0{,}007931 * PEX + 0{,}010107 * LEB$$

Table no 3

Eviews 7 processing of data

Dependent Variable: HDI
Method: Least Squares
Date: 04/13/15 Time: 19:21
Sample: 1 35
Included observations: 35
HDI=C(1)+C(2)*PEX+C(3)*LEB

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.013084	0.118607	0.110318	0.9128
C(2)	0.007931	0.003528	2.247865	0.0316
C(3)	0.010107	0.001549	6.524852	0.0000

R-squared	0.669124	Mean dependent var	0.861914
Adjusted R-squared	0.648444	S.D. dependent var	0.043888
S.E. of regression	0.026022	Akaike info criterion	-4.377900
Sum squared resid	0.021669	Schwarz criterion	-4.244585
Log likelihood	79.61325	Hannan-Quinn criter.	-4.331880
F-statistic	32.35646	Durbin-Watson stat	1.730246
Prob(F-statistic)	0.000000		

(Source: processing made by the authors using Evie ws 7 software)

According to data obtained in Eviews, the value of the Student test (t-statistic) to C (1) is 0.110318, C(2) is 2,247865 and C(3) is 6.524852. The tabular value of the standard variable (T critical) is determined from the table of the Student distribution, according to v=n-1 degrees of freedom and the probability □/2. In our case, v=35-1=34 degrees of freedom and probability 0.05/2=0.025. According to the Student repartition quintiles, the tabular tcritic value corresponding to the error 0.025 of degrees and 34 degrees of freedom is 2,030> tc (1), 2,030< tc(2) <tc (3). The three parameters, c(1), c(2) and c(3) are significantly different from 0, the model is therefore statistically correct, rejecting the null hypothesis.

C(3) = 6.524852 > 0, and hence between the two variables is no direct linkage, the model is statistically correct, and c(3) is not only greater than 1, but also having a much higher value, it can be said that the relationship between the two variables is strong. The same conclusion can be applied in the case of c(2).

According to available data, the value of Durbin Watson test (Durbin Watson stat) is 1.730246. We determine two tabular values, one lower and one upper, depending on the level of significance of the test □□□□□□□□□□the number of observations (9) and the number of k factorial variables (in our case 2, since this a multiple factor regression model). Values are tabulated dL=1.34 and du=1,58. In this case, d= 1.730246 > dL and >

du, which means that the random variable autocorrelation hypothesis is not accepted, ie the random variable values are not dependent on one another, which implies that the sample data records are independent on of the other.

R-squared regression coefficient in calculations acquires the value of 0.669124, value> 0, which tends to 1, demonstrating a direct and very strong linkage.

REFERENCES

1. Becker E. Brian, Huselid Mark, Ulrich Dave (2002), *Six key principles for Measuring Human Capital Performance in Your Organization,* online at http://www.markhuselid.com/articles.html
2. Marginean Ioan (2010), *Indicele dezvoltarii umane. Romania in context international*, Revista Calitatea vietii, Anul XXI, Nr. 1-2: 44-50
3. Marimuthu Maran, Arokiasamy Lawrence, Ismail Maimunah, (2009) *Human capital development and its impact on firm performance: evidence from developed countries*, The Journal of International Social Research, volume 2/8, 265 - 272
4. Noorbakhsh Farhad (1998), *The human development index: some technical issues and alternative indices*, Journal of International Development 10: 589605
5. Stiles Ph., Kulvisaechana S., *Human capital and performance: a literature review*, Cambridge: The Judge Institute of Management
6. Ranis Gustav (2004), *Human development and economic growth*, Center Discussion Paper no 887, Yale University
7. Welzel Christian, Inglehart Ronald, Klingemann Hans-Dieter (2003), *The theory of human development: a cross cultural analysis*, European Journal of Political Research 42:341 – 379
8. Human Development Report 2013, The Rise of the South: Human Progress in a Diverse World, UNDP
9. http://hdrstats.undp.org/en/countries/profiles/ROU.html,
10. www.insse.ro
11. www.oecd.org
12. www.ec.europa.eu/eurostat
13. www.revistacalitateavietii.ro
14. www.iccv.ro