IMPACT ANALYSIS OF ECONOMIC PARAMETERS ON SOCIAL DEVELOPMENT

Goran SUČIĆ, Ph.D., Assistant professor Faculty of Humanities and social sciences University in Split

gsucic@ffst.hr

Željko POŽEGA, Ph.D., Associated professor Faculty of Economics in Osijek

zpozega@efos.hr

Boris CRNKOVIĆ, Ph.D., Associated professor Faculty of Economics in Osijek

bcrnko@efos.hr

Abstract

Countries in the world generally don't have clear policy or sufficiently understanding of investing importance in people and their potential. Today, human factor is of too little importance, although thr country that invest in people, raising their motivation, knowledge and teamwork, provide much higher rate of return and more equitable growth structure than is the case with investments in buildings, machinery and equipment. The process, therefore, in many countries of the world is going wrong and should be reversed, instead of current priority investments in tangible assets, much more should be invest in human resources, and less in physical capital, at the same time and without ignoring its importance.

Keywords: economic development, human development, countries in the world

JEL Classification: H12, O 52, C8

1. INTRODUCTION

Research in this paper is conducted on a sample of 177 countries and 74 variables for each of the observed countries in the world that have available and collected data.1 Change in variable value was observed and analyzed in the time period 1975th – 2015th, projected values of the variables for 2015th, chi-square test and level of significance of observed variables. Hypothesis of this paper is: economic parameters that determine level of development of human capital have the highest level of significance to social development.

2. ANALYSIS OF CHANGE OF VARIABLE VALUES USED IN THE PAPER IN TIME PERIOD 1975TH – 2015TH.

Considering the values obtained with descriptive statistics analysis of variables of countries in the period 1975th – 2015th (projection), we can see that the average value is growing at high rates in variables: population (from 22,7 million to 35,8 million, the projected value for 2015 is 40,2 million), urban population (from 42,3 percent to 54,3 percent, the projected value for 2015 is 59,1%), number of subscribers of mobile devices (3,2 subscribers per thousand inhabitants to 314,6 subscribers per thousand inhabitants), number of Internet users (from 0,3 users per thousand inhabitants to 155,4 users per thousand inhabitants), GDP per capita (from 4.012,1 dollars to 9.552,9 dollars), external debt (from \$16.732,4 million to \$71.122,9 million), GDP (from 181,4 billion dollars to 309,2 billion dollars), GDP (purchasing power parity) (from 277,9 billion dollars to 311,1 billion dollars) and number of working-age population (from 1,7 million to 17,4 million).

The average value grows at low rates at variables: Human Development Index (from 0,59 to 0,71), life expectancy (from 58,5 years to 66,1 years), investment in education (from 4,4 percent to 4,9 percent), investment of government funds in education (from 14,7 percent to 15,8 percent), the rate of adults in education (from 73,1 percent to 81,7 percent), enrollment rates in primary education (from 78,8 percent to 85,6 percent), enrollment rates in secondary education (from 58,8 percent to 63,5 percent), the number of telephone lines (from

¹ Data are part of United Nations (UN) database, published on the web site: http://hdr.undp.org/ and http://unstats.un.org/unsd/

126,4 lines per thousand inhabitants to 200,4 lines per thousand inhabitants), imports (from 40,5 percent to 45,9 percent), exports (from 33,9 percent to 40,1 percent), foreign direct investment (from 1,7 percent to 4 percent), investment in health (from 3,1 percent to 3,5 percent), the growth rate of GDP (from 2,4 percent to 4,6 percent), the combined proportion of primary, secondary and tertiary education (from 67,8 percent to 71,1 percent), GDP per capita (purchasing power parity) (from \$8.661,4 million to \$9.566.3 million), the index of life expectancy (from 0,67 to 0,68), education index (from 0,76 to 0,78), long-term unemployment rate (from 2,6 percent to 2,7 percent) and the number of population over age of 65 (from 5,9 percent to the projected value for 2015. of 8,3 percent).

The average value decreases at low rates at variables: total debt (from 6,2 percent to 5,7 percent), investment in the army (from 3,8 percent to 2,5 percent), investment in research and development (from 1,04 percent to 1,01 percent), Human Poverty Index (from 25,5 percent to 25 percent), the rate of illiteracy of adults (from 25,6 percent to 25,4 percent), annual growth rate of the population (from 1,8 percent to the projected value for 2015 of 1,3 percent) and population under age of 15 (from 31,5 per cent of the projected value for 2015 of 27,9 percent).

The average value decreases at high rates only at the variable rate of inflation (from 101,9 percent to 6,4 percent).

The average value fluctuates at variables: investment in pre-primary and primary education (from 40,4 percent to 41,9 percent), investment in secondary education (from 33,1 percent to 36,4 percent), investment in tertiary education (16,1 percent to 19,3 percent), the number of students who reach the fifth grade in education (from 80,3 percent to 82,6 percent), the rate of education of not adults (from 83,1 percent to 87,8 percent) and unemployment rate (from 7,1 percent to 14,7 percent).

If we look at changes in the standard deviation of variables, we can see that the standard deviation is growing at high rates at variables: population (from 86,9 million to 132,4 million, the projected value for 2015. is 145,8 million), the number of subscribers of mobile devices (8,9 subscribers per thousand inhabitants to 323,2 subscribers per thousand inhabitants), the number of Internet users (from 1,2 users per thousand inhabitants to 178,4 users per thousand inhabitants), GDP per capita (from \$5.385,7 to \$10.559,9), external debt (from \$51 .826,9 million to \$390.754,5 million), GDP (from 866,8 billion dollars to 1.141,1 billion), GDP (purchasing power parity) (from 961,9 billion dollars to 1.086,5 billion) and the number of working-age population (from 69,1 million to 72 million).

Standard deviation is growing at low rates at variables: investment in education (from 1,9 percent to 2,3 percent), enrollment rates in secondary education (from 27,2 percent to 27,5 percent), the number of telephone lines (161,2 lines per thousand inhabitants at 203,2 lines per thousand inhabitants), exports (from 21,6 percent to 24 percent), foreign direct investment (from 3,6 percent to 6,9 percent), the growth rate of GDP (from 3,4 percent to 4 percent), investment in research and development (from 0,94 percent to 1,03 percent), GDP per capita (purchasing power parity) (9,081,6 dollars to 10,247.6 US dollars), Human Poverty Index (from 16,03 percent to 16,07 percent), the rate of illiteracy adults (from 20,2 percent to 20,8 percent), long-term unemployment rate (from 2,4 percent to 2,7 percent) and population over age of 65 (from 4,3 percent to the projected value for 2015 of 6,8 percent).

Standard deviation is stagnating at a specified index in life expectancy (0,2) and education index (0,19).

Standard deviation decreases at low rates at variables: Human Development Index (from 0,19 to 0,17), the urban population (from 23,7 percent to 23,3 percent, the projected value for 2015. of 22,3 per cent), investment in pre-primary and primary education (from 16,7 percent to 10,9 percent), investment in secondary education (from 13,8 percent to 9,9 percent), the rate of adults in education (from 22,9 percent to 19,9 percent), enrollment rates in primary education (from 21,5 percent to 15,5 percent), imports (from 23,2 percent to 23 percent), total debt (from 7,8 percent to 5,1 percent), investment in the army (from 5,1 percent to 2,5 percent), investment in health care (from 1,94 percent to 1,9 percent), the combined proportion of primary, secondary and tertiary education (from 19,8 percent to 19,6 percent), annual growth rate of the population (from 1,2 percent to the projected value for 2015. of 1 percent) and population under age of 15 (from 10,6 percent to the projected value for 2015. of 10,5 percent).

Standard deviation decreases at high rates only variable inflation rate (from 523,8 percent to 11,7 percent).

Standard deviation oscillates at variables: life expectancy (from 10 years to 12,4 years), the investment of government funds in education (from 5,2 per-

cent to 5,7 percent), investment in tertiary education (from 7,8 percent to 9,4 percent), the number of students who reach grade fifth grade in education (from 15,6 percent to 18,8 percent), the rate of education of not adult person (from 16,3 percent to 19,5 percent) and unemployment rate (3,9 percent to 13 percent).

If we look at changes in the minimum values of variables, we can see that the minimum value is growing at high rates at variables: urban population (from 3,2 percent to 7,7 percent, the projected value for 2015. by 9,5 percent), investment in primary and pre-primary education (from 2,2 percent to 20 percent), investment in secondary education (from 0,7 percent to 12 percent), enrollment rates in primary education (from 16 percent to 36 percent) and the number of working-age population (25 inhabitants per 18.170 inhabitants).

The minimum value is growing at low rates at variables: Human Development Index (0,23 to 0,28), investment in tertiary education (from 0 percent to 2,4 percent), imports (from 5 percent to 10 percent), exports (from 3 percent to 7 percent), foreign direct investment (from 3,3 percent to 0,8 percent), investment in health (from 0 percent to 0,4 percent), the combined proportion of primary, secondary and tertiary education (from 17 percent to 21 percent), GDP per capita (purchasing power parity) (from \$470 to \$548), Human Poverty Index (from 2,5 percent to 3,6 percent), long-term unemployment rate (from 0,2 percent to 0,3 percent) and the number of population over age of 65 (from 0,8 per cent of the projected value for 2015 of 1,4 percent).

The minimum value is stagnant at variables: population (0,1 million, projected value for 2015. is also 0,1 million), the number enrolled in secondary education (5 percent), the number of telephone lines (2 lines per thousand inhabitants), the number of subscribers mobile devices (0 subscribers per thousand inhabitants), the number of Internet users (0 users per thousand inhabitants), investment in the army (0 percent), external debt (\$0 million), investment in research and development (0,1 percent), the rate illiteracy adults (0,3 percent) and GDP (purchasing power parity) (0,4 billion dollars).

The minimum value decreases at low rates at variables: investment of government funds in education (from 2,8 percent to 1,6 percent), total debt (from 0,4 percent to 0,1 percent), the index of life expectancy (from 0,14 to 0,12), education index (from 0,17 to 0,16), the annual growth rate of the population (from 0,4 percent of the projected value for 2015. of 1,1 percent) and population under age of 15 (from 14,1 per cent of the projected value for 2015. of 12,7 percent).

Minimum value fluctuates at variables: life expectancy (from 33 years to 38 years), investment in education (from 0,5 percent to 0,9 percent), the rate of adults in education (from 11,4 percent to 17,6 percent), the number of students who reach the fifth grade in education (from 22 percent to 38 percent), the rate of education nepunoljetnih person (from 17 percent to 23,8 percent), GDP per capita (from \$83 to \$600), inflation rate (from 6 percent to 0,5 percent), unemployment rate (from 0 percent to 2,5 percent), the growth rate of GDP (from 14.7 percent to 8,2 percent) and GDP (from 0,1 billion dollars to 0,214 billion dollars).

If we look at changes in maximum values of variables, we can see that the maximum value is growing at high rates at variables: population (from 927,8 million to 1.306,3 million, the projected value for 2015. of 1.393 million), the number of subscribers of mobile devices (from 54 subscribers per thousand inhabitants to 1.194 subscribers per thousand inhabitants), the number of Internet users (from 8 users per thousand inhabitants to 675 users per thousand inhabitants), GDP per capita (21.082 US dollars to 58.900 US dollars), the growth rate of GDP -a (from 15 percent to 38 percent), GDP (purchasing power parity) (9.792,5 billion to 10.923 billion) and the number of working-age population (from 74 million to 760 million).

The maximum value is growing at low rates at variables: Human Development Index (0,88 to 0,96), life expectancy (from 74,7 years to 81,6 years), the investment of government funds in education (26,9 percent to 32,8 percent), the rate of adults in education (from 99,8 percent to 100 percent), enrollment rates in secondary education (from 97 percent to 104 percent), the number of telephone lines (681 lines per thousand inhabitants in the 797 line on the thousand inhabitants), imports (from 124 percent to 161 percent), exports (from 132 percent to 170 percent), foreign direct investment (from 30,7 percent to 49,1 percent), investment in health (from 9,5 percent to 9,7 percent), investment in research and development (from 3,8 percent to 5,1 percent), the combined proportion of primary, secondary and tertiary education (from 114 percent to 123 percent), GDP per capita (at purchasing power parity) (53.780 US dollars to 62.298 US dollars), the index of life expectancy (from 0,94 to 0,95), Human Poverty Index (from 61,8 percent to 64,4 percent), the rate of illiteracy

adults (from 83,5 percent to 87,2 percent), long-term unemployment rate (from 9,3 percent to 10,7 percent), GDP (from 10.065,3 billion to 11.750 billion), the population under age of 15 (50,4 percent of the projected value for 2015. of 50,8 percent) and the number of population over age of 65 (from 16,7 percent to the projected value for 2015. of 26 percent).

The maximum value stagnates at variables: urban population (100 percent, the projected value for 2015. is also 100 percent), the number of students who reach the fifth grade in education (100 percent), the rate of education not adults persons (99,9 percent) and education index (0,99).

The maximum value decreases at low rates with variables: total debt (from 74,5 percent to 36,4 percent) and annual growth rate of the population (of 7,2 per cent on the projected value for 2015 of 4,9 percent).

The maximum value decreases at high rates at variables: investment in preprimary and primary education (from 96,3 percent to 71,4 percent), investment in secondary education (from 84,3 percent to 57,5 percent), investment in the army (of 48,5 percent to 19,4 percent), inflation (from 4.925 percent to 133 percent) and foreign debt (from \$532 billion to 4.710 million).

The maximum value fluctuates at variables: investment in education (from 10.4 percent to 18.7 percent), investment in tertiary education (from 34,3 percent to 46,7 percent), enrollment rates in primary education (from 100 percent to 109 percent) and unemployment rate (from 19,6 percent to 70 percent).

3. ANALYSIS OF PROJECTED VALUES OF VARIABLES USED IN THE PAPER FOR 2015TH

By examining results of descriptive statistical analysis of variables countries projected data for 2015. (see Table 1), we can see that the variable population has an average value of 40,242 (variable number of residents expressed in millions), the median is 8,15, while mode is 0,1. Variance and standard deviation amounted to 21.263,898, and 145,821. The minimum value is 0,1, the maximum value of 1.393, the range of variation is 1.392,9. Lower and upper quartile values are 2,7 to 29,325.

Variable annual growth rate of population has an average value of 1,302 (variable annual growth rate of the population is expressed as a percentage), the

median is 1,3, while the mode is 0,3. Variance and standard deviation amount to 1,051 or 1,025. The minimum value is -1,1, the maximum value is 4,9, the range of variation is 6. Lower and upper quartile values are 0,425, respectively 2.

The variable urban population has an average value of 59,107 (variable urban population is expressed as a percentage), the median is 60,1, while the mode is 44,2. Variance and standard deviation amounted to 496,603, ie 22,285. The minimum value is 9,5, the maximum value of 100, the range of variation was 90,5. The lower quartile has a value of 43,15, while the upper quartile has value of 75,95.

Variable population under age of 15 has an average value of 27,977 (variable population under 15 expressed as a percentage), the median is 27,1, while the mode is 16,4. Variance and standard deviation amounted to 110,555, ie 10,515. The minimum value is 12,7, the maximum value is 50,8, the range of variation is 38,1. The lower quartile has a value of 17,6, while the upper quartile has value of 36,225.

A variable number of population over age of 65 has an average value of 8,3 (variable number of population over age of 65, expressed as a percentage), the median is 5,7, while the mode is 3,4. Variance and standard deviation amounted to 34,098, ie 6,839. The minimum value is 1,4, the maximum value is 26, the range of variation is 24,6. The lower quartile has a value of 3,7, while the upper quartile has value of 13,3.

4. ANALYSIS OF THE CHI-SQUARE TEST AND SIGNIFICANCE LEVEL OF VARIABLES USED IN THE PAPER

By examining the results of the analysis chi-square test and significance level variables countries (see Table 2), we can see that the high level of significance from 0,5 to 1 at variables: Human Development Index (1), Human Poverty Index (1), the probability of not surviving 40 (developing countries) or 60th (OECD countries) years of age (1), the rate of illiteracy adults (1), the rate of long-term unemployment (1), population (1), the urban population (1), population under age of 15 (1), investment in health care (0.841), the mortality rate of children (20 percent wealthiest segment of the population (1)), the num-

ber of adult men smokers (0,999), the number of adult women smokers (0,899), life expectancy (1), the probability of survival of 65 years for men (1), the probability of surviving 65 years for women (1), investment in education (0,988), the investment of government funds in education (1), investment in pre-primary and primary education (1), investment in secondary education (1), investment in tertiary education (1), rate of education of adults (1), the number enrolled in secondary education (0,805), number of telephone lines (1), the number of subscribers of mobile devices (1), the number of Internet users (1), the number of researchers (1), GDP per capita (1), the annual growth rate of GDP per capita (0,838), the average annual change in the consumer price index (1), imports (0,681), foreign direct investment (0,806), total debt (1), unemployment rate (1), electricity consumption per capita (1), Gender - Related Development Index (1), life expectancy for men (1), life expectancy for women (1), the rate of adult education for men (1), the rate of adult education of women (1), predicted earned income for men (1), predicted earned income for women (1), Gender Empowerment Measure (1), the number of women in Parliament (1), the number of women according to the number of men enrolled in tertiary education (1), women as contributing family workers (0,996), the population below the poverty line (1), the index of press freedom (1), increased productivity (1), the number of working-age population (1) and external debt (1).

Following variables have significance level from 0,1 to 0,5: GDP per capita ranking - Human Development Index ranking (0,12), the population over age of 65 (0,131), export (0,275) and inflation rate (0,205).

Following variables have low level of significance from 0 to 0,1: the combined proportion of primary, secondary and tertiary education (0,02), the index of life expectancy (0,003), education index (0), the annual growth rate of the population (0,004), the mortality rate of children (0), the mortality rate of children under 5 years (0), the number enrolled in primary education (0), the number of students who reach the fifth grade in Education (0), the number of students of biology, mathematics and engineering sciences (0.021), number of patents granted to residents (0), investment in research and development (0,001), investment in the army (0,002), the import of weapons (0), the export of weapons (0), the number of women in the legislature and in managerial positions (0,089), number women in government (0), the population with less than \$1 per day (0), the rate of education of not adult person (0.022), the number of Olympic medals to GDP (0) and growth rate of GDP (0,001).

5. SYNTHESIS OF RESEARCH FINDINGS

Countries in the world generally don't have clear policy or sufficiently understanding of investing importance in people and their potential. Today, human factor is of too little importance, although thr country that invest in people, raising their motivation, knowledge and teamwork, provide much higher rate of return and more equitable growth structure than is the case with investments in buildings, machinery and equipment. The process, therefore, in many countries of the world is going wrong and should be reversed, instead of current priority investments in tangible assets, much more should be invest in human resources, and less in physical capital, at the same time and without ignoring its importance.

Annexes

Table 1. Analysis of the projected values of variables used in the paper for 2015th.

	broj stanovnika	godisnja stopa rasta stanovnika	urbano stanovn istvo	broj stanovnika ispod 15 godina	broj stanovnika iznad 65 godina
N Valid	176	172	177	172	172
Missing	1	5	0	5	5
Mean	40.242	1.302	59.107	27.977	8.300
Median	8.150	1.300	60.100	27.100	5.700
Mode	.1	.3	44.2 ^a	16.4	3.4 ^a
Std. Deviation	145.821	1.025	22.285	10.515	5.839
Variance	21263.898	1.051	496.603	110.555	34.098
Range	1392.9	6.0	90.5	38.1	24.6
Minimum	.1	-1.1	9.5	12.7	1.4
Maximum	1393.0	4.9	100.0	50.8	26.0
Percentiles 25	2.700	.425	43.150	17.600	3.700
50	8.150	1.300	60.100	27.100	5.700
75	29.325	2.000	75.950	36.225	13.300

Statistics

a. Multiple modes exist. The smallest value is

(made by authors)

Legend: broj stanovnika – population; godisnja stopa rasta stanovnika - annual growth rate of the population; urbano stanovnistvo - urban population; broj stanovnika ispod 15 godina - population under age of 15; broj stanovnika iznad 65 godina - population over age of 65.

Table 2. Results of analysis chi-square test and significance level of variables used in the paper.

variable	Chi- Square	df	Asymp. Sig.	variable	Chi-Square	df	Asymp. Sig.
human development index	34294	148	1000	investments in education	41333	64	0.988
the combined proportion of primary, secondary and tertiary education	95266	69	0.02	investment of government funds in education	17947	73	1000
life expectancy index	89322	56	0.003	investments in education	41333	64	0.988
education index	118508	54	0	investment of government funds in education	17947	73	1000
bdp per capita rank minus human development index rank	89593	62	0.012	investments in pre- primary and primary education	11691	96	1000
human poverty index	10207	107	1000	investments in secondary education	12327	95	1000
probability of not surviving more that 40 or 60 years of life	38326	132	1000	investment in tertiary education	16704	90	1000
the rate of illiteracy of adults	13609	101	1000	rate of education of adults	25394	105	1000
rate of long-term unemployment	2333	23	1000	the number enrolled in primary education	157159	40	0
population	72818	118	1000	the number enrolled in secondary education	61577	72	0.805
annual rate of population growth	71339	43	0.004	the number of students that reaches grade 5 in education	84526	45	0
urban population	11785	162	1000	number of students of biology, mathematics and engineering sciences	46400	29	0.021
population under age of 15	33500	136	1000	number of telephone lines	23534	118	1000
population over age of 65	97581	83	0.131	number of subscribers to mobile devices	21962	138	1000
investments in education	51839	63	0.841	Internet users	33347	91	1000
the mortality rate of children	0	53	1000	number of patents granted to residents	918176	46	0
the mortality rate of children	0.963	52	1000	investment in research and development	49143	23	0.001
number of adult male smokers	11608	30	0.999	number of researchers	5583	91	1000
number of adult female smokers	13275	21	0.899	bdp per capita	2893	164	1000

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life expectancy	29860	139	1000	annual growth rate of GDP per capita	59278	71	0.838
the mortality rate of children	131773	73	0	Average annual change in consumer price index	43550	117	1000
the mortality rate of children under 5 years	146000	87	0	import	63939	70	0.681
the probability of surviving 65 years for men	24209	142	1000	export	70282	64	0.275
the probability of surviving 65 years for women	29442	141	1000	foreign direct investment	61529	72	0.806
total debt	35076	83	1000	gender empowerment measure	2775	76	1000
investments in army	78985	47	0.002	number of women in parliament	53310	129	1000
unemployment rate	2933	25	1000	number of women in the legislature and in managerial positions	45529	34	0.089
electricity consumption per capita	3813	166	1000	number of women vs number of men enrolled in tertiary education	50331	100	1000
weapon import	3E+06	85	0	women as contributing family workers	22188	43	0.996
weapon export	731139	40	0	number of women in government	154306	76	0
rate of education of adult men	56647	110	1000	population with less than 1 USD per day	135494	64	0
rate of education of adult women	25768	112	1000	population below poverty line	12640	87	1000
predicted earned income for men	0	153	1000	rate of education of not adults persons	114286	86	0.022
predicted earned income for women	4844	150	1000	press freedom index	28234	98	1000
increase of productivity	0	26	1000	olympics medal count to GDP	3E+06	50	0
the number of working- age population	7462	149	1000	inflation rate	106121	95	0.205
external debt	3805	159	1000	the growth rate of GDP	116897	75	0.001

(made by authors)