

The effect of education and economic growth in the labour market in transition economies - Case study for SEE countries

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Abstract

In this research paper is analyzed labour market in transition economies with case study SEE countries and the main theoretical arguments for discussions are as following: the effects of education on labour market, improving labour market performance in SEE countries, structural reforms and economic policies for improving labour markets, relationship between level of education and growth on labour market. In methodology, the data is collected from international institutions and is calculated through STATA program. The main analyses include: descriptive statistic, multiple regression analysis and correlation matrix. The results of regression analysis and correlation matrix have shown that education has negative impact and negative correlation on labour market (labour market efficiency and labour market regulation). But, economic growth has shown positive impact and positive correlation on labour market (labour market efficiency and labour market regulation) and all variables that are including in T-statistical analysis have shown non - significance on labour market.

Keywords: *Efficiency, human capital, regression analysis, regulation, STATA program.*

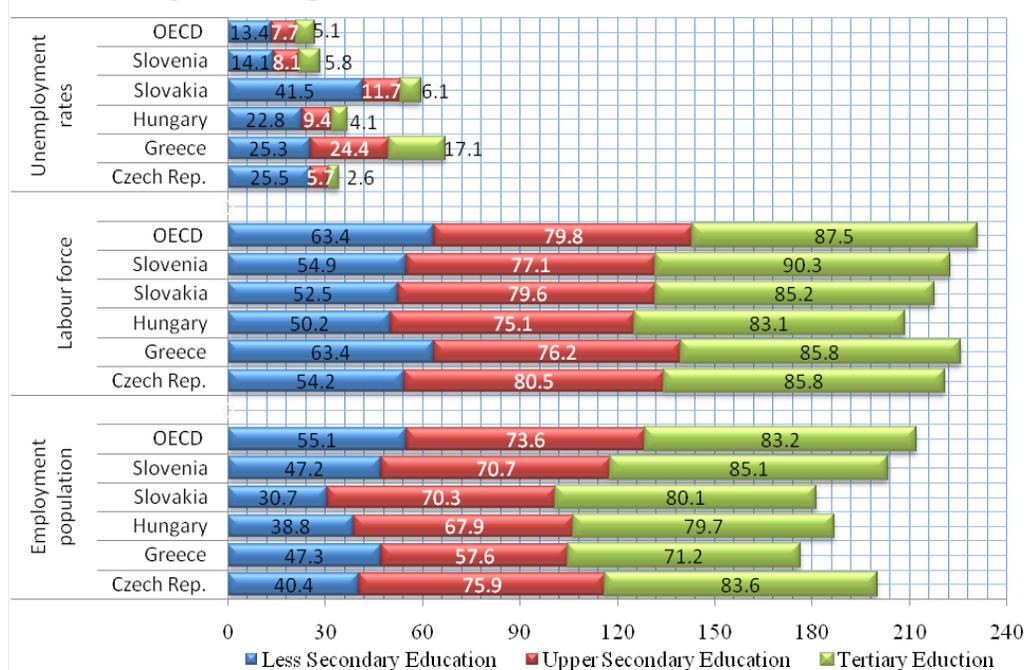
Introduction

Education, human capital development, economic growth and labour market in transition countries has an extended protracted history and still remains to be an issue for exploration in the future. The labour market in SEE countries has not improved over the past decade, despite that there were positive indicators of economic growth in these countries (RIInvest, 2003); (Vidovic, 2004); (Alishani et al, 2013). The education system in SEE countries has contributed on human capital and its effect was visible also on economic growth and labour market (Hanushek, 2013) (Baldacci et al, 2004). In fact, the continuous development of education and economic growth in transition economies has helped to reform labour market in different ways, such as: overcoming economic problems and political transitions in SEE countries; improving and strengthening of the labour market toward contemporary global challenges (Caroleo, F.E. & Pastore, F, 2010); identification the real possibilities for new labour market resources; identification beneficial government policies and experiences on labour market during the transition process in SEE countries (Lehmann, H. & Kluve, J, 2008).

A Review of Selected Literature

In modern economy, the important way to cross the transitional process and economic crisis is the effective human resources policy (recruit, maintain and develop employees on organization), (Fragouli, E. E., 2014). Also, in dynamic labour market is necessary to create higher employment performance (Kuddo, A., 2009). It can achieve through investment permanently in education and training then it will have both effects: at first to increase the level of knowledge to human resource and second to increase the level of efficiency in companies and in economic growth (Mahmoodieh et al, 2014). According to (OECD Report, 2014), the highest level of education has contributed in reducing the unemployment rate in some SEE countries (see table below). Policy-makers and their social partners in labour market of the transition countries, should create competitive businesses, which are able to adjust the structure of workforce, quality market conditions and employment performance and improve overall labour market performance, (Cazes, S. & Nesporova, A, 2004) & (Adnett, 2010). These factors are very necessary for unemployment rate in post-communist countries (Jurajda, S. & Terrell, K, 2009).

Figure 1 The Impact of education in labour market in some of SEE countries



According to (EBRD Report, 2013) & (Spagat, M., 2006), in transition economies the quality of institutions (political, economic, legal, etc.), financial resource in education, the level of migration, etc; all of these can have effect in human capital development and labour market. Developed countries has make policy interventions, such as: improving governance and taming inflation, reducing the rate of unemployment through financial support, workfare program, active labour market policies, product labour market

regulation, etc; and their effect is considered positively successful, (Baldacci et al, 2008), (Fields, 2010) & (Puerta, 2010). Therefore, the importance of education has played the most important role in transition economies (Bhaumik et al, 2011). This is very significant for overall economic productivity (Verkhohlyad, O. & McLean, G.N, 2011). As cited (Boccanfuso et al, 2013), (Qadri, F.S. & Waheed, A, 2013), in transition countries we have positive correlation between the improvement of human capital and economic growth (in table below are some of indicators of economic growth in SEE countries).

Table 1 The main indicators of economic growth and labour market in some of SEE countries

	ALB	BLG	CRO	GRC	MCD	MNE	ROM	SER
GDP*	12.9	53.0	58	241.8	10.2	4.4	189.7	42.5
GDP (per capita)**	4.610	7.328	13.562	21.857	4.944	7.026	8.910	5.907
Domestic market size index***	2.7	3.6	3.3	3.3	2.6	1.9	4.2	3.4
Inflation***	1.9	0.4	2.2	2.2	2.8	2.2	4.0	7.7
Employment / population ratio (%)	44.5	48.0	43.3	38.1	40.2	39.1	51.1	37.7
Advance education / population (%)	16.5	31.7	26.5	33.5	22.3	27.7	18.4	22.5
Labour force participation (%)	52.7	54.1	52.4	51.8	55.9	49.1	54.9	48.4
Weekly hours (average)	40.8	40.1	39.3	40.9	41.7	n/a	39.2	42.3
Gender wage gap (%)	n/a	33.2	10.0	23.3	6.3	n/a	7.8	11.7

Note: (*) - US\$ Billions; (**) - US\$; (***) - Index Value Score;

Source: The Global Competitiveness Report 2014 - 2015; ILOSTAT Database 2013

According to (ILO Report, 2013), the global unemployment rate is 212.2 million people, the projection for 2014 is increased about 6.2 %, the average wages rate is increased only 1.2 %, and in SEE countries may expect further long-term increases of unemployment rates. According to (World Bank Report, 2006) & (Clark, 2003) the labour market is the area where the transition process has had big changes and long-term implications, so studying the human capital with other relative issues (education and human development) then economic growth and the labour market is very important for transition economies. During the transition process the SEE countries are characterized by high unemployment and large-scale of emigration and they had stand worse in terms of the quality of the work force although they have supposed that the work force stand very quality (Hoti, A., 2004). One of the most important ways to cross the transitional process and economic crisis is the effective human resources policy such as recruit, maintain, and develop employees on organization.

Education may be explained as the main principles and basic terms in labour market and it has perfect relation between education and the labour market, (Belfield, C., 2000). Its effects on overall economy are very visible and this has created the basic model for education in SEE countries, (Staneva *et al*, 2010). The recent research suggests that

existed a positive relationship between level of education and training (investment on human capital) on immediate labour market effect (Bah, El. & Brada, J.C, 2014), (Enders, J., 2010). Therefore, the high quality of education and human capital have improve the labour productivity and will increase effects in labour market, (Qadri F.S. & Waheed, A, 2014). To reach this level is very essential to make reforms in the system of education and in long term aspects, the reforms have improved education and schooling system, all of it has played crucial role in economic growth, (CEDEFOP Report, 2013). The recent studies by (Carlson, B.A., 2001), have shown that in countries with low income existed gender wage difference to young workers with same level of education also still lower difference between young workers and total working population in these countries.

Transition processes in western Balkan countries has brought gaps and mismatches in labour market, it is as results of economic transformation, privatization, innovations and processes of globalization in transition economies, (Arandarenko, M. & Bartlett, W., 2012). According to (European Commission Report, 2008), the same problems to adjust the labour market have other SEE countries, in fact these countries always aim to have nominal stability through fixed exchange rate, and if suddenly appears any economic shocks, it will transmitted immediately to the labour markets and it will creates consequences and inequality on wage flexibility, labour mobility, wage setting, skill mismatches on labour institutions, etc. International institution (such as: ILO) , has recommended several countries in SEE region for labour market policy to change fiscal consolidation measures and large scale wage moderation, because the both of policies have dramatically affected inequalities income (particularly to young workers, women and low -skilled workers), (ILO Report, 2015). As the main challenges for labour market in SEE countries are deep structural reforms and economic policies for improving labour markets and to overcoming main problems, such as: high unemployment and low employment and participation rates, (WBIF Report, 2012).

Methodology and data selected

In order to estimate the effects of education and economic growth in the labour market on transition countries, in case is used secondary data. The data is collected from international institutions (such as: ILO, World Bank, IMF and UNDP). In the research paper are included the most of SEE countries (see Appendix 1 /A) and used variables are from different reports of international institutions (see Appendix 1/B). The main variables are: as depend variables (Labour Market Efficiency and Labour Market Regulation) and as independent variables (Education, Research and Development, Human Development Index, Economic Growth, Macroeconomic Environment, Unemployment Rate, Youth Unemployment). Data is calculated through program STATA (econometric program) and the main analyses are as following: descriptive statistics methods, multiple regression analysis and correlation method. The econometric model is to analyze the relationship between Labour Market indicators (such as: Labour Market Efficiency and Labour Market Regulation) and two depend variables (education and economic growth). The main analysis is based on the following equations: $Ln(CIt) + Ln(BBt) = \beta_0 + \beta_1ln(EGt) + \beta_2ln(PSt) + \beta_3ln(RLt) + \beta_4ln(EFt) + \beta_5ln(TRt) + \beta_6ln(EIt) + \epsilon t$. Where the main variables

for analyses are as following:

- LME = Labour Market Efficiency;
- LMR = Labour Market Regulation;
- EDU = Education;
- R&D = Research & Development;
- HDI = Human Development Index;
- EG = Economic Growth;
- ME = Macroeconomic Environment;
- UR = Unemployment Rate;
- YU = Youth unemployment
- ε_t = Stochastic Error Term;
- $\beta_0, \beta_1, \beta_2, \beta_3$, are the respective parameters;

Empirical Results

This part of research paper reflects the results of analyses, and the main analyses include: descriptive statistics, regression analysis and correlation matrix. The analyses are calculated through econometric program STATA. In fact, it is the most important part because here are interpreted the implications of the variables that are involved in research paper with different methods. In table 2 is descriptive statistic, which is a method for quantitative analysis data and it is used to describe the basic features of the data in a research paper. Most of variables that are included in research paper have 13 observations. The main analyses in table 2 are as following: the minimum value of labour market efficiency is 3.7 (it means, the lowest value of "LME" in period of research) and maximum value is 4.3 (it means, the highest value of "LME" in period of research), the value of mean is 4.04 (it means, average value of "LME" in period of research) and standard deviation values is 0.21 (it means, how many the "LME" variable are close between 3.7 to 4.3). The value of labour market regulation variable (LMR) is: the minimum is 4.5, maximum is 8.1 then value of mean and standard deviation is 6.8 respectively 1.00.

Table 2 Statistic descriptive method

Variables:	Observation	Std. Dev.	Min	Mean	Max
Labour Market Efficiency	12	0.21	3.7	4.04	4.3
Labour Market Regulation	13	1.00	4.5	6.80	8.1
Education	10	0.62	3.3	4.37	5.7
Research & Development	13	0.57	0.1	0.8	2.1
Human Development Index	13	0.05	0.71	0.79	0.87
Economic Growth	13	1.90	-3.3	0.75	3.1
Macroeconomic Environment	12	0.72	3.3	4.55	5.4
Unemployment Rate	13	8.01	7.1	16.67	31.1
Youth unemployment	13	19.91	7.1	30.32	62.8

Source: Authors

Education (EDU) has values of minimum 3.3, maximum 5.7, mean 4.37 and standard deviation 0.62. The values of Research & Development (R&D) are as following: minimum and maximum 0.1 & 2.1 then mean and standard deviations are 0.8 & 0.57. Human Development Index (HDI) has these values: minimum is 0.71, maximum is 0.87 then mean is 0.79 and standard deviation is 0.05. In this research paper the values of Economic Growth (EG) are lowest from other variables, so the minimum is -3.3 and maximum is 3.1 then mean is 0.75 and standard deviation is 1.90. The value of minimum and maximum of Macroeconomic Environment (ME) are 3.3 respectively 5.4, then mean values is 4.55 and standard deviation is 0.72. Unemployment Rate (UR) has minimum value of 7.1, maximum values 31.1 and mean 16.67 and standard deviation 8.01. Last variable in this analysis is Youth unemployment (YU) and include minimum value of 7.1 and maximum values 62.8, the mean and standard deviation are 30.32 respectively 19.91.

The Table 3 is presented the most important analysis in research paper. The multiple regression method explains the additional explanatory factors (or independent variables) that have a systemic effect on the dependent variables. The main variables that are used multiple regression method including two dependent variables and other independent variables. In the first regression analysis is between labour market efficiency and other independent variables and the results have found that education has negative impact ($\beta_1 = -0.32$) on labour market efficiency. Explanation of result (with negative impact) is as following: when other independent variables in analysis are fixed or constant and when education increases for a unit, it will have effect on labour market efficiency with -0.32 per unit (it is negative impact). Also, other variables, such as: macroeconomic environment $\beta_5 = -0.03$ and unemployment rate $\beta_6 = -0.002$ have shown negative impact on labour market efficiency. Other variables that have shown positive impact on labour market efficiency are: research & development $\beta_2 = 0.28$, human development index $\beta_3 = 6.19$, Economic Growth $\beta_4 = 0.19$ and youth unemployment $\beta_7 = 0.01$.

Through T-statistics, we can understand the explanatory capability (or significance) that the variables have between them and the significance can be positive ($T > 2$) or negative ($T < 2$). As argue the results in T - statistic analysis ($P > t$), all variables that are included (education 0.53, research & development 0.68, human development index 0.18, economic growth 0.26, macroeconomic environment 0.94, unemployment rate 0.96, youth unemployment 0.61) have shown non - significance ($T < 2$) on labour market efficiency. Other important analysis in table 3 is the coefficient of determination (R^2), it measures the correlation between dependent variable and independent variables, so the question is: What does mean the determination ($R^2 = 0.98$) labour market efficiency and independent variables? The relationship is quite strong (since the value of determination is pretty close to 1 (0.99) while 0.01% (100% - 99%) are other factors that are not included in this model.

Table 3 Multiple regression method

Variables:	Coef.	Std. Err	t	P> t	95% Conf.	Interval	R ²
Labour Market Efficiency							0.99
Education	-0.32	0.42	-0.76	0.53	-2.11	1.48	

Research & Development Human	0.28	0.57	0.48	0.68	-2.18	2.74	
Development Index Economic Growth	6.19	3.05	2.03	0.18	-6.95	19.34	
Macroeconomic Environment Unemployment Rate Youth Unemployment	0.19	0.12	1.54	0.26	-0.34	0.73	
	-0.03	0.35	-0.08	0.94	-1.55	1.49	
	-0.002	0.05	-0.05	0.96	-0.21	0.20	
	0.01	0.01	0.60	0.61	-0.05	0.07	
Variables:	Coef.	Std. Err	t	P> t 	95% Conf. Interval	R²	
Labour Market Regulation Education							0.99
	-0.36	0.66	-0.55	0.64	-3.20	2.47	
Research & Development Human	1.56	0.90	1.73	0.23	-2.32	5.45	
	-7.84	4.82	-1.63	0.24	-28.59	12.90	
Development Index Economic Growth	0.16	0.20	0.84	0.49	-0.68	1.01	
Macroeconomic Environment Unemployment Rate Youth Unemployment	2.36	0.56	4.24	0.05	-0.03	4.75	
	0.13	0.07	1.75	0.22	-0.19	0.45	
	0.03	0.02	1.22	0.35	-0.07	0.13	

Source: Authors

The second regression analysis in table 3 is between labour market regulation as dependent variable and other independent variables and the results have found that education ($\beta_1 = -0.36$) and human development index ($\beta_3 = -7.84$) have negative impact on labour market regulation. Other variables in analysis (such as: research & development $\beta_2 = 1.56$, economic growth $\beta_4 = 0.16$, macroeconomic environment $\beta_5 = 2.36$, unemployment rate $B_6 = 0.13$ and youth unemployment $B_7 = 0.03$) have shown positive impact on labour market regulation. In T-statistic analysis the results shown that all independent variables (education 0.64, research & development 0.23, human development index 0.24, economic growth 0.49, macroeconomic environment 0.05, unemployment rate 0.22 and youth unemployment 0.35) have shown non - significance ($T < 2$) on dependent variable (labour market regulation). The second regression analysis is the coefficient of determination, it is determination between dependent and independent variables, then the relationship between them is very strong ($R^2 = 0.99$).

In table 4 is Correlation Matrix, it shows the level of relationship between dependent variable and independent variables. The first correlation matrix is between labour market efficiency and independent variables. The results shown that education (-0.18), unemployment rate (0.85) and youth unemployment (-0.71) have negative correlation. All other variables (research & development 0.13, human development index 0.01, economic growth 0.63, and macroeconomic environment 0.74) have positive correlation on labour market efficiency. In the second correlation matrix is between labour market regulation and independent variables and the results has shown that education has 0.00 (non-correlation). Then, human development index -0.06, unemployment rate -0.55 and

youth unemployment -0.44 have negative correlation. Other independent variables (such as: research & development 0.12, economic growth 0.52, macroeconomic environment 0.84) have positive correlation on labour market regulation.

Table 4 Correlation method

Variables:	LME	EG	ME	UR	YE	HDI	ED	R&D
Labour Market Efficiency	1.00							
Education	-0.18	1.00						
Research & Development	0.13	0.82	1.00					
Human Development Index	0.01	0.53	0.67	1.00				
Economic Growth	0.63	-0.19	-0.28	-0.49	1.00			
Macroeconomic Environment	0.74	0.06	0.23	0.34	0.50	1.00		
Unemployment Rate	-0.85	-0.16	-0.40	-0.26	-0.52	-0.82	1.00	
Youth unemployment	-0.71	-0.21	-0.43	-0.31	-0.47	-0.78	0.87	1.00
Variables:	LMR	EG	ME	UR	YE	HDI	ED	R&D
Labour Market Regulation	1.00							
Education	-0.00	1.00						
Research & Development	0.12	0.82	1.00					
Human Development Index	-0.06	0.54	0.68	1.00				
Economic Growth	0.52	-0.21	-0.31	-0.51	1.00			
Macroeconomic Environment	0.84	0.00	0.14	0.22	0.52	1.00		
Unemployment	-0.55	-0.15	-0.38	-0.24	-0.52	-0.78	1.00	
Youth unemployment	-0.44	-0.22	-0.44	-0.32	-0.44	-0.68	0.86	1.00

Source: Authors

Conclusion

In conclusion defines labour market in context of labour market efficiency and labour market regulation in transition economies with case study of SEE countries. The data is collected from international institutions and most of them include period of time 2014, then data is calculated by STATA program (econometric software). The main analyses including different methods, such as: descriptive statistic methods, regression analysis (OLS method) and correlation method. In OLS method and correlation matrix are realized two type of analyses: the first analysis is between labour market efficiency and independent variables and the second analysis is between labour market regulation and independent variables. In the both analyses education has shown negative impact on labour

market (labour market efficiency $\beta_1 = -0.32$ and labour market regulation $\beta_1 = -0.36$), but economic growth has shown positive impact on labour market (labour market efficiency $\beta_4 = 0.19$ and labour market regulation $\beta_4 = 0.16$). The coefficients of determination for both analyses are 0.99 ($R^2 = 0.99$) and the relationship between dependent variables and independent variables is quite strong (0.99).

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Appendixes

Appendix 1/A

List of SEE countries that are including in research paper:

Albania	Bosnia and Herzegovina	Bulgaria
Croatia	Czech Republic	Greece
Hungary	Macedonia FRY	Montenegro
Romania	Serbia	Slovakia
Slovenia		

Source: Authors

Appendix 1/B

Description of data collection and analysis in research paper:									
Names of Countries	Labour Market Efficie.	Labour Market Regulation	Economic Growth	Macro-econ. Environ.	Unemploy. Rate	Youth Unemploy	Human Develop. Index	Educa-tion	Research Developm.
	LME	LMR	EG	ME	UR	YU	HDI	EDU	R&D
ALB	4.1	5.7	2.1	3.8	13.8	22.5	0.716	3.3	0.2
BIH	4.2	7.1	0.7	n/a	28.1	62.8	0.731	n/a	0.1
BUL	n/a	7.7	1.4	5.4	12.3	28.1	0.777	4.1	0.6
CRO	3.9	6.1	-0.8	4.4	15.8	15.8	0.812	4.3	0.7
CZE	4.3	8.1	-0.7	5.4	7.1	7.1	0.861	4.2	1.6
GRE	3.7	4.5	-3.3	3.3	24.2	55.3	0.853	4.1	0.6
HUN	4.2	6.8	2.8	4.8	10.9	10.9	0.818	4.9	1.2
MKD	4.2	7.6	3.1	4.9	31.1	53.9	0.732	n/a	0.2
MNE	4.2	7.2	2.3	4.5	19.7	41.1	0.789	n/a	1.1
ROM	4.2	7.4	2.4	5.2	7.1	22.7	0.785	4.2	0.5
SER	3.7	6.9	-0.5	3.5	23.9	51.1	0.745	4.7	0.9
SLV	3.9	7.5	1.4	5.2	14.0	14.1	0.83	4.2	0.6
SLO	3.9	5.9	-1.1	4.3	8.8	8.8	0.874	5.7	2.1

Source: Labour Market Efficiency - World Bank 2014; Labour market regulations - Economic Freedom of the World 2014; Economic Growth - IMF 2014; Macroeconomic Environment - World Economic Forum 2014; Unemployment rate - ILO 2015; Youth unemployment - ILO 2013; Human Development Index - UNDP 2014; Education - World Bank 2014; Research and Development - World Bank 2013;

Appendix 1/C

Variable Definitions and Sources

1. Dependent Variables:

Variables:	Definition:	Sources:
Labour Market Efficiency (LME)	Labour Market Efficiency has values score between 0 (non - efficiency) to 7 (efficiency) and it includes different indications, such as: flexibility of wage determination, pay and productivity, female participation in the labour force, etc	World Bank: The Global Competitiveness Report 2014 -2015

Labour market regulations (LMR)	The index of economic freedom of the world measures the degree to which the policies and institutions of countries are supportive of economic freedom	Economic Freedom of the World: Annual Report 2014
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2. Independent Variables:

Economic Growth (EG)	Real GDP is defined as the value of the total final output (of all goods and services) that is produced in a one year within a country's boundaries and the growth / decrease of Real GDP is expressed as a percent (%).	IMF: World Economic Outlook 2014
Macroeconomic Environment (ME)	Macroeconomic Environment includes different indications, such as: government budget balance, gross national savings, inflation, government debt, country credit rating, etc;	The World Bank 2014: (The Global Competitiveness Report 2014 - 2015)
Unemployment rate (UR)	Unemployment rate is defines as percentage of the labour force population ages 15 and older that is not in paid employment or self-employed but is available for work and has taken steps to seek paid employment or self employment	ILO: Database for Labour Statistics 2015
Youth unemployment (YU)	Youth unemployment is defines as percentage of the labour force population ages 15 - 24 that is not in paid employment or self-employment but is available for work and has taken steps to seek paid employment or self employment	ILO: Key Indicators of the Labour Market 2013
Human Development Index (HDI)	The Human Development Index is a summary measure of average achievement in key dimensions of human development: a long and health life, and that have a decent standard of living	UNDP: Human Development Report 2014
Research and Development (R&D)	Research and development expenditure include current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, expressed as a percentage of GDP. It covers basic research, applied research and experimental development	World Bank: World Development Indicators Database 2013
Education (EDU)	Education expenditure include total public expenditure (current and capital) on education, expressed as a percentage of GDP	World Bank: World Development Indicators 2014

Authors