

# Is Innovation the Premise of Social Progress?

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## Abstract

*Improving the quality of life involves a complex and multidimensional effort, and previous efforts to measure progress simply did not create a sufficiently nuanced picture of what a healthy society looks like.*

*Social progress is the capacity of a society to meet the basic human needs of its citizens, to establish the areas that enable citizens and communities to improve, respectively to support the quality of their lives and to create the necessary conditions for all individuals to reaches the full potential.*

*At the same time, progress can be considered dependent on the ability to innovate and the ability to adopt innovation. Thus, after analyzing and comparing the data for the Global Social Innovation Index and the Global Innovation Index, we are looking to answer the question which gives the title of these papers: Is innovation the premise of social progress?*

**Key words:** Global Innovation Index, Social Progress Index, Economic progress, Globalization.

**J.E.L. classification:** F6, O1, O35

## 1. Introduction

The three major objectives promoted by the Europe 2020 strategy: smart growth, sustainable growth and inclusive growth are aimed at combating the economic crisis in the short term and economic development, in the long run, corroborated with the European Commission's goal of creating a knowledge-based Europe, on rapid and sustainable growth and on social progress. On the other hand, innovation and the transfer of knowledge associated with it are tools of vital development for the global economy.

Can we therefore consider innovation as a factor of social, economic and, why not, ecological progress? A more detailed understanding of the human aspects behind innovation is essential for developing policies that help promote economic development and the more prone to innovation at the local level.

## 2. Social Progress Index

Calculated from 2013, the Social Progress Index aims to measure social progress. Based on this, we can analyze the correlation between economic and social development without using classical economic indicators.

Starting from the premise that any previous effort to analyze social progress has been channeled in particular to the observation of poor countries, the Social Progress Index is a holistic indicator, representing practically a global measure of social progress that accumulates several aspects of health in a society. This also results in an analysis of economic progress from a different perspective compared to other indicators, SPI measuring the health or welfare of a country, and not social policies or spending on social assistance programs.

Speaking of a global index, another significant feature of SPI is that it allows the measurement of results in a granular way, which is especially important because we can analyze the weaknesses or strengths of each nation. Practically, using this indicator will allow us to create personalized policies on specific domains or subdomains, because based on granular data analysis, we will not

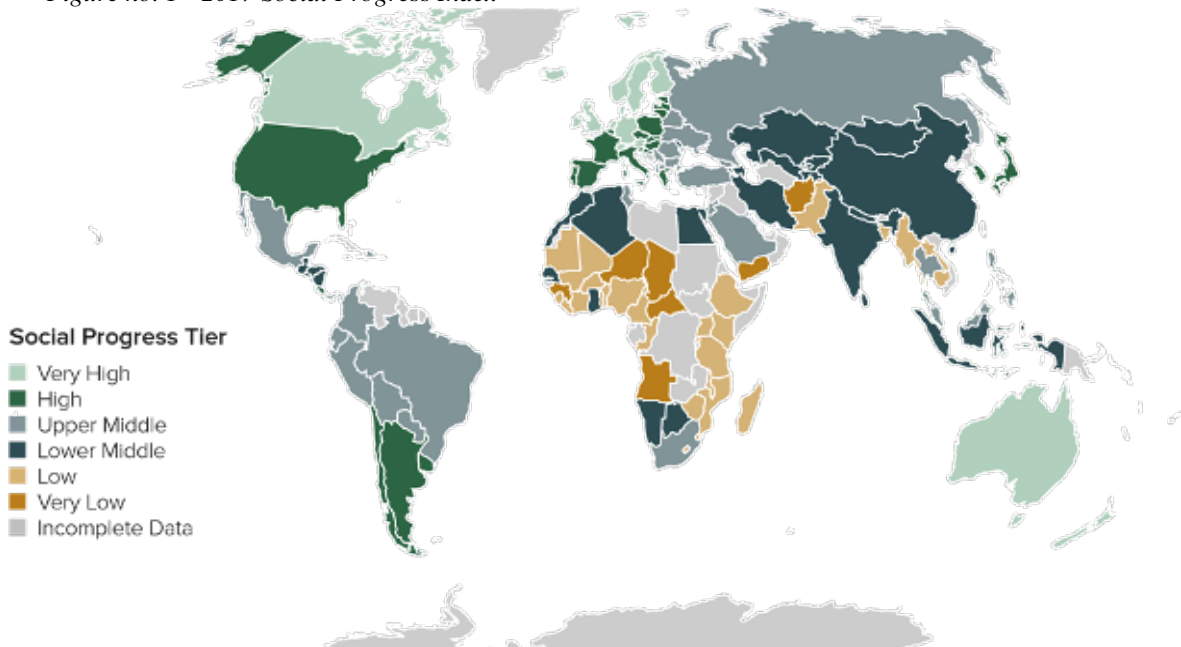
only get a final score, but we will also have partial scores for each analyzed subdomain. These will highlight the most delicate issues of each country.

For the calculation of the Social Progress Index in 2017, as an aggregate index, social and environmental indicators were used for the 128 analyzed countries. It measures the welfare of a society using 50 indicators per country, pointing to social progress in three dimensions:

- Fundamental human needs - determining the assessment of the resources of a country needed for survival (food, water, shelter, safety);
- Welfare fundamentals - Measuring access to elements that can improve people's livelihoods: (education, access to information and healthcare as well as a sustainable environment);
- Opportunity - assesses the degree to which each of us has the chance to fulfill his / her goals (personal rights and freedoms, freedom of choice, freedom from discrimination and access to the most advanced forms of education).

Each of the above mentioned components is an indicator that measures the performance of each country. An important feature of the Social Progress Index is that as an aggregate index of real performance indicators, it quantifies the quality of people's lives or measures whether people in a country are discriminated against and does not measure the expenditure incurred by each country for healthcare or, if governments adopt anti-discrimination laws.

Figure no. 1 - 2017 Social Progress Index



Source: Social Progress Index 2017

Each dimension is divided into four subdivisions that include the specific components of each component. The selection of thematic categories allows a multidimensional analysis of data that studies social progress in each country, and the general framework of the Social Progress Index determines a better understanding of global trends (including regional ones).

Basically, the main purpose of the Social Progress Index is to provide data to help create long-term policies specific to each nation with a strong impact on the development of economic progress.

### 3. Global Innovation Index

Aggregate indicators include the Global Innovation Index (GII), which analyzes innovation from a multidimensional perspective and can help improve economic development policies. The Global Innovation Index in 2017 is calculated for 127 countries, has a longer history than the SPI, and the report co-published by Cornell University, INSEAD and WIPO (World Intellectual Property Organization) shows the rankings of competencies and innovation outcomes for them

If in terms of the Social Inclusion Indicator we were talking about three dimensions, the Global Innovation Index is based on two dimensions, each of which is subdivided:

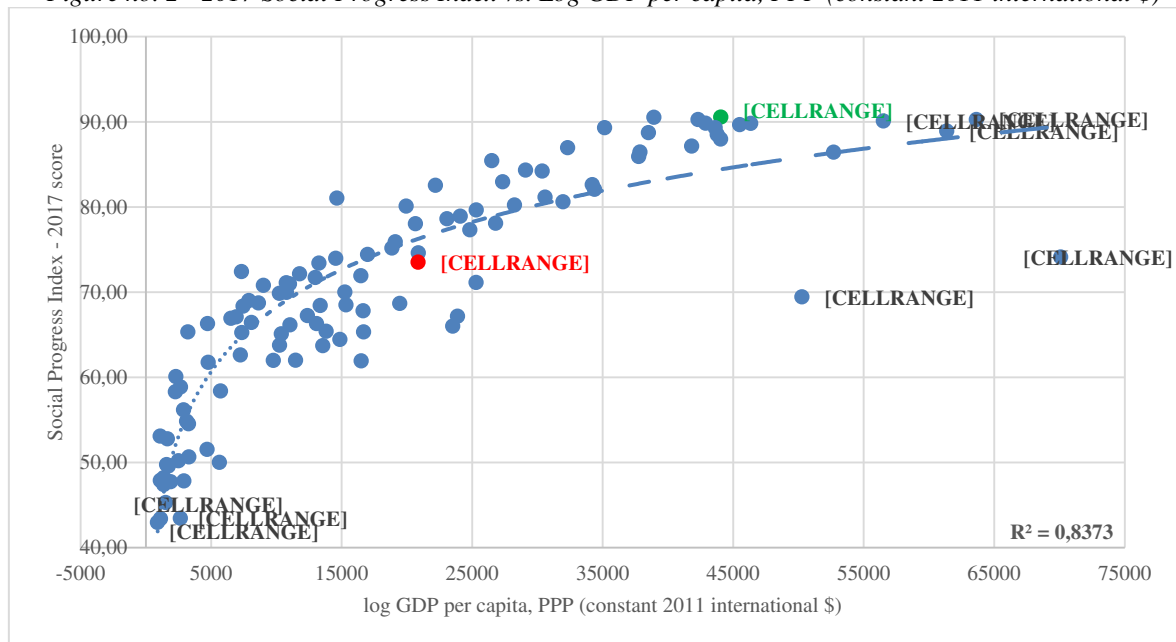
- Innovation Input – includes economic indicators reflecting innovative activities grouped into five other subcategories: Institutions, Human capital and research, Infrastructure, Market sophistication and Business sophistication;
- Output Innovation - is an output pillar grouping innovation performance indicators into two categories: Knowledge and Technology Production and Creative Outcomes.

From year to year, the calculation methodology is improved to know whether we can have a viable scenario on economic growth in the next year, both at the level of each nation and globally. Practically, policies can be created to create new sources of innovation for shaping the future of the economy.

#### 4. Data analysis

Collecting data for aggregate indicators is a tedious process, and selecting common indicators is difficult. For the data analysis, 110 countries were selected for 2014-2017 scores for both indicators.

Figure no. 2 - 2017 Social Progress Index vs. Log GDP per capita, PPP (constant 2011 international \$)



Source: Social Progress Index 2017 (own processing)

In 2017, from the point of view of social progress, Denmark ranks first (out of the 110 selected countries), and at the opposite pole Niger. Noteworthy that the top five positions are European countries.

Continuing the analysis, using the comparison with an economic indicator (GDP per capita), we see that Denmark has a higher GDP than Niger. On the other hand, the highest level of GDP is Kuwait, which is in a much lower position than Denmark.

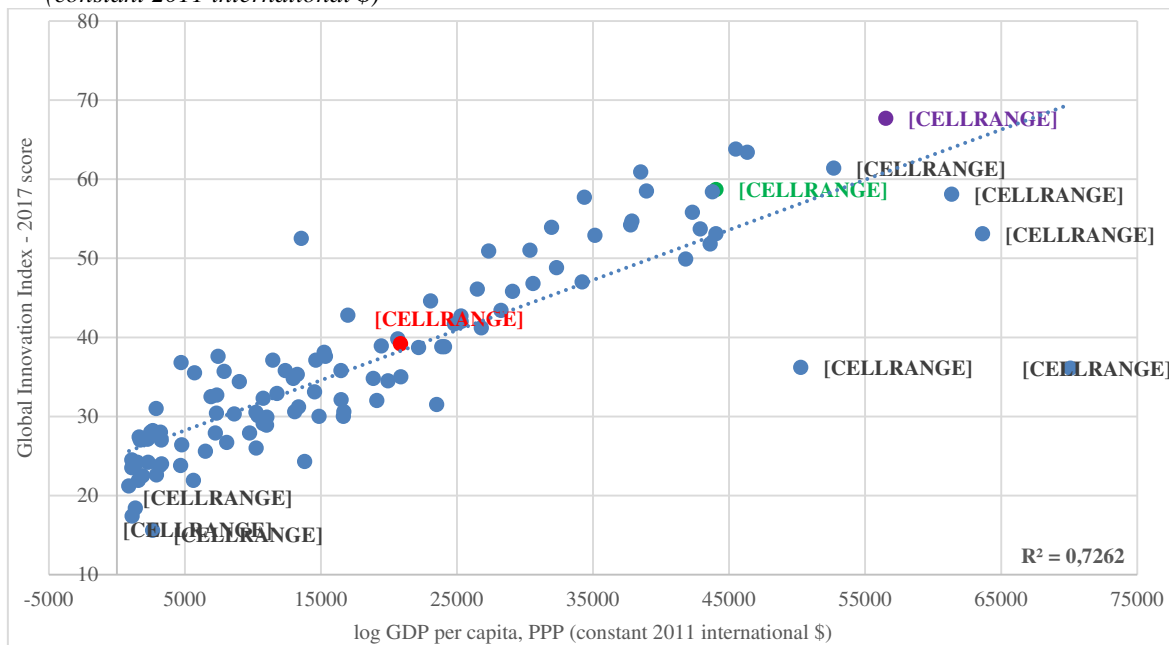
Norway, with a GDP level immediately below that of Kuwait, is ranked fourth in terms of the Social Progress Index, while Kuwait is ranked 42th!

Analyzing the trend of the regression line, we see that the poor countries are quite steep, indicating that a minimum GDP growth and reinvestment in services to improve living standards would mean an increase in social progress.

On the other hand, the trend at the top of the chart indicates that, after a certain level, one extra dollar of GDP brings less social progress.

A comparative analysis of the Global Innovation Index with the same economic indicator (GDP per capita) will have similar results, but this time, as shown in figure 3, the "protagonists" are different.

Figure no. 3 - 2017 Global Innovation Index vs. Log GDP per capita, PPP (constant 2011 international \$)

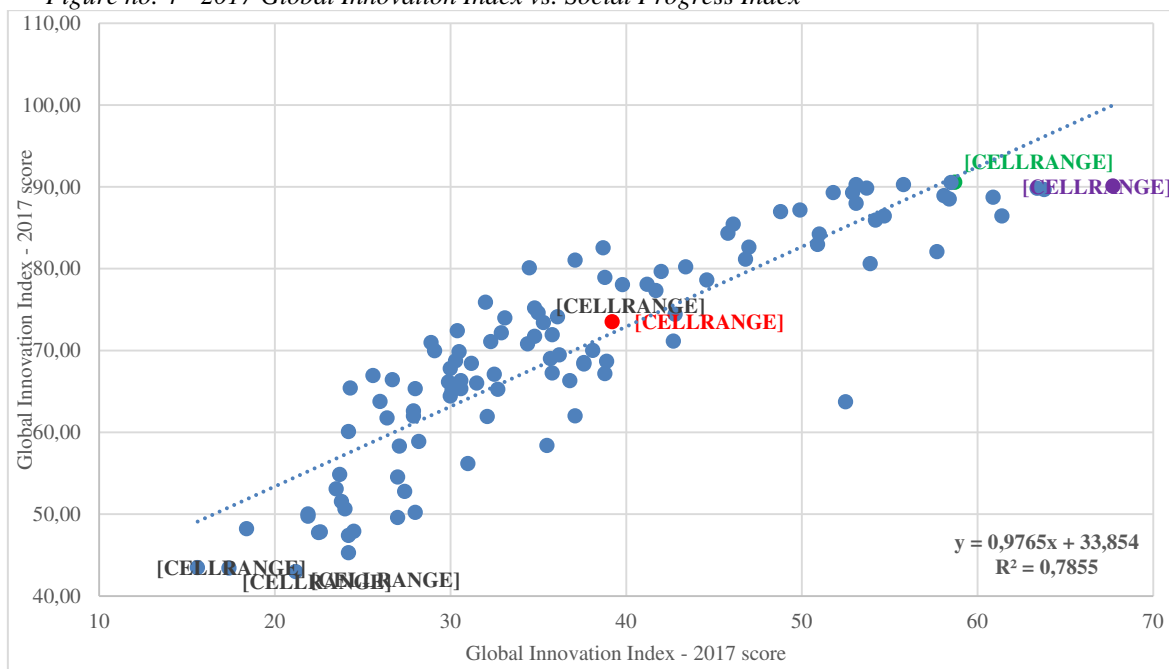


Source: Global Innovation Index 2017 (own processing)

Norway, with a level of GDP just below Kuwait, ranks 16th in terms of the Global Innovation Index while Kuwait is 49th!

The answer to the question that gives the title of this paper is an analysis of the correlation between the two indicators. If, in previous analyzes, Kuwait was noted as the country with the highest GDP per capita, in Figure 4, we notice its position in the lower half of the regression line.

Figure no. 4 - 2017 Global Innovation Index vs. Social Progress Index



Source: Social Progress Index and Global Innovation Index 2017 (own processing)

ANOVA						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	15022.39	15022.39	395.4101	6.87E-38	
Residual	108	4103.129	37.99193			
Total	109	19125.52				

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	33.85436	1.919982	17.63265	1.44E-33	30.04862	37.6601
Global Innovation Index 2017	0.976523	0.049109	19.88492	6.87E-38	0.879181	1.073865

In the hypothesis of a linear correlation, we see a strong dependence between the two indicators and the fact that the regression model built is valid.

In conclusion, we can state that the Global Innovation Index has a significant influence on social progress.

## 5. Conclusions

Can we consider the Social Progress Index as having a higher significance than GDP per capita?

We usually appreciate that the country that "lead" suits it also has the highest level of GDP. The Social Progress Index shows that such an analysis of the standard of living is erroneous, for example in the SPI 2017 ranking, Italy is in a higher position than Costa Rica (three places), although it has a GDP per capita three times great.

In the case of Romania, which has roughly the same GDP as Croatia, the discrepancy is even greater: Romania is at a difference of 7 places compared to Croatia (44 vs 37). Besides, if we speak at the level of the European Union, Romania is at the lower level of the ranking.

If we are talking about social progress, we also think about economic development that, as shown by the previous analysis, is based on innovation. Creating or identifying new sources of innovation is now vital to transforming the current economy. Over time, this is reflected in economic growth over a long period of time.

The Global Innovation Index is an indicator that helps to create policies to promote long-term growth in production, productivity growth and more jobs. At the same time, Global Innovation Index contributes to creating an economic environment where innovation factors are continually evaluated, basically we are talking about an evolving project based on previous editions and constantly updated with the latest data on the latest research on measurement innovation.

On the other hand, the analysis of Social Progress Index indicators helps us to identify performance at country or regional level. Moreover, the Social Progress Index has been adopted by some countries as part of the national development strategy, and the European Commission published it at the regional level of the European Union member states. It is worth noting that it has also been accepted and adopted by private companies to establish their investment strategies.

Recognizing the key role of innovation as the driving force of economic growth and prosperity and the need for a broad horizontal vision of innovation for emerging and emerging economies, we also recognize the role in developing social progress.

## 6. References

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- <https://www.globalinnovationindex.org/>
- <https://www.socialprogressindex.com/>

## Appendix

Country	Country Code	GDP per capita, PPP (constant 2011 international \$)	SPI 2017	GII 2017	Country	Country Code	GDP per capita, PPP (constant 2011 international \$)	SPI 2017	GII 2017
Denmark	DNK	44042	90.57	58.7	Jordan	JOR	10240	69.85	30.5
Finland	FIN	38941	90.53	58.5	Saudi Arabia	SAU	50284	69.45	36.2
Iceland	ISL	42325	90.27	55.8	Armenia	ARM	7907	69.01	35.7
Norway	NOR	63650	90.27	53.1	Paraguay	PRY	8639	68.73	30.3
Switzerland	CHE	56517	90.10	67.7	Turkey	TUR	19460	68.68	38.9
Canada	CAN	42895	89.84	53.7	Thailand	THA	15347	68.51	37.6
Netherlands	NLD	46354	89.82	63.4	Dominican Republic	DOM	13372	68.42	31.2
Sweden	SWE	45505	89.66	63.8	Ukraine	UKR	7457	68.35	37.6
Australia	NZL	35159	89.30	52.9	Belarus	BLR	16662	67.80	30
Australia	AUS	43631	89.30	51.8	South Africa	ZAF	12393	67.25	35.8
Ireland	IRL	61378	88.91	58.1	Russia	RUS	23895	67.17	38.8
United Kingdom	GBR	38519	88.73	60.9	Philippines	PHL	6938	67.10	32.5
Germany	DEU	43788	88.50	58.4	Bolivia	BOL	6531	66.93	25.6
Austria	AUT	44048	87.98	53.1	El Salvador	SLV	8096	66.43	26.7
Belgium	BEL	41826	87.15	49.9	Moldova	MDA	4742	66.31	36.8
Spain	ESP	32330	86.96	48.8	Lebanon	LBN	13089	66.31	30.6
Japan	JPN	37875	86.44	54.7	Sri Lanka	LKA	11048	66.16	29.9
United States	USA	52704	86.43	61.4	Kazakhstan	KAZ	23522	66.01	31.5
France	FRA	37775	85.92	54.2	Algeria	DZA	13823	65.41	24.3
Portugal	PRT	26514	85.44	46.1	Azerbaijan	AZE	16699	65.33	30.6
Slovenia	SVN	29097	84.32	45.8	Kyrgyzstan	KGZ	3225	65.33	28
Czech Republic	CZE	30381	84.22	51	Morocco	MAR	7365	65.25	32.7
Estonia	EST	27345	82.96	50.9	Indonesia	IDN	10385	65.10	30.1
Italy	ITA	34220	82.62	47	Botswana	BWA	14876	64.44	30
Chile	CHL	22197	82.54	38.7	Egypt	EGY	10250	63.76	26
Korea, Republic of	KOR	34387	82.08	57.7	China	CHN	13572	63.72	52.5
Cyprus	CYP	30604	81.15	46.8	Guatemala	GTM	7253	62.62	27.9
Costa Rica	CRI	14647	81.03	37.1	Mongolia	MNG	11478	62.00	37.1
Israel	ISR	31971	80.61	53.9	Namibia	NAM	9778	61.98	27.9
Slovakia	SVK	28254	80.22	43.4	Iran	IRN	16507	61.93	32.1
Uruguay	URY	19952	80.09	34.5	Honduras	HND	4785	61.76	26.4
Poland	POL	25323	79.65	42	Nepal	NPL	2312	60.08	24.2
Greece	GRC	24095	78.92	38.8	Tajikistan	TJK	2661	58.87	28.2
Latvia	LVA	23080	78.61	44.6	India	IND	5730	58.39	35.5
Lithuania	LTU	26807	78.09	41.2	Senegal	SEN	2274	58.31	27.1
Croatia	HRV	20664	78.04	39.8	Kenya	KEN	2901	56.17	31
Hungary	HUN	24831	77.32	41.7	Bangladesh	BGD	3137	54.84	23.7
Argentina	ARG	19126	75.90	32	Cambodia	KHM	3278	54.54	27
Mauritius	MUS	18864	75.18	34.8	Malawi	MWI	1112	53.09	23.5
Panama	PAN	20885	74.61	35	Rwanda	RWA	1655	52.78	27.4
Bulgaria	BGR	17000	74.42	42.8	Pakistan	PAK	4706	51.54	23.8
Kuwait	KWT	70107	74.12	36.1	Côte d'Ivoire	CIV	3300	50.65	24
Brazil	BRA	14555	73.97	33.1	Tanzania	TZA	2510	50.21	28
Romania	ROU	20848	73.53	39.2	Nigeria	NGA	5639	50.01	21.9
Serbia	SRB	13278	73.41	35.3	Burkina Faso	BFA	1593	49.75	21.9
Jamaica	JAM	7333	72.42	30.4	Uganda	UGA	1738	49.59	27
Peru	PER	11786	72.15	32.9	Togo	TGO	1372	48.21	18.4
Mexico	MEX	16490	71.93	35.8	Mozambique	MOZ	1120	47.90	24.5
Colombia	COL	12988	71.72	34.8	Cameroon	CMR	2926	47.83	22.6
Malaysia	MYS	25312	71.14	42.7	Mali	MLI	1905	47.75	22.5
Tunisia	TUN	10770	71.09	32.3	Madagascar	MDG	1376	47.40	24.2
Albania	ALB	11015	70.97	28.9	Ethiopia	ETH	1530	45.29	24.2
Georgia	GEO	9016	70.80	34.4	Yemen	YEM	2649	43.46	15.6
Montenegro	MNE	15254	70.01	38.1	Guinea	GIN	1135	43.40	17.4
Ecuador	ECU	10777	69.97	29.1	Niger	NER	897	42.97	21.2