



Regional growth, indices of sustainability and social progress

Judit Gébert

PhD Student

University of Szeged

Faculty of Economics and Business Administration

Doctoral School of Economics

HUNGARY

National Development Agency
www.ujszechenyiterv.gov.hu
06 40 638 638



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Content of the presentation

- Introduction
- The problem and research questions
- Applied methods and results
- Conclusions



The problem

- Debate in the literature about well-being
 - Real income (GDP per capita)?
 - Against: too narrow informational base
 - Alternative indices, from several dimensions?
 - Against: too complicate, arbitrariness
 - Subjective well-being (SWB), satisfaction?
 - Too subjective, depends on cultural differences



Used indicators

- GDP per capita
- Human Development Index (HDI)
 - Health
 - Education
 - Real income
- Ecological Footprint (EF)
 - Consumption
- Sustainable Society Index (SSI) and sub-dimensions
- Satisfaction (SWB)



Research questions

What kind of relationship is between GDP, the alternative indecies and SWB?

Is there a relationship between the state of the environment and performance of the economy?

Can we verify "common sense" statements about well-being, like:

- Does money/high consumption make you satisfied?
- Does the state of the environment influence perception of well-being?



1. Relationship between GDP and SWB

1. Correlation

			lgGDP	SWB
Spearman's rho	lgGDP	Correlation Coefficient	1,000	,461**
		Sig. (2-tailed)	.	,000
		N	141	141
** . Correlation is significant at the 0.01 level (2-tailed).				



2. Crosstabulation

The 94.1 percent of countries with high income is at least moderately satisfied with its well-being (moderately satisfied 52.9%, satisfied 41.2%).

In the cases of low income countries the situation is reverse: 86 percent of these countries are unsatisfied or less satisfied.

Although the preconditions of Chi-square test are not satisfied (Table 12): 43.8% of cells have expected count less than 5, therefore the related null-hypothesis can be not rejected, still the high Chi-square value implies relationship.



2. Relationship between GDP and alternative indicators

1. Correlation

			lgGDP	HDI	EF
Spearman's rho	lgGDP	Correlation Coefficient	1,000	.585**	.479**
		Sig. (2-tailed)	.	.000	.000
		N	141	141	141
		**. Correlation is significant at the 0.01 level (2-tailed).			

			lgGDP	Well-Balanced of Society	Healthy Environment	Climate and Energy
Spearman's rho	lgGDP	Correlation Coefficient	1,000	,488**	,380**	-,517**
		Sig. (2-tailed)	.	,000	,000	,000
		N	141	141	141	141
		**. Correlation is significant at the 0.01 level (2-tailed).				

2. Relationship between GDP and alternative indicators

			lgGDP	Natural Resources	Preparation for the Future	SSI
Spearman's rho	lgGDP	Correlation Coefficient	1.000	.088	,010	,500**
		Sig. (2-tailed)	.	,300	,902	,000
		N	141	141	141	141

** . Correlation is significant at the 0.01 level (2-tailed).



3. Relationship between SWB and alternative indicators

Correlation and partial correlation

			SWB	HDI	EF
Spearman's rho	SWB	Correlation Coefficient	1,000	,767**	,680**
		Sig. (2-tailed)	.	,000	,000
		**. Correlation is significant at the 0.01 level (2-tailed).			

Control Variables			SWB	HDI
lgGDP	SWB	Correlation	1,000	,670
		Significance (2-tailed)	.	,000
		df	0	138

		Well-Balanced Society	Healthy Environment	Climate and Energy	Natural Resources	Preparation for the Future	SSI
Spearman's rho SWB	Correlation Coefficient	,449**	,373**	-,694**	,075	-,016	,556*
	Sig. (2-tailed)	,000	,000	,000	,380	,854	,000
	N	141	141	141	141	141	141



4. The structure of the indices

Communalities

	Initial	Extraction
EF	1,000	,493
SWB	1,000	,662
Well-Balanced Society	1,000	,740
Preparation for the Future	1,000	,947
Extraction Method: Principal Component Analysis.		

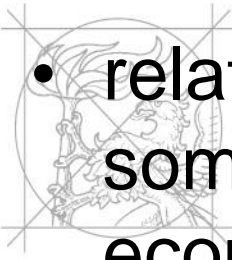
Components

	Component		
	1	2	3
EF	,683	,111	,117
SWB	,810	,063	-,034
Well-Balanced Society	,736	,309	,322
Preparation for the Future	-,008	,022	,973
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 4 iterations.			



Conclusions

- relationship between GDP and the alternative indices
- other relationships are confirmed by the partial correlation and the factor analysis
- the correlation values are higher between the satisfaction and the alternative indices than between GDP and SWB
- relationship between the indicators confirms some the common conjecture in ecological economics



Thank you for your attention!

E-mail: gebert.judit@eco.u-szeged.hu

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