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Regional growth, indices of sustainability and social progress

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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

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Thank you for your attention!

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