

Alternative indicators: what are the most sustainable countries?

## Summary

In our study we wanted to find an answer to the question whether we can find sustainable countries if we compare the values of different composite indicators? We examined three composite indicators (HDI, HPI, EPI) and the ecological footprint and GDP. Based on our analysis two indicators independent of each other and also independent of the GDP, these are the HPI and the EPI. The classification of countries was performed using cluster analysis. Based on the three-cluster model is determined a specific path of development in Latin America. It would be worth considering for European countries that besides the economic development presented in GDP, they should prefer improvement based on community building and local cooperation, which is a characteristic in the high number of the local trading systems (LES) in Venezuela.

## Keywords

HDI, HPI, EPI, Ecological Footprint, Latin America

## Long abstract

In our study we examined the indicators belonging to the group of alternative indicators of substituting the GDP. We took into consideration two factors when we selected the indicators, we were in search of such indexes which can evaluate at least two pillars (environmental, economic and social) of sustainability and they are available in the most countries. In the followings we are representing the components of the examined alternative indicators:

- Human Development Index (HDI)
- Environmental Performance Index (EPI)
- Happy Planet Index (HPI)
- Ecological footprint (FP)

Based on the values of the correlation coefficient of Pearson (Table 1.), there is close connection between certain indicators (these are indicated by the highlighted cells). Two indicators, the HPI and the EPI can be considered independent from GDP and all the other indexes. As a result of this, besides these two indicators, the GDP or any other indicators can be included in the cluster analysis without the deformation of the findings. The other essential aspect of the assessment of the findings is that the close connection between the Ecological Footprint and the GDP can question the suitability of the Ecological Footprint.

Table 1.: The correlation coefficient of Pearson

n=92	HDI	FP	HPI	EPI	GDP
HDI	1	0.744	0.145	0.535	0.758
FP		1.00	-0.336	0.377	0.909
HPI			1.00	0.174	-0.189
EPI				1.00	0.484
GDP					1.00

After the exclusion of extreme outlier countries consisting of the four prominent data, we accomplished a cluster analysis and we are presenting the findings by the between-group linkage method in Table 2. In the grouping of the three clusters, it is true for all the three variables of the examination that their spreading is lower than the spreading of the whole mass and we received similar findings with the help of Ward's method, for this reason the grouping is suitable for the original conditions. In Table 3 the values of the non-examined indicators are indicated as well. We examined the deviation from the average of the values of certain indicators (except from the ecological footprint the higher value is the more favourable). In the cell highlighted with black the values of at least 15% more favourable than the average and in the cells highlighted with grey the values of at least 15% more unfavourable can be found.

Table 2: The findings of the cluster analysis

	<b>HDI</b>	<b>FP</b>	<b>HPI</b>	<b>GDP</b>	<b>EPI</b>
<b>means</b>	<b>0.70</b>	<b>3.18</b>	<b>43.36</b>	<b>15800.99</b>	<b>53.07</b>
<b>1. cluster</b>	0.79	4.45	41.68	25954.03	61.12
<b>2. cluster</b>	0.71	2.14	55.03	9266.4	55.08
<b>3. cluster</b>	0.61	2.43	39.64	8856.92	44.26

1<sup>st</sup>cluster: the indicators of the GDP and EPI of the countries of the first cluster are more favourable than the average, in this sector the highest is the value of the HDI and Ecological Footprint indicators. Among others, the Members of the European Union, Japan and the USA belong to this cluster. These are the richest countries examined in the study. Among the Latin American countries Uruguay can be listed in this cluster.

2<sup>nd</sup>cluster: the values of the ecological footprint and the HPI indicators of the countries of this cluster are more favourable than the average while the GDP is lower than the average and typically Latin American countries belong to this cluster. The happiest countries belong to this cluster.

3<sup>rd</sup>cluster: the values of the ecological footprint of these countries are the most favourable while their GDP and EPI are lower than the average. The happiest countries belong to this cluster. Among the Latin American countries Haiti is part of this cluster.

As the result of the criticism of the GDP and the increasing changing demand, the different scientist teams have established several alternative indicators and some of these (e.g. HDI or the ecological footprint) strongly correlate with the GDP despite the unlike counting methods. The significant surplus information in the indicators can be useful completion in relation to the judgement of the sustainability of certain countries; however, this fact can question the applicability instead of GDP. The independence from the GDP provides a possibility for two complex indicators, namely for the EPI and for the HPI to conduct analysis based on other points. In our study besides these two independent indicators the values of the HDI index were placed in our examination. On the basis of the three indicators, the countries can be grouped clearly.

The countries of the 2<sup>nd</sup> cluster represent a specific and significantly different development way from the European one. They can live happier by regularly GDP with lower than the average, with smaller environmental problems. (The Latin-American country, Costa Rica, the extreme outlier excluding from the study, is the happiest state of the world.)It is interesting that The HPI index (50.34) of the happiest European state, Switzerland lags behind the HPI index (50.65) of the least happy Latin American country, namely Dominican Republic. In the 21st century, paradigm shift happened in the economic policy thinking of the

Latin American countries, it is a common belief among the Latin-American politicians and economists that it is not appropriate to take the neoliberal economic policy as without alternative and it is not obvious that the steps initiated by the IMF mean the long-term solutions for the region. It would be worth considering for Hungary as well as for the European countries that besides the economic development presented in GDP, they should prefer improvement based on community building and local cooperation, which is a characteristics in the high number of the local exchange systems (LES) in Venezuela. In those countries where the LES system is more widespread, people are more satisfied with their life. There is no absolute relation of cause and effect between the two factors, so it is likely that the many-coloured local relationships can promote the establishment of LES, which can contribute to the satisfaction of demands on higher levels as well as to the contentment with life, on even lower income level.