

DECOUPLING IN THE FRAME OF SUSTAINABLE DEVELOPMENT

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Abstract

Sustainable development is a way of development of human society, which brought into conformity economic and social progress with full preservation of the environment. The economy can not exist outside society and its institutions. Society and economy can exist only as part of the environment (environmental pillar). This reveals interdependence between the various pillars (or dimensions) of sustainable development. The aim of this paper is to evaluate decoupling in the frame of selected dimensions of sustainable development in the EU countries.

Keywords: Sustainable development, dimensions of sustainable development, decoupling, European Union Countries

Clasificare JEL: Q01, Q56

1. Introduction and context of the study

Economic activities of society are often developed at the expense of quality of environment (Chiras, 2012). The issue of economic prosperity and a high quality of environment is currently one of the most debatable. It seems very difficult to achieve high economic growth without negative effects on the environment respectively without negative impacts to the environment (Hronec, 2000; Adamišin, 2007). Dimensions of economy and ecology often stand facing each other and the development of one of them is done often at the expense of the other (Adamišin, Kotulič, 2013); (Adamišin, Vavrek 2015). It is therefore necessary to look for ways to develop economic life without harming the environment, as the society responds to changes in environmental quality will be much more sensitive than in the past (Železník, Paulíková, 2012). This may be due to long-term accumulation of problems in certain localities, but also an effort to achieve better quality of life.

Sustainability problem persists in society for many years. A comprehensive definition of sustainable development first appeared in the report of the Club of Rome (1972), which states that sustainable development is a global equilibrium state in which the population of the earth and capital are maintained on more or less constant level and tendencies influencing the growth or decline in these variables must be kept under close control. For the most widely used definition of sustainable development is generally considered the definition given in the report of the World Commission on Environment and Development (1987), that sustainable development means the developing satisfying the needs of current generations without compromising the ability of meeting the needs of future generations. In practice, there are still many views and definitions of sustainable development. Sustainability depends on many current issues that has grown from the local dimension into a global, world problems of mankind (Demo, et al., 2007); (Demo, et al., 1999) (Barrow, 2006).

Sustainability is a multidimensional sphere of enforcement and formation of human activities. Synergy of environmental, social and economic aspects of the environment shapes the lives of the individuals whose quality depends on (his) previous decisions (decisions of the society, decisions made by previous generations) in a given space (Bednárová, 2013). Quality of life was

thus formed in space and time (Dubravská, Kotulič, 2014); (Tej, 2011). These two dimensions together with mutual human relationship with the environment and the surroundings are critical factors that shape and affect the quality of the environment and quality of life in it. Because of the relatively complicated quantification of these quantities, to measure the sustainability is used complex, set of indicators, which are divided into four basic groups. (Demo, et al., 2007); (Demo, et al., 1999); (Jeníček, 2010); (Maier, 2012). These are the indicators:

- economic,
- environmental,
- social,
- institutional.

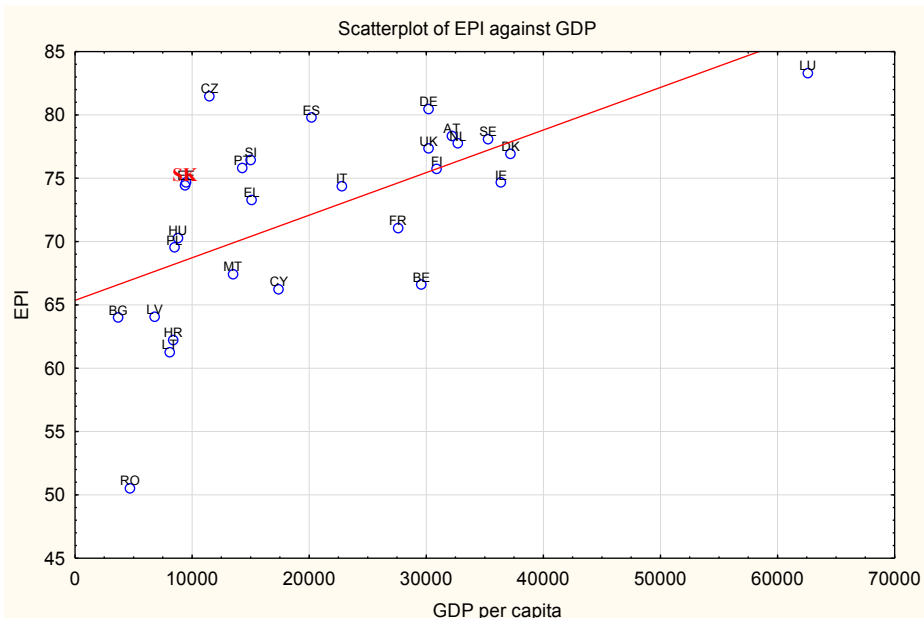
Their synergy offers the opportunity for a comprehensive assessment of the state of sustainability in the selected region. But in practice, in the frame of sustainable development dimensions there is also decoupling.

2. Material and methods

The aim of this paper is to evaluate decoupling in the frame of economic dimension and environmental dimension of sustainable of development in the EU countries (28 EU countries average). The environmental dimension is represented by indicator Environmental Performance Index. Economic dimension is represented by indicator GDP per capita. Evaluation has been realized using the regression analysis. Data (year 2014) source is Eurostat and Yale Center for Environmental Law & Policy (YCELP).

3. Results and discussion

Using the regression analysis we quantify the relationship between variables GDP per capita and the Environmental Performance Index. Data visualization and regression model are presented in Graph 1.



Graph no. 1 The regression model - GDP per capita and the Environmental Performance Index (relationship) in the EU-28 countries

Source: own processing; data: Eurostat and YCELP

Table no. 1 Results of regression analysis - GDP per capita and EPI (EU-28 countries)

N=28	Results of regression with the dependent variable: EPI (EPI GDP data18112014) R= ,61983481 R2= ,38419519 Edited R2= ,36051039 F(1,26)=16,221 p<,00044 Standard error of the estimate: 5,9141					
	b*	St. err. b*	b	St. err. b	t(26)	p-value.
Abs.m			65,36489	2,064832	31,65628	0,000000
GDP	0,619835	0,153899	0,00034	0,000083	4,02755	0,000435

Source: own processing; data: Eurostat and YCELP

There is a form of regression model:

$$y^{++} = 65,3649^{++} + 0,0003^{++}x$$

Model (Table no. 1) shows that the one euro increase of the indicator GDP per capita causes an increase of the 0.0003 units of EPI. Based on the results of the F test and T test, we conclude that this is a high reliable model, in the field of individual regression parameters, as well as a whole.

4. Conclusions

Based on the realized analysis we could conclude, that among the analyzed parameters was demonstrated relationship – the level of environmental performance (expressed by EPI) is dependent on the level of economic performance (expressed by GDP per capita). In this case, there is the decoupling between the different dimensions only in the field of indicators growth rate. By increasing of economic level may cause also increasing of the environmental performance in the EU countries. It is however possible to assume, for compliance with the conditions *ceteris paribus* (with respect to the other disregarded factors that could have an impact on these changes). Based on the results of this regression analysis can be determined by the economic performance of the country needed to achieve the desired level of environmental performance.

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