

SUSTAINABLE DEVELOPMENT OF SELECTED EU COUNTRIES IN AGE OF GLOBALISATION – A CASE STUDY

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Abstract. Sustainable development has belonged to strategic priorities of all developed countries since the last century. Along with globalisation, a discussion has started whether globalisation and sustainable development are in opposite or not. Many various sustainable development indicators are recognized by The European Council. They are grouped in ten headline indicators (SDI 1-10). According to SDI 1-10 metrics, the European Council assesses sustainable development of each EU country. Developed EU countries are performing better in comparison with lower-income economies from the point of view of normalised sustainable development indicators. Four countries are selected for the case study evaluating their performance in sustainable development in age of globalisation. Sweden represents the group of the most successful countries in EU in sustainability building. On the other side, Poland represents developing EU countries with low values of indicators but with the highest benefit from the EU investments and funding. The Czech Republic and Estonia demonstrate middle developed countries within the EU. The selected countries have implemented the EU-formulated sustainability development strategy in different ways with consideration of different country's historical background, location within the EU, population, GDP, achievement in socio-economic development, sustainable consumption and production, social inclusion, demographic changes, public health, climate change and energy, sustainable transport, natural resources, global partnership, and good governance. Data are analysed by various methods and some results are visualised by means of cartographic outputs.

Keywords: sustainable development, headline indicators, spatial analyses, KOF Index of Globalisation

JEL Classification: Q01, R59, Y80

1. Introduction

Sustainable development is a concept, which has been developed since the 1960s at international level. The term itself has become popular after the book *Our Common Future* was published in 1987. The concept now influences lives, policies and economies of many countries around the whole world because it proposes a development without significant impact on future generations. EU has introduced its strategy and requires member countries to implement their own strategies and plans. (Rogers et al., 2008)

Sustainable development concept itself, including definition of the term, has undergone long debates and changes in the understanding and approaches. It was introduced as a solution to growth problems, it was promoted as an approach how to keep the planet for next generations in a good condition, how to prevent impacts on health and environment or how to provide a better quality of life (Du Pisani, 2006), (Blowers et al., 2012). There is even a discussion if sustainable development is a theoretic concept or practical strategy motivating political actions (Blowers et al., 2012). Many definitions can be found. According to Rogers et al. (2008) it is: “a dynamic process of change in which the exploitation of resources, the direction of investment, the orientation of technological development, and institutional change are made consistent with future as well as present needs”.

Sustainable development is connected to cities development and urban planning as a specific issue (Williamsn 2010) and it can be used as a measure of success of e-government (Kopáčková, 2017). Availability of sophisticated decision support tools is important for sustainability assessment and choice of suitable options (Huysegoms & Cappuyns. 2017). To ease and fasten users work, software tools should be designed in a usable form (Hub & Zatloukal, 2008).

The three basic pillars of the sustainable development are very often recognized (Rogers et al., 2008), (Hák et al., 2012): a) environmental (limits); b) economic (potential); and c) social (requirements). Next, the idea of the five dimensions of sustainability was introduced. Time (permanence), human aspects (persons) and space (place represented by three dimensions) are essential to evaluate sustainable development although space and time are not always taken into account (Seghezze, 2009). Holden et al. (2016) propose to focus on a model of sustainable development based on the following moral imperatives: a) satisfying human needs, b) ensuring social equity, and c) respecting environmental limits rather to seek for balance of the three above mentioned pillars).

Sustainable development and governance are nowadays influenced by globalisation (Pawlowski, 2013), (Zulean, 2011). Global companies are accompanied by unification of consumer expectations and consumption (i. e. cultural and social situation), production growth and the development of newer versions of products. In this way, technological development is supported too but the growing production and new technologies intensify utilization of resources and environmental pressure (Pawlowski, 2013). Some environmentalists, human rights advocates, etc. support anti- and alter-globalization movements to protect e.g. environment and local cultures. Many people perceive sustainable development as an alternative to globalisation and anti- and alter-globalization movements; they perceive it as an inclusive globalization. (Gawor, 2008), (Pawlowski, 2013). Competitive Sustainable Globalization and Competitive Sustainable Manufacturing were later introduced as a new paradigm to address local and global aspects of manufacturing and other contemporary challenges (Jivane et al., 2017).

Effects and impacts of globalisation are evaluated and measured in various ways. KOF Index of Globalisation is one approach which can be used. Figge et al. (2017) used Ecological Footprint as a comprehensive indicator to assess effects of globalisation and showed that globalisation has an effect on the environmental footprints.

Space issues are very important as well, as far as there many disparities between regions and countries caused by globalisation and development. Utilization of sustainable development indicators is one of suitable approaches (Ostasiewicz, 2012).

Aim of the paper is to evaluate performance of selected four EU countries in sustainable development in age of globalisation. Headline sustainable development indicators (SDI) used by EU are used for evaluation. All countries are taken into account and attention is paid to Sweden, Poland, Estonia and the Czech Republic as representatives of developed and developing EU countries. Differences in their sustainability strategies implementation are included to illustrate the situation.

2. Evaluation of Sustainable Development of Selected EU Countries

2.1 Methods

A comparative case study is based on sustainable development indicators as they are provided by Eurostat. The study focuses on four different countries to demonstrate differences using a qualitative approach. Methods of spatial analyses (quartile classification, directional distribution and hot spot analysis based on Getis-Ord G_i^*) and cartographic methods are used to provide in-depth view, including benchmarking approach. For spatial analyses, all countries are included to better demonstrate commonalities and differences.

2.2 Sustainable Development Indicators

The European Council distinguishes more than 130 sustainable development indicators, which are grouped in ten theme groups, which are represented by headline indicators (Eurostat, 2016). The European Council utilizes the SDIs to evaluate performance of member countries. The measured theme groups and their headline indicators are (Eurostat, 2016):

- Socio-economic development: Real GDP per capita, growth rate and totals
- Sustainable consumption and production: Resource productivity
- Social inclusion: Persons at-risk-of-poverty or social exclusion
- Demographic changes: Employment rate of older workers
- Public health: Healthy life years and life expectancy at birth, by sex
- Climate change and energy: Greenhouse gas emissions, Primary energy consumption
- Sustainable transport: Energy consumption of transport relative to GDP
- Natural resources: Common bird index
- Global partnership: Official development assistance as share of gross national income
- Good governance: No headline indicator; Some operational indicators are available, e.g. Policy coherence and effectiveness (measured as New infringement cases), Openness and participation (measured as Voter turnout in national and EU parliamentary elections) and Economic instruments (measured as Shares of environmental and labour taxes in total tax revenues from taxes and social contributions); Economic instruments are used in the study because there is available a full time series.

Earlier study comparing member countries (Ostasiewicz, 2012) was based on SDIs Developed EU members with high-income economies demonstrate advantage over developing EU countries with lower-income economies in values of normalized sustainable development indicators. Sweden, Austria, the Netherlands, the UK, Luxembourg, and Belgium represented the major high-performing countries in sustainability. On the opposite Bulgaria, Poland, Hungary, Slovenia, and Romania, as representatives of EU developing countries, showed low indicator values (Ostasiewicz, 2012).

2.3 Selected Countries and their Brief Profiles

Based on EU's data, Sweden was selected because it represents the high-performing countries, which started with sustainability very early – in the 1960s. Poland represents developing countries; it benefits the most from the EU investment and funding support to its economy transition (Dilba et al., 2015). The Czech Republic and Estonia demonstrate a middle development within the EU. The countries follow different paths in the implementation of sustainability development strategies – based on different historical background, location within the EU, population, GDP, etc. KOF values are from (ETH, 2017).

The **Czech Republic** is comparable to Sweden in terms of population. Its economic system belongs to successful ones within its region. The Czech government approved the first Sustainable Development Strategy of the Czech Republic on 2004, December 8th (Ministry of the Environment of the Czech Republic, 2017). $KOF_{2015} = 84.1$ (13th country) (ETH, 2017).

Estonia is a country with very high level of advancement of information and communication technologies. It is the first country in the world with online votes (in 2005). The Sustainable Development Act was prepared and adopted by parliament based on the Agenda 21 program in 1995 (Statistics Estonia, 2017). $KOF_{2015} = 79.35$ (24th; ETH, 2017).

Poland introduced its first national SDS in 2000, followed by several other documents. All the documents are aligned with the EU strategy, but none of them gives a direction for implementation (European Sustainable Development Network, 2004). $KOF_{2015} = 79.43$ (23th).

Sweden was the first country adopting legislation focusing on environmental conservation in Europe and it still belongs to leaders in environmental protection. Sweden drafted and adopted its first Sustainability Development Strategy (SDS) in 1994. $KOF_{2015} = 86.59$ (6th).

2.4 Results – Evaluation of the Countries Based on Particular Headline Indicators

Full description of indicators and procedures of collection and calculation are described by Eurostat where all data are available for download (Eurostat, 2016).

Socio-Economic Development: Sweden shows high GDP; it can provide extra economic resources to be invested in the future by addressing environmental and social issues.

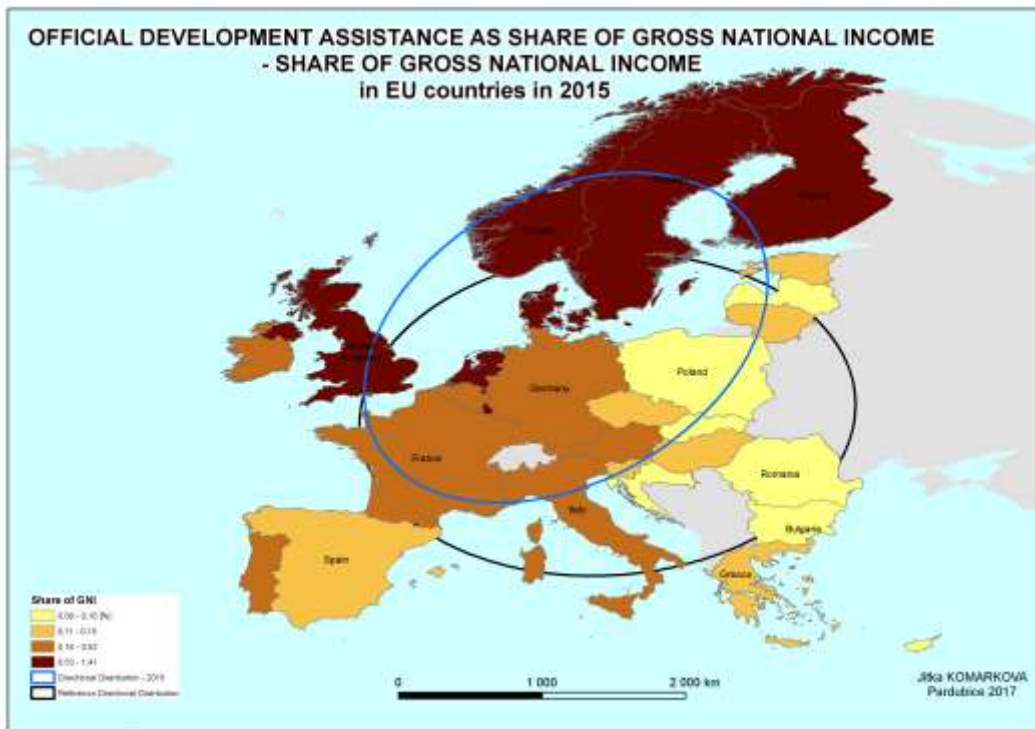
Sustainable Consumption and Production: The lowest Resource productivity of Sweden (1.70 EUR per kg) recorded in 2000 is more than 2.5 times higher than the highest Resource productivity of Poland and Estonia in 2015 with 0.49 EUR per kg and 0.65 EUR per kg.

Demographic Changes: Sweden is almost two times better than Poland. An increase in the indicator shows that the country pursues the employment policy of the EU.

Public Health: It is evident that women in Sweden enjoy a higher life expectancy than that in Czech Republic, Estonia and Poland. During 2010-2013, Sweden recorded a decline but then increased it to 73.6 years in 2014. Poland has even demonstrated higher ratio over the selected years and 65.9 years in 2004 to 71.8 years in 2015.

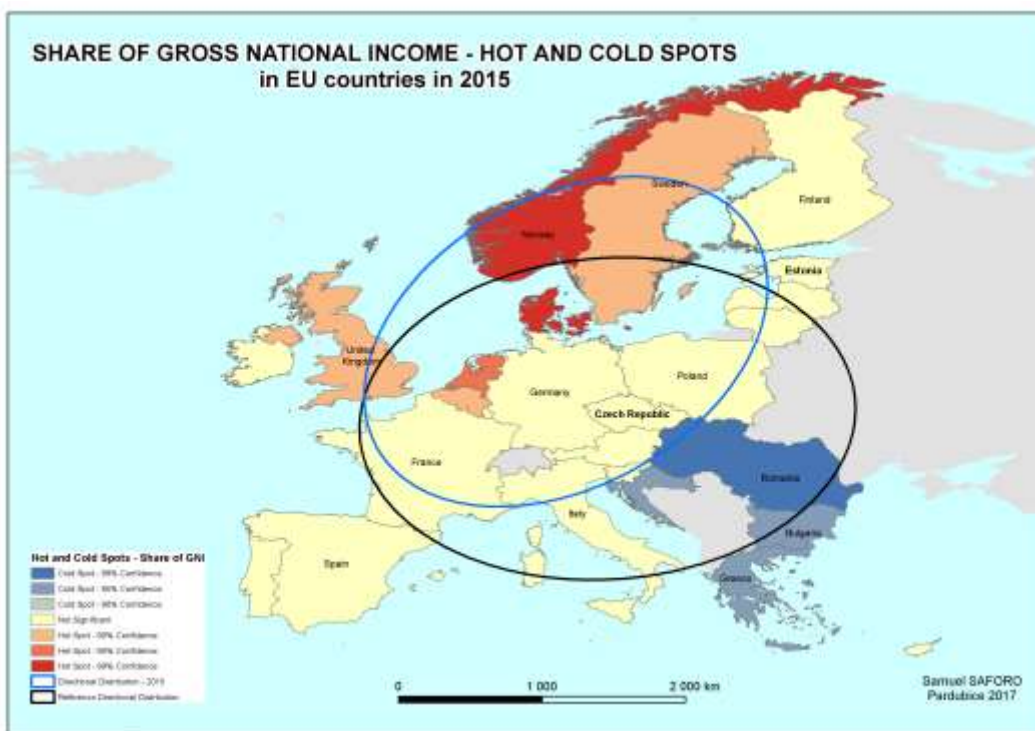
Global Partnership: High-income economy of Sweden (and Norway) is capable of allocating funds for official development assistance of the EU membership, while transitional economy of Poland needs financial assistance itself likewise Estonia and the Czech Republic. See Figure 1 and 2 for the spatial distribution of this indicator over EU.

Figure 1: Official Development Assistance as Share of Gross National Income



Source: authors, based on data from (Eurostat, 2016)

Figure 2: Official Development Assistance as Share of Gross National Income



Source: authors, based on data from (Eurostat, 2016)

Social Inclusion: Poland illustrated a considerable decrease in the quantity of people being at risk of poverty or social exclusion for the chosen period. The country managed to reduce

social vulnerability from 45.3 % in 2005 to 23.4 % in 2015. Though the social exclusion ratio remains much higher than the one of Sweden (23.4 % versus 16 %), the country illustrates a positive trend in improving well-being of its people and reducing poverty rates.

Climate Change and Energy: Sweden and the Czech Republic significantly reduced greenhouse gas emissions. Poland and Estonia has not been able to achieve any progress in reducing greenhouse gas emissions. But, Estonia produced less greenhouse gases than all other countries during the whole time. Poland produced less greenhouse gases than Sweden till 2010. Then, Sweden decreased greenhouse gasses emission. Concerning the energy consumption, Estonia consumes significantly less than all other countries. Poland belongs to countries with higher level of energy consumption in Europe.

Sustainable Transport: Poland and Estonia decreased energy consumption of transport relative to GDP to lower level than Sweden and the Czech Republic.

Natural Resources: Czech Republic recorded higher number of bird species in the 1990s but during the time it underwent similar development to other countries – a high decrease. But still, it results belong to top level countries.

Good Governance: Shares of Environmental and Labour Taxes in Total Tax Revenues from Taxes and Social Contributions index can be used for a comparison. According to it Poland and Estonia are able to collect more than the Czech Republic, followed by Sweden.

3. Discussion

Currently, sustainable development is a global issue. Governments of both developed and developing countries pay attention to this concept as far as wide utilization of finite resources, more and more discussed water insufficiency, global supply chains, changing climate, etc. have brought new challenges on one side and adoption of sustainable business models along with regional, national, and international policies on the other side (Bilgramy, 2015). Sustainable development is even perceived as an alternative concept to globalisation (Gawor, 2008), (Pawlowski, 2013), (Jivane et al., 2017).

EU countries have different historical roots and they have followed different paths in implementation of sustainable development strategies, policies and action plans. Sweden started its first activities in this field in the 1960th, other countries after year 2000. Poland in the beginning did not work on implementation activities (European Sustainable Development Network, 2004). An evaluation of SDIs established by EU for a period of ten to sixteen years illustrates the dominance of Sweden in sustainability aspects within the observed countries. Sweden provides significantly better results (as a higher economically developed country with 42,700 GDP index) than the Czech Republic, Estonia and Poland with 16,200 GDP index, 13,400 GDP index, 10,900 GDP index in 2015. This inequality in economic resources may be another reason for other disparities in sustainability development of the countries. However, all countries belong to highly globalised countries according to KOF Index (ETH, 2017).

Sustainable Transport seems to be the theme when the Czech Republic, Estonia and Poland are better than Sweden. All the countries decreased energy consumption of transport from 2010 to 2015 more than Sweden. It seems that transitional economies were able to build an effective and suitable transport system. A surprising result shows the indicator **Shares of Environmental and Labour Taxes in Total Tax Revenues from Taxes and Social**

Contributions index. Poland and Estonia succeed in collection of environmental taxes in comparison to Sweden and the Czech Republic.

As Ostasiewicz (2012) and Seghezzeo (2009) stated, the space is another important issue to be taken into account. This paper provides spatially-oriented point of view in a form of cartographic outputs to identify disparities between regions.

4. Conclusion

Sustainability and sustainable development belong to important issues in all EU countries. The EU requires adoption of new approaches and initiatives to support development of all countries in the time of globalisation with focus on many different aspects, including sustainability, globalisation, local issues, welfare and competitiveness.

Sweden represents a well-developed country within EU, which has focused on sustainable development for a very long time period. The Czech Republic and Estonia have made some progress, which does not provide so good results as a Swedish system but it is still slightly better than Polish approach and results. All countries are highly globalised.

Utilization of spatial analyses can bring both global and local view to better identify the spatial distribution and similarities/disparities within a region. Together with benchmarking, these methods can bring a new point of view, which includes influence of location.

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