ASSESSING SUSTAINABILITY OF THE SOUTHEAST EUROPEAN ECONOMIES

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A B S T R A C T

Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. Sustainability indicators are based on the attempt to measure or determine the path of development of the economy in two directions: sustaining human wellbeing, or preserving the capacity to provide wellbeing. The research has been conducted to assess sustainability in the Southeast Europe, represented with a group of 10 countries with the 15 multi-metric indicators. A cluster analysis was performed on the set of indices to check the formation of distinctive clusters. Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia constitute first cluster, proving small differences among data. Second cluster consists of Bulgaria, Croatia and Romania, while last cluster consists of only Greece and Slovenia.

Introduction

Humanity is experiencing an unprecedented transformation of economic and social system, predominantly driven by exponential population growth and overconsumption of resources, enhanced by an increased demand for improved social conditions. Current problems are seen as an undisputed requirement for more sustainable socio economic system that is seen in the form of the sustainable development concept. The concept of sustainability is comprehensible and is therefore a great obstacle to creating an adequate sustainability indicator. Encompassing the complex reality, with simultaneous careful and consistent implementation of mathematical or statistical models, for the purpose of calculating the deviation of the current state from desired reality, is an extremely difficult task for contemporary researchers. On the other hand, using the available indicators of sustainable development and their use for the purpose of decision making entails

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the danger of oversight and uncritical belief in results that are a more than simplified picture of reality and can be based on an insufficient number of data. Furthermore, individual indicators may favor some of the aspects of sustainability, at the expense of others that are absent or insufficiently present in the composite index itself. Thus, it can be argued whether it is reasonable at all to use any single composite index represented by one number. Should one turn to the multitude of individual indicators of the state of economy, environment and social progress and tailor individually acceptable trajectories of future development based on such lists?

Theoretical Framework for Sustainability Research

Sustainable development represents a normative orientation providing a reference framework for juxtaposing different perceptions, pursuits and understanding of authors regarding the desired changes in the society (Loorbach, Frantzeskaki, and Thissen 2011). At the same time, defining sustainability features as one of the favorite pastimes of the academic community (Kula 2001). It is a fact that there are an extremely large number of definitions of this concept, and this number is probably equal to the number of groups trying to precisely express the notion. More serious attempts at defining the notion and concept date to the late 1980s and more significant definitions, that is, those that have established themselves in academic papers, have distinguished themselves to date. Explaining the notion of sustainability, it could be concluded that the term refers to something that is preserved, protected or managed, whereas development is explained by progress or improvement (Bojović 2011).

As for the concept itself, the most often cited definition is that mankind has the possibility to make development sustainable – to enable development that meets the needs of present, without depriving the future generations of the possibility to meet their own needs (World Commission on Environment and Development 1987). In other words, sustainable development is seen as a harmonious relationship between economy and ecology, so as to preserve the natural resources of our planet for the future generations as well. Initiating the idea of the possibilities of achieving a more stable, technologically more advanced, socially balanced and humane society, in accordance with environmental principles (Đukić 2014) is the objective of contemporary economies oriented towards sustainable development.

Although the definition accentuates the long-term pursuits and ethical aspects of the concept, it does not give clear indications of the necessity to establish sustainable environment, a society based on justice and equality, nor a healthy economy. A more precise definition of sustainable development could therefore be required, which will include these essential dimensions. Sustainable development encompasses the types of economic and social development, protecting and fostering natural environment and social equality (Danphy 2000), from which it clearly follows that sustainable development, is to be regarded as a process of continuous enhancement and flexibility.

The concept of sustainable development raised the debate between advocates of development and advocates of environmental protection proposing either a divorce between the two trends based on establishing prosperity without growth (Jackson, 2010) or a successful marriage with the adherents of new green consensus (Frantzeskaki, Jhagroe and Howlett 2016) .

Taking into consideration standpoint from the aspect of dedication to the growing problems of social welfare and equality and the aspect of environmental problems, the existing paths of understanding sustainable development can be grouped to: adherents of status quo, reformers and transformers (Hopwood, Mellor and O'Brien 2005). The adherents of status quo appreciate the need for change, yet do not perceive insurmountable problems neither on the side of the environment, nor from the aspect of society. The adherents of this path of sustainable development believe that adjustments can be made by means of appropriate decisions and agreements and represent the prevailing opinion of current politicians and influential governmental and non-governmental organizations such as the European Union, the World Bank, the Organization for Economic Cooperation and Development (OECD), the World Business Council for Sustainable Development (WBCSD) etc. On this standpoint, development is implied as a consequence of economic growth, while progressive taxation, reduction in salaries and benefits, privatization and deregulation are regarded as desirable.

The second group of participants in the debate on sustainable development are reformers, who agree that there are serious, accumulated problems, which are the consequence of the current approach to governance and leadership, although do not believe that consequences can be detrimental, nor that fundamental changes are necessary (Meadows 1972). Rather than in the current social system, they find the root of the problem in inequalities and lack of knowledge and information. They also agree that obvious changes are necessary in state policies and lifestyle in a time period, but argue that this can be achieved by gradual changes within the current social and economic structures. The starting point is the belief that technology may contribute to the environmental protection and it is necessary to increase energy efficiency, that is, opt for alternative energy sources.

The last group of participants in the debate on sustainable development, the transformers, advocate deeper changes in the current system so as to respond appropriately to the accumulated problems of society and environment. This group includes numerous influential players advocating reforms without close connection with sustainable development, such as numerous socialist ideas dedicated to the issue of change of the social system, but also players of deep ecology and ecofascism, focussing natural values that should be placed before the interest of people.

Mere pointing to the shortcomings of the current model is much easier than proposing a new model. The current economic model can be criticized because it fails to fulfill the objectives of sustainability in the following aspects (Islam, 2014):

- Excessive consumption and exploitation of natural wealth;

- Inefficient and inappropriate in accomplishing development objectives oriented to poverty eradication;

- Utterly helpless in environmental protection, in the sense of simultaneous and sufficiently rapid increase of the standard of living of the vulnerable, and improvement of life satisfaction of those who already have the prerequisites.

There are opinions that the current obvious problems are not a consequence of recent events, but can be viewed as a cumulative process that started with the industrial revolution that resulted in enormous economic growth, which is not sustainable. One of the direct consequences of industrial revolution is submission of society to economy guided by personal interests. It is therefore necessary to return economy within the framework of society and thus substitute personal interest with social welfare as the basic motive of the economy. Aided by the commodity concept, the market mechanism subordinates man and nature, that is, the very essence of society, to the laws of market (Polanyi 2001, p. 45). Although this new version of the market turned out to be extremely productive, it is accompanied by disastrous displacement of man, tearing his links and endangering the natural habitat, with the threat of destruction. The solution to the problem lies in re-establishing the control of society over economy, demolishing the commodity-based approach to work, land and money, and reinstating them in the form of people, nature and means of exchange (Polanyi 2001), which also represents a new model suited to the concept of sustainable development.

Whichever orientation they belong to, all authors will represent sustainability as something good and desirable for any society. The sustainability concept itself has become like democracy, in the sense of universally desirable, diversely understood, extremely difficult to apply and unceasing concept (Lafferty 2004). Some, however, argue that the concept has become so convoluted and complex that it can no longer feature as a guideline in a decision making, and therefore places itself in danger of becoming irrelevant (Holden, Linnerud and Banister 2014).

Adopting a broader framework of socially responsible criteria in the research work itself, such as: a stronger reflection of ethical issues or social influences on research can make a favorable impact on science devoted to sustainable development, encompassing transdisciplinary and interdisciplinary research (Daedlow et al. 2016).

Assessing sustainability in the Southeast Europe

Sustainability is a broad concept, attractive for policy makers and researchers alike, which has led to the overwhelming number of indicators for assessing sustainability. Indicators are intended to be a useful tool for policy making as they convey information about the country's performance regarding specific aspect of sustainability or encompassing all three dimensions: economic, environmental and social.

Sustainable development is dedicated to the complex problems of present, stemming from the attempts to harmonize the frequently conflicting demands of human development, environmental protection and maintaining the possibilities of future generation. Initiating the idea of the possibilities of a more stable, technologically more advanced, socially balanced and humane society that is, additionally, in compliance with environmental principles, is the objective of contemporary economies orientated to sustainable development. Although consensus, in principle, has been reached in theory, in practice it is extremely difficult to encompass all three aspects of sustainability in a single indicator. Therefore, a serious analysis of sustainability of economies requires analysis according to multiple criteria and thus expression through multiple scientifically founded indicators, implying, above all, a high-quality database.

Individual sustainability indicators have gained popularity owing to clear presentation of conclusions or easy comprehension of results, whereas others are appealing because they accentuate a certain social aspect of development. Despite being accepted as representatives of sustainable development indicators, these are only a partial reflection of the complex issue of sustainable development and must be supplemented, adjusted or serve as a basis for creating complex indicators. When the creation of complex, all-embracing indices is attempted respecting the scientific basis of aggregation, the problem remains of (non)existence and allocating weights to individual parameters, which entails subjective judgment.

Assessing sustainability has been a daunting task even for developed countries, and for developing countries t is especially delicate process. Burdened with economic and social challenges developing countries are neglecting their natural resources and this is generally the predominant reason why these countries are struggling with sustainability progress. Countries of Southeast Europe are no exception. Representing a group of 10 countries, with five countries currently in the European Union (Bulgaria, Croatia, Greece, Romania and Slovenia), four candidate countries (Albania, The former Yugoslav Republic of Macedonia, Montenegro and Serbia) and one being potential candidate country (Bosnia and Herzegovina), this group has been chosen to represent developing countries and their obstacles in assessing sustainability. Cluster analysis proves to be the most suitable analysis, as it allows for a large set of indicators to be employed and gives sound information as to how the economies have grouped according to their sustainability levels.

Data and methodology

The 15 multi-metric indicators are chosen to represent development of Southeast European economies in the light of sustainability. Four essential development indices are presented: population, GDP growth, GDP per capita and minimal wage as to give the perspective of the economic advancement of the economies. Afterwards, 15 indicators are chosen: adjusted net savings (ANS), corruption perception index (CPI), ecological footprint (EF), education index (EI), environmental performance index (EPI), environmental vulnerability index (EVI), GINI coefficient, global peace index

(GPI), human development index (HDI), inclusive wealth (IW), poverty gap, rule of law index (RLI), social progress indicator (SPI), sustainable society index (SSI), world giving index (WGI). Indicators are chosen primarily to cover all three dimensions of sustainability (economic welfare, social equity and environmental quality) fairly equally such as: ANS, SPI, SSI and IW. Others are important in policy making and are representing inevitable sustainability indices being in a constant use.

Effort has been made to represent the most recent data available using accessible databases(WB - The World Bank, eurostat - European Statistics, Transparency International, Global Footprint Network, United Nations Development Programme, Yale University, United Nations Environmental Programme, Institute for Economics and Peace, International Human Dimensions Programme (UNU-IHDP, 2014), The World Justice Project, Social Progress Imperative, Sustainable Society Foundation and Charities Aid Foundation, 2016). Presented indicators are mostly composite indicators, comprising from two (EI) to up to 62 (SPI) different individual indicators, usually gathered in sub-indices (ANS, EVI, WI, SPI, SSI), representing great power of conveying information with one gauge or number. Contrary to composite indexes sole indicators like poverty gap or GINI coefficient are used to accent depth of poverty or income distribution inequalities and are used together with one or several composite indicators.

Indices are presented with the metadata on different scales that required prior standardization of the variables. A cluster analysis was performed on the set of indices to check the formation of distinctive clusters. The squared Euclidean distance between samples was used to assess the similarity or differences, thereby forming clusters of integrated sustainability performance based upon the 15 multi-metric indicators. A dendrogram was used to visually depict the clusters created via the hierarchical method. The final partition of the clusters was determined using dendrogram and the knee in the similarity level of the clusters analysis. The selection of the final number of the clusters was dependent upon subjective interpretability of the solution (Odigie et al. 2017).

Results and Discussion

From the analysis it was concluded that all the data clusters finely in three groups. Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia constitute first cluster, proving small differences among data. Second cluster consists of Bulgaria, Croatia and Romania, while last cluster consists of only Greece and Slovenia. The results are presented with Figure 1.

Figure 1. Cluster Analysis results
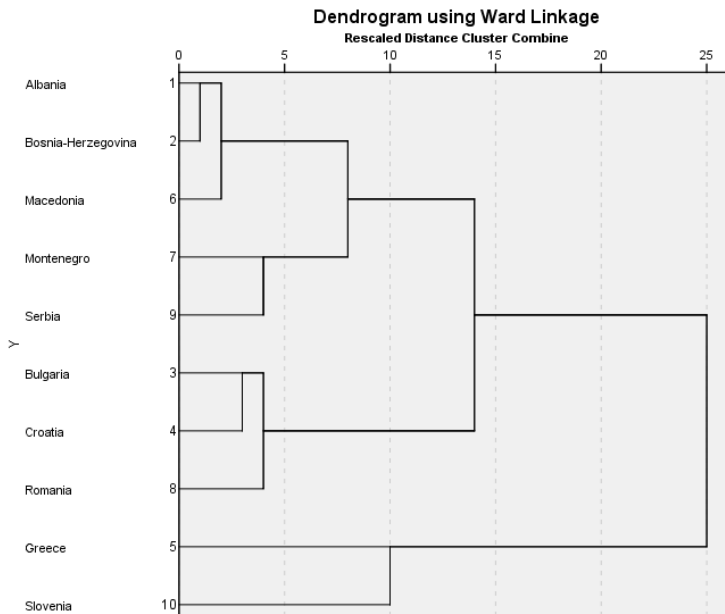
From the analysis it is evident that the closest results concerning sustainability are among Albania and Bosnia and Herzegovina, followed by Macedonia. Similar results in sustainability assessments are between Bulgaria and Croatia. The rest of groupings were not based on that close results.

First cluster is somewhat heterogeneous, as it comprises of three similarly performing countries (Albania, Bosnia and Herzegovina and Macedonia) and two slightly off, being Montenegro and Serbia. Those differences are not statistically significant, however. The common denominator for these countries is that they are candidate countries and potential candidate countries. Understanding overwhelming issues for the single country is possible by searching for commonalities among sustainability performance.

The Former Yugoslav Republic of Macedonia is having difficulties combating corruption and maintaining peace in the society with great income disparities. The conclusion is imposed by the results of the considerably lower rank in GPI and CPI indexes, followed by the highest GINI coefficient in the Southeast Europe. Currently challenging issues in FYRO Macedonia are additionally validated by poorest score in SSI in human dimension.

Other Southeast European countries do not have such a clear cut combating issues. Albania has scored poorly in education that is directly transferred to poor HDI value and is recording weak economic parameters, such as the lowest GDP per capita, lowest minimal wage, low scores on economic dimension of SSI, and high perceived corruption. It could be said that Albania has the greatest obstacle in sustainability reflected in poor economic base.

Bosnia and Herzegovina, besides poor scores on human side, visible in low HDI score followed by poor score in corruption perception index, has serious problems with environment protection as it performed considerably worst then other Southeast European countries in SSI environment dimension that is proven in EPI, leaving only 71 world country out of 178 behind.

Montenegro and Serbia are the closest to the group of weakest performers in the Southeast Europe, and that is why they are in the same cluster. Montenegro and Serbia, with common political heritage are performing almost the same in most aspects of sustainability. The only difference is Serbia's slight lag in terms of combating corruption and slower economic growth compared to all analyzed countries.

Second cluster denotes the results of 3 EU member states (Bulgaria, Croatia and Romania). No single country stands out to be performing significantly worse than any other, except Romania concerning the poverty depth (poverty gap indicator). Bulgaria, Croatia and Romania are performing in all aspects moderately compared to others. Similarity is the superior economic performance of these countries, visible in considerably higher GDP growth rates and the highest scores in SSI economic dimension, while the difference is Romania's issues with deep poverty index, and Bulgaria's good peace performance.

Third cluster is made from Greece and Slovenia although those two could be considered separately, as the difference in the results is considerable. Slovenia stands out in numerous progress indicators, such as: education index, EPI, GPI, GINI, WGI, CPI and IW outperforming other Southeast European countries and it could be attributed to the higher standard of living - minimal wage indicator and GDP per capita are 5 times higher than in Albania, while general peaceful conditions in the country facilitate stable macroeconomic environment, unlike Greece or FYRO Macedonia.

Greece is combating economic issues, as the GDP growth is close to 0 that is visible in the lowest score of SSI economic dimension of all Southeast European countries. Aggravating poor economic conditions is the fact that Greece has high GPI and high poverty gap ratio that will make it more difficult for Greece to enable fair and equal possibilities for all its citizens. Although social and human dimension of its progress is valued highly, with almost highest education index and HDI, the inability to manage its natural resources soundly is visible (second lowest ANS, and EF bio capacity debt).

The good visual representation of the sustainability analysis of Southeast European countries is provided with figure 2, where HDI score, as a representative of social development, and minimal wage, as a representative of economic advancement, are crossed at scatter plot. It is evident that countries from the first cluster are distant from countries forming third cluster by far. Those two indices are portraying vividly socio-economic environment of Southeast European countries.

Figure 2. Scatter plot of three clusters for HDI score and minimal wage
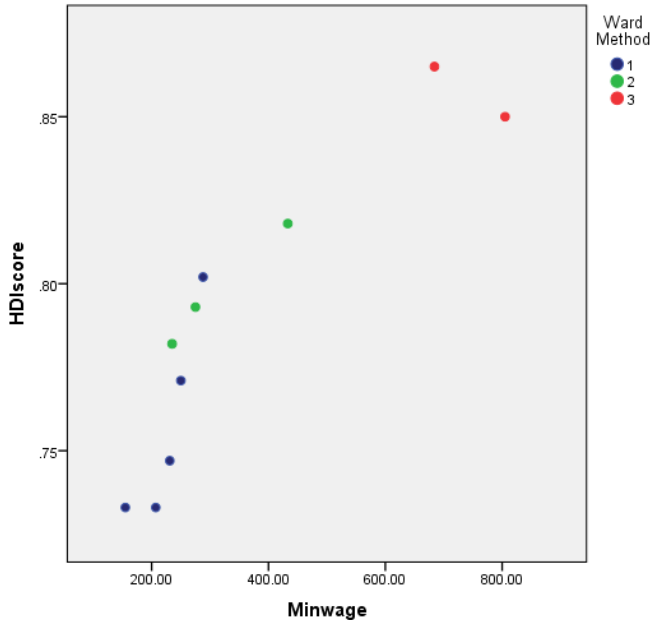
Conclusions

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Keeping in mind the possibilities of generations to come and responsibility of present generations to facilitate this ability it is essential to manage wisely all capital at hand, i.e.: natural, human and financial. Assessment of the sustainability advancement of the Southeast European countries has shown the difference of their individual socio-economic environment. All countries are dealing with its specific economic problems differently. However, it influences the advancement of social and environmental dimension of sustainability. The economic growth and prosperity enables the advancement of the second two aspects. Said differently, the economic development is either the enabler or the impediment of social and then eventually environmental advancement.

This paper has shown the clustering of Southeast European countries according to the sustainability progress, capturing most proficient and up to date indices of sustainability at the same time.

Conflict of interests

The authors declare no conflict of interest.

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