Acta Univ. Bohem. Merid. 2016, 19(1), 30-40, ISSN 2336-4297 (online)

Sustainability Evaluation of the European Union based on the Ecological Footprint

Magdaléna Drastichová [1]

Abstract: *Recent production and consumption activities impose a heavy burden on the Earth's current and future ca- pacity. Therefore, it is inevitable to deal with the impacts of the economic activities on the natural resources which determine our future well-being and the survival by itself. The indicators reflecting impacts of regions and countries on the available resources are used in this Paper to operationalize the sustainable development concept. The Ecological Footprint, Total Biocapacity and their components are investigated in the European Union (EU) and its countries and the EU region is compared with the other regions of the world. The additional three developed countries – Norway, Switzerland and the United States (US), were included in the sample together with the EU countries to enable extended comparisons. The aim of the Paper is to evaluate sustainability in the EU and its countries by means of the Ecological Footprint and the available biocapacity and to detect the relations between the countries' EF and their standard of living and human development level. Concerning the regions, the highest Ecological Footprint per capita is typical of North America followed by the EU region. The Northern countries show largest biocapacities and are thus the largest resource creditors. The worst results in the Ecological Footprint – biocapacity relations analysis are typical of Cyprus, Belgium, Netherlands and Italy. The cross-section regression models confirmed that, at least, in the sample of the de- veloped countries the positive relations between the Ecological Footprint on the one hand and the standard of living / state of the human development on the other hand exist.*

Key words: Sustainable Development ·Sustainability · Ecological Footprint · Biological Capacity · European Union

JEL Clasification: C21 · Q51 · F56

Fulltext available: https://doi.org/10.1515/acta-2016-0008

References

Daly, H. E. (1996). *Beyond Growth.* Boston: Beacon Press, 1996. ISBN 978-0-8070-4709-5.

Drastichová, M. (2014). Measuring Sustainable Development in the European Union Using the Adjusted Net Saving. In: I. Honová, M. Hon, L. Melecký, L., M. Staníčková (Ed.), *Proceedings of the 2nd International Conference on European Integration 2014* (pp. 87 – 101): Ostrava: VŠB – Technical University of Ostrava. ISBN 978-80-248-3388-0.

European Commission (2016). *Environment. Beyond GDP* [Online]. Last updated: 25. 11. 2016 [cit. 29. 11. 2016]. Available on: http://ec.europa.eu/environment/beyond_gdp/index_en.html

European Commission (2015). *Environment. Sustainable Development* [Online]. Last updated: 08. 06. 2015 [cit. 25. 9. 2015]. Avail- able on: http://ec.europa.eu/environment/eussd/.

European Environment Agency (2015). *Ecological footprint of European countries* [Online]. Last updated: 04. 09. 2015 [cit. 28. 11. 2016]. Available: http://www.eea.europa.eu/data-and-maps/indicators/ecological-footprint-of-european-countries/ecological- footprint-of-european-countries-2

Ing. Magdaléna Drastichová, Ph.D.
VŠB-TU Ostrava, Faculty of Economics, Department of Regional and Environmental Economics, Sokolská třída 33, 701 21 Ostrava, Czech Republic, e-mail: magdalena.drastichova@vsb.cz

Eurostat (2015). Sustainable development in the European Union. *2015 monitoring report of the EU Sustainable Development Strat- egy*. Luxembourg: Publications Office of the European Union: ISBN 978-92-79-49391-1. doi: 10.2785/999711

Ewing B., Moore, D., Goldfinger, S. Oursler, A., Reed A., & Wackernagel. M. (2010). *The Ecological Footprint Atlas 2010*. Oak- land: Global Footprint Network.

FEEM (2011). Sustainability Index. *Methodological Report* [Online]. cit. 2015-07-07]. Available: http://www.feemsi.org/documents/methodological_report2011.pdf.

Giljum, S., Burger, E., Hinterberger, F., Lutter, S., & Bruckner, M. (2011). A comprehensive set of resource use indicators from the micro to the macro level. *Resources, Conservation and Recycling* 55 (3), 300-308.

Global Footprint Network (2015a). Results from the National Footprint Accounts: NFA 2015 Public Data Package. 2015 Edition, www.footprintnetwork.org. © 2015. National Footprint Accounts.

Global Footprint Network (2015b). *World Footprint. Do we fit on the planet?* [Online]. Last updated: 12. 03. 2015 [cit. 28. 9. 2015]. Available: http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/.

Goodwin, N., Nelson, J. A., Ackerman, F., & Weisskopf, T. (2008). *Consumption and the Consumer Society.* Medford: Tufts Univer- sity Global Development and Environment Institute.

Hediger, W. (2006). Weak and Strong Sustainability, Environmental Conservation and Economic Growth. *Natural Resource Model- ing,* 19(3), 359 – 394. doi: 10.1111/j.1939-7445.2006.tb00185.x

Hoekstra, A., & Wiedmann, T. (2014). Humanity's unsustainable environmental footprint. *Science*, 344 (6188), 1114-1117. Holmberg, J., Lundqvist, U., Robèrt, K. H., & Wackernagel, M. (1999). The ecological footprint from a systems perspective of sus- tainability. *International Journal of Sustainable Development and World Ecology,* 6, 17 – 33.

International Monetary Fund (2015). World Economic Outlook Database, published in April 2015 [Online]. Last Updated: 14. 04. 2015 [cit. 24. 09. 2015]. Available: https://www.imf.org/external/pubs/ft/weo/data/changes.htm. Pearce, F. (2013). Putting our foot in it. *New Scientist*, 220 (2944), 28-29.

Rees, W. E., & Wackernagel, M. (1994). Ecological Footprints and Appropriated Carrying Capacity: Measuring the Natural Capital Requirements of the Human Economy. In Jansson, A. M., Hammer, M., Folke, C. & Costanza, R. (eds.), *Investing in Natural Capi- tal: The Ecological Economics Approach to Sustainability*: Washington DC: Island Press.

Segnestam, L. (2002). Indicators of Environment and Sustainable Development. Theories and Practical Experience. *EnvironmentalEconomics Series,* 89.

Singh, R. K., Murty, H. R., Gupta S. K., & Dikshit A. K. (2009). An overview of sustainability assessment methodologies. *Ecologi- cal Indicators,* 9 (2009), 189 – 212. doi:10.1016/j.ecolind.2008.05.011

Tukker, A., Bulavskaya, T., Giljum, S., de Koning, A., Lutter, S., Simas, M., Stadler, K., & Wood, R. (2014). *The Global ResourceFootprint of Nations. Carbon, water, land and materials embodied in trade and final consumption calculated with EXIOBASE 2.1*. Leiden/Delft/Vienna/Trondheim. ISBN: 978-3-200-03637-6.

United Nations Development Programme (UNDP) (2014). *Human Development Report 2014.* Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience. New York, USA: UNDP, 2012. ISBN 978-92-1-126368-8.

World Bank (2012). Contribution to Beyond GDP, "Virtual Indicator Expo". Summary prepared by: Environment Department, The World Bank [Online]. Last updated: 29. 06. 2012 [cit. 28. 10. 2016]. Available: http://ec.europa.eu/environment/beyond_gdp/download/factsheets/bgdp-veans.pdf.

World Commission on Environment and Development (WCED) (1987). *Our common future.* Oxford: Oxford University Press, 1987. ISBN 978-0-19-282080-8.

WWF, Zoological Society of London & Global Footprint Network (2012). *Living Planet Report 2012*. Biodiversity, biocapacity and better choices. Gland, Switzerland: WWF International, 2012. ISBN 978-2-940443-37-6.