Environmental effect of production, energy prices and innovativeness: The role of onshore wind energy in top five contributors to the EU economy.

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Renewable energy represents a key element in achieving environmental targets set by the European Union. However, the level of implementation of certain environmental directives is not equal among all of the member states. This paper provides an analysis of the effect of onshore wind energy consumption (which is a major part of renewable energy supply), levelized costs of onshore energy production, spending on research and development, and industrial production on CO_2 emission in five largest EU economies. Subject literature provides significant evidence on positive relation between energy consumption and economic development. Most of the developed countries have decoupled their economic performance from energy consumption (hence increasing their efficiency), however, industrial production and manufacturing play a significant part in the economic performance of the EU member states. This paper tests the significance of those processes on environment degradation.

Purpose of this paper is confirm to whether developing new wind energy sources and spending on various research and development is drastically decreasing the negative influence of those economies on climate change.

This paper employs two three step analysis. First, it checks current trends of the influence of the European Union on climate change it will investigate current time trends. Second, it develops learning curves that present relation between innovativeness and cost and capacity of the wind energy. Third, it runs a GMM estimation to capture statistical relationships between examined data. All investigated economies are subjected to the analysis for period from 1990 till 2018. Data are sourced from four databases – OECD data, World Development Indicators, Eurostat, and International Energy Agency.

This paper encompasses five logically structured sections. Section 1 is the Introduction and presents general background of the study, as well as it sets its major aims and scope. Section 2 presents context of this research; it provides the reader with extensive discussion on the role of the energy consumption, price of energy and innovation in environment degradation. Sections 3 and 4 presents methodological setting and data explanation. Section 5 presents and interprets results of empirical analysis. Finally, Section 6 discusses results and concludes.