Environmental Engineering and Management Journal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

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IMPACT OF ENERGY EFFICIENCY AND RENEWABLE ENERGY ON ENVIRONMENTAL SUSTAINABILITY: EVIDENCE FROM EMERGING MARKET ECONOMIES

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Abstract

Since the era of the Industrial Revolution, energy consumption has considerably increased. As a consequence, a significant rise in greenhouse gas emissions has become a serious threat to environmental sustainability through climatic changes, global warming, natural disasters and pollution. In this context, increasing energy efficiency as well as the use of renewable energy can serve as important instruments for reduction of greenhouse gas emissions. The related literature has thus far generally focused on the impact of energy efficiency on greenhouse gas emissions at the sectoral level in developed countries, whereas this study explores the impact of energy efficiency and the use of renewable energy on greenhouse gas emissions in 22 emerging economies by applying Westerlund and Edgerton's (2007) LM bootstrap cointegration test. It reveals that energy efficiency reduces greenhouse gas emissions, while economic growth raises greenhouse gas emissions in the long run.

Key words: carbon dioxide emissions, energy efficiency, environmental sustainability, greenhouse gas emissions, panel cointegration analysis

Received: May, 2019; Revised final: Octomber, 2019; Accepted: November, 2019

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