



“Gheorghe Asachi” Technical University of Iasi, Romania



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

Yilmaz Bayar^{1*}, Rita Remeikiene²

¹*Usak University, Faculty of Economics and Administrative Sciences
Department of Economics, 64000 Usak, Turkey*

²*Mykolas Romeris University, Public Safety Academy, Vilnius, Lithuania*

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, but economic growth enhances greenhouse gas emissions in the long term.

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

Received: May, 2019; Revised final: October, 2019; Accepted: November, 2019; Published in final edited form: April, 2020

* Author to whom all correspondence should be addressed: e-mail: yilmaz.bayar@usak.edu.tr