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Residential energy environmental Kuznets curve in the EU-28

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ABSTRACT

Controlling residential energy consumption is crucial to reduce CO2 emissions, as it has an important energy-saving potential, and its environmental controls are difficult to displace offshore. The aim of this study is to analyze the relationships between residential energy consumption and income for the EU-28 countries, in the period 1990–2013. For this purpose, residential energy environmental Kuznets curves (EKC) are estimated by using panel data techniques. In order to take into account the heterogeneity among countries, a multilevel mixed-effects model is used. The elasticities of residential energy consumption with respect to income are calculated for each year and country, analyzing the different behavior between countries. Obtained results show that the EKC hypothesis is confirmed for the residential sector in the EU-28 countries. Moreover, the results also show that the turning point has been reached in Denmark, Luxembourg, Finland, The Netherlands, and Sweden. Eastern EU-28 countries average elasticity evolution is almost constant through the period, being around 0.25. The rest of the EU-28 countries have a clear decreasing average elasticity evolution trend with lower values around 0.10 at the end of the period.