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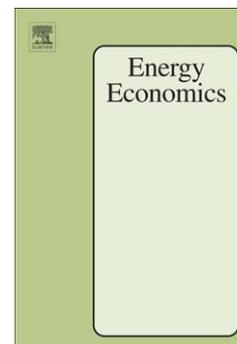
The relationship between energy demand and real GDP growth rate: The role of price asymmetries and spatial externalities within 34 countries across the globe

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The relationship between energy demand and real GDP growth rate: the role of price asymmetries and spatial externalities within 34 countries across the globe

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Abstract

The aim of this paper is to empirically explore the relationship between energy demand and real Gross Domestic Product (GDP) growth and to investigate the role of regional externalities on per capita Final Energy Consumption (FEC) in 34 countries during the period from 2005 to 2013. The paper utilizes a Dynamic Panel Generalized Method of Moments (DPGGM) approach in order to analyse the effect of real GDP growth rate on FEC through an Error Correction Model (ECM) and spatial econometric techniques in order to examine clustered patterns of energy consumption. The results show that a) the demand is elastic both in the industrial and the household/services sectors, b) electricity and natural gas are demand substitutes, c) the relationship between real GDP growth rate and per capita energy consumption exhibits an inverted U-shape for all the sample countries under scrutiny (34 countries, Eurozone and EU28), but not for all the employed sectors of the economy, d) price (electricity and gas) and GDP growth asymmetries are supported from the employed parametric tests, and, e) distance does not affect per capita FEC, but economic neighbours have a strong positive effect.

Keywords: Energy Demand - Income nexus; DPDGMM; error correction model; spatial externalities; EU34 – EU28 - Eurozone.

JEL classification C21; C23; C51; L16; R12

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