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A DYNAMIC HETEROGENEOUS PANEL MODEL OF ENERGY DEMAND: EVIDENCE FROM OECD AND NON-OECD COUNTRIES

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Overview

The purpose of this study is to examine the major determinants of energy demand. Using a panel of 23 OECD countries and 16 non-OECD countries over 26-year period, the possibilities and limitations of alternative energy control policies can be achieved.

Methods

The Pooled Mean Group (PMG) estimators is used to asses the short- and long-run relationship between energy demand and its determinants. This method developed by Pesaran et al. (1999) takes account homogenous long-run relationships in heterogeneous panels.

Results

The empirical results of this study confirm the majority of the findings in energy demand analysis where income and price have shown to be important determinants in energy consumption in both developing and developed countries. Moreover, both economic structure and also technical progress appear to exert significant impact on energy consumption.

Conclusions

The implication of the findings is (i) the structural differences across the stage of development could lead to significant reductions in the income elasticity of energy demand, (ii) technological change is energy using in developed countries and energy saving in developing countries (iii) since the demand for energy in developing countries is income-elastic, energy policies of changing income directly or indirectly via, for example, higher taxes on energy consumption may be effective, (iv) technological improvement regarding energy will only partly contribute such aims due to the rebound effect.

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