

Modeling Residential Electricity Consumption Function in Malaysia: Time Series Approach

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Abstract : As the Malaysian residential electricity consumption continued to increase rapidly, effective energy policies, which address factors affecting residential electricity consumption, is urgently needed. This study attempts to investigate the relationship between residential electricity consumption (EC), real disposable income (Y), price of electricity (Pe) and population (Po) in Malaysia for 1978-2011 periods. Unlike previous studies on Malaysia, the current study focuses on the residential sector, a sector that is important for the contemplation of energy policy. The Phillips-Perron (P-P) unit root test is employed to infer the stationary of each variable while the bound test is executed to determine the existence of co-integration relationship among the variables, modeled in an Autoregressive Distributed Lag (ARDL) framework. The CUSUM and CUSUM of squares tests are applied to ensure the stability of the model. The results suggest the existence of long-run equilibrium relationship and bidirectional Granger causality between EC and the macroeconomic variables. The empirical findings will help policy makers of Malaysia in developing new monitoring standards of energy consumption. As it is the major contributing factor in economic growth and CO₂ emission, there is a need for more proper planning in Malaysia to attain future targets in order to cut emissions.

Keywords : co-integration, elasticity, granger causality, Malaysia, residential electricity consumption

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