

## The relationship between CO2 emission, energy consumption and economic growth in Malaysia: a three-way linkage approach

### ABSTRACT

This study examines the three-way linkage relationships between CO2 emission, energy consumption and economic growth in Malaysia, covering the 1975–2015 period. An autoregressive distributed lag approach was employed to achieve the objective of the study and gauged by dynamic ordinary least squares. Additionally, vector error correction model, variance decompositions and impulse response functions were employed to further examine the relationship between the interest variables. The findings show that economic growth is neither influenced by energy consumption nor by CO2 emission. Energy consumption is revealed to be an increasing function of CO2 emission. Whereas, CO2 emission positively and significantly depends on energy consumption and economic growth. This implies that CO2 emission increases with an increase in both energy consumption and economic growth. Conclusively, the main drivers of CO2 emission in Malaysia are proven to be energy consumption and economic growth. Therefore, renewable energy sources ought to be considered by policy makers to curb emission from the current non-renewable sources. Wind and biomass can be explored as they are viable sources. Energy efficiency and savings should equally be emphasised and encouraged by policy makers. Lastly, growth-related policies that target emission reduction are also recommended.

**Keyword:** Energy consumption; CO2 emission; Economic growth; ARDL; DOLS  
VECM granger causality; Variance decompositions; Impulse response functions