

Economic Growth and Transport Carbon Dioxide Emissions in New Zealand: A Co-Integration Analysis of the Environmental Kuznets Curve

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Abstract : Greenhouse gas (GHG) emissions from national transport account for the largest share of emissions from energy use in New Zealand. Whether the environmental Kuznets curve (EKC) relationship exists between environmental degradation indicators from the transport sector and economic growth in New Zealand remains unclear. This paper aims at exploring the causality relationship between CO₂ emissions from the transport sector, fossil fuel consumption, and the Gross Domestic Product (GDP) per capita in New Zealand, using annual data for the period 1977 to 2013. First, conventional unit root tests (Augmented Dickey-Fuller and Phillips-Perron tests), and a unit root test with the breakpoint (Zivot-Andrews test) are employed to examine the stationarity of the variables. Second, the autoregressive distributed lag (ARDL) bounds test for co-integration, followed by Granger causality investigated causality among the variables. Empirical results of the study reveal that, in the short run, there is a unidirectional causality between economic growth and transport CO₂ emissions with direction from economic growth to transport CO₂ emissions, as well as a bidirectional causality from transport CO₂ emissions to road energy consumption.

Keywords : economic growth, transport carbon dioxide emissions, environmental Kuznets curve, causality

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