

Wavelets analysis of energy consumption and economic growth on environmental degradation through ecological footprint in USA

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Abstract: his study tends to provide a new insight into the environmental literature by using the wavelets tools to examine the role of energy consumption and economic growth on environmental degradation through ecological footprint, covering the time period from 1961 to 2014. The continuous wavelet (CWT) power spectrum shows the variation (change of behaviour) of each variables over time and for different time scales; while wavelet coherence approach shows the dynamic of correlations and causality between two time-series variable over time and for different time scales. The result indicated that in the short, medium and long run, energy consumption has a positive influence over ecological footprint. Moreover, the result of causality test shows that unidirectional causality running from energy consumption to ecological footprint is found. This evidently reveals that environmental degradation is caused by economic growth and energy consumption. The recommendations provided as based on the study's outcome.

Keywords: Economic growth, Energy consumption, Ecological footprint, Wavelets tools