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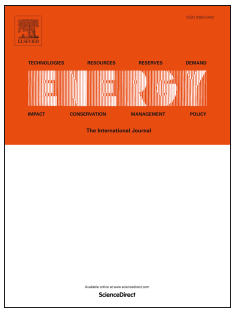

The failure of Energy-Economy Nexus: A meta-analysis of 104 studies

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The Failure of Energy-Economy Nexus: A Meta-Analysis of 104 Studies

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Abstract

Energy-Economy Nexus has produced number of papers with incongruent or even contradictory empirical results. In this article the results of over 100 papers are put to scrutiny. In addition to summarized characteristics of the studies' samples, several machine learning algorithms were used to determine whether there is any fundamental causal relationship between energy consumption and economic growth found in the studies.

Several methodological deficiencies commonly present in the existing literature are identified, questioning the reliability of published results, such as: insufficient number of observations, use of annual data frequency, insufficient model specifications (and omitted variable bias), focus only on aggregate economic level and measure of energy as a thermal aggregate.

The prediction accuracy of the classification of individual outcomes in the studies ranges from 36% to 56% with the most important predictors describing the estimation process rather than real-world characteristics of a given economy.

There is no evidence for a "fundamental" energy-economy relationship present in the examined papers. It is likely the majority of the results in the literature are subject to significant methodological omissions, biases and reporting of false positives, with limited energy data coverage likely being the major cause of the problems.

Keywords: Energy, GDP, Energy-economy nexus, Meta-analysis, Classification, Machine learning

JEL classification: Q43

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