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RESEARCH ARTICLE

Energy Consumption, Industrialization, and Carbon Emission Risks in Malaysia

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ABSTRACT

This study analyzes the nexus between energy consumption, energy intensity, industrialization, and carbon emissions (CO_2) risk to uphold environmental sustainability in Malaysia. To do so, we collected time series data from 1980 to 2022 from the World Development Indicators and applied the quantile regression approach to obtain empirical findings. The robustness of the findings is determined by using the dynamic ordinary least square (DOLS) and the fully modified ordinary least square (FMOLS) approaches. We found a positive and significant impact of energy consumption on CO_2 emissions across all quantiles, with diminishing magnitudes potentially attributed to advancements in green technologies and environmental awareness. Similarly, energy intensity exhibits a consistently positive and significant influence on CO_2 emissions, indicating a rise in per capita energy consumption or high energy intensity significantly increases CO_2 emissions and affects the ecological balance of Malaysia. Additionally, the impacts of industrialization are minimal across most quantiles except for the topmost quantile, indicating a substantial effect on environmental degradation by CO_2 emissions at higher levels of industrialization with the current industrial setup. Policymakers and practitioners can use these findings to enhance the effectiveness of current environmental and energy policies, thereby improving energy efficiency, industrialization, and CO_2 emissions risk.

Open Research

Data were collected from open sources and are available upon request.

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