

INTISARI

Peningkatan emisi CO₂ per kapita menjadi isu global yang erat kaitannya dengan dinamika pembangunan dan transformasi struktural di berbagai negara. Namun, pengaruh faktor-faktor tersebut tidak seragam karena perbedaan karakteristik pembangunan dan struktur ekonomi antarnegara. Penelitian ini menganalisis pengaruh PDB per kapita, tingkat urbanisasi, akses listrik, serta pandemi COVID-19 terhadap emisi CO₂ per kapita di 50 negara selama periode 2000-2023 dengan metode panel quantile regression, yang mampu menangkap heterogenitas pengaruh variabel pada berbagai tingkat distribusi emisi, tidak hanya pada nilai rata-rata. Hasil penelitian menunjukkan bahwa PDB per kapita berpengaruh positif signifikan di semua kuantil, tetapi melemah pada negara beremisi tinggi. Urbanisasi signifikan positif pada kuantil rendah hingga menengah, namun pengaruhnya melemah dan tidak signifikan pada kuantil paling tinggi. Akses listrik konsisten berpengaruh positif signifikan dan dampaknya semakin besar pada negara beremisi tinggi. Sedangkan COVID-19 berpengaruh negatif signifikan atau menekan emisi di seluruh kuantil. Temuan ini menegaskan bahwa determinan emisi CO₂ bersifat heterogen sehingga kebijakan pengendalian juga perlu di sesuaikan dengan tingkat emisi dan tahapan pembangunan masing-masing negara.

Kata Kunci: emisi CO₂, PDB per kapita, urbanisasi, akses listrik, pandemi COVID-19

ABSTRACT

The rise in per capita CO₂ emissions has become a pressing global issue, closely linked to broader development dynamics and structural transformations across nations. Yet, the influence of these drivers is far from uniform, as differences in economic structures and stages of development shape distinct outcomes. This study examines the role of GDP per capita, urbanization, electricity access, and the COVID-19 pandemic in influencing CO₂ emissions per capita across 50 countries during 2000–2023. Using a Panel Quantile Regression approach, the analysis captures heterogeneous effects across the distribution of emissions rather than focusing solely on average values. The findings reveal that GDP per capita exerts a positive and significant effect across all quantiles, though its impact weakens among high-emission countries. Urbanization shows a positive and significant influence at lower and middle quantiles, but becomes insignificant at the upper quantile. Electricity access consistently demonstrates a positive and significant effect, with stronger impacts in high-emission contexts. In contrast, COVID-19 is associated with a significant reduction in emissions across all quantiles. Overall, the results highlight the heterogeneous nature of CO₂ determinants, underscoring the need for emission control policies tailored to both emission levels and stages of national development.

Keywords: *CO₂ emission, GDP per capita, urbanization, electricity access, COVID-19 pandemic*