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IDENTIFYING KEY DRIVERS OF CARBON INTENSITY IN EU SECTORS: INSIGHTS FROM PANEL REGRESSION

Abstract:

This paper investigates the determinants of carbon intensity across various economic sectors in the European Union, focusing on the period that already considers transition policies under the Paris Agreement and the Fit-for-55 initiative. As sectors exhibit diverging emission levels and transition policy implications, understanding the factors influencing carbon intensity has become increasingly relevant. We employ a panel regression analysis using data from 2014 to 2022, examining variables such as brown energy consumption share, total factor productivity, gross value added, employment metrics, energy prices, and environmental taxes. Our findings reveal that carbon intensity is influenced by a complex interplay of factors, with significant variations across sectors. Notably, sectors with high reliance on brown energy show a stronger correlation with carbon intensity levels. The results underscore the necessity for tailored transition policies that consider sector-specific characteristics to effectively reduce carbon emissions within the EU. Furthermore, the study highlights the importance of integrating economic and environmental policies to foster a sustainable transition, providing valuable insights for policymakers aiming to achieve climate targets.