CTIER CENTRE FOR TECHNOLOGY, INNOVATION AND ECONOMIC RESEARCH

CTIER

SEMINAR SERIES

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Impact of Green Trade and Renewable Energy on Ecological Footprint in India

Abstract: India's ecological sustainability is facing increasing pressure due to its rapid economic growth, fossil fuel dependency, and resource-intensive trade patterns. The current research examines the impact of green trade, renewable energy, and national income on India's ecological footprint. The study uses Autoregressive Distributed Lag (ARDL), Fully Modified OLS (FMOLS), and Canonical Cointegration Regression (CCR) models on the annual time series data from 2000 to 2022. Empirical results confirm the existence of significant long-run and short-run relationships among the variables. This study asserts that higher green trade will reduce India's ecological footprint, as it facilitates technological and knowledge spillovers. The study also provides evidence that higher adoption of renewable energy will reduce the ecological footprint and help to fuel carbon-neutral growth. The estimate of national income and ecological footprint supports the existence of the inverted U-shape relationship. The findings highlight green trade and renewable energy as key drivers of environmental sustainability, playing a vital role in achieving carbon-neutral economic growth and mitigating climate change. These findings offer fresh policy insights for India and other emerging Asian economies that aim to balance growth with ecological limits through strategic trade and clean energy transitions.