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TRACING THE RELATION BETWEEN ECONOMIC GROWTH AND RENEWABLE ENERGY: A STUDY ON INDIAN STATES

Abstract:

Abstract: Renewable energy is poised to occupy greater share of total energy installed and the domain of literature on Energy-Growth nexus has also begun to be populated by studies of the relationship between renewable energy and growth. Targeting 40% of total power generating capacity to come from clean energy sources, India ranks 4th and 5th globally in solar and wind energy installed respectively. This paper examines relationship between GDP and renewable energy with recent panel data of solar and wind energy installed in 19 Indian states of India. Applying cross sectional dependence, cointegration, PCSE estimation and Toda-Yamamoto granger causality, this paper finds long run relationship between GDP and wind energy. While there is significant correlation between both installed wind and solar energy and GDP of states, causality is unidirectional from wind generation capacity to GDP and from GDP to solar generation capacity. These results indicate, first, states with more installed wind power capacity are likely to have more growth in economy and second, if states want to grow at a higher rate they need to install more solar energy generation capacity to meet the additional energy requirement. Findings of this study have policy implications as growth in the economy is likely to source more power from renewable energy sources.

Keywords:

Renewable Energy, Economic Growth, India, Panel Cointegration, Causality

JEL Classification: O44, O53, C23