

Investigating The Nexus Between Energy Deficiency, Environmental Sustainability and Renewable Energy: The Role of Energy Trade in Global Perspectives

Authors : Fahim Ullah, Muhammad Usman

Abstract : Energy consumption and environmental sustainability are hard challenges of 21st century. Energy richness increases environmental pollution while energy poverty hinders economic growth. Considering these two aspects, present study calculates energy deficiency and examines the role of renewable energy to overcome rising energy deficiency and carbon emission for selected countries from 1990 to 2021. For empirical analysis, this study uses methods of moments panel quantile regression analysis and to check the robustness, study used panel quantile robust analysis. Graphical analysis indicated rising global energy deficiency since last three decades where energy consumption is higher than energy production. Empirical results showed that renewable energy is a significant factor for reducing energy deficiency. Secondly, the energy deficiency increases carbon emission level and again renewable energy decreases emissions level. This study recommends that global energy deficiency and rising carbon emissions can be controlled through structural change in the form of energy transition to replace non-renewable resources with renewable resources.

Keywords : energy deficiency, renewable energy, carbon emission, energy trade, PQL analysis

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