

Nonlinear Analysis of CO₂ Emissions and Financial Development Shocks in Developing Countries: A Panel ARDL Approach

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This study examines the correlation between carbon dioxide (CO₂) emissions and shocks in financial development in developing nations, utilizing a nonlinear empirical approach. We particularly investigate 16 developing nations to investigate the dynamic effects of asymmetrical financial shocks on CO₂ emissions, while also considering the theory of the Environmental Kuznets Curve (EKC). The study utilizes the Panel AutoRegressive Distributed Lag (PARDL) method, which examines symmetric and asymmetric dynamics. Based on the unit root test conducted, a panel ARDL model is constructed employing these findings to examine the long-term equilibrium and short-term dynamics involving CO₂ emissions, per capita GDP, energy use, and financial development. The linear PARDL model's empirical findings support the Environmental Kuznets Curve (EKC) hypothesis over a prolonged period. These results demonstrate that when countries experience economic development, they tend to shift towards reduced levels of CO₂ emissions. Nevertheless, the concept is not consistently supported by short-term dynamics, suggesting that there are different reactions to economic and environmental forces. In addition, nonlinear PARDL computations reveal significant discoveries. Over time, positive shocks in financial development lead to an increase in CO₂ emissions, whereas negative shocks result in a fall in emissions. In the long run, there is an unexpected inverse correlation between energy use and CO₂ emissions, although urbanization is positively correlated. In the short-run analysis, it is emphasized that financial development shocks have asymmetric impacts on carbon emissions. Positive shocks have a more significant influence compared to negative shocks. Consumption of energy continues to be a major factor influencing carbon emissions, both in the short and in the long run.

Biography

Ponle Henry Kareem is an accomplished professional in the fields of finance, accounting, and education. With a diverse educational background and extensive experience in the industry, he has made significant contributions to the academic and corporate sectors. He was born on July 7th, 1974. He holds a Doctorate (Ph.D.) in Banking and Finance from Near East University, Nicosia, which he obtained in 2023. Prior to his Ph.D., he earned a Master of Science (MSc.) in Accountancy from Imo State University, Owerri in 2016. He also holds a Master of Science in MBA in Financial Management from Ladoké Akintola University of Technology, obtained in 2006, and a Bachelor of Science (B.Sc.) in Accounting from Ambrose Ali University, Ekpoma in 2004. Additionally, he has a Post Graduate Diploma (PGD) in Management (Accounting Option) from the University of Calabar in 1999 and an Associate Degree in Accounting and Auditing from Kwara State Polytechnic, Ilorin in 1997.