

Title: Leveraging environmental ICT for carbon neutrality: Analyzing the impact of financial development, renewable energy and human capital in top polluting economies

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Abstract: The issue of environmental pollutants has gained significant global attention due to its detrimental impacts, leading to the need to address various SDGs outlined by the United Nations. The successful implementation of energy sources is intricately connected to these goals, making it imperative to coordinate efforts in the development of new technologies. However, the commitments made by the parties involved in the Paris Accord to achieve high decarbonization targets have triggered a growing debate on whether existing environmental policies are sufficient in fostering technological advancements by 2030, in order to meet these targets. This study aimed to examine the impact of economic growth, financial development, eco-friendly ICT, renewable energy, and human capital on lowering carbon footprint in the world's top polluting economies from 1993 to 2020. To accomplish this objective, a comprehensive investigation was conducted, employing contemporary econometric approaches such as CS-ARDL. Robust estimations of long-run effects were ensured through the utilization of AMG and CCEMG econometric techniques. Notably, a panel causality test revealed the presence of a bidirectional causality relationship between renewable energy, environmental technology, and carbon footprints. Conversely, a unidirectional causality relationship was identified between economic-growth and financial development with carbon footprints. The findings of this study indicate that eco-friendly ICT have the potential to effectively alleviate pollution. Consequently, financial development, renewable energy, and environmental technology are postulated as potential solutions for reducing carbon emissions within the examined timeframe. Finally, the study concludes by offering additional policy recommendations aimed at addressing this pressing issue.

Keywords: Leveraging environmental, ICT, Financial development, Environmental pollutants, Economic Growth (RGDP)

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