

Borradores de Economía - Connecting the Dots: Renewable Energy, Economic Growth, Reforestation, and Greenhouse Gas Emissions in Colombia

Download Keep in mind

The series Working Papers on Economics is published by the Office for Economic Studies at the *Banco de la República* (Central Bank of *Colombia*). It contributes to the dissemination and promotion of the work by researchers from the institution. This series is indexed at Research Papers in Economics (RePEc).

On multiple occasions, these works have been the result of collaborative work with individuals from other national or international institutions. The works published are provisional, and their authors are fully responsible for the opinions expressed in them, as well as for possible mistakes. The opinions expressed herein are those of the authors and do not necessarily reflect the views of Banco de la República or its Board of Directors.

AUTHOR OR EDITOR Alonso-Sanabria, Juan David Melo-Velandia, Luis Fernando Parra-Amado, Daniel
The series *Borradores de Economía* (Working Papers on Economics) contributes to the dissemination and promotion of the work by researchers from the institution. On multiple occasions, these works have been the result of collaborative work with individuals from other national or international institutions. This series is indexed at Research Papers in Economics (RePEc). The opinions contained in this document are the sole responsibility of the author and do not commit Banco de la República or its Board of Directors.

Publication Date: Wednesday, 11 of October 2023 Abstract

This study aims to establish a comprehensive linkage between CO₂ emissions and the composition of energy sources, economic growth, and reforestation, thereby shedding light on their intricate connections in Colombia over the period 1970-2018. First, we use different types of energy consumption including non-renewable, renewable, and hydroelectric sources. As expected, our findings reveal a noteworthy effect of non-renewable sources that lead to increased emissions, while renewable sources help mitigate those emissions. Second, the preservation of forested areas plays a crucial role in mitigating CO₂ emissions. Third, the agricultural sector significantly contributes to the rise in emissions, encompassing both crops and livestock, a characteristic often observed in emerging economies. Moreover, in the long-run equilibrium, we find real GDP show the characteristic inverted U-shaped pattern commonly linked with the Environmental Kuznets Curve (EKC) hypothesis.