

Effects of energy consumption, economic growth, and financial development on carbon emissions: evidence from heterogeneous income groups

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Abstract

This paper examines the effects of energy consumption, economic growth, and financial development on carbon emissions in a panel of 122 countries. We employ both first-generation and second-generation cointegration and estimation procedures in order to address diverse economic and econometric issues such as heterogeneity, endogeneity, and cross-sectional dependence. We find a cointegration relationship between the variables. Energy consumption, economic growth, and financial development have detrimental effects on carbon emissions in the full sample. When the sample is split into different income groups, we reveal that economic growth and financial development mitigate carbon emissions in high-income group but have the opposite effects in low-income and middle-income groups. The implication of the findings is that energy consumption increases carbon emissions. While high levels of income and financial development decrease carbon emissions, low levels of income and financial development intensify it. Based on the findings, the paper makes some policy recommendations.

Keywords