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Analyzing the Effects of Real Income and Biomass Energy Consumption on Carbon Dioxide (CO2) Emissions: Empirical Evidence from the Panel of Biomass-Consuming Countries

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Abstract : This empirical aims to analyze the impacts of real income and biomass energy consumption on the level of emissions in the EKC model for the panel of biomass-consuming countries over the period 1980-2011. Because we detect the presence of cross-sectional dependence and heterogeneity across countries for the analyzed data, we use panel estimation methods robust to cross-sectional dependence and heterogeneity. The CADF and the CIPS panel unit root tests indicate that carbon emissions, real income and biomass energy consumption are stationary at the first-differences. The LM bootstrap panel cointegration test shows that the analyzed variables are cointegrated. Results from the panel group-mean DOLS and the panel group-mean FMOLS estimators show that increase in biomass energy consumption decreases CO2 emissions and the EKC hypothesis is validated. Therefore, countries are advised to boost their production and increase the use of biomass energy for lower level of emissions.

Keywords : biomass energy, CO2 emissions, EKC model, heterogeneity, cross-sectional dependence
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