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The Role of Trade and Energy in Generating Carbon Emissions and Environmental Degradation

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To mitigate carbon emissions studies have incorporated trade and energy as determinants of emissions in the environmental Kuznets curve model. These studies mostly focused on the overall trade without regard to goods trade that is more polluting. To this end, this study used a panel of African countries and investigate the role of goods trade and energy in generating carbon emissions. We utilized random coefficients and the generalised method of moment. Our findings confirmed the existence of the environmental Kuznets curve hypothesis. Findings further indicate that trade increases emissions and there exists evidence of non-linear nexus between trade and emissions. The composition effect increases emissions but the effect is not robust to different estimates. Energy increases emissions, and the indirect effect of trade through energy revealed no evidence that trade has allowed Africa the use of an energy-efficient technique of production which reduces carbon emissions. Findings also confirmed the existence of income and factor abundance pollution haven hypothesis. Therefore, trade and energy should be considered in emissions mitigation policy.

ADDITIONAL INFO:

Topics :

Energy policy

- cap and trade

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The work is very interesting and significant results for discussion are the outcome of this analysis. The presentation of the work is proposed to be improved by a) reduction of the introduction b) use of figure / table of parameters examined and goals of the examination and c) improved clarity of the results discussion where each parameter / finding will be clearly indicated and presented.

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The English language is inadequate for scientific publication and it should be completely and in detail reworked. There are complete sentences that are unclear, e.g.: "Therefore developing countries will become a pollution haven by producing pollution-intensive goods for exports to developed countries." "Energy robustly increases emissions and that trade mediates energy to increase emissions." "While the technique effect results from technological innovation and is known to reduce emissions and environmental degradations." "The environmental damages caused by energy comes from the use and exploitation of energy resources." "This finding suggests that African countries are pollution haven when opened up to goods trade." Also, there are statements that are questionable, e.g.: "Africa relied more on conventional fossil fuel energy which has a more damaging effect on the environment by increasing CO2 emissions. This has made the continent's energy intensity the most inefficient in the whole world." Firstly, there are no proofs that Africa relies on fossil fuels more than other continents, either as a percentage of total energy consumed or, especially, in absolute values, e.g. the Middle East as a region is more dependent on fossil fuels than Africa. Secondly, you cannot directly draw the conclusion that the energy intensity of the region that relies more on conventional fossil fuel will be high or low. Also, energy intensity should be attributed with high or low instead with efficient or inefficient. Or statements like: "It has been reported that over 90% of African countries used non-renewable energy." We can for sure say that 100% of North American or European countries have used non-renewable energy. Please be more precise. Or statement like: "African countries are mostly developing and emissions embodied in developing countries' exports are larger than those of developed countries." In absolute values or in relative values? Please be more specific. Furthermore, the terms "technique" and "technology" should not be used as synonyms. The language in parts „Methodology and data“ and „Results and Discussion“ is more coherent, yet those parts should also be rewritten. There is a hint of some interesting findings, and after additional work, this paper could be considered for the publication in Journal.

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