Abstract

This study examines the Green Energy Transition (GET) in the East African Community (EAC) from 2000 to 2022, operationalised through three proxies: green electricity generation, green energy consumption, and CO_2 emissions. The study constructs a GET index, which encompasses the three proxies. This study employs econometric methods. Firstly, the research investigates the effect of green energy financial flows on green electricity generation, utilising a Dynamic Fixed Effects-Autoregressive Distributed Lag model. The results indicate that green grants have a positive and significant impact on green electricity generation. It was also revealed that the overall quality of policies, GDP per capita and electricity accessibility are crucial for facilitating the generation of green electricity. Secondly, it examines the impact of national income on green energy consumption, utilising panel data analysed through Fully Modified Ordinary Least Squares and Cointegrated Regression models. The findings indicate that national income does not have a long-term impact on green energy consumption; instead, quality of environmental policies, access to electricity and green finance were found to have substantial long-term positive effects on green energy consumption. Thirdly, it investigates the role of governance in relation to CO_2 emissions. By employing Panel-Corrected Standard Error and Feasible Generalised Least Squares models, the results indicate that governance has a significant negative impact on CO_2 emissions. The results indicated that the quality of environmental policies and forest area are also critical for reducing CO_2 emissions. Conversely, economic growth and population size are associated with increased emissions. Lastly, the study examines the effect of green energy financial flows, national income, and governance on the GET index. Using the Dynamic Common Correlated Effects estimator, the results reveal that green debt, national income, and government effectiveness all have a positive and significant effect on the GET in the EAC. Overall, this dissertation significantly advances the understanding of the GET in the EAC by introducing a novel Green Energy Transition Index and the Muhire Green Energy Transition Model. It also presents a refined theoretical framework that integrates the Energy Transition theory with the PESTEL framework, focusing specifically on green energy rather than renewable energy. Empirically, the study demonstrates that optimal green financing, strong governance, and national income are critical drivers, while highlighting the importance of electricity access, forest cover, and the need to mitigate increasing CO_2 emissions; collectively offering crucial methodological tools, theoretical validation, and actionable policy insights for sustainable energy development in the EAC and similar developing regions.

Keywords: Sustainability, Energy Transition, Financial Flows, National Income, Governance.