

ABSTRACT

This thesis aimed to investigate the impact of natural resources, energy consumption and public sector size on environmental degradation. Secondary data ranging from 1990-2020 was used for a panel of 14 countries to investigate the complex interconnections among carbon emissions, economic activities, and environmental sustainability. Positivism research philosophy provided the justification for adopting quantitative research design in this study to empirically test the EKC hypothesis.

CO₂ emissions served as a response variable while renewable energy consumption, fossil fuels energy consumption, public sector size and gross domestic product were used as explanatory variables in this study. Descriptive statistics were applied to check reliability of dataset supported by correlation analysis to check for multicollinearity and association among selected variables. Cross sectional dependence test reported that all the cross sections were dependent on each other, and CIPS unit root test provided mix order of integration. Pesaran and Yamagata (2008) confirmed the heterogeneity in our panels leading to the adoption of CS-ARDL model for analysis.

Long run estimates of ARDL provided insights that renewable energy consumption, public sector size, and square of GDP negatively impact CO₂ emissions. These results were consistent with literature and suggested theories. Similarly, natural resources, fossil fuel energy consumption and economic activity positively contributed to the environmental degradation and climate change. Short run estimates of the model confirmed that public sector size positively contributed to the environmental degradation as initially the size of public sector grows, it deteriorated environment while in the long run public sector size reduced CO₂ emissions. ECM coefficient has 0.31 value which confirmed that it would take around 3.2 years to adjust for short run fluctuations in equilibrium.

This study provides policy implications for rationalizing the size of public sector in mitigating climate change and improving governance and technological infrastructure. Study concludes with policy recommendations for developing climate resilient infrastructures to mitigate challenges of environmental degradation.