INVESTMENT IN FOSSIL FUELS AND ENVIRONMENTAL DEGRADATION IN NIGERIA: POLICY OPTIONS TO MITIGATE THE POTENTIAL TRADE-OFFS

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Overview

The Sustainable Development Goals (SDGs) emphasize the need for a careful balance between social, economic, and environmental sustainability. This is because environmental quality affects economic development and vice versa, thus the importance of this global goal. Most governments and policymakers are increasingly interested in understanding the implications of environmental issues for the world economy, especially with respect to clean energy. In reality, the simultaneous achievement of these goals are unlikely due to possible conflicts between them. This trade-off may arise due to the excessive use of natural resources that cause environmental pollution and distort the growth process. Countries like Nigeria, with high dependence on natural resources, face challenges of environmental pollution, which has consequences for macroeconomic policies in Nigeria. Energy continues to be a crucial component of the production process (Ozcan & Ozturk, 2019; Sarkodie & Ozturk, 2020), and investments in the sector have continued to grow. Similarly, CO2 emissions, ocean acidification, deforestation, water levels, and air pollution have also increased depicting an expansion in human economic activity (Graff-Zivin, 2018). Carbon dioxide emission, which comes from major fossil fuels (coal, gas, and oil) are the main greenhouse gas that causes global warming (Xu, Liu & Wu, 2021; Gani, 2021). Empirical evidence from the literature emphasized that several factors such as modernization, urbanization, energy consumption, renewable and hydro energy, and natural gas are associated with an increase in greenhouse gas emissions (GHE) (Tobelmann & Wendler, 2020; Li et al., 2019; Eberle & Heath 2020; Xu, Liu & Wu, 2021). Further evidence reveals that an increase in energy consumption is associated with a rise in carbon dioxide emissions in sub-Saharan Africa (Shahbaz, Solarin, Sbia & Bibi, 2015; Lin & Agyeman, 2020; Xu, Liu & Wu, 2021). Africa still lags in total CO2 emissions, which stood at 4 percent of global fossil fuel emissions in 2017 (Ayompe, Davis & Egoh, 2021). As investments in the energy sector increase, it is expected that CO2 emissions in the continent will rise, given the projection of rapid growth of population and per capita GDP in Africa (Ayompe et al, 2021). This is even more worrisome as a rise in population leads to the rising energy demand that translates into massive investments in oil, coal, gas exploration, and extraction. In Nigeria, there is heavy investment in the oil and gas sector aimed at increasing production levels (Ahmad & Du, 2017; Koengkan, 2018; Hanif, 2018). This is because of the dependence of households, businesses, and governments on traditional energy for individual and productive purposes. This makes the country vulnerable to climate change (AfDB, 2022; CDP; 2020) and underscores the need for policy options to diversify the Nigerian economy away from oil. Given Nigeria's overreliance on fossil fuel to drive economic growth, this study will highlight the implications of further investment in the oil and gas sector and the consequences for environmental degradation in Nigeria. Against this backdrop, this paper seeks to evaluate the impact of investment in fossil fuels on environmental degradation in Nigeria and the implications for sustainable development.

Methods

To investigate the implication of investment in fossil fuels on environmental degradation in Nigeria, the study will utilize secondary data from relevant institutions. Two proxies will be used for environmental degradation (CO2 emissions and environmental sustainability index). Both descriptive and econometric methods of analysis will be employed to give empirical content to the stated objectives. Regime switching models and nonlinear models will be used in analyzing the stated objectives. The study will hinge on the Environmental Kuznet's Curve which believes there is evidence of a nonlinear relationship between the growth of an economy and the level of environmental degradation. Thus, the optimal level of investment in fossil fuels beyond which growth in the sector affects the environment is essential for policy formulation.

Expected Results

It is expected that investment in fossil fuels will have a dual effect on the Nigerian economy. It is likely to affect economic growth positively in the short term, but negatively in the long-run. On the flip side, it may not affect environmental sustainability in the short-run, but the impact may be severe in the long run. The optimal trade-off point between them will be estimated to aid policy analysis.

Conclusion

It is expected that the indicators of environmental sustainability will respond negatively to investments in fossil fuel. This is in line with the postulation of the theoretical framework and empirical literature of the study.

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