Governance on Carbon Dioxide Emissions in Africa

Subjects: Environmental Sciences

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The connection linking economic growth (ECG), tourism, and environmental pollution problems has been extensively argued. Extant research has investigated the environmental Kuznets curve (EKC) assumptions from empirical and theoretical perspectives to measure the connection between the environment's quality and economic growth. Environmental issues are quantified by factors such as ECG, tourism (TOUR), governance (GOV), urbanization, energy consumption, and financial development. Furthermore, most studies employed the environmental EKC theory to reveal the significance of the connection of variables foreign direct investment (FDI), TOUR, and ECG to an economy.

Keywords: governance ; foreign direct investment ; tourism ; CO2 emission ; economic growth ; Africa

1. The Connection between Tourism and CO_2 Emissions

Extant research has demonstrated that tourism has expanded steadily during the last decades, accounting for 10% of world job opportunities and 10% of worldwide GDP [1][2]. The tourist industry is forecasted to create significant merits in socioeconomic growth and job avenues worldwide by 2030 [3]. Notwithstanding, these positive impacts of tourism (TOUR) have their corresponding negative environmental impacts. Contemporary TOUR activities are considered the most significant source of CO_2 emissions, posing challenges to most governments. Tourism-associated economic growth is expected to be decoupled from resource consumption, leading to CO_2 emissions [3]. The preference for foreign and domestic tourists to use personal automobiles is becoming more prevalent, which significantly affects the environment [4][5][6][7]. The CO_2 footprint of the worldwide TOUR industries revealed that worldwide CO_2 emissions from the tourism industry are presently not adequately evaluated [8]. The researchers determined global tourism-related carbon flows and carbon footprints for 160 countries from both an origin and destination accounting perspective. According to the research result, the tourism industry's worldwide CO_2 footprint soared between 3.9 and 4.5 $GtCO_2$ emissions between 2009 and 2013, accounting for nearly 8% of worldwide GHG emissions, four times higher than previously estimated. The findings revealed that transportation and other energy consumables are significant factors leading to CO_2 emissions. The research indicated that high-income countries might be responsible for the vast majority of this footprint [8].

Furthermore, the United Nations WTO [9] comprehensive analysis of tourism-related transport influence on environmental pollution indicated that, by 2030, transportation-related CO_2 emissions would constitute 5.3% of all artificial CO_2 discharge. Furthermore, between 1995 and 2018, Anser et al. [10] utilized extensive longitudinal research data from 132 nations to analyze CO_2 emission costs in TOUR industries. The findings revealed that inward tourism will probably fall from 19.5% to 16.8% between 2020 and 2028 due to the rise in CO_2 emissions and the stringent policies implemented by stakeholders to reduce CO_2 emissions. Tourism-related activities substantially impact climate change, which challenges Africa and the world economy. As a result, tourism and travel, land degradation, and deforestation are closely linked to GHG emissions [11].

The problem of experiencing increases in CO_2 emissions relating to the TOUR industry was portrayed much more grimly in [12]. They predicted that the tourist industry would be a significant source of GHGs. Notwithstanding, their findings revealed that many governance policies and practice reforms in travel activities might significantly reduce pollution. Thus, the adaptation of TOUR activities to reduce emissions would be prudent for the development of sustainable long-term goals [12][13]. Despite continued increases in the patronage of TOUR activities, effective governance policies may reduce CO_2 emissions. Moreover, introducing a modern lower-level emission technological system may support and sustain the decrease in CO_2 emissions. This current entry posits that a positive association between tourism and carbon emissions may be established on the basis of the issues presented.

2. The Connection between Economic Growth and CO_2 Emissions

Studies have indicated that CO_2 emissions also increase from industrial and domestic use when pursuing economic growth [14][15]. Environmental Kuznets curve (EKC) serves as a model for the interaction of economic expansion, energy consumption, and environmental pollution issues [16]. The World Bank Development Report on EKC in 1992 revealed that "increased economic activities invariably impacted the environment and premised on rigid suppositions concerning advanced technologies, preferences, and investment opportunities". Moreover, "as income increases, the demand for enhanced environmental standards would keep rising, and so would the available resources for investment" [16][17]. With the assumption that growth in an economy is inevitably accompanied by carbon emissions, this research adopts the EKC theory in anticipation of getting varied or dynamic results from the various studies analyzed relating to the role played by governance in reducing CO_2 emissions of TOUR, ECG, and FDI activities within selected African countries. This approach can validate or refute the EKC assumption on the basis of the roles played by the governments of the specified countries.

In most sub-Saharan African countries, ECG grew from a minimal base of about 6.7 million in 1990 to 33.8 million in 2012, enhancing the economy's growth [18]. For instance, the tourist industry accounted for 44% of aggregate GDP growth within the Seychelles and 16% of GDP in Mauritius [19]. Studies have established the link between ECG and CO_2 emissions in some sub-Saharan African nations [20]. The research revealed that, while the effects differ by nation, in the long term, high consumption of energy-related products and economic prosperity are connected with higher environmental pollution within many countries. The findings indicated further that long-term economic growth would result in minimal CO_2 emissions within Congo, Ghana, Senegal, Benin, and Nigeria [20]. Within Nigeria, Gabon, and Togo, the link between CO_2 emissions and the ECG demonstrated that the absence of environmental pollution measures might affect their economies. Furthermore, the research revealed bidirectional causation between ECG and CO_2 emissions in Nigeria in the short term. In the long-term interrelations, bidirectional causation was found to exist between ECG and CO_2 emissions in Gabon and Congo. The findings revealed that Benin, the Ivory Coast, South Africa, Togo, Nigeria, and Senegal are affected by high CO_2 emissions [20]. An investigation in six sub-Saharan African nations on the causality relationship among FDI, ECG, and CO_2 emission adopting the ARDL approach revealed that countries are cointegrated into the long-term association, giving credence to the EKC hypothesis in Zimbabwe, Kenya, and Congo [21]. This current research proposes that a positive connection between economic growth and carbon emission may be established on the basis of the critical issues presented.

3. The Connection between FDI and CO_2 Emissions

FDI is the acquisition of a share in a company by a corporate entity or investment firm based outside of the entity's territory. In the broad sense, FDI alludes to a commercial decision to acquire a major stake in or purchase a foreign corporation entirely to expand its operations into a new environment [22][23]. Causal relationship analysis among CO_2 emissions, ECG, and FDI for 54 nations from 1990 to 2011 revealed that bidirectional causation exists between ECG, FDI inflows, and FDI and CO_2 in the selected nations' panel estimations [24]. Investigations concerning the connection linking FDI and governance revealed a plethora of resources essential to implementing FDI policies [25]. Minimal focus is geared toward host nations' governance for foreign investment policy implementation [25]. An investigation in sub-Saharan African countries demonstrated that various aspects of governance contribute to the major attraction of FDI [26][27]. Nevertheless, political instability and corruption negatively influence FDI, whereas enhancing political and institutional structures affirmatively impact FDI flows [26]. Furthermore, the capacity of governments and institutions to implement and facilitate FDI is constrained by the goals of such investments within the various economic sectors [28].

Additionally, studies have shown that CO_2 is mainly increased due to FDI activities in certain nations while having the reverse effect in others [21]. Thus, normally, a country's pace of capital formation dictates the speed of economic expansion [29]. Economic growth is essential in generating FDI amongst emerging nations [30][31]. Thus, studies have indicated that the causation for both ECG and FDI is influenced by nation-specific characteristics [32][33]. Research has found that FDI significantly impacts Africa's and China's rising CO_2 emissions [20][34]. FDI and CO_2 emissions in diverse countries have a positive association. However, not all studies back up the conclusion [21][35]. Notwithstanding, it has been argued that FDI could help countries attain sustainable development goals (SDGs) (OECD, 2019). Thus, governments must explore how to combat the problems of attaining economic growth without environmental pollution [36]. Studies have portrayed that FDI helps host countries improve their energy efficiency and reduce CO_2 emissions [37][38].

Thus, FDI inflows responsive to laws elevate international shareholding of FDI to local shareholding [39][40][41]. Studies have shown that collective good governance actions may enhance FDI inflows [42][43][44]. Thus, factors that improve investors' regulatory quality, including tax exemptions or reductions and flexible regulations, support the implementation of legal policies to safeguard the natural environment from uncontrolled exploitation of resources and pollution. Different

studies have highlighted the essence of effective governance adherence to a precise selection of policies to achieve sustainable environment policies in enhancing good practices relating to FDI and governance interaction mechanisms. Similarly, institutions and stakeholders need to play an essential role in increasing efficient governance systems to support the environmental protection agencies that regulate environmental pollution issues [45]. Furthermore, empirical results have revealed that FDI inflows contribute to pollution and a corresponding increase in CO_2 emissions, corroborating the pollution haven theory. They concluded that reducing fossil-fuel usage and promoting an ecologically friendly economic growth approach in emerging countries will benefit their overall wellbeing and may further support the presence of the EKC theory [46]. This present research posits that a positive association between FDI and carbon emission may be established on the basis of the core issues presented.

4. The Nexus between Governance and CO_2 Emission

Governance refers to the institutional and traditional frameworks that allow a nation's supreme powers to be enforced [47]. These institutions and traditions comprise the nation's procedures to elect, monitor, and re-elect governments, the government's capacity to judiciously formulate and implement prudent actions, the condition of institutional bodies that govern economic and social interconnections, and citizens' respect for the authorities. Moreover, political stability and the fight against corruption invariably favor regionalism. In reality, conformance to groups of well-selected governments would facilitate a stable and sound regulatory framework and macroeconomic policies that motivate investors [25]. According to Ederington et al. [48], the rule of law supports environmental protection and attracts FDI and trade. Studies have demonstrated that institutional development, expediting compliance with laws, and minimizing corruption may reduce a nation's risk of CO_2 emissions and boost the attractiveness of FDI [49][50]. Notwithstanding, limited studies have investigated the role of governance in the connection between CO_2 emissions and FDI [28].

Governance is an essential element that positively facilitates and regulates the activities of FDI and TOUR to reduce CO_2 emissions [28][51][52][53][54]. Governance ensures that a country's resources are used efficiently by providing those activities geared toward economic productivity and can sustain environmental quality processes. Governance also strengthens access to tourism and FDI by implementing decarbonization measures [55][56][57]. As a result, this research posits that governance helps strengthen or lessen the interdependence of tourism, FDI, and CO_2 emissions. Thus, researchers have applied several indicators in measuring governance functions in FDI inflows, economic prosperity, and CO_2 emissions in diverse jurisdictions. This research employs governance (GOV) indicators comprising governance effectiveness, political stability, the rule of law, regulatory quality, the voice of accountability, and control of corruption for analysis [25][47][58]. According to the above development, it is evident that researchers have not paid great attention to the functions of governance in successfully implementing decarbonization policies that ensure zero emissions from FDI. Therefore, the authors of this research hypothesize that effective governance may play a significant part in regulating the reduction in CO_2 emissions.

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