



GREEN TAXATION AND SUSTAINABLE DEVELOPMENT IN NIGERIA

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Abstract

Green taxation offers a promising avenue for incentives to promote sustainable practices across key sectors of the economy, including energy, transportation, industry, and natural resources. This study explored the concept of green taxation and its applicability to Nigeria, a country facing significant environmental and developmental challenges. The data spanned a period of ten years from 2010 - 2020 was obtained from the Organization for Economic Co-operation and Development Database and the World Bank Database. In order to examine the study's model, an ordinary least squares (OLS) regression inquiry was run on a time series data and thereby adopted as the technique of analyzing the data. The study, in the end, established that sustainable development indicators when unemployment rate, basic sanitation services and particulate emission damage are used to proxy it, do indeed have a significant notwithstanding direct or inverse effect on Nigerian green taxation. It was suggested that careful policy design, including revenue recycling and targeted subsidies, can mitigate these challenges and enhance the positive effects of green taxation on sustainable development.

Keywords: Green taxation, sustainable development, social indicator and environmental indicator

1. INTRODUCTION

Achieving sustainable development has emerged as a major concern for all nations in the current global environment. Sustainable development, which includes social justice, environmental protection, and economic expansion, aims to meet present needs without endangering the ability of future generations to meet their own. To attain sustainability, creative policy frameworks that tackle environmental concerns and advance economic growth are required (Xie & Jamaani, 2022).

In this context, green taxation has gained popularity as a way to promote sustainable development and encourage environmentally conscious behavior.

Nigeria's quest for sustainable development calls for creative legislative solutions to combat environmental deterioration and encourage green development. Incentives to encourage sustainable behaviors in important economic areas such as energy, transportation, industry, and natural resources can be obtained through green taxes. Green taxes can help reduce pollution, preserve natural resources, and promote green innovation and entrepreneurship by causing people to internalize environmental costs and adopt eco-friendly practices (Efuntade, Efuntade, & Olugbamiye, 2023).

Green taxation is a strategic step toward Nigeria's sustainable development objective, claim Garba & Gunawardana (2015). By aligning financial incentives with environmental goals, green taxes can promote green investments, improve technology, and ease the transition to a more resilient and sustainable economy. To solve implementation challenges and ensure decent outcomes, however, governments, businesses, civil society, and the international community will need to collaborate. Ultimately, the successful integration of green taxes into Nigeria's policy framework has the potential to spark transformative changes that would lead to a more sustainable and prosperous future.

Green taxation has gained popularity in developed economies, but its implementation in developing countries presents unique challenges and opportunities. Different studies have been conducted in developed and developing nations on the use of green taxation for improving economic growth, achieving sustainable development, encouraging renewable energy, reducing carbon emissions, and increasing revenue generation. In a developing country like Nigeria, where environmental degradation poses significant socio-economic risks, green taxation could be a crucial tool for advancing sustainable development objectives. The need for an environmentally sustainable process of economic growth has been dictated by the ongoing climate change, and green growth is one of the initiatives that have been brought about by the ongoing climate change. In order to achieve sustainable growth, it is anticipated that this study will examine the application of green taxes.

The effectiveness of green taxes in raising environmental indicators has been widely acknowledged. Green taxes have been demonstrated to have the potential to significantly lower carbon emissions, enhance the quality of the air and water, and boost investment in renewable energy (Andersson, 2019). A holistic strategy for economic expansion, sustainable development aims to strike a balance between the needs of the present and the capacity of future generations to meet their own. The effectiveness of green taxes in raising environmental indicators has been widely acknowledged. Green taxes have been demonstrated to have the potential to significantly lower carbon emissions, enhance the quality of the air and water, and boost investment in renewable energy (Andersson, 2019). A holistic strategy for economic expansion, sustainable development aims to strike a balance between the needs of the present and the capacity of future generations to meet their own.

According to the Resource Curse Theory, also known as the "Paradox of Plenty," countries with abundant natural resources such as minerals and oil tend to have lower rates of economic growth, less democracy, and worse development outcomes than those with fewer resources (Blundeel et al., 2021). One important tactic for reducing the negative consequences of the resource curse is green taxation. The Nigerian government can establish a system to guarantee that funds are utilized for the general welfare rather than private gain by imposing taxes on resource extraction. A convincing framework for comprehending how socio-ecological systems may adapt to and flourish in the face of change and uncertainty is provided by resilience theory. It highlights how systems with both natural and human elements can adapt to difficulties by absorbing disruptions, reorganizing, and evolving (Ruggerio, 2021).

Lundgren (2018) investigated the connection between GDP growth and green taxes. Green taxation, as determined by the money collected from environmental levies, was the independent variable. GDP growth, which is the annual percentage rise in a nation's gross domestic product, was the dependent variable. Analyzing data from various countries over a number of years using a panel data technique. Both fixed-effects and random-effects models were used to account for factors unique to each nation. The findings indicated that by encouraging energy efficiency and green technologies, green taxes may eventually have a positive impact on GDP growth.

With an emphasis on energy sector reforms, a study by Saqib et al. (2023) investigated how green

taxes might support sustainable development in Saudi Arabia. Carbon emissions, energy consumption, investments in renewable energy, and energy sector taxes were the study's independent and dependent variables, respectively. These factors were expressed in metric tons of CO₂ for carbon emissions, gigajoules for energy consumption, and US dollars for expenditures in renewable energy. Green taxes successfully lower energy use and carbon emissions while promoting investments in renewable energy, according to time-series research using the ARDL model.

Using environmental taxes as an independent variable and environmental deterioration and the adoption of green technologies as dependent variables, Xie and Jamaani's (2022) comparative study looked at the effects of green taxation across a number of developed nations. The ecological footprint was used to quantify environmental degradation, while the rate of use of renewable energy and green patents were used to gauge the acceptance of green technologies. Green taxes successfully decreased environmental deterioration and encouraged the use of green technologies, according to the study, which used comparative panel data analysis.

2. METHODOLOGY

Because the study is quantitative in nature, the ex post facto research design, which was chosen for this investigation as a component of the quasi-experimental research design, will be appropriate for this inquiry. Data from the World Bank Database and the Organization for Economic Cooperation and Development Database were gathered using secondary data throughout an 11-year period (2010–2020). The data was analyzed using the ordinary least squares method.

Presentation of Descriptive Results

An inference regarding the distribution and variability of the data is made possible by the thorough summary of its features provided in this section. The minimum, maximum, mean, standard deviation, and number of observations for the variables taken into consideration in this study are among the crucial descriptive statistics shown in Table 1.

Table 1. Descriptive Statistics

Variables	Min	Max	Mean	Std. Dev	Obs
GTN	0.01	0.02	0.02	0.01	11
GDP	-1.79	8.01	3.16	3.27	11
UPR	3.71	5.71	4.39	0.71	11
ATE	48	59.3	54.56	2.84	11

BSS	35.55	45.45	40.32	3.29	11
COE	0.54	0.64	0.58	0.29	11
PED	2.25	3.89	2.81	0.49	11

Source: Descriptive Statistics Test Result using STATA 17

Summary of Descriptive Statistics

The findings of the descriptive statistics are shown in Table 1, which shows that each variable had a total of 11 observations. This completeness shows that the information is well-rounded and accurately depicts the time period being examined. The green taxation (GTN) variable showed a tight range, with a mean of 0.02 and values ranging from 0.01 to 0.02. According to this research, Nigeria's environmental taxes never exceeded 2% of GDP between 2010 and 2020, indicating that they remained low throughout that time. Additionally, the standard deviation of 0.01 suggests that there was little variation across the observations, suggesting that the GTN values were tightly packed around the mean. Concerns about the efficacy of fiscal measures intended to promote environmental sustainability in Nigeria are raised by the low levels of green taxation. The Gaussian theory (1929) supports the idea that although the descriptive statistics show certain anomalies in the data, these irregularities have little effect on the inferential statistics. Even though standard deviations could point to some anomaly, the inferential analyses are still reliable.

The correlation matrix is essential for establishing the relationships between the independent and dependent variables. Table 2 summarizes the correlation coefficients and significance levels for the analysis.

Table 2: Correlation Matrix

Variables	GTN	GDP	UPR	ATE	BSS	COE	PED
GTN	1.0000						
GDP	-0.6804 0.0212	1.0000					
UPR	0.6706 0.0239	-0.8031 0.0029	1.0000				
ATE	0.5002 0.1172	-0.6105 0.0461	0.3956 0.2285	1.0000			
BSS	0.7684 0.0057	-0.8080 0.0026	0.9584 0.0000	0.4997 0.1176	1.0000		
COE	-0.0853 0.8032	0.4361 0.1800	-0.4389 0.1769	0.1947 0.5661	-0.2163 0.5230	1.0000	

PED	-0.7503 0.0078	0.7845 0.0043	-0.8012 0.0030	-0.6343 0.0361	-0.9305 0.0000	-0.0198 0.9539	1.0000
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Source: Pearson Product Moment Correlation Result (0.05) sig using STATA 17

The correlation values between the independent variables (GDP, UPR, ATE, BSS, COE, and PED) and the dependent variable (GTN) are shown in Table 2. According to the correlations, GTN has a direct association with UPR (0.6706), ATE (0.5002), and BSS (0.7684), but an inverse correlation with GDP (-0.6804), COE (-0.0853), and PED (-0.7503). Different correlation strengths are indicated by the significance levels; at the 1% level, BSS and PED exhibit significant connections.

Table 3: Summary of Regression Result

Variables	Coefficients	t – statistics	P-Values
Constant	-0.4470	-3.16	0.0340
GDP	-0.0001	-0.13	0.9000
UPR	-0.0469	-3.30	0.0300
ATE	0.0009	1.71	0.1620
BSS	0.0150	3.49	0.0250
COE	-0.1525	-1.85	0.1380
PED	0.0356	2.87	0.0460
R²			0.8992
Adjusted R²			0.7480
F - stat			5.95
P-value			0.0531

Source: Regression Result using STATA 17

Table 3 shows that the dependent variable of the study, represented in the model as GTN, is equal to a solution of the model's constant coefficient -0.4470 plus the coefficients of the independent variables, which are respectively representative of GDP, UPR, ATE, BSS, COE, and PED and are -0.0001, -0.0469, 0.0009, 0.0150, -0.1525 and 0.0356, plus the error term μ . Thus, the study's model is calculated as follows:

$$GTN_t = -0.4470 - 0.0001 (GDP)_t - 0.0469 (UPR)_t + 0.0009 (ATE)_t + 0.0150 (BSS)_t - 0.1525 (COE)_t + 0.0356 (PED)_t + \mu_t$$

About 90% of the variation in Nigeria's green taxation can be explained by the combined impacts of the independent variables examined, according to the total R2 value of roughly 0.90. The p-

value of 0.0531 and the F-statistic of 5.95 indicate that the model is suitable for explaining the relationships between the variables and is statistically significant.

These results emphasize the intricate relationships between Nigeria's economic and environmental factors, emphasizing the vital roles that sanitation, employment, and particle emissions play in creating green taxation policies that support sustainable development.

Overall, the results of this study have led to the rejection of hypotheses that suggested Nigerian green taxation is not significantly impacted by measures of economic, social, and environmental sustainable development. The intricacy of Nigeria's tax structure and how it interacts with sustainable development indicators is instead highlighted by the acceptance of alternative hypotheses for variables with significant values. This is in line with an increasing amount of research emphasizing how crucial it is to incorporate environmental considerations into tax laws in order to support sustainable development (Nchofoung et al., 2023; Wang et al., 2022).

3. RESULTS

The results of this study led to the rejection of hypotheses that suggested green taxation in Nigeria is not significantly impacted by measures of economic, social, and environmental sustainable development. The intricacy of Nigeria's tax structure and how it interacts with sustainable development indicators is instead highlighted by the acceptance of alternative hypotheses for variables with significant values.

4. CONCLUSION

The study looked into how Nigerian green taxes were affected by sustainable development. The impact of three sustainable development indicators; economic, social, and environmental on green taxes in Nigeria during an 11-year period was empirically demonstrated in this study. The dependent variable of the study was the variable of green taxation, which was measured with environmental tax as a percentage of total tax. The independent variables were the measures of the three (economic, social, and environmental) indicators of sustainable development: GDP growth (GDP), unemployment rate (UPR), access to electricity (ATE), basic sanitation services (BSS), CO2 emissions (COE), and particulate emission damage (PED). The following conclusion was reached after the descriptive and inferential statistical testing: The variable that is independent the

explanatory variable of green taxation showed a negative, non-significant relationship with GDP growth (GDP). This suggests that a rise in Nigeria's GDP is likely to result in a reduction in the environmental tax. This inverse relationship between GDP and green taxes indicates that the percentage of environmental taxes will decrease as GDP growth rises, albeit this relationship may not be statistically significant.

Furthermore, there was a substantial and negative relationship between the explained variable of green taxes in Nigeria and the explanatory variable of unemployment rate (UPR). In other words, it was found that a rise in Nigeria's unemployment rate would result in a correspondingly large drop in green taxes. Accordingly, it is anticipated that years with a greater employment rate will have higher environmental tax returns than those without. Based on these results, it may be inferred that a year with a high unemployment rate will negatively impact the nation's environmental tax. In conclusion, creating an efficient green taxation system for sustainable development is a crucial first step in an effort to identify the sustainable development indicators that can affect green taxes. In conclusion, this study shows how several economic, social, and environmental factors relate to sustainable development and green taxes. By encouraging economic sustainability through incentives for green innovation and human resource efficiency, improving social sustainability through addressing social equity and improving public health, and advancing environmental sustainability through lowering industrial pollution and encouraging the conservation of natural resources, it implies that green taxation can be influenced by these indicators. Therefore, the study concluded that, whether directly or indirectly, Nigerian green taxes are significantly impacted by sustainable development indices when the unemployment rate, basic sanitation services, and particulate pollution harm are employed as proxies.

Recommendations

Because of the results and subsequent conclusions of the study, a specific recommendation about the unemployment rate is that decisive action be done to lower the jobless rate in Nigeria in order to improve green taxation. According to the study's findings, Nigeria's higher employment rate would result in higher environmental fees.

Similarly, there must be a clear plan and implemented actions to boost the number of people utilizing at least basic sanitation facilities in order to prevent environmental deterioration in Nigeria. The attempt to improve green taxation in Nigeria would directly impact the amount of people utilizing at least basic sanitation services.

Finally, it is suggested that the transportation and industrial operations that cause damage from particle emissions be enhanced; that is, the transportation services and industries that are the focus of this study. To achieve a direct and favorable impact on green taxation in Nigeria, measures for such improvements should be implemented.

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