

Effect of Internally Generated Revenue on Environmental Sustainability Funding in Anambra State

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Abstract

Funding of environmental sustainability requires huge capital outlay as such states cannot continue to rely on dwindling federal allocation and grant to sustain their efforts to preserve and maintain the environment. There is need to explore the IGR potentials of the states to mitigate disastrous effect of climate change and human activities on the environment. The study therefore examined the effect of internally generated revenue on environmental sustainability cost in Anambra State. Quarterly time series data (secondary data) sourced from State annual financial statement, State Auditor-General Annual Report and State Approved Annual Budget covering sixteen (16) years (2006 and 2021), which spans over two political regimes in the state, were used. This data was estimated using the FMOLS estimators while the canonical regression estimators was used for robustness check. Findings revealed that Fees and fines has a positive and significant effect on environmental sustainability cost whereas, interest has a significant but negative effect on environmental sustainability cost in Anambra State of Nigeria. Although, Licenses and tax has a negative and positive effects on environmental sustainability cost in Anambra State of Nigeria, respectively, this effect is insignificant statistically. The study recommend amongst other things that the interest the government earned from its investment should be reinvested on green technologies and renewable energy projects while taking strict measures to close leakages in fines and fees collection from environmental law offenders in the state.

Keywords: *Environmental Sustainability, Anambra State, Internally Generated Revenues, FMOLS, Tax, License, Fees and Fines, Interest.*

1.1 Introduction

The pollution and environmental degradation caused by various human activities, present pervasive economic, structural, environmental and social risk. Nigeria in the recent past years has been overstrained by vast of sectorial activities in environment, starting from aggregated emission to air, water effluent discharge, soil contamination, deforesting, Lumbering, etc. Thus, Yaakoo, et al. (2012) argued that the toxic and gaseous emissions into the air, including the untreated home and industrial waste outflow into the rivers and coastal oceans, and solid waste that must be disposed of through land spreading and incineration are all sources of environmental deterioration. The more concerning aspect is that waste management has emerged as one of the greatest challenges facing state and local government environmental protection agencies in Nigeria as the volume of solid waste generated increases at a faster rate than the ability of the agencies to improve on the financial and technical resources needed to parallel this growth in Nigeria (Agboje, et al., 2014)

The emissions create a host of potential economic and environmental threats, including property damage from storms, human health risks, reduced agricultural productivity, and ecosystem deterioration. These threats associated with the climate change are too strong to be ignored, and requires proactive and comprehensive responses. It threatens to roll back decades of development progress and puts lives, livelihoods, and economic growth at risk. The 2015 World's Climate Change Vulnerability Index classifies Nigeria as the third most vulnerable country in the world (Reliefweb, 2016). The effect has been devastating, to both the environment and its dwellers. Cervigni, et al. (2013) emphasized that if Nigeria delays action, it will have time less to get ready, and rather than doing prevention it will have to find cures, which is typically more expensive and less effective. Subsequently the goal of attaining economic growth would be hampered (Chindo and Abdul-Rahim, 2018).

Ability to respond to these natural disasters and eventually prevent their deleterious impacts is an important area. The Nigerian government has tried to induce responsible attitudes towards that through legislation. Some of the Nigerian legislation on environmental sustainability include, The Constitution of the Federal Republic of Nigeria (1999) National Environmental Standards and Regulations Enforcement Agency (NESREA) Act, The Endangered Species Act, Environmental Impact Assessment Act, Harmful Waste (Special Criminal Provisions) Act etc. However the environmental laws regarding pollution and waste management seem to a large extent unenforceable. Nigerian government still in the spirit of creating environmentally friendly, green and sustainable path, signed up to the Paris Agreement on climate change in December 2015, and was among the countries that submitted their GHG emissions reduction pledges –called the “Intended Nationally Determined Contribution” (INDC). (Carbon Brief, 2021) The aim was to reduce carbon dioxide equivalent (CO₂e) by ending gas flaring, enforcing energy efficiency, adopting off grid solar, improving energy efficiency of the electricity grid, adopting climate smart agriculture and reforestation; as well as transport shift from cars to buses (FGN, 2015). Cervigni, et al. (2013) argued that achieving Nigeria's INDC goals will require a quantum leap in investment on sustainable infrastructure and projects, but Nigerian government revenues are often insufficient to provide for climate change mitigations and adaptations.

Given the aforementioned government limitation to actualizing its environmental control intention, there is need to explore other ways of strengthening climate finance. In this regards necessary conditions must be established at the state levels, so that different states can contribute little bits and pieces to it, all of which put together assume enormous dimensions towards a “green economy”. Accordingly, Section 20 of the Nigerian constitution, makes it an objective of the Nigerian State to improve and protect the air, land, water, forest and wildlife of Nigeria. Some states also formulate and implement public policies in order to promote the welfare of the citizens (Wonah. 2017). Thus states are persuaded to adopt an environmentally friendly measures that will reduce emissions and increase resilience against the negative impacts of climate change, and enhance economic well-being of the country. Many states have been committed to this project. Lagos state for instance established Lagos State Environmental Protection Agency with the aim to build a portfolio of sound environmental management programme and projects in the development of sustainable environment in conjunction with other arms of Government. Anambra state government on its part, provides substantial amount in its budget annually to mitigate against environmental problems. Some of these problems bother mainly on gully erosion, deforestation, rising temperature and rising flood occasioned by excessive rainfall. The government tackles these environmental issues through the Ministries of Agriculture and Environment. The ministries take certain measures which include; advocacy to mobilize the community people, erosion control and enforcement, planting of trees and grasses, creating awareness and training of personnel, solid waste control and management etc.

Most of the funds deployed by the State Government to carry out the above activities in the meantime are from Federal Government assistance through ecological fund and capital interventions/ grants from development Partners like; European Union, World Bank, IMF etc. Continued reliance on the assistance of the above mentioned institutions to mobilize the huge amount of capital needed to tackles issues of environmental nature in the State cannot be sustainable as that is only a short term measure. Ajiteru, et al. (2018), stressed that unless various state governments of the federation look inward to maximise their internal revenue base, it cannot be financially self-reliant. Hence, the need to ascertain the extent internally generated revenue can fund environmental sustainability in Anambra State which is the main thrust of this study.

2.0 Review of Related Literatures

2.1 Government Revenue Generation

Basically, revenue is the total sum of income accruing to a government from various sources within a specified period of time (Olusola, 2011). The state government, like other levels of government (federal and local governments) has many sources and utilization of revenue. Fundamentally, two main types of revenue accrue to state government. These include revenue from the federation accounts otherwise known as federal allocation and internally generated revenue (IGR). However, this study is more concerned with the revenue the state generates internally.

2.2 Internally Generated Revenue (IGR)

Internally Generated Revenues (IGR) are sources of government revenue other than revenue from the federation account, generated mainly by various levels of government, including federal, states and local councils, to increase the overall revenue structure of the state. IGRs are generated

internally apart from subventions, allocation, and grants from Governments (Okeke, et al.,2017). Nnansseh, &. Akpan, (2013), see IGR as those revenues that are derived within the state from various sources such as taxes (pay as you earn, direct assessment, capital gain taxes, etc), and motor vehicle license, among others. The 1999 constitution of the Federal Republic of Nigeria as amended and other Acts empowered the state government to generate revenue through different sources both internal and external sources, to enable them fulfill their constitutional functions. Anambra State major sources of internal revenue include taxes, fine and fees, licenses, interest, dividend etc. A critical study of income profile of Anambra State from 2015-2019 showed that the average internally generated revenue (IGR) of the state is only about 22.62% (percent) of total revenue accrued to the state during the period. The state therefore depend on federal allocation for further sustenance. Unfortunately, this is no longer sustainable.

- a. **Taxes** –these are compulsory financial contribution/ levy, imposed on income of citizens and business profits or included in the cost of some goods, and service. The following taxes are available for Anambra State Government to collect; income tax, withholding tax, cattle tax, property and land use tax, 2.5% development levy, capital gain tax, commercial road user, container revenue tax, education tax, stamp duty tax and so on
- b. **Licenses** – these are defined as permits from government to own or use a property or engage in a particular trade in the State. Some revenues that are in the category of licenses are; motor license, drivers’ license, gaming license, pool agents license, learners’ permit, trading permit, okada permit/ license, bill board erection/ installation permit, forest licenses among others.
- c. **Fines and Fees**–Fines are payments to government in form of punishment for infractions, misdemeanors or felonies. Fees in the other hand are payment to government or agent of government in exchange for services and advice. The state has a lot of revenue windows inform of fees and some of them include; tenders fees, produce inspection fee, registration of External Auditors, insurance, contractors’ registration fee, change of ownership fee, motor vehicle new number plate, proof ownership, registration of new vehicle fee, registration of business premises, markets stallage fee, motor parks fee, road worthiness, court fee/fines etc.
- d. **Interests:** These have do with amount of money received in return for lending out money which is usually in annual percentage rate (APR). James Chen (2022) defined interest as the monetary charge for the privilege of borrowing money, typically expressed as an annual percentage rate (APR). Some of interest revenue of Anambra State Government include; interest on fixed deposit, interest on bank deposit, interest on late remittance of PAYE, interest on failure to deduct statutory taxes and so on.

2.3 Internally Generated Revenue (IGR) in Anambra State and Project funding.

Revenue generation at the state level is crucial for Nigeria's government to fulfill its constitutional obligations and fund government projects, which enhance or maintain the country's assets. Both Federal and State governments have always relied on crude oil revenue, as they receive the bulk of their revenue from the federation account. This has led to an oil-based economy in Nigeria. However, volatile oil prices have caused inconsistency in economic growth, resulting in decreased funds available for distribution to states.

The greatest challenge faced by government tiers is funding their annual budgets. State governments are particularly affected due to their over-dependence on federal allocation, which was designed mainly to favor the Federal Government. This results in repeated annual budget deficits and a lack of funds for viable capital projects. In 2019, Anambra State's total statutory allocation declined by 20.5%.

Biola (2022) argued that even federal allocation revenue is spent on recurrent expenditure, neglecting capital expenditure that could impact the majority of their people. This indicates that it is no longer sustainable for states in Nigeria to rely solely on federal allocation for their survival. Therefore, generating adequate revenue from internal sources has become a matter of extreme urgency and importance.

2.4 Empirical Review

A lot of scholars and researchers have carried out myriads of studies on public revenues and expenditures but none has given adequate attention to the relationship between internally generated revenues (IGR) and capital budget funding at the state level. However, few researchers recently made incursion into the area and as such their works serve as good foundation for subsequent studies.

Ahannaya, et al (2021) found that Internally Generated Revenue (IGR) has a significant positive impact on financing infrastructure in Lagos State, Nigeria. This finding was supported by data from audited financial statements of the Lagos State Government from 2015 to 2020. Tanko and Samson (2020) also found that IGR has a positive impact on infrastructural development in Taraba State. However, Danbeki, et al. (2020) found that IGR stands insufficient in funding infrastructural development in Taraba State. Furthermore, Otu, & Anam (2019) found that local governments in Nigeria face poor revenue capacity, which affects their efforts in rural development projects. Omodero, et al. (2018) found that total IGR and Federal Government Independent Revenue (FGIR), state government IGR, and local government IGR have a significant and positive impact on the Real Gross Domestic Product (RGDP). However, Dang and Dashes (2017) found that states' IGR has insignificant impact on economic growth. Olayinka and Irewole (2019) found a significant and positive relationship between IGR and infrastructural development in Lagos State. Onwuka and Christian (2019) found that revenue generated have significant impact on infrastructural development in Nigeria. Mbah and Onuora (2018) found a significant relationship between IGR and the cost of infrastructure in South East States using multiple regression. Yunana, Yunana, & Muhammad (2019) found that internally generated revenue displayed a positive and significant influence on the development of Chikum local government.

Oyetunde, & Kayode (2017) investigated the relationship between revenue generation and service delivery in Ibarapa Central Local Government, Igboora, Oyo State, Nigeria between 2010 and 2015. The study used descriptive statistical tools of percentages, frequency, table distribution, and inferential statistical tools of Analysis of Variance (ANOVA). Empirical observations show that total tax collected has a positive relationship with revenue generated. Nwanne (2015) found that tax policy on IGR has a significant positive effect on public expenditure of sub-national levels of

government in Imo State. Oseni (2013) observed that states receiving additional revenue from statutory allocations as derivation have lower proportions of IGR to their total revenues.

2.5 Summary of findings

Numerous empirical studies have examined the impact of Internal Revenue Generation (IGR) on capital budgets in various states and the country, with some studies showing positive or negative impacts. However, there is a lack of attention on the relationship between IGR and environmental sustainability at the sub-national levels of government in Nigeria. This study aims to fill this gap by focusing on funding environmental sustainability in Anambra State of Nigeria.

3. Methodology and Data

Environmental sustainability is the planning process that balances negative human and natural activities and the biophysical environment (Goodland, 1995). It requires maintaining natural capital as both a provider of economic input (source) and an absorber (sinks) or output of economic outputs (waste) (Basiago, 1999). To achieve sustainable development, governments in Nigeria have to earmark certain amounts in their annual budgets. Funding for this capital budget has been challenging for governments, leading to Anambra State relying mainly on loans and grants for environmentally sustainable projects. However, some states prefer to raise funds from internal sources. This study aims to determine the effect of internally generated revenues on environmental sustainability cost (ESC) in Anambra State using secondary data from the Annual Report of the Anambra State Auditor-General, Anambra State Annual Financial Statements, and Anambra State Approved Annual Capital and Recurrent budget. The time series data covers 16 years, ranging from 2006Q1-2021Q4, to empirically access the extent to which internally generated revenues impacted the environmental sustainability cost in the state during the past two political regimes.

Table 1: Operationalization of Variables

Variable	Measurement	Source
Taxes	Total taxes revenue	State Annual Financial Statement
Licenses	Total licenses revenue	State Annual Financial Statement
Fines and fees	Total fines and fees revenue	State Annual Financial Statement
Interests	Total interests revenue	State Annual Financial Statement
Environmental sustainability cost	Total environmental sustainability cost	State Annual Financial Statement

3.2 Model Specification

To estimate the impact of internally generated revenues on environmental sustainability cost in Anambra State in time (t), we specify the functional relationship as follow:

$$ESC_t = F(FAF_t, INR_t, TAX_t, LIC_t) \quad (1)$$

Where the dependent variable (*ESC*) is environmental sustainability cost in Anambra State, *FAF* is the Fees/Fines collected in Anambra State, *INR* is Interest earned on saving and investment in

Anambra state, TAX is the tax revenue from taxes in Anambra state and LIC represent the revenues from Licenses in Anambra state. The t represents the period (years).

To capture the effect of variables not included in the model, we introduce the error term and then state the econometric model with the variables expressed in a natural log, as follow:

$$LESC_t = \alpha_1 + \beta_1 LFAF_t + \beta_2 LINR_t + \beta_3 LTAX_t + \beta_4 LIC_t + \mu_t \quad (2)$$

Here, α is the intercept, and β 's are the parameters of the explanatory variables indicating the magnitude of change.

3.3 Estimation Method

To address the research problems presented in this work, the hypothesis was tested and the fully modified ordinary least squares (FMOLS) was utilized for estimate. The FMOLS was developed to solve the drawback of ordinary least squares (OLS), which is that it is only practical when the study's variables' data are integrated of order zero, or I(1). Consequently, OLS is no longer appropriate for the suggested estimation when variables integrated of order one exist, necessitating the use of a new approach that can account for these variables. Due to the OLS's inability to account for variables integrated into order one, FMOLS was introduced. Its purpose is to estimate variables integrated into order one in order to mitigate the OLS's shortcoming. Moreover, a strong long-term link (cointegration) between the dependent and explanatory variables is necessary for the FMOLS to be applied. The current study meets the requirement for the application of the FMOLS since all of its variables are integrated of order one with significant cointegration. In contrast to the dynamic OLS (DOLS), the FMOLS estimator is a non-parametric estimate that accounts for endogeneity and serial correlation, yielding a more reliable result. Furthermore, Onwe et al. (2023) and others state that the estimations using FMOLS are asymptotically unbiased and consistent.

$$\beta_{FM} = N^{-1} \sum_{i=1}^N \left(\sum_{t=1}^T (y_t - y)^2 \right)^{-1} \left(\sum_{t=1}^T (y_t - y) \right) Z_t^* - T_{\tau} i \quad (3)$$

Where $Z_t^* = (z_t - z) - \frac{L_{2t}}{L_{2i}} \Delta y_t$, $\tau_i = \pi_{21t} + \varphi_{21t}^0 - \frac{L_{21t}}{L_{22t}} (\pi_{22t} - \varphi_{22t}^0)$, L_i denotes the lower triangular decomposition of φ_i . The similar t-statistics are given as:

$$t_{\beta^*} = N^{-\frac{1}{2}} \sum_{i=1}^N t_{\beta^*}, i \quad (4)$$

Where $t_{\beta^*}, i = (\beta_i^* - \beta_0) [\varphi_{11i}^{-1} \sum_{t=1}^T (y_t - y)^2]^{1/2}$

4. Results Presentation and Analysis

The focus of this chapter will be to present the results from the various pre-estimation test, regression test and post-estimation tests and as well analyze the results of the various test while checking their conformity with economic a priori (based on the stipulations of economic theories) and linking the research findings with those of previous studies (Ogwu, 2021).

Table 2: Descriptive statistics

	LESC	LFAF	LINR	LLIC	LTAX
Mean	20.96130	21.46002	20.71453	19.05038	22.40139
Median	21.09006	21.44309	20.76227	19.31799	22.58568
Maximum	22.01311	22.64476	22.42403	20.53685	23.58678
Minimum	19.22665	20.44092	19.22230	15.96113	20.19621
Std. Dev.	0.717846	0.764288	0.771677	1.176055	0.864724
Skewness	-0.600212	0.012204	0.071354	-0.973119	-0.662347
Kurtosis	2.774465	1.511429	2.235281	3.412744	2.940277
Observations	64	64	64	64	64

SOURCE: Author's computation using E-views 9.0

The descriptive statistics in table 2 above shows the description of the study's data by showing the mean (average), maximum, minimum, standard deviation, and median for each of the variable used in the study. It gives an insight into the nature of data for each of the selected variable. Firstly, the descriptive statistics reveals that LES C, LTAX and LLIC are negatively skewed performance while LFAF and LINR are positively skewed. This indicates that LES C, LTAX and LLIC experienced more of decline during the studied period whereas; LFAF and LINR experienced increase during the study periods. The small difference between the maximum and minimum values of the LES C as well as other variables is indication that the variables not witness any significant increase over the study period. This is further validated by the mean and median values for all, which are approximately the same. The only likely exception is LLIC.

Table 3: Correlation Matrix

Correlation	LESC	LFAF	LINR	LLIC	LTAX
LESC	1.000000				
LFAF	0.651603	1.000000			
LINR	0.390223	0.819048	1.000000		
LLIC	0.145727	0.087328	-0.084086	1.000000	
LTAX	0.624228	0.912407	0.785829	0.197477	1.000000

Table 3 report the result of the correlation test conducted on the variables to ascertain the existence of relationship or not and the nature of such relationship among the variables. As shown by the table 3, a strong and positive correlation exist between fees and fines (LFAF) and environmental sustainability cost (LESC) and between tax and environmental sustainability cost. Similarly, a moderate and positive correlation exist between interest and environmental sustainability cost while a weak and positive correlation is found between licences and environmental sustainability cost in Anambra State.

Table 4: Augmented Dickey Fuller (ADF) and Philip Perron (PP) Unit Root Result

Variable	ADF at Level	ADF at First Diff.	PP at Level	PP at First Diff.	Order of Integration
LESC	-1.3848	-5.1403***	-2.3021	-5.1317***	I(1)
LFAF	-0.9660	-2.9343**	-0.2876	-3.0796**	I(1)
LINR	-2.3046	-4.8011***	-1.7841	-4.8011***	I(1)
LLIC	-1.9471	-5.1196***	-1.8154	-5.1772***	I(1)
LTAX	-0.7777	-3.5966***	-3.9008***	-3.0763**	I(0) & I(1)

In analyzing long-run relationship among variables of this study the time series data is expected to be stationary either at level 1(0) or first difference 1(1), as stipulated by economic theory. However, the ARDL permit the use of variables that are stationary at 1(0) and 1(1) for same model. The result in the table 4 above shows that these variables; log environmental sustainability cost (LESC) as explanatory variable, log of Interest (LINR), log of Licences (LLIC), log of Taxes (LTAX) are all stationary at first difference, with the ADF and PP application at intercept only as reported in table 4. Similarly, tax is also stationary at level based on the PP unit root test. This show the ordinary least square regression and ARDL estimators are invalidated for estimating the model of this study. Thus the fully modified ordinary least squared will be adopted for the model estimation in this study. However, this will be subject to the existence of significant cointegration between the dependent and the explanatory variables.

Table 5: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.489450	88.54167	69.81889	0.0008
At most 1 *	0.367259	48.20563	47.85613	0.0463
At most 2	0.152886	20.74401	29.79707	0.3738
At most 3	0.105472	10.78882	15.49471	0.2248
At most 4 *	0.066071	4.101270	3.841466	0.0428

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 6: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.489450	40.33605	33.87687	0.0074
At most 1	0.367259	27.46162	27.58434	0.0518

At most 2	0.152886	9.955192	21.13162	0.7489
At most 3	0.105472	6.687546	14.26460	0.5267
At most 4 *	0.066071	4.101270	3.841466	0.0428

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

From the cointegration results in table 5 and 6, we have an asterisk where the trace statistics is greater than the critical value indicating that two and one of the equations are statistically significance respectively, and thus portending that cointegration exists between the dependent variable and the explanatory variables. More precisely, the trace test shows two cointegrating equations at the 0.05 significant levels whereas the maximum eigenvalue indicates one cointegrating equation. This suggests the rejection of the null hypothesis that says there are no cointegrating vectors at the 5% level of significance and accepting the alternative hypothesis that there is cointegration between the regressors and the response variable. With the validation of cointegration between the dependent and explanatory variables the use of FMOLS estimator is validated. Moreover, the canonical regression estimator is adopted for robustness checks.

Table 4.5. The Results of the FMOLS and CC Regression Model

Variable	FMOLS				CCR			
	Coeff.	Std Error	T-stat.	P-value	Coeff.	Std Error	T-stat.	P-value
LFAF	0.8510	0.3993	2.1310	0.0373	0.8694	0.3463	2.5106	0.0149
LINR	-0.5656	0.2611	2.1663	0.0344	-0.5504	0.2420	2.2741	0.0267
LLIC	-0.0217	0.1017	0.2137	0.8315	-0.0171	0.0984	0.1743	0.8622
LTAX	0.2956	0.3668	0.8059	0.4236	0.2649	0.2845	0.9313	0.3556
CONSTANT	8.1969	3.6471	2.2474	0.0284	8.0920	3.6223	2.2339	0.0294
R²	0.461103				0.464616			

Source: author's computation

Table 4.4 reports the long run regression estimators of fully modified ordinary least square (FMOLS) and the canonical cointegrating regression. Accordingly, fees and fines has a positive and significant effect on environmental sustainability cost in Anambra State as indicated by the coefficient and probability values of 0.8510 and 0.0373 respectively. Implying that increasing fees and fines by a unit causes an increment in environmental sustainability cost in Anambra State by 0.8510% all things being the same. Based on this outcome the null hypothesis is rejected and

implies that an increase in fines and fees encourages more expenditure on environmental sustainability in the state. It shows that the fees and fines which are mostly collected by relevant government agencies like the court, local government authority, etc, failed to deter persons involved in environmental degradation in the state, suggesting the existence of weak institutions in the state. There has been rising incidence of forest encroachment in the rural areas and indiscriminate disposal of sewage and refuse in the water ways and drainages. Often people feel entitled to degrade the environment when they are taxed and also fined for indiscriminate disposal and use of pollutants. Furthermore, the immediate past government of Obiano saw an aggressive revenue collection approach using of torts for revenue drives. The current government equally adopted the same approach i.e the use of torts for revenue drive and collection. However, the key error from the previous government was handing over the issues of environment to individual private firms who collected environmental levies but only remit an insignificant portion of the same to the government of the state. There were no check in place to ensure that what was collected as fees and fines were remitted to the state government. This process was also marred by a lot of irregularities and as such could not discourage environmental degradation in the state. Although, the current government seems to have noted the weakness of the previous government while using the same method of revenue drive and in furtherance adopted an aggressive approach that discourages environmental damages and not just the fear of fees and fines. The result further shows that interest (LINR) has negative impact on environmental sustainability cost in Anambra State and this impact is very significant as shown by the coefficient of (-0.5656) and p-value of (0.0344). According to the result when interest increases by one unit environmental sustainability cost will fall by 0.5656% just as the coefficient value reveals. This result implies that the LINR the state realize from various investments and savings deflects environmental sustainability cost. There is currently increasing investment in green financing and many government are taking advantage of it as a potent way of decarbonization while reducing the cost of pursuing environmental sustainability. This may suggest that in line with the finding that a significant portion interest accruing to the government is reinvested to finance green innovations. Similarly, licenses (LLIC) has negative and insignificant impact on environment sustainability cost in Anambra State. The result further shows that revenues from tax (LTAX) have positive but insignificant impact on environmental sustainability cost in Anambra state. Possibly admitting the non-existence of environmental tax as obtainable in other economies of the world. Thus, on the overall, the outcome of this study seems to suggest that the revenue streams from tax and licenses in the Anambra State in the last two regimes didn't improve environmental sustainability cost except for fees and fines as well as interest. This no doubt could be due to environmental policies adopted by the then government which created revenue leakages and negligence as the policy relinquished environmental sustainability to private contractors. This must have prevented the government from investing directly to environmental sustainability using finances from her other revenue streams. The constant term is statistically significant and as such denotes that the model contains the major revenue variables which influence environmental sustainability cost in Anambra state that were not considered in the current study. An example is environmental tax, investment in environmental technologies and renewable energy use. This is further validated by the R^2 which has a value of 0.46 implying that only 46% of the changes in environmental sustainability cost were explained by the model while the remaining 54% are associated with factors outside the current study as

captured in the error term. The rest of the statistic from the regression estimate shows that the data fit the model.

5. Conclusion and Policy Prescription

While worries are mounting on the rising expenditures on environmental sustainability which yield minimal or no significant result across different economies. The relevance of capital spending on environmental sustainability due to the negative impact of human activities and climate change cannot be over stressed as it has become unavoidable by various sub national governments in Nigeria, including Anambra State. Funding of environmental sustainability requires huge capital outlay as such states cannot continue to rely on dwindling federal allocation and grant to sustain their efforts to preserve and maintain the environment. There is need to explore the IGR potentials of the state to mitigate disastrous effect of climate change and human activities on the environment. The study therefore examined the effect of internally generated revenue on environmental sustainability cost in Anambra State. The study made use of quarterly time series data (secondary data) sourced from State annual financial statement, State Auditor-General Annual Report and State Approved Annual Budget covering sixteen (16) years (2006 and 2021), which spans over two political regimes in the state. This data was estimated in line with the objective of the study using the FMOLS and CC regression estimators. And findings revealed that Fees and fines has a positive and significant effect on environmental sustainability cost whereas, interest has a significant but negative effect on environmental sustainability cost in Anambra State of Nigeria. Although, Licenses and tax has a negative and positive effects on environmental sustainability cost in Anambra State of Nigeria, respectively, this effect is insignificant statistically. This outcome from the study implies that while revenue generated from fees and fines in the State increases environmental sustainability cost in the state revenues from interest deflects it. Exposing the true behavior of a rational person in this society who believes that with a corrupt revenue agents (which is the case at times), they could still continue to dispose indiscriminately by offering them bribe. This bribery undermines the effort of the government in the pursuit of environmental sustainability in all fronts by introducing leakages in the channel causing the government to continue making higher expense in this agenda. The study recommends that the interest the government earned from its investment should be reinvested on green technologies and renewable energy projects while taking strict measures to close leakages in fines and fees collection from environmental law offenders in the state. There should be stricter measures put in place that can scare the offender from the continuation of the acts such as increasing the fines and fees paid by offender and the use of law enforcement agents to ensure compliance. Public private partnership can also help reduce the urge to destroy the environment which cost the government huge some annually. The inclusion sensitization is another way to inform the public about the financial cost of maintaining a safe environmental in the state by the government while educating them on the danger of destroying the environment via human activities. Whereas, tax and license have no impact on environmental sustainability cost an effective environmental tax and licensing of firms that have polluting tendency after they have clearly shown the state the proof that their operations won't destroy the environment or alternatively that they are ready compensate the public for any destruction on the environment by paying for the destructions done to the environment. In attaining the above recommendations, reviewing existing environmental regulations as well as revenue collection

system is necessary. This study is limited in scope and need to be expanded which can be in two folds: firstly, undertaking similar study for each state in the country especially the oil producing states and secondly for the entire country. This will generate harmonized policy prescription based on the overall findings and with special attention for certain states based on some economic and social peculiarity identified in line with the empirical findings.

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