

# The Differential Effects of Tax and Oil and Gas Revenues on Environmental Sustainability in Nigeria

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## Abstract

The intensification of oil and gas production activities occasioned by the drive for more revenue to meet growing expectations of the populace for socio-economic development has entrenched the reliance on oil and gas revenue by the government of Nigeria and with consequential negative implication for environmental sustainability. Using archival data this paper examines the nexus between the demand for tax revenue, oil and gas revenue and environmental sustainability in Nigeria and shows evidence that the goals of environmental sustainability can best be more likely attained in Nigeria through the government shifting from oil and gas revenue to tax revenue as the main source of finance for meeting the socio-economic goals.

**Keywords:** Taxation, sustainable development, Dutch Disease, public finance and environmental accounting

## 1. Introduction

Despite the best efforts of the oil and gas companies to minimize the effects of their operations on the environment, it is doubtful they can ever be compliant with the pure concepts and principles of environmental sustainability. The output of oil and gas production are further refined to produce fossil fuel which has been used to oil the industrial development of the last 100 years, has been associated with the depletion of the ozone layer and the consequent phenomenon of climate warming or climate changes. Oil and gas production has no doubt stimulated economic activities and development over this period and provided the revenue for oil and gas producing nations but its overall long-term impact might indeed result in negative intergenerational equity. Hence the idea of environmental sustainability is being vigorously canvassed.

Environmental sustainability was viewed by Robinson (2004) simply as the maintenance of the natural capital. This connotes that the natural environment is a set of capital that should be protected from erosion but rather maintained so that the value of the stock of assets that represent it, is not depleted. However, oil and gas assets are non-renewable and has been described as a wasting asset. Sustainability of oil and gas assets can at best be attained through the minimization of its exploitation so that its value is preserved for as long as possible for future generations. However, vigorous exploration and exploitation in the drive for more of the revenue that flows from it can only fast track the depletion of oil and gas resources and at the same time contribute negatively to environmental sustainability. The higher the reliance on oil and gas revenue the lower the level of environmental sustainability.

This paper contributes in creating the much-needed awareness and public understanding of the structure of the Nigerian national revenue and thereby contribute to the public debate that would help to inform rational choice of appropriate strategies and options for environmental sustainability and by extension, sustainable development. Furthermore, the paper shows empirically that oil and gas revenue dependency contribute negatively to environmental sustainability. The paper therefore provide evidence to justify the call for the diversification of the Nigerian economy and the reduction on the reliance on oil and gas revenue to the more sustainable tax revenue. The paper provides evidence that would assist policy makers in Nigeria to promote policies that would entrench tax revenue as the major revenue source.

The paper is organized hereafter into sections 2 to 5. Section 2 is a discussion linking the theoretical concepts and the insights gleaned from related literature and section 3 presents the materials and method of data analysis. The result of the data analysis is presented and discussed in section 5 while the conclusion based on the result is in section 5.

## 2. Conceptualization and Review of the Literature.

Environmental sustainability has assumed different meaning to different professions, but the central principle runs around the need for the present generation to use natural assets in such a way as to bequeath them to future generations in a state in which it is not compromised. This view of environmental sustainability draws directly from the definition of sustainable development presented in the Brundtland Report (1987) as "a system of development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Goodman (1995) defined environmental sustainability as "the maintenance of the natural capital" as cited by Morelli (2011) who further defined environmental sustainability to be the maintenance of the balance needed to meet the needs of current and future generations without compromising the ability of the natural ecosystem to continue to provide the needs of society. He went further to state that environmental

sustainability is apart from but connected with social sustainability and economic sustainability. This view of environmental sustainability mirrors the tripod of sustainable development in that the actions of members of the society impacts on the environment and this has economic consequences. Yadav and Pathak (2014) aver that only the integration of social, economic and environmental sustainability can lead to sustainable development.

The attitude of members of society such as individuals, businesses and the government, to the environment describes their actions. Classical economists such as Levit (1958) and Friedman (1963) believe that businesses should pursue only the economic goal of making as much profit for their shareholders as possible as they do not believe that businesses owe an obligation to the environment. They see a conflict of objective between environmental, social and economic goals and that it is best that businesses concentrate only on economic goals. They argue that any of the other goals will undermine the efficiency of companies thereby preventing them from fulfilling their main role to society of engendering efficient resource allocation which Sethi (1975) sees as the social obligation of businesses. However, Agburuga (1998) cites Welford (1995) to have argued that the operating strategy of businesses with such attitudes towards the environment would be exploitative and would results in the over-utilization of the social and ecological environment. Furthermore, that such businesses would be indifferent to the damages to human health or the ecosystem as well as the environmental pollution arising from their activities, thereby creating the problem of externality whereby such costs are imposed on the society. Multinational companies were particularly accused of by Welford of promoting an all-pervading growth strategy in third countries that attaches very little weight to the needs and aspirations of the indigenous people and the need to protect and sustain environmental assets. For this reason, Agburuga (2005) advocated that business be required to disclose minimum information about the impact of their activities on the environment and that provision for depreciation for environmental assets be made to reserve funds for the future maintenance of the asset or for investment in abatement and or impact reduction equipment and processes.

However, the multinational companies that exploit oil and gas in developing countries do so in partnership with the government with whom they have a joint operating agreement. The demand for more revenue might have instigated the government to turn a blind eye to practices of these multinational companies that are harmful to the environment. The clean-up cost of environmental pollution is payable by the government in the ratio of their production sharing agreement. In Nigeria, the rate of such cost payable by the government which a senior partner in the joint operating arrangement is usually in the ratio of 60% by the government and 40% by the multinational oil and gas companies. The opportunity cost of investment in the clean-up of the environment may be perceived to be high as democratic governance imposes a greater demand for the provision of social services to the people to earn their patronage in the next election. Consequently, public choice exercised by political leaders tends to be against investment in abatement activities and investment in impact reduction equipment and processes. As government rely more and more on oil and gas revenue to provide social services to an increasing population in Nigeria, and to develop infrastructure, there is even a greater demand for increased exploration to increase the reserves that would qualify for increased production quota from Organization for Petroleum Exporting Countries (*OPEC*). The increased exploitation and production that generates more revenue for the government impacts even more negatively on the environment even as more of the stock of oil and gas reserve is depleted.

With the increase in oil and gas revenue, there is less incentive to generate and collect tax revenue. This then becomes a special case of Dutch Disease as the increase in oil and gas revenue leads to a reduction in tax revenue. The other channel through which oil and gas revenue intensity causes the Dutch Disease is via the strengthening the foreign exchange rate of the local currency against international currency (US Dollar) thereby making it cheaper to import goods and services rather than engage in local production. The further leads to the erosion of the tax base even a local manufacturing capacity is diminished.

If it is convenient to do so, elected officials may avoid enforcing tax revenue collection since the payment of taxes by the citizens is also known to impact on the demand for accountability and transparency from the government. With this understanding, elected officials are less likely to demand for tax payments from the citizens hence tax revenue is likely to be relatively lower than oil and gas revenue. The increasing intensity of oil and gas production arising from greater reliance on oil revenues negatively impact on environmental sustainability. Hence, the higher the tax revenue of the government, the greater the demand for more accountability and transparency by the citizens and the greater the likelihood for environmentally sustainable actions. The contrary holds for higher oil and gas revenue leading to the paradox of plenty where citizens are worse off with higher revenue, a situation leading to the phenomenon known as resource curse.

Other reasons why the government might place greater reliance on oil and gas revenue over and above the tax revenue may be seen from the three tax policy evaluation criteria of efficiency, equity and administrability. The collection of oil and gas revenue is highly efficient as the sources of collection are limited to the few numbers of oil and gas companies licensed by the government even as it is easier to administer the collection of oil and gas royalties and petroleum profit taxes from the same limited number of sources. The equity issue in oil and gas revenue is strictly guided by the fairness inherent in the terms of the contract between the government

and the production companies. The collection of tax revenues may not be very efficient as the population of tax payers is large and difficult to manage and tax administration is a herculean task as many people are likely to be missed out from the tax net. The equity of tax revenue in terms of fairness in the incidence of tax is equally challenging particularly for income-based tax regimes where it may be tricky not to tax the poor more than the rich. However, consumption taxes such as the value added tax are more equitable as it clearly complies with the principle of ability to pay.

Oil and gas revenue suffer from the volatility of prices in the international oil and gas market. At higher prices, a huge chunk of the oil and gas revenue is spent on subsidies (Agustina, Granado, Fulman et al, 2008) and a gradual shift towards the welfare state when government engage in transfer payments and the provision of social insurance while paying less attention to more productive investments. Agustina, Granado, Fulman et al present the case of Indonesia where it was found amongst other factors that fuel and electricity subsidies has been increasing with increases in oil and gas revenues and that most of these subsidies go to the richest 20% in the population who control the commanding heights of government and the private sector of the economy. Since self-preservation is a natural human instinct, then it is self-evident that these beneficiaries of subsidies arising from oil and gas revenue would likely use their vantage positions to influence policies that favor increased exploitation of oil and gas even when oil prices fall, to continue to enjoy the subsidies and thereby further using the oil and gas assets in the environment unsustainably. Furthermore, the volatility in oil prices affects not only the fiscal stability in terms of the matching of government revenue with expenditures, it also affects fiscal sustainability as the inability to sustain the high levels of expenditure attained during periods of oil boom might lead to the government contracting debts levels that are not sustainable leading to the risk of debt overhang or debt trap. Thus, oil and gas revenue might not just support environmental sustainability but might also not support economic sustainability thereby putting the attainment of sustainable development goals at risk.

It is trite that both tax revenue, and oil and gas revenue contribute to the income stream that enables the government to provide public goods such as roads and bridges and other public infrastructure as well as to perform other government functions such as security, law and order, defense etc. However, while tax revenue can be used to regulate private behavior and steer private sector investments to a direction, oil and gas revenue can hardly be used to achieve the purpose of regulating behavior. The case in point, in Nigeria, is the gas flaring tax which is intended to minimize or completely eradicate gas flaring but ended up not achieving its intended purpose and thereby contributing negatively to environmental sustainability. In a news report by *Doya*, Sguazzin and Mongalvy (2018) published by Bloomberg, the Federal Minister of Finance of Nigeria Ms Kemi Adeosun, was quoted as saying that the reason for the failure of the regulation on gas flaring to achieve its intendment was an error in the law that referred to the gas flaring tax as a 'charge' rather than a 'penalty'. This error meant that any payment of the gas flaring tax by the oil and gas companies is further treated as a tax-deductible charge on the petroleum profit tax potentially causing loss of billions of dollars in revenue. But surprisingly this error has been there for decades and one wonders why such a loss causing error was not quickly amended or even why the courts were not approached to give legal interpretation to the law taking into cognizance the legal rule of interpretation of statutes that recognizes the wrong that the law intended to ameliorate. Alternatively, a supplementary regulation that gives incentive for investment in gas gathering infrastructure could also have been put in place. All these reveal the weakness in relying on oil and gas revenues to positively modify the behavior of the multinational companies towards environmental sustainability. The case of the negative contribution of gas to environmental sustainability in Nigeria is illustrated by the fact that between 2001 and 2016, there has been a 91.13% increase in gas production volume but only a 38.06% reduction in the volume of gas flared, and the fact that 14.33 % of the total gas produced in Nigeria is flared because of the lack of gas gathering facilities and infrastructure (Budgit, 2018).

### **3. Principles and Theory of Environmental Sustainability and Accounting**

The principles or factors supporting environmental sustainability were distilled by Morelli (2011) to include 1) Societal Needs; that is the imperative to produce goods and services that provide the needs of the society, provide local employment, support fair trade and improve the economy, 2) Preservation of Biodiversity; The use of raw materials and energy sources that are environmentally responsible and to invest in energy efficiency, 3) Regenerative Capacity; The use of renewable environmental assets in such a way to maintain their regenerative capacity and to use non-regenerative natural assets at rates that is lower than the rate of development of alternatives, and 4) Reuse and Recycle; The designing of manufacturing processes and business models that loops the waste materials for further production in such a way to reduce waste to zero or near zero. Solow (1992) theorized that the depletion or pollution of natural (environmental) assets should be accounted for as depreciation while the cost of remediation or abatement cost should be considered an investment in the natural resource. He advocated the use of measurement principles to determine and place a value on environmental assets which he classified into renewable and non-renewable assets. The sustainability component of renewable environmental asset is relatively high and can be achieved with or without human intervention hence these types of

environmental assets are also known as regenerative assets. On the other the sustainability component of non-renewable assets is quite low prompting Birkin and Woodward (1997) to argue that such assets, in the true sense, cannot be used sustainably. Gray (1990) argue that the neoclassical view of the firm that focus so much attention on profit and revenue maximization is implicated in the unsustainable use of environmental assets while advocating that those charged with the responsibility of managing non-renewable environmental assets have a responsibility to use it with care for the benefit of present and future generations. Although Solow agree that non-renewable environmental asset is like a fixed capital that diminishes (diminishing marginal productivity) with increasing usage, he however advocated that alternatives be sought that ensures that the social needs are met to maintain the productive capacity and welfare of the citizens. To achieve this possibility, Tietenberg (2006) cited by Dragulanescu and Dragulanescu (2013) argue that if the royalty paid for the exploitation of non-renewable natural resources is re-invested in renewable alternatives, then environmental sustainability can be attained. These arguments support the thesis of this study that oil and gas revenue when applied in the development of alternative revenue sources can lead to environmental sustainability.

#### 4 Materials and Methods

The data for the study was obtained from World Bank databases and supplemented by data from the *Annual Abstract of Statistics on Public Finances* of the Central Bank of Nigeria (CBN). Specifically, the data for Environmental Protection Index (EPI) was computed by the Yale University Center for Environmental Law & Policy and the Columbia University Center for International Earth Science Information Network. Environmental performance index (EPI) is a measure of the two dimensions impacting on environmental sustainability namely environmental health and ecosystem vitality. While the former measures the protection of human health, the latter measures the protection of the ecosystem. According to the Yale (2018) Environmental Performance Index Report, environmental health rises with economic growth and prosperity while ecosystem vitality is strained by industrial activities. Environmental sustainability is attained when high policy initiatives maintain a balance of the two. The proxy of environmental sustainability in this study is the natural log of the score of Nigeria in the EPI (*LnEPI*). The proxy for oil and gas revenue (*LnOilRev*) and tax revenue (*LnTaxRev*) was also computed from the data of oil and non-oil revenue respectively obtained from Central Bank of Nigeria Statistical Bulletin on Public Finances. The data covers the years 2005 to 2016 a period of 11 years. The Ordinary Least Square Multiple Linear Regression Model is then estimated with the *LnEPI* as the dependent variable and *LnTaxRev* and *LnOilRev* as the independent Variables. To control the effect of the interaction between the dependent and the independent variables, we introduced the natural log of Gross Domestic Product (*LnGDP*) which measure the output in the entire economy. The functional form of the model and the hypothesis is specified as follows:

$$LnEPI = \beta_0 + \beta_1 LnTaxRev + \beta_2 LnOilRev + \beta_3 LnGDP + \mu$$

H<sub>0</sub>: There is no significant relationship between environmental sustainability and tax and oil and gas revenues

#### 5. Result and Discussion

Table 1 Result of the OLS Regression Test of the Relationship between Environmental Sustainability and Tax, and Oil and gas Revenues

Dependent Variable: *LNNEPI*

Method: Least Squares

Date: 08/20/18 Time: 06:21

Sample: 2005 2016

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>C</i>	3.998894	1.186175	3.371250	0.0098
<i>LNTAX_REV</i>	0.215440	0.073826	2.918223	0.0193
<i>LNOIL_REV</i>	0.031265	0.039916	0.783277	0.4560
<i>LNGDP</i>	-0.072408	0.072568	-0.997794	0.3476
R-squared	0.870473	Mean dependent var		3.974401
Adjusted R-squared	0.821900	S.D. dependent var		0.084496
S.E. of regression	0.035659	Akaike info criterion		-3.568431
Sum squared resid	0.010172	Schwarz criterion		-3.406795
Log likelihood	25.41059	Hannan-Quinn criter.		-3.628274
F-statistic	17.92106	Durbin-Watson stat		1.522262
Prob(F-statistic)	0.000656			

Source: *Eviews* version 10

Test result shows that the model is robust and explains 87% of the variation in environmental sustainability and even when the R-squared was adjusted for the size of the sample it still returned a ratio of 0.82 or 82%. The result also shows an F-Statistic of 17.92 with a probability that this was due to chance of 0.0006. With this, the null hypothesis that there is no significant relationship between environmental sustainability and tax and oil and gas revenues is rejected and the alternative is accepted.

Furthermore, the result shows that tax revenue plays a significant role in ensuring environmental sustainability by suggesting that a marginal increase in tax revenue would increase environmental sustainability by 21% and this was significant at 5% level of significance with a p-value of 0.00098. However, marginal increase in oil and gas revenue could only result in a 3% increase in environmental sustainability and this result was not significant at both 5% and 10% levels of significance.

The negative coefficient of the control variable *GDP* seems to suggest that environmental sustainability impacts negatively on general economic growth. This result may be due to the sample size of the study generally. But the scrutiny of the data which was done by the testing of the each of the two independent variables separately was revealing. The summary of the test result is presented in Table 2 and Table 3 below:

Table 2 Result of the *OLS* Regression Test between Environmental Sustainability and Tax Revenue

Dependent Variable: *LNEPI*

Method: Least Squares

Date: 08/20/18 Time: 06:41

Sample: 2005 2016

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>C</i>	3.531896	1.003190	3.520666	0.0065
<i>LNTAX_REV</i>	0.178841	0.055917	3.198337	0.0109
<i>LNGDP</i>	-0.034156	0.052511	-0.650446	0.5317
R-squared	0.860540	Mean dependent var		3.974401
Adjusted R-squared	0.829548	S.D. dependent var		0.084496
S.E. of regression	0.034885	Akaike info criterion		-3.661206
Sum squared resid	0.010953	Schwarz criterion		-3.539979
Log likelihood	24.96723	Hannan-Quinn criter.		-3.706088
F-statistic	27.76721	Durbin-Watson stat		1.386910
Prob(F-statistic)	0.000141			

Source: Eviews Version 10

The result in Tables 2 above shows that tax revenue has a positive relationship with environmental sustainability but returned a negative relationship with the *GDP* suggesting that a marginal increase in tax revenue contributes to a 17.8% increase in environmental sustainability and only a 3.4% decrease in economic growth. On the other hand the result in Table 3 below shows that there is a negative relationship between environmental sustainability and oil and gas revenue that returned a positive *GDP* coefficient indicating that a marginal increase in oil and gas revenue will lead to a 4.2% decrease in environmental sustainability and a 13.1% increase in economic growth. This clearly shows the extent to which Nigeria currently rely on oil and gas revenue to drive economic growth which however is not environmentally sustainable. The result of this additional analysis clearly shows that while tax revenue increases environmental sustainability, the contrary holds for oil and gas revenue.

Table 3

Result of the *OLS* Regression Test of Environmental Sustainability and Oil and Gas Revenue

Dependent Variable: *LNEPI*

Method: Least Squares

Date: 08/20/18 Time: 06:38

Sample: 2005 2016

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>C</i>	0.867714	0.685060	1.266626	0.2371
<i>LNOIL_REV</i>	-0.042458	0.041864	-1.014197	0.3370
<i>LNGDP</i>	0.131453	0.026614	4.939165	0.0008
R-squared	0.732591	Mean dependent var		3.974401
Adjusted R-squared	0.673167	S.D. dependent var		0.084496
S.E. of regression	0.048306	Akaike info criterion		-3.010208
Sum squared resid	0.021001	Schwarz criterion		-2.888981
Log likelihood	21.06125	Hannan-Quinn criter.		-3.055090
F-statistic	12.32816	Durbin-Watson stat		1.553127
Prob(F-statistic)	0.002644			

Source: Eviews Version 10

### Conclusion and Recommendations

The model adopted to test the relationship between tax revenue and oil and gas revenue, and environmental sustainability is very robust and shows that tax revenue is more sustainable than oil and gas revenue. The result shows empirically that oil and gas revenue dependency contribute negatively to environmental sustainability and therefore contributes to the debate on the need to diversity the revenue source to the more sustainable tax revenue. The intensification of tax administration reforms that would impact positively on tax revenue collection as a deliberate measure to enhance environmental sustainability is therefore recommended. It is further recommended that appropriate government policy be enacted to require oil and gas companies to operate in a more sustainable manner to reduce the negative effect of oil and gas revenue on environmental sustainability. Particularly, the loophole being exploited by oil and gas companies to deduct the penalties paid for gas flaring from their ultimate petroleum profit tax liability be reviewed as soon as possible to help catalyze zero gas flaring. These measures when implemented are apt to improve Nigeria's environmental performance indices and lead to the attainment of a balance in the revenue mix which is necessary for the attainment of environmental sustainability.

### References

- Agburuga, Uche T. (1998) *Social and Environmental Disclosures in Annual Reports In Nigeria* Unpublished MBA Thesis in Rivers State University of Science and Technology, Port Harcourt
- Agburuga, Uche T. (2005) "Accounting Issues in Corporate Social Responsibility for the Environment". *Journal of Environmental Management & Education* Vol.2 Nos. 1 & 2 pp 1-5
- Agustina, Cut Dian R.D; Javier Arze del Granado; Tim Bulman; et al ( 2008) "Black Hole or Black Gold? The Impact of Oil and Gas Prices on Indonesia's Public Finances". The World Bank Policy Research Working Paper 4718 September pp 1-35
- Budgit (2018) *Gas Flaring, A Real and Present Danger* <http://yourbudgit.com/wp-content/uploads/2018/04/Gas-flaring-new2.compressed-1.pdf> Accessed July 27, 2018
- Brundtland Report (1987) "From One Earth to One World." *Our Common Future*: Report of the World Commission on Environment and Development.
- Doya, David Malingha; Antony Sguazzin and Sophie Mongalvy (2018) "Gas Flaring Law Error Cost Nigeria Billions of Dollars" Bloomberg LP (US) January 29 Accessed July 26, 2018. <https://www.bloomberg.com/news/articles/2018-01-29/gas-flaring-law-error-cost-nigeria-billions-of-dollars>
- Dragulanescu, Irina-Virginia and Natalia Dragulanescu (2013) "Some Theories of Environmental sustainability". Romanian Statistical Review nr. 12 Accessed July 29, 2018 [http://www.revistadestatistica.ro/wp-content/uploads/2014/04/RRS\\_12\\_2013\\_A1\\_en.pdf](http://www.revistadestatistica.ro/wp-content/uploads/2014/04/RRS_12_2013_A1_en.pdf)
- Goodland, R. (1995) "The Concept of Environmental Sustainability." *Annual Review of Ecological Systems* 26: 1-24.

- Friedman, M., *Capitalism and Freedom* Phoenix Books University of Chicago Press Chicago 1963.
- Levitt, T., (1958) “The Dangers of Corporate Social Responsibility”. *Harvard Business Review* September-December.
- Morelli, John (2011) "Environmental Sustainability: A Definition for Environmental Professionals" *Journal of Environmental Sustainability*: Vol. 1: Iss. 1, Article 2. DOI: 10.14448/jes.01.0002 Available at:<http://scholarworks.rit.edu/jes/vol1/iss1/2>
- NEITI (2018) *Review of Three Years of NNPC's Financial and Operations Report*
- Robinson, John. (2004) “Squaring the Circle? Some Thoughts on the Idea of Sustainable Development.” *Ecological Economics* 48 p 369-384
- Sethi, P. S., (1975) “Dimensions of Corporate Social Performance: An Analytical Framework”. *California Management Review* Vol.XVIII Spring.
- Solow, R. M. (1992) *An Almost Practical Step toward Sustainability*. Resources for the Future, Washington D. C.
- Tietenberg T. (2006). *Economia dell'Ambiente*, McGraw-Hill, Milano
- Welford, R., (1995) *Environmental Strategy and Sustainable Development*. Routledge London.
- Yadav, Rambalak and Govind Pathak (2014) “Environmental Sustainability Through Green Banking: A Study on Private and Public Sector Banks in India” *OIDA International Journal of Sustainable Development*, Vol. 06, No. 08, pp. 37-48, 2013 Available at SSRN: <https://ssrn.com/abstract=2385573>
- Yale (2018) Environmental Performance Index Report <https://epi.envirocenter.yale.edu/node/36476> or <https://epi.envirocenter.yale.edu/epi-downloads> Accessed August 3, 2018.