Gusau Journal of Economics and Development Studies (GUJEDS), Vol 5 (1), May, 2024
ISSN: 3027-1126 (Online); 2786-9695 (Online)
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GUSAU JOURNAL OF ECONOMICS AND DEVELOPMENT STUDIES (GUJEDS)

A Bi-annual Publication of the Department of Economics, Federal University Gusau, Zamfara State - Nigeria

Vol. 5 (1) May 2024

©Gusau Journal of Economics and Development Studies (GUJEDS), 2024

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ISSN: 2786-9695

Published by:
Department of Economics,
Federal University Gusau,
Zamfara State – Nigeria

Printed by:
Ahmadu Bello University Press Limited, Zaria,
Kaduna State, Nigeria. Tel.: 08065949711
E-mail: abupress2020@yhoo.com
abupress2013@gmail.com
Website: www.abupress.com.ng

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Gusau Journal of Economics and Development Studies (GUJEDS), Vol 5 (1), May, 2024
ISSN: 3027-1126 (Online); 2786-9695 (Online)
©Authors
DOI: https://doi.org/10.57233/gujeds.v5i1.05

FISCAL POLICY ON ECOLOGICAL FOOTPRINT IN NIGERIA: AN EMPIRICAL INVESTIGATION

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ABSTRACT

In recent times, the challenges of government policy formulation to achieve desired objectives and maintaining a sustainable environment without inhibiting human well-being is still an issue of debate among scholars in the literature. Many factors have been identified as culpable of environmental humiliation, but the government policy as a factor is more often than not ignored. However, the government formulates policies most especially fiscal policy that involve the collection of revenue through taxation and expenditure on infrastructural facilities, industrialization, mechanization, urbanization, etc to achieve sustained economic growth without recur to the effect of the policy on ecological footprint and its effects on human well-being in the society. Thus, this study uses the ARDL econometric approach on annual time series data extending from 1981 to 2022 to investigate the effect of fiscal policy on the ecological footprint in Nigeria. The variables used in the study include ecological footprint proxied by comprehensive measures of environmental degradation (dependent variable), government tax revenue and expenditure (independent variable), population, and technological changes proxied by industrial activities are the control variables. The study's findings indicate that fiscal policy variables are both positively and negatively related to ecological footprint and are statically significant. Specifically, government tax revenue reduces ecological footprint while government expenditure escalates the environmental degradation in Nigeria during the period under review and they are all significant statistically at 1% and 5% respectively. Considering these results, the research concludes that fiscal policy formulation has a noteworthy effect in determining changes in the ecological footprint in Nigeria. Given the effect of tax and government spending policy on infrastructure and industrialization, the government should formulate policies that are environmentally friendly and increase budgetary allocation to control and manage environmental challenges that inhabit the well-being of the citizens. By implication, the economic growth policy which invariably leads to ecological footprint challenges should be properly looked at to reduce ecological footprint in Nigeria.

Keywords; Fiscal Policy, Ecological Footprint, Population Changes, and Technological Changes

1. Introduction

Achieving sustainable economic growth and development and maintaining a sustainable healthy environment without inhibiting human well-being have been major goals and objectives of every developing economy and Nigeria inclusive. The achievement of these goals has always been a top concern for policymakers in any economy since macroeconomic indicators are vulnerable to changes in the overall state of the economy. These objectives must be realized by policy direction; they are not automatic (Omitogun and Ayinla, 2007). One of the three macroeconomic tools that a government utilizes to accomplish these objectives is fiscal policy. The other two are monetary and trade policy. The government uses these regulations in conjunction with other policies to control and regulate other macroeconomic variables to accomplish long-term sustainable economic expansion and development without affecting the ecological footprint of the citizens of the country. "Fiscal policy, especially taxes and government spending, can be used to correct imbalance in an economy," according to Keynes (1936) specifically to promote economic growth that will enhance the well-being of the citizens and discourage any activities that could be detrimental to the environment.

Fiscal policy in the broad sense refers to the realm of government policy that deals with determining the amount and pattern of spending to influence economic activity, as well as collecting income through taxes and other sources. It is a strategy by which the government directs its income and spending initiatives to achieve desired results and prevent adverse effects such as the effect on the ecological footprint on the economy. In any economy, achieving full employment, cortaining inflationary pressures, lowering the balance of payments deficit, and, most importantly, preserving economic equilibrium are the basic goals of fiscal policy without degradation of the environment (Anyanwu and Oaikhenan, 1995).

Attainment of long-term expansion of the economy and development which is the main goal of fiscal policy requires expansion in the level of output to increase the national income. Output expansion is a function of an increase in an economy's degree of productivity which involves expansion in the degree of industrialization, urbanization, increase in energy consumption, and mining of natural resources which result in environmental deterioration and ecological footprint.

Growth in the economy leads to a rise in waste generation, which affects climate change and environmental deterioration. The ecological footprint used in this study is a rather complete indicator of environmental deterioration that considers every aspect of the environment and includes built-up land, greenhouse gas emissions, agricultural land, grazing areas, fisheries, and forest products (GFN, 2020).

The amount of land and ocean required to support a person's or a community's use of natural resources is known as an ecological footprint. It is a measure of that influence on the environment. It is a gauge of how much demand there is for natural resources compared to how easily the planet can replenish those resources. It is computed to show how much land and sea area also referred to as bioproductive area would be needed to support present consumption. It is also based on consumption over a given year. An ecological footprint is a way to measure how natural resources and lifestyles are used and compared to the capacity of nature to sustain them. After an ecological survey, footprint values are classified according to carbon, food, housing, goods, and services, along with the total number of planets required to support the global population at that level of consumption. (Ahmed, 2020).

However, in most developing countries like Nigeria, policy formulation especially, fiscal policy to achieve certain objectives and the consequence or spill-over effect of it on the environment and well-being of people appeared to have received inadequate required attention in the literature which is an issue of concern to the policymakers and the general public at large. As an instrument of fiscal policy, taxes may also encourage drivers of public taxes that favourably impact the quality of the environment while increasing energy consumption's efficiency (Liu et al., 2017; Dongyan 2009 & Balcilar et al. 2016). Most governments of developing economies, in the discharge of their expenditure rite which includes, infrastructure development such as the construction of roads, dams, bridges, electricity and building hospitals and schools, government policy on industrialization, mechanization, and urbanization to achieve the goal of economic growth and sustainability, little or no attention is given to the repercussions of this policies on the environment and its effects on citizens' well-being or dueller of that environment. An increase in industrialization, mechanization, urbanization, and infrastructural development, to achieve economic growth and development, will lead to a rise in the

ecological footprint of society and environmental damage.

The connection between environmental degradation and economic growth has been the focus of many research (Burciu et al., 2010; Bostan, 2016; & Bostan et al., 2010). In a similar vein, other researchers have also explored the relationship between private and public expenditure and environmental degradation (Adewuyi, 2016; Xie and Wang, 2018 & Vasilev, 2019). Others are fiscal decentralization and ecological footprint by Zahra and Badeeb, 2022, financial development and ecological footprint by Zakaria & Bibi, 2019. To the best of the researchers' knowledge, no research has been done on the connection between ecological footprint and fiscal policy or on a more thorough analysis of environmental deterioration in developing nations such as Nigeria. For this reason, the paper adds to the literature. The remaining part of the study is arranged as follows: section two discusses some relevant literature while three provides the study's methodology, section four contains analysis, interpretation, and discussion of the result, while the last section of the study contains conclusion and recommendation of the study.

2. Literature Review

An ecological footprint is the product of numerous human actions to make a livelihood that results in the loss of ecosystems, species expansion, weather variations, and the depletion of natural resources, all of which worsen the quality of the environment (Majeed & Mazhar, 2019). This dominates debate among policymakers and researchers alike in the area of environmental sustainability. The study's theoretical framework primarily depends on two theories, the environment Kuznets curve (EKC) and ecological modernization/transition theory. According to the EKC, environmental degradation occurs throughout the early phases of economic growth, but at a certain point, society starts to mend its connection with the environment, which inturn reduce negative effect on the environment. So the relationship between affluence and environentatl degradation is resemble U shaped curve.

The ecological modernization or transition hypothesis states that, as economies go from a low to a middle stage of development, growth and expansion take precedence over environmental damage. But as modernization progresses, the emphasis shifts to environmentally friendly growth, sustainable development, technology advancements, and a service-based economy. all of which help to slow down environmental deterioration. Comparably, the theory of environmental

transition asserts that economies moving toward industrialiation, environmental pollution becomes more because, they require more energy and urban infrastructure. Nonetheless, when economies or cities grow more affluent and undergo quick growth, they make an effort to improve their relationship with the environment by advancing technology, tightening environmental regulations, and changing the structure of the economy ultimately lessening environmental degradation.

Fiscal policy and ecological footprint is an area that has not gotten as much attention in studies, particularly in the area of environmental sustainability. There are studies on related areas such as fiscal decentralization and ecological footprint Zahra and Badeeb (2022), Qiao et al. (2022) and Liu and Li (2019), financial development and ecological footprint (Tariq and Maria, 2019), Moghadam & Dehbashi (2018) for Iran, Mesagan & Nwachukwu (2018) for the Nigerian economy. Similarly, panel data from South Asian economies were utilized in Ganda's (2019) study from OECD economies, similar to Zakaria & Bibi's (2019) and Bloach et al. (2019), and for fiscal policy and ecology we have studies like (Zahra, Khan & Nouman, 2022). The findings of most of these studies are that ecological footprints are affected negatively.

Utilizing annual data spanning from 1976 to 2018, Zahra, Khan, and Nouman (2022) examined the long-term effects of fiscal policy on the ecological footprint in Pakistan while taking other socioeconomic aspects into account. According to the study, a rise in public development spending results in an increase in Pakistan's ecological footprint of the country's total population, GDP, and energy consumption, respectively. On the other hand, a rise in public current spending (health, education, and social sectors), tax and non-tax revenue will, over time, reduce Pakistan's ecological footprint. The study recommended that the overall amount of public expenditures be increased to include a larger portion of present public spending as well as spending on social sectors including education, health, environmental control, and safety as well as significant social sectors.

Similarly, Zahra and Badeeb (2022) investigate the asymmetric short and long-term effects of fiscal decentralization, renewable energy, and unpredictability in economic policy on ecological footprint-based environmental sustainability. The study discovered that ecological footprint reacts asymmetrically in the short and long terms to both positive and negative fiscal

decentralization using the Nonlinear Autoregressive Distributed lag (NARDL) technique in five chosen OECD nations. However, each country's response differs greatly from the other. The finding also implies that, except for Canada, green energy has a significant role in lowering the country's ecological footprint. Lastly, while it is negligible in Australia and Canada, economic policy uncertainty has a negative and substantial impact on the ecological footprint in the UK, the USA, and Germany.

In eight Asia-Pacific Economic Cooperation (APEC) member nations, Qiao et al. (2022) studied how environmental quality is impacted by energy use, technological advancement, fiscal decentralization, economic growth, and globalization. Furthermore, the study examines how technical innovation and economic development are used by fiscal decentralization to impact the ecological footprint (EF). This study used the CS-ARDL approach for both short- and long-term studies that address cross-sectional dependency and slope heterogeneity, using the STIRPAT framework. The empirical findings demonstrate that technical innovation and fiscal decentralization reduce the ecological footprint, but urbanization, energy consumption, and economic development have a detrimental effect on environmental quality. However, in the sample economies, there is no correlation between the EF and economic globalization. The findings also show that while FD does not affect EF through the channel of economic growth, it does improve environmental quality through technical innovation. Lastly, it is suggested to optimize the environmental system and rationally divide the rights and obligations of local and federal governments concerning managing environmental pollution. Policymakers should promote technological innovation at the same time mitigate the negative environmental effects of economic growth and energy use.

Tariq and Maria (2019) employed a panel of 131 countries and pooled ordinary least squares (OLS) to investigate the relationship between the ecological footprint and the environmental effects of financial development between 1971 and 2017. The results show that by reducing ecological footprints, all financial development metrics, domestic credit from banks to the private sector, domestic credit from the financial sector, and domestic credit to the private sector itself considerably improve environmental quality. Compared to other indicators of financial growth, domestic credit has a greater impact on the private sector. In the

same way, a notable decline in the ecological footprint has coincided with urbanization. On the other hand, environmental quality is deteriorated by increasing energy use, FDI, GDP per capita, and ecological footprint. The "pollution haven hypothesis" for the world economy is also supported by the study. The conclusions have worldwide ramifications. Globally speaking, the finance industry may help with environmental conservation initiatives. The study recommends a strong financial system development to reduce the ecological footprint in society. Going by the available literature to the best of our knowledge, there is very scanty or viewed research on fiscal policy and ecological footprint which suggests that, more research is required in the area.

3. Methodology

The study investigates the effect of fiscal policy on ecological footprint in Nigeria employing annual time series data from 1981 to 2022. The variables of the study are comprehensive measures of environmental degradation proxied by ecological footprint (dependent variable) and fiscal policy variables which are tax revenue, and government expenditure (independent variables), while population changes and economic growth captured by real gross domestic product (RGDP) represent control variables in the model. Ecological footprint and population changes were sourced from the World Development Indicator, 2023 while the remaining variables were sourced from the National Bureau of Statistics (NBS) and Central Bank of Nigeria (CBN) statistical bulletins, 2023. Following the model specification of Zahra et al., (2022); Destek & Sarkodie, (2019), and Bloach et al., (2019), In line with Bloach et al. (2019), the study uses the ecological footprint as a comprehensive indicator of environmental degradation, using the standard empirical approach. The functional, mathematical, and econometric model form is given as follows:

$$EFP = F(GTR, GTE, POP\ and\ GDP) - -(1)$$

From equation one above, the mathematical relationship of the variables is given as;

$$EFP = (\beta GTR + \beta GTE + \beta POP + \beta GDP) - - - - - - - -(2)$$

Transforming equation two into an econometric model, it becomes;

$$EFP = \alpha_0 + \beta_1 GTR + \beta_2 GTE + \beta_3 POP + \beta_4 GDP + \varepsilon - - - -(3)$$

Where;

$EFP = Ecological\ FootPrint$

$GTR = Government\ Taxes\ Revenue$

$GTE = Goverrnment\ Total\ Exenditure$

$POP = Population\ Changes$

$GDP =$
$Real\ Gross\ Domestic\ Product\ (RGDP)$
$\varepsilon = Error\ term$

$\beta_1, \beta_2, \beta_3, and\ \beta_4$ are the independent variable's coefficients that need to be estimated. The a priori expectation of the independent variables except population changes is that they are expected to have an asymmetric effect on the dependent variable that is (EFP), while population changes should be positively correlated with EFP Variable all things be equal $i.e\ \ \beta_1, \beta_2, and \beta_4, <> 0\ \ while\ \beta_3, > 0.$

The study uses Pesaran and Shin's (1999) Autoregressive Distributed Lag (ARDL) approach, which was expanded upon by Pesaran, Shin, and Smith (2001), to ascertain the link between fiscal policy factors and ecological footprint over the period under review. The ARDL method is applicable given that all of the variables' integration orders are I(0) and I(1) i.e. are mixed. This approach is superior to other types of cointegration approaches because it has a single equation setup that is simple to understand. The variables used in the model can be assigned different lag lengths.

The long-run unconstrained ARDL model and the dynamic short-run model are described as follows:

$$\begin{aligned}\Delta[(lnEFP_t)] = {} & \beta_0 + \beta_1(\ln EFP_{t-1}) \\ & + \beta_2 \ln(GTR_{t-1}) \\ & + \beta_3(GTE_{t-1}) \\ & + \beta_4(POP_{t-1}) \\ & + \beta_5(GDP_{t-1}) \\ & + \sum_{i=1}^{p} \alpha_1\, \Delta \ln(EFP_{t-1}) \\ & + \sum_{i=1}^{m} \alpha_2\, \Delta \ln(GTR_{t-1}) \\ & + \sum_{i=1}^{n} \alpha_3\, \Delta In(GTE_{t-1} \\ & + \sum_{i=1}^{n} \alpha_4\, \Delta In(POP_{t-1} \\ & + \sum_{i=1}^{n} \alpha_5\, \Delta In(GDP_{t-1} + \varepsilon_t\end{aligned}$$

Similarly, the model for error correction is defined as follows:

$$\Delta[(lnEFP)] = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta \ln(EFP_{t-1}) + \sum_{i=1}^{m} \alpha_2 \Delta \ln(GTRecm_{t-1} + \sum_{i=1}^{n} \alpha_3 \Delta(GTE)ecm_{t-1} + \sum_{i=1}^{n} \alpha_4 \Delta POPecm_{t-1} + \sum_{i=1}^{n} \alpha_5 \Delta GDPecm_{t-1} + \sum_{i=1}^{n} \alpha_6 \Delta Recm_{t-1}$$

4. Results and Discussions

4.1 *Econometric Analysis*

The study's stationarity was assessed using Phillips Perron (PP) and Augmented Dickey-Fuller (ADF) to prevent spurious regression. Table 1 displays the unit root results.

Table 1: Stationarity Test Result

	ADF		PP			
Variables	Level	1st diff	Level	1st diff	Order of Integration	Remarks
EFP	1.1726	-6.1632***	1.1605	-6.1801***	I(1)	Stationary
GTR	-0.8743	-7.8056***	-0.6257	-7.7398***	I(1)	Stationary
GTE	-1.0689	-7.5821***	9.8872	-3.5580***	I(1)	Stationary
POP	-2.1871	-4.3657***	-2.4166	-4.3657***	I(1)	Stationary
GDP	-3.2287**	-10.529***	-4.3625***	-10.928***	I(0)	Stationary

Source: Researchers' computation (2023) using E-view 9
Notes: Significance is indicated by ***' ** and * at 1%, 5%, and 10%, respectively. L stands for logarithm, and Lag length is measured by the use of SIC.

Except for GDP or the gross domestic product growth rate, all of the variables in Table 1 have unit roots, indicating that they are not static at levels. This suggests that the variables under study have an I(0) and I(1) mixing order of integration. The mixed order of integration of the variables necessitate the use ARDL econometric technique.

Cointegration Test

After determining the properties of the variable used, the ARDL Bound Test is then be used to ascertain if the variables are in a long-term equilibrium. Table 2 displays the ARDL Bound test results.

Table 2: ARDL Test Result

Test Statistic	Value	K
F-statistic	5.8519	4
Critical Values		
Significance	I(0) Bound	I(1) Bound
10%	2.2	3.09
5%	2.56	3.49
1%	3.29	4.37

Source: Researchers' computation (2023) using E-view 9

Table 2 reveals that the ARDL bound test result for cointegration shows that, at a 1% significant level, the computed F-statistics (5.8519) exceeds both the upper and lower bound. This suggests that the variables are cointegrating.

Lag Length Selection Criterion

Table 3: Lag Length Criterion Result

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-173.1468	NA	0.006386	9.135731	9.349008	9.212253
1	18.43702	324.2187*	1.26e-06*	0.592973*	1.872636*	1.052105*
2	41.42944	33.01475	1.49e-06	0.695926	3.041975	1.537668
3	62.34155	24.66556	2.20e-06	0.905562	4.317996	2.129914

Source: Researchers' computation (2023) using E-view 9

Table 3 presents the result of the lag length selection. The result indicates that lag one (1) was selected by all the criteria that is, LR, FPE, AIC, SC, and HQ respectively

ARDL Estimation Results

The study's long- and short-run coefficient estimates for the dependent and independent variables were presented in this section. The coefficient's short- and long-term estimates are shown in Table 4 Panels A and B.

Table 4: Short and Long Run Results

PANEL A: Cointegrating Form (Short Run Estimates)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGTR)	-0.287623	0.098705	-2.913965	0.0064
D(LGTE)	0.163051	0.107635	1.514852	0.0393
D(RGDP)	0.035018	0.005812	6.025657	0.0000
D(POP)	0.680577	0.607296	1.120668	0.2705
ECT-1	-0.080167	0.013125	-6.108080	0.0000
Cointeq = EFP - (-2.1136*LGTR + 2.9449*LGTE + 0.1688*RGDP + 16.4763 *POP -43.2007)				

PANEL B:	**(Long Run Coefficients)**			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGTR	-2.113574	1.943258	-1.087645	0.0246
LGTE	2.944882	2.174532	1.354260	0.0149
RGDP	0.168846	0.230724	0.731807	0.4695
POP	16.476294	8.965730	1.837697	0.0751
C	-43.200675	25.078535	-1.722616	0.0943
R^2	0.987958	Mean Dep. Var		5.501939
Adj. R^2	0.985403	S.D. Dep. Var		1.365153
S.E. of reg.	0.164934	AIC		-0.593366
SSR	0.897704	SC		-0.259010
Log-likelihood	20.16400	HQ		-0.471612
F-statistic	386.7622	DW		1.938196
Prob(F-statistic)	0.000000			

Source: Researchers' computation (2023) using E-view 9

Table 4 panel A presents the result of the short-run estimation of the variables used in the study. The coefficients of all the variables are rightly signed in terms of signs and magnitude according to a priori expectation. Specifically in the short run, the coefficient of government tax revenue (GTR) is negatively related to the dependent variable ecological footprint (EFP) and statistically significant at 1%, which implies that a 1% increase in GTR will result in a 0.28% decrease in ecological footprint. The policy implication of this finding is that, though taxes can accelerate proficiency of energy consumption, taxes manifest into government revenue which in the long run spent to control environmental degradation, hence reducing in ecological footprint in the country and at the same time ecological tax which is part of taxes revenue is meant to discourage environmental degradation.

Government total expenditure (GTE) unlike, GTR is positively related to the ecological footprint (EFP) and is statistically significant at 5%. This means that an increase in government expenditure escalates EFP that is, there will be a 0.16% increase in EFP for every 1% increase in government spending. This is also true given the fact that in developing economies like Nigeria, the government spends on infrastructure, industrialization, and urbanization to promote economic growth at an early stage, which may increase the ecological footprint. Economic growth and population changes as indicated in the result are positively related to EFP according to a priori expectation. While GDP is statistically significant, population changes are not.

Similarly, the result of long-run estimates in Table 4, panel B indicates that all the variables behave the same way as in the

short run in terms of coefficient, signs, and magnitude except RGDP which is not statistically significant. The ECM (-0.080) is negative and statistically significant at 1% (0.000) according to a priori expectation. The R^2 and adjusted R^2 which explain the joint significance of independent variables are 98% and 98% respectively. This implies that the model does not suffer specification bias and 98% of changes in dependent variables are caused by all independent variables. Only 2% of changes in the dependent variable are explained by the error term. The findings of the study are in line with the studies of Zahra et al. (2022), Yuelan et al. (2019) and Muhafidin (2019).

Diagnostics Test Result

The study used several diagnostic tests, including the Heteroscedasticity test (Breusch-Pagan-Godfrey), Serial Correlation (Breusch-Godfrey LM Test), Normality test (Jaque-bera (JB)) for normal distribution of error or residuals, and Model specification test using Ramsey RESET Test, to assess the adequacy of the estimates. The diagnostic test results are shown in Table 5.

Table 5: Results of ARDL Diagnostic Tests

Tests	Coefficient	Prob. Value
Normality	3.2132	0.2005
Serial Correlation	0.2879	0.2055
Heteroskedasticity	0.3718	0.3419
Specification Error	0.3536	0.5562

Source: Researchers' computation (2023) using E-view 9

Table 5 reveals the results of the ARDL diagnostic tests which shows that, the Jarque-Bera tests for normality reports 3.2132 and it associates probability value of (0.2005) passed the normal distribution test because the Jarque-Bera probability values are not significant at all levels. Therefore, the model's error term has a normal distribution during the study period. The results of Serial Correlation (Breusch-Godfrey LM Test) indicate the absence of the serial correlation or no autocorrelation as the F-statistic is not significant as indicated by a probability value of (0.2055) and coefficient of 0.2879 which means the effect of previous period does not affect the present situation. Besides, the results of heteroskedasticity, also show the F-statistics is not, at the 5% level, statistically significant, with a probability value of (0.3419) this signifies that there is zero mean and constant residual. Therefore, the model is free from the heteroskedasticity problem. Meanwhile, the results of

Ramsey's (1969) Reset test of Misspecification of the F-statistic is not also statistically significant indicated by a p-value of (0.5562) with a coefficient of 0.3536. As expected the test result is considered meaningful because the p-value is not significant at any level of significance and it implies that the residuals in the models are free from any diagnostic problems.

Ordinary Least Square (OLS) for Robustness Check Result

Table 6: OLS Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGTR	-0.542684	0.353085	-1.536977	0.0328
LGTE	1.019941	0.363963	2.802320	0.0080
RGDP	0.045902	0.019607	2.341071	0.0247
POP	7.181690	1.425687	5.037354	0.0000
C	-16.62885	3.818113	-4.355254	0.0001
R^2	0.835999	Mean Dep. Var		5.477484
Adj. R^2	0.818270	S.D. Dep. Var		1.357685
S.E. of reg.	0.578779	AIC		1.855552
SSR	12.39445	SC		2.062417
Log-likelihood	-33.96658	HQ.		1.931376
F-stat.	47.15222	DW Stat.		0.944446
Prob(F-statistic)	0.000000			

Source: Researchers' computation (2023) using E-view 9

The result of OLS estimates in Table 6 corroborates the findings of the study using the ARDL econometric technique. Given the statistical significance of all fiscal policy variables, the study therefore concludes that fiscal policy demonstrates both positive and negative significant effects on the ecological footprint in Nigeria.

5. Conclusion and Policy Recommendations

The paper investigates the impact of fiscal policy on the ecological footprint in Nigeria utilizing annual time series data covering the period from 1981 to 2022. The study adopted the ARDL econometric model to analyze the data. The findings of the study indicate that fiscal policy variables are both positively and negatively related to ecological footprint and are statically significant. Specifically, government tax revenue reduces ecological footprint while government expenditure escalates the environmental degradation in Nigeria during the period under review and they are all significant statistically at 1% and 5% respectively. Based on these findings, the study concludes that fiscal policy variables that I; public expenditure, tax revenue, and other control variables; economic growth, and population changes have a significant

effect in determining changes in the ecological footprint in Nigeria.

The paper centres on the appealing and useful fiscal policy relevance to meet environmental objectives in Nigeria for policy implications and suggestions. Since it was found that government taxes including ecological tax reduce the ecological footprint, it recommended that the government should sustain the tax net increase on the tax base, and ensure that a reasonable part of the revenue from taxes is used to control environmental degradation to achieve a health-free environment. Similarly, the government should increase its budget allocation and focus its expenditure on how to control environmental challenges by formulation of policies that are environmentally friendly concerning industrialization, urbanization, and technological development to achieve the set target in Nigeria.

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