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Harnessing Green Taxation for Innovative Strategies towards boosting Circular Economy Performance in Nigeria

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Abstract **Original Research Article**

This study examines whether green taxation can be harnessed to advance innovative strategies, including resource efficiency, innovative product design, product life extension, and waste management, to boost the performance of the circular economy (CE) in Nigeria. It adopted a descriptive survey design, using a self-designed questionnaire administered on 400 randomly selected individuals online. Responses were analysed using descriptive statistics as well as inferential statistics. The study found that green taxation exerted a significant effect on increasing the performance of the CE. The findings of individual proxies of CE show that green taxation exerted significant effect of each of resource efficiency, innovative product designs, product life extension, and waste management. The findings are supported by earlier literature and validate the proposition of the Ecological Modernisation Theory in the developing economy context. Among others, the study recommends that green taxation should be established as a major fiscal policy instrument; that is green taxes be treated as dedicated taxes whereby revenue from such taxes as applied solely towards CE infrastructure. The mindset of the tax authority should be reoriented towards behavioural change, over revenue generation. There should be effective coordination between the environmental regulatory authorities and the tax authorities to align tax incentives and penalties with environmental norms.

Keywords: Circular economy performance, Green taxation, Product innovation, Resource efficiency, Waste management.

1. Introduction

Global environmental concerns on sustainable development issues like the circular economy have raised fears relating to the consequences of not controlling human activities on the ecosystems. There is therefore a need for urgent action to lessen the impacts of environmental harm. On this note, the issue of circular economy (CE) has become an essential strategy for ensuring sustainable development. The CE

emphasizes minimization of waste generation, ensuring efficiency in resource usage towards sustainable development. It aims at reducing human pressure on the environment, resulting from the traditional linear production models. Transition to CE is increasingly becoming crucial as resource consumption rises globally, with forecasts showing expected increase in resource usage, GHG emissions, pollution, biodiversity loss, and other social hazards (Svatikova *et al*., 2025).

Green taxation is considered a potential strategy to meet these challenges. Green taxation is an eco-friendly fiscal policy intended to encourage sustainable behavior, while discouraging environmental-damaging activities. The effects of these environmental taxes span throughout the product lifecycle. It may encourage manufacturers to choose innovative product designs that boost longevity, encourage recycling, and facilitate remanufacturing. Similarly, it has a tendency of inducing consumers to opt for durable items and encourage repair and reuse initiatives. Green taxation may also induce the adoption of resource-recovery technologies and reduced landfill usage.

Problem of the Study

Despite empirical evidence across the globe testifying that green taxation has the tendency of inducing greener production, resource usage efficiency, as well as waste reduction, persistent waste generation, and low adoption of circular practices still persist in Nigeria (Akanji, *et al*., 2023; Ogunseye, *et al*., 2024). The current fiscal framework still encourages linear production activities like material mining and disposal-driven consumption, thereby environmentally destructive activities are hardly taxed (Ogunseye, *et al*., 2024). Furthermore, weak institutional framework for enforcement, low public awareness, and insufficient green investment lessen the effectiveness of green taxes. Therefore, the extent to which how green taxation can be harnessed to induce resource efficiency, innovative product design, product life extension, and waste management practices within the context of the CE in Nigeria is still unclear. This study therefore aims at addressing this gap in the context of Nigeria, a developing economy.

This study, therefore, set to examine the extent to which green taxation can be harnessed to boost the performance of the CE in Nigeria. The sub-objectives set are to examine whether green taxation can be harnessed for innovative production, resource efficiency, product life extension, and waste reduction, with a view to boost the performance of the CE in Nigeria.

Contribution to Knowledge

The study contributes to the circular economy research. Particularly, it demonstrates how green taxation significantly improves waste management techniques, fosters innovative product design, supports product life extension, and enhances resource efficiency through lean production. This multidimensional analysis directly responds to calls for better empirical clarity on the operational link of environmental policy instruments to cleaner production outcomes.

The study also adds to the body of knowledge by offering empirical data from a developing country on how green taxation can improve circular economy (CE) performance. This is can therefore complement the previous empirical studies that focused on developed economies.

From a theoretical point of view, the findings validate the basic predictions of Ecological Modernisation Theory (EMT) in relation to environmental fiscal policy. The findings show that green taxes encourage businesses to internalise environmental externalities and embrace eco-efficient technology and manufacturing methods by acting as a tool for behavioural change and innovations. This validates EMT's focus on how technical innovation, institutional reform, and fiscal incentives drive environmental benefits, especially in manufacturing processes.

Additionally, the paper offers an extensive analytical framework that uses several mediating factors to connect environmental taxation to cleaner production-oriented CE performance. Future studies investigating the creation and application of environmental fiscal tools to facilitate sustainable transitions across sector and

national contexts can benefit from this framework.

2. Literature Review

2.1 Conceptual Review

The Circular Economy (CE) refers to a sustainable economic model that targets waste minimization and resource efficiency by closing the product lifecycle loop through improved practice of reuse, repair, refurbishment, and recycling (4 Rs). The transition towards a CE is therefore considered imperative for the advancement of sustainable development (Agbetunde *et al*., 2025).

Green taxation (also called ecological or environmental taxation) generally means apportioning a cost reflecting the environmental impact caused by production, use and waste of a certain product, during its entire life cycle (Agbetunde *et al*., 2025). The increased use of green taxation has shown positive results in some countries through a shift from labor taxation towards pollution or resource-use taxation. Green taxation can lead to technological modernization and a shift in consumer behavior at different levels and across nations.

Green taxes aim to deter environmental harm by imposing costs on natural resource usage. For instance, taxing fossil fuel combustion in power plants addresses acid rain and environmental damage. Increased motor fuel taxes could promote the adoption of energy-efficient vehicles or reduced usage. Taxing landfill waste disposal could encourage recycling and alternative waste management, potentially lessening overall waste production.

According to the economic theory, the imposition of taxes on pollutant emissions is an effective mechanism for mitigating environmental degradation in a cost-efficient manner, as it incentivizes behavioral modifications among firms and households that possess the capacity to diminish their pollution levels at minimal cost.

While the original purpose of revenue generation remains, green taxes also contribute to comprehensive tax restructuring to promote sustainable development, economic growth, job creation and equitable economic relations globally (Yang *et al*., 2024). Green taxes are justified economically, socially and environmentally as they target "bads" rather than "goods."

Nonetheless, critics still assert that green taxes disproportionately burden lower-income individuals. For instance, a household energy tax would increase heating and lighting costs, making it challenging for low-income households to afford energy-efficient investments. The regressive effect increases if green taxes substitute for income and profit taxes, which many lower-income individuals do not pay. It is also argued that emission reduction subsidies do not yield the same outcomes as emissions taxes. Such subsidies may enhance the advantages for subsidized groups, potentially increasing the number of polluters while achieving no net reduction in emissions.

2.2 Theoretical framework

The Ecological Modernisation Theory (EMT) developed by Joseph Huber formed the basis for this study. According to the theory, contemporary industrial and economic processes may bring environmental conservation and economic development together rather than putting them in opposition. It highlights how market forces, technical innovation, and aggressive environmental legislation can all contribute to sustainable development.

Concerning green taxation, EMT is of the view that market-driven tools such as green taxation may encourage companies to embrace more environmental-friendly operations. The theory argues that innovative initiatives and efforts towards more models essential to CE, can be triggered by fiscal policies like taxation. EMT argues that economic entities can become more resource-efficient through the adoption of environmental-friendly policies. Both the CE framework and EMT view environmental issues as linked to economic and social issues.

EMT may therefore be used to explain how green taxation could encourage the adoption of CE measures, like reducing waste, improving resource efficiency, and inducing sustainable product design.

2.3 Empirical Review

Studies repetitively suggest that green taxation is an important market-focused fiscal tool for advancing the transition to a CE and meet environmental challenges. Svatikova *et al.* (2025) analysed measures like green or environmental taxes have considerable influence on the behaviour of both the producers and consumers across the life cycle of products. The study demonstrates that a well-designed ecological tax improves resource efficiency, boosts waste minimisation, and strengthen recycling programmes. Each of these forms part of the critical performance indicators for a CE.

Evolving evidences show that taxation can exert significant effect the performance of the CE, although majority of them are still theoretical (Deserno *et al*., 2024). Studies also specify that through internalization of ecological externalities and promotion of recycling, and reuse, fiscal tools can reorganize production and consumption systems (Milios, 2021; Vence *et al*., 2021). Antohi *et al*. (2025) also found that green taxation, especially in relation with energy and transport, encourages long-term economic growth and aids in the transition to low-emission and circularity.

Hu (2019) in validating the Porter's theory, established the potential of environmental taxes to increase cost of pollution to manufacturing companies in China. This induces them to adopt green initiatives thereby boosting total factor productivity (TFP). The showed that benefits from innovative production have capacity to offset the burden of paying green taxes. This perspective is further proved by Gan *et al*. (2024) which analysed that green taxation significantly induce green initiatives and sustainable development. However, the study highlights the need to ensure a balanced tax intensity such that CE performance can be optimally achieved.

According to Zhou *et al*. (2025), environmental taxes exert effect on the structure of urban investment finance, which resultantly lead to circular growth and green infrastructure. The noted geographical differences highlight how important institutional and financial resources are in determining results. Similarly, Mujahid (2023) found that, taxation greatly encourages circularity, waste minimization and efficient resource usage. Despite being mostly qualitative, the study offers data that suggests higher rates of circular practice adoption occur in areas with more coherent and transparent environmental tax schemes.

The increasing empirical evidences supporting the efficacy of green taxes to achieve waste reduction, innovative production, and environmental conservation is further established by Nobanee and Ullah (2023). The study also showed the benefits of green tax income being useful to fund investments in circularity and environmental sustainable projects. Similar resulted were gotten by Pan *et al*. (2024) showing that circularity practices reduce waste, improve operational, financial, and environmental performance.

Asif *et al*. (2021) and Mesa *et al*. (2022) provide empirical and review-based evidence that green taxation as a fiscal policy instrument is capable of inducing circularity in production systems by encouraging extending product lifespan via reuse, remanufacturing, and repair.

Specific to Nigeria, studies have shown that transition to a green and circular economy brings both benefits and challenges. According to Fagorite *et al*. (2024), the green initiatives in Nigeria include recycling, waste reduction, and the use of renewable energy. The study however highlights some challenges facing circular economy performance to include poor public awareness, finance, policy inconsistency, and infrastructure deficiencies. Similarly, Rezk *et al*. (2024) established weak institutional frameworks and low private sector involvement as challenges facing adoption of CE initiatives in Nigeria.

Records of implementation of green taxation in Nigeria reveal that slow development. The move is more of revenue driven (Efuntade *et al*., 2023). Meanwhile, public acceptance is still uncertain, and without clear supporting policies, it is challenging to assess effectiveness of such taxes. Nobanee & Ullah (2023) therefore emphasises that the success of green taxes demands adequacy of enforcement capability, institutional quality, and the accountability in revenue usage. Studies like Aziz *et al*. (2021), Mpofu (2022),

and Anugrah *et al*. (2025) also suggest that effectiveness of green taxation demands well-designed policy, transparency, public acceptability, and efficient alignment with broader revenue and environmental goals.

2.4 Gaps in the Studies

Studies generally suggests that green taxation has potential of improving the performance of CE through initiatives like waste reduction, resource efficiency, and modifying production patterns. Meanwhile, the success of green taxation greatly depends on effectiveness in policy design, adequacy of institutional capability, sufficient public awareness, among other contextual factors.

Despite the wealth of global evidence, few empirical studies focused on developing or African countries, including Nigeria. The bulk of available studies in Nigeria focus on environmental regulation or pollution control, with few empirical studies on how green taxation affects CE metrics like resource efficiency, waste recovery, innovative production, and organisational productivity. A gap is therefore established in paucity of comprehensive empirical evidences establishing the potential of green taxes as an incentive for enhancing the performance of CE in Nigeria based on the knowledge gap.

To bridge some of these gaps, four hypotheses are drafted to guide the study as follows:

1) Green taxation cannot be significantly harnessed for Innovative Production towards improving the performance of the CE in Nigeria
2) Green taxation cannot be significantly harnessed for Resource Efficiency towards improving the performance of the CE in Nigeria
3) Green taxation cannot be significantly harnessed for Product Life Extension towards improving the performance of the CE in Nigeria
4) Green taxation cannot be significantly harnessed for Waste Reduction towards improving the performance of the CE in Nigeria.

3. Methodology

The descriptive survey design was adopted in the study using a randomly selected sample of 400 individuals in Nigeria (Krejcie & Morgan, 1970). A self-designed questionnaire was administered using Google Form to collect respondents' opinions.

Responses were analysed using descriptive statistics (frequency, percentages, mean, and standard deviation) as well as inferential statistics (ANOVA-like R^2, F and t statistics, P-value, and betta-value) to test hypotheses at 5% significance level.

4. Results and Discussion

4.1 The Reliability Test

Table 1: Reliability table

Cronbach's Alpha	No of Items
0.918	40

Source: Survey 2025

The Cronbach's alpha value got from the questionnaire's reliability test was 0.918, showing that the instrument is 91.8% reliable. The value is considered reliable for our inferences in the study.

4.2 Descriptive Analysis

Table 2: Frequency, Percentages, Mean and Standard Deviation

		SD	D	PD	IND	PD	D	SD	MEAN/SD
Green Taxation	Freq. %	2 0.6	1 0.3	9 2.9	69 22.4	164 53.2	63 20.5	0 0	4.8864 0.81721
Resource Efficiency	Freq. %	0 0	2 0.6	5 1.6	22 7.1	92 29.9	154 50.0	33 10.7	5.5909 0.88132
Innovative Product Design	Freq. %	3 1.0	5 1.6	4 1.3	24 7.8	67 21.8	155 50.3	50 16.2	5.6364 1.08780
Promote Product Life Extension	Freq. %	3 1.0	5 1.6	3 1.0	15 4.9	72 23.4	157 51.0	53 17.2	5.6981 1.05070
Promote Waste Management	Freq. %	3 1.0	3 1.0	6 1.9	32 10.4	112 36.4	150 48.7	0 0	5.2778 0.91864
Circular Economy Performance	Freq. %	32 10.3	3 1.0	6 1.9	11 5.5	99 32.1	163 52.9	17 5.5	5.5065 0.87962

Source: Survey 2025

Green Taxation: Results of the analysis show that 227 (164+63+0), which represent 73.7% (53.2+202.5+0) of respondents agreed, and 12 (2+1+9), representing 3.8%, disagreed, and 69 representing 22.4% were indifferent to the view that green taxation is essential in a society. With a mean of 4.8864 and a standard deviation of 0.81721, it is inferred that respondents partially agreed on the view that green taxation is essential.

Resource Efficiency: Result of the analysis show that 227 (92+154+33), which represents 90.6% (29.9+50+10.7) of respondents, agreed, and 7 (0+2+5) representing 2.2% disagreed, and 22 representing 7.1% were indifferent to the view that resource efficiency is essential in the production of goods and services. With a mean of 5.5909 and a standard deviation of 0.88132, it is inferred that respondents agreed that resource efficiency is essential in the production of goods and services.

Innovative Product Design: Results show that 272 (67+155+50) which represents 88.3% (21.8+50.3+16.1) of respondents, agreed and 12 (3+5+4), representing 3.9% disagreed, and 24 representing 7.8% were indifferent to the view that innovation should be pursued in designing products in production of goods and services. With a mean of 5.6364 and standard deviation of 1.08780, it is inferred that respondents agreed that innovation should be pursued in designing products in production of goods and services.

Promote Product Life Extension: Results of the analysis show that 282 (72+157+53) which represents 91.6% (23.4+51+17.2) of respondents agreed and 11 (3+5+3) representing 3.6% disagreed and 15 representing 4.9% were indifferent to the view that promoting extension of product life is essential in production of goods and services. With a mean of 5.6981 and standard deviation of 1.0507, it is inferred that respondents agreed that promoting extension of product life is essential in production of goods and services.

Promote Waste Management: Results of the analysis show that 262 (112+150+0) which represents 85.1% (36.4+48.7+0) of respondents agreed and 12 (3+3+6) representing 3.9% disagreed and 32 representing 10.4% were indifferent to the view that that waste management should be ensured during production and consumption of goods and

services. With a mean of 5.2778 and standard deviation of 0.91864, it is inferred that respondents agreed that waste management should be ensured during production and consumption of goods and services.

Circular Economy Performance: Results of the analysis show that 219 (99+163+17) which represents 90.5% (32.1+52.9+5.5) of respondents agreed and 41 (32+3+6) representing 13.2% disagreed and 11 representing 5.5% were indifferent to the view that performance of CE should be promoted in a society. With a mean of 5.5909 and standard deviation of 0.88132, it is inferred that respondents agreed that that performance of CE should be promoted in a society.

4.3 Test of Hypotheses

Table 3: Regression Statistics

Models	R^2	Adj R^2	SE	F	Sign.	β
Performance of Circular Economy	.045	.042	0.86088	14.420	0.000	0.213
Resource Efficiency	.057	.054	.85734	18.417	.000	.238
Innovative Product Design	.055	.052	1.05892	17.969	.000	.236
Promote Product Life Extension	.038	.035	1.03219	12.110	.001	.195
Promote Waste Management	.020	.017	.91089	6.212	0.013	.142

Source: Survey 2025

Effect of Green Taxation on Performance of Circular Economy: The results of the regression analysis presented in table 3 (R^2 = 0.045; Adj. R^2 = 0.042; F = 14.420; P=0.000) revealed that green taxation had a positive effect of 0.45, with an influence of 14.430 as the F-statistic. With a P-value of 0.000, which is lower than 0.05, the effect is considered to be significant. Therefore, green taxation is found to have a significant effect on the performance of CE in Nigeria.

This finding is consistent with *a-priori* expectation of the study that green taxation has a significant effect on the performance of the CE. It is also supported by earlier studies like Ali 2023, Pan *et al* 2024), Hu (2019), and Svatikova (2025), which established the effect of taxes on CE in different economies. All these are subject to the advice from Fagorite *et al* (2024), Vence and Lopez Perez (2021), and Rezk 2024 who advised a combination of green taxation with well-thought-out policies and strong institutional structures, targeted fiscal tools could hasten the adoption of circular practices.

The findings also explain the empirical validity of the Ecological Modernisation Theory (EMT) which argues that economic institutions can modernize and become more resource-efficient with the help of environmental-friendly policies like green taxation. Both the CE framework and EMT take a systems thinking posture, seeing environmental issues as linked to social and economic structures.

Effect of Green Taxation on Resource Efficiency: The results of the regression analysis presented in table 3 (R^2 = 0.057; Adj. R^2 = 0.054; F = 18.417; P = 0.000) revealed that green taxation had a positive effect of 0.57, with an influence of 18.417 as the F-statistic. With a P-value of 0.000, which is less than 0.05, the effect

is considered to be significant. Therefore, green taxation is found to have a significant effect on the resource efficiency using lean production towards increasing the performance of CE in Nigeria.

This finding is consistent with *a-priori* expectation of the study that green taxation has a significant effect on the resource efficiency using lean production towards increasing the performance of CE. It is also supported by earlier studies like Mujahid (2023), who established that tax incentives and penalties play a crucial role in encouraging recycling, waste reduction, and sustainable resource use.

These findings give empirical evidence to prove validity of the EMT which is of the view that technical innovation and changes towards more sustainable business models can be sparked by fiscal measures. Furthermore, EMT supports the objectives of the CE, which separates economic progress from the use of resources and the production of waste.

Effect of Green Taxation on Innovative Product Design: The results of the regression analysis presented in table 3 ($R^2 = 0.055$; Adj. $R^2 = 0.052$; F = 17.969; P = 0.000) revealed that green taxation had a positive effect of 0.55, with an influence of 17.969 as F-statistics. With a P-value of 0.000, which is lower than 0.05, the effect is considered to be significant. Therefore, green taxation is found to have a significant effect on the innovative product designs towards increasing the performance of CE in Nigeria.

This finding is consistent with *a-priori* expectation of the study that green taxation is found to have a significant effect on the innovative product designs towards increasing the performance of CE. It is also supported by earlier studies like Anthohi *et al* (2025), Arifet *et al* (2021), Yang *et al* (2024), Mesa *et al* (2022). They all established that among other eco-related taxation is associated with innovative manufacturing, whereby manufacturers are pursuing production of improved products under the influence of fiscal instruments like green taxes.

This finding also gives empirical evidence to validate the position of EMT which is of the view that green taxation can spark technical innovation and changes towards more sustainable business models.

Effect of Green Taxation on Promoting Product Life Extension: The results of the regression analysis presented in table 3 ($R^2 = 0.038$; Adj. $R^2 = 0.035$; F = 12.110; P=0.000) revealed that green taxation had a positive effect of 0.38, with an influence of 12.110 as F-statistics. With a P-value of 0.000, which is below 0.05, the effect is considered to be significant. Therefore, green taxation is found to have significant effect on the promotion of product life extension towards improving the performance of CE in Nigeria.

This finding is consistent with a-priori expectation of the study that green taxation is found to have significant effect on the promotion of product life extension towards improving the performance of CE. It is also supported by earlier studies like Asif *et al*. (2021) and Mesa *et al*. (2022) which suggest that fiscal policies, such as green taxes, can support circular manufacturing systems by discouraging early obsolescence and encouraging efforts at remanufacturing, reuse, and repair. Similarly, Mujahid (2023) which established that tax incentives and penalties play a crucial role in encouraging recycling.

Effect of Green Taxation on Promoting Waste Management: The results of the regression analysis presented in table 3 ($R^2 = 0.020$; Adj. $R^2 = 0.017$; F = 6.212; P = 0.013) revealed that green taxation had a positive effect of 0.20, with an influence of 6.212 as an F-statistic. With a P-value of 0.000, which is below 0.05, the effect is considered to be significant. Therefore, green taxation is found to have a significant effect on promoting waste management towards increasing the performance of the CE in Nigeria.

This finding is consistent with *a-priori* expectation of the study that green taxation has an effect on promoting waste management towards increasing the performance of the CE. It is also supported by earlier studies like Anthohi *et al* (2025), Anugrah *et al* (2025) and Mujahid

(2023), tax found that fiscal/tax incentives and penalties play a crucial role in encouraging recycling, waste reduction, and sustainable resource use.

Findings here are also supported by the EMT which explains how green taxation encourages the adoption of CE measures, like reducing waste, improving resource efficiency and encouraging sustainable product design. The theory also offers a framework for evaluating how well green taxes are promoting innovation and the transition to a CE, and how these results support the sustainability of the economy and the environment.

5. Conclusion

The study, based on the findings, conclude that green taxation, resource efficiency, innovative product design, promote product life extension, promote waste management, can be adopted to induce the performance of CE in Nigeria. Specifically, green taxation exerted significant effect on the performance of CE in Nigeria. Similarly, green taxation exerted significant effect on each of the proxies adopted to measure the performance of CE in Nigeria. These findings are consistent with the *a-priori* expectation of the study and supported by several studies from developed as well as developing economies.

The findings from this study empirically established the principles of the EMT. The green taxation serves as incentives for companies to adopt cleaner initiatives, innovative production techniques, and implement circular production.

The study has policy implication by showing that green taxes can act as a boost for complete financial and environmental transformation in Nigeria, consistent with the EMT. Green taxes can accelerate Nigeria's transition to a sustainable CE through a coordination of fiscal policy (green tax) with innovativeness, institutional coordination, and market incentives.

Policy Implications

The findings from this study have direct policy implications on taxation, green production, and environmental conservation, and circular economy, especially Nigeria and other similar jurisdictions. Specifically, green taxation is established as an effective tool to enhance performance of CE, by inducing organisations to increase resource efficiency, invest in sustainable product design, adopt elongate product lifecycles, and implement effective waste management systems.

The study also highlights the import of policy alignment between fiscal and environmental regulatory structures, which is in line with the greener manufacturing focus on policy relevance. Integration of the green taxation into the cleaner production techniques and CE goals can incentivise organisations to pursue sustainable practices in their production processes and techniques. Another policy implication aspect is that policy makers can consider the combination of green taxes with definite incentives, like tax credits or lower tax rates or zero tax for companies that invest in notable innovations in waste recovery, green production design, lean manufacturing, and product durability.

At a broader level, the findings encourage the incorporation of green taxation into the national development plans for environmental conservation and sustainable industrial growth. Practical demonstration and evidences are provided for policymakers pursuing a shift towards greener production systems and a circular economy, especially in developing economies by empirically demonstrating how green taxers, a fiscal tool, could modify companies' behaviour and production processes.

6. Recommendations

Based on the findings, the following recommendations are made in line with major stakeholder groups:

1) Governments and Policy Makers: Green taxation should be established as a major fiscal policy instrument by charging pollution taxes, reducing or removing VAT for reused, repaired or remanufactured products, as well as, tax credits for recycled material use. The

government should also treat green taxes as dedicated taxes whereby revenue from such taxes as applied solely towards CE infrastructure, green innovation funds, and sustainable development. Policy coherence should be ensured across the fiscal, manufacturing, and environmental sectors to encourage effective circular transformations.

2) Tax Authorities: The mindset of the tax authority's mindset should be reoriented towards behavioural change, over revenue generation, by having green tax incentives more available and environmental performance indicators incorporated into tax reporting systems. Tax administrators should be given adequate relevant trainings green taxation so as to ease acceptability, implementation, and compliance.

3) Organisations in Manufacturing Sector: Organisations are encouraged to invest in resource-efficient technique, green design, and product lifespan extension initiatives like reuse, remanufacture, repair, and refurbish. Industrial unions and the government should collaborate to introduce manufacturing sector-specific taxation that could induce circularity.

4) Environmental Regulatory Agencies: There should be effective coordination between the environmental regulatory authorities and the tax authorities to align tax incentives and penalties with environmental norms. Regulatory agencies should ensure proper monitoring, and assessment procedures, to track the extent of the effects of green taxation on the performance of CE.

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References

Agbetunde, L. A., Ajala, M. T. Dawodu, O. M. & Muritala, I.K. (2025). Harnessing green taxation to drive the performance of circular economy: A research synthesis for inclusive sustainable development in business, *Journal of Emerging Trends in Economics and Management Sciences*, 16(5), 189-195

Akanji, M., Amoah, N., Akpoveso, O., Atanya, O., & Ogbechie, C. (2023). *A review of the circular economy in Nigeria: From rhetoric to enterprise development.* In the book, The Routledge Handbook of Catalysts for a Sustainable Circular Economy, 89–104. Routledge. 10.4324/9781003267492-6.

Antohi, V. M., Forțea, C., Zlati, M. L., & Dincă, M. S. (2025). The impact of green taxation on sustainable economic development in the European Union. *Revista de Studii Financiare, 10*(18), 240–263. https://doi.org/10.55654/jfs.2025.10.18.12

Anugrah, S., Sudiati, R., Puspa, E. S., Suyono, W. P., & Hermawan, S. (2025). Green tax reform for SDG 13. *Indonesian Journal of Accounting and Governance, 9*(1), 55–62. https://doi.org/10.36766/edn62g64

Asif, F. M. A., Roci, M., Lieder, M., Rashid, A., Miheli, A., & Kotnik, S. (2021). Circular manufacturing systems and multiple lifecycle products. *Journal of Cleaner Production*, 296, 126437.

Aziz, H. & Mohammed, H. & Hamawandy, N., Awla, Z., Jamil, A., Othman, B., & Majeed, N. (2021). The impact of taxation in circular economy/new tax thinking: The case study USA. *Journal of Contemporary Issues in Business and Government*. 27. 1895-1908.

Deserno, L. & Sterk, E. (2024). Resource Taxes as an Instrument to Foster Circularity? Analysis of the Effects of Resource Taxation on Circular Economy Progress in Europe. *Circular Economy and Sustainability. 5*. 873-899. 10.1007/s43615-024-00443-w.

Efuntade, O. O., Efuntade, A. O., & Olugbamiye, D. O. (2023). Adoption of green, carbon and environmental taxation in Nigeria. *International Journal of Economics and Financial Management, 8*(4), 54–65. https://doi.org/10.56201/ijefm.v8.no4.2023.pg54.65

Ezeudu, O. B., & Ezeudu, T. S. (2019). Implementation of circular economy principles in industrial solid waste management: Evidence from Nigeria. *Recycling, 4*(4), 42. https://doi.org/10.3390/recycling4040042

Fagorite. I., Omefe, V. O., Ibadin, O. O., Marvin, M. K., Takur, D. A., Okoroafor, G. P., Agbasi, O. E., Okafor, T. C., and Malo, I. N. (2024). Unpacking Nigeria's Green Economy Dynamics. *Economic Growth and Environment Sustainability, 3*(2): 105-116. DOI: 10.26480/egnes.02.2024.105.116

Yang, Y., Tian, Z., & Wu, J. (2024). Green taxation, regional green development and innovation: Mechanisms of influence and policy optimization. *Humanities and Social Sciences Communications*, 11, 1–14. https://doi.org/10.1057/s41599-024-03335-4

Hu, Z. (2019). Green taxation and total factor productivity. *Modern Economy, 10*(3), 698–706. https://doi.org/10.4236/ME.2019.103047

Krejcie, R.. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3):607-610. DOI: 10.1177/001316447003000308

Mesa, J. A., Gonzalez-Quiroga, A., Fernandes Aguiar, M., & Jugend, D. (2022). Linking product design and durability: A review and research agenda. *Heliyon, 8*(6), e10734.

Mpofu, F. Y. (2022). Green taxes in Africa. *Sustainability, 14*(16), 10239. https://doi.org/10.3390/su141610239

Mujahid, J. (2023). The Impact of Taxation on Circular Economy: Exploring how tax policies influence the adoption and success of circular economy practices, fostering sustainable resource use and reducing waste generation," OSF Preprints uejr4, *Center for Open Science*. DOI: 10.31219/osf.io/uejr4

Nobanee, H., & Ullah, S. (2023). Mapping green tax: A bibliometric analysis and visualization of relevant research. *Sustainable Futures, 6,* Article 100129. https://doi.org/10.1016/j.sftr.2023.100129

Ogunseye, N. O., Ogunseye, O., Ogunseye, A. O., Tongo, S., Oladesu, J. O., Oyinloye, M. A., & Uzzi, F. O. (2024). Leveraging waste recycling as a gateway to a green economy in Nigeria. *Journal of Indonesia Sustainable Development Planning*, *5*(1), 27–37. 10.46456/jisdep.v5i1.487

Pan, X., Wong, C. Y., Boon-itt, S., & Ng, J. (2024). The influences of circular economy practices on manufacturing firm's performance: A meta-analytic structural equation modelling study. *International Journal of Production Economics, 259,* 109267. DOI: 10.1016/j.ijpe.2024.109267

Prasetyawati, T., Imelda, I., & Fuadah, L. L. (2025). Exploring green tax through a systematic literature review. *Jurnal Fokus Manajemen, 5*(2), 233–240. DOI: 10.37676/jfm.v5i2.8304

Rezk, M. R. A., Piccinetti, L., Salem, N., Omoruyi, T. U., & Santoro, D. (2024). Nigeria's transition to a circular economy. *Insights into Regional Development*, *6*(2), 11–23. DOI: 10.9770/ird.2024.6.2(1)

Shu, T., Peng, Z., Chen, S., Wang, S., Lai, K. K., & Yang, H. (2017). Government Subsidy for Remanufacturing or Carbon Tax Rebate: Which Is Better for Firms and a Low-Carbon Economy. *Sustainability*, *9*(1), 156. https://doi.org/10.3390/su9010156

Svatikova, K., Brown, A., & Börkey, P. (2025). *Economic instruments for a resource-efficient circular economy* (OECD Environment Working Paper No. 257). OECD. https://doi.org/10.1787/35a7051a-en

Vence, X., & López Pérez, S. J. (2021). Taxation for a circular economy: New instruments, reforms, and architectural changes in the

fiscal system. *Sustainability*, *13*(8), 4581. https://doi.org/10.3390/su13084581

Wang, X., Li, Z., & Liu, P. (2023). Recycling/Production and Incentive-Penalty Strategies in Closed-Loop Supply Chains under Remanufacturing Policies. *Sustainability*, *15*(12), 9750. https://doi.org/10.3390/su15129750

Malik, R., Visvizi, A., Troisi, O., & Grimaldi, M. (2022). Smart Services in Smart Cities: Insights from Science Mapping Analysis. *Sustainability*, *14*(11), 6506. https://doi.org/10.3390/su14116506

Zhou, H., Guan, Y., Huang, S., Zhao, E. T., & Xu, H. (2025). Green taxation, urban investment platform debt, and urban green transformation. *Platforms*, *3*(4), 17. https://doi.org/10.3390/platforms3040017