Government-Imposed Taxes and Firms’ Profitability: Evidence from Nigerian Oil and Gas Companies

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Abstract: Tax payment has been a burden to business organizations, but a source of revenue to government. This study therefore, delved into the influence of government-imposed taxes on the profitability of firms, focusing on Nigerian Oil and Gas Companies. The research revealed that the coefficient of petroleum profit tax (PPT) exhibited a positive (11.28640) and statistically significant impact (P=0.0129<0.05). Similarly, the beta value of customs and excise duty (CED) displayed a positive (96.41566) and statistically significant impact (P=0.0013<0.05). On the other hand, the beta value of value added tax (VAT) showed a negative effect (-706.1630) that was statistically significant (P=0.3117>0.05). In conclusion, this study demonstrated varying effects of government-imposed taxes on firms’ profitability, particularly within Nigeria’s oil and gas sector. While petroleum profit tax and customs and excise duty exerted positive and significant effects, value-added tax had a negative impact. Consequently, the study recommends a reduction in the value-added tax rate by the Nigerian government to facilitate the enhanced profitability of select oil and gas companies. Additionally, government should intensify its efforts in improving public infrastructural facilities like good access road, adequate electricity supply and security to assist private companies improve their profitability while reducing their expenses which will serve as an incentive and encouragement to enable them pay their taxes promptly and regularly.

Introduction

Governments across different levels impose taxes on corporations as a means to generate revenue. Taxation constitutes a primary revenue source for the Nigerian government and other African nations, serving simultaneously as an economic regulatory instrument. Virtually no country can sustain itself without deriving revenue from a variety of taxes. The nature of taxes levied on Nigerian companies varies, contingent on the specific transactions and products of individual firms within each nation (Aregbeyen & Kolawole, 2015). These encompass petroleum tax, corporate tax, value added tax, custom and excise duties, and personal income tax, among other forms. Taxes persist as a well-recognized avenue for revenue collection both in Nigeria and globally, functioning as a mechanism for crafting fiscal policies and steering economic regulation (Altunöz, 2017). Obligatory compliance with payment to relevant tax authorities within their jurisdiction is incumbent upon taxable business entities. Nonetheless, the implications of tax payments on firms' profitability pose a critical concern, given their potential
impact on continuity (Ademola, Olasode, Raji & Adedoyin, 2015). Moreover, tax payments have become challenging and burdensome for various companies in certain African countries, such as Nigeria, thereby compromising their continued viability (Aregebeyen & Kolawole, 2015). This discrepancy between government-imposed taxes and firms' profitability levels in many developing nations calls for scrutiny, potentially stemming from the substantial financial outlays associated with tax payments by business entities. Balancing business survival with economic advancement is pivotal for any nation, as local businesses' financial contribution and presence are essential for expedited economic growth. Consequently, further exploration is warranted to enable business proprietors and managers to identify strategies for mitigating tax burdens, thus reducing the potential adverse impact on their firms' profitability.

Numerous prior studies, including research by Aregebeyen and Kolawole (2015), Ademola, Olasode, Raji, and Adedoyin (2015), Adekunle (2016), Aroloye and Adegbuyi (2016), Baharumshah, Jibrilla, Sirag, and Muhammad (2016), Chen, Liu, Wang, and Zhu (2016), Viola and Katherine (2017), Altunöz (2017), Richard (2017), Amede (2015), Eugenio, Katja, and Jeff (2018), Ibrahim (2018), Ianna (2018), Kiminyei (2018), Alade, Olaoye, and Ojo (2019), Olaoye and Akinola (2019), Iormbagah, Nwaorgu, and Ihendinhu (2020), and Nwaorgu, Oyekezie, and Abiahu (2020), along with others, have predominantly focused on investigating the impact of tax revenue on various economic aspects of the public sector in Nigeria. However, there have been only a few studies exploring this area. This study aims to address this gap, as the review of previous research indicates that while existing studies have concentrated on tax revenue's influence on the public sector, this research centers on the private sector. Additionally, prior studies have mainly examined the effects of tax revenue on factors like government budget implementation and expenditure, while this study zeroes in on how tax revenue impacts the profitability of firms in Nigeria. The study is noteworthy for focusing on the private sector (oil and gas companies) rather than the public sector, as previous research has often done. This unique perspective contributes to understanding the effects of taxes on businesses' profitability in Nigeria.

Objectives of the Study

The primary aim of this study is to examine how government-imposed taxes affect the profitability of oil and gas companies in Nigeria. Specifically, the study seeks to:

- Investigate the impact of imposing petroleum profit tax on the profitability of oil and gas companies in Nigeria.
- Determine the influence of imposing value added tax on the profitability of oil and gas companies in Nigeria.
- Evaluate the effects of imposing custom and excise duties on the profitability of oil and gas companies in Nigeria.

Research Hypotheses

This study is guided by the following null hypotheses:

- Imposing petroleum profit tax does not have any effect on the profitability of oil and gas companies in Nigeria.
- The imposition of value added tax does not affect the profitability of oil and gas companies in Nigeria.
- There is no discernible impact of imposing custom and excise duties on the profitability of oil and gas companies in Nigeria.
Literature Review

Government-Imposed Taxes

Government-imposed taxes encompass various forms such as petroleum profit tax, value-added tax, company income tax, customs and excise duties, among others. Taxation stands as a mandatory financial obligation enforced upon individuals, businesses, and legal entities by governmental bodies to support public expenditures (Aregbeyen & Kolawole, 2015). It constitutes a compulsory payment exacted from citizens, offering no immediate reciprocation (Adekunle, 2016). Essentially, tax constitutes a transfer of resources from the private sector to the public sector, facilitating the government in fulfilling societal needs (Ademola, Olasode, Raji & Adedoyin, 2015). These needs encompass the provision of fundamental social amenities and public services, including essential healthcare for the well-being of the populace. Taxation comprises levies imposed by governmental agencies on goods, services, companies, and individuals, serving as a financial pillar to sustain government initiatives. This study's scope delves into the following three primary tax forms, aligning with its objectives.

The petroleum tax (PPT) pertains to tax revenue imposed on the profits of oil-producing enterprises (Baharumshah, Jibrilla, Sirag & Muhammad, 2016). Value added tax (VAT) entails a consumption-based tax, borne by the ultimate consumer of a product or service (Arodoye & Adegboye, 2016). It signifies the discrepancy between the enhanced value of goods or services during their production or delivery. This indirect tax is applied at each production stage to capture the value increment. Customs and excise duties (CED) stand as taxes levied on imports and exports by a country's customs authorities to generate revenue (Chen, Liu, Wang & Zhu, 2016).

Firms’ Profitability

Firms’ profitability denotes the potential for enterprises to reap gains from their commercial activities. It embodies the tangible gains derived from operational endeavors (Richard, 2017). An organization's profitability hinges upon its capacity to effectively employ resources, culminating in financial gains through its operations (Altunöz, 2017). Essentially, firms’ profitability mirrors their adeptness in utilizing assets to generate profit (Nwaorgu, Oyekezie & Abiahu, 2020). The implications of diverse government-imposed taxes on business organizations' profits can yield multifaceted outcomes.

The conceptual review above provides definitions and explanations for various concepts, including government-imposed taxes and firms’ profitability. It outlines the different types of taxes and their roles in generating government revenue. Additionally, it highlights the significance of firms’ profitability as the outcome of their business operations.

Theoretical Overview - The Laffer Curve Concept

The Laffer Curve theory, attributed to Professor Arthur Laffer (2004) and cited by Aregbeyen and Kolawole (2015), resides within the realm of supply-side economics. This theory centers on the impact of government-imposed tax rates on the profitability of businesses (Aregbeyen & Kolawole, 2015). The core assumption of the theory is the examination of how varying tax rates influence corporate outcomes, depicting a framework that links government revenue generated through taxation to potential corporate effects. Evidently, across nations worldwide, governments levy taxes on both individual and business incomes (Aregbeyen & Kolawole, 2015). The Laffer Curve offers insight into the dynamic between taxation and government revenue. Laffer (2004) posited that a rise in tax rates could paradoxically lead to a decline in tax revenue. Moreover, an increase in tax rates might evoke negative sentiments among taxpayers, investors, and entrepreneurs, potentially prompting inaccurate reporting of income.
Implicitly, the concept implies that taxing 100% of nothing results in zero tax revenue (Eugenio, Katja & Jeff, 2018). This implies the existence of a tax rate between 0% and 100% where tax revenue reaches its peak (Eugenio, Katja & Jeff, 2018). In its most comprehensible form, the Laffer Curve illustrates the interplay between government-imposed tax rates and the resulting revenue. It also suggests the presence of an optimal tax rate that maximizes government revenue from taxation (Adedokun, 2018). Critics have challenged the theory for its lack of empirical support and its oversimplification of tax rate analysis by focusing on a single rate (Osho, Olemija & Falade, 2022). One significant critique pertains to identifying a given tax system's position on the Laffer Curve (Kiminyei, 2018).

The aforementioned theory's relevance to this study lies in its portrayal of taxation as a revenue generation tool, serving as an independent variable. It adeptly establishes the link between government tax rates and their impact on corporate profitability. The theory asserts that tax rates exist within a spectrum of either 100% or 0%, with no revenue generated at the extremes. It emphasizes the vital role of taxation as a revenue source for governments. Additionally, the theory advises against setting tax rates too low or too high to optimize tax revenue.

**Empirical Exploration**

Adedokun (2018) conducted a study examining the relationship between oil shocks, government expenditure, and government revenue in Nigeria using a Vector Error Correction Model. The findings indicated that, in the short run, oil price shocks did not significantly predict government expenditure fluctuations. However, oil revenue shocks exhibited strong predictive power both in the short and long term. This study extends understanding by revealing a short-run connection between tax and corporate performance, alongside a long-run correlation between tax rates and firms' profitability. Similarly, Alade, Olaoye, and Ojo (2019) analyzed revenue patterns and government spending in Nigeria through correlation and simple regression. Their results unveiled significant effects of both oil and non-oil revenue on capital and recurrent expenditure in Nigeria.

This study addresses gaps in the existing literature, which predominantly focuses on tax revenue's impact on the public sector, while our research delves into its influence on the private sector. Furthermore, prior studies concentrated solely on tax revenue's implications for government budget implementation and expenditure, whereas our investigation specifically centers on the ramifications of tax revenue for firms' profitability in Nigeria.

**Methodology**

In the pursuit of its objectives, this study relied on secondary data sourced from the Nigerian Bureau of Statistics (NBS) for the year 2022, as well as the official bulletin of the Federal Ministry of Finance. The temporal scope of the study encompassed a decade, spanning from 2003 to 2022, with a specific focus on the oil and gas sector. The primary aim was to scrutinize the impact of government taxes on the profitability of firms, with a particular emphasis on Nigerian oil and gas companies. The selection of this time frame was primarily guided by data availability considerations. Conducted within Nigeria's private sector, the research centered on the taxation payable by oil and gas enterprises. Three distinct tax categories were employed as proxies for tax revenue, namely the Petroleum Profit Tax (PPT), Value Added Tax (VAT), and Customs and Excise Duties (CED). Meanwhile, the Return on Assets (ROA) metric was adopted to represent firms' profitability. This choice of data sources was justified by the challenges associated with procuring the necessary data directly from primary sources for the study variables. The study's target population comprised publicly listed oil and gas companies in Nigeria, from which a purposive sample of seven (7) entities was deliberately chosen. To estimate the data, the study utilized unit root tests and panel regression models. Among the
models employed were the Pooled Ordinary Least Squares (POLS), Fixed Effect Model, and Random Effect Model. The selection of the most appropriate model was based on a comprehensive analysis of these alternatives.

Model Specification

To analyze the impacts of government’s-imposed taxes on firms’ profitability; evidence from Nigerian oil and gas companies, the study drew inspiration from a model previously employed by Olaoye and Akinola (2019). The model's structure is presented below:

$$\text{CEX}_{i,t} = f(CIT_{i,t}, VAT_{i,t}, CED_{i,t}, PPT_{i,t})$$

(1)

The above model was modified in relation to the focus of this study and eventually this study’s model was designed as presented below:

$$\text{ROA}_{i,t} = f(PPT_{i,t}, VAT_{i,t}, CED_{i,t})$$

(2)

Where:

- \( \text{ROA}_{i,t} \) = Return on assets of Nigerian oil and gas companies in year \( t \);
- \( \text{PPT}_{i,t} \) = Petroleum Profit Tax paid by Nigerian oil and gas companies in year \( t \);
- \( \text{VAT}_{i,t} \) = Value Added Tax paid by Nigerian oil and gas companies in year \( t \);
- \( \text{CED}_{i,t} \) = Custom and Excise Duties paid by Nigerian oil and gas companies in year \( t \);
- \( f \) = Function.

Result and Discussion

In the context of data analysis, the results obtained from the panel unit root test, as presented in Table 1, utilizing various methods, exhibit significant insights. These methods include LELC's approach, IPSW's technique, ADF-F's methodology, and PP-F's method. The primary focus of these tests revolves around investigating the stationarity and presence of a unit root in the time series data. For LELC’s method, the calculated t-statistics value is -1.96485, accompanied by a probability value of 0.0247. As a consequence, the null hypothesis indicating non-stationarity of the data is refuted. This implies that the time series data is, indeed, stationary and lacks a unit root. Similarly, IPSW's method demonstrates a t-statistics value of -1.92995, yielding a probability value of 0.0268. This outcome corroborates the stationary nature of the data and the absence of a unit root. Furthermore, the employment of ADF-F’s method results in a t-statistics value of 19.9636, associated with a probability value of 0.02105. This outcome strongly suggests the series' stationarity and the absence of a unit root. In line with these findings, the PP-F method reveals a t-statistics value of 19.8799, with a probability value of 0.0108. This result further strengthens the assertion that the time series data is stationary, signifying the absence of a unit root. In summation, the panel unit root test findings consistently indicate that the time series data under examination is stationary and lacks a unit root. This is evident across various methodologies, reinforcing the credibility of the conclusions drawn from this data analysis.
Table 1. Unit Root @ Level

<table>
<thead>
<tr>
<th>Methods</th>
<th>t-statistics</th>
<th>Probability</th>
<th>Cross-Section</th>
<th>Observer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levin, Lin &amp; Chu t* (LELC)</td>
<td>-1.96485</td>
<td>0.0247</td>
<td>4</td>
<td>76</td>
</tr>
<tr>
<td>Im, Pesaran and Shin W-stat (IPSW)</td>
<td>-1.92995</td>
<td>0.0268</td>
<td>4</td>
<td>76</td>
</tr>
<tr>
<td>ADF - Fisher Chi-square (ADF-F)</td>
<td>19.9636</td>
<td>0.0105</td>
<td>4</td>
<td>76</td>
</tr>
<tr>
<td>PP - Fisher Chi-square (PP-F)</td>
<td>19.8799</td>
<td>0.0108</td>
<td>4</td>
<td>76</td>
</tr>
</tbody>
</table>

Source: Data Analysis for 2023.

Table 2 presents the R2 value of 0.745557, indicating that 75% (0.888694) of the changes in the petroleum profit tax (PPT), value added tax (VAT), and customs and excise duty (CED) in Nigeria can be attributed to firms' profitability (FPR). The remaining 0.15% of changes in return on assets (ROA) is accounted for by the error term. The adjusted R2 value stands at 0.615577, suggesting that even if additional variables included in the error term are integrated into the model, the explanatory variables would still elucidate a 62% increase in the ROA of oil and gas companies' profitability (OGCP) in Nigeria.

Table 2. Pooled Least Squares Result (SERIES: ROA, PPT, VAT, CED)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.064090</td>
<td>0.059457</td>
<td>0.471337</td>
<td>0.9143</td>
</tr>
<tr>
<td>PPT</td>
<td>11.28640</td>
<td>4.397140</td>
<td>2.566760</td>
<td>0.0129</td>
</tr>
<tr>
<td>VAT</td>
<td>-706.1630</td>
<td>691.8012</td>
<td>1.020760</td>
<td>0.3117</td>
</tr>
<tr>
<td>CED</td>
<td>96.41566</td>
<td>28.57097</td>
<td>-3.374602</td>
<td>0.0013</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.745557</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.615577</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson</td>
<td>2.388303</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breusch-Godfrey test: 1st-order auto.</td>
<td>LMF = 0.3340</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breusch-Pagan test: Heteroskedasticity</td>
<td>X² = 1.368, p=0.713</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data Analysis for 2023.

The coefficient for petroleum profit tax (PPT) is positive (11.28640) and statistically significant (P=0.0129<0.05), implying that a one-unit increase in PPT will lead to an 11.28% rise in OGCP in Nigeria. On the other hand, the beta value for value added tax (VAT) is negative (-706.1630) and significant (P=0.3117>0.05), suggesting that a unit increase in VAT will result in a 0.7% decrease in OGCP. The beta value for customs and excise duty (CED) is positive (96.41566) and significant (P=0.0013<0.05), indicating that a one-unit increase in CED will contribute to a 98.4% increase in OGCP. The Durbin-Watson value of 2.388303 exceeds 2, indicating an absence of serial correlation within the series. Furthermore, the Breusch-Godfrey test for first-order autocorrelation, with an LMF value of 3344 and a probability value of 0.572, also suggests the lack of first-order correlation in the dataset. The Breusch-Pagan test for Heteroskedasticity, with a chi-square value of 1.368 and a probability value of 0.713, supports the null hypothesis that there is no heteroskedasticity present in the data.

In summation, this study presents a comprehensive analysis of pivotal statistical measures in the context of the impacts of government-imposed taxes on oil and gas companies' profitability in Nigeria. The examination of R-squared, Adjusted R-squared, Durbin-Watson, and key tests such as Breusch-Godfrey and Breusch-Pagan sheds light on the intricate relationships and potential anomalies, ultimately enhancing our understanding of this critical economic facet.
Study’s Findings

In the realm of this study’s data analysis, several crucial statistical indicators have been examined to shed light on the dynamics of oil and gas companies' profitability (OGCP) in Nigeria. The paper delves into noteworthy concepts such as R-squared, Adjusted R-squared, Durbin-Watson, and two essential tests - the Breusch-Godfrey test for first-order autocorrelation and the Breusch-Pagan test for Heteroskedasticity.

The outcomes of these analyses are presented concisely in Table 2, bringing forth significant insights. The R-squared value stands at an intriguing 0.745557, signifying that approximately 75% of the changes in the combined petroleum profit tax (PPT), value added tax (VAT), and custom and excise duty (CED) in Nigeria are attributed to fluctuations in firms' profitability (FPR). Moreover, a closer examination reveals that the remaining 0.15% of changes in the budgeted recurrent expenditure (BRE) of the oil and gas companies (OGCP) are encapsulated within the error term. The Adjusted R-squared, an important refinement, is calculated at 0.615577. This implies that even when accounting for the inclusion of other variables in the model's error term, the explanatory variables still contribute to a 62% increase in OGCP's budgeted recurrent expenditure (BRE) in Nigeria.

Delving into the specific coefficients, it is observed that the coefficient for petroleum profit tax (PPT) is both positive (11.28640) and significant (P=0.0129<0.05). This denotes that a unitary increase in PPT corresponds to an 11.28% rise in OGCP within Nigeria. Contrarily, the beta value for value added tax (VAT) is negative (-706.1630), with significance (P=0.3117>0.05), indicating that a unitary VAT increase contributes to a 0.7% decrease in OGCP. On the other hand, the beta value for custom and excise duty (CED) is positive (96.41566) and significant (P=0.0013<0.05), signifying that a unitary CED increase relates to a substantial 98.4% surge in OGCP.

Shifting focus to the tests for potential anomalies, the Durbin-Watson value of 2.388303 is noteworthy. Given that it surpasses the threshold of 2, it is indicative of an absence of serial correlation within the series, reinforcing the robustness of the findings. Additionally, the Breusch-Godfrey test for first-order autocorrelation, featuring an LMF value of 3344 and a probability value of 0.572, reinforces the absence of first-order correlation in the dataset. Furthermore, the Breusch-Pagan test for Heteroskedasticity, featuring a chi-square value of 1.368 and a probability value of 0.713, aligns with the null hypothesis, indicating a lack of heteroskedasticity within the data. In essence, the results of these tests collectively contribute to bolstering the reliability and validity of the analytical outcomes.

Conclusions

Drawing upon the findings, this study reaches several significant conclusions. The effects of government-imposed taxes on firm profitability are diverse. Specifically, the research unveils that petroleum profit tax and custom and excise duty exert a positive and substantial influence on the profitability of oil and gas companies in Nigeria. In contrast, value added tax does not yield a positive impact. Consequently, it is recommended that the Nigerian government consider lowering its value-added tax rate. This adjustment could aid certain oil and gas companies in enhancing their profitability positions. In conclusion, this study sheds light on the effects of government-imposed taxes on the profitability of Nigerian oil and gas companies. The findings provide insights for policymakers and business owners, highlighting the importance of tax rate optimization for promoting sustainable profitability in the oil and gas sector.
Recommendations and Contribution to Knowledge

The study's findings suggest that government-imposed taxes have varying effects on Nigerian oil and gas companies' profitability. PPT and CED contribute positively to profitability, while VAT has a negative impact. The study recommends that the Nigerian government consider reducing VAT rates for oil and gas companies to enhance their profitability. This could potentially stimulate growth and investment in the sector. The study's contribution to knowledge is evident, as it sheds light on the distinct effects each type of tax under scrutiny has on firm profitability on a global scale.

References