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# Taxation and Democracy: is there a Bidirectional Causality?

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**Abstract:** The study investigates the validity of the positive nexus between taxation and Democracy in developing economy setting with an emphasis on Nigeria. This study is motivated by the counter-intuitive trend of the Nigerian tax to GDP ratio, which in current terms is not substantially different from the results of the Middle East economies where there is zero-tolerance for democratisation. This is a country-specific, longitudinal, time-series research strategy with data set from 1980 to 2017. The dichotomous nature of the dependent variable necessitates the use of logistic regression. The result of the analysis shows a mildly positive relationship between tax ratio to GDP and index of democratisation. The alternate variable of indirect tax is negatively related to democratisation, so do the control variables of population growth rate and openness. The control variable of corruption is positive and significant. We recommend a sweeping reform of the Nigeria Tax system, including re-engineering the mindset of the Nigerian tax administrators.

**Keywords:** Democratisation; indirect taxation; reverse sequencing; Openness; Musgravian functions

**JEL Classification**: H20; O53; O11

## Introduction

The bourgeoning extant literature on the nexus between taxation and democratic representation has been relatively directionless in the developed countries where the issue has received some level of consideration and sparse, especially in the

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developing countries where the issue may be new and mostly unexplored. Over the years, the ratio of tax revenue to the gross domestic product in developing countries with emphasis on Nigeria has been meagre compared to the developing countries of Europe and America. The tax to GDP ratio of Nigeria in 2017 was 6% (PWC, 2017). This is far less impressive compared to other African countries in the same socio-economic stratum, such as Ghana 15%, Cameroon 18.2%, and Gambia 18.9%. This is incomparable to Italy at 43.5%, Japan at 35.9%, South Korea at 33.6%, Netherland at 39.8%, the United Kingdom at 34% and Sweden at 49.8%. (Heritage Foundation, 2017).

No doubt, in Nigeria and other developing countries, a well-developed modern tax system is imperative to sustaining the social contract between the government and the citizenry; this appears to be a severe illusion as it stands presently. In Nigeria, there has been a series of tax reforms geared towards positioning the entire tax system for effective administration and increasing the tax revenue generation of government. However, nothing substantial has achieved regarding the impact of the reforms in tax revenue numbers in Nigeria. The tax to GDP ratio has remained at its lowest ebb.

The exercise of taxing power in a modern tax system fulfils the essential Musgravian functions of resource allocation, distribution, and economic stabilisation. According to Farmer and Lyal (1994), this power is a fundamental prerogative of the State to ensure economic stabilisation and the need to effectively generate revenue to seamlessly execute the social contract between the government and the governed. The effectiveness and efficiency of using this taxing power is a function of the type of government, ranging from one extreme of Democracy to another extreme of autocracy in what we have described as the political representation continuum. Democracy is of Greek origin and is a blend of two words: *Demos,* meaning people and *Kratos*, meaning rule. It is used to describe direct, participatory, and representative forms of rule by the people. According to Schumpeter (1942), Democracy is the institutional arrangement for arriving at political decisions in which individuals acquire the power to decide using a competitive struggle for the people's vote. Autocracy, on the other hand, is a lack of Democracy. Autocracy, known differently as (absolutism, totalitarianism, dictatorship, despotism, autarky, and tyranny), is a form of government that concentrates power in one individual's hands.

In the developed countries of Europe and America, the relationship between taxation and Democracy has been sparsely considered, and the results are relatively inconsistent, which makes the issue largely inconclusive and open for further consideration. This current attempt is a replication of the topical issue in developing countries with emphasis on Nigeria, where no known attempt has been documented to the best of our knowledge. In addition, it is pertinent to test the truism of the

Acemoglu, Naidu, Restrepo, and Robinson (2014) bidirectional relationship against the backdrop of the limitations of the Nigerian model of Democracy to avoid juxtaposing the results of empirical studies from developed entities on less sophisticated economies with weak political and economic institutions. Also, this country-specific attempt deviates sharply from the usual cross-country analysis, which may be limited by the differences in the democratic models of the different countries, the buoyancy of the institutional formations, sophistication of the system of taxation, and the dynamics of the economic environment. Evidence advanced from country case studies may provide a better efficacy of econometric analysis (Bourguignon & Leipziger (2006).

Against the backdrop of the above, the fundamental objective of this paper is to investigate the relationship between taxation and democratic representation. Secondly, we explore the validity of the bidirectional relationship between taxation and Democracy in the developing countries based on the position of Acemoglu et al. The first objective is sacrosanct against the background of the Nigerian democratic model that is riddled with electoral malpractices and the attendant corrupt practises that have to weaken the political and economic institutions.

The preliminary inspection of the regression analysis delivers some exciting results. In specific terms, the variable of interest (taxation) is mildly positive even though it is not statistically significant. The relationship between indirect tax and democratic representation is negative and not statistically significant. The control variable of corruption is positive and statistically significant. The relationship between population growth rate, openness and Democracy are negative and insignificant. Following the introduction, the paper is divided into four sections. Section two presents a review of the prior empirical literature on the nexus between taxation and democratisation. Section three focuses on the methodology with an emphasis on the theoretical framework and model specification. Section four discusses the research findings concerning prior empirical literature. Section five focus on the conclusion and the policy implications of the findings.

## Taxation and Democratic Representation

Extant empiric and on the relationship between taxation and Democracy has been relatively directionless in the developed economies where the issue has been naively embraced and sparse in the developing countries where little or no empirical consideration has been accorded the issue to the best of our knowledge. There appear to be three strands of the empirical literature on the taxation-democracy dynamics. The first focus on researches that find a positive relationship between taxation and democratic representation (Aidt & Jensen, 1986; Alesina & Rodrik, 1994; Boix, 2001; Kenny & Winer, 2006; Mutascu, 2011; Profeta & Scabrossetti, 1996, and Yi, 2012). The second strand of literature focuses on researches that establish a negative relationship between taxation and democratic representation (Down, 1960, and Tonizzo, 2006). The third strand of literature are researches that neither finds a positive nor negative relationship between taxation and democratic representation (Meltzer & Richard, 1981)

Mutascu (2011) find a positive and significant relationship between taxation and Democracy using a panel regression technique. The data set for the study covers the period between 2002 and 2008 opine that a significant tax increase can be achieved through democratic representation without adverse reactions from the taxpayers. The issue of negative reaction from the taxpayers is sacrosanct since the citizens expect some level of transparency and accountability in taxpayers' money.

Alesina and Rodrik (1994) demonstrate that in models of Democracy where there is a paucity of capital, there will be a strong demand for taxation to augment the revenue accruable to the government. Therefore, it is expected that a significant positive relationship will exist between taxation and Democracy. The position of Alesina and Rodrik succinctly captured the developing countries perspective on the nexus between taxation and democratisation. In the same vein, Profeta and Scabrosetti (2010), using OLS regression, find that Democracy and civil rights protection are positively correlated with the level of tax revenue, emphasising direct taxes. The exact position is maintained by Kenny and Miner (2006), who find a positive relationship between taxation and democratisation.

The relationship between taxation and democratisation is also thought to depend on the level of income inequality in the economy. Income inequality is described as the extent to which income is unevenly distributed among a population. It usually describes the gap between the haves and the have not in a given Society. Leaning on this background, Yi (2010) hypothesised that the effect of taxation on Democracy is more substantial in Societies with a high level of discrepancies between the rich and the poor. Yi (2012), using event history models and data set of regime transition from 1970 to 2000, finds that higher levels of taxation have a conditional impact on democratisation to the extent that higher levels of taxing power and greater income inequality tend to promote democratisation.

Another strand of literature finds a negative relationship between taxation and democratisation, which presupposes that a higher level of taxation is required to sustain democratic representation. Down (1960) investigated the relationship between taxation and democratic representation and found a significant negative relationship. The negative result is ascribed to the suboptimal allocation of government resources. The burden of taxation, which may be heightened by autocratic rule, is also thought to be reduced by democratic representation. This position is succinctly captured by Tonizzo (2008), who find a negative relationship between taxation and democratisation. The position of Fauvelle-Aymer (1999) further corroborates the negative relationship between taxation and democratic representation. According to D'Arcy (2012), this negative relationship results from the counter-intuitive approach to democratisation in the developing economy, a system that has been described as reverse development. Reverse sequencing results from a situation where democratisation proceed State-building, whereas the reverse is supposed to be the case (Mansfield & Snyder, 2007). In the developed economy of Europe and America, State-building precedes democratic representation; hence there are well-established and heavily reinforced socio-political institutions. Fjeldtad and Therkildsen (2008) document a situation where democratisation leads to tax mobilisation, which eventually sparked off a nationwide protest that culminated in the abolition of the local taxes. This is a scenario of a negative relationship between taxation and democratisation.

Finally, another strand of literature present researched, neutral, to the relationship between taxation and democratic representation. This group of study, though relatively few, did not find any relationship between taxation and Democracy. Meltzer and Richard (1981) documents that the relationship between taxation and Democracy is challenging to establish concretely. This difficulty may be due to the abstract nature of the concept, making it very difficult to measure in absolute terms. In the same vein, Profeta et al. (2009) did not document any significant relationship between Democracy and taxation using a country-specific approach. The form of taxes (indirect taxes, corporate taxes and social security contributions) did not change the result of the study. Against the backdrop of the paucity of empirical results in the developing countries and the inconsistencies in the extant literature, we hypothesise in a null form that there is no significant relationship between taxation and democratic representation in developing countries with Nigeria as a reference point.

## Methodology

### Theoretical Framework and Model Formulation

The basis for evaluating the relationship between taxation and democratisation is the neoclassical theory of the State propounded by North (1981). In the Model of North, the State is seen as both a contract and extraction regime. As the former, the State is involved with providing public goods (security, justice, property right) in exchange for exercising taxing power. Like the latter, the State is involved in altering the property right to extract the highest possible rent. According to the neoclassical theory of the State, relinquishes enforcement of the property right by reducing the extent of representative disorderliness to get some level of taxing power.

According to North (1999) … development of a representative body reflecting the interest of constituent groups and their role in bargaining with the rulers. This concept … reflects the need of the ruler to get more revenue in exchange for which he/she agrees to provide specific services to the constituent group (49).

The above position is reinforced by the report of Bates and Lien (1985). According to Bates and Lien, Democracy is instituted when autocratic rulers concede policy preferences to the citizenry in exchange for more taxes. The basic proposition under consideration is that there is no significant relationship between taxation and democratisation. Against the backdrop of the above foundation, we expect a functional relationship between taxation or taxing power and democratic representation of the form:

$$Democracy = f(Taxation) \tag{1}$$

*Where: Taxation is tax revenue as a function of the gross domestic product (GDP), and Democracy is a dichotomous variable of one(1) for fully democratic States and zero(0) non-democratic settings like the military rule in the case of Nigeria.*

*In econometric form, equation one is modified to read:*

$$D_t = \beta_0 + \beta_1 T_t + \mu_t \tag{2}$$

*Where:* $\beta_0$ *is the intercept, D is the democracy index,* $\beta_1$ *is the unknown coefficient of the explanatory variable, t is the period covered by the study (38 years), and* $\mu$ *is the error term.*

*Introducing the usual control variables of population growth rate, openness, and corruption perception index, equation ii is transformed as:*

$$D_t = \beta_0 + \beta_1 T_t + \beta_2 TIT_t + \beta_2 PGR_t + \beta_4 OPN_t + \beta_5 CPI_t + \mu_t \tag{3}$$

***Research Data and Statistics***

To estimate the influence of taxation on democratic representation, we use a longitudinal time-series strategy reinforced with a deductive research approach and anchored on the positivist philosophy. The study relies on archival data covering a period of 38 years from 1980 to 2017. The period is considered helpful as it captures the intermittent shift from one extreme of Democracy to another extreme of military rule within the democracy continuum. We relied on a data set collected from different reliable sources. Democracy data is collected from the National Bureau of Statistics, tax revenue data were collected from the Federal Inland Revenue Service, the control variable of corruption perception index is sourced Transparency International, population growth rate from the National Population Commission, and openness from the Central Bank of Nigeria Statistical Bulletin for the relevant years.

***Measurement of Variables***

***Democracy:*** One of the most contentious issues in the study of the relationship between taxation and Democracy has been finding an accurate measure of the abstract concept of Democracy and extrapolating the outcome to a real-life situation. The democracy continuum has two extremes of democratic governance and non-democratic governance. Within these two extremes are situations that are difficult to quantify within the democratic scale of one(1) and zero(0). For example, it is challenging to classify midway countries between Democracy and autocracy, such as Russia and most African countries in the 90s. Political aberrations such as interim governments and any democratic distortion may not necessarily be a military intervention. Both scenarios will no doubt pose severe measurement limitations.

In Europe and America, where the relationship between taxation and Democracy has received sparse empirical consideration, the concept of Democracy has been estimated using the Polity iv and the freedom house indices of Democracy. Both measures have come under severe criticism as not being realistic measures of Democracy (Gunitsky, 2015). Another measure of Democracy is the Vanhanen index which relates the total number of voters in an election to the number of registered voters. The problem with this approach is that where there is voters' apathy or where voting is mandatory, the democracy index will hardly ever be accurate. In the scenario of voters' apathy, the democracy index will be shallow, and in the second scenario, the index will be very high.

In this current study, we adopted the dichotomous measure of Democracy where one (1) is assigned to democratic representation and zero (0) to all cases of non-democratic representation such as a military rule in the case under consideration. Freedom House and Polity IV indices of Democracy are ruled out because they are not amenable to this part of the world where record-keeping extremely poor. The dichotomous measure of Democracy has enjoyed robust patronage in the empirical literature (Acemoglu et al., 2014; Ross, 2004). According to Przeworski (2000), a country is either democratic or not.

***Taxation:*** Drawing on the extant empirical literature, we proxy taxation as the ratio of total tax revenue to the gross domestic product. The choice of this approach is based on its universal acceptability. This approach has been widely used in researches on the nexus between taxation and democratic representation (Keen & Lockwood, 2009; Khattry and Rao, 2002). In line with the Nigerian National Tax Policy (1992), which gave preference to the indirect form of taxation, we included the ratio of total indirect tax to total tax revenue as another variant of taxation. This is in line with the study of Profeta et al. (2009).

***Control variables:*** In addition to the dependent variable of democratisation and the explanatory variables of taxation, extant literature has suggested that beyond taxation, other socio-economic variables of population growth rate, openness, and corruption perception index can determine the level of democratisation. The population growth rate (PGR) variable is the percentage growth rate in annual population values (Meltzer & Richards, 1981). Openness is taken as the average of import plus export. It is expected that openness will enhance the level of democratisation (Schulze & Ursprung, 1999). The corruption perception index is as the figures from the yearly ranking of Transparency International. It is expected that democratic representation that breeds transparency and accountability is likely to reduce corruption (Uslander, 2010).

## Estimation Results and Discussion

### *Univariate Analysis*

### *Test of Unit Root*

**Table 1. Result of the Augmented Dickey-Fuller Unit Root Test**

| *Variable* | *Level* | *First Difference* | *Order of Integration* | *Remarks* |
|---|---|---|---|---|
| *DEMOCY* | -2.131633 | -7.527727*** | I(1) | Stationary |
| *TREV_GDP* | -3.110987** | -7.301649*** | I(1) | Stationary |
| *TIT_TTR* | -2.142094 | -6.351725*** | I(1) | Stationary |
| *OPEN* | -2.653626* | -8.209705*** | I(1) | Stationary |
| *PGR* | -1.666254 | -4.992693*** | I(1) | Stationary |
| *CPI* | -0.498454 | -5.353782*** | I(1) | Stationary |

***Significant at 10%, **Significant at 5%, ***Significant at 1%***

Table 1 presents the result of the unit root test of the regression variables. To avoid a situation of spurious regression, we tested the variables for stationarity. The use of non-stationary data will likely invalidate the result of the test of hypotheses. The result of the stationary test shows that at the first difference, the ADF statistic of all the variables exceeds the absolute critical values at the 1%, 5%, and 10% significance levels, respectively. Therefore, all the variables are integrated of order one I(1).

***Descriptive Analysis of the Regression Variables***

**Table 2. Results of the Descriptive Analysis**

| | ***DEMOCY*** | ***TREV_GDP*** | ***TIT_TTR*** | ***OPEN*** | ***PGR*** | ***CPI*** |
|---|---|---|---|---|---|---|
| ***Mean*** | 0.631579 | 13.81395 | 32.60526 | 49.89658 | 2.790263 | 16.91053 |
| ***Median*** | 1.000000 | 13.80000 | 28.50000 | 55.15500 | 2.870000 | 15.00000 |
| ***Maximum*** | 1.000000 | 38.00000 | 54.00000 | 83.01000 | 3.640000 | 28.00000 |
| ***Minimum*** | 0.000000 | 1.550000 | 14.00000 | 14.02000 | 1.620000 | 9.600000 |
| ***Std. Dev.*** | 0.488852 | 8.397864 | 12.68227 | 18.27562 | 0.510868 | 6.767282 |
| ***Skewness*** | -0.545545 | 0.689379 | 0.261068 | -0.245978 | -0.397378 | 0.349946 |
| ***Kurtosis*** | 1.297619 | 3.371367 | 1.698044 | 2.021515 | 2.148048 | 1.501619 |
| ***Jarque-Bera*** | 6.473580 | 3.228241 | 3.115551 | 1.899137 | 2.149311 | 4.330408 |
| ***Probability*** | 0.039290 | 0.199066 | 0.210604 | 0.386908 | 0.341415 | 0.114727 |
| ***Sum*** | 24.00000 | 524.9300 | 1239.000 | 1896.070 | 106.0300 | 642.6000 |
| ***Sum Sq. Dev.*** | 8.842105 | 2609.393 | 5951.079 | 12357.94 | 9.656497 | 1694.456 |
| ***Observations*** | **38** | **38** | **38** | **38** | **38** | **38** |

Table 2 presents the result of the descriptive analysis. The maximum value of the index of Democracy is 1.000000 with a minimum value of 0.000000 and a mean value of 0.631579. The mean value of 0.631579 signifies that the position of Nigeria model of Democracy is a little above 0.50, which means the Nigerian model is not a true democracy. The mean value of the ratio of tax revenue to GDP is relatively low at 13.81395% compared to 34.5% average for OECD countries and below the 20% minimum benchmark set by the United Nations. The mean ratio of indirect tax to total tax is 32.60526, meaning that indirect tax, on average, constitutes about 33% of the total tax revenue within the period covered. By implication, it means the bulk of Nigerian tax revenue comes from direct taxes (about 67%). We are tempted to now ask what then formed the basis of the emphasis on indirect taxation in the Nigerian National Tax policy of 1992. The mean openness is 49.89658, which shows that the globalisation index of Nigeria is about 50%. The mean population growth rate is 2.790263, which signifies an annual growth rate of about 2.8%. The average index of corruption is 16.91053 over the period under consideration. The values of the standard deviation of the regression variables are relatively small signifying very low or small dispersion from the respective mean values of the variables. The normality test is presented in Figure 1.

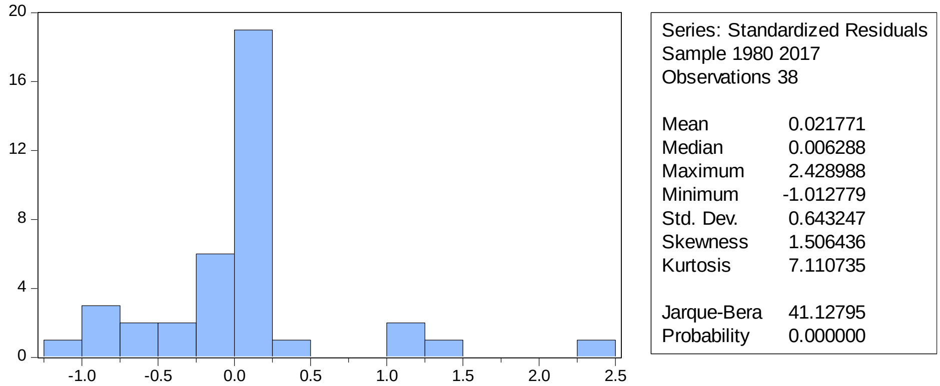


**Figure 1. Result of the Histogram Normality Test**

The result of the histogram normality test in Figure 1 shows an average Jarque-Bera value of 41.12795 and a probability value of 0.000000 < P =0.05 at the 5% level of significance. The mean kurtosis is 7.110735, which far exceeds the benchmark of 3.0 and indicative of leptokurtic distribution. The mean skewness of 1.506436 shows a positive rightward skewed histogram as can be observed in Figure 1.

### *Correlation Analysis*

**Table 3. Results of the Correlation Analysis**

Covariance Analysis: Ordinary
Date: 07/30/18 Time: 01:53
Sample: 1980 2017
Included observations: 38

| Correlation<br>t-Statistic<br>Probability | DEMOCY | TREV_GDP | TIT_TTR | OPEN | PGR | CPI |
|---|---|---|---|---|---|---|
| DEMOCY | 1.000000<br>-----<br>----- | | | | | |
| TREV_GDP | -0.129066<br>-0.780931<br>0.4399 | 1.000000<br>-----<br>----- | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| TIT_TTR | -0.643123 | 0.309556 | 1.000000 | | | |
| | -5.039072 | 1.953275 | ----- | | | |
| | 0.0000 | 0.0586 | ----- | | | |
| OPEN | 0.037216 | -0.005305 | -0.135343 | 1.000000 | | |
| | 0.223450 | -0.031830 | -0.819597 | ----- | | |
| | 0.8244 | 0.9748 | 0.4178 | ----- | | |
| PGR | -0.009341 | -0.013295 | -0.165884 | 0.401631 | 1.000000 | |
| | -0.056050 | -0.079778 | -1.009288 | 2.631338 | ----- | |
| | 0.9556 | 0.9369 | 0.3196 | 0.0124 | ----- | |
| CPI | 0.638442 | -0.687629 | -0.615269 | -0.038811 | 0.002837 | 1.000000 |
| | 4.977005 | -5.682397 | -6.140978 | -0.233041 | 0.017022 | ----- |
| | 0.0000 | 0.0000 | 0.0000 | 0.8170 | 0.9865 | ----- |

The result of the correlation analysis is presented in Table 3. The coefficient of correlation between the explanatory variable of interest and the dependent variable of democratisation is negative (-0.129066). Between Democracy and the ratio of indirect tax to total tax revenue is negative (-0.643123), between Democracy and openness is (0.037216), between population growth rate and Democracy is (-0.009341), and (0.638442) between corruption perception index and Democracy. The highest coefficient of 0.687629 is between corruption perception index and tax revenue as a function of GDP; the value is not indicative of the problem of multicollinearity.

## *Goodness of Fit*

**Table 4. Results of the Andrews and Hosmer-Lemeshow Test of Goodness of Fit**

Goodness-of-Fit Evaluation for Binary Specification
Andrews and Hosmer-Lemeshow
Tests

Equation: UNTITLED

Date: 07/30/18 Time: 02:01

Grouping based upon predicted risk (randomise ties)

| Quantile of Risk | | Dep=0 | | Dep=1 | | Total | H-L |
|---|---|---|---|---|---|---|---|
| Low | High | Actual | Expect | Actual | Expect | Obs | Value |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.0002 | 0.0049 | 3 | 2.99220 | 0 | 0.00780 | 3 | 0.00782 |
| 2 | 0.0110 | 0.0915 | 4 | 3.84090 | 0 | 0.15910 | 4 | 0.16569 |
| 3 | 0.1449 | 0.3393 | 3 | 3.07326 | 1 | 0.92674 | 4 | 0.00754 |
| 4 | 0.3402 | 0.4558 | 2 | 2.32130 | 2 | 1.67870 | 4 | 0.10597 |
| 5 | 0.4665 | 0.9088 | 2 | 1.64051 | 2 | 2.35949 | 4 | 0.13355 |
| 6 | 0.9533 | 0.9682 | 0 | 0.11903 | 3 | 2.88097 | 3 | 0.12395 |
| 7 | 0.9963 | 0.9981 | 0 | 0.00945 | 4 | 3.99055 | 4 | 0.00947 |
| 8 | 0.9981 | 0.9996 | 0 | 0.00306 | 4 | 3.99694 | 4 | 0.00306 |
| 9 | 0.9999 | 1.0000 | 0 | 0.00021 | 4 | 3.99979 | 4 | 0.00021 |
| 10 | 1.0000 | 1.0000 | 0 | 8.2E-05 | 4 | 3.99992 | 4 | 8.2E-05 |
| | | Total | 14 | 14.0000 | 24 | 24.0000 | 38 | 0.55734 |

| | | | |
|---|---|---|---|
| H-L Statistic | 0.5573 | Prob. Chi-Sq(8) | 0.9998 |
| Andrews Statistic | 24.7582 | Prob. Chi-Sq(10) | 0.0058 |

Table 5 presents the result of the Hosmer-Lemeshow test of goodness of fit with the null hypothesis of the model fit the regression data, and the alternate hypothesis of the model does not fit the data. The test is a Chi-square estimation of the goodness of fit test, and the result of the analysis reported H-L Statistic of 4.4402, df (8) and a probability value of 0.8154 indicating there is no evidence of poor fit which means the regression model is correctly specified.

## Multivariate Analysis

**Table 6. Results of the Regression Analysis**

Dependent Variable: DEMOCY
Method: ML - Binary Logit (Quadratic hill climbing)
Date: 07/30/18 Time: 01:56
Sample: 1980 2017
Included observations: 38
Convergence achieved after 7 iterations
Covariance matrix computed using second derivatives

| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|---|---|---|---|---|
| C | -9.654337 | 16.48934 | -0.585490 | 0.5582 |
| TREV_GDP | 0.365571 | 0.277262 | 1.318505 | 0.1873 |

| | | | | |
|---|---|---|---|---|
| TIT_TTR | -0.114414 | 0.109139 | -1.048328 | 0.2945 |
| OPEN | -0.024491 | 0.064890 | -0.377425 | 0.7059 |
| PGR | -0.809739 | 4.192645 | -0.193133 | 0.8469 |
| CPI | 0.868214 | 0.432896 | 2.005597 | 0.0449 |

| | | | |
|---|---|---|---|
| McFadden R-squared | 0.661731 | Mean dependent var | 0.631579 |
| S.D. dependent var | 0.488852 | S.E. of regression | 0.300558 |
| Akaike info criterion | 0.761026 | Sum squared resid | 2.890722 |
| Schwarz criterion | 1.019592 | Log likelihood | -8.459496 |
| Hannan-Quinn criter. | 0.853022 | Deviance | 16.91899 |
| Restr. deviance | 50.01636 | Restr. log likelihood | -25.00818 |
| LR statistic | 33.09737 | Avg. log likelihood | -0.222618 |
| Prob(LR statistic) | 0.000004 | | |
| Obs with Dep=0 | 14 | Total obs | 38 |
| Obs with Dep=1 | 24 | | |

The dichotomous nature of the dependent variable of Democracy necessitates the use of binary logit regression. The result of the logistic regression analysis is presented in Table 6. The L-R statistic tests the null hypothesis that all the coefficient of the regressors are simultaneously zero. The L-R statistic follows the Chi-square distribution with degree of freedom equal the number of regressors. With an L-R statistic of 33.09737 and a probability value of 0.000004, which is not substantially different from zero, it shows that the regressors are essential determinants of democratisation. The value of the L-R statistic shows that the restricted model is not valid. The L-R statistic in logistic regression is the equivalent of the F-statistic in the ordinary least square regression.

The value of the McFadden Pseudo R-squared of 0.661731(66%) indicates a better fit for the regression model. The McFadden Pseudo R-squared lies between one (1) and zero (0), and higher values indicate a better model fit. Suffice to mention, however, that the Pseudo R-squared is not an equivalent of the R-squared or the adjusted R-squared in the standard OLS regression.

The estimate from the model of the study indicates that a one percentage point increase in the tax revenue to GDP ratio (our variable of interest), increases the index of democratisation by about 0.365571 points. It shows that for every unit increase in the tax to GDP ratio, the log odds of Democracy (or non-democracy) increases by 0.40 points. However, with a ward Z-statistic of 1.318505 and a probability value of 0.1873 > P= 0.05, it shows that there is a positive relationship between taxation (proxy with the ratio of tax to GDP) and index of democratisation. Even though the relationship is not statistically significant at the 5% level. The positive relationship result is in tandem with the positive consensus relationship in extant literature (Aidt & Jensen, Alesina & Rodrik, 19941986; Boix, 2001; Kenny & Winer, 2006; Mutascu, 2011; Profeta & Scabrossetti, 1996, and Yi, 2012). The insignificant relationship corroborates the positions of Meltzer & Richard, 1981). The insignificant relationship between taxation and democratisation in Nigeria cannot be unexpected. The relatively small annual tax to GDP ratio, which averaged about 14% (See Table 1) will hardly ever have any positive influence on democratisation in Nigeria. The Nigerian nation-state is not rooted on the classical tax system; instead, it is crafted on a pseudo-modern tax system where taxation is a secondary tool that is poorly used to enhance the social contract between the State and the society. Hence, in Nigeria and most developing countries to be conservative, Democracy does not enhance tax compliance this accountant for a while different models of tax collection have been put in place by successive governments, from the use of tax consultants to the current regime of self-assessment

The Nigerian tax system is a replica of the reverse sequencing identified by D'Arcy (2012) where democratisation precedes State building wherein real sense; the reverse is supposed to be the case. Hence, we have a vast informal system, weak socio-political intuitions, a tax system that is built on a faulty premise where avoidance is celebrated, and evasion is criminalised, whereas both practices result in illegal depletion of government revenue. Even though taxation should not be based on a quid pro quo relationship, there should be an active fiscal contract between the State and the society such that the State will be accountable to its citizenry, and the citizens must carry out their civic responsibility (including tax payment) without coercion.

The result of the analysis did not support the indirect tax as a driver of Democracy. It becomes counter-intuitive for the government to emphasise indirect taxation in the 1992 National Tax Policy without recourse to any empirical validation. The ward Z-statistic of -1.048328 and the insignificant probability value of 0.2945 shows that indirect taxation reduces democratisation. The result is statistically insignificant at the 5% level and consistent with Profeta et al. (2009).

The control variables of population growth rate and openness are negative and statistically insignificant at the 5% level. Openness reported a ward Z statistic of 0.377425 and a probability value of 0.7059 > P= 0.05 at the 5% level of significance. It shows an insignificant relationship between openness and democratisation. Population growth rate reported a ward Z statistic of -0.193133 and a probability value of 0.8569 > P= 0.05, which shows a statistically insignificant relationship between population growth rate and democratisation. Surprisingly, corruption proxy by corruption perception index (CPI) reports a significant positive relationship with democratisation in Nigeria. The variable reported a robust ward Z statistic of 2.005597 and a significant probability value of 0.0449 < P= 0.05 at the 5% level. The result implies that corruption increases the Nigerian model of Democracy. The result is self-explanatory with the monumental corruption and the electoral malpractices in the Nigerian political scene. The result of the robust positive relationship between corruption and democratisation contradicts the negative relationship reported by Uslander (2010).

***Robustness Check***

Having presented the core results of the study, we test the robustness of the result to bidirectional causality between the dependent variable of democratisation and the explanatory variable of taxation. Bates and Lien (1985), Acemoglu and Robinson (2006) argued in favour of bi-directional causality between Democracy and taxation. Consistent with their argument, Table 7 presents the result of the Granger causality test.

**Table 7. Results of the Granger Causality Test**

Pairwise Granger Causality Tests
Date: 08/01/18 Time: 05:55
Sample: 1980 2017
Lags: 3

| Null Hypothesis: | Obs | F-Statistic | Prob. |
|---|---|---|---|
| TREV_GDP does not Granger Cause DEMOCY | 35 | 1.81875 | 0.1666 |
| DEMOCY does not Granger Cause TREV_GDP | | 2.85615 | 0.0549 |

The result negates the presence of bidirectional causality between the democracy index as the dependent variable and the ratio of tax revenue to GDP. The result shows that the explanatory variable of tax revenue to GDP Granger causes democracy index and not the other way round.

## Conclusion and Policy Implications

Is there a positive relationship between taxation and democratisation from a developing country perspective? This is the fundamental question that formed the basis for this current contribution to the burgeoning literature on the taxation-democratisation dynamics. In line with our apriori expectation, we find a mildly positive relationship that is not statistically significant. However, the result is not unexpected going by the abysmal performance of the Nigerian tax to GDP ratio, which was as low as 6% in the year 2017 compared to the United Kingdom with 34%, and Sweden with a ratio of 49.8%. The Nigeria tax system is not only naïve with extreme cases of tax evasion and avoidance; the informal sector that is outside the tax net is extensive and corruption highly endemic.

The new National Tax Policy in Nigeria has shifted emphasis from direct taxation to indirect taxation it became to test the basis of the shift. The relationship between indirect taxation and democratic representation is negative and not statistically significant. In short, the variable is negatively related to the level of democratisation. Interestingly, corruption is positively related to our model of Democracy. While the result is not unexpected, it is contrary to conventional wisdom. The monumental electoral fraud in Nigeria political system lends credence to the result of our empirical analysis.

From the perspective of policy, it is safe to state that the Nigerian model of Democracy does not enhance tax compliance. This is not only surprising, by counter-intuitive. The result of our study shows that the tax revenue to GDP ratio is not able to influence the level of democratisation as a result of corruption. Therefore, the diversification of the Nigerian economy in favour of taxation may be a mirage if the endemic corruption in every facet of our existence is not attacked head-on. Against the above backdrop, we are advocating for a ground-sweeping tax reform that will ensure improved tax revenue generation achievable through reduction of the underground economy, criminalising aggressive tax avoidance and tax evasion, re-engineering the mindset of Nigerian tax administrators, and result in oriented tax education at all levels.

While the current contribution will not foreclose the taxation-democracy discourse, will have no doubt advanced a developing country perspective that will close the existing knowledge gap arising from sparse or no empirical consideration to the best of our knowledge. Further studies should moderate the relationship using corruption and not as a control variable. The result of such moderation may present a better insight into the study.

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