



Determinants of Taxable Capacity in Nigeria

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Abstract: This study is centred on the determinants of taxable capacity in Nigeria, with taxable capacity viewed as the ability of the taxed person to bear the burden of the tax in relation to their source of income without experiencing a reduction in standard of living, or margin of profit and investment in the case of firms. The study employed desk survey research design, and data obtained from secondary sources and analysis conducted using the ordinary least square technique. The results from the regression analysis and the test of hypotheses revealed that the relationship between inflation and taxable capacity in Nigeria was negative and statistically insignificant. Also, the results showed that both the degree of economic openness and the level of economic development positively and significantly affected taxable capacity in Nigeria. The study recommended that the Nigerian government should create an enabling environment that will facilitate international trade and provide the necessary facilities for the efficient and effective administration of taxes on the income generated from the global market as these will go a long way in providing revenue for the government.

Keywords: Degree of Economic Openness, Inflation, Level of economic development, Social Amenities, Taxable Capacity

1. Introduction

One of the concerns of the governments and economic systems in the world is tax system efficiency and determination of tax rates for different classes of society so that with higher taxable capacity, it can generate more income for running the economy (Nasser & Mohadesse, 2014). The purpose of taxation is basically to equip governmental sources, making economic policies and help improve the process of income distribution in the society (Nasser & Mohadesse, 2014). Taxable capacity as defined by Gupta (2007) is the highest amount of revenue that can be generated from taxes without jeopardizing the economic activities in the economy. Mohamed (2012) suggests that the taxable capacity of any country depends on the ability of the people to pay and the ability of the government to collect taxes. According to Botlhole (2010), raising domestic revenues is the most feasible way to achieve fiscal sustainability. He asserted that tax revenue which is a function of taxable capacity contributes a large chunk of every country's domestic revenue.

As a result, an evaluation of the determinants of taxable capacity in Nigeria is of great importance, as it provides information on the factors affecting taxable capacity which could be manipulated to enhance the taxable capacity of the national economy and further demonstrates the maximum tax that can be paid by the society in order to finance public services without harming economic growth and development.

The Nigerian tax system has undergone several reforms geared at enhancing tax collection and administration with minimal enforcement cost (Usman & Bilyaminu, 2013). Other measures such as Taxpayer's Identification Number (TIN) and Automated Tax System (ATS) to mention but few had enhanced the enabling environment in addition to the consistent review of tax laws has led to an improvement in tax administration in the country (Usman & Bilyaminu, 2013). However, from the publications of the Federal Inland Revenue Service (FIRS), there has never been a time where the country's taxable capacity (using actual tax collection as the proxy variable) is equal to the actual tax revenue collected even with the aforementioned reforms in operation (www.firs.gov.ng). Therefore, the motivation for this study is the identification and evaluation of the factors affecting taxable capacity in Nigeria in order to know and estimate the country's real potential to pay and collect taxes with a reasonable certainty and accuracy as well as suggesting ways of

improving the country's taxable capacity. Hence, the study evaluates the determinants of taxable capacity in Nigeria. Specifically, the objectives of the study include the following:

- To ascertain the relationship between inflation and taxable capacity in Nigeria.
- To determine the extent to which level of economic development (using per capita GDP as the proxy variable) affects taxable capacity in Nigeria.
- To ascertain the impact of the size of economic openness (using net export as the proxy variable) on taxable capacity in Nigeria.

2. Literature Review

The study is underpinned by the benefit approach theory developed by Thomas Hobbes (1588 - 1679), John Lock (1632 - 1704) and Hugo Grotius (1583 - 1645). However, in the 20th century, (1891 - 1960), Erik Lindahl further advanced the theory. Under the advanced benefit received theory, in the views of Joseph and James (2013), tax levels are fundamentally determined as taxpayers pay in proportion to the benefits they receive from the government. Stated differently, the individuals who benefit the most from public services pay the most taxes.

The ability-to-pay principle by Arthur and Jean-Jacques Rousseau (1712 - 1778), Jean-Baptiste Say (1767 - 1832) and John Stuart Mill (1806 - 1873). The most popularly accepted principle of equity or justice in taxation is that citizens of a country shall pay taxes to the government in accordance with their ability to pay. It therefore appears very reasonable and just that taxes should be levied on the basis of the taxable capacity of an individual (Joseph & James, 2013). According to Michael (2012), the ability-to-pay theory treats government revenue and expenditures separately. Under this approach, taxes are based on taxpayers' ability to pay; there is no quid pro quo (something for something).

The third theory considered was the cost of service theory that equates the cost of the service or benefits received to pay. It originated from the works of Thomas Hobbes and other proponents of the benefit received theory (Kirwan as cited in Joseph & James, 2013). Some economists have opined that the idea of equity or justice will be satisfied in taxation if the state charges as tax, the actual cost of the service rendered to the citizens. Joseph and James (2013) opine that the cost of service principle can without much rigors be applied in cases where the services rendered are priced and are a bit easy to determine; e.g., postal, railway services, supply of electricity, etc. However, they also argue that most of the expenditures of the state cannot be exactly determined, leading to questions such as how can we measure the cost of service of the police, armed forces, judiciary, etc., to different individuals? The inability to provide the answer to this question therefore becomes the limitation of this theory.

2.1 Conceptual Framework

Taxable capacity and tax effort have gained due attention, particularly in developing countries, to study and examine the aim of increasing tax proportion in a country to fund government programs and decrease constant deficit (Joseph & James, 2013). This is mostly required because the Nigerian tax system is still lacking in the unifying theme of achieving high tax compliance (Igbeng, Beredugo & Adu, 2015). Identifying of the determinant will assist in the repositioning of criterion of determining tax liabilities.

2.1.1 The Concept of Taxable Capacity

Taxable capacity represents a very early approach in the field of public finance. Taxable capacity is defined as "the ability of a government to raise tax revenue using structural factors such as the number of tax handles available, the level of economic development in the state, and the ability of the population to pay taxes" (Hamid & David, 2007, p. 28). This definition emphasizes that taxable capacity is the ability of the national income to bear tax burden.

Taxable capacity is the optimum size of tax revenues that must be collected when every country applies its own tax system efficiently (Terry, 2003). According to Eltony (2002), taxable capacity refers to the actual tax amount that would be collected by the government of each country, if each country applied same set of effective rates to same tax bases, yielding a representative tax system.

2.1.1.1 Types of Taxable Capacity

Gupta (2007) has indicated that there are two types of taxable capacity: (i) absolute taxable capacity and (ii) relative taxable capacity.

(i) Absolute taxable capacity

Gupta (2007) sees absolute taxable capacity as "the surplus of production over the minimum maintains that volume of production per head of the population, keeping the essential standard of living unchanged over a number of years" (p. 32). In the words of Ricardo and Carola (2013), absolute taxable capacity is "the maximum tax paying ability of the economy or country as a whole, or a region, or an industry, or a group of individuals" (p. 27). This indicates that absolute taxable capacity is determined in terms of the tax amount which can be collected from taxpayers, without causing any suffering to them. Dalton cited in Mohamed (2012), opines that absolute taxable capacity can be gathered and obtained as a tax income with no economic harm for a country, such as a decline of welfare level, contraction of labor supply, or investment deterioration, etc.

(ii) Relative Taxable Capacity

Gupta (2007) sees "relative taxable capacity as the extent of tax burden that should be imposed on different persons to finance a common expenditure as well as a percentage of absolute taxable capacity to net state domestic product". Relative taxable capacity is obtained by comparing the absolute taxable capacities of different taxpayers or industries or groups of taxpayers (Ricardo & Carolina, 2013, p. 28).

2.1.1.2 Tax Effort and Relative Taxable Capacity

Tuan, Blanca and Nihal (2012) see tax effort as the extent to which a country utilizes its taxable capacity. The definition of relative taxable capacity indicates the sum of how much can be collected from individuals or each sector. That is, comparing the readiness and the capability to pay of each person or sector with another. It shows the ratio of a portion of the absolute taxable capacity to the absolute/complete taxable capacity of a country. Whereas the definition of tax effort shows or indicates the ratio of the actual tax revenue collected to the taxable capacity of a country. He goes further saying that "if government dissipates or waste public revenues with no strong auditing and examination, taxpayers will surely avoid tax and resist it" (p. 59).

2.1.1.3 Determinants of Taxable Capacity

Based on evidences from existing literature around the world; Gupta (2007) and more specifically in Nigeria, this study identifies several factors that determine a country's taxable capacity. Among these factors are; (i) inflation, (ii) Level of economic development, (iii) The size of economic openness. Inflation represents a consistent rise in the general prices of goods and services over a period of time. Gupta (2007) opines that there is an inverse relationship subsisting between inflation and taxable capacity due to the fact that inflation generally reduces economic activities. As a result of the reduction in the economic activities of any nation experiencing inflation, the taxable capacity of such a nation will be low. The other feature is that the level of Economic Development affects taxable capacity.

Another important feature is the size of economic openness which is relative to Import to GNP (M/Y), Export to GNP (X/Y), Total foreign trade to GNP $[(X+M)/Y]$ and; (d) Net export to GNP $[(X-M)/Y]$.

2.1.2 The Concept of Tax Effort

Luky (2003) indicates that tax effort is defined as the exertion a country puts into collecting its tax revenue, given the tax handles available to the country. This means that tax effort is the extent to which a country utilizes its taxable capacity (Tuan, Blanca & Nihal, 2012).

The table in Appendix I shows the annual summary of the Nigerian government's targeted and actual taxes from year 2000 to 2014 and its tax effort which is calculated by dividing the actual taxes by the targeted taxes. In trying to explain the implication of the value of tax effort (which is sometimes called Tax Burden Index), Mohamed (2012) opines that; "If the tax effort index is greater than one, this means that the tax burden exceeds the taxable capacity. In addition, the taxpayer suffers from tax stress or fatigue resulting from the tax deduction exceeding his/her ability to pay. In other words, a high taxable effort ratio, above one, indicates that the country is collecting more taxes than predicted by the structural characteristics of its economy. However, if the tax effort index is less than one, it indicates that the tax burden is less than the potential taxable capacity, and the country is collecting less tax than predicted, and that it is possible to increase the tax deduction. If tax effort index is equal or close to one, this means that the tax burden is equal to the taxable capacity and the taxable capacity is fully exploited. Consequently the imposition of any additional taxes or raising of tax rates is not feasible (p.63).

2.2 Empirical Review

The basic aim of this section is to examine previous studies on taxable capacity. Study by Eltony (2002), which evaluated the determinants of tax effort and taxable capacity in seventeen oil-producing Arab countries during the period of 1994-2000, which tried to find the relationship between the ratio of public revenues to GDP and two independent variables; mining share and per capita income. The study through the use of multiple correlation technique indicated that the mining share was negatively and significantly related to tax ratio while per capita income was positively and also significantly related to tax ratio.

In a study by Hamid and David in 2007 entitled "Tax Potential Vs Tax Effort: A Cross-country analysis of twelve developing countries" which covered the period of 1998-2004, an attempt was made to measure the tax potential and tax effort of the selected countries. They made an important contribution to identifying the determinants of tax ratio (T/Y) by including institutional quality, inflation and per capita income in their explanatory variables. Hamid and David employed a cross-country panel regression in carrying out their analysis and their findings indicated that the impact of institutional quality as well as that of per capita income on tax ratio was positive and significant while the relationship between inflation and tax ratio was found to be negative and statistically insignificant. In the year 2010, another commendable work was done by Botlhole. In his work entitled "Tax Effort and the Determinants of Tax Ratio in Sub-Saharan Africa", Botlhole attempted to analyze the determinants of tax effort and taxable capacity of sub-Saharan Africa by using an unbalanced panel dataset which covered 46 sub-Saharan African countries over the period 1990 to 2006 and also used an IV-2SLS estimation regression to test for robustness of the results. He used per capita income, quality of institutions, tax compliance, openness and inflation as the main explanatory variables. His findings showed that the quality of institutions has a positive and significant impact on tax revenue as well as the impact of tax compliance. His findings also indicated that trade openness and per capita income had positive and significant relationships with tax revenue while the impact of inflation was insignificant. Nevertheless, Botlhole's opinion on the relationship between per capita income and tax ratio was contrary to that of Ben and Tim.

Another unforgettable work in this area of study was done by Ghura in 1998. Ghura carried out a study on evaluating the determinants of tax revenue in 39 sub-Saharan African countries over the period 1985-1996. In his model, Ghura used per capita income, agriculture share, structural reforms and inflation as his explanatory variables while the estimation was done through a regression framework, with an unbalanced panel dataset. His findings indicated that while per capita income and structural reforms positively affect tax revenues, inflation and agriculture share negatively affect tax revenues.

Having gone through several literal works on the concept of taxable capacity, it was noted that several scholars have done many comprehensive works in almost every aspect of taxable capacity in several countries either in a group of selected countries (which Nigeria may be one of them) or in a particular single country, most especially estimating the determinants of taxable capacity. However, to the best of my knowledge, prior literature indicates that there has never been any previous work regarding the estimation of the determinants of taxable capacity in Nigeria in particular. Hence, the contribution of this study to the body of existing literature is the identification and estimation of the determinants of taxable capacity in Nigeria using inflation, level of economic development (per capita GDP) and degree of economic openness (net export) as the explanatory variables.

3. Methodology

The study adopted the library research design (also known as desk research), reason being that it involved the use of only secondary data. The choice of library research design for this study became necessary due to the quantitative nature of all the variables used in this study. The choice was also made because it is cheaper and economical.

As a result of Taxable Capacity being a function of several factors, the researcher adopts the simple model for the research:

$$\text{TAXCAP} = f(\text{INF}, \text{DEV}, \text{OPENNESS})$$

Where:

$$\begin{array}{ll} \text{TAXCAP} & = \text{Taxable Capacity (Actual tax collected)} \\ \text{INF} & = \text{Inflation,} \end{array}$$

DEV = Level of economic development (per capita GDP),
OPENNESS = Degree of economic openness (net export),
et = statistical error or stochastic error term.

The functional form of the model is therefore given as follows;

$$\text{TAXCAP} = a + b_1\text{INF} + b_2\text{DEV} + b_3\text{OPENNESS} + \text{et}$$

Where TAXCAP, INF, DEV, OPENNESS and et areas earlier defined and;

a = universal constant,

b1 - b3 = the regression coefficient of the associated independent variable

The study used a log form of the model to avert the problem of heteroscedasticity.

Thus;

$$\text{LOGTAXCAP} = a + b_1\text{LOGINF} + b_2\text{LOGDEV} + b_3\text{LOGOPENNESS} + \text{et}$$

4. Data Analysis

4.1 Profile and Data Frequency

In this section, we present the data compiled from the National Bureau of Statistics (NBS) annual statistical bulletins, Federal Inland Revenue Service (FIRS) annual reports, International Monetary Fund (IMF) World Economic Outlook (WEO); July 2015, journals, textbooks and the Internet of the years under review.

Table 1: Presentation of key research variables

YEAR	X ₁ : (INF) - CPI (%)	X ₂ : (DEV) - PER CAPITA GDP (C.L.C.U) (N'BILLION)	X ₃ : OPENNES) - NET-EXPORT (C.L.C.U) (N'BILLION)	Y: TAXCAP) - ACTUAL COLLECTION (N'BILLION)
1999	6.6	27758	1152	346
2000	6.9	38390.8	2154	455.3
2001	18.9	38959.9	1094	586.6
2002	12.9	55152.1	1113	433.9
2003	14	65941.7	1186	703.1
2004	15	85814.3	3562	1194.8
2005	17.9	105545.4	4842	1741.8
2006	8.2	130547.4	4633	1866.2
2007	5.4	142307.5	2754	1846.9
2008	11.6	163220.9	6270	2972.2
2009	11.5	162596	2386	2197.6
2010	13.7	347934.4	6361	2839.3
2011	10.8	389040.1	9530	4628.5
2012	12.2	431523.2	16819	5007.7
2013	8.5	468762.8	7229	4805.6
2014	8.1	507882.7	893	4714.6
2015	9	525316	2895	37418
2016	15.70	552097	-290	1207

Source: Extraction from National Bureau of Statistics (NBS) annual statistical bulletins, Federal Inland Revenue Service (FIRS) annual reports, International Monetary Fund (IMF) World Economic Outlook (WEO), 2015

We begin by analyzing the relation between the dependent and independent variables. From table 3 below, the correlation coefficients of the variables are examined. As observed, a positive correlation exists between actual tax collected (TAXCAP) and GDP Per Capita (DEV) $\{r=0.834574466\}$. The positive coefficient suggests that increases in GDP Per Capita (DEV) could be associated with increases in actual tax collected (TAXCAP) in Nigeria and vice-versa. More so, it is observed that a positive correlation exists between actual tax collected (TAXCAP) and Net Export (OPENNESS) $\{r=0.211693844\}$. The positive coefficient suggests that increases in Net Export (OPENNESS) could be associated with increases in actual tax collected TAXCAP in Nigeria and vice-versa. The table below shows a negative correlation between INF and TAXCAP suggesting that an increase in INF could lead to a reduction in TAXCAP. However, correlation analysis is limited for inferential purposes because it does not suggest causality or functional dependence in a strict sense.

Table 2: Transformed data (LOG10)

YEAR	(INF)%	LDEV	LOPENNES (N'BILLION)	LTAXCAP (N'BILLION)
1999	6.6	4.443388171	3.061452479	2.539076099
2000	6.9	4.584227162	3.333245699	2.65829765
2001	18.9	4.590617833	3.039017322	2.768342059
2002	12.9	4.741562054	3.046495164	2.63738965
2003	14	4.819160139	3.074084689	2.847017098
2004	15	4.933559664	3.551693915	3.077295214
2005	17.9	5.02343931	3.685024785	3.240998286
2006	8.2	5.115768227	3.6658623	3.270958185
2007	5.4	5.153227789	3.439963936	3.266443381
2008	11.6	5.212775768	3.061452479	3.47307803
2009	11.5	5.211109857	3.377670439	3.341948646
2010	13.7	5.541497369	3.803525396	3.453211282
2011	10.8	5.589994368	3.979092901	3.665440268
2012	12.2	5.63500415	4.225800171	3.699638303
2013	8.5	5.67095314	3.859078225	3.681747619
2014	8.1	5.70576342	2.950851459	3.673444852
2015	9	5.720420629	3.461648568	4.573080571
2016	15.7	5.742015387	-2.46239799	3.08170727

Source: Researcher Estimation 2018

Table 3: Correlation Results

	<i>INF</i>	<i>LDEV</i>	<i>LOPENNES</i>	<i>LTAXCAP</i>
INF	1			
LDEV	-0.08336958	1		
LOPENNES	-0.25483928	-0.166649416	1	
LTAXCAP	-0.18959864	0.834574466	0.211693844	1

Source: Researcher's compilation (2018) from SPSS 23

4.1 Findings

The summary of the regression results is shown below;

Based on the empirical analysis, the regression results as shown in table 4.8 above, show that the estimated coefficients of the regression variables have positive signs in the model except inflation (INF) which has a negative sign. The implication of this is that while taxable capacity (TAXCAP) is positively influenced by both level of economic development (DEV) and degree of economic openness (OPENNESS), it is negatively influenced by inflation (INF). From the above regression result as shown in Table 4.8, we can make the following predictive inference. An increase of one (1) Naira unit in GDP Per Capita (DEV) brings about an increase of 1.015 (N' BILLION) in TAXCAP (Actual Tax Collected). A one (N1' BILLION) unit increase in net export (OPENNESS) will bring about a 1.23 (N' BILLION) in TAXCAP (Actual Tax Collected).

A 1% unit increase in inflation (INF) will bring about a reduction in TAXCAP (Actual Tax Collected) to the tune of 3.22 (N'MILLION). The coefficient of multiple determination (R²) value of 0.8236 implies that about 82.23% variations in the dependent variable (taxable capacity) is caused or explained by the independent or explanatory variables while only 17.77% is unexplained. This remaining 17.77% could be caused by other factors not built into the model. More so, the adjusted R² (RA²) of 0.785862508 suggests that the explanatory variables have 78.58% predictive power on the dependent variable. It shows the model has a good fit. Alternatively, the value of calculated F-statistic of 21.79608211 when compared with the table value of F-statistic of 3.34 (at D1 = 3 and D2 = 14), shows that the overall model is highly significant as the calculated value of F-statistic of 21.79608211 is greater than the table value of 3.34. The result of the Durbin-Watson (DW) is 2.121192. This figure is above 2 and showed that there is no threat of independent error for the equation and indicates the lack of the presence of auto-correlation.

More so, based on the results obtained through regression analysis and test of the formulated hypotheses, it was found in the first hypothesis that inflation had an insignificant negative relationship with taxable capacity in Nigeria. This is in line with the findings of Ghura (1998), Hamid and David (2007), and Botlhole (2010) which all argued that inflation had an inverse and statistically insignificant relationship with tax potentials. However, the findings of Ben and Tim (2015) partially disagreed with these findings by postulating that inflation is both negatively and statistically significantly related to taxable capacity and tax effort.

The second hypothesis test indicates that level of economic development has a positive and significant effect on taxable capacity in Nigeria. This finding is supported by the findings of Ghura (1998), Eltony (2002), Williamson (cited in Mohamed, 2012), Hamid and David (2007), Gupta (2007), Botlhole (2010) and Mohamed (2012) which postulated that per capita GDP, a proxy for level of economic development, had a significant positive impact on taxable capacity, stating that, as the income per person increases, so does their ability to pay taxes increases. However, the findings of Plasschaert (cited in Gupta, 2007), Ben and Tim (2015), and Tony and Jorgen (2010) indicated that though the level of economic development positively affected taxable capacity; the effect was statistically insignificant.

Also, the result of the third hypothesis test indicates that the degree of economic openness has a strong significant positive impact on taxable capacity in Nigeria. This finding is in total consonance with the findings of Botlhole (2010), Luky

(2003), Plasschaert (cited in Gupta, 2007), Tony and Jorgen (2010) and Gupta (2007) which indicated that the degree of trade openness had a positive and significant effect on tax ratio to GNP.

5. Conclusion

Taxable capacity is seen as the ability of the taxed person to bear the burden of the tax in relation to their source of income without experiencing a reduction in standard of living, or margin of profit and investment in the case of firms. The taxable capacity of any nation is, however, measured using either regression analysis approach or the representative tax system approach with proper consideration of the characteristics of the factors existing in the economy. Hence, the motivation for this study was the identification and evaluation of the factors affecting taxable capacity in Nigeria in order to know and estimate the country's real potential to pay and collect taxes with reasonable certainty and accuracy as well as suggesting ways of improving the country's taxable capacity. From the findings of this study, it is concluded that a country that is under a high inflationary period will experience a drastic reduction in its tax revenue as a result of the reduction in the individual's purchasing power. However, the statistical insignificance of the relationship subsisting between inflation and taxable capacity could be due to the fact that business organizations make more profit during an inflationary period. Hence, a reduction in the tax revenue from consumption (indirect taxes) resulting from inflation also leads to an increase in the taxes collected from business organizations (direct taxes). It is also concluded from the findings of this study that a well-developed country is most likely to get more revenue from taxes than a developing or less developed country. This is because, as the income per individual increases, so does their ability to pay taxes increases with the assumption of reasonable tax compliance. Finally, an economy that is totally open for international trade stands a chance of improving its taxable capacity through those incomes generated from those transactions. This means that a country's tax revenue will increase with the addition of taxes such as customs duties.

5.1 Recommendations

The following recommendations are provided based on the empirical findings of this study:

- The Nigerian government should create an enabling environment that will facilitate international trade and provide the necessary facilities for the efficient and effective administration of taxes on the income generated from the international market as these will go a long way in providing revenue for the government.
- There should be proper formulation and implementation of economic policies in order to have a stable economy and reduce the rate of inflation which will in turn, increase the purchasing power of individuals as well as their ability to pay taxes.
- The government can also improve the taxable capacity of the country by expanding the tax net.

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