

Taxation and Balance of Payments in Nigeria (1970 – 2008)

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Abstract: *This paper examines the implication of using taxation to manage the Nigerian Economy and the influence of such measure on macroeconomic aggregates, especially balance of payments over the period 1970 – 2008. The analysis was carried out using both descriptive and inferential statistical techniques. The Ordinary Least Square (OLS) method was used for the estimations. Our findings indicate that the historical trends in balance of payments showed no significant response to tax policy. A positive relationship between tax policy and balance of payments was obtained, which is in line with the theory, but with insignificant coefficient. Further, we found that taxation was not effective in tackling balance of payments problems in the economy during the period of study largely because of inconsistency in the use of tax measures. Among other recommendations, the paper submits that Nigeria should apply tax measures much more carefully than was observed over the period studied.*

I. Introduction

Tax Policy plays an important role in economic management of nations. Both the more developed and less developed countries (MDCs and LDCs) employ tax policy to improve their fiscal and economic performance. In the short run policy-makers formulate tax policies to complement expenditure restraint aimed to contain macroeconomic imbalances (Bovenberg, 1985). Governments can regulate the economy (that is, encouraged or discourage particular forms of social behaviour) by manipulating the incidence of taxation. Tax incentives, for example, tax reduction, tax holidays, are given usually to promote investment and boost output. For instance, tax reduction in the agricultural sector is believed to prompt farmers and other operators in the sector towards greater productivity. The reverse also applies: a heavy tax on the luxury goods will reduce public demand and shift productive resources to other areas (Smartrakalev, 2005).

Taxes are at the foundation of public finances, they are the principal means by which governments fund their expenditures. A properly designed tax policy implies readier tax payer acceptance of that expenditure burden. It should promote the maintenance of a high and sustainable level of output by minimizing both distortions to market-set prices and disincentives to work, saving and investment. But optimal tax policy goes beyond mere efficiency and funding considerations to encompass inevitable normative judgments about the amount of redistribution (Smartrakalev, 2005). By this, Smartrakalev (ibid) tries to explain that taxation and tax policy can be used to control and direct economic management. The regulative role of taxation is one of the most pronounced roles from the fiscalists. The optimal tax policy turns out to affect the economy countercyclically via procyclical taxes, that is, “cooling down” the economy with higher taxes when it is “overheating” due to a positive productivity shock (Ljungqvist & Uhlig 2000). The explanation is that agents would otherwise end up consuming too much in boom times since they are not taking into account the “addiction effect” of a higher consumption level. In recessions, the effect goes the other way round and taxes should be lowered to “stimulate” the economy by bolstering consumption.

At one level, that taxation influences economic behaviour has become a basic tenet for economic policymakers. For example, taxation is assumed to influence multinational firms’ financial decisions about repatriation of profits. The World Bank relates economic performance in developing countries to the level of taxation and finds that countries with lower marginal tax rates have higher Level of spending, inflation rate and balance of payments problems. The reverse is the case with countries having higher marginal tax rates.

In Nigeria, economic indicators have shown that in spite of various tax policies, the expected goals are yet to be achieved. This is evidenced by high rates of inflation and unemployment, decreasing capacity utilization leading to slow growth rate and persistence balance of payments problems. Practically, the Nigerian economy, for the past decades, has been experiencing problems of instability of major economic aggregates – unemployment, price level (inflation), rate of growth of the economy and balance of payments. For instance, in the successive National Development Plans and various annual budgets, single digit inflation rate and a favourable balance of payments situation were targeted. But the available data reveals that the target was hardly ever achieved.

Nigerian Governments have over the years, and on annual bases, set out her taxing and expenditure profile through budgets depending on the objectives it wants to achieve. Such actions which form the basis of tax policy (fiscal policy) are formulated to either “gear up” or stabilize the economy, i.e. steer the economy in

the desired direction (Ukpong & Akpakpan 1998). Various tax policies as explained by the adoption of a specific budget in Nigeria have witnessed a persistent balance of payments problem rather than yielding corresponding favourable and expected balance of payments situation in the economy. The choice of some types of tax by the government has placed some sectors of the economy on a higher priority than others. Several questions have also been raised as to how successive government tax policies have achieved the goals and objectives they intended, and the extent to which they have responded to the working of the economy.

This paper seeks to investigate the extent to which successive governments used taxation in solving the balance of payments problems in the Nigerian economy during period 1970 to 2008. The paper is arranged in five sections with the foregoing introduction as the first. The second section features the review of theoretical and empirical issues in taxation and balance of payments. The third section specifies the model while the fourth section presents and discusses the regression results. The last section concludes with some recommendations.

II. Theoretical Issues

Adam Smith and other classical economists, in their canon of taxation, had documented what should constitute a good tax. A good tax, ipso facto, should possess the following attributes:

- a) The distribution of the tax burden should be equitable i.e., everybody should pay his/her fair share;
- b) Taxes should be chosen so as to minimize interference with economic decisions in otherwise efficient markets. Such interference imposes “excess burden” which should be minimized;
- c) Where tax policy is used to achieve other objectives such as to grant investment incentives, this should be done so as to minimize interference with the equity of the system;
- d) Tax structure should facilitate the use of fiscal policy for stabilization and growth objectives;
- e) The tax system should permit fair and non arbitrary administration and it should be understandable to the tax payer;
- f) Administration and compliance cost should be as low as is compatible with the other objectives (Musgrave and Musgrave 1989:216).

The various objectives are not necessarily in agreement and where they conflict, tradeoffs between them are needed. Thus, equity may require administrative complexity and may interfere with neutrality, efficient design of tax policy may interfere with equity, and so forth.

Adawo (2001), in support of the classical attributes of taxes, maintained that a tax system should be equitable i.e., each tax payer should contribute his/her ‘fair share’ to the cost of government. But the term ‘fair share’ is not easy to define. In particular, two strands of thought may be distinguished. One approach rests on the benefits principle. According to this theory, an equitable tax system is one under which each tax payer contributes in line with benefits, which he/she receives from public services. The benefit criterion, therefore, is not one of tax policy only but of tax-expenditure policy. Here economics of the public sector is viewed as involving a simultaneous solution to both its revenue and its expenditure aspects.

The other strand rests on the ability-to-pay principle. Here the tax problem is viewed by itself independent of expenditure determination. A given revenue is needed and each tax payer is asked to contribute in line with his or her ability to pay. This approach leaves the expenditure side of the public sector dangling and is thus less satisfactory from the economists’ point of view (Musgrave and Musgrave, 1989:219). But actual tax policy is largely determined independent of the expenditure and an equity rule is needed to provide guidance. The ability to pay principle is widely accepted as a guide.

However, neither approach is easy to interpret or implement. For the benefit principle to be applied, expenditure benefits for particular tax payers must be known. For ability-to-pay approach to be applicable, it is necessary to know how this ability is to be measured. These are difficulties and neither approach wins on a practical ground. Moreover, neither approach can be said to deal with the entire function of tax policy.

The benefit approach will allocate that part of the tax bill which defrays the cost of public services, but it cannot handle taxes needed to finance transfer payments and serve re-distributional objectives. For the benefit of taxation to be equitable, it must be assumed that a ‘proper’ state of distribution exists. In practice, there is no separation between the taxes used to finance public services and the taxes used to redistribute income. The ability-to-pay approach meets the redistribution problem but leaves the provision for public services undetermined.

But as Musgrave and Musgrave (1989:219), have argued, both principles have important, if limited, application in designing an equitable tax structure, one which is acceptable to most people and preferable to alternative arrangement.

In a modern economy, taxes are not just designed to raise revenue for government, it is in addition, an instrument of economic management, an instrument for controlling the economy. The control consists in regulating spending to ensure that the right levels are achieved; that is, levels that enable the system to avoid recession and balance of payments problem (Akpakpan, 1999).

To be able to manage the economy in such a way that neither a recession nor balance of payments problem occurs, the government must assess the economic situation. It must determine accurately whether the economy needs to be stimulated, and to what extent; whether it needs to be restrained, and to what extent; or whether things are all right. The assessment of the economy in this wise, determines the kind of taxes to be introduced, which will in turn determine, to a large extent, the state of the economy. Where the government's assessment suggests that the economy needs to be stimulated, a lower tax rate is usually introduced to boost export spending where it suggests that it needs to be restrained, a higher tax rate is usually introduced to reduce import spending. With taxes, government can control the working of the economy in terms of maintaining a favourable balance of payments.

2.1 Tax Policy and Balance-of-Payments

The approach towards solving the balance-of-payments problem depends on its cause. If the problem is caused by a deficit on the current account, which shows that the country has imported more goods and services than it has exported, the country will have to strive to increase its exports and reduce its imports (Akpakpan 1999). The specific tax policies which could keep a country in pursuing this objective include the following:

- (a) Import restriction through tariffs. Tariff may be specific and/or Ad valorem. A specific tariff is an import duty that assigns a fixed monetary (Naira) tax per physical unit of the good imported. Thus, a specific duty might be ₦75 per ton imported or 5 kobo per Naira. The total import tax bill is levied in accordance with the number of units coming into the importing country and not according to the price or value of the imports. The ad valorem tariff is levied as a constant percentage of the monetary value of 1 unit of the imported good. Thus, if the ad valorem tariff rate is 10%, an imported good with world price \$10 will have a \$1 tax added as the import duty (Appleyard and Field 2001).
Thus, an increase in tariff will lead to a decline in imports.
- (b) Another policy measure is to stimulate export production in particular in order to increase the earnings from exports. To be successful in this, those engaged in production for export should be given export incentives in the form of tax incentives in order to strive to produce high quality products. A reduction in export tax will encourage export leading to an excess of exports over imports (a favourable balance of payments). Writing in these mould are Ekpo (2005), McConnell and Brue (1999), Cobham (1981), Hyman (2005), Gordon and li (2009), Udabah (2002) among others.

Theoretical underpinnings have been provided for taxation as an instrument of fiscal policy in solving balance of payments problems, but empirical investigation into the matter have been rather scanty. Anyanwu (1997)'s "Effects of taxes on Nigeria's Balance of Payments" is a work worthy of review. The work set out to investigate the impact of taxes on balance of payments in Nigeria paying attention to tax policy adopted between 1981 and 1996. Using the 1981-1993 data and the log-linear regression analysis, he observed that the hypothesis that taxes have no influence on balance of payments was not accepted for the country's tax system as a whole. He concluded that, though the coefficient of tax policy in his balance of payments model was not significant, his result shows that taxes significantly influence Nigeria's balance of payment as the former varies negatively with the later.

Uwatt (1999) evaluated revenue productivity in the Nigerian Federal System. His work unlike previous works cited considered in addition to tax revenue, non-tax revenue. His estimations drew from the recent developments in co-integration analysis and the error correction mechanism. His findings were that over the years under consideration, major revenue sources have increased but their productivity not very impressive. He concludes by recommending appropriate tax reforms and improvement in tax administration in Nigeria.

Kusi (1998) did a similar work for the Ghanaian economy. In his work "Tax Reform and Revenue Productivity in Ghana", he observed that tax reform had been used as an instrument for raising the revenue productivity of the Ghanaian tax system. This he did using the traditional methods of estimation of tax elasticities. These are the historical time-series tax data (HTSTD) adjusted to discretionary tax measures (DTULS) and the unadjusted HTSTD with time trends as proxies for DTWS. His analysis covered the period 1970-1993 where pre-tax reform period covered 1970-1982 and tax reform period covered 1983-1993.

His findings were that estimates of buoyancies and income elasticities of individual taxes and the overall tax system, based on empirical evidence, show that the tax reform process contributed greatly to the growth of revenue enhancement options, including the introduction of VAT to replace the existing sales tax then, revaluing properties to broaden the base of property tax, among others.

Chipeta (1998)'s "Tax reform and tax yield in Malawi" is another work worthy of review. The work set out to evaluate tax reforms in Malawi paying particular attention to tax reforms undertaken in the 1980s and early 1990s which were far reaching and more numerous than those of the 1970s. Using the 1980-1993 data and the dummy variable technique developed by Singer (1968), he observed that the hypothesis that tax yield was not buoyant was accepted for the tax system as a whole. This was also applicable for minimum tax, minimum tax remittances, graduated tax, assessed tax, fringe benefit tax, excise and import duties, licenses and taxes on

property. Also, that the income elasticity of the tax system was lower than unity. This appeared to be due to the generally low base to income elasticities of surtax, import duties, PAYE and excise duties. This implies that tax bases had grown less rapidly than GDP – concluding that base to income elasticities can be increased by improving the growth of domestic manufacturing output, expanding formal imports of dutiable goods and by improving the growth of wages.

Ariyo (1997) assessed the buoyancy of the Nigerian tax system as a whole and of various tax sources. This he did by introducing administrative lags (proxied by a one-year lag explanatory variable), intercept and slope dummy variables into the model (traditional tax buoyancy equation). The dummy variables were introduced to practically assess the potential implications for tax yield of the oil-boom and the Structural Adjustment Programme (SAP). His work revealed that there are wide variations in the level of productivity by tax source with the oil boom encouraging some laxity in the management of non-oil revenue sources. He adds that the level of efficiency in tax administration seems to vary inversely with the overall state of the economy. In conclusion the work suggests that leakages should be minimized in terms of tax evasion and diversion of tax proceeds.

Kumhof (2004), presented a model of fiscal and monetary policies that evaluates the trade off between higher distortionary labour taxation and higher inflation in the resolution of fiscal crises. In a cross-country analysis, he used data for the period 1997 to 2000, to permit a generalization of existing fiscal theories of the price level by making price level determination the outcome of an explicit government optimization problem over a tax distortion and an inflation distortion. Higher taxes have a distortionary effect on labour supply but a beneficial effect by lowering inflation and supporting a higher public debt stock that in turn supports intermediation and the capital stock. He concluded that a large contribution of inflation to the resolution of fiscal crises is only optimal when the fiscal shock is transitory, while a long-lived shock is optimally financed mostly through taxes.

A common observation in some of the studies cited above is the acknowledgement of the cross-country regression of tax policy and economic management as we had earlier said in this study. Apart from Anyanwu (1997), many of them investigated the tax revenue position of the Nigerian economy and suggested ways of improving on the revenue programmes. Some scholars examined the General Equilibrium analysis of sectoral effects of tax policy in Nigeria. It is also observed that all of them actually neglected that aspect which relates to the use of tax policy in steering the economy to the desired direction. That is, how tax policy was used to influence the working of the economy in terms of promoting a favourable balance of payments position, among others. Hence our study is necessary as it seeks to examine the extent to which tax policy has been used in the management of a real-world economy, the Nigerian Economy.

Table 1 (at appendix) presents the trend in some macroeconomic aggregates in the Nigerian economy. A careful view of the table witnessed surpluses and deficits in the balance of payments in most of the periods. The deficits arose out of the huge import expenditure which the country had to incur in the face of low food production and lack of adequate supply of industrial products and materials. The Nigerian economy is one that consumes what it cannot produce and produces what it cannot consume. The enormous revenue from oil encouraged such a heavy expenditure on import. Further, it is observed that, there were deficits in the balance of payments during the years 1970, 1971, 1973, 1976, 1977, 1978, 1993, 1994, 1995, 1998 and 2002 while surpluses were recorded in other years. There was an increase in average tax rate (ATR) from approximately 0.12 in 1970 to 0.2 in 1971 and then to 0.22 in 1972. In 1976, ATR was 0.16 when the BOPs recorded a deficit of 258.4. This rose to 1157.4 in 1978 when the ATR also rose to 0.19. It is also observed that in some periods (1979 – 1989), an increase or decrease in ATR lead to a surplus BOPs. For some periods, a decrease in ATR lead to a reduction in the balance of payments position (surplus or deficits). In some periods, an increase in ATR out rightly leads to an increase in BOPs (surplus or deficit). For instance, between 1990 to 2006, ATR steadily moves from 0.144 in 1990 to 4.50 in 2006 when the BOP recorded a surplus balance of 79810.1m in 1990, and the balance reduced to 51969.8m in 1991, but increased to 93,680.5 in 1992 and thereafter recorded a deficit balance of 34414.7m, 52304.3m and 188084.8m in 1993, 1994 and 1995 respectively.

III. Model Specification

Apart from the time series data on the individual taxes, total tax revenue and GDP, estimation of tax effects on target variables requires a specification of the potential proxy for tax policy (taxation). For this paper, we will use average tax rate (that is, total tax revenue over GDP) as a measure of tax policy. This is in line with the literature (see Angelopoulos, Economides and Kammas ,2007). Following Ekpo, Ndebbio, Akpakpan and Nyong (2004), our model is specified as:

$$\begin{aligned}
 \text{BOP} = f_0 + f_1\text{GDP} + f_2\text{NFO} + f_3\text{ED} + f_4\text{EXCH} + f_5\text{MGS} + f_6\text{ATR} + f_7\text{OPN} + U_5 \\
 \dots (1) \\
 f_1, f_2, f_3, f_4, f_6 \text{ and } f_7 > 0; f_5 < 0
 \end{aligned}$$

Where BOP = Balance on Current Account, ED = External Debt, NFO = Net Fiscal Operation, GDP = Real Gross Domestic Product, ATR_t = Average Tax Rate measured as the ratio of tax revenue to GDP, OPN_t = Openness of the economy measured as the sum of export and import as a ratio of GDP, $EXCH_t$ = Current exchange rate, MGS_t = Money Supply Growth rate

IV. Results and Discussion

4.1 Unit Root Test

The regression results of the unit root test for all the variables are presented in Table 2 (at appendix). Based on the Augmented Dickey-Fuller (ADF) test, the results show that four variables – average tax rate (ATR), MSG (money supply growth rate), openness of the economy (OPN), and the Net Foreign Operation (NFO) are stationary at levels, while the remaining four variables – exchange rate (EXCH), Balance of Payments (BOP), Gross Domestic Product (GDP) and external debt (ED) – are stationary at first difference. At the first difference, therefore, all the variables are stationary. This is because the ADF statistic for all the variables are all greater (in absolute terms) than their respective critical values at 5% level of significance. This implies a rejection of null hypothesis of non-stationarity at 5% level of significance. The obvious conclusion from these results is that the OLS regression may not produce “spurious” results since all the variables are difference stationary. The next stage of our analysis is to determine if the variables have long-run relationships through the process of cointegration.

4.2 Cointegration Test

Time series data which are individually non-stationary at levels can be stationary when a linear combination of them is considered. When this is the situation, then it implies that there exist a linear long-run relationship among the variables. As shown by the unit root test results, four variables were non-stationary at levels and this suggests that cointegration tests be carried out to confirm the existence and otherwise of long-run linear relationship among the variables of the model. The cointegration results based on Johansen maximum likelihood are presented in Tables 3a and 3b (at Appendix). Our result shows that there are at least three cointegrating equations (going by the trace statistic) or at least two cointegrating equations (going by the max-eigen value test statistic). Overall, this implies that our regression results depict a long-run relationship among the variables although there might be some deviations in the short run.

4.2 Regression Results

The estimation results for our model are presented in Table 4 (at appendix). The equation represents formulations of the hypothesis that taxation has no influence on the balance of payments position in the Nigerian economy.

Taken together, the equations represent a “good fit” with more than 97% of the systematic variation in the balance of payments being explained by the model on the average. The equation also passed the F-test of significance at 1% level. An examination of this equation shows that it performs better, posting the higher adjusted R^2 of 97% and F-statistic of 189.85. Moreover, the Durbin-Waston statistic test showed that the equation was free from auto correlation problem. An examination of the major arguments in the balance of payments reveal that while some conform to economic theory, others do not. Beginning with our variable of interest, average tax rate (ATR), it is observed that the coefficient of this variable has a positive sign in the equation. This is in line with a priori expectation. Since it suggests that the relationship between taxation and balance of payments position in Nigeria is positive. The t-test confirms that ATR coefficient in this equation is not statistically significant even at 10%. The problem of multicollinearity is encountered. The correlation analysis reveals that some variables – openness (OPN), exchange rate (EXCH), net foreign operation (NFO), MSG, external debt (ED) and GDP are strongly correlated.

Further, we adopted the method of first difference form to reduce the severity of multicollinearity and the results are presented in Table 5(at appendix). The results showed that R^2 is 82%, while adjusted \check{R}^2 is 78%. These results represent a “fairly good fit” with about 82% of the systematic variation in the BOP being explained by the model on average. The F-statistic test is significant at even less than 1% level of significance. The Durbin-Watson statistic test revealed that the transformed equation was free from auto correlation problem. But the coefficient of ATR (the variable of interest) is not only negative, contrary to the a priori expectation, but also insignificant even at 10% level of significant. Further, it is also observed that the coefficient of external debt and that of MSG is negative as was earlier observed in Table 4. Same is observed in the case of gross domestic product (GDP), net foreign operation (NFO), openness (OPN) and exchange rate (EXCH), with their coefficients having a positive sign but insignificant in terms of t-test, exception of NFO. The F-statistic (the test for overall significance of the coefficients) in all models – linear and first difference form – are quite satisfactory. Hence, the result of the linear form and that of the first difference form are almost the same.

V. Findings and Recommendations

From the empirical analysis, we observed that:

- (i) Even though theoretical reasoning holds that tax policy is a major instrument in economic management in terms of solving the balance of payments problems, the historical trends in balance of payments in Nigeria showed no significant response to tax policy between the period 1970 to 2008. Tax policy may not have been used for the purpose of solving the balance of payments problems in the economy as this variable showed insignificant response to changes in tax policy during the period.
- (ii) The tax system in Nigeria appears to have performed poorly in terms of controlling the working of the economy. The trends in balance of payments have not moved in any direction with that of taxation between the periods under review. This variable has not responded significantly to changes in taxation during that period.
- (iii) In the balance of payments equation the coefficient is not significant, even though the sign is in line with the a priori expectation. The F-statistics is significant even at less than 1% and about 98% of the systematic variation in the balance of payments is explained by the model on the average. This again, represents a good fit.
- (iv) However, an overall evaluation of the tax system in Nigeria reveals a dismal performance of the tax policy in Nigeria. This could probably be attributed to the upsurge in oil prices, which led to periodical increase in revenue.

The implications are that taxes were not effective in improving the balance of payments situations in the economy during the period 1970 to 2008. Given the important roles taxes could play in the management of our economy, we proffered the following recommendations:

- (i) There is a need for government and our tax authorities to adopt a sound tax policy framework and a more promising implementation strategy.
- (ii) Taxes should be linked to economic conditions in the country.
- (iii) The use of tax policy in economic management in Nigeria should be taken more seriously than what was done during the period studied.
- (iv) However, a more effective policy might be to reform the tax system, realign expenditure to citizen demands. The application of benefits principle should be rigorously pursued.
- (v) The government should set targets and actively pursue same. This could strengthen the assessment, collection and enforcement of taxes. This should help improve tax administration and the effective use of tax in the management of the economy.

References

- [1]. Adawo, M. A. (2001). Tax Avoidance and Tax Evasion at the Local Level: Any End in Sight. In: A. H. Ekpo and O. J. Umoh, (Eds.) Revenue Generation and Tax Administration in Akwa Ibom State of Nigeria. Uyo: Foundation for Economic Research and Training (FERT) Publishers. Pp 13 – 22.
- [2]. Akpakpan, E. B. (1999). The Economy: Towards a New Type of Economics. Port Harcourt: Belpport Publishers.
- [3]. Angelopoulos, K. G. Economides and Kammas, P. (2006). "Tax – Spending Policies and Economic Growth: Theoretical Predictions and Evidence from the OECD". *European Journal of Political Economy* 23: 885 – 902.
- [4]. Anyanwu, J. C. (1997). Nigerian Public Finance. Nigeria: Joanee Educational Publishers.
- [5]. Anyanwu, J. C. and H. E. Oaikhenan (1995). Modern Macroeconomics: Theory and Applications in Nigeria. Onitsha, Joanee Educational Publishers.
- [6]. Appleyard, D. R. and A. J. Field (2001). International Economics. USA: McGraw-Hill/Irwin.
- [7]. Ariyo, A. (1997). Productivity of the Nigerian Tax System: 1970-1990. An AERC Publication. Paper 67.
- [8]. Bovenberg, A. L. (1985). Indirect Taxation in Developing Countries: A General Equilibrium Approach. *Economics Letters* (Amsterdam), 14: 333 – 373.
- [9]. Central Bank of Nigeria (CBN) Annual Report and Statement of Accounts. Various Issues.
- [10]. Central Bank of Nigeria (CBN) Statistical Bulletin. Several Issues.
- [11]. Chipeta C. (1998). Tax Reform and Tax Yield in Malawi. An AERC Publication. Paper 73.
- [12]. Cobham D. (1981). On the Causation of Inflation: Some Comments in the Manchester School of Economics and Social Studies, 4: 348 – 354.
- [13]. Ekpo, A. H., J. U. Ndebbio, E. B. Akpakpan and E. O. Nyong (2004). Macroeconomic Model of the Nigerian Economy, Ibadan: Vintage Publishers.
- [14]. Ekpo, A. H. (2005). Fiscal Theory and Policy: Selected Essays. Lagos: Somaprint Ltd.
- [15]. Federal Office of Statistics, Annual Abstract of Statistics (various issues).
- [16]. FRN Annual Budgets (various years).
- [17]. Gordon, R. and W. Li (2009). Tax Structures in Developing Countries: Many Puzzles and a Possible Explanation. *Journal of Public Economics*, 93: 855 – 866.
- [18]. Hyman, D. N. (2005). Public Finance: A Contemporary Application of Theory to Policy. South-west, United States of America: Thomson Learning.
- [19]. Kumhof, M. (2004). Fiscal Crisis Resolution: Taxation versus Inflation. Working Paper, MIT.
- [20]. Kusi, N. K. (1998). Tax Reform and Revenue Productivity in Ghana. An AERC Research Paper.
- [21]. Ljungqvist, L., and H. Uhlig (2000). Tax Policy and Aggregate Demand Management, under Catching Up with the Joneses. *Journal of Political Economy*, 107(2): 356 – 366.
- [22]. McConnell, C. R. and S. L. Brue (1999). Economics: Principles, Problems and Policies. U.S.A.: McGraw-Hill.
- [23]. Musgrave, R. A. and P. B. Musgrave (1989). Public Finance in Theory and Practice. New Delhi: McGraw-Hill,

- [24]. Smatrakalev, G. (2005). Taxation and Tax Policy in the E-world, *Journal of Economic Literature*; 34(2): 1 – 13.
 [25]. Udabah, S. I. (2002). *An Introduction to Nigerian Public Finance*. Enugu: Linco Press, Nig. Ltd.
 [26]. Ukpong, I. I. And E. B. Akpakpan (1998). *The Nigerian Fiscal System*. Port Harcourt: Belpot Publishers.
 [27]. Uwatt, U. B. (1999). Revenue Performance and Productivity in the Nigerian Federal System. *Nigerian Journal of Economic and Social Studies*. 41(2): 175 – 203.
 [28]. World Bank (2007). *World Development Indicator*, New York: Oxford University Press.

APPENDIX

Table 1: Trend Analysis of Major Economic Management Variables in Nigeria

YEAR	GDP (₦'M)	TR (₦'M)	EXCH (%)	ED (₦'M)	BOP (₦'M)	ATR
1970	4219.00	513.5	0.7143	178.5	-50	0.121711
1971	4715.50	941.6	0.6955	265.6	-229.4	0.199682
1972	4892.80	1102	0.6579	276.9	-322.7	0.225229
1973	5310.30	1366.2	0.6579	322.4	52.7	0.257274
1974	15919.70	800.2	0.6299	349.9	4671.5	0.050265
1975	27172.00	3730.1	0.6159	374.6	42.6	0.137277
1976	29146.50	4729.8	0.6265	365.1	-258.4	0.162277
1977	31520.30	1622.5	0.6466	1252.1	-647.5	0.051475
1978	29212.40	5641.3	0.606	1611.5	-1157.4	0.193113
1979	29948.00	6883.1	0.5957	1866.8	9427.3	0.229835
1980	31546.80	10957	0.5464	2331.2	13057.9	0.347325
1981	205222.10	9054.6	0.61	8819.4	10070.3	0.044121
1982	199685.30	7732.4	0.6729	10577.7	7980.9	0.038723
1983	185598.10	6292.5	0.7241	14808.7	6752.3	0.033904
1984	183563.00	7164.6	0.7649	17300.6	8234.3	0.039031
1985	201036.30	9898.8	0.8938	41452.4	10738.9	0.049239
1986	205971.40	7641.7	2.0206	100789.1	8006.6	0.037101
1987	204806.50	17280	4.0179	133956.3	17138.2	0.084372
1988	219875.60	14037.2	4.5367	240393.7	31586.1	0.063842
1989	236729.60	18327.9	7.3916	298614.4	59112	0.077421
1990	267550.00	38547.2	8.0378	328453.8	79810.1	0.144075
1991	265379.10	53900.7	9.9095	544264.1	51969.8	0.203108
1992	271365.50	72948.7	17.2984	633144.4	93680.5	0.268821
1993	274833.30	84248.7	22.0511	648813	-34414.7	0.306545
1994	275450.60	80632.9	21.8861	716865.6	-52304.3	0.292731
1995	281407.40	122861.2	21.8861	617320	-188085	0.436595
1996	293745.40	184667	21.8861	595931.9	240180	0.628663
1997	302022.50	121574.1	21.8861	633017	268899.4	0.402533
1998	310890.10	301900	21.8861	2577374	-331436	0.971083
1999	312183.50	359900	92.6934	3097384	46336.2	1.152848
2000	329178.70	769200	102.1052	3176291	713023.9	2.336725
2001	356994.30	1016700	111.9433	3932885	108996	2.847945
2002	433203.50	781600	120.9702	4478329	-177037	1.804233
2003	477533.00	1130200	129.3565	4890270	704560	2.366747
2004	527576.00	1571500	133.5004	2695072	2056326	2.978718
2005	561931.40	2456100	131.6619	451461.7	4046521	4.370818
2006	595821.60	2682500	131.76	428058.7	3374806	4.502187
2007	634251.10	271672	129.25	452076.3	2703754	0.428335
2008	674889.00	273800	130.12	501345.9	4150489	0.405696

Table 1 Contd.

YEAR	MSG (%)	NFO (₦'M)	OPN	IMP (₦'M)	EXP (₦'M)
1970	N/A	-269.9	0.389215	756.4	885.7
1971	6.501738	171.6	0.503086	1078.9	1293.4
1972	16.61547	-58.5	0.495483	990.1	1434.2
1973	25.31896	166.1	0.659699	1224.8	2278.4
1974	54.50246	1796.8	0.473162	1737.8	5794.8
1975	80.30013	-427.9	0.318232	3721.5	4925.5
1976	39.23182	-1090.8	0.408269	5148.5	6751.1
1977	33.76234	-781.4	0.46714	7093.7	7630.7
1978	1.096369	-629	0.4887	8211.7	6064.4
1979	20.770	3505.7	0.61137	7472.5	10836.8
1980	28.29163	265	0.738024	9095.6	14186.7
1981	47.39473	1876.8	0.116278	12839.6	11023.3
1982	7.031126	-489.5	0.095034	10770.5	8206.4
1983	11.95357	872.2	0.088396	8903.7	7502.5
1984	15.39495	1325.7	0.088614	7178.3	9088
1985	11.93011	2009.3	0.093433	7062.6	11720.8
1986	12.44159	-3843.1	0.072362	5983.6	8920.8
1987	4.232502	3361.9	0.235453	17861.7	30360.6
1988	22.91948	-152.8	0.239401	21445.7	31192.8
1989	34.98785	12842.1	0.375244	30860.2	57971.2
1990	3.538415	37836.2	0.581588	45717.9	109886.1
1991	45.91967	34407.2	0.795178	89488.2	121535.4
1992	27.43463	97655.8	1.285215	143151.2	205611.7
1993	47.52662	1540.5	1.399244	165788.8	218770.1
1994	53.75794	41017.4	1.339071	162788.8	206059.2
1995	34.49515	211219.2	6.061636	755127.7	950661.4
1996	19.41172	186379.4	6.373444	562626.6	1309543
1997	16.17814	154395.9	6.911337	845716.6	1241663
1998	16.039	-23504.6	5.112017	837418.7	751856.7
1999	22.31778	1497.9	6.571409	862515.7	1188970
2000	33.12089	1205100	8.903206	985022.4	1945723
2001	48.06769	1213574	9.036935	1358180	1867954
2002	27.00465	713681.7	7.518113	1512695	1744178
2003	21.55423	1349130	10.82254	2080235	3087886
2004	24.11369	2494300	12.49076	1987045	4602782
2005	14.02364	3725400	17.8801	2800856	7246535
2006	24.35329	4027099	18.02025	3412177	7324681
2007	43.09492	3264703	19.71156	4381930	8120148
2008	44.23953	4625770	23.2571	5921450	9774511

INV= Gross Private Investment, GDP = Real Gross Domestic Product, TR= Total Tax Revenue, EXCH = Current Exchange rate, INF= Inflation Rate, ED= External Debt, BOP= Balance of Payments, ATR= Average Tax Rate, MSG= Money Supply Growth Rate, NFO= Net Foreign Operation, OPN= Openness of the Economy, IMP = Imports, EXP= Exports, UN= Unemployment Rate, CEXP= Household Consumption Expenditure.

Sources:

- (1) National Bureau of Statistics, General household Survey Report 1995 – 2005
- (2) Federal Office of Statistics, annual Abstract of Statistics (various issues)
- (3) CBN Statistical Bulletin (various issues)
- (4) CBN Annual Reports and Statement of Accounts (various issues)
- (5) World Development Report (2007)

Table 2: Unit Root Test: Augmented Dickey-Fuller Test Result

Variable	ADF Test Statistic		5% Critical Variables		Decision
	Level	1 st Difference	Level	1 st Difference	
ATR	-3.678830	-	-2.954021	-	1 (0)
EXCH	0.382891	-2.941145	-2.943427	-5.298530	1 (1)
MSG	4.756677	-	-2.954021	-	1 (0)
OPN	3.473765	-	-2.960411	-	1 (0)
BOP	-1.388723	-2.941145	-2.943427	-5.421698	1 (1)
GDP	1.388723	-2.941145	-2.943427	-5.421698	1 (1)
NFO	5.731559	-	-2.967767	-	1 (0)
ED	2.060181	2.960411	-2.957110	-5.411900	1 (1)

Source: Researcher's computation

Table 3a : Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.984871	294.7885	125.6154	0.0000
At most 1 *	0.841980	143.9070	95.75366	0.0000
At most 2 *	0.600834	77.48579	69.81889	0.0107
At most 3	0.454443	44.42417	47.85613	0.1014
At most 4	0.290612	22.61005	29.79707	0.2658
At most 5	0.227761	10.24938	15.49471	0.2620
At most 6	0.025902	0.944777	3.841466	0.3311

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 3b : Cointegration Test Results

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.984871	150.8816	46.23142	0.0000
At most 1 *	0.841980	66.42119	40.07757	0.0000
At most 2	0.600834	33.06162	33.87687	0.0623
At most 3	0.454443	21.81411	27.58434	0.2301
At most 4	0.290612	12.36067	21.13162	0.5125
At most 5	0.227761	9.304601	14.26460	0.2617
At most 6	0.025902	0.944777	3.841466	0.3311

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Researcher's computation

Table 4: Tax Policy and Balance of Payments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	0.217808	0.381151	0.571447	0.5720
NFO	0.718568	0.131481	5.465166	0.0000
OPN	9420.466	21855.75	0.431029	0.6695
ED	-0.252603	0.073683	-3.428255	0.0018
EXCH	3504.167	3666.976	0.955601	0.3469
MSG	-2298.146	1842.058	-1.247597	0.2218
ATR	53029.32	49998.09	1.060627	0.2973
C	41545.35	85318.93	0.486942	0.6298
R-squared	0.977924	Mean dependent var		474745.6
Adjusted R-squared	0.972773	S.D. dependent var		1154510.
S.E. of regression	190499.9	Akaike info criterion		27.33735
Sum squared resid	1.09E+12	Schwarz criterion		27.68211
Log likelihood	-511.4097	F-statistic		189.8520
Durbin-Watson stat	1.904043	Prob(F-statistic)		0.000000

Source: Researcher's computation

Table 5: Regression Results of the First Difference Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27188.25	54140.66	-0.502178	0.6193
D(GDP)	0.440886	1.435120	0.307212	0.7609
D(NFO)	0.772709	0.206053	3.750039	0.0008
D(OPN)	30745.30	45971.34	0.668793	0.5089
D(ED)	-0.262482	0.085038	-3.086645	0.0044
D(EXCH)	6213.289	3838.483	1.618684	0.1163
D(MSG)	-2228.442	2283.513	-0.975883	0.3372
D(ATR)	-5514.823	83301.20	-0.066203	0.9477
R-squared	0.820974	Mean dependent var		112181.6
Adjusted R-squared	0.777760	S.D. dependent var		545489.8
S.E. of regression	257156.4	Akaike info criterion		27.94157
Sum squared resid	1.92E+12	Schwarz criterion		28.28987
Log likelihood	-508.9190	F-statistic		18.99819
Durbin-Watson stat	2.340366	Prob(F-statistic)		0.000000

Source: Researcher's computation