International Journal of Advanced Scientific Research |IJASR
International Journal of Scientific Research in Social Sciences & Management Studies | IJSRSSMS
ISSN Print: 2579–101X | ISSN Online: 2579–1928
Volume 3, Number 2, November, 2018

Government Spending and Disaggregate Tax Effects Nexus in Nigeria 1995-2015: A Quantile and Causal Analysis

[1]Rose Mbatomon Ako & [2]Ako, Queen Torkwase
[1]*Department of Economics, Nasarawa State University, Keffi, Nigeria*
[2]*Department of Economics, Benue State University, Makurdi, Nigeria*

Abstract

In this study, annual data for 1995–2015 are employed to model government expenditure and disaggregate tax revenue in Nigeria. The analysis comprises Quantile and causal estimations. The estimated quantile parameters for government expenditure indicate variable predictor variables' effects, but the coefficients for the predictor variable -Value Added Tax is consistently positive and highly significant across board for the range of defined quantiles, 0.6 representing the democratic government of the Obasanjo regime, 0.8 representing the democratic government of the Yaradua regime and 0.95 representing the democratic government of the Goodluck Jonathan regime. Pairwise Granger causality tests indicate the Nigerian government spends in anticipation of revenue from both Customs & Excise Duty and Petroleum Profit Tax while it synchronizes spending –revenue decisions with Value Added Tax and Company Income Tax. Contrary to the public posturing of successive governments, empirical evidence indicates the Nigerian government does not synchronize Petroleum Profit Tax with government expenditure but spends in anticipation of this revenue base long established to be volatile. This is largely responsible for the government's malfunction in Nigeria. Thus, these results provide evidence to support feedback effects or the fiscal synchronization hypothesis as well as support for spend and tax theories in the relationship between government revenue and government expenditure in Nigeria. Fiscal imprudence was identified and the results brought out several anomalies in the economy and governance. The study recommends Government practice fiscal prudence and respect legal provisions of the annual budgets.

Keywords: *Public expenditure, Causality, Quantile regression, Tax revenue, Fiscal administration.*

Corresponding Author: Rose Mbatomon Ako

http://internationalpolicybrief.org/journals/ijasr-online-journals/intl-jrnl-of-sci-research-in-social-sciences-mgt-studies-vol3-no2-november-2018

Background to the Study

Budget imbalances (deficit or surplus) which are a common occurrence worldwide are due to government misalignment of revenue and expenditure. As a result and over the years, government expenditure and revenue have remained important interplay variables in fiscal administration (Balogun, 2017). Hence, understanding the relationship between the revenue and expenditure of government is very important especially, in addressing fiscal imbalances through appropriate fiscal policy (Eita and Mbazima, 2008). For such fiscal policy to result in any effective fiscal consolidation process requires appropriate changes in government expenditures, or revenues, or both.

In this respect, numerous studies about the relations between public expenditure and public revenue, of which taxation is a large part, have been carried out over the years but hardly on the singular effects of the disaggregate components of public revenue such as the different forms of taxes including company income taxes, value added taxes, petroleum profit taxes, customs and excise duties; hence the need for this study. Furthermore, total public expenditure rose excessively during the study period in Nigeria with not much to show for it in terms of development. In this respect, a study by Ako (2016) revealed evidence that government expenditure assumes new peaks with successive election periods in Nigeria while national output as measured by real gross domestic product (RDGP) steadily declined in growth rate with successive sets of democratic government. This paper therefore examines the effects of the different tax components on government expenditure before and within the current democratic dispensation in Nigeria in order to establish any existing dynamics including causal relationships. Moreover, a proper understanding of the nexus and the trends of revenue and expenditure is critical to explaining the government's malfunction in Nigeria.

The main objectives of the paper are to: (a) examine the disaggregate tax effects on government expenditure in Nigeria and (b) make appropriate recommendations. To do this, the paper will: (c) develop appropriate quantile(s) for use with the main model; (d) examine for different effects on the dependent variable along the quantile(s); (e) determine which predictor variables have the most effect on the dependent variable and (f) examine for causal effects among the variables. Following from this background to the study, Section 2 presents the literature review while Section 3 contains the study methodology. Section 4 discusses the results while Section 5 concludes with some recommendations

Literature Review

Theoretical Review

Four theories in literature seek to explain the observed spending-tax revenue behavior of government. These four theories include: (a) the tax-and-spend theory or revenue-spend theory which advocates a unidirectional causation from revenue to expenditure (Friedman -1978, Buchanan and Wagner -1978, Eita and Mbazima -2008); (b) the spend-and-tax theory or spend-revenue hypothesis which advocates a unidirectional causation from expenditure to revenue (Peacock and Wiseman -1979, Anderson, Wallace and

Warner -1986, Ewing and Payne -1998, Hodroyiannis and Papapetrou -1996); (c) the fiscal synchronization hypothesis which advocates bidirectional causation or feedback effects between revenue and expenditure (Meltzer and Richard -1981, Miller and Russek -1990, Owoye -1995, Yashobanta and Behera -2012 and Takumah -2014); and (d) the fiscal neutrality or institutional separation hypothesis which advocates absence of causation between revenue and expenditure (Baghestani and McNown -1994).

Hence, these contending theories throw up three implications for the nature of the relationship between government expenditure and revenue. Firstly, if the tax-and-spend theory holds, budget deficits can be avoided by implementing policies that raise tax revenues. Secondly, if fiscal synchronization does not hold, then fiscal neutrality holds and revenue decisions are independent from expenditure decisions. Thirdly, if the spend-and-tax theory holds, existing budget deficits are cleared by raising tax revenues or by implementing policies that reduce government expenditure (Narayan and Narayan,2006).

Empirical Review

Some pertinent empirical findings in literature concerning government revenues and expenditures are summarized in Table 1 below.

Table 1: Selected Empirical Findings

Athour(s)	Country(s)	Methodology	Main Results
Konukcu-Onal and Tosun (2008)	Russia, Belarus, Kyrgyz Republic and Kazakhstan	Standard Granger causality test	Revenue-spend hypothesis holds for Russia and Belarus, fiscal synchronization holds for Kyrgyz Republic and Kazakhstan
Al-Zeaud (2014)	Jordan	Granger causality and Error Correction Mechanism-VECM	Fiscal synchronization hypothesis holds for the period 1990-2011
Luković & Grbić (2009)	Serbia	Toda-Yamamototest for Granger causality	Unidirectional causality from government expenditure to revenue
Ghartey (2010)	Jamaica, Bahamas, Barbados and Belize	Granger causality test	Mixed. Unidirectional causality and support institutional separation
Eita and Mbazima (2008)	Namibia	Granger causality and cointegration methods of Vector Autoregression (VAR)	Unidirectional causality from revenue to expenditure for the period 1977 – 2007.
Ali and Shah (2012)	Pakistan	Granger causality test	No causality evidence. Support for institutional separation hypothesis.
Mehrara, Pahlavani and Elyasi(2012)	40 Asian countries	Granger causality test	Fiscal synchronization confirmed for the period 1995 - 2008
Narayan and Narayan (2006)	12 countries in several continents	Toda-Yamamototest for Granger causality	Mixed evidencefor tax-and-spend, fiscal synchronization and neutrality hypotheses
Nyamongo, Sichei, and Schoeman (2007)	South Africa	Granger causality test and Error Correction Mechanism	Bidirectional causality in the long-run
Wolde-Rufael (2008)	13 African countries including Nigeria	Toda-Yamamototest for Granger causality	Direction of causation are mixed

Carneiro, Faria and Barry (2005)	Guinea-Bissau	Granger causality test	Spend - tax hypothesis confirmed for the period 1981-2002.
Chang and Chiang (2009)	15 OECD countries	Granger causality tests in the panel data domain	Bidirectional causality i.e. fiscal synchronization for the period 1992-2006
Dada (2013)	Nigeria	Granger causality test and Error Correction Mechanism	No causality evidence. Support for institutional separation hypothesis
Balogun (2017)	Nigeria	Granger causality test and Error Correction Mechanism	Support spend-revenue hypothesis for 1986-2015
Aregbeyen and Insah (2013)	Nigeria and Ghana	Granger causality test	Fiscal synchronization hypothesis holds.
Ogujiuba and Abraham (2012	Nigeria	Granger causality test and Error Correction Mechanism, Impulse Response	Causality runs from government revenue to expenditure
Nwosu and Okafor (2014)	Nigeria	Vector Autoregression, Error Correction Mechanism	Findings support spend-tax hypothesis
Edirisinghe & Sivarajasingham (2015)	Sri Lanka	Granger causality test and Error Correction Mechanism, Impulse Response	Confirm spending-revenue hypothesis
Yashobanta and Behera (2012)	India	Granger causality test and Error Correction Mechanism	Bidirectional causality - Fiscal synchronization

Methods and Materials

The Model and Modeling Procedure

The estimation procedure consisting of the following four steps was employed:

1. Develop appropriate quantile(s) for use with the main model. Quantiles are developed to approximate the tenure of the five government regimes of the study period such that Quantile 0.2 represents the Military regime prior to 1999,Quantile 0.6 represents the democratic government of the Obasanjo regime, Quantile 0.8 represents the democratic government of the Yaradua regime while Quantile 0.95 represents the democratic government of the Goodluck Jonathan regime. Thus, we Model the 20^{th}, 60^{th}, $80^{th}$and 95^{th}Percentiles of the dependent variable –government expenditure.

2. Time series analysis to identify trends.

3. Quantile regression analysis to examine for different effects on the dependent variable along the quantile(s) and to determine which predictor variables have the most effect on the dependent variable or differentiate between the quantile(s). Although the interpretation of the coefficients is the same as for OLS, Quantile regression analysis uses linear programming methods unlike OLS and maximum likelihood to produce estimates that give more comprehensive picture of the effect of the independent variables on the dependent variable. This is achieved by producing different effects along the distribution (quantiles) of the dependent variable which is a continuous variable. Therefore, Quantile regression models the relation between a set of predictor variables and specific percentiles (or quantiles) of the response variable and it specifies changes in the quantiles

of the response. The quantile level is the probability (or the proportion of the population) that is associated with a quantile and is often denoted by the Greek letter τ, while the corresponding conditional quantile of Y given X is often denoted as $Q_\tau(Y/X)$. The quantile regression generally produces a distinct set of parameter estimates and predictions for each quantile level. The quantile regression parameter estimates the change in a specified quantile of the response variable produced by a one unit change in the predictor variable which allows for differentiation between quantile(s). Hence, by fitting a series of regression models for a network of values of τin the interval (0, 1), one can describe the entire conditional distribution of the response. As such, the relationship between the dependent variable and independent variables may change depending on which quantile is under consideration. The advantage here is that the Quantile regression estimates are more robust against outliers in the response measurements.

4. Pairwise Granger Causality tests to examine for causal effects among the variables.

Variable Definitions

The categories of the variables GXP, PPT, CIT, VAT and CED are defined and specified in Table 2.

Table 2: Definition of Variables

Variable	Definition
GXP	Government Expenditure/Governance
PPT	Petroleum Profit Tax
CIT	Company Income Tax
VAT	Value Added Tax
CED	Customs & Excise Duty

Data Sources

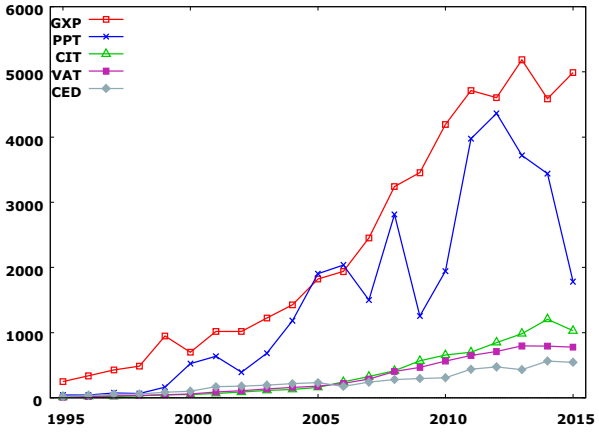
Secondary annual data for the period 1995-2015 was obtained from the Central Bank of Nigeria, National Bureau of Statistics, Federal Ministry of Finance and pertinent derivatives there from.

Results and Discussion

Trend Analysis

Figure 1 below plots the series used for this study and indicates multiple trends that were generally upwards although the trend in Petroleum Profit Tax can be described as erratic in line with the whims and caprices of the global oil market. It is clear from Figure 1 that the trends in Government Expenditure and Petroleum Profit Tax are in synch and far apart from the other trends. From this analysis also, it appears the astronomical growth in Government Expenditure within six growth bands is fueled largely by the growth in Petroleum Profit Tax within the study period.

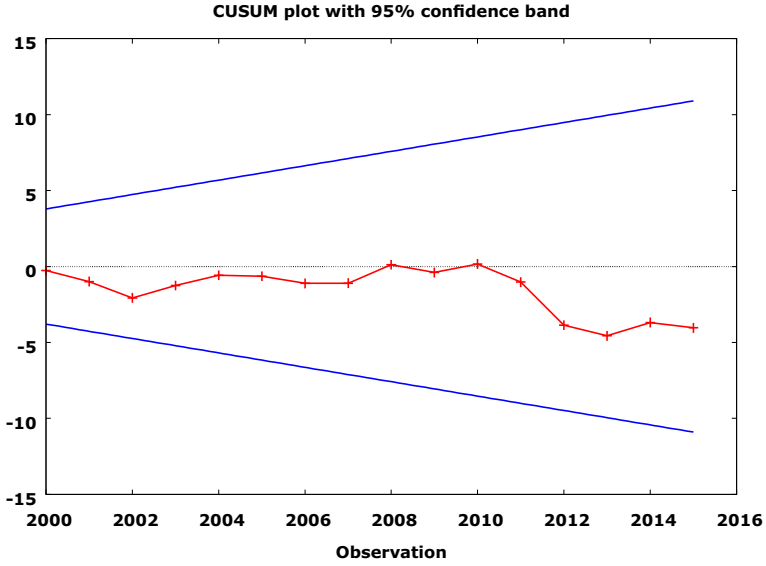
Figure 2: Series Trend



Diagnostic Test

Result of the cumulative sum (CUSUM) test of Stability for the Model is presented in in Figure 2 below. This indicates stability in the coefficients over the sample period as the plot of the CUSUM statistic falls inside the critical bands of the 5% confidence interval of parameter stability.

Figure 2: The CUSUM Test



Quantile Regression Results

Coefficient estimates for the 5th, 20th, 60th, 80th, 95th quantile regression and the linear regression coefficient estimates for government expenditure are presented in Table 3 below.

Table 3: Coefficient Estimates

Characteristic	Linear (OLS) Regression	Quantile Regression				
		5th	20th	60th	80th	95th
Intercept	316.8***	175.4***	187.7***	209.9*	588.7***	679.29***
PPT		−0.065***	−0.033	0.057	−0.094***	−0.0012
CIT	−3.474***	−2.515***	−2.823***	−3.748***	−3.629***	−3.339***
VAT	10.75***	9.359***	9.80***	10.81***	10.62***	10.64***
CED	−0.071	0.418***	0.247	0.220	0.470***	−0.895

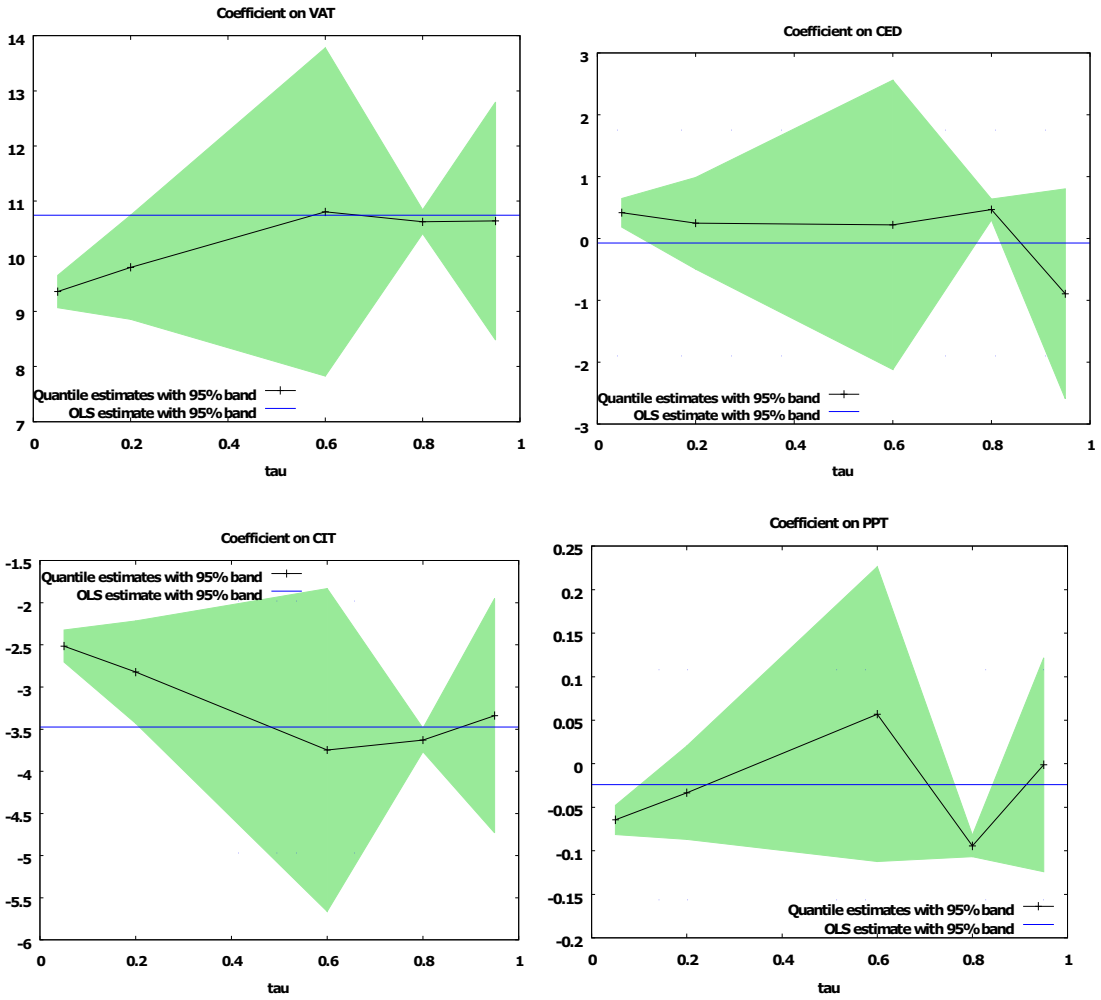
From the Table 3 results, three predictors (Petroleum Profit Tax, Company Income Tax & Customs & Excise Duty) have negative relationship with Government Expenditure for linear regression. However, only two predictors (Petroleum Profit Tax & Company Income Tax) largely have negative relationship with Government Expenditure for quantile regression since the third affected predictor (Customs & Excise Duty) is only found with a negative coefficient in the 95thquantile representing the Jonathan regime. Furthermore, one of the predictor variables (Petroleum Profit Tax -PPT) is shown to have inconsistent negative relationship with Government Expenditure, for in the 60thquantile representing the Obasanjo regime, the relationship is indicated to be positive. In addition, even though the coefficient for the predictor variable PPT is not significant for the linear regression, it is shown to be highly significant for the 5th and 80thquantiles representing Military and Yaradua regimes respectively. This result could be interpreted to mean that within the study period, increases in Petroleum Profit Tax only had a positive effect on government expenditure during the Obasanjo regime in the 60thquantile but the effect was not significant.

This result exposes another curious anomaly in the Nigerian economy in that PPT – Petroleum Profit Tax generally held to be all important for Nigerian economy and shown to largely run parallel to government expenditure in Figure 1 trend analysis aboveis empirically shown to have a negative relationship with government expenditure. When this result is read together with the trend analysis above, a sad but unavoidable truth is established. Even though Nigeria could largely finance her expenditure from the proceeds of the Petroleum Profit Tax over the years, this was not done (the negative relationship) and hence Nigeria continues to be kept in debt bondage by unscrupulous leaders. The only positive relationship recorded was for the Obasanjo regime in the 60th quantile and could be a reflection of the fact this regime paid off Nigeria's lingering debts and made some judicious use of the proceeds. In the same vein, going by the size and significance of the coefficients, the Yaradua regime in the 80th quantile was the worst culprit in mismanaging oil proceeds in Nigeria while the Jonathan regime had the lowest mismanagement quotient for PPT proceeds. Moreover, the negative signs for these tax components provide evidence of succeed in governments in Nigeria habitually spending in anticipation of tax revenue.

In addition, the coefficients for the predictor variable VAT –Value Added Tax is consistently positive and highly significant across board whereas the coefficient for the

predictor variable Customs & Excise Duty –CED produced the best positive and highly significant effect in the 80thquantile representing the Yaradua regime. All in all, the 80thquantile representing the Yaradua regime produced the most significant effects on government expenditure whether positive or negative for all predictor variables. The estimated parameter quantile plots for government expenditure presented in Figure 3 further signpost how variable the predictor variables' effects are and they also highlight that a linear regression might not be an optimal solution to assess this relationship.

Figure 3: Estimated Parameter Quantile Plots for Government Expenditure



Pairwise Granger Causality Test

Table 4: Result of the Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.	Decision
CIT does not Granger Cause CED	19	5.08952	0.0218	Reject
CED does not Granger Cause CIT		4.17415	0.0379	Reject
GXP does not Granger Cause CED	19	3.62081	0.0540	Reject
CED does not Granger Cause GXP		0.11547	0.8918	Accept
PPT does not Granger Cause CED	19	0.20482	0.8172	Accept
CED does not Granger Cause PPT		0.80505	0.4667	Accept
VAT does not Granger Cause CED	19	4.33350	0.0343	Reject
CED does not Granger Cause VAT		0.28644	0.7552	Accept
GXP does not Granger Cause CIT	19	13.2433	0.0006	Reject
CIT does not Granger Cause GXP		6.44606	0.0104	Reject
PPT does not Granger Cause CIT	19	9.38608	0.0026	Reject
CIT does not Granger Cause PPT		1.41999	0.2745	Accept
VAT does not Granger Cause CIT	19	22.3221	4.E-05	Reject
CIT does not Granger Cause VAT		4.10958	0.0394	Reject
PPT does not Granger Cause GXP	19	0.30589	0.7413	Accept
GXP does not Granger Cause PPT		4.81537	0.0256	Reject
VAT does not Granger Cause GXP	19	4.12559	0.0390	Reject
GXP does not Granger Cause VAT		9.74016	0.0022	Reject
VAT does not Granger Cause PPT	19	2.67367	0.1039	Accept
PPT does not Granger Cause VAT		0.69667	0.5147	Accept

The result of the Pairwise Granger Causality test in Table 4 above shows that there are strong bidirectional causalities between Government Expenditure and Company Income Tax, between Government Expenditure and Value Added Tax, between Company Income Tax and Value Added Tax and between Company Income Tax and Customs & Excise Duty. The results also show strong unidirectional causality from Government Expenditure to Petroleum Profit Tax, from Petroleum Profit Tax to Company Income Tax, from Value Added Tax to Customs & Excise Duty and from Government Expenditure to Customs & Excise Duty. This implies the Nigerian government spends in anticipation of revenue from both Customs & Excise Duty and Petroleum Profit Tax while it synchronizes spending –revenue decisions with Value Added Tax and Company Income Tax. Thus, the results provide evidence to support feedback effects or the fiscal synchronization hypothesis as well as support for spend and tax theories in the relationship between government revenue and government expenditure in Nigeria and generally align with the findings of Peacock and Wiseman -1979, Anderson, Wallace and Warner -1986, Ewing and Payne -1998, Hodroyiannis and Papapetrou -1996 on spend and tax theory; Meltzer and Richard -1981, Miller and Russek -1990, Owoye -1995, Yashobanta and Behera -2012 and Takumah -2014 on the fiscal synchronization hypothesis.

Specifically for Nigeria, the result support the findings of Balogun (2017), Aregbeyen and Insah (2013), Nwosu and Okafor (2014) but is at variance with the findings of Dada (2013), Ogujiuba and Abraham (2012).

Furthermore, this result throws up another anomaly in the Nigerian governance space. Given the touted pre-eminence of Petroleum Profit Tax as a revenue source and given the known volatility of global oil markets, one would ordinarily expect the Nigerian government to ensure this is a revenue source that is brought into fiscal synchronization but empirical evidence here clearly shows that is not the case; contrary to the public posturing of successive governments. The Nigerian government at annual budgetary sessions regularly indicates one thing but empirical evidence here paints a contrary picture and this is evidence obtained from a time period covering five successive governments, four of which are democratic. Clearly therefore, the continuation of such fiscal imprudence in governance is a large factor as to why Nigeria remains development challenged to date.

Conclusion and Recommendations

Conclusion

In this study, annual data for 1995–2015 are employed to model government expenditure and disaggregate tax revenue in Nigeria. The analysis comprises Quantile and causal estimations. The estimated quantile parameters for government expenditure indicate variable predictor variables' effects, but the coefficients for the predictor variable -Value Added Tax is consistently positive and highly significant across board for the range of defined quantiles, 0.6 representing the democratic government of the Obasanjo regime,0.8 representing the democratic government of the Yaradua regime and 0.95 representing the democratic government of the Goodluck Jonathan regime. Pairwise Granger causality tests indicate the Nigerian government spends in anticipation of revenue from both Customs & Excise Duty and Petroleum Profit Tax while it synchronizes spending –revenue decisions with Value Added Tax and Company Income Tax.

Contrary to the public posturing of successive governments, empirical evidence indicates the Nigerian government does not synchronize Petroleum Profit Tax with government expenditure but spends in anticipation of this revenue base long established to be volatile. This is largely responsible for the government's malfunction in Nigeria. Thus, these results provide evidence to support feedback effects or the fiscal synchronization hypothesis as well as support for spend and tax theories in the relationship between government revenue and government expenditure in Nigeria. Fiscal imprudence was identified and the results brought out several anomalies in the economy and governance..

Recommendations

The study recommends Government practice fiscal prudence and respect legal provisions of the annual budgets.

References

Ako, R. M. (2016). Democratic governance and economic development in Nigeria 1999-2015: A Cointegration Analysis. *International Journal of Advancement in Development Studies,* 11 (1), 153-162.

Ali, R., & Shah, M. (2012). The causal relationship between government expenditure and revenue in Pakistan, *Interdisciplinary Journal of Contemporary Research in Business*, 3 (12), 323-329.

Al-Zeaud, H. A. (2014). The causal relationship between government revenue and expenditure in Jordan. *Global Journal of Management and Business Research: (B) Economics and Commerce*, 14 (6), 1.0, 48-57.

Anderson, W., Wallace M.S., Warner, T. (1986). Government spending and taxation: What causes what? *Southern Economic Journal*, 52, 630-639.

Aregbeyen, O. & Insah, B. (2013). A Dynamic Analysis of the Link between public expenditure and Public Revenue in Nigeria and Ghana. *Journal of Economics and Sustainable Development*, 4 (4), 18-29.

Baghestani, H. & McNown, R. (1994). Do revenues or expenditures respond to budget disequlibria? *Southern Economic Journal,* 61, 311-322.

Balogun, A. (2017). Causality between government expenditure and government revenue in Nigeria. *Asian Journal of Economics and Empirical Research*, 4 (2), 90-98.

Buchanan, J., M. & Wagner, R., W. 1978. "Dialogues concerning fiscal religion, *Journal of Monetary Economics,* 3 (4), 627-636.

Carneiro, F. G., Faria , J. R. & Barry, B. S. (2005). Government revenues and expenditures in Guinea-Bissau: Causality and Cointegration. *Journal of Economic Development*, 30 (1), 107-117.

CBN (2016). *Central bank of Nigeria annual statistical bulletin* 27.

Chang, T. & Chiang, G. (2009). Revisiting the government revenue-expenditure nexus: Evidence from 15 OECD countries based on the panel data approach. *Czech Journal of Economics and Finance*, 59(2), 165-172.

Dada, M. A. (2013). Empirical investigation of government expenditure and revenue nexus: implication for fiscal sustainability in Nigeria. *Journal of Economics and Sustainable Development*, 4 (9), 135-146.

Edirisinghe, N. & Sivarajasingham, S. (2015). Testing the inter-temporal relationship between government spending and revenue: Evidence from Sri Lanka. *Global Journal of Human-Social Science: (E) Economics*, 15 (7), 1-12.

Eita, J. H., & Mbazima, D. (2008). The causal relationship between government revenue and expenditure in Namibia, *Munich Personal RePEc Archive*, Paper No. 9154.

Ewing, B. & Payne, J. (1998). Government tax revenue-expenditure nexus: Evidence from Latin America. *Journal of Economic Development*, 23, 57-69.

Friedman, M. (1978). The limitations of tax limitations. *Policy Review*, 5, 7-14.

Ghartey, E. E. (2010). Government expenditures and revenues causation: Some Caribbean empirical evidence. *Applied Econometrics and International Development*, 10 (2), 149-165.

Hodroyiannis, G. & Papapetrou, E. (1996). An examination of the causal relationship between government spending and revenue, A Cointegration Analysis, *Public Choice*, 89, 363-374.

Konukcu-Onal, D., & Tosun, A. N. (2008) Government Revenue-Expenditure Nexus: Evidence from Several Transitional Economies, *Ekonomski Anali*, 53 (178-179), 145-156.

Luković, S. & Grbić, M. (2014). The causal relationship between government revenue and expenditure in Serbia. *Economic Themes*, 52 (2), 127-138.

Meltzer, A., H. & Richard, S., P. (1981). A rational theory of the size of government, *Journal of Political Economy*, 89, 914-927.

Mehrara, M., Pahlavani, M. & Elyasi, Y. (2011). Government revenue and government expenditure nexus in Asian Countries: Panel Cointegration and Causality. *International Journal of Business and Social Science*, 2 (7), 199-207.

Miller, S., M. & Russek, F. S. (1990). Cointegration and error-correction model: Temporal causality between government taxes and spending. *Southern Economic Journal*, 57, 33-51.

Narayan, P. K. & Narayan, S. (2006). Government Revenue and Government Expenditure Nexus: Evidence from Developing Countries. *Applied Economics*, 38(3), 285-291.

Nwosu, D. C. & Okafor, H. O. (2014). Government revenue and expenditure in Nigeria: A Disaggregate analysis. *Asian Economic and Financial Review*, 4 (7), 877-892.

Nyamongo, M. E., Sichei, M. M. & Schoeman, N. J. (2007). Government revenue and expenditure Nexus in South Africa. *South African Journal of Economic and Management Sciences*, 10 (2), 256-268.

Ogujiuba, K., & Abraham, T. W. (2012). Testing the relationship between government revenue and expenditure: Evidence from Nigeria. *International Journal of Economics and Finance*, 4 (11).

Owoye, O. (1995). The causal relationship between taxes and expenditures in the G7 Countries: Cointegration and Error-Correction Models. *Applied Economics Letters*, 2 (1), 19-22.

Peacock, S., M. & Wiseman, J. (1979). Approaches to the analysis of government expenditure growth. *Public Finance Quarterly*, 7, 3-23.

Takumah, W. (2014). The Dynamic Causal Relationship between government revenue and government expenditure nexus in Ghana. *Munich Personal RePEc Archive* Paper No. 58532

Yashobanta, Y. P. & Behera, S. R. (2012). Causal link between central government revenue and expenditure: Evidence for India. *Munich Personal RePEc Archive* Paper No. 43072.

Wolde-Rufael, Y. (2008). The revenue-expenditure nexus: The experience of 13 African countries. *African Development Review*, 20 (2), 273-283.