

Impact Assessment of Public Budget Indicators on the Nigerian Poor

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Abstract

In Nigeria, presentation and approval of national budget has been a major news for all and sundry. Most activities are planned alongside with the approval of the budget which shows the over-reliance of all tiers of governments on this annual ritual. Therefore, citizens expected that larger size of budget and its appropriate allocation to pro-poor sectors could reduce poverty level. Nevertheless, controversy abounds on whether public budget really drives poverty reduction in Nigeria. Going by this argument, this study examines the impact of public budget indicators such as federally collected government revenue and aggregate expenditure on the poverty incidence using the time series econometric modelling and techniques. The results show that federally government collected revenue and aggregate expenditure increase poverty incidence in Nigeria. This could be due to over-reliance of the economy on one point source of revenue – oil revenue, high level of corruption and poor public budget process and implementation. Of all these, the study recommends among others, budget restructuring and people based budgeting so as to reflect the needs and preferences of Nigerians.

Keywords: Federally Collected Government Revenue, Aggregate Expenditure, Poverty Incidence and Nigerian Poor

I. Introduction

Public budget remains one of the tools by which government intervenes in the economy. In Nigeria, section 81 of the 1999 Constitution as amended requires the President to lay the budget before a section of the National Assembly for subsequent enactment. Citizens eagerly await this annual ritual as it has implications on their welfare. The expectation of citizens is that larger size of budget and its appropriate allocation to pro-poor sectors could reduce poverty level. Nevertheless, controversy abounds on whether public budget really drives poverty reduction in Nigeria. Some studies have found consistency with the direct relationship between budget and poverty reduction, while others have found an inverse relationship

The general notion is that larger and more pro-poor budgets tend to promote development and reduce poverty level. This shows that a negative relationship is expected from the theoretical stand point. Other countries as presented by empirical literature find positive, negative and mixed relationships (Von Hagen 1992; Alesina, Hausmann, Hommes and Stein 1996; Obadan 2003). However, Obadan (2003) found positive relationship between National Budget and socio-economic development in Nigeria. In his work, he decries the neglect of development planning, an attitude practise by the Nigerian government due to the perceived positive impact of the budget on socio-economic development and welfare of Nigerians. Alesina et al (1996) refuted the proposition of a positive relationship between fiscal budget and economic growth. They presented negative relationship and further alluded that the issue of 'hierarchical' and transparent procedures jeopardized the positive effect expected from budget by citizenry.

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World bank study on nine-country study (Mozambique, Rwanda, Ghana, Malawi, Tanzania, Guinea, Kenya, Uganda, and South Africa), on the impact of public finance and economic management on poverty levels, supported this claim, that is, the influence of budget on poverty levels varies from one country to another. Therefore, the view of the paper is to validate this theoretical notion for Nigeria. The objective of this study is to determine whether the size of public budget and its component reduce poverty in Nigeria during 1980 and 2013. Apart from the above introductory section, the rest of the paper is sub-divided into five sections. Section 2 provides highlights of studies that have examined poverty and public budget in Nigeria and some other countries. Section 3 presents the theoretical framework, methodologies and presentation of empirical estimations for the study. The budget process in Nigeria is examined and discussion of empirical results and policy implications of the study were presented in section 4. The article is concluded in section 5.

2. Public Budget and Poverty

2.1 Empirical Studies on relationship between Public Budgets and Poverty

Studies have examined impact of budgets on economic development. Von Hagen (1992) examined effects of budget procedures on fiscal outcomes in European countries and finds that budgetary procedures that are more hierarchical relative to collegial type are more likely to enhance greater fiscal discipline, which could ensure value for money and ultimately better budget performance. Similarly, Alesina et al (1996) investigate the role of budget institutions in fast-tracking the development process and report that budget procedures that are hierarchical and transparent are able to record lower primary deficit in Latin America. In another study Alesina and Perotti (1997) examine the effects of budget procedures on macroeconomic aggregates and balanced budget. Their conclusion is that hierarchical budgetary system may enforce fiscal restraints, avoid large and persistent budget deficits, and implement fiscal adjustment more promptly. Nevertheless, the budgeting procedure in Nigeria is hierarchical though less transparent but suffers from significant budget indiscipline as the budget deficit / GDP ratio has consistently exceeded the 3.0 percent stipulated by the Fiscal Responsibility Act, 2007 and the World Bank critical limit.

Obadan (2003) finds that poor budgeting manifesting in the form of poor fiscal management, official corruption, poor policies and budget indiscipline of the political leadership, have been responsible for low economic performance in terms of economic growth and performance in Nigeria. He blames the situation on delink between budget and development plans, lapses in budget formulation arising from deficient techniques, poor budget formulation, among others.

Similarly, Rapu (2003) blames poor budget performance on conflicts between the executive and legislature in Nigeria. Some of the conflict areas include late submission of Appropriation Bill to the National Assembly by the executive, unilateral amendment of the Appropriation Bill by the legislature, late consideration of the Auditor General's report on budget implementation at the end of a fiscal year, etc. He recommends that new budget estimates should be submitted at least 3 months before the commencement of a new fiscal year.

Scartascini (2007) highlights that "budget problems" emerge precisely from the inherent features of the process: governments decide on public funds and these decisions reflect sectoral interests struggling for the appropriation of these resources. In this sense, budget institutions play a key role in imposing the rules of the game, adopting procedures (formal and informal) and leading interactions with direct impact on fiscal and non-fiscal budgetary goals. International experience indicates that the success of any budgetary reform lies mainly in the institutional context within which it takes place.

Therefore, far from being neutral tools, budgets are naturally political documents (Hofbauer and Vinay 2002; Norton and Elson 2002; ODI 2004; UNRISD 2007a). Budgets are true "political facts". In the 1990s, the orthodoxy promoted by the IFIs installed a discourse that emphasized the neutrality of budgeting techniques based on imperatives such as "effectiveness" and "efficiency", focusing on macroeconomic stability to the detriment of an overall development view. But some questions were avoided by this technocratic perspective: what makes a budget effective and efficient? And who reaps the benefits of public expenditure and investment? These questions reflect the tight line that connects rights, (scarce) resources, and government agenda priorities. Wildavsky's (1980, 1992) classic formulation, which maintains that a budget translates financial resources into human purposes, is in line with more contemporary approaches that highlight the importance of a rights-based approach in budgetary analysis.

Abiola and Olofin (2008) examine the relationship among foreign aid, food supply and poverty reduction in Nigeria. They used secondary data for the period 1975-2005 with the use of econometric analysis and specified a structural model that examines the determinants of poverty-reduction. They report that multilateral aid, food supply, public sector spending on health care and education are the major determinants of poverty reduction in Nigeria and concluded that given the ongoing food supply crises, the gradual withdrawal of government from provision of health care and education as well as the unreliability of foreign aid, there is the need for some policy re-think if poverty is to be reduced in the country. It should be noted that public sector spending on health care and education are from the public budget, and any challenge with the budget process may impair the allocations to the poverty reduction sub-heads.

As argued elsewhere (see Abiola, 2009), the public budget process in Nigeria is far from being alright. Many of the stages are still at the rudimentary level. For example, the level of participation by the people is still low. If the budget will have expected impact, the people must be allowed to participate fully. Wehner (2009) worried by timeliness in the preparation, approval, execution and audit, appraise the budget procedure in 25 African countries, including Nigeria. He finds that lack of transparency, extra-budgetary spending, poor implementation absence of clear auditing are the bane of budgeting in African countries. Focusing specifically on Nigeria, Ariyo (2001) investigates the role of the National Assembly (NASS) in budgeting towards national development. He finds that budgeting in Nigeria has not been able to meet the aspiration of the citizens. To address the challenge, he advocated for budgeting that is democracy compliant, and also stressed the need to identify and fill gaps between public spending and welfare. Aspirations of the citizens are rather a broad concept as far as welfare is concerned. The need to address more specific welfare issue notably poverty reduction cannot be over-emphasised. Moreover, given that Ariyo's study is about ten years old, it will not be out of place to re-examine whether closing the gaps between public spending and welfare which he recommends have been achieved.

From the review, certain facts could be deduced. First, the budgeting process in developing countries, Africa and especially Nigeria are beset with some operational challenges which might have been minimising the benefits derivable by the people from public budget. Second, most of the studies focus on budget performance generally without specific impact on development indicators. It should be noted that budget performance and its impact on development are not synonymous. For example, budget performance has to do with the realism of the policy targets, policy instruments and parameters on which the estimates are made and ability to meet set targets especially for both revenue and expenditure. This will be better appreciated if considered against the backdrop that budgeting techniques in Nigeria is still largely incremental, input oriented, cumbersome and less transparent. Therefore, it is imperative to constantly monitor the relationship between public budget and welfare of the people, hence this study.

2.2 Country Experiences on the Relationship between Public Budgets and Poverty Levels

A nine-country study (Mozambique, Rwanda, Ghana, Malawi, Tanzania, Guinea, Kenya, Uganda, and South Africa), commissioned by the World Bank to evaluate the impact of public finance and economic management on poverty levels, finds that the influence of budget on poverty levels varies from one country to another. However, the general conclusion is that there has been shift of income from natural resources to social policies and overall development among the studied countries (Le Houerou and Taliercio 2002). Meanwhile, the Conference on Governance and Development held on November 2007 in Algiers by the New Partnership for Africa's Development (NEPAD), restates that, although in recent years Africa has shown increased growth rates and a remarkable tendency to promote good governance, there are still many obstacles to overcome since poverty continues to grow and the Millennium Development Goals are far-reaching.

In fact, in Uganda the government has been found to be committed to poverty reduction (Mackinnon and Reinikka, 2000) and has built an increasingly effective planning and budget process to allocate resources to poverty, and also has begun to make progress on the more difficult challenge of ensuring that those resources can be used effectively. There is evidence that budgeting process has recently improved, with a far closer correspondence between sectoral budgets and outturns in 1999/00 than in previous years (Bevan and Palomba, 2000).

In Latin America and the Caribbean, the influence of public budgets on poverty reduction has been practically identical and especially in Argentina, Brazil, Chile, Guatemala, Peru, Uruguay, and Venezuela, which are at the forefront of the application of Medium-Term Expenditure Frameworks (for details see Le Houerou and Taliercio 2002), as well as others notably Bolivia, Costa Rica, Colombia and other Central American countries. However, a study on the Poverty Reduction Strategy experience commissioned by the British Overseas Development Institute (2003), shortly after the implementation of MTEF: a new budgeting technique identified two groups of countries: highly indebted poor countries (HIPC II), Bolivia, Guyana, Honduras and Nicaragua; and as a second group, Guatemala, Paraguay, and other Caribbean countries.

Also, a study commissioned by the Swedish International Development Cooperation Agency (SIDA) investigating influence of budgets on poverty levels with Bolivia, Honduras, and Nicaragua as case studies highlights that in 1994, Bolivia interrupted the original Poverty Reduction Strategy which is subsequently replaced by various plans, though none with the same nature. The study further finds that since the focus on improved budgeting techniques, communication channel between the countries and the donors has been strengthened by the "Multi-donor Programme for Budget Support" (Vos, Cabezas and Komives 2006). Nonetheless, the study finds that in Honduras the Poverty Reduction Strategies have become stronger and that Nicaragua has replaced the original programme with a new national development strategy supported by donors. However, in 2005, internal political struggles in Nicaragua relegated the poverty reduction goal to second place. Although a certain degree of progress is evident in the coordination and execution of financial pacts in favour of "budget support", "Nicaragua is 'off-track' for reaching MDG 1 and most of the other goals" (Vos, Cabezas and Komives 2006).

It has similarly been reported that within Latin America notably Argentina, Brazil, Honduras, Paraguay, Peru, Uruguay, and Venezuela have a multi-year budgeting framework, aimed at reducing the fiscal deficit with more flexibility. Chile, Ecuador, Guatemala, Mexico and Nicaragua have a similar framework, but there are no limits set for the individual years it comprises (Filc and Scartascini, 2003). Nevertheless, the need for better budgeting is still supported by donors and international institutions, though the relationship with national budget systems is found weak (Vos, Cabezas and Komives, 2006). In the context of greater efforts to coordinate pro-poor actions and larger aid instrumented directly as budget support, issues related to budgeting issues have focused on the need to ensure efficiency, transparency, and accountability (ODI 2004). The message from above is that use of public budget to influence poverty levels remains a topical issue and specific country study may provide better results rather than lumping countries together. This further underscores the need for this study.

2.3 Challenges Facing Budget in Nigeria

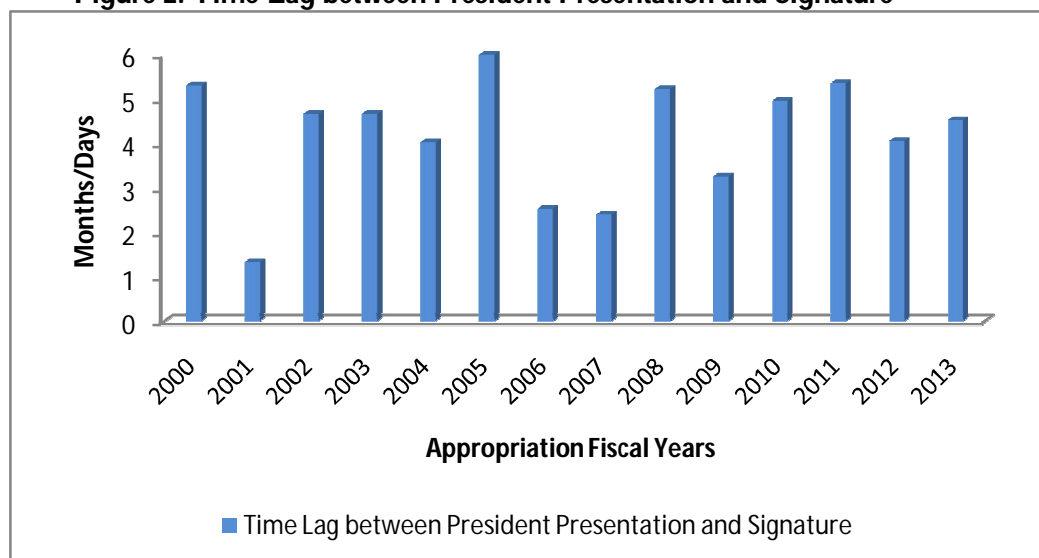
Three broad challenges were identified notably challenges arising from preparation and enactment; implementation; and weak oversight. These challenges are now examined in turn. The Nigerian financial year is from January through December. From table 2 and figure 2, it can be observed that budget preparation and passage suffer perennial delays for most of the years since 1999. There is no law about the time the President should lay his budget but a rule of thumb says at least 4 months prior to the beginning of a new fiscal year in order to allow the legislature to have enough time to scrutinise the budget estimates prior to approval. Throughout the period under review the President did not observe that provisions as the earliest time the budget was presented to NASS was October in 2006, for other fiscal years the presentations were as late as November and in some cases December. This legislative framework gap might have played significant role in the perennial delays.

The National Assembly also spent on the average four months and sixteen days to scrutinise the budget during 2000 and 2013. This validates the recommended 4 months periods when the President is expected to lay his budget before NASS. Thus, the challenge of delay in passage actually starts from late preparation.

Table 2.1: Delays in Preparation and Enactment of public budgets 2000-2013

Appropriation Fiscal Year	Date NASS received estimates from the President	Date revised estimates sent for the President for assent	Date the President assented to the budget	Time lag between President presentation and signature
2000	24 th Nov., 1999	14 th April, 2000	5 th May, 2000	5months 11days
2001	9 th Nov., 2000	21 st Dec., 2000	21 st Dec., 2000	1 month 12 days
2002	7 th Nov., 2001	28 th March, 2002	28 th March, 2002	4 months 21days
2003	20 th Nov., 2002	11 th March, 2003	10 th April, 2003	4 months 21days
2004	18 th Dec., 2003	20 th April, 2004	21 st April, 2004	4 months 3days
2005	12 th Oct., 2004	18 th March, 2005	12 th April, 2005	6 months
2006	6 th Dec., 2005	21 st Feb., 2006	22 nd April, 2006	2 months 16 days
2007	6 th Oct., 2006	22 nd Dec., 2006	22 nd Dec., 2006	2 months 12 days
2008	8 th Nov., 2007	27 th March, 2008	14 th April, 2008	5 months 7 days.
2009	2 nd Dec., 2008	3 rd Feb., 2009	10 th March, 2009	3months 8days
2010	23 rd Nov., 2009	25 th March, 2010	22 nd April, 2010	4months 29days
2011	15 th Dec., 2010	25 th May, 2011	26 th May, 2011	5 months, 11 days
2012	15 th Dec., 2011	15 th March, 2012	13 th April, 2012	4 months, 2 days
2013	10 th Oct., 2012	21 st Dec., 2012	26 th Feb., 2013	4 months, 16 days

Source: Abiola (2012) updated by Authors

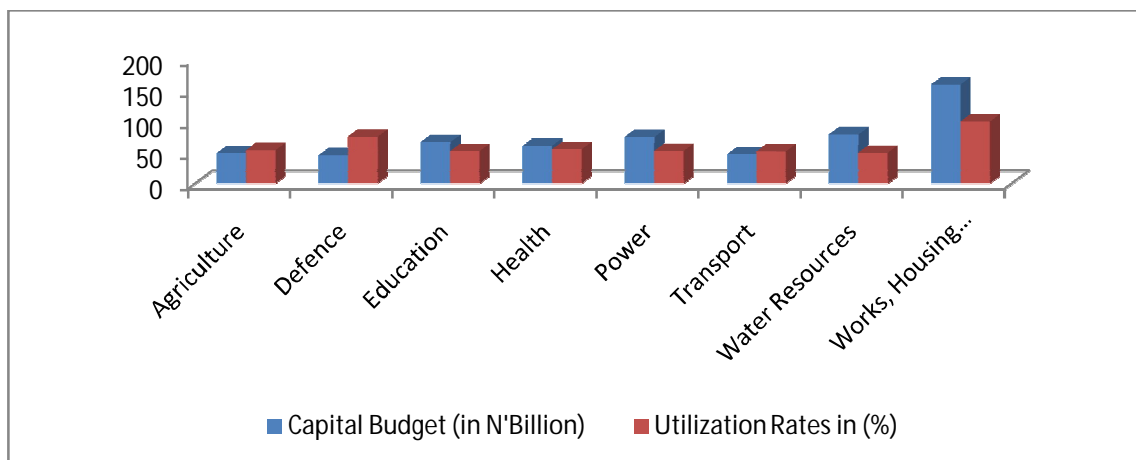
Figure 2: Time Lag between President Presentation and Signature

With respect to the 30 days constitutional provision, the President observed the law as the budgets were signed within the stipulated period. Nevertheless, it should be noted that on the average budgets were signed at the end of the first quarter of the new fiscal year suggesting loss of considerable time of each fiscal year. Implementation of the budget is also beset with many challenges. Many factors have been identified for the low level implementation of capital budgets by MDAs generally in Nigeria. These included: budget enactment/uncertainty; due process mechanism; low budgetary allocation; limited human capacity/technical expert; among others, (see Obadan, 2009). Worried by the 43.9% implementation level of capital budgets by all MDAs in the country in 2008, Obadan (2009) assessed the discrepancy between budgeted and actual spending within capital budgets of federal MDAs in 2008. Despite the study and its recommendations, the level of capital budget implementation in 2009 stood at 52.61%, or an implementation gap of 47.39%.

Table 2.1: Capital Budget Performance of MDAs related to Pro-Poor Activities, 2012/3.

MDA	Capital Budget N' billion	Total Funds Released N' billion	Amount cash –backed N' billion	Amount utilized N' billion	Utilization (%)
Agriculture	48.7	32.4	26.4	26.1	53.6
Defence/Security	45.4	37.4	37.4	34.3	75.5
Education	66.8	47.5	36.4	34.8	52.1
Health	60.9	45.0	37.1	34.8	55.3
Power	75.4	52.0	41.1	39.5	52.4
Transport	46.8	31.5	26.9	24.0	51.5
Water Resources	79.3	55.5	39.7	39.2	49.4
Works, Housing & Urban Devt	159.4	125.5	125.4	125.2	99.8

Source: Office of the Accountant General of Federation (OAGF). A Review of 2013 Appropriation Bill of the Federal Government of Nigeria, A Report Published by NILS.

Fig. 3: Capital Budget Performance of MDAs Related to the Pro-Poor Activities 2012/3

In Table 3, out of the eight selected MDAs related to the pro-poor activities of the country, only two (2) achieved capital budget performance of 70 percent and above – Defence/Security and Works, Housing and Urban Development, while Education, Transport and Water Resources sectors achieved the lowest performance of 52.1 per cent, 51.5 per cent and 49.4 per cent, respectively. Other MDAs namely Power, Agriculture and Health recorded 52.4 per cent, 53.6 per cent and 55.3 per cent, respectively. The eight (8) MDAs related to the pro-poor activities and welfare of the citizens are directly connected to the Seven-Point Agenda, on average, achieved 51 per cent capital funds utilization, (NILS, 2013).

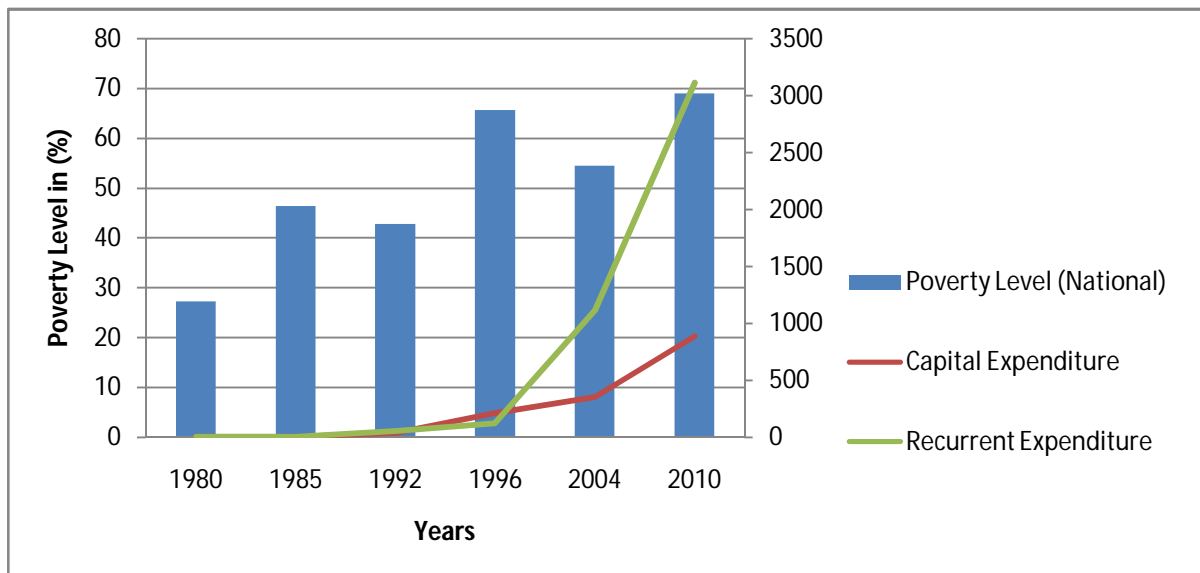
Finally, the implications of the inability of most of the MDAs to utilize the released funds are very disturbing. Power was expected to generate 6,000MW of electricity by December 2009. However, only 3,700MW was achieved at the end of December, 2009. (Guardian Newspaper of February 5, 2010). The Power generation has since dropped by 1,000 to 2,700 MW by January, 2010. An effective oversight function on the budget by the legislative arm of government is a *sine qua non* to the success of a nation's budget; indeed, it is a constitutional requirement in every democratic setting (PARP 2010). The conduct of oversight functions is one of the most effective techniques that the legislatures all over the world have adopted to influence the executive branch of government. The National Assembly has been doing this since the commencement of civil rule in 1999. However, the experience has not been very encouraging, and the hope of getting the budget better implemented through adequate oversight and supervision by the relevant committees is not in sight. NASS lacks capacity for effective oversight. It should be noted that out of about 50 years of governance since independence the military had ruled for 30 years while the civilians intervene in only 20 years. Moreover, each time the military seized power the first casualty is the legislature; as a consequence NASS has suffered development unlike other arms of government.

As at today the infrastructure and human resources to carry out effective oversight are not available. This will be better appreciated if considered against the backdrop that the executive arm has been very overbearing and hyper assertive. For example, during the regime of President Obasanjo, approved funds of some capital projects are withheld and not implemented especially for projects that are not favourably disposed to by President and his cabinet, which the National Assembly included in the budget in exercising their budget writing powers.

2.4: Poverty Levels and Public Expenditure in Nigeria

Nigerian economy faced almost decade stagnation before increasing expenditure (capital and recurrent) from 1980 to 1986 precisely. During this period the national poverty level rose geometrically from 27.2% in 1980 to 46.3% in 1985. The level of infrastructure decay as a result of reduced government spending at these periods worsened poverty issues later on, specifically, from 1992 to 1996, poverty level increased by about 23%. More importantly, the average trajectory of poverty in recent time is so enormous still above 50%, though, public expenditure made upward tick as well, even more greater than movement in poverty level, the recurrent expenditure for example, however, for Nigeria, to achieve the MDG target of halving poverty below the 1990 levels will have to ignore large number of the core poor see figure 4.

Figure 4: Poverty levels and Public expenditure in Nigeria



Source: Graphed by Authors; Underlying data are sourced from Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS)

3. Methodology and Preliminary Statistics

3.1 Modelling, Data and Methodology

This section specifies a model that links public budget to poverty level. It adopts World Bank (1998) which attempts to bridge the disconnection between policy formulation, planning, budgetary process, poverty alleviation and outcome monitoring and uses the Medium Term Expenditure Framework (MTEF). The section also presents data used in estimation and empirical techniques adopted.

3.1.1 Models

To model the impact of public budget indicators on poverty, the article presents two major poverty blocks: aggregated and disaggregated poverty models. The two blocks are analysis with three basic equations: aggregate poverty incidence, moderate poverty and extremely poor. This approach is consistent with that of the National Bureau of Statistics (NBS) which in its recent survey disaggregated poverty into moderate and extreme values.

The aggregate model adopts the MTEF framework. The article assumes that aggregate poverty for the country depends on budget components: total federally collected revenue and total government expenditure. It is believed that government spending could improve welfare of citizens and by extension reduce poverty. Likewise, policy tightening of increasing revenue through taxes effects on the welfare position of individual. However, if government receive more from the citizens in terms of revenue and simultaneously provide expansionary services through increase expenditure then, there are tendencies for the tightening policy to have positive effects on poverty and welfare. Nevertheless, negative effects may predominate and worsen poverty level.

The Aggregate model is specified and defined as follows:

$$POVI = f[TFCR, TGE, C] \quad (1)$$

$$POVI_t = \alpha_0 + \sum_{i=1}^m \alpha_i TFCR_{t-i} + \sum_{j=1}^n \alpha_j TGE_{t-j} + \xi_t \quad (2)$$

Where $POVI$ is the poverty incidence which is used to proxy the total number of Nigerian poor, $TFCR$ is a set of total federally collected revenue in the country; TGE is the total government expenditure. The lag terms are presumed to be determined by further estimation tests. The variable C represents a set of control factors that are not included in equation (2). Equation (3) represents the aggregate model with control variables included; this is specified and defined as follows:

$$POVI_t = \alpha_0 + \sum_{i=1}^m \alpha_i TFCR_{t-i} + \sum_{j=1}^n \alpha_j TGE_{t-j} + \sum_{k=1}^n \alpha_k C_{t-k} + \xi_t \quad (3)$$

C is a set of control variables consisting of the macroeconomic benchmarks of MTEF. These include: exchange rate, growth rate of gross domestic product, oil production volume and crude oil price. Equations (2) and (3) represent the econometric models to be estimated for the aggregate expression, while ξ_t is the stochastic random variable. The disaggregated models follow the National Bureau of Statistics classification - moderately poor and extremely poor. The moderately poor (MPOVI) are assumed to be a function of disaggregated revenue and expenditure in the framework. In the MTEF report, the revenue sub-section was disaggregated into oil revenue and non-oil revenue while the expenditure is broken down into recurrent and capital expenditure, respectively. The following equations represent model specified for estimating the disaggregated objectives.

A-priori Expectation of the Model:

It is expected that a positive intercept will emerged as poverty cannot be eradicated. The reason for this thought is that, at any point in time government policy will make some proportion of the population better off and some worse off. Hence, α_0 should be positive. The coefficient of total federally collected revenue (TFCR) is expected to be negative. The reason for this relation is that, the more revenue collected from the citizen through tax reduces their disposable income and thus, their purchasing power declines. Therefore, it is expected that α_1 should give a positive sign. The coefficient of government expenditure is expected to have a negative sign. This relation is deduced from the idea of Wagner's rule of public expenditure. This hypothesis reveals that government increase its expenditure as demand for public amenities/services rises and poverty declines. Consequently, as citizen demand for public facilities (pro-poor activities) is elastic and greater than one, poverty falls and government expenditure increases and α_j should be negatively signed.

Moderately Poor Model:

$$MPOVI = f(ORR, NORR, RCE, CTE, C) \quad (4)$$

$$MPOVI_t = \beta_0 + \sum_{i=1}^m \beta_i ORR_{t-i} + \sum_{i=1}^m \beta_i NORR_{t-i} + \sum_{j=1}^n \beta_j RCE_{t-j} + \sum_{j=1}^n \beta_j CTE_{t-j} + \sum_{k=1}^n \beta_k C_t + \varepsilon_t \quad (5)$$

Where MPOVI is the moderately poverty incidence, ORR is the oil revenue, NORR represents the non-oil revenue, RCE is recurrent expenditure and CTE is capital expenditure. Similar to the moderately poor model, the extremely poor (EPOVI) models are presented below:

Extremely Poor Model:

$$EPOVI = f(ORR, NORR, RCE, CTE, C) \quad (6)$$

$$EPOVI_t = \phi_0 + \sum_{i=1}^n \phi_i ORR_{t-i} + \sum_{i=1}^n \phi_i NORR_{t-i} + \sum_{j=1}^n \phi_j RCE_{t-j} + \sum_{j=1}^n \phi_j CTE_{t-j} + \sum_{k=1}^n \phi_k C_t + \varepsilon_t \quad (7)$$

3.1.2 Estimation Techniques

The preliminary analysis comprises of trend analysis, correlation statistics, unit root test which rely on Augmented Dickey Fuller (ADF) test and Dickey Fuller GLS test precedures. While the ADF test focus on order of stationary of the variables, the DF-GLS correct for structural breaks and disconnect of trends of each variables. In order to estimate the models specified and described above, the least square method was adopted. The variants of the least square estimation techniques are considered. These variants range between static least square estimation techniques – OLS, and dynamic least square estimation approaches – Fully Modified OLS (FM-OLS), Dynamic OLS and Canonical Co-integration Regression (CCR). The dynamic approach eliminates unobserved effects, issues of order of stationarity and choice of co-integration selection. Both the Static and Dynamic Least Square methodology validate empirically the objective (impact of public budget indicators on the poverty level of Nigerians) of the paper.

3.1.3 Data

The study uses secondary data obtained from National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN) and Nigerian National Petroleum Corporation (NNPC). The data spanned from 1980 to 2013. The acronyms for each variable, definitions and sources are presented in Table A in the Appendix section.

3.2 Preliminary Analysis

The preliminary analysis constitutes the outcomes of descriptive statistics, correlation statistics for both aggregate and sub-aggregate variables and unit root tests for all variables. The correlation statistics of the dataset used are depicted in Table 3.2; in addition, the table consists of the unit root test of each variables used for the analysis using the ADF and DF-GLS with their t-statistics and probability values were reported alongside with the correlation results. From the correlation diagonal matrix, it was observed that the correlation coefficients of the exchange rate data to other variables subdue in the aggregate models were found to be greater than 70 per cent but less than 90 per cent. This aptly rules out the issue of multicollinearity in the consideration of exchange rate in the model. Other variables in aggregate models were quite high above 90 per cent in most cases, this is an indication of multicollinearity issues; however, this was corrected for in the estimations with the consideration of dynamic estimation approaches. Meanwhile, the high (above 90 per cent) correlation coefficients observed between oil production sales and total government collected revenue and expenditure; and between crude oil price and total government collected revenue and expenditure are indications of over reliance of government activities on international sales of oil and crude oil price.

In the disaggregated section, poverty proxies – moderately poor and extremely poor have low (less than 70 per cent) correlation coefficients. This is an indication of close variance to other variables and absence of multicollinearity problem. Expenditure series – recurrent and capital expenditures suggested the presence of serial correlation; this is corrected for in the empirical estimation of the models. The unit root test procedures confirm the presence of unit root at levels for all variables; however, identify a first order of stationary process for most variables except total government expenditure which the ADF tests found to be stationary at second order process but this may be ignored as the DF-GLS approves a first order of stationary for TGE. The descriptive statistics are presented in APPENDIX 1. The outcome of the correlation tests and unit root tests raised significant indications and thus, suggesting the adoption of the dynamic modelling and estimation approaches.

Table 3.2: Correlation Statistics and Unit Root Tests

Aggregated Models:							
Variables	TFCR	TGE	POVI	OILT	OILP	GDP	EXCHR
Total Federally Collected Revenue (TFCR)	1	0.97	0.56	0.99	0.96	0.92	0.86
Total Government Expenditure (TGE)		1	0.59	0.98	0.94	0.95	0.85
Poverty Incidence (POVI)			1	0.56	0.38	0.56	0.71
Oil Production (OILT)				1	0.96	0.95	0.83
Oil Price (OILP)					1	0.91	0.74
Gross Domestic Product (GDP)						1	0.74
Exchange Rate (EXCHR)							1
Unit Root Tests							
ADF Statistics/Prob	-5.258/0.001	-3.253/0.095	-5.601/0	-6.152/0.00	-6.761/0.00	-4.556/0.008	-5.253/0.00
DF-GLS Statistics/Prob	-4.332/0.0007	-7.474/0.000	-5.771/0.00	-5.549/0.00	-6.608/0.00	-5.289/0.00	-5.432/0.00
Disaggregated Models:							
	ORR	NORR	RCE	CTE	MPOVI	EPOVI	
Oil Revenue (ORR)	1	0.91	0.94	0.87	0.04	0.69	
Non-Oil Revenue (NORR)		1	0.98	0.91	0.03	0.73	
Recurrent Expenditure (RCE)			1	0.92	0.02	0.73	
Capital Expenditure (CTE)				1	0.15	0.74	
Moderately Poor (MPOVI)					1	0.48	
Extremely Poor (EPOVI)						1	
Unit Root Tests							
ADF Statistics/Prob	-5.597/0.000	-7.319/0.00	-7.425/0.00	-6.763/0.00	-5.704/0.000	-5.621/0.0004	
DF-GLS Statistics/Prob	-4.467/0.0005	-7.511/0.00	-7.618/0.00	-6.894/0.00	-5.832/0.000	-5.813/0.000	

4.0 Empirical Results

4.1 The Aggregated Model Results

The estimated result is presented in Table 4.1. In the aggregated model, poverty (poverty incidence) was considered endogenous, with total federally collected revenue, total government expenditure remain the focal variables and set of control variables considered throughout the estimations are: Oil production, Crude oil price (brent), exchange rate and Growth rate Gross Domestic Product.

Table 4.1: The Aggregate Model Results				
Variables	Results of Estimation Approaches			
	OLS	FMOLS	Dynamic OLS	CC Regressions
Dependent Variable: POVI				
Constant	3.44**	0.27*	0.87*	0.22**
Total Federally Collected Revenue (TFCR)	0.081**	0.025***	0.0025*	0.053***
Total Government Expenditure (TGE)	0.008**	0.571**	0.029*	0.361***
Oil Production (OILT)	0.002**	0.0001	0.93	0.167*
Oil Price (OILP)	0.968***	0.004*	0.016*	0.003**
Gross Domestic Product (GDP)	0.023*	0.118**	1.702**	1.241
Exchange Rate (EXCHR)	0.009**	0.001**	0.0011	0.012**
R-Squared	0.741	0.9205	0.914	0.909
Adjusted R-Squared	0.682	0.907	0.901	0.899
Durbin Watson Stat	1.859	1.751	2.883	1.983
Akaike Info Criterion (AIC)	2.059			
Schwarz Criterion (SBC)	2.376			
F-Statistics	12.452			
Prob(F-Statistics)	0			
Long-run Variance		0.0012	0.0001	0.001

Source: Authors' Computation and Compilation

*, **, *** indicates statistical significance at 1%, 5% and 10% levels *POVI* (Poverty Incidence)

Four models are estimated. The preliminary tests support the adoption of the dynamic estimations using the least square techniques. Model 1 considers the Ordinary Least Square (OLS); while model 2 present the results obtained using the Fully modified OLS (FM-OLS). Model 3 represent the outcomes from the Dynamic OLS process and lastly, model 4 gave the results from adopting the Canonical Cointegration Regression (CC Regression). The lag values introduced in the estimations reduce the explanatory prowess of the models and most times, insignificant. Therefore, the lagged values are removed from the table for clarity and simplicity of presentation.

The results show that total federally collected revenue irrespective of the modelling pattern and methods tends to increase poverty levels and undermine appropriate socio-economic changes. Rising collected unproductive revenue reduces spending of individuals through the income effect. This culminates in the proliferation of poverty incidence that further erodes the income of individuals with no compensation from the governments. Again, over reliance on oil revenue has made state, local and federal governments and Nigerians more unproductive. The more revenue is from oil the more unproductive the government and Nigerians, thus, resulting in low tax revenue collection. This will not eventually affect the purchasing power of individuals as they only pay from the little they earned. This has resulted in neglect of the non-oil sector and revenue coming from this source remains infinitesimal. The development of various non-oil institutions and firms had faced serious set-backs, thereby; limit their capacity of generating employment opportunities for citizen, hence, high unemployment. The issue of high dependency on federal government by the state and local governments is another prominent reason for this relationship. The ability of other arms of governments to provide poverty-reducing programmes is relatively weak. This has shifted their attention from providing pro-poor facilities and programmes that can enhance income generating strength of Nigerians.

To this end, the more revenue collected from these poor people through tax the higher the tendency of making the more poor which justifies the positive relationship reported by the various methodologies applied. The description above was encrypted from the positive relationship recorded between federally collected revenue and poverty incidence. On the significant position, the coefficients were significant in all the models at varying degrees as documented in Table 4.1.

The total government expenditure (TGE) was positively related to poverty incidence which implies that increasing spending of government raise poverty level. This contradicts the a-priori expectation as it is documented that rising demand for public facilities reduces poverty and increases government expenditure. It also contradicts the findings of Easterly and Levine (2001) who found that government expenditure on productive segment of the economy such as research and development, infrastructure and human capital is a key determinant of high level of income and reduces poverty, mainly through improving total factor productivity of citizens. The major reason for this relation is that, the proportion of expenditure that gets to the vulnerable group of the population is so insignificant. The Nigerian poor have little or no access to public amenities. For instance, the issue of revamping the power sector of this country has been lingering for decades and yet the country cannot boast of celebrating twenty-four (24) hours uninterrupted supply. The lack of social and public amenities and the dilapidating nature of most sectors of the economy have raised unemployment such that youth unemployment in 2012 was as high as 31.7 per cent. More so, the structure of the expenditure side of the annual budget of the federation, the recurrent-capital expenditure ratio, is not development oriented. The chunk of the expenditure is concentrated on recurrent items, which left the provision of pro-poor/development amenities unscathed. There is need to change attention to strengthen the capital expenditure of the budget and oversight. Also, corruption is another bane of development in this country. The level of corruption that suffices in the economy is so high as given by corruption indicators. Findings had reported that, only point-source natural endowments in a country raise corruption level (Leite and Weidmann, 2002), this is in no time, deviate from what prevails in reality as our sole dependent on the crude oil have raised corruption level to an inestimable bound. The pass through of expenditure dynamics to alleviating poverty was a mirage amidst all these raised concerns in Nigeria.

Oil production and price play crucial roles in distorting poverty reduction strategies in the country. This is basically because, as crude oil sales and price rise, it transformed to increased revenue for the government through the non-oil revenue sources.

However, with the level of corruption that pervaded the country, surrounded by high macroeconomic risks, increase oil production, sales and price may not translate into poverty reducing instrument through revenue rewarding form. Our findings support the claim of Leite et al. (2002) that ascribed high level of corruption to single point-source natural endowments. Their coefficients were statistically significant in most estimation except for oil production sales that was insignificant in the fully modified OLS results and dynamic OLS model, respectively.

Other macroeconomic risks such as Growth rate of Gross Domestic Product and Exchange Rate considered are statistically significant with positive coefficients. Overall specification indicators show that our specifications were correctly specified, and that the introduction of several modelling forms produced no significant difference either in signs or reliability measure of the focal variables. However, it is noticed that slight changes in magnitudes occur as model specification changes. The models are reliable for policy analysis as they are corrected for heteroscedasticity and autocorrelation blights using Durbin "h" and Watson tests.

5.0 Conclusion

The primary cause of poverty in Nigeria could be blamed on the country's failure to distribute its vast oil resources more equitably. Public budgets in Nigeria raise the hopes of the people, the hopes are soon dashed giving a wide gap between total spending and welfare indicators. However, it should be noted that getting things wrong, including the public budget process and especially poor implementation of public capital projects, is not a crime. Failing to learn from past mistakes because you are not addressing identified challenges is. Thus, there is need to ensure fiscal responsibility, prudence, value for money in our total expenditure, and more importantly capital expenditure.

Over reliance on a point-source of revenue from oil, federal government and high level of corruption and inequality is another prominent menace that may jeopardize the possibility of waving farewell to the issue of poverty. This suggests that the Nigerian poor are worse off when budget indicators such as federal government revenue and expenditures are rising. There is need for budget restructuring, for instance, the ratio of recurrent to capital expenditure is high, which implies that past budgets focused more recurrent expenditure at the expense of capital form. This reduces developmental achievement in the past and has raised poverty level. Therefore, government should restructure this ratio to be more developmental/pro-poor in approach and not one sided.

Finally, national budgeting should be based upon and truly reflect the changing views, needs and preferences of the Nigerian people. Nigerians should be allowed to have some say in the type of capital projects they want. This calls for Bottom-Top-Planning-Approach. This probably may enhance greater impact of public budget on the welfare of the people and fast-track reduced poverty.

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Appendices

Appendix 1: The Disaggregate Model Results				
	Results of Estimation Approaches			
Variables	OLS	FMOLS	Dynamic OLS	CC Regressions
<i>Dependent Variable: Moderately Poor (MPOVI)</i>				
Constant	3.88**	0.231m*	1.389*	0.253***
Oil Revenue (ORR)	0.004**	0.276*	0.0002m*	0.293**
Non-Oil Revenue (NORR)	0.002**	0.447**	0.0004**	0.921*
Recurrent Expenditure (RCE)	-0.001**	1.442**	-0.0006**	-0.792**
Capital Expenditure (CTE)	0.011**	0.563***	-0.0005**	0.411***
Oil Production (OILT)	-0.005**	0.615*	0.0003***	0.527**
Oil Price (OILP)	-0.407***	-0.003***	-0.025*	-0.004**
Gross Domestic Product (GDP)	0.0003	0.637**	-3.531**	1.241
Exchange Rate (EXCHR)	-0.024**	0.0008**	0.006*	0.012**
R-Squared	0.534	0.933	0.916	0.892
Adjusted R-Squared	0.479	0.912	0.912	0.799
Durbin Watson Stat	1.872	1.865	2.425	1.966
Akaike Info Criterion (AIC)	5.691			
Schwarz Criterion (SBC)	6.099			
F-Statistics	3.448			
Prob(F-Statistics)	0.008			
Long-run Variance		0.0012	0.00032	0.0013

Source: Authors' Computation and Compilation

*, **, *** indicates statistical significance at 1%, 5% and 10% levels

Appendix 2: The Aggregate Model Results				
Variables	Results of Estimation Approaches			
	OLS	FMOLS	Dynamic OLS	CC Regressions
<i>Dependent Variable: Extremely Poor (EPOVI)</i>				
Constant	19.84**	0.229**	1.393*	0.25*
Oil Revenue (ORR)	0.003**	0.278***	-0.0002**	0.295***
Non-Oil Revenue (NORR)	-0.01**	0.439*	0.0004***	0.826**
Recurrent Expenditure (RCE)	-0.011**	0.134**	-0.005*	0.913*
Capital Expenditure (CTE)	0.028**	-0.453**	-0.0005**	0.425
Oil Production (OILT)	-0.001**	0.605	0.003	0.51
Oil Price (OILP)	-0.405***	-0.0039***	-0.025**	-0.004***
Gross Domestic Product (GDP)	0.0011**	-5.461**	0.381***	1.241
Exchange Rate (EXCHR)	0.074*	-0.0004**	0.007*	0.0003
R-Squared	0.871	0.931	0.873	0.911
Adjusted R-Squared	0.828	0.918	0.802	0.803
Durbin Watson Stat	1.719	1.969	2.465	1.96
Akaike Info Criterion (AIC)	5.978			
Schwarz Criterion (SBC)	6.386			
F-Statistics	20.34			
Prob(F-Statistics)	0			
Long-run Variance		0.0014	0.00003	0.0013

Source: Authors' Computation and Compilation

*, **, *** indicates statistical significance at 1%, 5% and 10% levels

Table A: Data Description and Sources

S/N	Acronyms	Definitions	Sources
<i>Public Budget Statistics:</i>			
1.	TFCR	Total Federally Collected Revenue: this variable is used to proxy the aggregate revenue generated by the Nigerian Government for the period.	Central Bank of Nigeria: Public Finance Statistics
2.	TGE	Total Government Expenditure: the total government expenditure is presumed to represent the aggregate government spending for the sample period.	Central Bank of Nigeria: Public Finance Statistics
3.	ORR	Oil Revenue: this is the total oil revenue received by the federal government of Nigeria for the fiscal year.	Central Bank of Nigeria: Public Finance Statistics
4.	NORR	Non-Oil Revenue: is the total non-oil revenue collected by the agencies and remitted to the federal government on a yearly basis.	Central Bank of Nigeria: Public Finance Statistics
5.	RCE	Recurrent Expenditure: the total recurrent spending of the federal government of Nigeria on a yearly submission.	Central Bank of Nigeria: Public Finance Statistics
6.	CTE	Total Capital Expenditure: this is spending of government on projects that lasted more than one year.	Central Bank of Nigeria: Public Finance Statistics
<i>Poverty Indicators:</i>			
7.	POVI	Poverty Incidence: gives the total number of people in poverty as a percentage of the total population.	National Bureau of Statistics: the last Nigerian Poverty Survey conducted.
8.	MOPVI	Moderately Poor: this is proportion of people that earn closely to the poverty line.	National Bureau of Statistics: the last Nigerian Poverty Survey conducted.
9.	EPOVI	Extremely Poor: the proportion of citizens that is very poor.	National Bureau of Statistics: the last Nigerian Poverty Survey conducted.
<i>Macroeconomic Risks:</i>			
10.	OILT	Volume of oil production: the total volume of crude oil export in a year.	Nigerian National Petroleum Commission: Annual Report.
11.	OILP	Crude oil price: this represents the international crude oil price at the end of the year.	Nigerian National Petroleum Commission: Annual Report.
12.	GDP	Gross Domestic Product: national output in a fiscal year.	Central Bank of Nigeria: Real Sector Statistics.
13.	EXCHR	Exchange Rate: is the Naira-US dollar exchange value.	Central Bank of Nigeria: Real Sector Statistics.

Source: Authors' Compilation