

# Determinants of Non Debt Government Expenditure in Nigeria:

1970-2003

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*This paper is an empirical attempt to situate and examine the trend in the growth and structure of non-debt government expenditure in Nigeria. The objective is to elicit the determining factors driving non-debt expenditure growth profile, and by implication the growth of gross domestic product (GDP) in Nigeria. The study found a continuous downward movement, compared with allusions of increasing size of government expenditure as measured by the expenditure to GDP ratio. Econometric analysis indicated the existence of positive relationships and high sensitivity of total non debt expenditure to population growth, gross domestic product, total revenue and political activities, but an inverse relationship with inflation rate. The paper recommended the diversification of the revenue base of the economy, injection of capital investment, strengthening the tax mechanism as well as the deliberate formulation and implementation of policies that would engender expenditure on social and community services with a view to improving the living standards of the people and fostering growth and development in the process.*

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## I. Introduction

Public expenditure theories evolved out of the perceived failure of market economy to efficiently and equitable allocate economic resources for social and economic infrastructure development. This failure necessitated the emergence of welfare economics (state intervention in economic activities)

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leading consequently to the rapid expansion of the government sector, and by implication, growth in public expenditure. The extent of this intervention vary from country to country over time and is often denominated by such indices as the nature of public goods provided, size of the public sector, its surplus and deficits and the amount of revenue raised. As the public sector size continued to grow relatively, the need for an appropriate mechanism that would ensure efficiency in resource allocation arose. In order to fill this perceived gap, the budget, which contains a package of public expenditure plan and tax legislation of the government for the year, readily came to be a veritable tool for controlling, monitoring and relating government expenditure plans to policies of finance and taxation.

Unfortunately early public finance theorists perceived the budget as an administrative process and, thus, confined discussions to the taxation side only while the public expenditure aspect was grossly discounted. Hence, significant discussions in the management of public expenditure did not emerge until 1883 when Adolph Wagner, a German economist, postulated what later came to be regarded by public sector economists as the law of public expenditure. This seminal work of Wagner marked the watershed and provided the building blocks and basis upon which subsequent empirical and theoretical studies on the subject of government expenditure, based on time series data, were to be undertaken.

Government expenditures are usually broadly categorized into recurrent and capital expenditures. The former, according to Lacey (1989), corresponds to government's purchase of current goods and services (labour, consumables, wages and salaries, etc) while the latter would ideally include not merely investments in infrastructure (roads, schools, hospitals, etc.) but also all other expenditures that might contribute to development. In other words, while the recurrent expenditures refers to financial outlays

necessary for the day-to-day running of government business, the capital expenditure refers to investment outlays that increase the assets of the state. These categorization, however, are not mutually exclusive but are indeed inter-linked. For instance, while capital expenditure gives rise to recurrent expenditure in most cases through the operational and maintenance costs of completed capital projects, the amount available for investment is a function of not only the size of revenue but also the amount that goes annually into the running of government.

In recent times, however, commentaries as well as studies on government expenditure have gained popularity especially given the widespread acceptability of democratic governance with its attendant concepts of transparency and accountability. Premchand (1993) attributed this development largely to the persistent fiscal crises that have plagued several countries, the growing disparity and imbalance between revenue and expenditures and the consequent fiscal deficit that is generally financed by sources that tend to be inflationary. He added the emergence of democratic governance and the financing of government expenditure by heavy external borrowing as some other reasons that might have generated interest in this segment of the public finance.

Though literature on government expenditure in Nigeria is extant, only a relatively small fraction of this had taken cognizance of the subject matter of this paper: the determinants of non-debt government expenditure. Government expenditure consists of recurrent and capital expenditure components. While the recurrent expenditure consists of goods and services and interest payments, capital expenditure consists of expenses on infrastructures and other similar facilities that enhance growth and development. Non-debt (goods and services) government expenditure, as used in this paper, refers to the total government expenditure less interest payments and capital repayments and amortization on both external and domestic debts. This diametrical shift in approach makes the study a

seminal work in this direction for Nigeria. The extraction of the interest payments component from the total government expenditure is aimed at highlighting the underlying structural factors that influence government expenditure in Nigeria aside from the burgeoning interest payments on loans. The decomposition of government expenditure is also intended to elicit the driving factors as well as indicate the direction of government expenditure which would form the basis for the recommendation for expenditure switch to more productive and growth-oriented sectors, if need be.

Preceding studies had been observed to have mostly used data from the 1970s and 1980s while apparently, only very few studies had covered the 1990s decade. This study also intends to extend the frontier and scope of data series to the 1990s decade. The significance of this period is underscored by the fact that, not only does it remain substantially unexplored in public finance research, but also witnessed the restoration of yet another democratic governance in Nigeria.

To achieve these objectives, the paper adopted an econometric approach using the error correction technique as well as ratio analysis to establish the behaviour of government expenditure in the absence of debt service. The time series data was tested for stationarity and cointegration with a view to ascertaining their long term equilibrium relationship. It is intended that emerging results from the analysis would be benchmarked against conclusions of earlier government expenditure studies on Nigeria as well as similar studies on other countries. The public expenditure framework adopted in the paper corresponds with the "development state" concept in which the state assumes the responsibility of fostering economic development through expenditure in infrastructure, support for firms, exports and production in general as well as providing the regulatory infrastructures as against the "minimal" (private initiative) and "welfare"

(government) states. This is informed by the level of development of the economy, which typifies many less developed countries which plays significant developmental roles in addition to their primary core governmental responsibilities.

The rest of the paper is organized as follows: following the introductory section is section II, which examines the theoretical framework and reviews the literature. While section III considers the structure of non-debt government expenditure vis-à-vis its ratio to GDP, section IV identifies the determinants of non-debt government expenditure. Section V presents the model on determinants of non debt government expenditure as well as the methodology adopted. The empirical result of the findings and policy implications form the focus of section VI and VII which also concludes the paper.

## II. Theoretical Framework and Literature Review

Over the years, the size, structure and growth of government expenditure have grown tremendously and become increasingly complex. Not only has recent political developments engendered expenditure growth, the challenge of raising additional and identifying alternative sources of revenue to meet the ever increasing needs of governance have made it more imperative to take a more focused look at government activities, especially its expenditures.

Pigou (1928), in his legendary book *Public Finance* noted that:

*“in every developed society there is some form of government organization...The governing authority, whether central or local, is endowed with functions and duties, the detailed nature of which varies in different places. These duties involve expenditure and, consequently, require also the raising of revenue”.*

Though Pigou's perception of what a government and its accompanying responsibility was had undergone tremendous transformation, both in size and complexities over time, the underlying concept of public expenditure as a veritable instrument through which government policy choices are carried out remains intrinsically unaltered in today's economies. Hence the continuous postulations of several theories as well as the identification of various variables that purport to explain the growth in the relative size of the public sector. Some of these dominant streams of thought are reviewed here.

What is now referred to, as “Wagner's Law of Increasing State Activity”, was the pioneering work of Adolph Wagner, a German economist, who attempted to scientifically explain the share of GNP taken up by the public sector in some European countries. Wagner, as cited by Bhatia (1967), postulated that there exist a functional relationship between the growth of an economy and the growth of government activities i.e. the ratio of government expenditure to GNP. Although not expressed in rigorous or objective terms, Wagner's law suggests that:

*“an increase in the relative size of the public sector would arise because of rising per capita income, which would induce greater spending on cultural and welfare programmes; greater complexity of legal relationship*

*and communication resulting from an ever more elaborate division of labour; increased problems associated with urbanization; and increased state of intervention in the economy because of increases in the optimal size of industrial facilities, Hartle (1976)".*

But because Wagner never indicated whether his findings were either in absolute or relative terms, Musgrave, (1969) chose to interpret Wagner's law in relative terms as an expression of the growth of the relative size of the public sector. This suggests that as per capita income in an economy grows, the public sector size would also grow in tandem. Suffice to note that though Wagner did not measure the magnitude of this relationship, but his analyses suggested that political and economic factors were the major determining forces that explained the persistent and upward movement in the ratio of public expenditures. According to Jackson and Brown (1978), Wagner explained the growth of public expenditure on education, recreation and culture, health and welfare services, in terms of their income elasticity of demand. That is, these services represented superior or income elastic wants. Thus, as real income in the economy rises, (increase in GNP), public expenditures on those services would rise more in proportion, which would account for the rising ratio of government expenditure to GNP.

As unsophisticated as Wagner's postulations were, they nevertheless, opened the confines of public expenditure studies to more rigorous and empirical verifications. In a study of the US economy, Musgrave and Musgrave (1989) corroborated Wagner's hypothesis when they found that the ratio of public expenditure (at all levels of government) to GNP rose from 35 per cent to 65 per cent. And that total public expenditure as a ratio of GNP showed a more or less steady upward trend since the end of the 19<sup>th</sup> century. Wagner's thesis was, nevertheless, criticized for its several assumptions, one of which is the non-recognition of individual preferences of the citizens.

Another theory that sought to explain the behavior of government expenditure over time is the development model formulated by Musgrave (1969) and Rostow (1971). The theory, which was essentially based on the examination of histories of developing economies, postulated that

*“in the early stages of economic growth and development, public sector investment as a proportion of the total investment of the economy was found to be high. Since by the nature of a market system, allocation for the provision of social and economic infrastructures such as roads, schools, hospitals, sanitation, etc would be inefficient, the intervention of the public sector in this regard becomes inevitable, thus enlarging government expenditures”.*

The government in this situation is not just interested in the upliftment of the living standards of the citizenry, but also in the transformation of the economy. Capital expenditures, and by derivative, current expenditures, at this level of development is usually very high, though often complemented by private investments. Musgrave opined that a rise in the ratio of total investment to GNP over a period would lead to a fall in the ratio of public sector investment to GNP. Complementing Musgrave's position, Rostow, added that there would be a shift from the provision of economic infrastructures to the promotion of education, health and other welfare services as the economy matures. Consequently, expenditures on welfare distribution programmes would tend to significantly grow in relation to other public expenditure items and also relative to GNP. Peacock and Wiseman (1961) hypothesis, which was based on the political theory of public expenditure determination, states that:

*“governments like to spend more money, that citizens do not want to pay more taxes, and that government needs to pay more attention to the wishes of their citizens”.*



One of the fundamental blocks on which this model rests was the assumption of a “tolerable level of taxation” which, according to the authors, acts as a constraint on government behavior when it is deciding on the level of expenditure to undertake at any particular point in time. In other words, revenue growth was seen as the major tonic and influence on public expenditure in the model. Hence, an increase in government revenue via taxes from increase in income in the economy would enable public expenditure to grow in line with the increased GNP.

The analyses indicated that public expenditure does not increase in a smooth and continuous manner but in jerks or step-like fashion in response to booms and depressions as may be experienced by the economy. Peacock and Wiseman identified two effects from their study the “displacement effect” and the “inspection effect” as explanatory frameworks for the swings in public expenditures. They discovered in their study that during periods of upheavals or crises, government expenditures unusually shift upwards. Tax levels, which are usually considered as acceptable during this period of crises, are raised to generate more funds for the government to finance the increased public expenditure. Since public and private expenditures have competitive claims on the resources in the economy, the increase in taxes displaces private expenditure for public expenditure and vice versa. This is what is referred to as the “displacement effect”. The “inspection effect” according to Peacock and Wiseman thesis is the expansion, during normal times, in public expenditures in order to improve the social and economic situation after the period of crises. Agitations by the people for better social services after the crises coupled with the need to rehabilitate and reconstruct social and economic infrastructures destroyed during the crises inevitably shift public expenditures upwards. And because the “tolerable level of taxation” does not return to the pre-crisis level, the government is able to generate enough revenue to finance these expenditures as well as service debts that might have been contracted during the crises period. Like others, analysts faulted the theory.

Another of the principal underlying determinant of public expenditure is population size, which many studies have examined, in per capita terms. While Goffman and Mahar (1971) considered the age structure of the population to have been a dominant factor in public expenditure growth in their study of six Caribbean countries during the post war period, Alan and Heller (1982), Williamson (1961) and Thorn (1967) added the size, the rapidity of increase, the geographical concentration (urbanization) and life expectancy, as possible underlying explanations of public sector expansion.

Lall (1969) and Lotz (1970), as cited by Longe (1984), in their independent researches, nevertheless, presented a contrary front, which hypothesized a lack of existence of a positive relationship between government expenditure and GNP. In fact Bird (1970) on his part strongly argued that in as much as Wagner's law might help illuminate some aspects of past reality, it would be myth-making of the worst order to contend that it has anything useful to tell us about the future. Enweze (1973) made another instructive finding in his study of fourteen selected developing countries which revealed that though the ratio of government expenditure to National Income was rising; it was, however, not associated with any functional component of total expenditure.

It is observable from the foregoing arguments that these postulations were based on historical antecedents, which tends to favour long-term forces as the major determinants of changes in expenditure. However, the determination of aggregate current expenditure depends, in practice, on a myriad of short-term interdependent factors, all of which persistently drive government expenditure up the crest. For instance while Musgrave and Musgrave, (1989), and Bhatia (1967), conjectured that increasing population, inflation, urbanization and large government transfers are major contributing factors to the growth of public expenditure, Oates (1985), however, contended that urbanization, rather than increasing public

expenditure, should result in a smaller public sector spending because of the economies of scale arising in the provision of services to more densely populated areas. Premchand (1993) on his part identified debt burden, especially in developing countries, and democratization of governance as having enormous and growing influence on public expenditure. More recently, attention has focused on attempts to explain the growth of public expenditure in terms of political process. Thus, government expenditure may grow not because the citizens do demand increasing expenditures but because they originate from the bureaucrats whose power and prestige are enhanced by larger budgets.

Alan and Heller (1982) also identified the structure of the economy as having a significant role to play in public expenditure growth. A dominant agricultural sector, they posit, would require certain form of public expenditure to complement private sector activities while at low level of development, the desire to change the structure of the economy might stimulate public expenditure.

It is observable from the foregoing that while Musgrave and Rostow perceive expenditure growth as being a reflection of government's intervening role in the provision of social and economic infrastructures, Wagner concentrated on income elasticity of demand for public goods and Peacock and Wiseman approached the subject from the perspective of the underlying politics of the fiscal system as an attempt to explain the pattern of public expenditure. Attempting, therefore, to establish a generally acceptable causes of government expenditure growth would be an arduous task.

### III. The Size of Government Sector

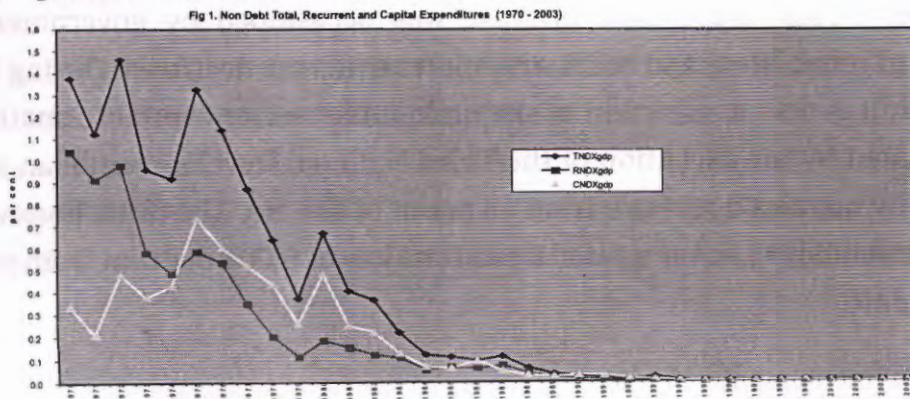
The government sector, the world over, is no doubt, a very large institution irrespective of the level of development or practice of governance. In mixed economies like Nigeria and other developing countries, the government sector figure looms even larger as they contend with developmental functions, in addition to the traditional obligations of providing for the ever increasing yearnings and agitation for better social and community services by the people. Adubi and Obioma (1999) observed that in almost all of these countries, public expenditure usually accounts for over 20 per cent of the gross domestic product (GDP) in their study of the expenditure management in Nigeria. According to Piana (2001), public expenditure plays four cardinal roles: contributes to current effective demand, coordinates impulse on the economy, increase the public endowment of goods as well as give rise to positive externalities to the economy and society through its capital component. Thus, in promoting development, the state plays the dual roles of providing goods and services as well as an enabling environment in terms of adequate, properly regulated, well-maintained and efficient social and economic infrastructure that would facilitate and enhance private sector performance. Therefore, an appropriate mix of public spending is needed on equity and efficiency grounds since there is generally no optimal prescription for either the design or the size of the public sector.

Iyoha (2002) in his findings noted that practically all studies have proved government expenditures to exhibit a tendency to rise at a faster rate than the GDP irrespective of the level of development. This finding is in tandem with a similar research by Thorn (1967), whose study of government expenditures of 52 countries showed a mean elasticity of central governments expenditures to GDP to be 1.22, higher than unity. It is, therefore, paradoxical to observe that despite governments' policy tilt towards private sector-led economy; empirical findings have always

confirmed Wagner's postulations on increasing government expenditures relative to national income. Aigbokhan (2003) on his part, however, do not see expansion in public expenditure as an inimical development that needed to be curtailed so long as it is adequately matched with expansion in government revenue, efficiently managed, do not fuel inflation and the composition is productive-enhancing and development - oriented.

### Analysis of Non Debt Government Expenditure in Nigeria

This section attempts a ratio analysis of the real growth of non-debt expenditures in relation to the GDP in Nigeria for the review period. The analysis throws up revealing facts and information about the real behaviour and direction of non debt expenditure in Nigeria for policy purposes. The data for the analysis was sourced from the Statistical Bulletin and several issues of the Annual Report and Statement of Accounts of the CBN. The non-debt recurrent and capital expenditure components used in this analysis are residual values after deducting interest payments on both external and internal loans and capital repayments and amortization, respectively. Expectedly, the total non-debt expenditure is an aggregation or summation of two expenditure components. The non debt expenditure components were, thereafter, deflated using the corresponding CPI to generate the real growth rates which were then related to (divided by) the GDP to generate the ratios plotted and shown in the chart below.



The chart above provides evidence on the trend of the ratio of non-debt expenditures to GDP from 1970 to 2003. The trend revealed that total, recurrent and capital expenditure ratios to GDP at 1984 constant prices for the review period averaged 0.37, 0.2 and 0.17 per cent, respectively. An examination of the trend indicated that though capital expenditure maintained an upward movement between 1970 and 1976, it was below the non-debt recurrent expenditure level during this sub period. This is an indication that despite the much hyped economic reconstruction and rehabilitation that followed after the civil war, coupled with the implementation of the development plans, the share of non debt recurrent expenditures was still overwhelmingly higher than the share of capital outlay that was expected to drive the economy back to the desired growth and recovery path. The sub period between 1975 and 1982 witnessed a precipitous fall in the proportion of non-debt capital expenditure to GDP, as it trended downward at an average ratio of 0.44 per cent having attained a peak of about 0.74 per cent in 1975, the highest in the review period.

It is significant to observe that despite the declining movement in the share of capital expenditure to GDP, it was well above the recurrent expenditure ratio for the sub period. This development was not unconnected with the revenue fortunes from the crude oil sales during the period, which empowered government to embark on the implementation of the indigenization decree as well as expansion of government administrative machinery. This appreciable increase was occasioned by government's resolve to rehabilitate and reconstruct infrastructure destroyed during the civil war. It is also a reflection of the high public sector capital formation, accentuated by the execution of the Third National Development Plan and buoyed by increased revenue from oil boom of the era. The ratio, however, fell continuously to hover around an all time low of 0.001 per cent from year 2000 to date.

The ratio of recurrent expenditure to GDP, which stood at 1.04 per cent in 1970, declined to a trough of 0.001 per cent in 1996 and 1997. For the first six years of the review period, the share witnessed sharp deceleration even though it remained above the non-debt capital expenditures ratio. Further analysis of the trend indicated that apart from 1975, 1980 and 1987 when the ratios recovered from their preceding levels, the non-debt recurrent expenditure had maintained a consistent downward movement throughout the review period. The witnessed deceleration was an indication of the low impact of government recurrent expenditure on the overall economic activities especially, as most of the expenditures were highly import based. The share of recurrent expenditure to GDP was probably significantly positive between 1970 and 1973 because much of government expenditures were on locally produced good and services, which have less import components but high multiplier effect on the economy.

Generally, it would be noted that the ratios as depicted in the above figure exhibit high volatility and marked spikes in the first half of the review period before converging gradually, thereafter. This development could be attributed to the fact that despite the revenue fortunes from the crude oil sales, which empowered government to embark on the implementation of the indigenisation decree as well as expansion of government administrative machinery, growth in GDP, was accounted for by factors other than growth in non-debt capital expenditures. It is also a pointer to the deleterious impact of debt service component of government expenditure on GDP growth, which had significantly exploded nominal government expenditures over the years.

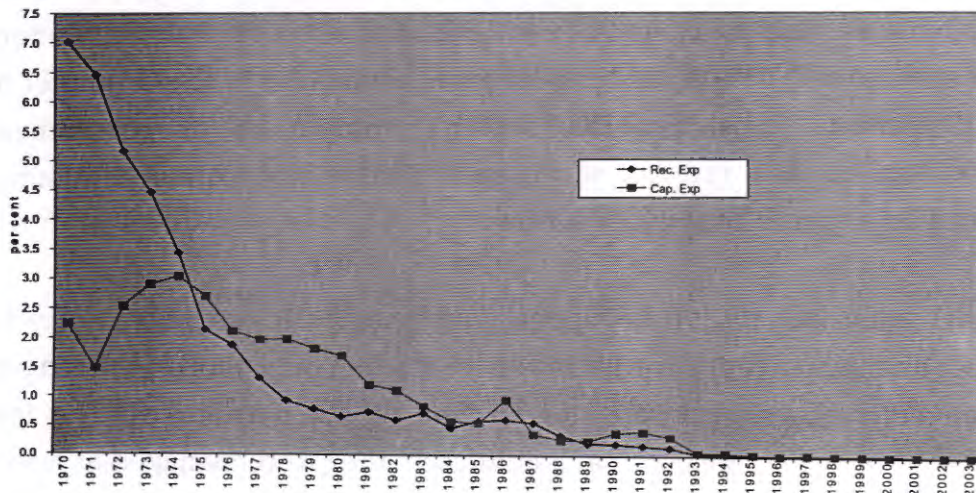
Another adducible reason is Nigeria government's inherent tendency to embark on massive capital projects which were not only poorly planned but subsequently abandoned resulting in loss of huge resources. The few completed ones became colossal liabilities as they were managed at heavy

and detrimental losses to the government or owner institutions. Correspondingly, there was a gradual but persistent increase in inflation, particularly in the face of crippling economic activities and significant decline in agricultural output as a result of the abandonment of the sector in favour of importation. It could, therefore, be inferred that a myriad of different other factors especially the oil industry principally explained the observed growth in GDP over the years. While a comparative analysis of government expenditure could be a veritable tool for drawing inferences, Longe (1984), however, noted that attempting to compare the size of the Nigerian government sector with that of other countries would be an arduous task, as results of such studies for other countries were neither computed for the same symmetrical period neither were the same benchmarks employed.

### Structure of Government Expenditure

Structurally, chart 2 exhibits similar pattern as chart 1 with the distinguishing feature being that while in former, the ratios depicts the relationship of expenditure to GDP, the later analyses the relationship between the recurrent and capital components with the total non-debt expenditures for the review period.

Fig 2. Ratio of Non Debt Recurrent and Capital Expenditure to total Expenditure (1970 - 2003)





The data showed that the ratio of the share of recurrent expenditure claims on total expenditures fell from a peak of 7.0 per cent in 1970 to a trough of 0.01 per cent in 1998. Overall recurrent expenditures recorded a sharp downward movement between 1970 and 1980 when it moderated, declining thereafter at a marginal rate for the rest of the period. The share of capital expenditure in total expenditure, on the other hand demonstrated an upward trend, rising from a dip of 1.5 per cent in 1971 to about 3.0 per cent in 1974. This appreciable development was occasioned by government's resolve to rehabilitate and reconstruct infrastructure destroyed during the civil war. It is also a reflection of high public sector capital formation, accentuated by the execution of the Third National Development Plan and buoyed by increased revenue from oil boom of the era.

The ratio of capital expenditure to total expenditure, which maintained an average rate of 0.9 per cent in the review period, witnessed a gradual but continuous decline throughout the remaining period except for 1986 when it shot up to about 1.0 per cent. This fall was a reflection of the Structural Adjustment Programme (SAP) adopted by the government, its resolve to limit capital expenditure to the completion of on-going viable projects only and the deliberate policy to encourage industrial and agricultural sectors. The glut and subsequent plummeting of international oil prices, which negatively impacted on government revenue, further contracted capital expenditure. Nevertheless, Ajakaiye, (2003), however, observed an appreciable increase in gross capital formation during this sub period owing largely to the activities of the erstwhile Petroleum Trust Fund (PTF) and the massive construction work in Abuja as the new seat of government.

If we regard recurrent expenditures as non-productive and capital expenditures as productive expenditures, according to Piana (2001) classification, it would be observed that the non-productive component claim on total expenditure grew at 1.2 per cent as against the productive component's growth rate of about 0.9 per cent. This fact further

substantiates the allusion of weak productive base of the economy during the review period. Jumare (2002) and Ogiogio (1995) explained that a declining expenditure-GDP relationship is an indication that the Nigerian economy has an extremely weak productive base. Ogiogio added that in the absence of current investment expenditures, the economy does not have its own impetus to support growth while previous investment did not seem to create productive capacity to propel future growth.

The observed growth in non-debt expenditure to GDP ratio, as mirrored in the analyses above, is a worrisome development and poses serious challenges to growth and development against an expectation that for a country that is seeking economic growth, the reverse would have been the case.

#### IV. Determinants of Non-Debt Government Expenditure in Nigeria

It was stated in section two that Wagner's law used historical antecedents to derive the path of government expenditure, taking into cognizance only the long-term forces as the major determinants that affect changes in public expenditure. However, there are a plethora of short-term factors that influence government's tendency to increase or decrease expenditure. Some of these factors, which are exogenously determined, ranged from the political will of the state to other variables (other than economic) such as past choices, bureaucracy, culture and social.

Changes in population growth, according to Musgrave and Musgrave (1989), generate changes in age distribution and this trend is reflected in expenditure for education as well as care for the aged. Population growth is a major and dominant contributory factor to the growth of expenditure as government policies are geared towards narrowing, as much as possible, the

gap between social and economic services with population growth. The provision of schools, hospitals and other social amenities necessarily has to grow with population. As a corollary, urbanization according to Bhatia, (1967) implies a much larger per capita expenditure on civic amenities. Population mobility, leading to growth of cities results in demand for additional social facilities as well as exerts further pressure on the available amenities. While recognition should be given to how changes in technology impinge on the mix of public and private goods in both the capital and consumer goods sector, Musgrave (1969) suggested that allowance should also be made for the political, cultural and social factors that determine the environment in which budget policy operates and affect the underlying value judgments the political class attached to them. The dividing lines between these categories of economic conditioning and social forces are not clear neither are they wholly independent of each other.

## V. The Model and Methodology

### The Model

An attempt is made in this section to provide an explanation for the size and structure of non-debt government expenditure in Nigeria using an econometric model. In order to avoid the problems of double counting coupled with the prevalence of wide data gaps in state government expenditure profiles, the federal government expenditure data series were used in the estimation as they tend to portray a better measure of total government spending. The model adopted in the study is a multivariate one where total non-debt expenditure is modelled as a function of total revenue, gross domestic product, population and inflation (as represented by CPI). The political dummy variable was introduced to capture the impact of political activities on government expenditure. The model draws considerably from empirical works as summarized in the literature review. The estimated model is presented below with positive *apriori* expectation for all the variables as:

$$LTEX = f(LTRE, LCPI, LPOP, LGDP, DPOL, \epsilon_t) \dots \dots \dots (1)$$

where

*LTNDX* = *Logarithm of total non-debt expenditure*

*LTRE* = *Logarithm total revenue*

*LCPI* = *Logarithm of Consumer Price Index*

*LPOP* = *Logarithm of population*

*LGDP* = *Logarithm of Gross Domestic Product*

*DPOL* = *Dummy of political activities*

$\epsilon_t$  = *error term*

The Statistical Bulletin, and the Annual Report and Statement of Accounts of Central Bank of Nigeria served as the main source of data except for population figures which were sourced from the Federal Office of Statistics Annual Abstract of Statistics (several editions).

## Methodology

Due to non-stationarity properties of all the series at level, the co-integration analysis was used and the long-run dynamic error correction mechanism was employed to obtain the long-run dynamic relationship between the total non-debt government expenditure and the included variables. The Engle - Granger two-step approach was adopted to determine the co-integrating relationship among the variables as well as the estimation of the long-run relationship using the Ordinary Least Squares (OLS) technique.

Since the estimation of equation (1) by OLS may lead to spurious results if variables are found to be non-stationary, we will take a step further to determine the relationship by assuming that total expenditure is influenced by a vector of factors  $y_t$ , such that

$$TNDX = y_t + \epsilon_t \dots \dots \dots (2)$$

Equation 2, which is often referred to as a cointegrating relationship, defines the relationship between *TNDX* and the included variables. It shows that changes in *TNDX* are determined by changes in all or some of the variables on the right hand side of the equation.

If we assume further that *TNDX* is an integrated process of order one  $I(1)$  and that  $y_t$  contains at least one variable of order one  $I(1)$ , the long run behaviour of *TNDX* can be explained by exploring the cointegrating relationship in equation (2). Hence the order  $I(1)$  variables included in  $y_t$  would be considered to have captured the long run relationship with *TNDX* if  $\alpha$  is found to be stationary. With the hope that  $\alpha$  will exhibit some level of moderation over time, equation (2) will be considered as a long run relationship since on the average  $TNDX = y_t$ .

There are several econometric techniques that could be employed to test as well as estimate the relationship. One of them, the Augmented Dickey Fuller (ADF), is employed in this respect.

### Unit Root Test

Table 1 presents the test for stationarity using the standard Augmented Dickey Fuller (ADF) unit root test to examine the time series properties of the data with a view to determining the existence or otherwise of integrated components among the variables. The specification and estimation of the model showed that all the data series were not stationary at level, but on differencing the series once, they became stationary. The result further showed that all the series were integrated at order one  $I(1)$  and at 1%, except for *TNDX* and *GDP* which were integrated at 5%. This indicates that a long run relationship exists between non-debt expenditure and the selected exogenous variables and that the variables constitute the long run determination of total non-debt government expenditure in Nigeria.

**Table 1**  
**Unit Root Test Statistics**

Variable	ADF test statistic	McKinnon Critical values (%)	Order of Integration	Number of lags
LPOP	-3.957661	-3.6576 (1%)	I (1)	1
LTRE	-4.473120	-3.6576 (1%)	I (1)	1
LCPI	-3.792838	-3.6576 (1%)	I (1)	1
LTNDX	-3.531535	-2.9591 (5%)	I (1)	1
LGDP	-3.515964	-3.6576 (5%)	I (1)	1

### Long Run Non-Debt Government Expenditure Model

Table 2 shows the result of the long run model estimated after specifying the determining variables. The OLS result showed that in the long run, the independent variables were able to explain the variation in the growth of non-debt government expenditure in Nigeria during the period under review. This assertion is affirmed by the R-squared and the adjusted R-squared of 97.2% and 96.7%, respectively, which are a reflection of the importance and statistical significance of the explanatory variables indicating the sensitivity of non-debt government expenditure to these variables in Nigeria. In addition, all the independent variables have their *a priori* theoretically predicted signs except CPI and TRE. In general, the model demonstrates a good fit as reflected in the probability of the F statistic.

**Table 2**  
**Long Run Non-Debt Government Expenditure model**

Dependent Variable: Total Non Debt Government Expenditure (TNDX)				
Sample: 1970 2003; Included observations: 34				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTRE	-0.278928	0.349029	-0.799156	0.4309
LPOP	0.527694	0.875627	0.602648	0.5516
LGDP	2.002469	0.694571	2.883029	0.0075
LCPI	-0.857005	0.419880	-2.041069	0.0508
DPOL	0.298323	0.234856	1.270234	0.2145
C	-8.987618	4.693196	-1.915031	0.0658
R-squared	0.972381	F-statistic	197.1588	
Adjusted R-squared	0.967449	Prob. (F-stat)	0.00000	
Durbin-Watson stat	1.213585			

### Short Run Non Debt Government Expenditure Model

Having established the existence of a cointegrating relationship between the variables, residuals from the long run model were tested to ascertain their stationarity. The result showed that they are stationary. The dynamic model was then specified with the lagged residuals from the cointegrating regression as the ECM. This was incorporated in the OLS estimation. The over parameterized model was estimated with an optimal lag difference of 2 to enhance the degree of freedom particularly as the model used annual series. The over parameterized and parsimonious error correction models, where the first difference of the log of total non-debt government expenditure is the dependent variable that emerged from the estimation, are presented in tables 3 and 4, respectively, for the purpose of demonstrating the existence or otherwise of a relationship among the

independent variables. The statistical significance, a priori expectations and other considerations guided the reduction strategy to achieve the parsimonious model. In terms of determining the degree of influence, the parsimonious model showed that all the variables explained the variation in the expenditure size and growth in the Nigeria economy.

**Table 3**  
**Short Run Over parameterized Government Expenditure model**

Dependent Variable: Total Non-Debt Government Expenditure (?LTNDX)				
Sample: 1970 2003; Included observations: 31				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.035216	0.186349	0.188979	0.8528
LTNDX(-1)	0.053779	0.221512	0.242781	0.8117
LTNDX(-2)	0.407868	0.205963	1.980300	0.0677
LGDP	0.877926	0.563834	1.547325	0.1441
LGDP(-1)	0.027308	0.626809	0.043566	0.9659
LGDP(-2)	0.387222	0.708583	0.546473	0.5933
LTRE	-0.220484	0.301889	-0.730346	0.4772
LTRE(-1)	0.216525	0.288716	0.749958	0.4657
LTRE(-2)	-0.184178	0.343585	-0.536048	0.6003
LCPI	-1.077853	0.746839	-1.443220	0.1710
LCPI(-1)	0.265890	0.572732	0.464249	0.6496
LCPI(-2)	-0.914584	0.629328	-1.453270	0.1682
LPOP	2.346425	1.292529	1.815376	0.0909
LPOP(-1)	2.180530	1.554498	1.402723	0.1825
LPOP(-2)	1.991967	1.509778	1.319377	0.2082
DPOL	0.339591	0.160324	2.118152	0.0525
ECM2(-1)	-0.943892	0.231044	-4.085337	0.0011
R-squared	0.829335	Schwarz criterion	1.107839	
Adjusted R-squared	0.634289	F-statistic	4.251996	
Durbin-Watson stat	2.409890	Prob. (F-statistic)	0.004716	

The decline in the Schwarz Information Criterion (SIC) from 1.11 in the over parameterized model to 0.50 in the parsimonious model is an indication that a reduction in the model enables parsimony to be achieved. The over parameterized model presented in table 3 indicated that the policy impact of the variables on expenditure policy in the short run is significant. The coefficients of all the variables had their *a priori* theoretical signs and were



generally statistically significant except for inflation and total revenue. This suggests that while a rise in all other variables would shore up non-debt government expenditure, total revenue and inflation rate would have an inverse impact on expenditure growth.

**Table 4**  
**Short Run Parsimonious model of non debt government expenditure**

Dependent Variable: Total Non Debt Government Expenditure (?LTNDX) Sample: 1970 2003; Included observations: 31 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.116557	0.086532	-1.346983	0.1923
LTNDX(-2)	0.333408	0.114410	2.914140	0.0083
LGDP	0.496959	0.278273	1.785869	0.0886
LTRE(-1)	0.290518	0.135628	2.142026	0.0441
LCPI	-0.659948	0.351845	-1.875677	0.0747
LPOP	2.982800	1.003130	2.973493	0.0072
LPOP(-1)	3.162543	0.976745	3.237840	0.0039
LPOP(-2)	1.983304	1.070370	1.852915	0.0780
DPOL	0.334440	0.137859	2.425963	0.0244
ECM2(-1)	-0.926919	0.139666	-6.636668	0.0000
R-squared	0.797733	Schwarz criterion		0.502309
Adjusted R-squared	0.711047	F-statistic		9.202554
Durbin-Watson stat	2.366847	Prob. (F-statistic)		0.000016

## VI. Estimated Result

Table 4 showed that total revenue is both rightly signed and highly significant, indicating the strong impact the variable exert on government expenditure. Thus, a percentage increase in government revenue could potentially expand government expenditure by as much as 29 percent. This result accentuates Peacock and Wiseman hypothesis of government's inherent tendency to spend once revenue is available and rightly mirrors the expenditure behavior of the Nigerian economy. GDP was also found to have statistical significance and rightly signed explaining about 49 per cent of the

changes in non debt government expenditure, confirming the applicability of the vanguard work of Wagner in Nigeria which postulated that the need for regulation increases in tandem with growth in GDP (economic activities), thus raising total expenditure in the process.

The result also indicates that demographic factor (population) is an important determinant of public expenditure exerting a direct, strong, positive and significant relationship with the level of non debt government expenditure. This is in agreement with the *a priori* expectations that the relative size of the population exert a positive influence on total expenditure especially since poor countries like Nigeria, on the average, tend to have much larger proportions of their population in the younger age (dependent) bracket. The estimated result suggests that a rise in population would shoot up government expenditure outlays by the provision of social amenities and other welfare programmes. This implies that per capita expenditure would rise only if total expenditure rises faster than population, the chances of which are very slim in developing countries with high population growth as Nigeria.

The result also indicates that inflation rate, even though statistically significant is not a good explanatory factor in the direction and size of expenditure in Nigeria over the sample period which is contrary to the prediction of Aghelvi and Khan (1978). The domestic price level in the economy, as proxied by the CPI, showed a negative coefficient.

Also the positive coefficient of the lagged value of non debt expenditure showed the expansionary effect of the incidence of past expenditure level on the current levels especially in Nigeria where the incremental budgeting system is the practice. The past expenditure levels displayed a direct and significant positive impact on current expenditure by as much as 33 per cent. The dummy representing political activities in the country was also

found to be rightly signed and statistically significant as well. Consequently, the election periods are estimated to have increased the expenditure profile of government by as much as 33 per cent.

The coefficient of the error correction term ECM (-1), which is an indication of the speed at which expenditure adjust to changes in the long run and the existence of long run equilibrium relationship between government expenditures and the determining variables, is not only negative but also highly significant. This means that actual expenditure and long run value of expenditure is corrected by a factor of 0.9 every year, i.e. a fast adjustment speed of about 90 per cent

## VII. Policy Implications and Conclusion

### Policy Implications

Taking into cognizance the huge expenditure outlay of government on one hand and the growing incidence of poverty and wealth inequality in the country on the other, it is inevitably imperative to investigate the underlying determinants of non debt government expenditure expansion in Nigeria if rational policies are to be formulated and implemented. This paper investigated the effect of some variables on the expenditure behavior of the country. It applied an error correction model in establishing the validity and dynamics of the theoretical underpinnings that sought to explain the size of the public sector in Nigeria. The empirical results affirmed that expenditure is quite sensitive to the influence of population, inflation, gross domestic product (GDP), government revenue and political activities in the country.

An instructive finding from the analysis was the positively signed and highly significant impact of the lagged variable of total expenditure on current expenditure. In this direction, the creation of "Price Monitoring and Due Process" in the award of government contracts in the Budget Office of the Ministry of Finance is highly commended. This does not only have the

potency to drastically prune down government expenditure level but also reduce, to a large extent, the transmission impact of the past expenditure levels on current expenditure. There is, however, the need to pass into law the enabling Financial Appropriation Act to sanitize and enthrone financial probity in the three arms of government. Secondly, government's persistent recording of large fiscal deficits pose real threats to the stability and growth of the economy. Excessive budget deficits could lead to a combination of inflation, exchange rate crises, internal and external debt overhang as well as high interest rate in the economy. Deficits could be reduced by cutting down on expenditure, without compromising the funding of key expenditure programmes for growth and poverty reduction, complemented by tax reforms to increase revenue. This would free more funds for developmental projects as well as the provision of social and economic infrastructures, which are the building blocks for any meaningful development. In the interim, transparency in governance and fiscal discipline should be the key watch words of government.

Another finding from the study is the antithetical relationship between non-debt government expenditure and the movement in the general price level in the economy. Anecdotal evidence suggests that the delay in the payment for government contracts had informed contractors building in inflation factor "inflation expectation" in the costing of government purchases, hence, increased expenditure. However, the negative relationship suggest that the inflation factor, though positive, may have been offset by other factors in government contracts. Nevertheless, government resolve to achieve single digit inflation rate for the economy is a significant policy thrust given its pivotal and influential role in the attainment of stability of other macroeconomic aggregates and as a WAMZ criterion for economic integration. Suffice to note that the relationship between inflation and government expenditure has been found to be bi-directional. For instance, while Egwaikhide (1997), as cited by Akpokodje (1998) observed

government monetary and fiscal policies as positively influencing the general price level, which in turn affect the credibility of the government, Aghelvi and Khan (1978) in their study observed that domestic price level tends to increase government expenditure faster than revenue, resulting in budget deficits.

Another instructive finding is the strong correlation between population and expenditure. The result implies that changes in both the absolute size and age structure of population exert pressure on government expenditure. For instance, while the under 15 age bracket call for schools and health services, the over 60 years require medication and pension programmes. If the rising trend in expenditures is to be curbed, there is need for the formulation and implementation of deliberate population policies that would moderate population growth, thereby increasing the per capita expenditure. This would improve the productive capacity of the economy as more social and economic infrastructures are provided. Currently studies indicate that both population and GDP grow at the same rate of 2.8 per cent in Nigeria. This is worrisome for a nation aspiring to develop and grow. This, of course, should be complemented by improving the literary or educational level, especially on reproductive health, of the populace as a means of cutting down on the rapid growth of population. The Domestic Debt Office in its 2002 Annual report revealed that Nigeria's budget for education and health were twice lower than debt service. This unfortunate development need to be reversed because the development of the social and economic infrastructure still remains the bedrock for development in any economy.

The influential role of revenue in government expenditure confirms *a priori* expectation and, consequently, calls for a deliberate government policy to diversify the revenue base as well as improve on revenue generation from sources other than oil, especially taxes. The tax mechanism, as it is currently, is weak while the institution needs to be strengthened and

adequately equipped for the proper implementation of tax rules and regulations. This would drastically eliminate the high incidence of tax evasion and avoidance prevalent in the country.

The political activities in the economy were also found to have a positive impact on non-debt expenditure as indicated by the rightly signed and positively significant political dummy variable. This finding is quite in tandem with the study by Premchand (1993) who attributed growth in government expenditures to the enthronement of democratic governance. Democratic governance is an expensive practice not only in the conduct of elections but also in the building and maintenance of democratic institutions and infrastructure. Currently political activities are heavily funded by the government. It would free a lot of resources for government use if an alternative funding for political activities and programmes are sought.

### Conclusion

The paper set out to investigate the determinants of non-debt government expenditure using an econometric model, the error correction methodology. Analysis from the estimated equation suggests that while gross domestic product, total revenue, population and political activities can potentially spur up non-debt government expenditure, the sensitivity to changes in inflation rate was inverse. Worthy of note is the fact despite the numerous reasons often advanced in favour of government intervention, this does not necessarily and sufficiently provide a guarantee that the society will benefit from such action. The paper argued that expenditure reduction should not be the primary pursuit of government rather government spending should be channeled towards productive activities with multiplier and positive externality effects on the economy, enhancing and promoting growth and development in the process. The commitment of a higher proportion of government expenditure to recurrent expenditure, while capital

expenditure are residuals or left over adversely affect capital formation and economic growth.

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## Appendix

YEAR	Total non debt expenditure (N million)	GDP at 1984 constant prices (N million)	Total revenue (N million)	Consumer Price Index	Population (million)	Dummy for politics
1970	773.5	5,205.1	634.0	10.8	66.9	0
1971	929.5	6,570.7	1168.8	12.6	67.9	0
1972	1369.7	7,208.3	1405.1	13.0	69.6	0
1973	1436	10,990.7	1695.3	13.6	71.3	0
1974	2607.1	18,298.3	4537.4	15.5	71.0	0
1975	5754.7	20,957.0	5514.7	20.7	74.9	0
1976	7637	26,656.3	6765.9	25.1	76.7	0
1977	8356.8	31,520.3	8042.4	30.4	78.6	0
1978	7641.7	34,540.1	7371.0	34.5	79.8	0
1979	6048.4	41,947.7	10912.4	38.5	82.6	1
1980	14128.9	49,632.3	15233.5	42.4	84.5	0
1981	10595.7	50,456.1	13290.5	51.4	90.4	0
1982	10495.8	51,653.4	11433.7	55.1	89.1	0
1983	8521.4	56,312.9	10508.7	67.9	91.4	0
1984	7363.2	62,474.2	11253.3	95.6	93.7	0
1985	7960.5	70,633.2	15050.4	100.0	96.4	0
1986	7321.6	71,859.0	12595.8	105.4	99.0	0
1987	14509.5	108,183.0	25380.6	116.2	101.5	0
1988	16404	142,618.0	27596.7	181.2	104.0	0
1989	21720.2	220,200.0	53870.4	272.7	106.4	0
1990	20723.1	271,908.0	98102.4	293.2	86.7	0
1991	20570	316,670.0	100991.6	330.4	88.6	0
1992	25437.9	536,305.1	190453.2	478.4	91.4	0
1993	116825.2	688,136.6	192769.4	751.9	93.3	1
1994	91475.8	904,004.7	201910.8	1180.7	96.8	0
1995	179131.1	1,934,831.0	459987.3	2040.9	99.5	0
1996	272575	2,703,809.0	520190.0	2638.1	102.3	0
1997	363171.1	2,801,972.6	582811.1	2863.2	105.2	0
1998	417073.6	2,721,178.4	463608.8	3149.2	108.2	0
1999	709276.9	3,313,563.1	949187.2	3357.6	111.3	1
2000	592244.4	4,727,522.6	1906159.7	3923.8	114.4	0
2001	862295.2	5,374,334.8	2231532.9	4268.1	117.9	0
2002	743954.6	6,232,243.6	1731837.5	5151.5	120.9	0
2003	859464.4	6,061,700.0	2575095.9	5827.1	124.4	0

Source: Statistical Bulletin Vol. 14, 2003 and several issues of Annual Reports and Statement of Accounts and FOS Annual Abstract of Statistics.