

FLOW OF FISCAL RESPONSIBILITY AMONG LAYERS OF GOVERNMENT: A CASE OF NIGERIA

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Abstract

The issue of fiscal federalism has for quite some time engaged the attention of scholars and policy makers in contemporary Nigeria. Several arguments have been put forward on the economic and political desirability for the practice of fiscal federalism in a country. While the political arguments are largely based on the heterogeneous characteristics of the different regions making up the country, the economic justification is usually based on the need to promote efficiency in the use of national resources. This paper examines the effect of fiscal decentralization on macroeconomic performance in Nigeria. The study employs three measures of fiscal decentralization namely revenue measure, expenditure measure and simultaneity measure to determine the extent, and the impact of fiscal decentralization on macroeconomic performance over the period 1980 to 2010. The overall objective of this study is to analyze the empirical effects of fiscal decentralization on some selected indicators of macroeconomic performance in Nigeria. The indicators include: economic growth, inflation rate, interest rate, and exchange in Nigeria. The Vector Autoregressive (VAR) estimator with lagged decentralization variables was employed using the E-views, version 7.0 to provide analytical support. The empirical findings are quite informative and offer evidence that the central objective of this study has been empirically investigated. There is, indeed, a connection between fiscal federalism and macroeconomic performance in Nigeria over the study period. The study suggests that faster economic growth may constitute additional benefit of fiscal decentralization beyond those already well recognized. This finding conforms to a strand of the literature that establishes links between fiscal decentralization, public sector efficiency and macroeconomic stability.

Keywords: Fiscal Federalism, Fiscal decentralization, Macroeconomic Performance and Vector Autoregressive Estimator

1.0 Introduction

Fiscal decentralization constitutes an important topical issue in many developed and less developed countries. Many countries across the globe have devoluted fiscal powers from the central down to lower level governments practically to improve resource allocation and spending among the tiers of government (Oates,1972; Tanzi,1995). Fiscal decentralization is an integral component of federal system of government⁶³. In the process of decentralizing fiscal responsibilities among the layers of government, there is need to understand the menu of the functions and instruments to be centralized and the one to be placed under the spheres of decentralized levels of government. As a subject which falls under public finance, fiscal federalism addresses the executive arm of the public sector. It explores, both in normative and positive terms, the roles of the different levels of government and the ways in which they relate to one another through such instruments as intergovernmental grants.

Federalism is essentially about multilevel government structure, rather than within a level structure of government. Each level of government can be viewed as an institution with definite functions to perform (Rivlin, 1991). The conventional wisdom in economics is that all functions allocated to government should be those that the market is not able to perform in the efficient allocation of resources, equitable distribution of income, and economic stability and growth (Varian, 1990; Layard and Walters, 1978). There are different forms of federalism. The prominent ones are fiscal, political and administrative. Decentralized systems of government give rise to a set of fiscal exigencies as enshrined in fiscal federalism.

Since 1990s there has been a resurgence of interest in the macroeconomic performance of developing countries. A prominent element in the policy advice given to developing countries to enhance growth and development potentials is the need to restructure the public sector to make it more responsive to efficient and equitable provision of public services to ensure stable macroeconomic performance(Aigbokhan,1999)⁶⁴. Recent

⁶³ In a federal structure, governmental functions and powers were exercised in consonance with the dictates of the constitution. Federal structure comprises of three tiers of government namely, central, state and local. Each of these governments have their respective constitutional limitations.

⁶⁴ A trend that has emerged from this public sector restructuring is the devolution of spending and revenue-raising responsibilities to lower levels of government not only in federal systems, but also in many unitary countries. This trend is a reflection of the

interest in fiscal decentralization fuelled the debate about public sector reforms in general, and the role of sub-national governments in macroeconomic policy-making process. In all countries, power is necessarily divided to some extent between the central and other levels of government. The extent of division of power has important implications for the functioning of the public sector and efficient provision of services. Division of policy-making powers influences not only delivery of services but also their financing that in turn determines macroeconomic performance of countries. Fiscal decentralization requires that sub-central units of the government must make decisions about provision of public services at the lower level (Yilmaz, 1999). The important question that remains to be answered is whether lower-level governments' spending increases and imposes constraints on macroeconomic stability. In general, macroeconomic variables such as prices, money supply, interest rate, unemployment, foreign exchange rate may be subjected to violent fluctuations which may compromise the growth of the national economy and promote an unstable macroeconomic environment. This is of particular importance in the performance of the stabilization function, usually assigned to the central government. It can be seen that issues of fiscal federalism affect national development and macroeconomic stability.

Nigeria's experience with fiscal federalism started in 1954. Despite over fifty years of experience with fiscal federalism, the country is faced with many challenges on macroeconomic management, poor output growth rate, high inflation rate, and weak balance of payment position. The absence of good macroeconomic governance has also raised the problematic issue of credibility in public policy. Relevant questions central to this study is could fiscal federalism challenges be responsible for poor macroeconomic performance in Nigeria? What are the hindrances promoting the principles and practice of fiscal federalism in Nigeria? From independence in 1960 till date, Nigeria's fiscal management system has neither been efficient nor equitable. Indeed it manifested a wide spectrum of vulnerability, ethnicity, language, region and religion interactively forming Nigeria's matrix of cultural pluralism⁶⁵.

The problems of fiscal decentralization and intergovernmental fiscal relations are of wide-spread concern in developing countries. Much of the

movement towards participatory democracy and the need to provide public goods and services that meet the preferences of people in each locality.

⁶⁵The Federal Government has, for more than four decades assumed certain responsibilities which rightly belonged to the lower tiers of government and, in the process, had compromised efficiency in public expenditure management, resulting in high levels of unsustainable overall deficits, high inflation, slow economic growth and poor external sector balance (Ike,1981; Anyanwu, 1995; Aigbokhan 1999; Chete, 1998).

established literature of fiscal federalism has been explicitly or implicitly oriented toward the institutions and policy issues that arise within developed countries, particularly Canada and the United States (Wildasin, 1997; Artis, 2006; Austin 2006). There is no consensus in the literature on the effects of fiscal federalism on macroeconomic performance in developed and developing countries. The literature on the potential macroeconomic effects of fiscal federalism is quite vast but mixed. Decentralization may improve allocative efficiency, but it may also make stabilization policies more difficult to carry out (Prud'homme, 1994; Tanzi, 1995). While there are several reasons that fiscal decentralization has been adopted around the world the common motive of many is that fiscal decentralization is considered to have the potential to improve the performance of the public sector. The theory of fiscal federalism holds that for certain public goods, the decision to provide these goods in a decentralized fashion can increase efficiency and accountability in resource allocation (Bird and Vaillancourt, 1998 as cited in Kwom, 2003; Oates, 1993).

However recent studies have held that the conventional argument that decentralized provision of public goods will increase efficiency in resource allocation may not be applicable in developing countries (Bahl and Linn, 1994; Prud'homme, 1995). Recent experience with fiscal decentralization in numerous developing and transition economies has led many observers to question whether fiscal decentralization undermines macroeconomic stability. In several countries, central government transfers to lower-level governments have increased fiscal deficits at the central level, creating pressures on central banks to monetize additional debt and thus jeopardizing stability. In other countries, central governments attempting to control their deficits have reduced transfers to lower-level governments, creating fiscal distress at lower levels (Wellisch and Wildasin, 1996). Despite the controversy concerning the effects of fiscal decentralization in developing countries, fiscal decentralization continues to take place in developing countries as well as in developed ones.

There has been a growing body of literature that deals with fiscal decentralization in developing and transition economies. The emerging literature clearly departs from the broad principles and practices of fiscal federalism to the quality of macroeconomic governance because it perceives the federal system as possessing high potentials for macroeconomic mismanagement and instability (Prud'homme, 1994). Many of the empirical literature on Nigeria have been concerned with explaining the pattern of intergovernmental relations (Mbanefor, 1993; Sarah et al, 2003) or providing an impressionistic view within the context of political economy of possible consequences of such relationships (Ekpo, 1994). A notable exception is the work of Aigbokhan (1999) and Chete (1998) which investigate the

relationship between fiscal federalism and economic growth. Missing from the empirical literature on Nigeria is an empirical analysis of the impact of fiscal decentralization on macroeconomic performance. In an attempt to fill this void, this study is therefore an extension of previous studies that are based on one macroeconomic variable.

The broad objective of this study is to investigate the relationship between fiscal decentralization federalism and macroeconomic performance in Nigeria. The specific objectives are to identify the underlying factors promoting true practice of fiscal federalism; ascertain the extent of fiscal decentralization; and analyze the empirical effects of fiscal decentralization on some selected indicators of macroeconomic performance in Nigeria. Apart from the introduction, section two contains the review of related literatures. Section three contains the stylized facts explaining Nigeria's fiscal federalism while section four proposes the theoretical framework and methodology for the study. Section five provided the empirical findings and discussion of results. The last section concludes the study.

2.0 A Brief Review of Literature

The basic foundations of fiscal federalism were laid by Kenneth Arrow, Richard Musgrave and Paul Samuelson. Samuelson's two important papers (1954, 1955) on the theory of public goods, Arrows discourse (1970) on the roles of the public and private sectors and Musgrave's book (1959) on public finance provided the framework for what became accepted as the proper role of the state in the economy. Within this framework, three roles were identified for the government sector namely allocative, stabilization and distributive. By this classification, the central government is saddled with the responsibilities of stabilization and distribution functions while allocation functions are shared among the different levels of government. It has been argued at the theoretical level, that the central government would be in a better position to perform the distribution and stabilization functions as well as provide national public goods (Oates, 1972; Musgrave and Musgrave, 1989; Cremer et al 1995; Taiwo, 1999). All these functions would be inefficiently performed at the local government level due to difficulty in appropriating the full social benefits of the programme undertaken at that level, and the tendency towards the free rider problem.

There are two complementary issues in fiscal federalism namely tax assignment and revenue sharing. Tax assignment falls under the three levels of governments. Central collection of taxes is more consistent with the pursuit of distribution and stabilization functions of government, and also the provision of national public goods, all of which are assigned to the central government. This system is expected to generate economies of scale in tax administration and prevent revenue loss due to the mobility of taxpayers

from one locality to another if such taxes were collected locally. On the other hand, a decentralized system of tax collection would be more likely to make spending decisions at the grass root level more compatible with available resources. It could, therefore, promote accountability and responsibility as well as the efficient provision of local public goods. This system also encourage fiscal autonomy and tax competition among localities. Decentralization of functions should be matched by decentralization of revenue collection⁶⁶.

A number of factors have been cited for the negative impact of decentralization on growth. These include: corruption, limited fiscal arrangements, low quality of bureaucracies and absence of skilled manpower (Prud'homme,1995; Tanzi,1995 and Nelson,2006). The experience of many developing countries suggest that sub national governments are likely to contribute to the aggravation of macroeconomic problems, or make it difficult to correct such problems (Tanzi, 1995). This is particularly so in countries where expenditure assignment is not matched with taxing assignment. In such situations, sub national governments tend to accumulate debt. The argument in favour of decentralization stems from motivation for enhanced efficiency, accountability, and autonomy. According to Stigler (1957), a representative government works best when it is closer to the people. Carrying Stigler's argument further, Oates (1972) formulates the decentralization theorem as 'each public service should be provided by the jurisdiction having control over the minimum geographic area that would internalize benefits and costs of such provision. Yilmaz (1999) in a study on fiscal decentralization and macroeconomic performance argues that the correlation coefficient between local governments spending and GDP partly supports decentralization theorem. In the developed countries, where local governments are more responsive to constituents, there is a high positive correlation between GDP per capita and local government spending. On the other hand, in developing countries, the correlation coefficient is very low, even negative.

Davoodi and Zou (1998) examine the effects of fiscal decentralization on growth. Fiscal decentralization is measured as spending by sub national governments as a fraction of total government spending. They separated their full sample of 46 countries over the 1970-1989 period

⁶⁶ Fiscal federalism literature suggests that expenditure assignment should precede tax assignment. This is because tax assignment would generally be guided by expenditure requirement of different levels of government and these cannot be worked out in advance of expenditure responsibilities. Absence of tax assignment would result in dependence on the federal government by lower levels of government. It is recognized, however, that the two assignments need not correspond exactly. Intergovernmental transfers could be used to make up the difference (Aigbokhan, 1999).

into developing and developed countries and found a negative relationship between fiscal decentralization and economic growth in the world (full sample) and developing country samples while the developed country sample showed a positive, but not significant effect. One of their explanations for the negative effect of fiscal decentralization on growth in developing countries is that “efficiency gains from fiscal decentralization, the strongest argument in its favour, may not materialize for developing countries since revenue collection and expenditure decisions by local governments may still be constrained by the central government. Bruecker (1999) used an overlapping generations (OLG) model to show that, in a dynamic context, fiscal federalism affects the incentive to save. It does so by replacing a common tax burden, associated with uniform national provision of the public good z , with head-tax burdens that differ between young and old consumers, who live in separate jurisdictions where z is provided at different levels in response to age-dependent demands. Fiscal federalism thus alters the time path of after-tax income over the life cycle, thereby affecting the economy’s level of saving. Because Bruecker’s analysis relies on the traditional Diamond (1965) OLG model, this difference in saving alters the economy’s steady-state capital intensity without affecting its growth rate, except in the transition between the “unitary” system (where a common z level is provided nationally) and a federalist system.

Evidence from empirical literature show that fiscal structure affects the successful operation of fiscal federalism. Wantchekon and Asadurin (2002) in a study report that in the case of Nigeria, the dependence on transfers is a by product of the dominance of oil in the Nigerian economy beginning in the 1970’s. The states that are the highest recipients of transfers (oil rents) have experienced increased income inequality and display poor economic indicators, which suggest that there is little “meaningful accountability”, while oil-producing states have also displayed poor social and economic indicators due to inadequate transfer system. Surprisingly, states that have benefited the least from oil rents have fared much better. It is also worth noting that despite earning over \$300 billion in the last twenty five years from oil windfalls, the per capita income in Nigeria today is around the same level as it was in 1970 due partly to the absence of tight fiscal controls and corruption in both the public and private sector.

In line with the argument put forth here, Rodden and Wibbles (2001), attempt to explain the variations in economic performance of countries typically categorized as federal. They hypothesize that federalism effect on economic outcomes are conditioned by the strength of party systems, the degree to which countries are decentralized fiscally and the actual revenue autonomy of sub national units. They find in their sample of fifteen countries (including Nigeria) for the period 1978-1996, that deficit and inflation rates

were conditioned by the underlying fiscal and party structure. In particular, they find that fiscal decentralization has a negative relationship with inflation and deficits, and this is strengthened when state governments have higher levels of revenue autonomy. When dependent on transfers, deficits and inflation increase and this effect is reinforced the more a country is fiscally decentralized. Theoretical reason why vertical fiscal imbalance (transfer dependence) might distort economic performance is that internal revenue and grants are viewed differently; “intergovernmental grants alter perceptions and beliefs about the levels of local expenditure that can be maintained”.

The literature dealing with the effects of fiscal decentralization on fiscal size of government is extensive. Efforts have been concentrated on testing Wagner’s Law which relates to the rising share of the public sector in the economy in the course of economic development. The factors which have been identified as affecting the growth of government expenditure and the fiscal deficit in LDCs include government revenue instability, degree of government’s participation in the economy and growth of government revenue. Morrison (1982), and Peacock and Wiseman (1961) explain the growth of government expenditure in terms of the increase in the activities of the different tiers of government. They argue that centralization of public expenditure is accompanied by rising per capita national income because of the economies of scale in public activities and the broad-based superior taxing powers that result from the centralization of government functions. Similarly, Martin and Lewis (1956) argue that greater centralization of government functions is important in LDCs because of the scarcity of qualified personnel. Wheare (1963) is of the view that for developing countries, a highly decentralized government may be too expensive and a waste of badly needed funds. However, as a country grows in size and income, the centralization of all government activities becomes more and more difficult to execute efficiently. For efficiency reasons, it may be necessary to decentralize fiscal functions.

Ubugu (1982), in a study based on cross-sectional data of Nigeria’s former twelve states find that variations in fiscal decentralization among the states are highly influenced by factors such as federal government transfers or allocations, degree of urbanization and share of agriculture in each state’s capital formation. Aigbokhan (1999) using a similar method for Nigeria during the period 1970-1997 find that there is high concentration of fiscal resources in the federal government, while the other tiers of government experienced persistent fiscal deficits. Joulfaian and Marlow (1990) tested the decentralization hypothesis using a cross-sectional methodology, and find evidence in support of the Brennan and Buchanan (1980) “Leviathan”

hypothesis⁶⁷ that fiscal decentralization serves as a constraint on the behaviour of the revenue-maximizing government. Therefore, the argument in favour of fiscal decentralization is twofold: (1) fiscal decentralization will increase competition among the local governments which will ultimately limit the size of the public sector; and (2) decentralization will increase efficiency because local governments have better information about their residents' needs than the central government. Ojo and Okunroumu (1992) investigate the role of fiscal decentralization in developing countries with specific reference to Nigeria and observe that the Nigeria's narrow revenue base could not withstand the weight of public expenditure and investment. They find that fiscal decentralization increased macroeconomic instability and the public debt burden escalated. Other notable studies on fiscal performance of Nigeria include Oyejide (1972), Ariyo (1993), Egwaikhide et al. (1994), Anyanwu (1999), among others. Despite, the contradictory findings, economic reforms in the transition countries and its effect on the rest of the world fuelled the debate on the appropriate role of the state and its institutions in the last decade. Such a debate on public sector reforms in developing and transition countries reinstated the interest in fiscal decentralization.

3.0 Stylized Facts on Nigeria's Fiscal Federalism

There has been a limited degree of fiscal decentralization in Nigeria since 1954 when the country adopted federalism. At independence in 1960, the constitution gave the federal government exclusive powers over the imposition of some taxes. The regional governments were then left with the power to impose any other tax not reserved for the federal government. However, when the military assumed power in 1966, the fiscal relationship changed as a result of the suspension of the constitution⁶⁸. This, in effect, empowered the federal government to impose any tax, thereby curtailing the fiscal powers of the states. State governments, therefore, became administratively and financially dependent on the federal government as the revenues from regional or state taxes remained grossly inadequate to meet their expenditure responsibilities. Therefore, states had to fall back on their share of federally collected revenues, but the federal government retained fiscal supremacy.

Revenue allocation in Nigeria has always been subject to controversy, and various revenue allocation commissions have been set up to

⁶⁷ The Leviathan model predicts that the overall size of the public sector should inversely vary with decentralization.

⁶⁸ The legal, administrative and political relationship between the federal and the state governments were based on Decree No. 1 of 1966 which gave the federal government unlimited powers to legislate on "any matter whatsoever".

look into the allocation formula. Some categories of revenue were allocated to the states and local government and revenues that do not fall under this category are federally collected and paid into the federation account for sharing. The revenue is shared vertically among the three tiers of government, and horizontally among the units within the same level of government. The vertical sharing revenue formula is in the following percentages; 48.5: 24.0 and 20.0% to federal, state and local governments, respectively while the balance of 7.5% is allocated to special funds. The horizontal counterparts is based on the following principles including equality, population, internal revenue effort, and geographical size among others.

Revenues accruing to the three levels of government consists of tax and non-tax financial flows which are derived from internal and external sources. The internal sources are those revenue heads assigned to the three levels of government by the Constitution, while the external source is made up of statutory revenue allocation, discretionary grants and value added tax (VAT). The different formulas that have been used for revenue allocation have consistently increased the financial powers of the federal government against the other levels of government, The allocation of the most productive income-elastic taxes to the federal government have made the centre financially stronger than the states and local governments. The principal effect of this is the increasing fiscal dependence of the lower governments on federally collected revenue (both statutory and non-statutory), and their inability to meet the cost of functions assigned to them.

The overview of the profile and challenges of fiscal federalism in Nigeria have been presented to show deviation from the true practice of fiscal federalism in Nigeria. The main issue is that if the three tiers of government in a federal system were to simultaneously intervene in a market economy, without coordination, and perform the role of the public sector, the situation will be chaotic. Therefore, in order to ensure sustainable growth and national development, it is necessary to understand and institutionalize the policy issues of fiscal federalism. Ideally, each tier of government should be assigned revenue/tax sources that are commensurate with its responsibilities. However, it is important to reconcile considerations of efficiency (minimization of resource cost) with equity (rationalization of expenditure and revenue needs). It is in this light that certain major principles become imperative: progressive redistributive taxes should be central; taxes suitable for economic stabilization should be central while lower level taxes should be cyclically stable; tax bases distributed equally between jurisdictions should be centralized; taxes on mobile factors of production are best administered at the centre; residence-based taxes such as excise duties or sales tax on consumption goods to consumers are best suited

for the local level; and benefit taxes and user charges might be appropriately used at all levels (Musgrave 1959).

In assigning tax/revenue powers, it is also important to distinguish between those revenue powers which are exercisable by one level of government and the revenue which accrue to that level of government alone (“independent revenue”), and those exercisable by a level of government, but whose revenues accrue to that level of government as well as others. Table 1 presents the assignment of tax powers in the Nigerian federal system. Table 2 show Nigeria’s major taxes and the accompanying jurisdiction and right to revenue. Table 3 indicates that all the major sources of revenue-petroleum profits tax, import duties, excise duties, mining rents and royalties, and company income tax-come under the jurisdiction of the federal government. With the exception of personal income tax (at the state level) and property tax (at the local government level), the state and local governments have jurisdiction over minor and poor yielding revenue sources. As a result of the concentration of revenue rights and jurisdiction at the national level, sub national governments have become dependent on national transfers for their expenditures. Indeed, there has been a high dependency on statutory allocations from the federal to the state level.

It is widely documented that the federal government enjoys a greater ability to raise revenues to meet its functional expenditure obligations than do state and local governments. Tax assignment in Nigeria had changed at different periods essentially as determined by the federal structure in operation. Between 1966 and 1999, the fiscal decentralization arrangement changed remarkably, following the intervention of the military⁶⁹. The military government introduced some measures which systematically eroded the revenue potentials of the lower tiers of government. The combination of military rule, civil war, and an arrangement whereby all the proceeds from oil goes to the federal government totally reversed the situation in the early 1960s when there was substantial revenue and expenditure decentralization. Today, what exist is a situation in which all fiscal resources are centralized at the federal level which is then transferred to the states and local governments through the federation account and the local government joint account, respectively. This situation has been compounded by shifts in fiscal responsibilities from the federal to other levels of government, especially the

⁶⁹The measures introduced by the military include: promulgation of Decree No. 9 of 1971, transferring mining and royalties to the Federal Government; centralization of marketing boards, and their eventual dissolution; collection and retention of company income tax and excise duties. The introduction of value-added tax (VAT) in 1994 to replace the sales tax that had been previously assigned to states. The legislation and administration of the new tax was assigned to the Federal Government as agent of the federating units.

local governments (for example primary education and primary health care, among others). From the above analysis, it is clear that the Federal Government had assumed a near absolute control of revenue matters in the country. Table 3 presents figures on total revenues collected by different tiers of government. The table reveals that from 1980 to 2011, between 94 and 99 % of the total revenues are collected by the federal government. The Federal government continues to sustain this feat by tinkering with the rights of tiers of government to collect revenues.

Table1: Nigeria’s Tax Jurisdiction, 1999

Federal Government	State Government	Local Government
1. Companies Income Tax	Personal Income Tax (on residents of the State)	Tenement rate
2. Petroleum Profits Tax	Capital Gains Tax (on individuals only)	Shop and Kiosks Rates
3. Value Added Tax	Stamp Duties (on individuals) only	Liquor Licence Fees
4. Education Tax (on Companies only)	Road taxes, e.g., Vehicle Licences	Slaughter slab fees
5. Capital Gains Tax (on Corporate Bodies and Abuja Residents)	Betting and Gaming Taxes	Marriage, Birth and Death Registration Fees
6. Stamp Duties (on Corporate Bodies)	Business Premises and Registration Levies	Street name, Registration Fees (excluding state capital)
7. With-holding Tax (on Companies)	Development levy (Max of #100 per annum on taxable individuals only)	Market/Motor Park Fees (excluding State owned markets)
8. Personal Income Tax (on personnel of the Armed Forces, Police, External Affairs Ministry and Residents of Abuja)	Street Name Registration Fees (State Capital Only)	Domestic Animal Licence Fees
9. Mining Rents and Royalties	Right of Occupancy Fees (State Capital Only)	Bicycle, Trucks, Canoe, Wheelbarrow, Carts and Canoe Fees
10. Customs Duties (i.e., Import Duties and Export Duties)	Market fees (where market is financed by State Government)	Right of Occupancy fees (excluding State Capital)
11. Excise Duties	Miscellaneous revenues (e.g., rents on property)	Cattle Tax

Sources: Federal Ministry of Finance, and 1999 Constitution of the Federal Republic of Nigeria and other Legislation to date

Table 2: Nigeria's Major Tax Jurisdictions and Right to Revenue (1999)

Types of tax	Jurisdiction		Right to Revenue
	Law	Admin. And Collection	
1. Import duties	Federal	Federal	federation account
2. Excise duties	Federal	Federal	federation account
3. Export duties	Federal	Federal	federation account
4. Mining rents and royalties	Federal	Federal	federation account
5. Petroleum profit tax	Federal	Federal	federation account
6. Companies income tax	Federal	Federal	federation account
7. Capital gains tax	Federal	Federal/States	States
8. Personal income tax (other than those listed in 9)	Federal	States	Federal
9. Personal income tax: armed forces, external affairs officers, non-residents of the Fed. Capital Territory and Nigerian Police Force			
10. Licences fees on television and wireless radio	Federal	Federal	Federal
11. Stamp duties	Federal	Local	Local
12. Capital transfer tax (CCT)	Federal	Federal/States	States
13. Value added tax	Federal	States	States
14. Pools betting and other betting taxes	Federal	Federal/States	Federal/States/Local
15. Motor vehicle and drivers' licenses	State	States	States
16. Entertainment tax	State	States	States
17. Land registration and survey fees	State	States	States
18. Property taxes and rating	State	States	States/Local
19. Market and trading licence and fees	State	Local	Local
	State	Local	Local

Note: The peculiar status of the Federal Capital Territory has not been taken consideration in this table.
Source: Constitutions of the Federal Republic of Nigeria and other legislations to date

Table 3: Average Collected Government Revenues by Tiers of Government , 1980-2011

DESCRIPTION	1980-84 (# million)	1985-1989 (# million)	1990-1994 (#million)	1995-1999 (#million)	2000-2007 (# million)	2008-2011 (# million)
1.Total Federally collected Revenue	12,343.94	26,898.78	156,845.5	595,838.4	3,699,174	8,992,645
2.States Internally Gen. Revenues	87.2	1,836.06	5,568.72	25,430.22	24,179.2	540,579.8
3.Total Nigerian Govt. Revenues (1+2)	12431.14	28,734.84	162,414.22	621,268.62	3,823,353.2	9,533,224.8
4.Fed. Collected Rev. as % of Total	99	94	97	96	97	94
5.% of States collected revenue	1	6	3	4	3	6
6. Number of Regions/States	19	20	28	34	36	36

Source: Central Bank of Nigeria, Annual Report & Statement of Accounts (Various Issues).

From the above analysis, it is evident that state and local governments depend heavily on the federation account for more than 80% of their total revenue as a result of their narrow tax bases and inefficient tax administration machinery. Internal tax bases of state governments include personal income tax, capital gains tax, stamp duties, and property tax among others. While states have the power to determine the rate and tax bases of some of these taxes, the federal government determines the rates and bases for all other taxes, including personal income tax. All the taxes assigned to the federal government are those that yield the highest revenues. The taxes under the state and local governments like the personal income tax are set by the federal government. Theoretically, this practice can be defended on the basis of unequal distribution of natural resources, especially crude oil, and the need for the federal government to have certain stabilization instruments at its disposal.

4.0 Theoretical Framework and Methodology

There is a growing consensus in the literature about the mechanisms that create the links between fiscal decentralization and macroeconomic performance (Feltenstein and Iwata, 2005; Brandt and Zhu, 2000; Jin et al. 1999; Lardy, 1998; Naughton, 1995; Yusuf, 1994, Aigbokhan, 1999). Fiscal decentralization is expected to shift tax revenues from the central government to sub national governments. Sub national governments infused with new revenue, begin to build local infrastructure. This infrastructure encourages both public and private investment. Private firms tend to respond to the increased local infrastructure with higher rates of investment than the public enterprises, given their greater efficiency. As the public enterprises attempt to keep up with the rates of investment of private enterprises, a further adjustment occurs. The public enterprises, observing the increased rate of capital formation of the private enterprises increase their own rate of investment beyond the rate that would be optimal. The public enterprises are able to do so because they have access to bank loans that are not justified on economic grounds. Also the private enterprises increase their borrowing to expand business operations because of the improvement in local infrastructure. Increased economic activities at sub national level results in monetary expansion. The implication of this is that the resulting monetary expansion would have effects on indicators of macroeconomic performance; inflation rate, interest rate, exchange rate, and economic growth. The effects of the monetary expansion on these macroeconomic variables could be positive or negative. This study assumes that the monetary expansion would lead to increased inflation and interest rate, depreciation of the exchange rate, while the higher output of both the public and private enterprises cause an increase in aggregate real income (that is economic growth).

4.1 Fiscal Federalism and Economic Growth

Given the basic foundations for the initial theory of Fiscal Federalism, the study adopts the Keynesian School of thought approach as the theoretical basis for the relationship between fiscal federalism and economic growth. The two-sector production function framework (Ram, 1986; Barro, 1990) is adopted for this study⁷⁰. The model developed in this study is an extension from other studies (Ram, 1986 and Aigbokhan, 1996; 1999). The model assumes that the economy consists of two broad sectors, public (G) and private (P) whose output depends on labour (L) and capital (K). In addition, the output of G exercises some externality effect on output in P. The production function of the economy is thus:

$$Y = f(L, K_P, K_G) \quad (1)$$

where the subscripts denote sectoral inputs:

K_P = private capital per labour

K_G = public capital per labour

The production functions of the respective sectors are thus:

$$Y_P = P(L_P, K_P, G) \quad (2)$$

$$Y_G = G(L_G, K_G) \quad (3)$$

Total inputs are given as:

$$L_T = L_P + L_G \quad (4)$$

$$K_T = K_P + K_G \quad (5)$$

Total output Y is given as the sum of sectoral output or a function of sectoral inputs:

$$Y = Y_P + Y_G \quad (6)$$

$$Y = P(L_P, K_P, G) + G(L_G, K_G) \quad (7a)$$

$$Y = f(L_T, K_T, G_T) \quad (7b)$$

The model further assumes that the public sector comprises of three subsectors and, by extension, that public spending is carried out by three levels of government: federal (f), state (s), and local (m).

Thus:

$$Y = a_0 + L_T + K_T + G_T + \mu \quad (8)$$

The study assumes that the size of government tends to influence growth rate and that fiscal decentralization tends to reduce the size of government. Theoretically, fiscal decentralization is expected to foster growth through allocative efficiency and efficiency of service delivery. The nature of intergovernmental fiscal arrangement is therefore expected to influence output of G. By introducing fiscal decentralization (FDC) as a policy variable into the model on the basis of equation (8)

$$G_t = f(\text{FDC}) \quad (9)$$

⁷⁰ It provides an appealing set of models for investigating the relationship between fiscal decentralization and macroeconomic performance indicators such as growth of aggregate output, inflation rate, interest rate, and exchange rate. The model assumes that macroeconomic performance is influenced by policy variables other than the technical relationship between capital and labour (Ram, 1986; Barro, 1990; Aigbokhan, 1999).

Equation (7b); $Y = f(L_t, K_t, G_t)$ becomes

$$Y = f(L_t, K_t, FDC_t) \tag{10}$$

The study postulates that output (growth), is positively affected by money supply (MS). Introducing money supply into the model, equation (10) becomes;

$$Y = f(L_t, K_t, MS_t, FDC_t) \tag{11}$$

Equation (11) is the estimated basic growth equation. Its explicit form is:

$$Y = \alpha_0 + \alpha_1 L_t + \alpha_2 K_t + \alpha_3 MS_t + \alpha_4 FDC_t + \mu_t \tag{12a}$$

From equation (12a), a VAR Model with j lags can be expressed as;

$$y_t = \alpha_1 y_{t-1} + \alpha_2 y_{t-2} + \dots + \alpha_j y_{t-j} + \mu_t \tag{12b}$$

4.2 Fiscal Federalism and Inflation rate

There is evidence to suggest that monetary expansion will lead to increased inflation (Feltenstein and Iwata, 2005). Following this, we express inflation as a function of money supply.

$$INF = f(MS) \tag{13}$$

The model assumes that there are two sectors, private P and public G whose output depends on labour (L) and capital (K), and that there is a negative relationship between output and price movement (inflation rate). Following this, the study postulates that labour and capital have an impact on price level (inflation). There is evidence to suggest that factor productivity tends to impact positively on price level (inflation rate). Equation (13) becomes:

$$INF = f(MS_t, L_t, K_t) \tag{14}$$

There are links between decentralization and inflation (Brandt and Zhu, 2000; Jin et al. 1999; Lardy, 1998; Naughton, 1995; Yussuf, 1994). By introducing fiscal decentralization (FDC) as a policy variable into the model equation (14) becomes:

$$INF = f(MS_t, L_t, K_t, FDC_t) \tag{15}$$

Equation (15) is the estimated basic inflation equation. Its explicit form is;

$$INF = \beta_0 + \beta_1 MS_t + \beta_2 L_t + \beta_3 K_t + \beta_4 FDC_t + \mu_t \tag{16a}$$

From equation (16a) a VAR model with j lags can be expressed as;

$$INF_t = \beta_1 INF_{t-1} + \beta_2 INF_{t-2} + \dots + \beta_j INF_{t-j} + \mu_t \tag{16b}$$

4.3 Fiscal Federalism and Exchange rate

The model assumes a flexible exchange rate determined by market forces (Ige 2006, Afolabi, 1999). In addition, the study postulates that exchange rate (EXC) will be negatively affected by inflation and increase in money supply, and therefore states that:

$$EXC = f(INF, MS) \tag{17}$$

The study assumes that the size of government tends to influence exchange rate, and that fiscal decentralization has a negative correlation with the size of government. This implies that increase in decentralization would reduce the size of government. Theoretically, fiscal decentralization may have a negative impact on exchange rate if there is lack of fiscal discipline at sub national levels of government. By introducing fiscal decentralization (FDC) as a policy variable into the model, equation (17) becomes,

$$EXC = f(INF_t, MS_t, G_t) \tag{18}$$

$$EXC = f(INF_t, MS_t, FDC_t) \tag{19}$$

Equation (19) is deduced from (18) on the basis of the argument above that size of G depends to a certain degree on FDC. Equation (19) is the estimated basic exchange rate equation. Its explicit form is:

$$EXC = \delta_0 + \delta_1 INF_t + \delta_2 MS_t + \delta_3 FDC_t + \mu_t \tag{20a}$$

From equation (20a) a VAR model with j lags can be expressed as;

$$EXC_t = \delta_1 EXC_{t-1} + \delta_2 EXC_{t-2} + \dots + \delta_j EXC_{t-j} + \mu_t \tag{20b}$$

4.4 Fiscal Federalism and Interest rate

According to the Keynesian School of thought, interest rate is a monetary phenomenon, determined solely by demand and supply of money. To the Classical School, interest rate varies inversely with demand for money and directly with supply of money. The inverse relationship between interest rate and demand for money has implication for the level of savings. The study postulates that the level of savings in the economy is positively affected by interest rate, which is high interest rate correlates with high level of savings and vice-versa. The functional relationship is stated as follows:

$$INT = f(MS, TDS) \tag{21}$$

There is evidence that price level (inflation) influences interest rate (Ige, 2006). By introducing inflation into the model, equation (21) becomes:

$$INT = f(MS_t, TDS_t, INF_t) \tag{22}$$

The study assumes that the size of government influences interest rate, and that fiscal decentralization has a negative correlation with the size of government (Aigbokhan, 1999; Ehdaie 1994). Theoretically fiscal decentralization may have a negative impact on interest rate if there is lack of fiscal discipline at sub national level, and how fiscal imbalances are financed (Chete 1998). By introducing fiscal decentralization (FDC) as a policy variable into the model, equation (22) becomes:

$$INT = f(MS_t, TDS_t, INF_t, G_t) \tag{23}$$

$$INT = f(MS_t, TDS_t, INF_t, FDC_t) \tag{24}$$

Equation (24) is deduced from (23) on the basis of the argument above that the size of G depends to a certain degree on FDC. Equation (24) is the estimated basic interest rate equation. Its explicit form is:

$$INT = \lambda_0 + \lambda_1 MS_t + \lambda_2 TDS_t + \lambda_3 INF_t + \lambda_4 FDC_t + \mu_t \tag{25a}$$

From equation (25a), a VAR model with j lags can be expressed as;

$$INT_t = \lambda_1 INT_{t-1} + \lambda_2 INT_{t-2} + \dots + \lambda_j INT_{t-j} + \mu_t \tag{25b}$$

4.5 Model Specification

The empirical models of this study are derived from the theoretical framework discussed in section 4. The empirical models are grouped into four sets of equations comprising of Growth equations (Model 26-29), Inflation equations (Model 30-33), Exchange rate equations (Model 34-37), and Interest rate equations (Model 38-42). The interaction of the variables in the model will have important implications for both estimation and interpretation of the model’s parameters. Data analysis was done using a Vector Autoregressive technique. The models are presented below.

4.5.1 Model 1: The Growth-Decentralization Model

The tests are based on the regressions

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{j=1}^L \alpha_j \Delta y_{t-j} + \sum_{j=1}^L \alpha_2 \Delta L_{t-j} + \sum_{j=1}^L \alpha_3 \Delta K_{t-j} + \sum_{j=1}^L \alpha_4 \Delta MS_{t-j} + \sum_{j=1}^L \alpha_5 \Delta FDC1_{t-j} + \mu_t \tag{26}$$

$$\Delta y_t = \beta_0 + \beta_1 y_{t-1} + \sum_{j=1}^L \beta_j \Delta y_{t-j} + \sum_{j=1}^L \beta_2 \Delta L_{t-j} + \sum_{j=1}^L \beta_3 \Delta K_{t-j} + \sum_{j=1}^L \beta_4 \Delta MS_{t-j} + \sum_{j=1}^L \beta_5 \Delta FDC2_{t-j} + \mu_t \tag{27}$$

$$\Delta y_t = \delta_0 + \delta_1 y_{t-1} + \sum_{j=1}^L \delta_j \Delta y_{t-j} + \sum_{j=1}^L \delta_2 \Delta L_{t-j} + \sum_{j=1}^L \delta_3 \Delta K_{t-j} + \sum_{j=1}^L \delta_4 \Delta MS_{t-j} + \sum_{j=1}^L \delta_5 \Delta FDC3_{t-j} + \mu_t \tag{28}$$

$$\Delta y_t = \lambda_0 + \lambda_1 y_{t-1} + \sum_{j=1}^L \lambda_j \Delta y_{t-j} + \sum_{j=1}^L \lambda_2 \Delta L_{t-j} + \sum_{j=1}^L \lambda_3 \Delta K_{t-j} + \sum_{j=1}^L \lambda_4 \Delta MS_{t-j} + \sum_{j=1}^L \lambda_5 \Delta FDC1_{t-j} + \sum_{j=1}^L \lambda_6 \Delta FDC2_{t-j} + \mu_t \tag{29}$$

Where y is real gross domestic product (RGDP), Δ stands for the first difference, and L is the maximum lag length. Model 1 is intended to find out the influence of fiscal decentralization on economic growth, and to test the hypothesis that fiscal federalism does not significantly influence growth.

4.5.2 Model 2: The Inflation Rate-Decentralization Model

The tests are based on the regressions

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{j=1}^L \alpha_j \Delta y_{t-j} + \sum_{j=1}^L \alpha_2 \Delta MS_{t-j} + \sum_{j=1}^L \alpha_3 \Delta L_{t-j} + \sum_{j=1}^L \alpha_4 \Delta K_{t-j} + \sum_{j=1}^L \alpha_5 \Delta FDC1_{t-j} + \mu_t \tag{30}$$

$$\Delta y_t = \beta_0 + \beta_1 y_{t-1} + \sum_{j=1}^L \beta_j \Delta y_{t-j} + \sum_{j=1}^L \beta_2 \Delta MS_{t-j} + \sum_{j=1}^L \beta_3 \Delta L_{t-j} + \sum_{j=1}^L \beta_4 \Delta K_{t-j} + \sum_{j=1}^L \beta_5 \Delta FDC2_{t-j} + \mu_t \tag{31}$$

$$\Delta y_t = \delta_0 + \delta_1 y_{t-1} + \sum_{j=1}^L \delta_j \Delta y_{t-j} + \sum_{j=1}^L \delta_2 \Delta MS_{t-j} + \sum_{j=1}^L \delta_3 \Delta L_{t-j} + \sum_{j=1}^L \delta_4 \Delta K_{t-j} + \sum_{j=1}^L \delta_5 \Delta FDC3_{t-j} + \mu_t \tag{32}$$

$$\Delta y_t = \lambda_0 + \lambda_1 y_{t-1} + \sum_{j=1}^L \lambda_j \Delta y_{t-j} + \sum_{j=1}^L \lambda_2 \Delta MS_{t-j} + \sum_{j=1}^L \lambda_3 \Delta K_{t-j} + \sum_{j=1}^L \lambda_4 \Delta FDC1_{t-j} + \sum_{j=1}^L \lambda_5 \Delta FDC2_{t-j} + \mu_t \tag{33}$$

Where y is inflation rate (INF), Δ stands for first difference, and L is the maximum lag length. Model 2 is intended to find out the influence of fiscal decentralization on inflation rate, and to test the hypothesis that fiscal decentralization does not significantly influence inflation.

4.5.3 Model 3: The Exchange Rate-Decentralization Model

The tests are based on the regressions;

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{j=1}^L \alpha_j \Delta y_{t-j} + \sum_{j=1}^L \alpha_2 \Delta INF_{t-j} + \sum_{j=1}^L \alpha_3 \Delta MS_{t-j} + \sum_{j=1}^L \alpha_4 \Delta FDC1_{t-j} + \mu_t \tag{34}$$

$$\Delta y_t = \beta_0 + \beta_1 y_{t-1} + \sum_{j=1}^L \beta_j \Delta y_{t-j} + \sum_{j=1}^L \beta_2 \Delta INF_{t-j} + \sum_{j=1}^L \beta_3 \Delta MS_{t-j} + \sum_{j=1}^L \beta_4 \Delta FDC2_{t-j} + \mu_t \tag{35}$$

$$\Delta y_t = \delta_0 + \delta_1 y_{t-1} + \sum_{j=1}^L \delta_j \Delta y_{t-j} + \sum_{j=1}^L \delta_2 \Delta INF_{t-j} + \sum_{j=1}^L \delta_3 \Delta MS_{t-j} + \sum_{j=1}^L \delta_4 \Delta FDC3_{t-j} + \mu_t \tag{36}$$

$$\Delta y_t = \lambda_0 + \lambda_1 y_{t-1} + \sum_{j=1}^L \lambda_j \Delta y_{t-j} + \sum_{j=1}^L \lambda_2 \Delta INF_{t-j} + \sum_{j=1}^L \lambda_3 \Delta MS_{t-j} + \sum_{j=1}^L \lambda_4 \Delta FDC1_{t-j} + \sum_{j=1}^L \lambda_5 \Delta FDC2_{t-j} + \mu_t \tag{37}$$

Where y is exchange rate (EXC), Δ stands for first difference, and L is the maximum lag length. Model 3 is intended to find out the influence of fiscal decentralization on exchange rate, and to test the hypothesis that fiscal decentralization does not significantly influence exchange rate.

4.5.4 Model 4: The Interest Rate-Decentralization Model

The tests are based on the regressions;

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{j=1}^L \alpha_j \Delta y_{t-j} + \sum_{j=1}^L \alpha_2 \Delta \text{MS}_{t-j} + \sum_{j=1}^L \alpha_3 \Delta \text{TDS}_{t-j} + \sum_{j=1}^L \alpha_4 \Delta \text{FDC1}_{t-j} + \sum_{j=1}^L \alpha_5 \Delta \text{INF}_{t-j} + \mu_t \quad (38)$$

$$\Delta y_t = \beta_0 + \beta_1 y_{t-1} + \sum_{j=1}^L \beta_j \Delta y_{t-j} + \sum_{j=1}^L \beta_2 \Delta \text{MS}_{t-j} + \sum_{j=1}^L \beta_3 \Delta \text{TDS}_{t-j} + \sum_{j=1}^L \beta_4 \Delta \text{FDC2}_{t-j} + \sum_{j=1}^L \beta_5 \Delta \text{INF}_{t-j} + \mu_t \quad (39)$$

$$\Delta y_t = \delta_0 + \delta_1 y_{t-1} + \sum_{j=1}^L \delta_j \Delta y_{t-j} + \sum_{j=1}^L \delta_2 \Delta \text{MS}_{t-j} + \sum_{j=1}^L \delta_3 \Delta \text{TDS}_{t-j} + \sum_{j=1}^L \delta_4 \Delta \text{FDC3}_{t-j} + \sum_{j=1}^L \delta_5 \Delta \text{INF}_{t-j} + \mu_t \quad (40)$$

$$\Delta y_t = \lambda_0 + \lambda_1 y_{t-1} + \sum_{j=1}^L \lambda_j \Delta y_{t-j} + \sum_{j=1}^L \lambda_2 \Delta \text{MS}_{t-j} + \sum_{j=1}^L \lambda_3 \Delta \text{TDS}_{t-j} + \sum_{j=1}^L \lambda_4 \Delta \text{FDC1}_{t-j} + \sum_{j=1}^L \lambda_5 \Delta \text{FDC2}_{t-j} + \mu_t \quad (41)$$

$$\Delta y_t = \eta_0 + \eta_1 y_{t-1} + \sum_{j=1}^L \eta_j \Delta y_{t-j} + \sum_{j=1}^L \eta_2 \Delta \text{MS}_{t-j} + \sum_{j=1}^L \eta_3 \Delta \text{FDC1}_{t-j} + \sum_{j=1}^L \eta_4 \Delta \text{FDC2}_{t-j} + \sum_{j=1}^L \eta_5 \Delta \text{INF}_{t-j} + \eta_t \quad (42)$$

Where y is interest rate (INT), Δ stands for first difference, and L is the maximum lag length.

Model 4 is intended to find out the influence of fiscal decentralization on interest rate, and to test the hypothesis that fiscal decentralization does not significantly influence interest rate.

5.0 Empirical Findings and Discussion

This study employs three fiscal decentralization measures, sub national fiscal autonomy or revenue measure (FDC1), sub national spending share or expenditure measure (FDC2), and sub national dependency or simultaneity measure (FDC3) to determine the extent, and the impact of fiscal decentralization on macroeconomic performance in Nigeria over the study period 1980 to 2010 (See appendix table A for the summary statistics of data sources). The first two measures reflect the extent of decentralization of taxing, and expenditure responsibilities, while the third measure captures the simultaneous decentralization of both responsibilities. A pre-estimation analysis was carried out with a descriptive statistics to ascertain the normality status of the variables in the model. Two approaches was pursued. These include: probability and chi-square approach⁷¹. The descriptive statistics is presented in appendix table B.

5.1 Stationarity Tests

The ADF test was carried out on the levels of the variables, and their differences to test for stationarity. Based on a regression of growth on a constant, lagged of RGDP, the test t-Statistic shows that there is no unit root; we therefore reject the null hypothesis that RGDP has a unit root. Hence we conclude that RGDP series has no unit root with a drift. A similar procedure leads to the conclusion that the inflation rate, exchange rate and interest rate series also has no unit root with a drift⁷². The results in Table 4 indicate that

⁷¹ It was found that five (5) out eleven (11) variables used in the model passed the normality test. These include: EXC, FDC2, FDC3, INT and L. Both the probability and chi square approach stipulated that the null hypothesis should not be rejected when the probability value is higher than 0.05 or when the Jarque-Bera value is less than 5.99.

⁷² Inflation rate, exchange rate and interest rate are I (1) series. The unit root hypothesis is therefore rejected.

all variables (in their levels) are non stationary. Running ADF tests for change in variables indicate that some variables are integrated of order zero (1(0)) or one (1(1)).

Table 4: Summary of Unit Root Test Result-ADF Statistics

Variable	Level		First Difference		Decision
	Drift	Drift & Trend	Drift	Drift & Trend	
EXC	0.0946	-1.9832	-5.1110*	-5.1629**	I(1)
FDC1	-3.6160	-3.5396	-4.9828*	-4.8958*	I(1)
FDC2	-0.9477	-1.5558	-6.1845	-6.6901*	I(1)
FDC3	-3.2252	-3.2951	-5.3803*	-5.3078*	I(1)
INF	-2.9445	-3.0506	-5.1358*	-5.0956	I(1)
INT	-3.4259	-3.4914	-5.7654*	-5.7136**	I(1)
K	4.7599	3.2856	-0.3541	-1.9735	I(0)
L	7.2407	-0.9244	-0.7342	-2.0316*	I(0)
MS	2.6050	1.7022	-0.8736	-3.3229*	I(1)
RGDP	0.6156	-1.9846	-5.3517	-5.7497*	I(1)
TDS	2.3747	1.5665	0.3343	-1.0220*	I(1)

*,** indicates significance at the 1% and 5% levels respectively. The critical values for all models are as follows; (i) Levels - drift and drift and trend are -3.6793, -2.9678, -2.6230 and -4.3098, -3.5742, -3.2217 at 1%, 5% and 10% levels of significance in that order. (ii) First Differences - drift and drift and trend - are -3.6793, -2.9678, -2.9678 and -3.6999, -2.9763, -2.6274 at the respective significance levels.

Source: Computed from E-View 7.0

5.2 Presentation of Estimated Empirical Results

The models estimated here have been augmented by a Vector Autoregressive (VAR) representation. The VAR estimated results⁷³ are reported in Table 5 to Table 8. The values of the Akaike Information Criterion (AIC) for each basic series are similar for all VAR estimates. To see whether the results are sensitive to other conditioning factors, as well as to gauge the nature of the relation between overall fiscal operations and macroeconomic performance, the basic model for each series was re-estimated including the first two measures (revenue measure FDC1, and expenditure measure FDC2) of decentralization. It would be recalled that these two measures reflect separate decentralization of taxing and spending powers. The third measure sub national dependency (FDC3) reflects simultaneity in decentralization of taxing and spending powers.

5.2.1 Growth-Decentralization

VAR estimation for equations 26-29 in Growth model are reported in Table 5 below. The relationship between fiscal decentralization and

⁷³ VAR estimation for equations 26-42 are not included due to limited space available. However, this could be made available on request.

economic growth is analyzed using the three decentralization measures. The three measures of decentralization, revenue measure (FDC1), expenditure measure (FDC2), and simultaneity measure (FDC3) were found to be positive and highly significant at one per cent and five per cent in most cases for RGDP growth equations. The coefficients of revenue and expenditure measures show a consistent positive sign when the two decentralization measures are included as reported in the fourth column in Table 5. This result is consistent with the findings in similar studies in China (Feltenstein and Iwata, 2005), United States of America (Akai, 2002; Ram, 1986, Rodden, 2001), and Canada (Boadway, 1992). However, it contradicts the finding on Nigeria by Aigbokhan (1999) that decentralization has a negative impact on economic growth. The difference in the finding of these studies and that of Aigbokhan (1999) could be due to difference in the scope of the study.

The growth-decentralization model include three control variables, money supply (MS), labour (L), and capital (K) and they have signs predicted by theory. Labour input produced a positive significant impact, at one per cent level, on economic growth in Nigeria over the study period. Expectedly capital input is positively signed and significant at five per cent level. Capital input is thus a major driver of economic growth in Nigeria. Also money supply is positively signed but is insignificant. Adjusted coefficient of determination shows that variations in GDP are sufficiently explained by the variables included in the growth models. On the basis of estimation results of the growth models the null hypothesis is rejected, and the alternative hypothesis that fiscal decentralization has a significant effect on growth is accepted.

**Table 5 : Estimated Empirical Results in Growth-Decentralization
Model 1**

Dependent variable RGDP	Model 1			
Regressors	1	2	3	4
RGDP(-1)	0.6597** (2.5029)	0.6237* (2.3837)	0.6506** (2.5649)	0.6667** (2.9757)
RGDP(-2)	0.3891* (1.2901)	0.0537** (0.1765)	0.2977** (0.9780)	0.3025 (1.0880)
L(-1)	0.0540 (1.4905)	0.0338 (0.5100)	0.0534 (1.3823)	0.0141 (0.2499)
L(-2)	0.0565 (1.5071)	0.0337 (0.4939)	0.0558 (1.3974)	0.0133 (0.2278)
K(-1)	0.0026* (0.0882)	0.0082 (0.2895)	0.0024 (0.0795)	0.0144** (0.7923)
K(-2)	0.0010* (0.0294)	0.0142 (0.4911)	0.0033 (0.1081)	0.0131* (0.6928)
MS(-1)	0.0063 (0.7330)	0.0033 (0.3720)	0.0066 (0.7503)	-
MS(-2)	0.0031* (0.0031)	-0.0025* (0.0025)	0.0028 (0.0028)	-

	(0.3393)	(-0.2545)	(0.3028)	-
FDC1(-1)	45004.31*	-	-	74948.35*
	(0.4428)	-	-	(0.79881)
FDC1(-2)	108711.5**	-	-	126478.3**
	(1.0293)	-	-	(1.31294)
FDC2(-1)	-	13686.99**	-	(5036.253)*
	-	(0.31575)	-	(0.12565)
FDC2(-2)	-	80004.31*	-	90674.76*
	-	(1.6609)	-	(2.11808)
FDC3(-1)	-	-	17889.27**	-
	-	-	(0.1251)	-
FDC3(-2)	-	-	144133.2*	-
	-	-	(1.03380)	-
C	-62576.45	-48844.25	-51749.46	-92638.06
	(-1.8277)	(-1.62712)	(-1.5209)	(-3.76556)
Observations	31	31	31	31
Adj. R2	0.94	0.95	0.94	0.95
F-Statistic	48.1405	49.6600	46.4641	58.5765
Log-Likelihood	-304.4167	-303.9821	-304.9118	-301.6650
Akaike AIC	21.75287	21.72290	21.78702	21.56311

Source: Computed from E-View 7.0

Notes Figures in parentheses are standard errors

*5% level of significance ; **1% level of significance

5.2.2 Inflation Rate-Decentralization

VAR estimation for equations 30-33 are reported in Table 6. The relationship between fiscal decentralization and inflation rate is analyzed using the three measures of decentralization, revenue measure (FDC1), expenditure measure (FDC2), and simultaneity measure (FDC3). The three measures of decentralization were found to be positively related with inflation rate but insignificant at one per cent and five per cent level. The coefficients of the lagged values of revenue and expenditure decentralization measures have a positive sign and are statistically insignificant.

The coefficient of the simultaneity measure of decentralization (FDC3) has a consistent positive sign in the first and second lagged period and it is also insignificant. The positive correlation between fiscal decentralization and inflation supports the view that fiscal decentralization may lead to inflation. This finding is similar to the findings of Feltenstein and Iwata (2005), and Boadway (1990) which emphasized that that fiscal decentralization has adverse implication on the rate of inflation. Also in Table 6, the coefficients of revenue and expenditure measures of decentralization are positively signed when the two decentralization measures are included in the inflation rate-decentralization model. However they are not significant. On the basis of this findings, we therefore concludes that fiscal decentralization have adverse implications for the rate of inflation, and this may be due to inadequacies in the financial system. These models

include three control variables, money supply (MS), labour (L), and capital (K). Money supply produced a positive and significant impact, at one per cent level, on inflation rate in Nigeria over the study period. This result is not surprising as it confirms that inflation is more of a monetary phenomenon in Nigeria. Expectedly labour input is negatively signed but is not significant. Also expectedly capital is positively signed and significant at one per cent and five per cent level. Adjusted coefficient of determination indicates that variations in inflation are not sufficiently explained by the variables included in the model. Thus the model thus not has a good fit.

Table 6 : Estimated Empirical Results in Inflation-Decentralization Model 2

Dependent Variable INF	Regressors			
	1	2	3	4
INF(-1)	0.6074** (2.6697)	0.5727** (2.3070)	0.6238** (2.8041)	0.7334** (3.3532)
INF(-2)	-0.4029* (-1.7927)	-0.2055* (-0.9543)	-0.4456 (-1.9997)	-0.2705* (-1.1169)
MS(-1)	4.07E-07 (0.0334)	1.58E-06 (0.1228)	1.44E-07 (0.0121)	2.04E-06 (0.1850)
MS(-2)	1.23E-06 (0.0955)	6.10E-07 (0.0469)	1.72E-06 (0.1371)	7.84E-07 (0.0617)
L(-1)	0.0001* (1.8433)	8.28E-05* (0.8681)	0.0001* (2.0126)	-
L(-2)	-0.0001* (-1.8429)	-8.59E-05* (-0.8751)	-0.0001 (-2.0122)	-
K(-1)	6.48E-06 (0.2175)	5.37E-06 (0.1776)	5.93E-06 (0.2043)	-9.77E-06 (-0.3888)
K(-2)	1.25E-05 (0.3569)	1.81E-05 (0.5301)	1.42E-05 (0.4167)	3.52E-06 (0.1109)
FDC1(-1)	68.4605 (0.4794)	-	-	110.3670 (0.7607)
FDC1(-2)	148.2641 (0.9784)	-	-	106.2776 (0.6967)
FDC2(-1)	-	85.1643 (1.5215)	-	66.0218 (1.0878)
FDC2(-2)	-	75.5880 (1.0018)	-	101.3343 (1.9521)
FDC3(-1)	-	-	161.2969 (0.8313)	-
FDC3(-2)	-	-	295.2601 (1.4246)	-
C	66.7557 (1.6563)	62.7425 (1.6498)	66.9013 (1.7434)	24.4516 (1.0880)
Observations	31	31	31	31
Adj.R ²	0.2455	0.3077	0.2861	0.2625
F-Statistic	1.9112	2.2447	2.1222	1.9969
Log-Likelihood	-114.7159	-113.4679	-113.9139	-114.3849
Akaike AIC	8.6701	8.5840	8.6148	8.6472

Source: Computed from E-View 7.0

Notes Figures in parentheses are standard errors

*5% level of significance ; **1% level of significance

5.2.3 Exchange Rate-Decentralization

VAR estimation results for equations 34-37 are reported in Table 7. The three measures of decentralization, revenue measure, expenditure measure, and simultaneity are positively correlated with exchange rate in Nigeria but are insignificant at one per cent, and five per cent. The coefficients of the lagged values of the revenue and expenditure decentralization measures of decentralization (FDC1, FDC2) are positive and statistically insignificant. The coefficient of the lagged values of simultaneity measure of decentralization (FDC3) is also positive insignificant. The positive correlation between fiscal decentralization and exchange rate shows clearly that fiscal decentralization often leads to exchange rate depreciation but its effect is not significant. Decentralization coefficients of the lagged values of the revenue and simultaneity measures of decentralization (FDC1 and FDC3) have a consistent positive sign in the first and second lagged period and are statistically insignificant. For the expenditure decentralization measure (FDC2) its coefficient has a positive sign in the first lagged period and then a negative sign in the second lagged period and it is also insignificant. The positive signs of the coefficient of revenue, expenditure and simultaneity measures of decentralization (FDC1, FDC2 and FDC3) show that fiscal decentralization will lead to depreciation of the exchange rate.

The transmission mechanism of fiscal decentralization and macroeconomic performance explains why decentralization might lead to a depreciation of the exchange rate. Fiscal decentralization is intended to shift tax revenues from the central government to sub national governments. Sub national governments infused with new revenue, begin to build local infrastructure. This infrastructure encourages both public and private investment. Private firms tend to respond to the increased local infrastructure with higher rates of investment than the public enterprises, given their greater efficiency. As the public enterprises attempt to keep up with the rates of investment of private enterprises, a further adjustment occurs. The public enterprises, observing the increased rate of capital formation of the private enterprises increase their own rate of investment beyond the rate that would be optimal. The public enterprises are able to do so because they have access to bank loans that are not justified on economic grounds. Also the private enterprises increase their borrowing to expand business operations because of the improvement in local infrastructure. The resulting monetary expansion leads to depreciation of the exchange rate.

This model include two control variables, inflation (INF) and money supply (MS), and their signs conform to a priori expectation. Expectedly, inflation is positively signed and significant at five per cent level. The implication of this finding is that increase in inflation would lead to a

depreciation of the exchange rate. Money supply is positively signed and significant at one per cent level. Adjusted coefficient of determination shows that variations in exchange rate are sufficiently explained by variables included in the exchange rate model.

Table 7: Estimated Empirical Results in Exchange rate-Decentralization Model 3

Dependent Variable	1	2	3	4
Regressors				
EXC(-1)	1.0631** (4.5431)	0.9497** (3.9569)	1.0310* (4.4950)	0.9636* (3.6049)
EXC(-2)	-0.0940** (-0.3991)	0.0389** (0.1463)	-0.0782* (-0.3374)	0.0378** (0.1266)
INF(-1)	0.0151* (0.0708)	0.0481 (0.2540)	0.0677** (0.3179)	0.0034 (0.0167)
INF(-2)	0.1694* (0.8077)	0.2042* (0.9556)	0.1363** (0.6335)	0.2703* (1.1084)
MS(-1)	1.08E-05 (1.1263)	9.29E-06 (1.0316)	1.03E-05 (1.0800)	9.42E-06 (1.0001)
MS(-2)	1.42E-05 (1.0791)	1.04E-05 (0.8382)	1.34E-05 (1.0232)	1.04E-05 (0.7917)
FDC1(-1)	87.6915 (0.6201)	-	-	67.8870 (0.4634)
FDC1(-2)	17.9485 (0.1313)	-	-	118.4612 (0.8118)
FDC2(-1)	-	4.2348 (0.0704)	-	3.6966 (0.0501)
FDC2(-2)	-	61.0053 (1.2547)	-	-66.7879 (-1.2992)
FDC3(-1)	-	-	14.2322 (0.0731)	-
FDC3(-2)	-	-	118.5471* (0.6601)	-
C	6.8806 (0.7491)	30.1711 (1.9777)	6.8352 (0.7498)	36.8482 (1.4341)
Observations	31	31	31	31
Adj. R ²	0.9282	0.9375	0.9288	0.9331
F-Statistic	46.2712	53.5333	46.6777	40.0717
Log Likelihood	-115.4714	-113.4587	-115.3510	-112.9198
Akaike AIC	8.5842	8.4454	8.5759	8.5462

Computed from E-View 7.0

Notes Figures in parentheses are standard errors

*5% level of significance; **1% level of significance

5.2.4 Interest Rate-Decentralization

VAR estimation results for equations 38-42 in interest rate-decentralization model 4 are reported in Table 8. The three measures of decentralization, revenue measure (FDC1), expenditure measure (FDC2), and simultaneity measure (FDC3) are positively correlated with interest rate but not significant at one per cent and five per cent level as shown in Table

8. The coefficients of the lagged values of revenue and simultaneity measures of decentralization (FDC1 and FDC3) in columns (1,3,4 and 5) are positive but do not significantly influence interest rate. For the lagged values of the expenditure decentralization measure (FDC2) its coefficient is also positive and not significant. The positive signs of the coefficients of the lagged values of decentralization measures confirm that fiscal decentralization will lead to increase in the interest rate. In columns 4 and 5 of Table 8, the coefficients of the lagged values of revenue and expenditure measures of decentralization (FDC1 and FDC2) are also positive but not significant when the two measures were introduced into the interest rate model reported in columns 4 and 5 . The finding of a positive correlation between fiscal decentralization and interest rate confirms that fiscal decentralization may lead to increase in interest rate due to inadequacies in the financial system.

These models include three control variables money supply (MS), total domestic savings (TDS), and inflation (INF), and they conform to a priori expectation. Expectedly money supply is negatively signed and significant at five per cent level. Total domestic savings is positively signed and significant at one percent level. Inflation produced a negative significant impact, at one per cent level on interest rate in Nigeria over the study period. Adjusted coefficients of determination show that variations in interest rate are sufficiently explained by variables included in the interest rate models. On the basis of estimation results of interest rate-decentralization models the null hypothesis that fiscal decentralization does not significantly influence interest rate is accepted as the study revealed a positive and insignificant correlation between the three measures of fiscal decentralization and interest rate in Nigeria over the study period.

Table 8: Estimated Empirical Results in Interest Rate-Decentralization Model 4

Dependent Variable	1	2	3	4	5
INT(-1)	0.2063** (0.5772)	-0.1514* (-0.3892)	0.2096** (0.5928)	0.2557** (1.0832)	0.0058** (0.0157)
INT(-2)	-0.2802** (0.8460)	-0.3174* (0.8031)	-0.3035* (-0.8910)	-0.0239* (-0.0865)	-0.1014* (-0.2617)
MS(-1)	-5.70E-08* (-0.0488)	-1.02E-06* (-0.8490)	-1.42E-08* (-0.0122)	-6.31E-07* (-0.5236)	-1.50E-07* (-0.3499)
MS(-2)	-3.19E-07 (-0.2807)	-5.87E-07 (-0.5353)	-2.13E-07 (-0.2135)	6.28E-07 (0.5666)	1.47E-07* (0.2537)
TDS(-1)	4.51E-07 (0.1812)	2.22E-06 (0.8931)	3.79E-07 (0.1534)	1.23E-06 (0.5050)	-
TDS(-2)	5.39E-07* (0.1897)	1.45E-06* (0.5283)	2.72E-07* (0.0952)	1.63E-06* (0.5756)	-
FDC1(-1)	2.1315 (0.3102)	-	-	0.0667 (0.0101)	1.0051 (0.1498)
FDC1(-2)	0.4367* (0.0640)	-	-	4.1211 (0.5842)	2.3142 (0.3341)
FDC2(-1)	-	4.9330 (1.7836)	-	4.6918 (1.4832)	4.4019 (1.4563)
FDC2(-2)	-	1.5255 (0.5186)	-	2.8209* (0.9908)	2.2739 (0.7520)

FDC3(-1)	-	-	2.1387 (0.2210)	-	-
FDC3(-2)	-	-	5.3979 (0.5987)	-	-
INF(-1)	-0.0085 (-0.5343)	-0.0193 (-1.2377)	-0.0104 (-0.6595)	-	-0.0157 (-0.9962)
INF(-2)	0.0007* (0.0512)	-0.0054** (-0.3635)	0.0016** (0.1055)	-	-0.0004 (-0.0260)
C	1.1948 (1.6284)	3.1746 (1.8885)	1.2342 (1.7024)	1.5425 (1.6467)	2.4099 (1.4895)
Observations	31	31	31	31	31
Adj. R ²	0.811	0.821	0.8103	0.7801	0.8014
F-Statistic	15.012	15.912	15.410	13.910	14.5010
Log-Likelihood	-79.410	-78.551	-79.038	-82.632	-79.946
Akaike AIC	5.318	5.268	5.296	5.448	5.349

Source: Computed from E-View 7.0

Notes Figures in parentheses are standard errors

*5% level of significance , **1% level of significance

6.0 Conclusion

The question of whether fiscal decentralization challenges could be responsible for poor macroeconomic performance in Nigeria has been extensively investigated in this study. The application of the Vector Autoregressive (VAR) estimator with lagged decentralization variables to a set of dynamic time series data models has proved quite intuitive, robust, and immensely suitable.

The results presented in this study clearly show how fiscal decentralization impacted on macroeconomic performance in Nigeria and it equally provides a menu of policy options to be employed to address the question of underperformance relating to fiscal decentralization. The study suggests that faster economic growth may constitute additional benefit of fiscal decentralization beyond those already well recognized. The study also show that the practice of fiscal federalism in Nigeria has been inhibited by a number of factors, chief of which is long years of military rule from 1966 to 1999 that led to the centralization of fiscal operations. Besides, the study also reveals a limited degree of fiscal decentralization in Nigeria. Another striking finding in this study is the fact that fiscal decentralization is good for growth and bad for development.

Decentralization and financial autonomy are essential features of fiscal federalism. Sub national governments need to be given access to adequate resources to effectively do the job with which they are entrusted. At the same time they must also be accountable for what they do with the resources. To achieve the relevant policy objectives that relate to ensuring a stable fiscal federalism, questions on how to organize intergovernmental fiscal systems should be pragmatically addressed. These objectives include efficient allocation of resources, income distribution and macroeconomic stabilization. The attainment of these objectives will ensure macroeconomic stability. Finally, all policy changes proposed to address the challenges of fiscal federalism must be vigorously pursued so that macroeconomic stability is not jeopardized in the short and long run.

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Appendix Table A: Summary of Definition of Variables and Data Sources

Variable	Definition	Source of Data
Fiscal decentralization measure of revenue decentralization (FDC1)	Sub national own-source (internally generated) revenue as a ratio of total central (federal) revenue. Reflects the decentralization of taxing power	CBN Statistical Bulletin (2010)
Fiscal decentralization measure of expenditure decentralization (FDC2)	Sub national expenditure as a ratio of total federal expenditure. Reflects the decentralization of spending power	CBN Statistical Bulletin (2010)
Fiscal decentralization measure of simultaneous decentralization of taxing and spending powers FDC3	Sub national own-source (internally generated) revenue as a ratio of total federal expenditure. Capture the simultaneous decentralization of both powers.	CBN Statistical Bulletin (2010)
Real Gross Domestic Product (RGDP)	The broadest quantitative measure of a nation's total economic activity. It measures, in constant (2000 naira) prices, the value of economic activity within Nigeria's geographic borders, including all final goods and services produced over a period of time (usually a year).	World Bank (2010), Africa development indicator online
Inflation rate (INF)	This is the annual percentage change in consumer price index (CPI)	World Bank (2010), Africa development indicator online
Real Exchange rate (EXC)	Exchange rate index represents the relative importance of naira to all other currencies	World Bank (2010), Africa development indicator online
Real Interest rate (INT)	Real interest rate is the lending interest rate adjusted for inflation as measured by the gross domestic product (GDP) deflator.	World Bank (2010), Africa development indicator online.
Money Supply (MS)	Money supply is the sum of currency in circulation and demand deposit (M_1) at the end of period (usually a year).	CBN Statistical Bulletin (2008)
Total Domestic Savings (TDS)	Total savings deposit of commercial banks, mortgage banks, investment and property development corporation (M_3).	CBN Statistical Bulletin (2008)
Labour force (L)	Total labour force, also called the economically active population, "comprises all persons of either sex who furnish the supply of labour for the production of economic goods and services." Labour force includes people ages 15 and older who meet the International Labour Organization (ILO) definition of the economically active population	World Bank (2010), Africa development indicator online
Stock of physical capital input (K)	Stock of physical capital input per worker. The proxy for this variable is the gross fixed capital formation.	CBN Statistical Bulletin (2010)

Appendix Table B: Descriptive Statistics

	EXC	FDC1	FDC2	FDC3	INF	INT	K	L	MS	RGDP	TDS
Mean	54.31850	0.041967	0.387185	0.041800	20.53452	0.923040	513837.2	59632727	1900192.	92164.48	831644.8
Median	21.88610	0.039265	0.415766	0.047910	12.10000	0.726260	141920.2	58162391	318763.5	70832.89	108490.3
Maximum	150.2980	0.128704	0.575271	0.084579	72.80000	2.727270	2779966.	85213028	14043681	187332.5	6418259.
Minimum	0.546358	0.003603	0.194160	0.001833	5.400000	0.185440	8799.500	39918460	15100.00	47839.60	5769.900
Std. Dev.	58.13253	0.027156	0.128313	0.021594	17.95044	0.703835	780153.4	13950289	3533882.	45896.52	1613270.
Skewness	0.509169	1.080700	0.108307	0.295053	1.438239	0.962607	1.714406	0.265322	2.313869	1.103324	2.363539
Kurtosis	1.435350	4.768159	1.418783	2.789439	4.035096	3.041639	4.720315	1.825682	7.373061	2.729506	7.549471
Jarque-Bera	4.501644	10.07246	3.290094	0.507058	12.07134	4.789740	19.00847	2.144948	52.36366	6.384010	55.59715
Probability	0.105313	0.006498	0.193004	0.776057	0.002392	0.091185	0.000075	0.342161	0.000000	0.041089	0.000000
Sum	1683.874	1.300972	12.00274	1.295792	636.5700	28.61426	15928953	1.85E+09	58905956	2857099.	25780988
Sum Sq. Dev.	101381.7	0.022123	0.493929	0.013989	9666.544	14.86152	1.83E+13	5.84E+15	3.75E+14	6.32E+10	7.81E+13
Observations	31	31	31	31	31	31	31	31	31	31	31